



Notice of Panel Meeting

Notice is Hereby Given that a Meeting of the
COUNCIL ASSESSMENT PANEL

will be held by electronic platform

on

**TUESDAY, 14 APRIL 2020
at 5.00pm**

Panel members, representors and applicants eligible to be heard will be provided with log-in details prior to the meeting.

Public access to the meeting will be livestreamed at the following internet address:
<https://www.westtorrens.sa.gov.au/livestream>

**Hannah Bateman
Assessment Manager**

City of West Torrens Disclaimer

Council Assessment Panel

Please note that the contents of this Council Assessment Panel Agenda have yet to be considered and deliberated by the Council Assessment Panel therefore the recommendations may be adjusted or changed by the Council Assessment Panel in the process of making the formal Council Assessment Panel decision.

Note: The plans contained in this Agenda are subject to copyright and should not be copied without authorisation.

Please note that the above meeting may be recorded and/or live streamed without notice. All endeavours will be undertaken to ensure images in public gallery are not live streamed and or/recorded. However, no assurances can be given to that the public gallery will not be live streamed and/or recorded. It is assumed that consent has been given by any person who sits in the public gallery to broadcast their image. All representors and applicants will be notified directly should the meeting be live streamed and/or recorded.

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1 MEETING OPENED**1.1 Evacuation Procedures****2 PRESENT****3 APOLOGIES****4 CONFIRMATION OF MINUTES****RECOMMENDATION**

That the Minutes of the meeting of the Special Council Assessment Panel held on 2 April 2020 be confirmed as a true and correct record.

5 DISCLOSURE STATEMENTS

In accordance with section 7 of the *Assessment Panel Members – Code of Conduct* the following information should be considered by Council Assessment Panel members prior to a meeting:

A member of a Council Assessment Panel who has a direct or indirect personal or pecuniary interest in a matter before the Council Assessment Panel (other than an indirect interest that exists in common with a substantial class of persons) –

- a. must, as soon as he or she becomes aware of his or her interest, disclose the nature and extent of the interest to the panel; and
- b. must not take part in any hearings conducted by the panel, or in any deliberations or decision of the panel, on the matter and must be absent from the meeting when any deliberations are taking place or decision is being made.

If an interest has been declared by any member of the panel, the Assessment Manager will record the nature of the interest in the minutes of meeting.

6 REPORTS OF THE ASSESSMENT MANAGER

6.1 134-140 & 142 Marion Road, WEST RICHMOND

Application No 211/1286/2019

Appearing before the Panel will be:

Representor: **Ourania en Baslis** of 2 Trennery Street, West Richmond wishes to appear in support of the representation.

Applicant: **David Hutchison** of Access Planning wishes to appear in response to the representation on behalf of the Applicant.

DEVELOPMENT APPLICATION DETAILS

DESCRIPTION OF DEVELOPMENT	Construction of a restaurant and retail shop with drive-thru facilities and associated signage, car parking and landscaping
APPLICANT	McDonalds Australia Ltd
LODGEMENT DATE	3 December 2019
ZONE	Neighbourhood Centre
POLICY AREA	Richmond Policy Area 14
APPLICATION TYPE	Merit
PUBLIC NOTIFICATION	Category 2
REFERRALS	Internal <ul style="list-style-type: none">• City Assets• Waste Management• Arboriculture• Environmental Health External <ul style="list-style-type: none">• Department of Planning, Transport and Infrastructure (DPTI)
DEVELOPMENT PLAN VERSION	Consolidated 12 July 2018
DELEGATION	<ul style="list-style-type: none">• The relevant application is for a merit, Category 2 or Category 3 form of development, representations have been received and one or more representors wish to be heard on their representation.
RECOMMENDATION	Support with reserved matter and conditions
AUTHOR	Brendan Fewster

SUBJECT LAND AND LOCALITY

The subject land comprises three contiguous allotments that are formally described as:

- Allotment 63 Filed Plan 144691 in the area named West Richmond Hundred of Adelaide, Volume 5693 Folio 953;
- Allotment 64 Filed Plan 144692 in the area named West Richmond Hundred of Adelaide, Volume 6153 Folio 839; and
- Allotment 65 Filed Plan 144693 in the area named West Richmond Hundred of Adelaide, Volume 5849 Folio 113.

The subject land is more commonly known as 134-140 and 142 Marion Road, West Richmond. The overall site is a rectangle shape with frontages of 84.8 metres (m) to Marion Road, 44.7m to Trennery Street and 46.9m to Knight Street. The total site area is approximately 4336 square metres (m²).

It is noted that there are no easements, encumbrances or Land Management Agreements on the Certificate of Title.

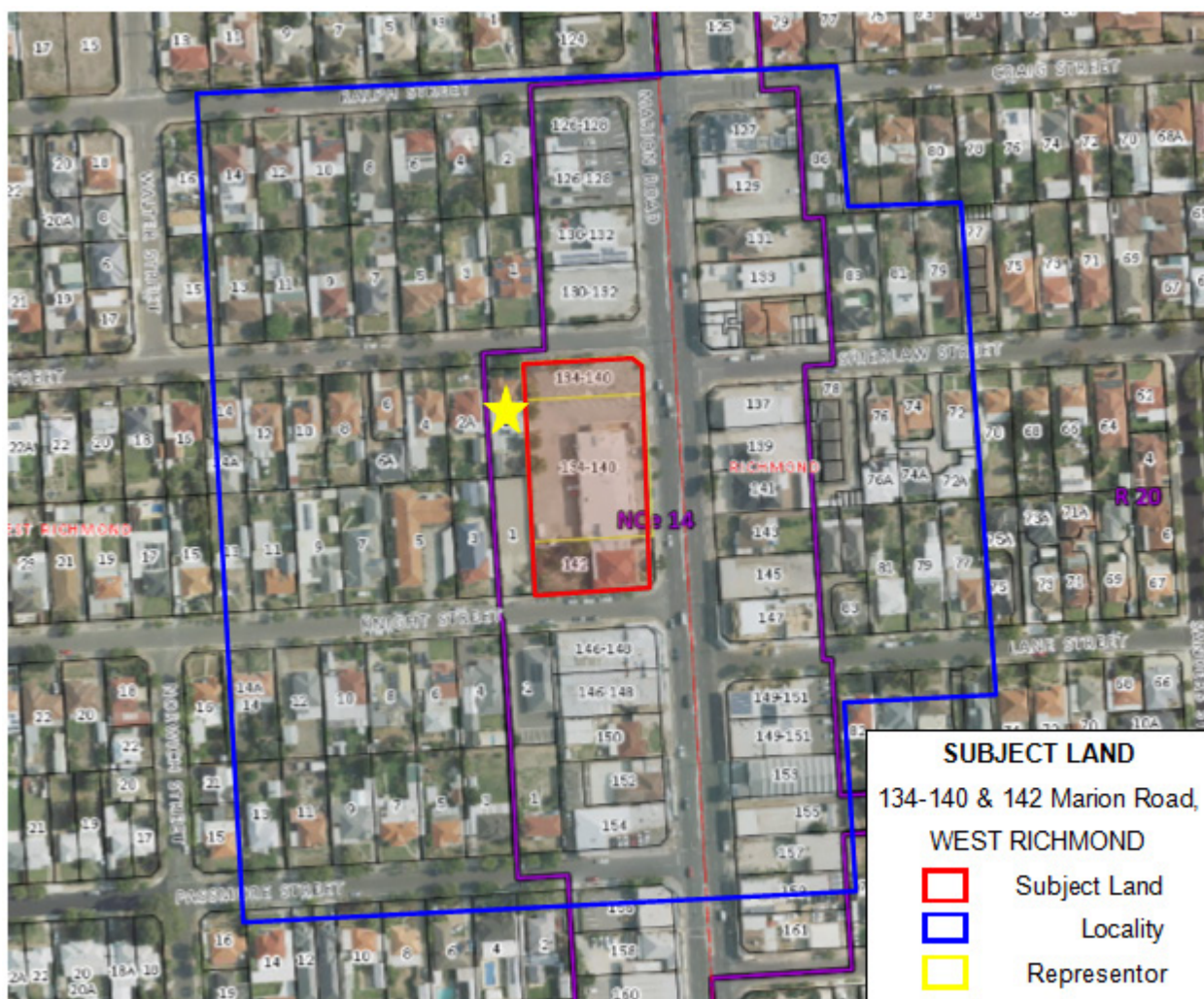
The site currently contains a single storey commercial building that is primarily used as a bottle shop (BWS). A car park is located on the northern side of the commercial building adjacent to Trennery Street. At the southern end of the site is a single storey dwelling. The site is naturally flat and is covered almost entirely by buildings and hard paved surfaces. There are no Regulated Trees on the subject site or on adjoining land.

The locality is dominated by the Marion Road corridor which comprises a mix of commercial type uses including retail shops, consulting rooms, offices, small workshops and a service station that are situated within the Neighbourhood Centre Zone. Buildings are typically single storey, although there is a two-storey office building directly opposite the subject land.

Further to the north and south along Marion Road and outside of the Neighbourhood Centre Zone to the east and west is established housing. These areas are situated within the Residential Zone and contain predominantly detached dwellings at low densities.

The amenity in the vicinity of Marion Road is relatively low, which is attributed to the mix of commercial buildings and uses and the high volume and frequency of traffic.

The subject land and locality are shown on the aerial imagery and maps below.



RELEVANT APPLICATIONS

DA Number	Description of Development	Decision	Decision Date
211/1199/19	Construction of a 12 metre high freestanding pylon sign (illuminated) - Non-Complying	Under Assessment	Under Assessment

PROPOSAL

The application is for the construction of a restaurant (McDonalds) and a retail shop (BWS bottle shop) with drive-thru facilities and associated signage, car parking and landscaping.

The following is more detailed overview of the proposed development:

McDonalds

- Construction of a commercial building with a total floor area of 427m². The building will be used as a McDonalds restaurant comprising of a dining area, kitchen and food storage areas, a playroom and party room and staff and customer amenities;
- A single level building with a feature two storey corner element. The building design is modern, with a flat roof behind parapet walls, a canopy over glass windows and doors and aluminium cladding finished in colours that reflect the McDonalds branding;

- Drive-thru facilities, waiting bays and service areas adjacent to the building;
- 24 hour operation, seven days a week (i.e. no closure);
- An at-grade car park with 19 spaces located between the Marion Road frontage and the proposed building;
- A new in-only access onto Marion Road and in/out access onto Trennery Street;
- Bicycle rails near the building entrance;
- Landscaping along the road frontages and adjacent to the proposed building and drive-thru; and
- Advertising and directional signage comprising illuminated fascia signs, freestanding drive-thru signs and two flag poles.

BWS

- Construction of a commercial building with a total floor area of 450m² (including drive-thru). The building will be used as a BWS bottle shop comprising a retail display area, stock room, cool room and staff amenities;
- A single storey building designed with a flat roof behind parapet walls, a large roller door that provides access to the drive-thru and main shop entrance and rendered cladding finished in colours that reflect the BWS branding;
- Drive-thru facilities with two-lanes;
- No change to current operating hours;
- An at-grade car park with 20 spaces located between the Marion Road frontage and the proposed building;
- A new in/out access onto Knight Street;
- Bicycle rails near the building entrance;
- Landscaping along the road frontages and adjacent to the proposed building and rear boundary; and
- New directional signage and retention of the existing pylon sign.

The relevant plans and documents are contained in **Attachment 2**.

PUBLIC NOTIFICATION

The application is a Category 2 form of development pursuant to Schedule 9, Part 2, Clause 19 of the *Development Regulations 2008*.

Properties notified	67 properties were notified during the public notification process.
Representations	One (1) representation was received.
Persons wishing to be heard	One (1) representor wishes to be heard. <ul style="list-style-type: none"> • Ourania en Baslis of 2 Trennery Street, West Richmond
Summary of representations	Concerns were raised regarding the following matters: <ul style="list-style-type: none"> • Traffic management • Emissions • Noise • Property values

Applicant's response to representations	<p>Summary of applicant's response:</p> <ul style="list-style-type: none"> • A traffic and car parking report has been provided by GTA Consultants that confirms the vast majority of traffic exiting the McDonald's development will exit to the east back to Marion Road, with only local traffic exiting to the west past the representor's property. • The kitchen will be operated in accordance with the Food Standards Code under the Food Act 2003 and Australian Standard 4674 – Design, Construction and Fit out of Food Premises and will accord with the Environment Protection (Air Quality) Policy 1994, under the Environment Protection Act, both of which are intended to minimise the potential for the site to generate cooking odours. • All waste will be stored in the proposed waste storage area (corral). This area is of a sufficient size to accommodate the number of required bins and will be cleaned regularly as part of the premises on-going operation. • Acoustic treatments included as a part of the application involve the construction of a 1.8 metre high acoustic (lapped timber paling) fence along the western boundary of the site, where it abuts the existing house. • The proposed acoustic amelioration measures will have the additional benefit of screening existing background noise from traffic movement along Marion Road. • The loss in property value is not a relevant matter for consideration is the assessment of a development application.
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A copy of the representations and the applicant's response is contained in **Attachment 3**.

INTERNAL REFERRALS

Department	Comments
City Assets	<ul style="list-style-type: none"> • The FFLs of the proposed development have been assessed as satisfying minimum requirements in consideration of street and/or flood level information. • Council strongly suggest that the temporary construction access should be relocated off Marion Road, to avoid potential issues (i.e. drag out, traffic etc.) that may arise during construction stage. • Relocation of bus stop - addressed by DPTI. • As the parking provision would be 39 spaces, the estimated parking shortfall would therefore be 3 spaces. Typically, with the provision of bicycle parking and the proximity of the site to bus services, a 10% discount to the parking requirement would be accepted to encourage the use of other modes of transport. I am satisfied that adequate parking would be provided for the development. • An additional disabled parking space should be provided. • The turn path assessment shall be reviewed by the Applicant with the on-street parking on the southern side of Knight Street being retained.

	<ul style="list-style-type: none"> • Further clarification should be provided by the Applicant to show how safe access can be provided for pedestrians to and from the liquor store. • The proposed entry-only lane in Marion Road is of concern. • Given the size of the service vehicle and the acute angle of the exit to Trennery Street, there are concerns with the impact of this vehicle on Trennery Street. • The No Stopping controls on the southern side of Trennery Street abutting the subject site and on the northern side abutting the existing petrol station site are supported. • Servicing of the fast food outlet should be restricted to off-peak periods only - 7am to 10am. • The proposed direct egress from the drive through of the fast food outlet to Trennery Street would be acceptable. • The SIDRA assessment for the future conditions shows that the degree of saturation would exceed 1.0 and that queues would be quite extensive, for example 81m in Trennery Street which would extend beyond the boundary of the site. • Stormwater management plan has been provided, however, no supporting calculation has been attached. <p>Initial concerns raised by City Assets have been resolved by way of amendments, particularly in vehicle access and traffic management. City Assets are now satisfied with the proposal subject to the inclusion of conditions that are outlined in the recommendation.</p>
Waste Management	<ul style="list-style-type: none"> • BWS - more information is requested regarding bin store to be placed adjacent to the loading bay. • McDonalds - the proposed waste management solution for McDonalds is endorsed. It is recommended that McDonalds install public bins in the carpark and at the drive-through exit to contain possible litter from escaping the property boundary.
Arboriculture (Street Trees)	<ul style="list-style-type: none"> • A site investigation has revealed and together with the information provided that at Knight Street, there are four existing Fraxinus griffithii (Flowering Ash) street trees adjacent this development. The street tree located 16.3m from the western boundary and the street tree located 25.9m are both in conflict with the proposed crossover location on Knight Street. City operations will support the removal of these two existing street trees to accommodate this crossover location. • On Marion Road frontage there are two existing Callistemon harkness (bottlebrush) street trees that are in conflict with the proposed crossover location and also the potential location for the relocated bus stop. City Operations in this instance will support the removal of these two existing street trees.
Environmental Health	<ul style="list-style-type: none"> • Compliance with the Food Safety Standards 3.2.2 & 3.2.3 is required to be achieved during the fit out and operation of the premises. • Should the development proceed the proprietor is strongly encouraged to contact the City of West Torrens Environmental Health Department to arrange a pre-opening / fit-out advice inspection.

EXTERNAL REFERRALS

Department	Comments
DPTI	<ul style="list-style-type: none"> The department is supportive of the proposed access arrangements as they improve the safety and efficiency of Marion Road. From the analysis undertaken by GTA, it would appear that the right turn lanes in to the above roads will have sufficient capacity to cater for the development. Consequently, DPTI does not require any upgrading of Marion Road to support the development. In order to ensure the ingress only operation of the access, it is recommended that the access be modified so that it is angled at 70 degrees to the road. The proposed location of this access requires the relocation of the existing bus stop. The relocated bus stop will need to be DDA compliant. It is noted that the Trennery Street access appears not to meet figure 3.1 in AS/NZS 2890.1:2004 and that the angle of the access is not ideal due to the tight entry turn and exiting vehicles not approaching the road at 90 degrees. The department considers that the proposed parking restrictions along Knight Street will be necessary to ensure the safe movement of vehicles along this section of Knight Street as well as to minimise the potential for vehicles to queue from the site access to the adjacent junction. Given the proximity of the loading bays to the access points, there is a potential for some conflict between service vehicle movements and other vehicles accessing the site. The proposal includes both signage and landscaping. The department considers that the proposed illuminated signage is acceptable provided that luminance is limited to 150cd/m2. The Department of Planning, Transport and Infrastructure supports the proposed development and advises the planning authority to attach conditions to any approval

A copy of the relevant referral responses are contained in **Attachment 4**.

RELEVANT DEVELOPMENT PLAN PROVISIONS

The subject land is located within the Neighbourhood Centre Zone and, more specifically, Richmond Policy Area 14 as described in the West Torrens Council Development Plan.

The relevant Desired Character statements are as follows:

Richmond Policy Area 14 - Desired Character:

This policy area will function as a neighbourhood centre providing a range of services and facilities to cater for the daily and weekly needs of the surrounding population. Currently, a diverse range of facilities is provided, with the exception of a supermarket. The policy area should have a maximum total gross leasable retail floor space in the order of 2500 square metres.

Retailing will be the predominant activity in the area marked 'Retail Core' on the Concept Plan Map WeTo/22 - Richmond Neighbourhood Centre.

The eastern side of Marion Road will accommodate a range of offices, service, commercial, community and entertainment facilities, bulky goods outlets and a limited range of small-scale low traffic generating retail outlets.

New development will have limited setbacks from the Marion Road property boundary and provide a continuous built-edge to the street with unifying features such as verandas and similar façade treatment. Buildings will incorporate verandas along the street frontage for pedestrian comfort. Car parking areas will be provided to the rear of buildings with access from the side streets. Densely planted landscape buffers will be provided along the interface of the centre and adjoining zones.

Additional provisions of the Development Plan which relate to the proposed development are contained in **Attachment 1**.

ASSESSMENT

In assessing the merits or otherwise of the application, the proposed development is discussed under the following sub headings:

Land Use Suitability

The subject land is situated within the Neighbourhood Centre Zone and more particularly is within Richmond Policy Area 14. The land is currently occupied by a dwelling and a single storey commercial building that is primarily used as a BWS bottle shop. The bottle shop will be sited to the south-western end of the subject land, with the associated drive-thru facility attached to the eastern side of the building parallel to Marion Road.

Objective 1 and PDC 1 of the Neighbourhood Centre Zone envisage a range of commercial and community uses such as shops, restaurants, consulting rooms and community facilities. The Desired Character for the Policy Area also supports *"a range of services and facilities to cater for the daily and weekly needs of the surrounding population"*. In particular, PDC 5 of the Policy Area requires development to be in accordance with the Concept Plan for the Richmond Neighbourhood Centre. As identified on the concept plan, the subject land is within the "Retail Core", which is an area where retail land uses are encouraged. The proposed buildings will be used for the retailing of food and beverages in the form of a restaurant and bottle shop. The proposed restaurant and retail shop is therefore an envisaged form of development from a general land use perspective.

The zone provisions provide minimal guidance as far as the scale and intensity of the development is concerned (i.e. no floor area limitations). Objective 1 and PDC 2 of Richmond Policy Area 14 provide general guidance for the whole of the policy area whereby *"a maximum total gross leasable retail floor space in the order of 2500 square metres"* is recommended. While it is likely that the existing retail floor space within the policy area would already exceed 2500m², the proposed development would result in only a small floor area increase. The existing retail building on the land, which has a gross floor area of approximately 800m², would be replaced with two separate retail buildings with a combined floor area of 877m². The increase in floor area of 77m² or 10% is considered to have a negligible impact in terms of the overall retail function of the Neighbourhood Centre Zone. If the drive-thru area for the bottle shop were to be excluded from the retail floor space as this area is not used for the display of goods, the proposed retail floor space on the site would be reduced by approximately 100m².

From a 'centres hierarchy' perspective, the Development Plan is seeking development in the Neighbourhood Centre Zone that is larger than what is typically envisaged within a Local Centre Zone yet smaller than that envisaged within a District Centre Zone. It is noted that PDC 1 of the Local Centre Zone prescribes a *"maximum gross leasable floor area in the order of 450 square metres"* for a shop. In the District Centre Zone, it is reasonable to expect developments with large floor areas (i.e. well in excess of 450m²) as such development should serve a significantly wider catchment. The floor area of the proposed buildings would be in the order of 450m², which is no greater than the maximum floor area allowable for a shop within the Local Centre Zone.

Therefore, in terms of the 'centres hierarchy' envisaged by the Development Plan, the scale and intensity of the proposed development is considered to meet the intent of the Neighbourhood Centre Zone and Richmond Policy Area 14.

Accordingly, the proposed development would not entrench an incompatible land use within the locality or undermine the Objectives of the Neighbourhood Centre Zone as the *"main focus of business and community life outside a district centre"*.

Built Form, Scale and Streetscape

The Development Plan provisions promote contemporary and innovative building designs provided there is sufficient regard for the Desired Character of the area. New development that provides a continuous built-edge to the street with unifying feature is desirable within the zone and policy area.

The proposed restaurant building is of a modern design with a flat roof behind parapet walls and a canopy above glass windows and doors. The building design is of a high commercial standard and is finished in colours that reflect the McDonalds business identification.

The design of the shop building is simple, with a flat roof behind parapet walls and a large roller door. The building would also be finished in colours that reflect the BWS brand. Although the building displays some continuous blank walling that would be readily visible from the Marion Road frontage, the significant road boundary setback of 24 metres and dense landscaping immediately adjacent to the wall and within the car park would sufficiently soften and provide some screening effect to the solid built form.

While it is desirable for buildings to have limited setbacks from Marion Road and for car parks to be provided to the rear of buildings with access from side streets, the requirement for drive-thru facilities for the shop and restaurant means that car parking is better suited in front of the buildings in order to facilitate safe and convenient vehicle movements through the site. It would also better protect the amenity of those existing residential properties at the rear of the site as most of the vehicle noise would be confined to Marion Road. The siting of the proposed buildings would be consistent with other commercial developments within the locality and would allow for the provision of landscape buffers along all property boundaries.

The proposed BWS building will have a maximum height of 5.7 metres while the McDonalds building will be slightly taller at 7.25 metres. Both buildings are well within the maximum building height of 8.5 metres prescribed by PDC 5 of the Policy Area.

The design and appearance of the proposal is of a high commercial standard and when considered against the existing site conditions and the intent of the Neighbourhood Centre Zone, the proposed development would respond positively to the surrounding built form character. PDC 5 of Richmond Policy Area 14 and Objective 1 and PDC 1 of the General Section (Design and Appearance) are therefore satisfied.

Interface and Operational Considerations

The subject land interfaces with residential properties immediately to the west along Trennery Street and Knight Street and non-sensitive land uses such as offices and shops to the north and south and on the opposite side of Marion Road. The owner of no. 2 Trennery Street that adjoins the western (rear) boundary of the subject land has submitted a representation and raised concerns with the potential noise, odour and traffic nuisance. It is noted that this property is situated within the Neighbourhood Centre Zone and not the Residential Zone.

Objective 1 and PDC 1 and 2 of the General Section (Interface between Land Uses) seek to ensure that new development is designed and operated in a manner that adequately protects the amenity of the locality. In terms of odour management, the kitchen for the restaurant will be required to meet the exhaust ventilation requirements of the Environment Protection Authority to prevent impacts on surrounding residents. The ventilation system is required to comprise a collecting hood, grease filters, motor operated fan and a duct. Council's Environmental Health Department is required to inspect/audit the premises prior to the operation of the commercial kitchen.

While the proposal would generate more traffic than the current use of the site due to the provision of a new restaurant with 24 hour operation, the amount of noise and general disturbance is not expected to be significant in the context of the site and surrounding area, which is exposed to high volumes and frequency of traffic on Marion Road and noise from Adelaide Airport. To minimise noise exposure to the residential properties at the rear of the site, a new 2.1 metre high timber acoustic fence is to be erected along the extent of the western boundary that abuts 2 Trennery Street. The existing masonry wall of the Deliveries and waste collection will also be restricted to between 7.00am and 7.00pm Monday to Saturday and between 9.00am and 7.00pm on a Sunday. These measures would ensure the development can meet the goal noise levels of the *Environment Protection (Noise) Policy 2007* at all times.

From a traffic perspective, there would be minimal impact on surround residential streets as most vehicles to access the site would be passing traffic on Marion Road, particularly given that Trennery Street and Knight Street are no-through roads as they adjoin the Adelaide Airport. As considered in the traffic and car parking section below, there is sufficient car parking provided as well as capacity on-site for vehicle queuing and delivery vehicles.

Accordingly, the proposal would not adversely impact upon the amenity of nearby sensitive uses by way of noise, odour or traffic. The proposal is considered to satisfy Objectives and Principle of Development Control 1 and 2 of the General Section (Interface between Land Uses).

Vehicular Access, Car Parking and Traffic

The Development Plan provisions seek to ensure that new development provides safe and convenient access for vehicles and pedestrians and sufficient on-site car parking for patrons and staff.

The proposal includes a new angled in-only access from Marion Road, an in/out access onto Trennery Street and an in/out access onto Knight Street. The three existing access points on Marion Road will be closed and reinstated to kerb and gutter while the existing access at the western end of the Trennery Street frontage will be modified. While DPTI is "*supportive of the proposed access arrangements as they improve the safety and efficiency of Marion Road*", some modifications to the design of the Marion Road access and the Trennery Street have been requested to ensure that vehicles can access the site in a safe and convenient manner at all times. The applicant has amended the access points accordingly.

Council's traffic engineer has also raised concerns with the Trennery Street access given the size of the service vehicle and the acute angle of the exit to Trennery Street. The changes to this access point is considered to address Council's concerns. The conditions recommended by DPTI have also been included. The proposed access arrangements are considered to be safe and convenient in accordance with PDC 24 of the General Section (Transportation and Access).

In terms of vehicle queuing, Council's traffic engineer has raised concerns with the potential for traffic conflicts on Marion Road should queuing take place at the McDonalds drive-thru. This matter has been further reviewed by GTA Consultants and it has been determined that there is sufficient area for queuing within the confines of the site, particularly given that the drive-thru has dual ordering lanes. The proposal is therefore unlikely to result in vehicles queuing on adjacent roads, thus minimising interference with the free flow of traffic in accordance with PDC 24 of the General Section (Transportation and Access).

A new at-grade car park with a total of 39 spaces will be provided between the Marion Road frontage and the proposed buildings.

For the purposes of a car parking assessment, *Table WeTo/2 – 'Off Street Vehicle Parking Requirements'* prescribes the following car parking rates:

- Shop - 7 spaces per 100m² of gross leasable floor area for a shop; and
- Restaurant - greater of 1 space per 3m² of total floor area (internal and external seating) or 1 space per 2 seats (internal seating) and a car queuing area for a maximum of 12 vehicles with 4 car spaces back from the ordering point.

Based on 70 seats within the restaurant and the bottle shop having a retail floor area of 272m² (excluding the drive-thru), there is a Development Plan requirement for at least 42 car parking spaces. While there would be a shortfall of 3 spaces, Council's traffic engineer considers both car parking rates to be excessively high, particularly for the bottle shop which is typically 3 spaces per 100m². If this reduced rate was adopted, the proposal would generate a car parking demand for only 32 spaces. When the car parking demand is assessed conservatively (i.e. based on Table WeTo/2), the provision of 39 spaces is considered adequate. PDC 34 of the General Section (Transportation and Access) is therefore satisfied.

Given that the subject site is adjacent to an arterial road and would generate additional traffic movements, the applicant has provided a Parking and Traffic Management Report prepared by a GTA Consultants. The report concludes that:

- The provision of 39 car parking spaces will provide adequate parking based on empirical data for other similar McDonalds and BWS stores;
- The proposed parking layout is consistent with the Australian Standards;
- Adequate bicycle parking is provided;
- The proposal will consolidate four existing driveways on Marion Road to one entry only driveway;
- The proposed loading docks will accommodate a rigid service vehicle which can enter and exit the site in a forward direction;
- The development is expected to generate up to 180 vehicle movements in peak hour, which would occur outside of the peak period for the road network;
- There is adequate capacity on the surrounding road network to cater for the generated traffic;
- The side street network would provide no benefits to road users as there is limited connectivity to other main roads;
- Any queuing which may occur can be accommodated on the site; and
- Parking restrictions on each side of Knight Street and Trennery Street should be maintained to enable access for service vehicles.

The proposal has been reviewed by Council's traffic engineer, and while some initial concerns were raised with some access arrangements and traffic flows, the matters have since been adequately addressed by the applicant and reflected in the amended plans.

Given the above considerations, the proposal would sufficiently meet the anticipated car parking demand generated during peak periods and would not lead to conditions detrimental to the free flow and safety of pedestrian and vehicular traffic on the surrounding road network.

Deliveries and Waste Management

Waste collection and delivery of goods would take place via a large articulated vehicle. The vehicle would enter and exit the BWS site from Knight Street while for the McDonalds site the vehicle would enter from Marion Road and exit via Trennery Street. Waste collection would occur at least once a week by a private contractor.

For the McDonalds restaurant, commercial size waste bins will be stored within the main building and collected from the designated service area adjacent to the southern side of the building. The storage of the bins within the building would contain odours and ensure the bins are not visible from public areas. Waste bins and pallets for the BWS bottle shop will also be provided within the building. As most waste consists of cardboard packaging, there is adequate area within stockroom for the waste storage.

Council's Team Leader Waste Management has reviewed the proposed waste management arrangements, and while additional information for the BWS bottle shop was initially required, the proposed arrangements have been supported. A condition of consent has been included to ensure that waste collection and deliveries take place between 7.00am and 7.00pm Monday to Saturday, except for deliveries for the restaurant which should be restricted to off-peak periods (7.00am to 10.00am) to minimise traffic conflicts.

The proposal is considered to satisfy PDC 2, 5 and 6 of the General Section (Waste).

Crime Prevention and Public Safety

Objective 1 of the General Section (Crime Prevention) seeks to ensure that public safety is carefully considered in all new development. The proposed development incorporates the following crime prevention measures:

- mostly low lying shrubs along the road frontages and adjacent to car parking areas;
- locating car parking areas adjacent to Marion Road;
- defined and legible internal walking paths for pedestrian connectivity;
- lighting provision within the new car parks and around the curtilage of the buildings;
- 24-hour operation of the restaurant; and
- security patrols to be employed as required.

The above building design, lighting, landscaping and security measures would ensure adequate passive and active surveillance from within the site and from adjacent road frontages. The relative openness of the new car parking areas and the separation between the proposed buildings and property boundaries would also ensure there are no areas for potential entrapment in accordance with PDC 10 of the General Section (Crime Prevention).

The proposed development is considered to achieve a safe and secure public environment.

Trees and Landscaping

A detailed landscape plan has been prepared that proposes a mix of trees, shrubs and ground covers to provide shade and visually soften the car parks, road frontages and the built form. The proposed landscaping is comprehensive and would provide a soft setting for the proposed buildings as well as provide some visual screening between the adjacent residential area to the west. The amount of proposed landscaping would exceed the minimum landscaping requirement of 10 percent of the site.

The proposed landscaping would therefore enhance the overall appearance and amenity of the development in accordance with PDC 4 and 5 of Richmond Policy Area 14 and PDC 1, 4 and 5 of the General Section (Landscaping, Fences and Walls).

There are no Regulated Trees on the site or on adjoining land that would be impacted by this development.

Stormwater Management

The proposed development includes an engineered stormwater management system designed by Richmond & Ross Consulting Engineers for the on-site management of stormwater runoff from the proposed building, car parking areas and other impervious surfaces. The stormwater system incorporates a series of sumps, swales, gross pollutant traps and bio-remediation basins.

Although Council's City Assets Department is satisfied in principle with the civil design, as the stormwater design does include appropriate supporting calculations or detention requirements, a Reserved Matter is recommended so that these matters can be addressed prior to the granting of Development Approval.

Advertising

The proposed McDonalds restaurant includes various fascia signs and directional/informative signs for the drive-thru facility. All of the signs will be internally illuminated and will display the McDonalds logo or related brand information. Two flag poles are also to be provided adjacent to the Marion Road frontage. The proposed advertising displays are coordinated and complementary to the proposed businesses in terms of their size, scale and appearance. The number of signs and their siting is such that they would not cause distraction to drivers on the adjacent road network.

For the BWS bottle shop, directional signage and a series of advertising poster boards will be provided within the drive-through building and on the outside of the front wall facing Marion Road. These signs are not development under to Schedule 3 of the Development Regulations 2008 and therefore do not require approval. The existing pylon sign adjacent to the south-eastern corner of the site will be retained.

PDC 1, 2, 4, 8 and 14 of the General Section (Advertisements) is satisfied.

SUMMARY

Having considered all the relevant Objectives and Principles of the Development Plan, the proposal is considered to be not seriously at variance with the Development Plan.

In particular, the proposal:

- is an orderly and desirable form of development in the context of the site and its locality;
- comprises envisaged land uses that are of a scale and intensity that would not undermine the Objectives of the Neighbourhood Centre Zone and Richmond Policy Area 14;
- is appropriately designed in a contemporary manner that would contribute positively to the surrounding built form character;
- would not significantly impact upon the amenity of nearby residential properties or the locality as appropriate measures will be adopted for the management of noise, odour, light spill and waste;
- provides sufficient on-site car parking and safe and convenient access so as not to lead to conditions detrimental to the free flow and safety of pedestrian and vehicular traffic within the site and on the adjacent road network;
- incorporates appropriate measures for passive and active surveillance in order to achieve a safe and pleasant public environment;
- includes significant landscaping that would enhance the overall appearance of the development and assist with the screening of surrounding residential properties; and
- provides advertising that is coordinated and complementary to the respective business and designed and located to avoid visual clutter and driver distraction.

For all of the above reasons, the proposal would achieve the Objectives and Desired Character for the Neighbourhood Centre Zone and sufficiently accords with the relevant provisions of the West Torrens Council Development Plan. Accordingly, the application warrants the granting of Development Plan Consent subject to reserved matters and conditions.

RECOMMENDATION

The Council Assessment Panel, having considered all aspects of the report, the application for consent to carry out development of land and pursuant to the provisions of the *Development Act 1993* resolves to GRANT Development Plan Consent for Application No. 211/1286/2019 by McDonalds Australia Ltd to undertake the construction of a restaurant and retail shop with drive-thru facilities and associated signage, car parking and landscaping at 134-140 & 142 Marion Road, West Richmond (CT5693/953, CT6153/839 & CT5849/113) subject to the following conditions of consent and reserved matters:

Reserved Matters:

The following information shall be submitted for further assessment and approval by the City of West Torrens as reserved matters under Section 33(3) of the *Development Act 1993*:

1. A final access and parking plan shall be submitted to the satisfaction of DPTI and Council prior to construction. This plan shall include:
 - The Marion Road access being angled at 70 degrees to the road to reinforce its ingress only operation.

- Modifications to the Trennery Street access to ensure that it meets figure 3.1 in AS/NZS 2890.1:2004 and the Trennery Street driveway is designed to meet the access at 90 degrees (or as close as practicable).
 - Modifications to the waiting bay egress to ensure that vehicles exiting the site cross the boundary at 90 degrees (or as close as practicable).
2. A Construction Management Plan (CMP) for the proposed development. The CMP should identify potential issues and appropriate measures to minimise impacts and disruption to surrounding residents and business owners during the construction phase of the development. The plan shall also detail the types, volumes and distributions of traffic and how they will be managed.
 3. A detailed stormwater management system and computations for the development. The stormwater management system shall include:
 - a. Harvesting and re-use of stormwater runoff from the control building and impervious surfaces that is to be designed by a suitably qualified stormwater/civil engineer to demonstrate the most economical and sustainable solution for the development;
 - b. Stormwater detention measures to demonstrate that the stormwater discharge from the development would be equivalent to having a 0.25 runoff coefficient for a critical 20-year ARI storm event; and
 - c. Stormwater quality improvement measures that are demonstrated to satisfy the State Government Water-Sensitive Urban Design policy guidelines.
 4. Construction details of the timber acoustic fence to be located along the western boundary.

Pursuant to Section 42(1) of the *Development Act 1993*, the Council reserves its decision on the form and substance of any further conditions of Development Plan Consent that it considers appropriate to impose in respect of the reserve matters outlined above.

Development Plan Consent Conditions:

1. The development must be undertaken, completed and maintained in accordance with the plans and information detailed in this Application except where varied by any conditions listed below:
 - Site Plan prepared by Richmond & Ross Pty Ltd dated 25/03/20, Drawing No. 2.9 Rev. C;
 - Ground Floor Plan prepared by Richmond & Ross Pty Ltd dated 11/11/19, Drawing No. 3.0 Rev. B;
 - External Elevations prepared by Richmond & Ross Pty Ltd dated 13/11/19, Drawing No. 3.5 & 3.6 Rev. C;
 - Site Signage Plan prepared by Richmond & Ross Pty Ltd dated 25/03/20, Drawing No. 3.7 Rev. C;
 - Signage Details prepared by Richmond & Ross Pty Ltd dated 11/11/19, Drawing No. 3.8 Rev. B;
 - Overall Site Plan prepared by Richmond & Ross Pty Ltd dated 25/03/20, Drawing No. A041 Issue. H;
 - Overall Site Plan prepared by Richmond & Ross Pty Ltd dated 25/03/20, Drawing No. A062 Issue. H;
 - Proposed Floor Plan prepared by Richmond & Ross Pty Ltd dated 03/10/19, Drawing No. A101 Issue. F;
 - Front & Side Building Elevations prepared by Richmond & Ross Pty Ltd dated 03/10/19, Drawing No. A201 Issue. F;
 - Drivethru Building Elevations prepared by Richmond & Ross Pty Ltd dated 14/11/19, Drawing No. A202 Issue. G;

- Finishes Schedule prepared by Richmond & Ross Pty Ltd dated 03/10/19, Drawing No. A205 Issue. F;
- Site Signage Plan prepared by Richmond & Ross Pty Ltd dated 25/03/20, Drawing No. A801 Issue. H;
- Signage Details prepared by Richmond & Ross Pty Ltd dated 03/10/19, Drawing No. A806 & A807 Issue. F;
- Detailed Landscape Plan prepared by Taylors dated 26/11/19, Drawing No. L01: Overall Layout & L02: Landscape Details;
- Drainage Plan prepared by Richmond & Ross Pty Ltd dated 25/03/20, Drawing No. C101 Issue. B;
- Notes and Schedules prepared by Richmond & Ross Pty Ltd dated 06/12/19, Drawing No. C110 Issue. A;
- OSD Tank & Bio Basin Details prepared by Richmond & Ross Pty Ltd dated 06/12/19, Drawing No. C111 Issue. A;
- Concept E & S C Plan prepared by Richmond & Ross Pty Ltd dated 25/03/20, Drawing No. C301 Issue. B;
- Erosion & Sedim. Control Details prepared by Richmond & Ross Pty Ltd dated 06/12/19, Drawing No. C310 Issue. A;
- Stormwater Management Plan prepared by Richmond & Ross Pty Ltd dated December 2019;
- Planning Report prepared by Access Planning dated 02/12/19;
- Transport Impact Assessment prepared by GTA Consultants dated 29/11/19; and
- Correspondence prepared by GTA Consultants dated 25/03/20.

Reason: To ensure the proposal is developed in accordance with the approved plans

2. Waste collection and the delivery of goods shall take place between the hours of 7.00am and 7.00pm Monday to Saturday and between 9.00am and 7.00pm on Sunday, except for deliveries for the restaurant which shall take place only between 7.00am to 10.00am Monday to Saturday.

Reason: To ensure traffic safety and to maintain the amenity of the locality.

3. All solid waste shall be stored in bins/containers having a close fitting lid. The bins/containers shall be stored within the bin enclosure areas that are identified on the approved plans. Collection of waste shall be carried out at least once a week by a private contractor and within the approved collection hours (refer to condition 2).

Reason: To ensure minimal disturbance to surrounding properties and to maintain the amenity of the locality.

4. All materials, refuse and goods shall at all times be loaded and unloaded within the confines of the subject land.

Reason: To ensure traffic safety and to maintain the amenity of the locality.

5. All driveways, parking and manoeuvring areas will be formed, surfaced with concrete, bitumen or paving, and be properly drained prior to occupation, and shall be maintained in reasonable condition at all times to the satisfaction of Council.

Reason: To ensure safe and convenient vehicle access and to suppress dust.

6. All car parking areas shall be marked in a distinctive fashion to delineate the parking spaces, prior to the occupation of the development.

Reason: To ensure usable and safe car parking.

7. The proposed car parking layout and access areas and vehicle head clearances shall conform to Australian Standard AS 2890.1:2004- Off-street Car parking and Australian Standard 2890.6:2009 - Off-Street Parking for People with Disabilities.

Reason: To provide adequate, safe and efficient off-street parking for users of the development.

8. Driveway, car parking spaces, manoeuvring areas and landscaping areas shall not be used for storage or display of materials or goods.

Reason: To ensure the development proceeds in an orderly manner.

9. All landscaping shall be planted in accordance with the approved plans (Detailed Landscape Plan, L01: Overall Layout dated 26 November 2019) prior to the occupation of the development. Any person(s) who have the benefit of this approval will cultivate, tend and nurture the landscaping and shall replace any plants which may become diseased or die.

Reason: To enhance the amenity of the site and locality and to mitigate against heat loading.

10. No more than 70 seats shall be provided within the restaurant at any one time.

Reason: To ensure adequate on-site car parking is available.

11. Floodlighting within car park and around the buildings shall be restricted to that necessary for access and security purposes only and be directed and shielded in such a manner as to cause no light overspill nuisance of nearby properties.

Reason: To maintain visual amenity and public safety in the locality.

12. The advertising displays shall not contain any elements that flash, scroll or move.

Reason: To maintain visual amenity and traffic safety.

13. The internal illumination of the advertising displays shall be such that no hazard, difficulty or discomfort is caused to either approaching drivers on adjacent public roads or nuisance to adjoining residents.

Reason: To maintain visual amenity and traffic safety.

14. The timber acoustic fence to be located along the western boundary as detailed on Detailed Landscape Plan, L01: Overall Layout & L02: Landscape Details dated 26 November 2019 shall be constructed prior to occupation of the development.

Reason: To minimise noise impacts and to maintain the amenity of the locality.

Conditions imposed upon recommendation of DPTI

15. The largest vehicle permitted to access the site shall be a 14 metre semi-trailer.
16. All vehicles shall enter and exit the site in a forward direction.

17. All vegetation adjacent to the Marion Road/Knight Street and Marion Road/Trennery Street junctions and the Marion Road access shall be low growing (i.e. less than 1.0m tall) to maximise sight lines at these locations.
18. A Traffic Management Plan for the construction period of the development shall be produced to the satisfaction of DPTI and Council prior to the commencement of construction. This plan shall detail the types, volumes and distributions of traffic and how they will be managed. All traffic movements shall be in accordance with this plan.
19. Any redundant crossover/s shall be closed and reinstated to Council's satisfaction at the applicant's cost prior to the development becoming operational.
20. The existing bus stop adjacent the Marion Road frontage of the site shall be relocated to the satisfaction of DPTI and Council. The relocated bus stop will need to be DDA compliant. The applicant shall contact Mr Wayne Stewart, Senior Project Officer, Public Transport Services on telephone (08) 7109 7240 or via email wayne.stewart@sa.gov.au to discuss this relocation. All costs with this work shall be borne by the applicant. These works shall be completed prior to operation of the development.
21. Any infrastructure within the road reserve that is demolished, altered, removed or damaged during the construction of the project shall be reinstated to the satisfaction of the relevant asset owner, with all costs being borne by the applicant.
22. All stormwater run-off shall be collected on-site and discharged without jeopardising the integrity and safety of the adjacent road network. Any alterations to drainage infrastructure required to facilitate this shall be at the applicant's cost.

Notes

- The removal of a four (4) street trees adjacent to the property is necessary to accommodate the proposed driveway access. Only a Council staff member is permitted to alter or remove any street tree and will only be undertaken upon payment of the determined fee by the applicant.

Based on Council's standard schedule of fees and charges, a fee for the removal of the street trees is currently valued at \$3220.00. The fee stated is a value for the current financial year and will vary depending upon the year of removal, which is due to annual price increases and changes to the tree.

If the street trees are removed outside of this financial year, a further inspection and re-valuation of the street trees will be undertaken and the tree removal fee will be amended.

At no stage should an applicant, property owner or developer undertake to remove or prune the street tree(s) mentioned as a penalty up to \$5,000 applies under the Local Government Act.

Attachments

1. Relevant Development Plan Provisions
2. Proposal Plans & Documentation
3. Representation & Applicant's Response
4. Internal & Agency Referral Responses

Relevant Development Plan Provisions

<u>General Section</u>		
Advertisements	Objectives	1, 2 & 3
	Principles of Development Control	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 & 22
Centres and Retail Development	Objectives	1, 2, 3, 4 & 5
	Principles of Development Control	1, 2, 3, 4 & 5
Crime Prevention	Objectives	1
	Principles of Development Control	1, 2, 3, 4, 5, 6, 7, 8 & 10
Design and Appearance	Objectives	1 & 2
	Principles of Development Control	1, 2, 3, 4, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22 & 23
Interface between Land Uses	Objectives	1, 2 & 3
	Principles of Development Control	1, 2, 3, 6, 7, 8, 9, 12 & 13
Landscaping, Fences and Walls	Objectives	1 & 2
	Principles of Development Control	1, 2, 3, 4, 5 & 6
Orderly and Sustainable Development	Objectives	1, 2, 3, 4 & 5
	Principles of Development Control	1, 2, 3, 4, 5, 6, 7 & 8
Transportation and Access	Objectives	1, 2, 3, 4 & 5
	Principles of Development Control	1, 2, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 30, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42 & 43
Waste	Objectives	1 & 2
	Principles of Development Control	1, 2, 3, 4, 5 & 6

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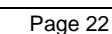
CNR MARION RD & TRENNERY ST
WEST RICHMOND
SA 5033

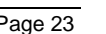
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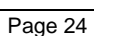
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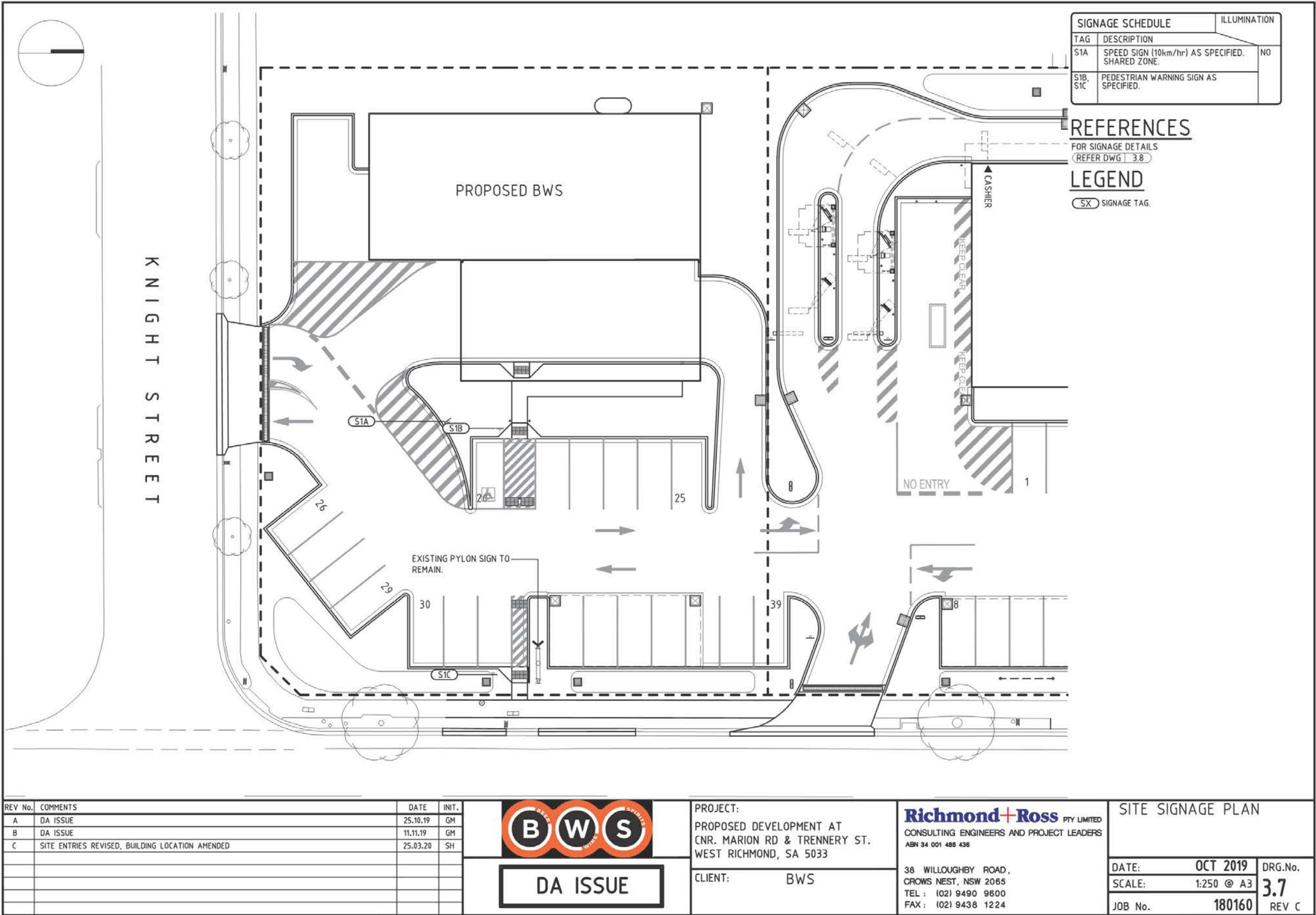


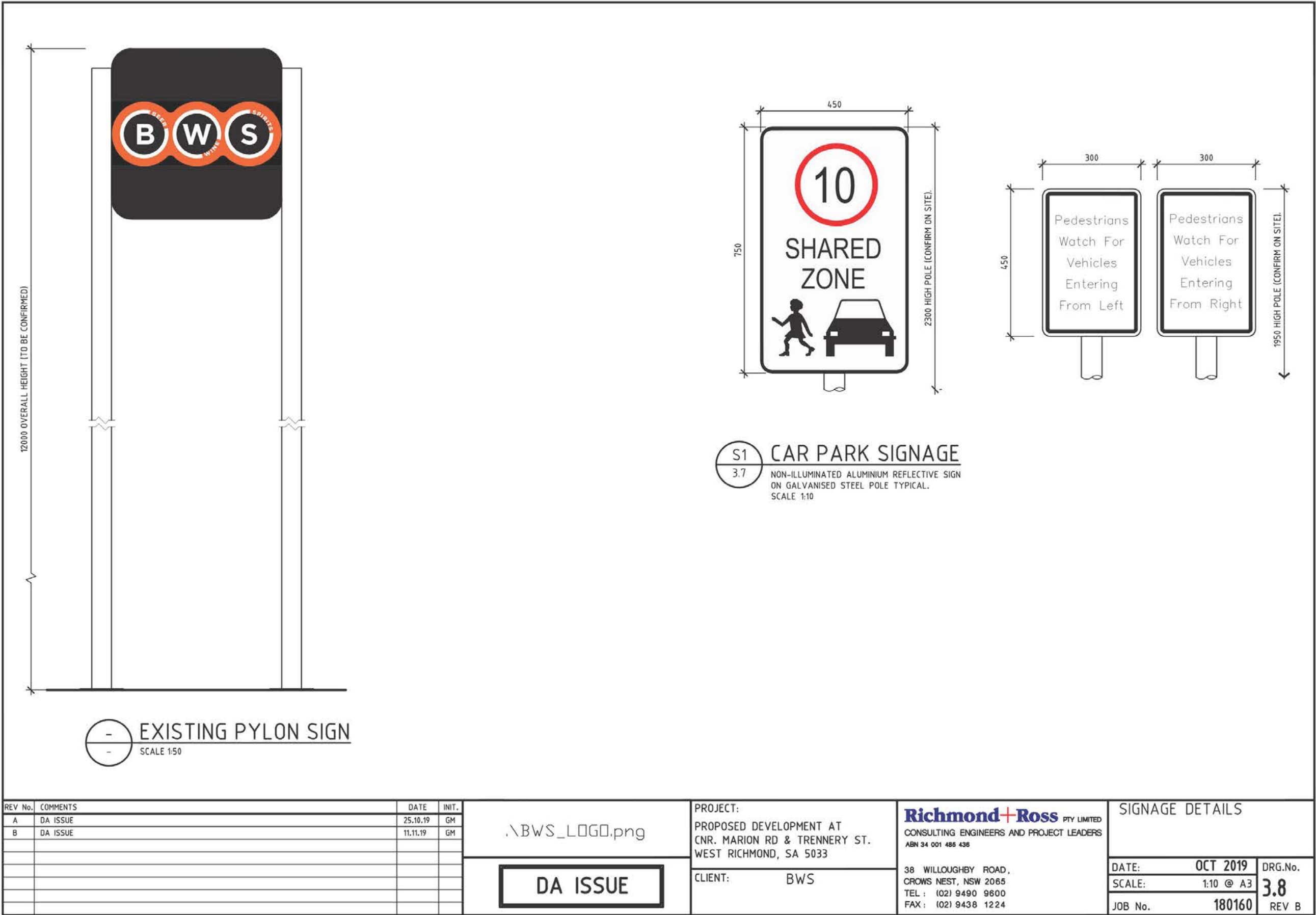












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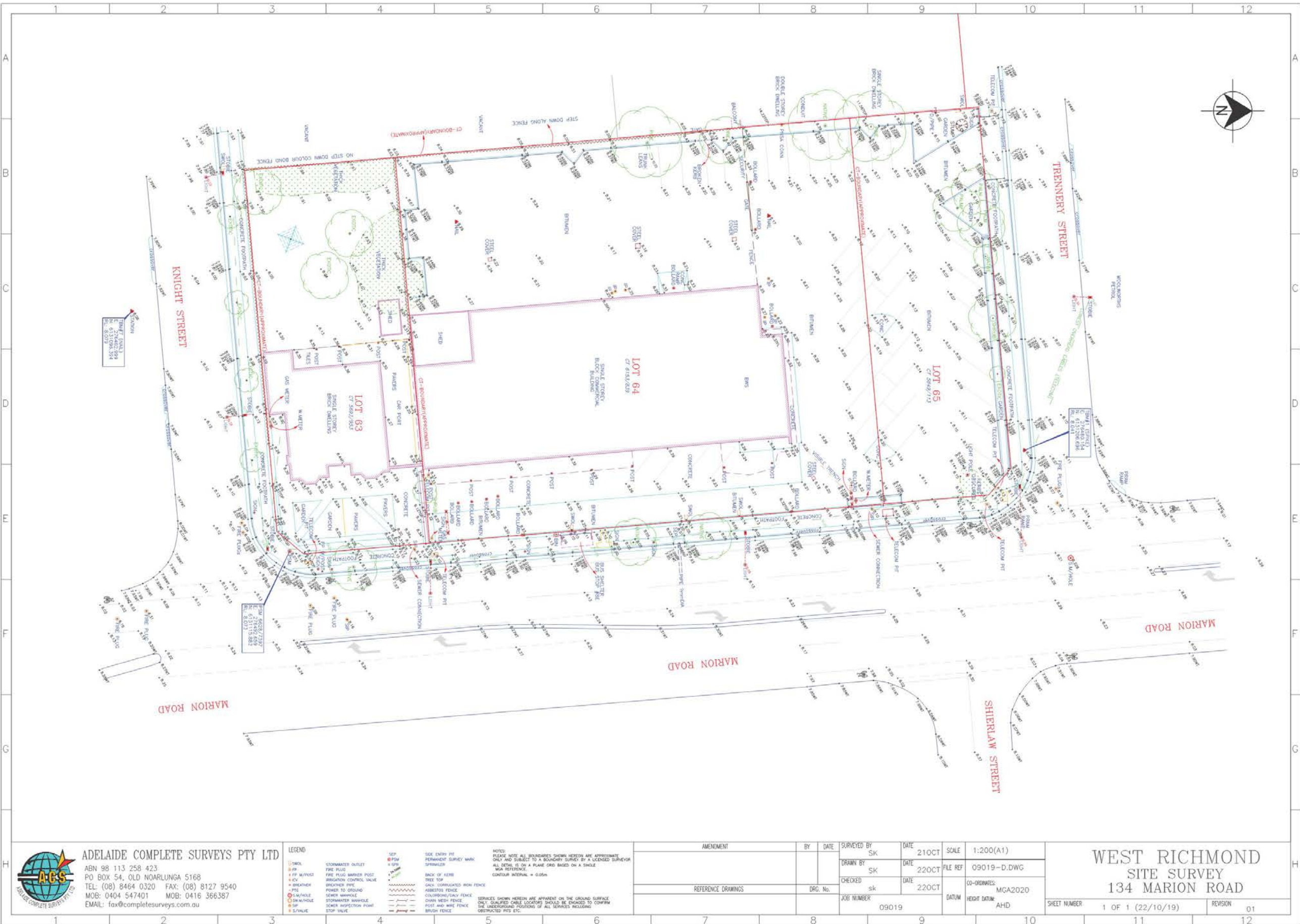
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WEST RICHMOND
SA 5033

STAGE:

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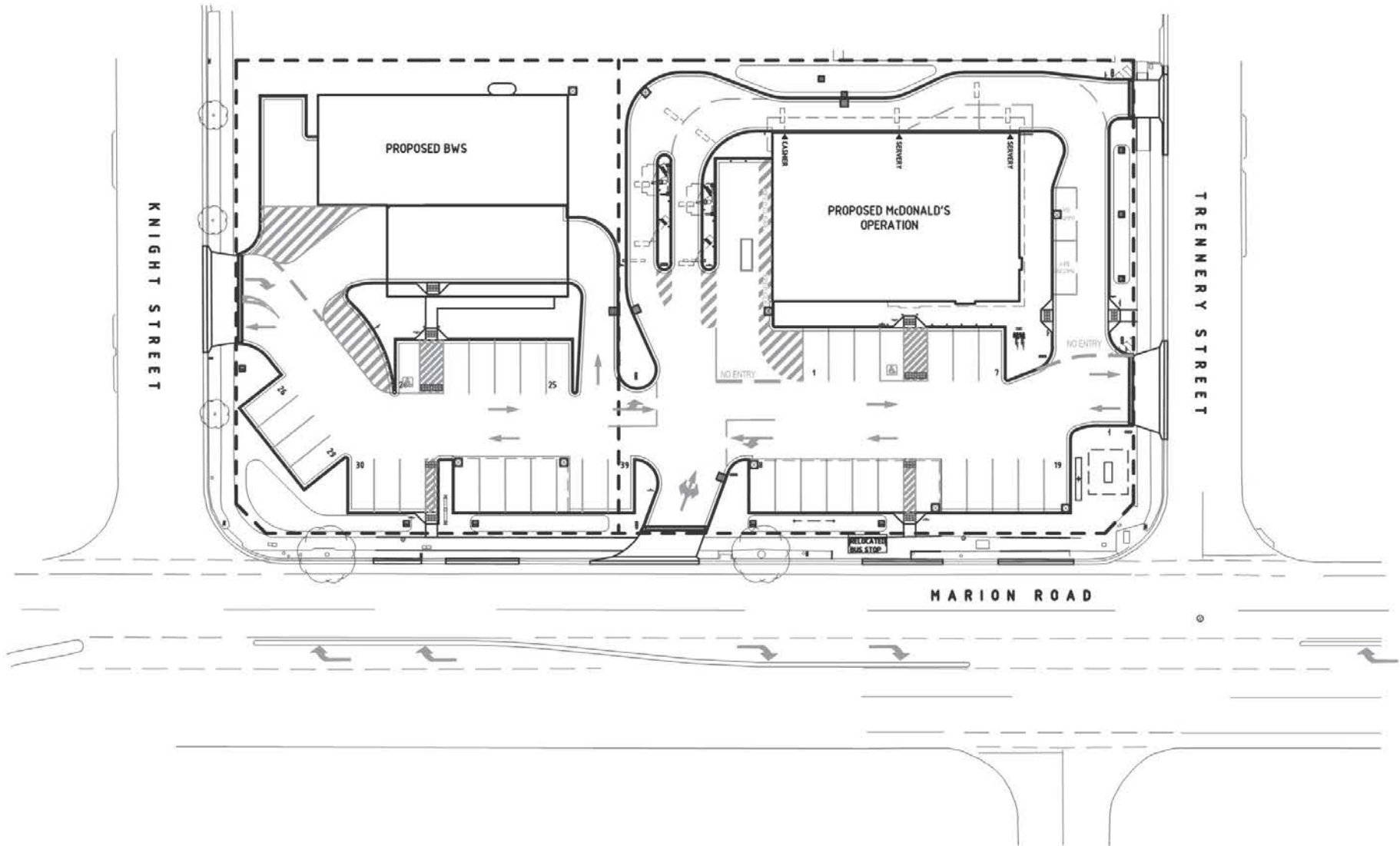
AMENDMENT: G





NOTES

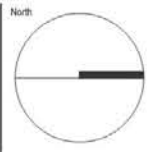
- 1. SITE PARKING = 39 SPACES



Revisions		General Notes		Drawing Notes	
H	SITE ENTRIES REVISED	25-03-20	SH	SH	
G	DA ISSUE	09-12-19	SH	GM	
F	DA ISSUE	09-10-19	SH	GM	
Issue Description		Date	Chk	Int	

General Notes:
Do not scale this drawing. The drawing shows design intent only. All dimensions to be checked on site prior to construction or production. Construction details to be confirmed by contractor/manufacturer. This is a computer generated drawing. Do not amend by hand. Figure dimensions are to be used. Contact architect for clarification if dimensions are not clear. All dimensions are in millimeters. All discrepancies and omissions on site must be reported to the architect for their comments or approval prior to commencing work.

Drawing Notes:



Client
McDonald's Australia Limited
ABN 43 008 486 928
02 9675 5555
design@mc.com.au

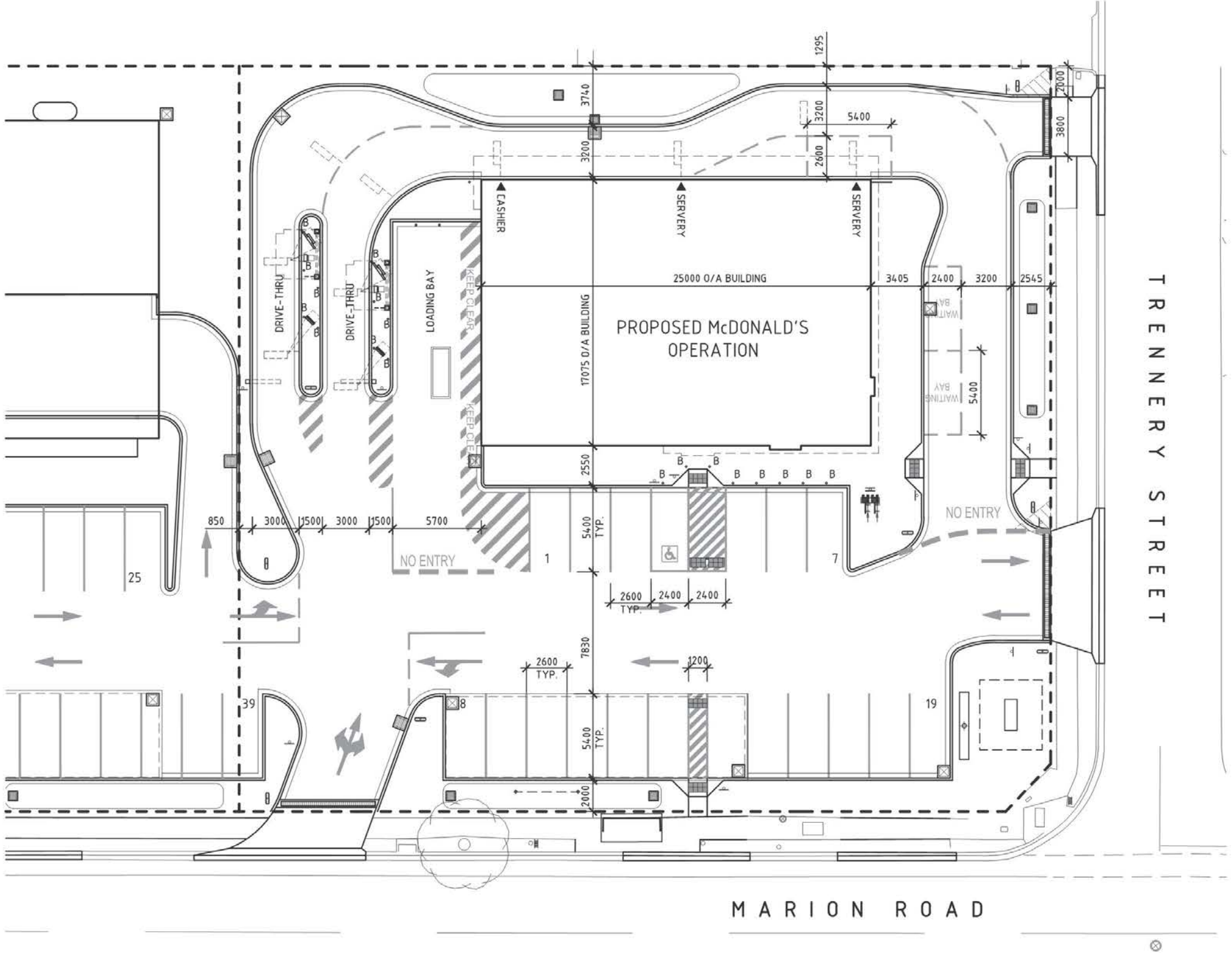
Project Manager
NDG
NATIONAL DEVELOPMENT GROUP

Architect
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38 Wiloughby Road, Crows Nest
NSW 2055
TEL: (02) 9490 9600 FAX: (02) 9438 1224

Project
McDONALD'S WEST RICHMOND

Location
CNR, MARION RD & TRENNERY ST,
WEST RICHMOND
SA 5033

DA ISSUE		
NOT FOR USE DURING CONSTRUCTION		
Scale	Series	
1:500	BIO_MOD 425	
Drawing		
OVERALL SITE PLAN		
Project Number	Drawing Number	Issue
180160	A041	H



- NOTES**
- MCDONALDS SITE AREA = 2489 SQ.M.
MCDONALDS BUILDING GFA = 427.7 SQ.M.
 - PARKING
1 X 2400 X 5400 ACCESSIBLE SPACE WITH
1 X 2400 X 5400 CLEAR ADJACENT SPACE
1 X 2600 X 5400 SERVERY BAY (3RD WINDOW).
2 X 2400 X 5400 WAITING BAYS
1 X LOADING BAY.

- LEGEND**
- BOLLARD.
 - VEHICLE DETECTOR LOOP.

Revisions		General Notes		Drawing Notes	
H	SITE ENTRIES REVISED	25-03-20	SH	SH	
G	DA ISSUE	09-12-19	SH	GM	
F	DA ISSUE	09-10-19	SH	GM	
Issue Description		Date	Chk	Int	

Do not scale this drawing. The drawing shows design intent only. All dimensions to be checked on site prior to construction or production. Construction details to be confirmed by contractor/manufacturer. This is a computer generated drawing. Do not amend by hand. Figure dimensions are to be used. Contact architect for clarification if dimensions are not clear. All dimensions are in millimeters. All discrepancies and omissions on site must be reported to the architect for their comments or approval prior to commencing work.

North

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Consultants

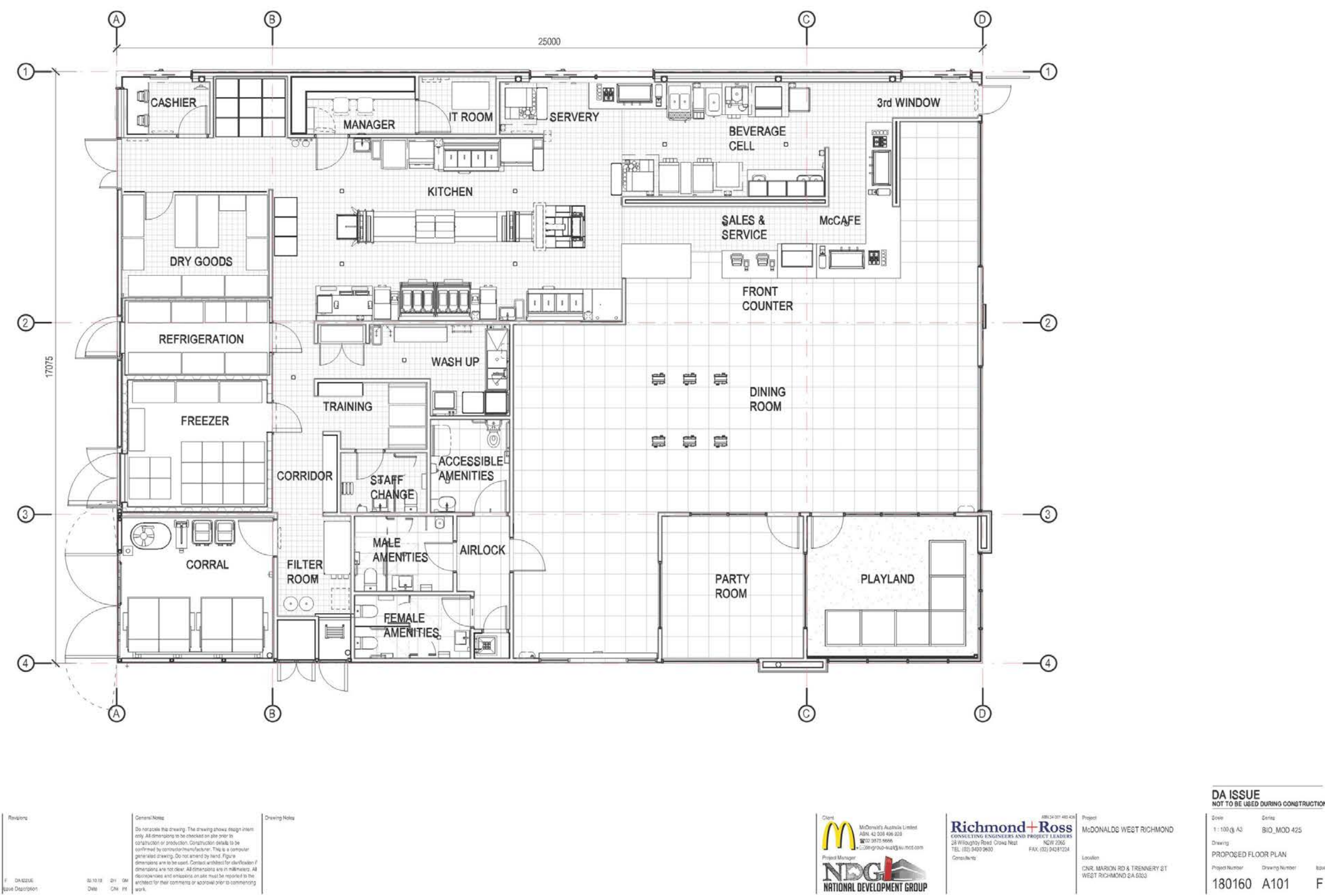
Project

MCDONALD'S WEST RICHMOND

Location

CNR, MARION RD & TRENNER ST,
WEST RICHMOND
SA 5033

DA ISSUE		
NOT FOR USE DURING CONSTRUCTION		
Scale	Series	
1:250	BIO_MOD 425	
Drawing		
OVERALL SITE PLAN		
Project Number	Drawing Number	Issue
180160	A062	H





1 FRONT ELEVATION
1:100



2 SIDE ELEVATION
1:100

Revisions	General Notes	Drawing Notes
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Client

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ABN: 42 508 496 628

02 9575 6966

02 9575 6966

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Consultants

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Project

McDONALDS WEST RICHMOND

Location

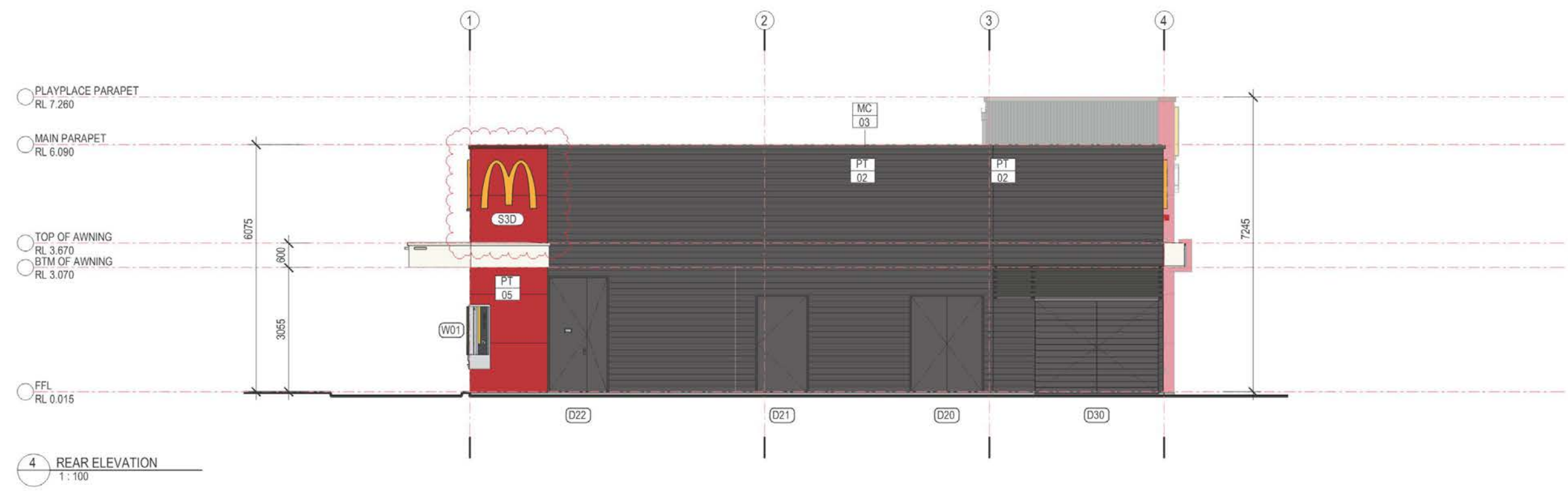
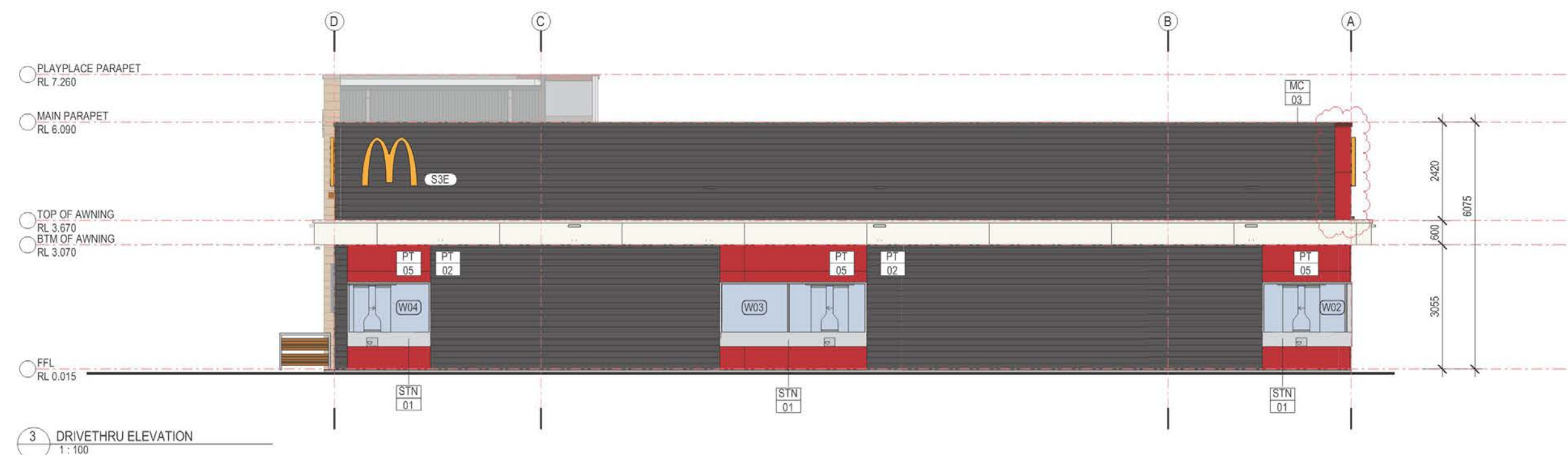
CNR MARION RD & TRENNERY ST

WEST RICHMOND SA 5033

DA ISSUE NOT TO BE USED DURING CONSTRUCTION		
Drawn	Check	Issue
1:100 (A3)	BIO_MOD 425	
FRONT & SIDE BUILDING ELEVATIONS		
Project Number	Drawing Number	Issue
180160	A201	F

14 April 2020

Page 33



Revisions		General Notes		Drawing Notes	
G	DATE	14.11.19	SH	PK	
F	DATE	03.10.19	SH	GM	
Issue	Description	Date	Chk	Rev	

Do not scale this drawing. The drawing shows design intent only. All dimensions to be checked on site prior to construction or production. Construction details to be confirmed by contractor/manufacturer. This is a computer generated drawing. Do not amend by hand. Figure dimensions are to be used. Contact architect for clarification if dimensions are not clear. All dimensions are in millimeters. All discrepancies and omissions on site must be reported to the architect for their comments or approval prior to commencing work.


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Architect

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<Address>
<Telephone>
<Website>

Consultants

Project
McDONALD'S WEST RICHMOND

Location
CAR MARION RD & TRENNERY ST
WEST RICHMOND SA 5033

PRELIMINARY
NOT TO BE USED DURING CONSTRUCTION

Scale
1:100 @ A3




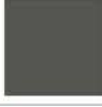









Series
BIO MOD

Drawing
DRIVETHRU BUILDING ELEVATIONS

Project Number
180160

Drawing Number
A202

Issue
G

EXTERNAL FINISHES SCHEDULE						
CODE	No.	AREA	DESCRIPTION	MANUFACTURER	COLOUR	IMAGE
AN	01	ALUMINIUM WINDOWS & DOOR FRAMES	PREFABRICATED ALUMINIUM FRAMING	CAPRAL	NATURAL FINISH CLEAR ANODISED	
MC	01	PARAPET CAPPING	PREFINISHED METAL CAPPING / FLASHING	COLORBOND	JASPER	
MC	02	PARAPET CAPPING	PREFINISHED METAL CAPPING / FLASHING	COLORBOND	SURFMIST	
MC	03	PARAPET CAPPING	PREFINISHED METAL CAPPING / FLASHING	COLORBOND	WOODLAND GREY	
MC	04	PARAPET CAPPING	PREFINISHED METAL CAPPING / FLASHING	COLORBOND	MANOR RED	
MWC	01	PLAYPLACE & PARAPETS	TIMBER LOOK ALUMINIUM CLADDING SYSTEM USING KNOTWOOD 200mm CLADDING PROFILE	KNOTWOOD	LIGHT OAK	
MWC	02	ROOF WELL (INTERNAL PARAPET LINING)	CUSTOM ORB CORRUGATED STEEL RIVET FIXED VERTICALLY TO FRAMES	LYSAGHT	ZINCALUME	
MWC	03	ROOF WELL (PLAYPLACE WALL LINING)	CUSTOM ORB CORRUGATED STEEL RIVET FIXED VERTICALLY TO FRAMES	LYSAGHT	WOODLAND GREY	
PC	01	CORRAL BATTENS & ROOF ACCESS, ELEC. ROOM DOORS	POWDERCOAT FINISH	DULUX DURALLOY	MONUMENT SATIN (COLORBOND)	
PT	01	FASCIAS (RIBBON)	PAINT FINISH. REFER SPECIFICATION FOR DETAILS ON PAINT TYPE & APPLICATION	DULUX	VIVID WHITE PW1H9	
PT	02	MAIN BUILDING WALLS	PAINT FINISH. REFER SPECIFICATION FOR DETAILS ON PAINT TYPE & APPLICATION	DULUX	WAYWARD GREY PG1G8	
PT	05	BLADE WALL & DRIVETHRU WINDOWS	PAINT FINISH. REFER SPECIFICATION FOR DETAILS ON PAINT TYPE & APPLICATION	DULUX	McDONALDS RED RGB Value: R189 G0 B22.	
STN	01	DRIVETHRU WINDOW SILL & SURROUND	RECONSTITUTED STONE. REFER TO DECOR DOCUMENTS	REFER DECOR	REFER DECOR	

Revisions	General Notes
<div>1. DATE/ISSUE Issue Date/06/01</div>	<div>Do not scale this drawing. The drawing shows design intent only. All dimensions to be checked on site prior to construction or production. Construction details to be confirmed by contractor/manufacturer. This is a computer generated drawing. Do not amend by hand. Figure dimensions are to be used. Contact architect for clarification if dimensions are not clear. All dimensions are in millimeters. All discrepancies and omissions on site must be reported to the architect for their comments or approval prior to commencing work.</div>

Drawing Notes
1. FOR BUILDING ELEVATIONS REFER A201-A203



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Project
McDONALDS WEST RICHMOND

Location
CNR MARION RD & TRENNERY ST
WEST RICHMOND SA 5033

DA ISSUE
NOT TO BE USED DURING CONSTRUCTION

Scale
1:100 (A3)

Series
BIO_MOD 425

Drawing
FINISHES SCHEDULE

Project Number
180160

Drawing Number
A205

Issue
F

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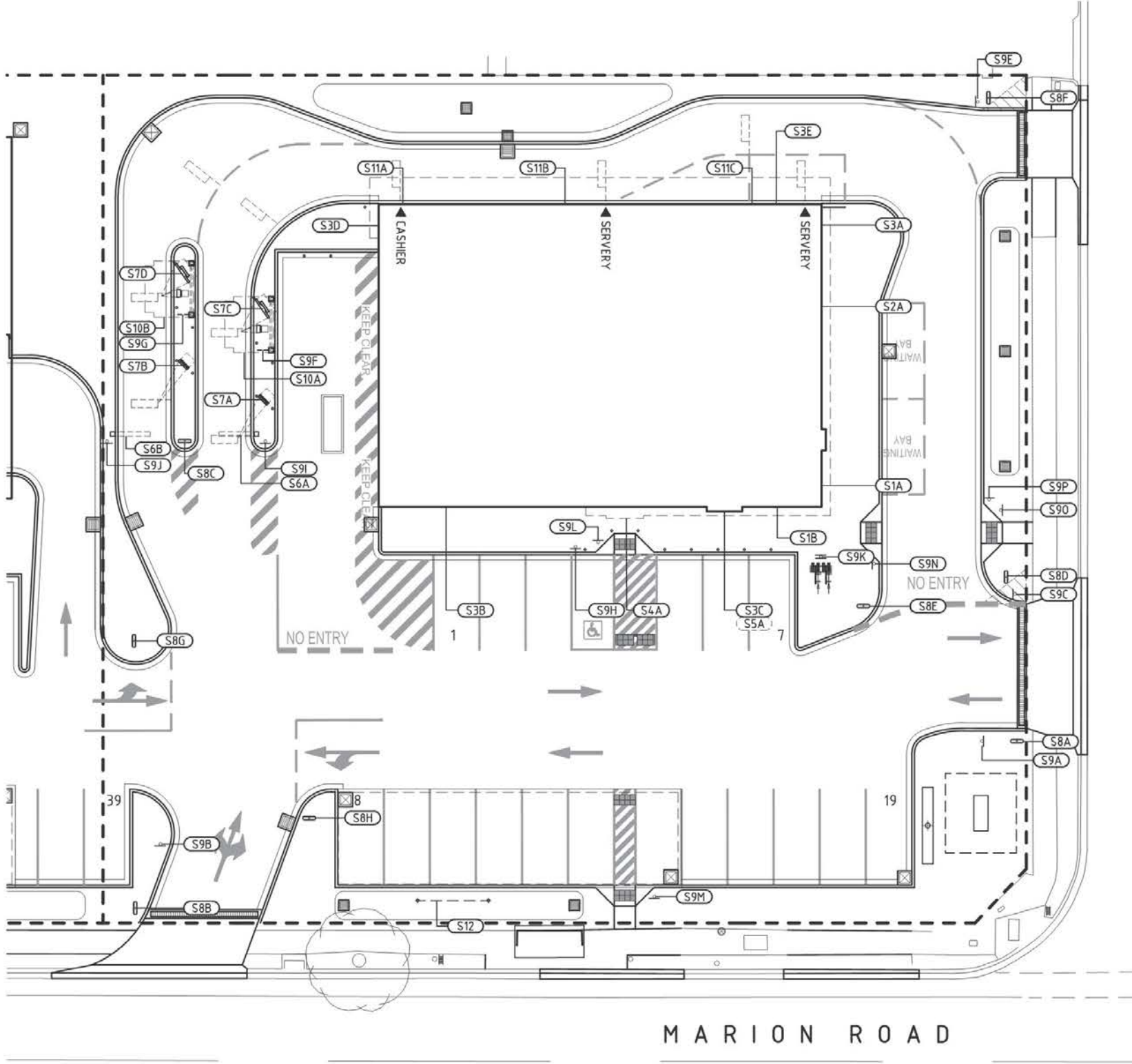
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TAG	DESCRIPTION	
S1A, S1B	PLAY PLACE SIGN. LOGO & LETTERING FIXED TO HANGING FRAME.	YES
S2A	WALL SIGN. Ø1200 BUTTON SIGN. WORDING: "McCAFE" FIXED TO WALL.	
S3A, S3B, S3C, S3D, S3E	WALL SIGN. 1.371 X 1.200m HIGH "M" LOGO FIXED TO WALL/BLADE.	
S4A	ENTRY CLIP. 2.100 X 0.750m HIGH NON-ILLUMINATED FASCIA WITH LED ILLUMINATED LETTERING: "McDONALDS"	
S5A	WALL SIGN. 1.420 X 0.70m HIGH. WORDING: "McCAFE" FIXED TO BLADE.	
S6A, S6B	HEIGHT CLEARANCE GANTRY.	
S7A, S7B	SINGLE DIGITAL PRESELL MENUBOARD	
S7C, S7D	DOUBLE DIGITAL MENUBOARD.	
S8A, S8B	DIRECTIONAL SIGN. 0.7 X 2.3m HIGH. DOUBLE SIDED. WORDING: "WELCOME" / "WELCOME".	
S8C	DIRECTIONAL SIGN. 0.7 X 2.3m HIGH. SINGLE SIDED. WORDING: "DRIVE THRU" & "ANY LANE, ANY TIME".	
S8D, S8E, S8F	DIRECTIONAL SIGN. 0.7 X 2.3m HIGH. DOUBLE SIDED. WORDING: "THANKYOU" / "NO ENTRY".	
S8G	DIRECTIONAL SIGN. 0.7 X 2.3m HIGH. DOUBLE SIDED. WORDING: "DRIVE-THRU/DRIVE-THRU".	
S8H	DIRECTIONAL SIGN. 0.7 X 2.3m HIGH. SINGLE SIDED. WORDING: "NO EXIT".	
S9A, S9B	SPEED SIGN (10km/hr) AS SPECIFIED. SHARED ZONE.	NO
S9C, S9E, S9F, S9G	STOP SIGN AS SPECIFIED.	
S9H	ACCESSIBLE PARKING AS SPECIFIED.	
S9I, S9J	NO PEDESTRIAN ACCESS SIGN AS SPECIFIED.	
S9K	BIKE RACK AS SPECIFIED (DOUBLE SIDED WHERE SHOWN).	
S9L, S9M, S9N, S9O	PEDESTRIAN WARNING SIGN AS SPECIFIED.	
S9P	PEDESTRIAN CROSSING SIGN AS SPECIFIED.	
S10A, S10B	WORDING: "1. ORDER HERE". REFER DWG. A082.	
S11A, S11B, S11C	INFORMATION SIGNS WORDING: "2. PAY HERE"/"3. PICK UP HERE" / "4. PICK UP HERE".	
S12	FLAGPOLES AND BANNER.	
S14	WARNING SIGN FOR CONFINED SPACES AS SPECIFIED. 0.45 X 0.30m. LOCATION AND NUMBER OF SIGNS SHALL BE DETERMINED BY THE McDONALD'S DEVELOPMENT MANAGER TO SUIT SITE SPECIFIC REQUIREMENTS.	NO

REFERENCES

FOR SIGNAGE DETAILS
(REFER DWG A806)
(REFER DWG A807)
FOR BUILDING ELEVATIONS
(REFER DWG A201)
(REFER DWG A202)

LEGEND

(SX) SIGNAGE TAG.



Revisions		General Notes		Drawing Notes	
H	SITE ENTRIES REVISED	25-03-20	SH	SH	
G	DA ISSUE	09-12-19	SH	SH	
F	DA ISSUE	09-10-19	SH	SH	
Issue Description		Date	Chk	Iss	

General Notes:
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North

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Project

McDONALD'S WEST RICHMOND

Location
CNR, MARION RD & TRENNERY ST,
WEST RICHMOND
SA 5033

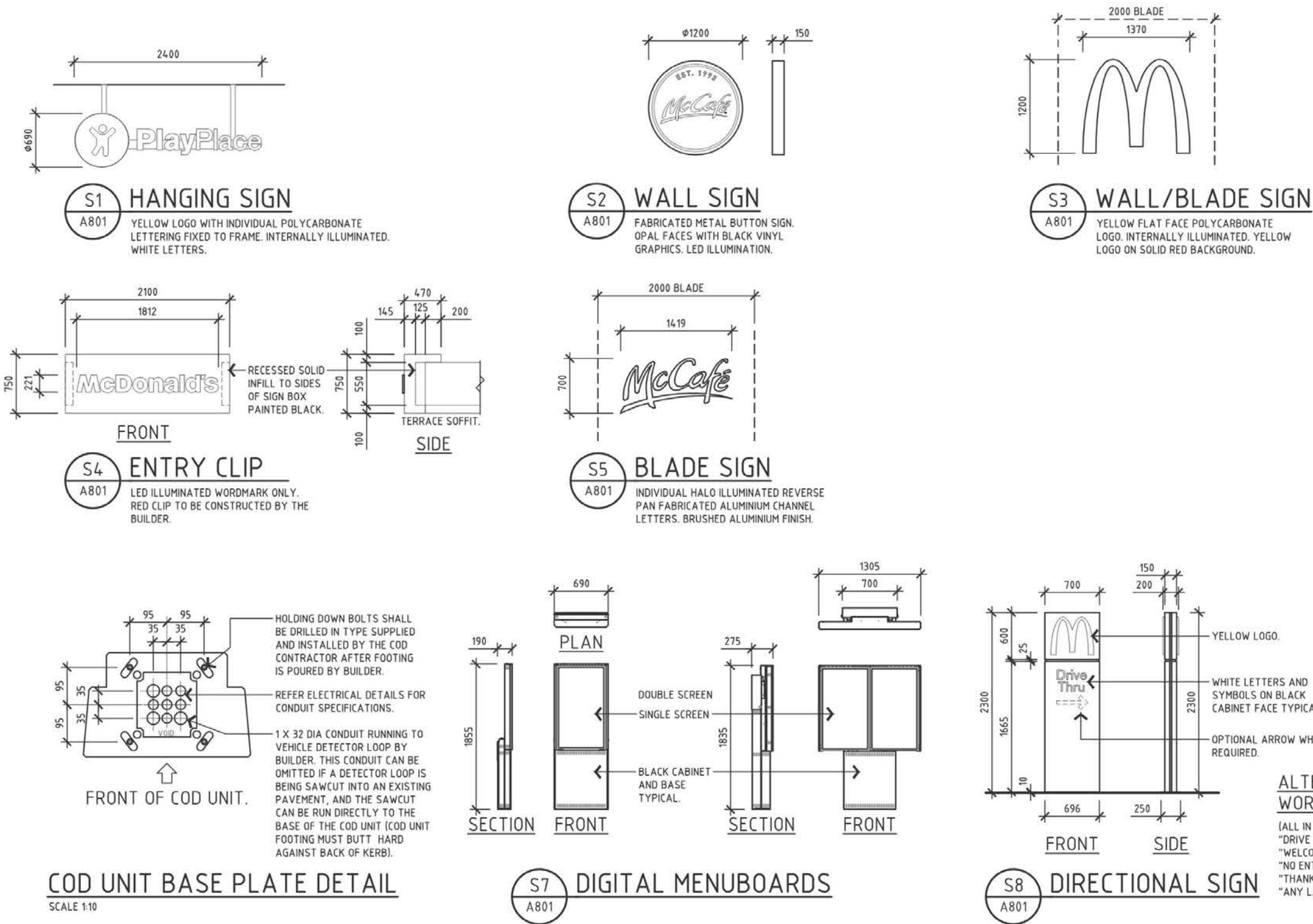
DA ISSUE
NOT FOR USE DURING CONSTRUCTION

Scale	Series
1:250	BIO_MCD 425

Drawing

SITE SIGNAGE PLAN

Project Number	Drawing Number	Issue
180160	A801	H



Revisions	General Notes	Drawing Notes
<div><div>DA ISSUE</div><div>Issue Description</div></div>	<div>Do not scale this drawing. The drawing shows design intent only. All dimensions to be checked on site prior to construction or production. Construction details to be confirmed by contractor/manufacturer. This is a computer generated drawing. Do not amend by hand. Figure dimensions are to be used. Contact architect for clarification if dimensions are not clear. All dimensions are in millimeters. All discrepancies and omissions on site must be reported to the architect for their comments or approval prior to commencing work.</div>	

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18/01/2018

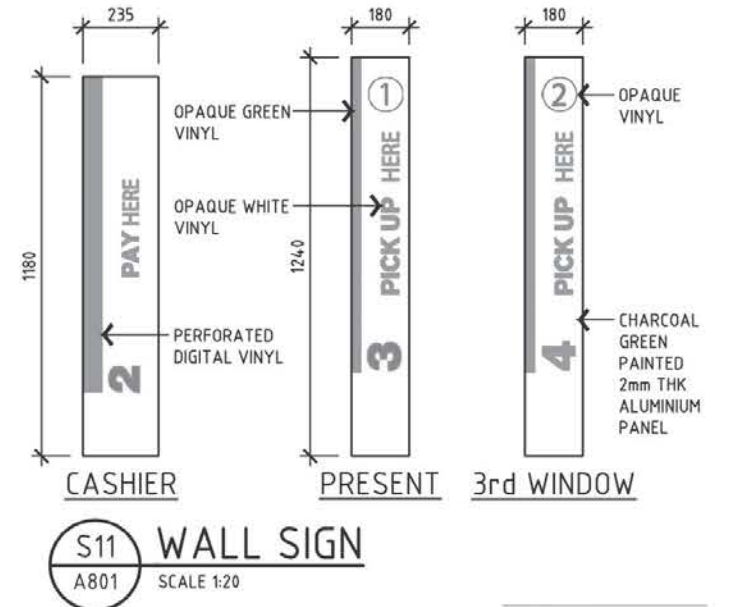
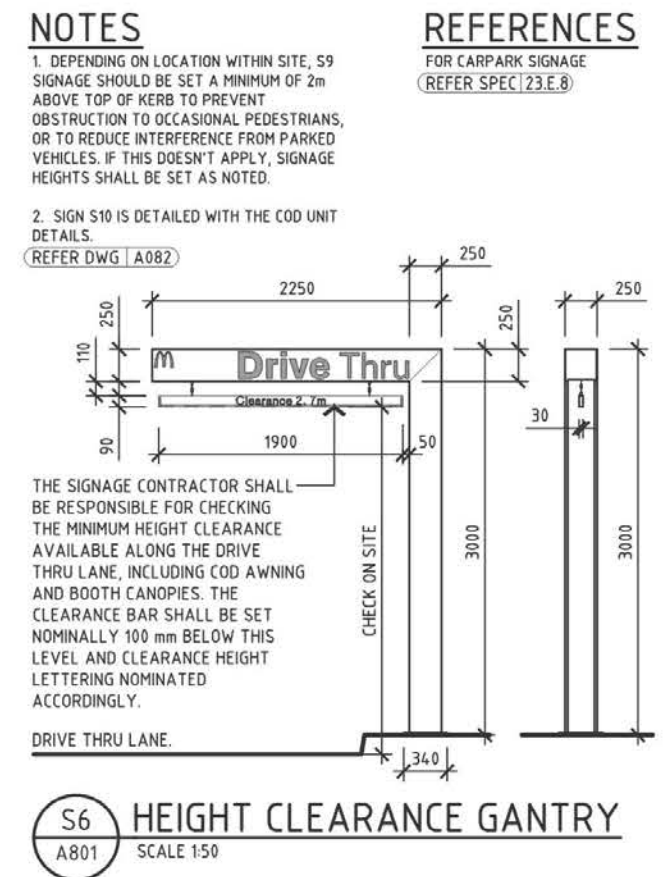
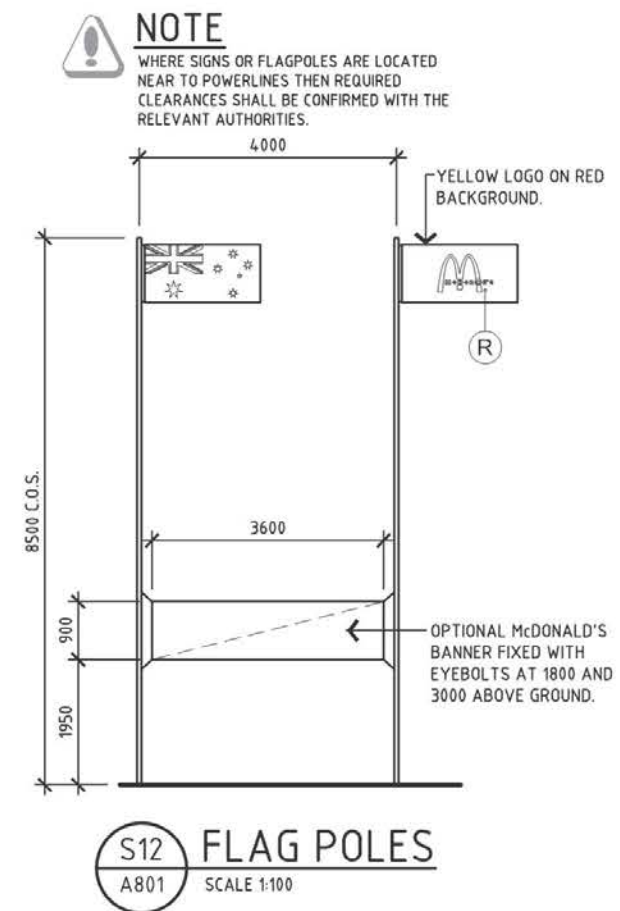
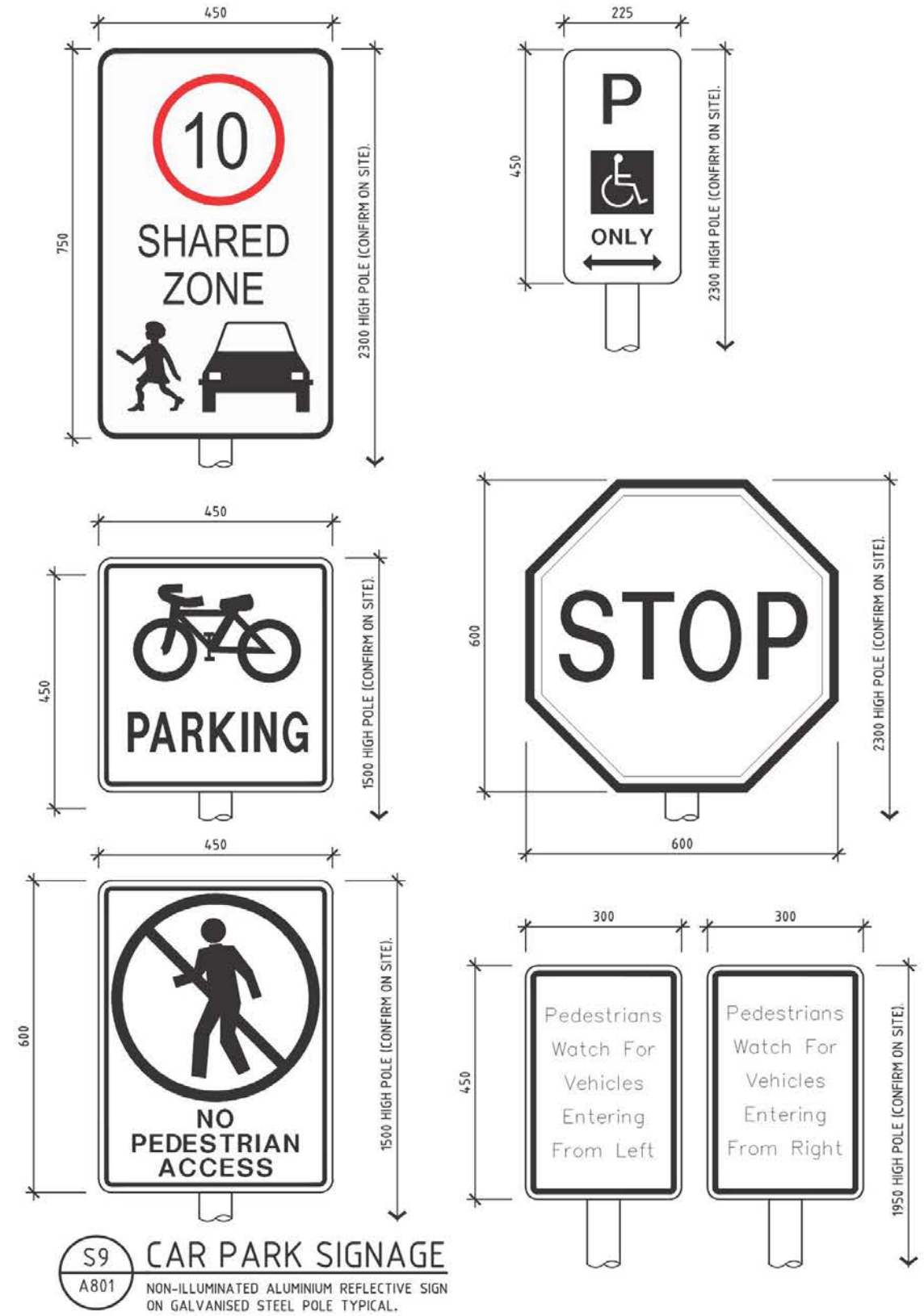
Project

McDONALD'S WEST RICHMOND

Location

CNR, MARION RD & TRENNERY ST,
WEST RICHMOND
SA 5033

DA ISSUE		
NOT FOR USE DURING CONSTRUCTION		
Scale	Series	
1:50 U.N.O.		
Drawing		
SIGNAGE DETAILS		
Project Number	Drawing Number	Issue
180160	A806	F



Revisions	General Notes	Drawing Notes
<div><div>DA ISSUE</div><div>Issue Description</div></div>	<div>Do not scale this drawing. The drawing shows design intent only. All dimensions to be checked on site prior to construction or production. Construction details to be confirmed by contractor/manufacturer. This is a computer generated drawing. Do not amend by hand. Figure dimensions are to be used. Contact architect for clarification if dimensions are not clear. All dimensions are in millimeters. All discrepancies and omissions on site must be reported to the architect for their comments or approval prior to commencing work.</div>	

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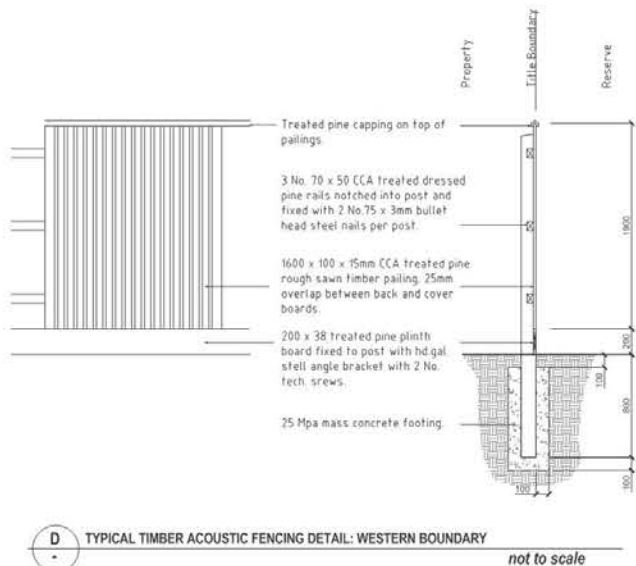
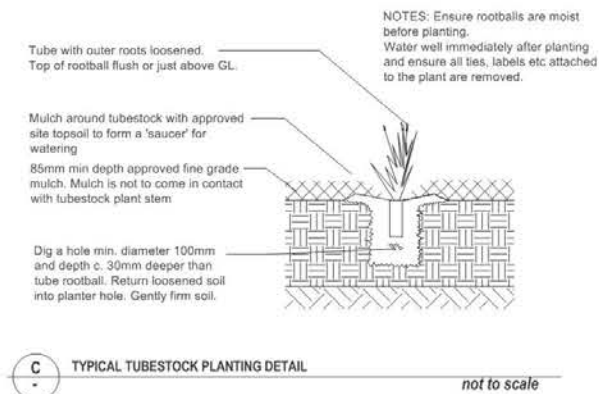
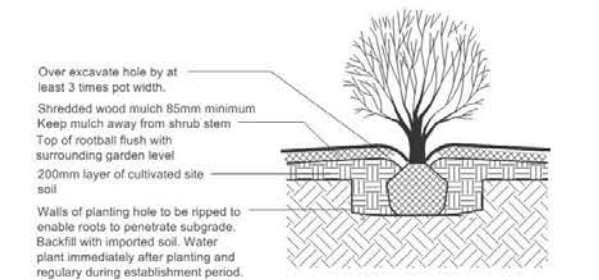
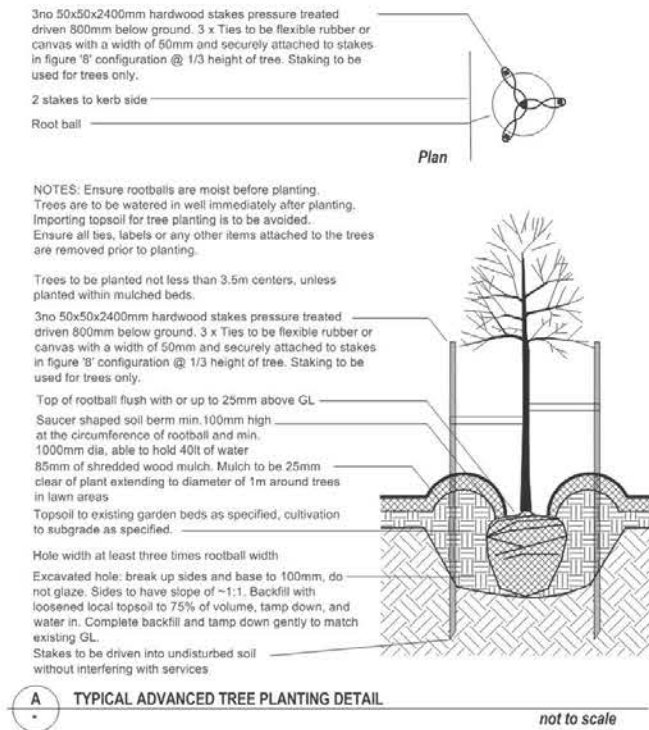
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DA ISSUE		
NOT FOR USE DURING CONSTRUCTION		
Scale	Series	
1:10 U.N.O.		
SIGNAGE DETAILS		
Project Number	Drawing Number	Issue
180160	A807	F





MAINTENANCE NOTES

The Landscape maintenance period is to be a minimum **24 months** duration from Practical Completion and continue until Hand Over to Council.

Maintenance shall be comprised of the following works to ensure continuous healthy growth of all vegetation and ensure the site is maintained in a tidy fashion for the duration of the Maintenance Period:

Initial establishment (first 3 months):

- **minimum weekly site visits**

Consolidation period (3-6 months):

- **minimum weekly site visits during warmer months**
- **minimum fortnightly site visits during cooler months**

Ongoing period (6-24 months):

- **minimum fortnightly site visits**

Maintenance Works

Commencement: Immediately following Practical Completion

Maintenance Period Duration: 24 months (104 weeks)

Actions to be undertaken: All vegetation planted as part of the program of works will be regularly maintained to ensure ongoing health and establishment of the works, including:

- watering,
- weeding,
- rubbish removal,
- fertilising,
- pest and disease control,
- re-staking and tying,
- replanting,
- mulching, and
- pruning.

This work will be undertaken by the landscape contractor appointed by the developer. The work is to be undertaken on a minimum basis outlined above and as required to ensure successful establishment as per the contract specifications.

The developer will be responsible for the costs associated with the Maintenance Period until handed over to Council.

Maintenance Specification

Maintain the landscape works intensively for a period of 13 weeks to ensure healthy establishment (weekly visits) followed by regular ongoing maintenance for a minimum duration of 24 months following the date of the issue of the Certificate of Practical Completion by the Superintendent. Any defects shall be rectified immediately. Maintenance shall include the care of the works by accepted horticultural practices, as well as rectifying any defects that become apparent in the works under normal use. This shall include, but shall not be limited to, the following items where and as required:

WATERING, FERTILIZING, CULTIVATION, TOP DRESSING, RENOVATING, WEEDING, PESTS AND DISEASE CONTROL, STAKING MAINTENANCE, REPLACEMENT OF PLANT MATERIALS, REPLANTING, PRUNING, RE-MULCHING, MOWING OF GRASS, KEEPING THE SITE NEAT AND TIDY.

Any soil subsidence or erosion which may occur after the soil filling and preparation operations shall be made good. All newly planted areas shall be protected from casual pedestrian traffic as specified herein. Protective fences, where required, shall be removed following successful establishment of the works.

All mulched surfaces shall be kept in a clean and tidy condition and be reinstated or topped up where necessary.

Defects liability: The whole of the works shall be upheld against any defects due to faulty and / or inferior quality materials and / or workmanship as per the requirements of the Head Contract.

Practical completion of planting: Practical completion of the planting works includes, but is not limited to the replacement of plants which have failed, been damaged or been stolen during the works.

Program: Furnish a proposed planting maintenance program, and amend it as required. Comply with the amended program.

Log book: Keep a log book recording when and what maintenance work has been done and what materials, including toxic materials, have been used. Make the log book available for inspection on request.

Existing planting and grass: Where existing planting or grass is within the landscape contract area, maintain it as for the corresponding classifications of new grassland or planting.

Recurrent works: Throughout the maintenance period, continue to carry out recurrent works of a maintenance nature including, but not limited to, watering, mowing, weeding, rubbish removal, fertilising, pest and disease control, reseeding, returfing, staking and tying, replanting, cultivating, pruning, hedge clipping, aerating, renovating, top dressing, weekly mowing of grass and keeping the site neat and tidy.

Replacements: Continue to replace failed, damaged or stolen plants. If failed due to incorrect/insufficient establishment or maintenance or technique, or neglect, no additional cost for replacement may be claimed. It is the Contractor's responsibility to demonstrate plants have been stolen/vandalised.

Mulched surfaces: Maintain the surface in a clean and tidy condition and reinstate the mulch as necessary.

Grassed areas: Carry out grass mowing throughout the contract period only as required to maintain the site in a neat, healthy condition

Insecticide Spraying: Spray against insect and fungus infestation as required, and if considered necessary by the Superintendent.

All spraying shall be carried out in accordance with the manufacturer's directions. Report any occurrence of insect attack or evidence of disease amongst the plant material. The Superintendent shall be notified prior to spraying work being carried out.

Watering: All planting and garden beds are to be watered regularly to ensure continuous healthy growth. The minimum requirement shall be consistent with the natural rainfall of the site location. New planting shall receive regular and frequent deep soakings to ensure establishment and healthy growth. Watering method and technique shall accord with current water restrictions. Monitor water requirements and water adequacy to ensure active growth, especially during warmer months.

Garden Areas: Garden beds shall be maintained in a weed free state. Any use of spot spraying or other form of weeding shall be undertaken so as not to damage plants planted as art of the contract. Any planting planted as part of the contract which is damaged by the contractor shall be replaced at the contractor's expense. The Contractor shall mow the grass areas at a suitable height as instructed so as to maintain healthy growth and a neat appearance. The mowing frequency may be subject to change as approved by the Superintendent due to weather and other circumstances. Other maintenance activities for grassing such as weeding, reseeding, and rolling etc. shall be priced separately and approved by the Superintendent. If approved, grass areas to be weeded shall be sprayed with approved selective herbicide against broadleaf weeds in accordance with the manufacturer's directions.

Expiry: On expiry of the **104 week** Maintenance Period, a site inspection shall be arranged between the Superintendent or Landscape Architect and the Landscape Contractor and Council. On approval of the works, and rectification of any defects, the Maintenance Period shall be deemed completed. A final Completion Certificate will then be issued and the site handed over to Council

LANDSCAPE NOTES

1.SITE PREPARATION

General

Site preparation to be carried out in accordance with best horticultural practice and under suitable conditions. Disturbance to indigenous soil structure is to be minimised. The use of machinery that may damage soil structure or profile is not acceptable.

Weed Control

Remove and dispose of environmental weeds off site prior to subgrade preparation, topsoiling and planting works.

Subgrade Preparation

Subgrade to all turf and planted areas is to be cultivated to minimum depth of 150mm and shaped to achieve drainage falls prior to topsoiling. Subgrade to be tested prior to preparation and conditioning to determine pH, salinity and gypsum requirement. Any gypsum required is to be distributed at the manufacturers recommended rate and cultivated into the subgrade at a minimum depth of 150mm.

Spreading of Topsoil

Nature strips to be topsoiled as part of Civil works. If additional imported topsoil is required it is to be spread in maximum 150mm layers, lightly compacted by use of a 150-200kg roller, or by thoroughly walking in. Continue placing topsoil until it accords with finished kerb levels or within 75mm below edging levels to accommodate mulch.

Imported Topsoil

Cultivate and implement topsoil to a depth of 200mm for garden beds and 75mm for turf areas.

Imported topsoil for garden beds to be medium texture general purpose garden soil, to comply with A. S. 2223-1978, and as follows:

- free from perennial weeds and their roots, bulbs and rhizomes,
- free from building rubble and any other matter deleterious to plant growth,
- pH to be 6.0-7.0,
- texture to be light to medium friable loam,
- free from silt material.

Soil is to be lightly compacted to minimum 300mm depth to garden beds.

Imported topsoil for turf rejuvenation/establishment shall have the above characteristics, but shall be a free draining sandy loam lightly compacted to minimum 100mm depth.

Soil Conditioning

Application of 3-6 month slow release fertiliser such as "Osmocote" to rootball surrounds at manufacturers recommended rates.

Mulch

Mulch to be approved Coir Mesh 700gsm or equivalent. Secure to manufacturers recommendation over approved non-leafy mulch conforming to AS 4454-2012, and have 80% particles in the size range 6-10mm in plan, and 5-10mm in thickness. No particle is to exceed 25mm in plan. Avoid the use of rare timbers as mulch.

Evenly spread 50mm (min.) depth of approved mulch. Mulch is to be kept away from tree trunks and plant stems to prevent collar-rot.

Grassing

Areas shown as lawn on the drawings are to be re-graded to provide smooth contours and raked to remove soil clods and rubble.

Spray nature strips and areas to be grassed with a broad-leaved plant glyphosate-based herbicide if weeds are present. Wait two weeks and remove all spent weed growth off site. Loosen soil to minimum 150mm depth. Nature strips are to be levelled, free of rock, rubbish and weeds. All nature strips are to be fine graded. Hydromulching using the approved seed mixes. Seeding should not be undertaken throughout summer months. Use environmentally friendly and sustainable products. Grass seed species Fescue/Rye as per Council's specification.

2. PLANTS - QUALITY OF TREES AND SHRUBS

Trees and shrubs shall be healthy nursery stock free from insects, diseases and weeds. Trees and shrubs shall be the specified plant heights, and pot sizes indicated are minimums.

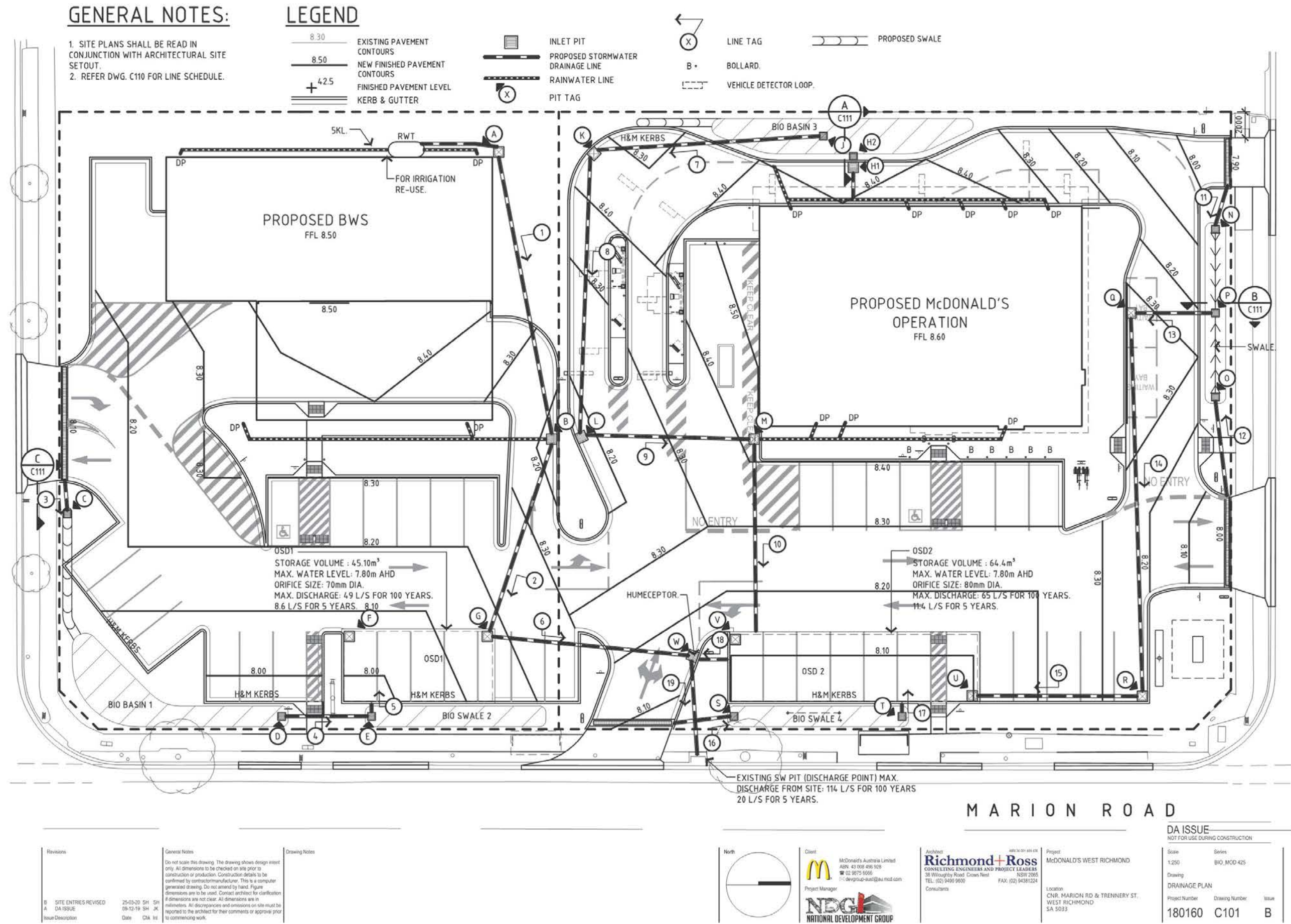
If plant material is unavailable in these sizes, larger stock must be used. Plant substitution is not acceptable.

3. GENERAL NOTES

Construction drawings will be issued upon planning approval. Contractor is to verify all dimensions on site prior to commencing construction.

The location of underground services are approximate only and their exact position should be proven on site.

No guarantee is given that all existing services are shown.



STORMWATER DISPOSAL
PHILOSOPHY

1. COLLECT ALL SITE RUNOFF FROM SURFACE GRADES, SUMPS AND UNDERGROUND DRAINS PRIOR TO DISCHARGE TO EXISTING OUTFALL.
2. ROOF RUNOFF TO BE DIRECTED INTO SITE STORMWATER SYSTEM.
3. ON-SITE UNDERGROUND DRAINAGE HAS BEEN DESIGNED FOR 1 IN 100 YEAR FLOWS, TO CONNECT INTO COUNCIL SYSTEM VIA EXISTING OUTFALL.
4. PROPOSED RAINWATER TANK RE-USE FOR IRRIGATION ONLY.
5. MAX. COMBINED DISCHARGE FROM SITE CALCULATED FOR 25% IMPERVIOUS AREA PRE-DEVELOPMENT.

STORMWATER NOTES

1. THIS IS A STORMWATER DRAINAGE PLAN ONLY. REFER TO ARCHITECTURAL DRAWINGS FOR ALL OTHER INFORMATION.
2. ALL DRAINAGE LAYOUTS, LEVELS & DETAILS ARE DIAGRAMMATIC AND INDICATIVE ONLY.
3. DRAINAGE LAYOUTS SHOWN ARE DIAGRAMMATIC ONLY. NOTE ONLY MAJOR LINES ARE SHOWN.
4. ALL PIPES TO BE 150 DIA UPVC LAID AT 1.0% MIN GRADE. UPVC PIPES TO BE SOLVENT WELDED JOINTS U.N.O.
5. ALL PITS AND COVERS TO PROPRIETARY PRECAST ITEMS, COVER LEVELS TO MATCH SURFACE.
6. ALL GRATED DRAINS TO HAVE BASE GRADED 1.0% MIN WITH HEEL GUARD TYPE GRATES.
7. IT IS THE BUILDERS RESPONSIBILITY TO LAY ALL PIPES IN ACCORDANCE WITH ALL RELEVANT AUTHORITY REQUIREMENTS.

GENERAL NOTES

1. FIT STEP IRONS TO PITS DEEPER THAN 1000 EXCLUDING CPS PIT.
2. ALL GRATES TO BE WELDED CONSTRUCTION SUPPLIED COMPLETE WITH H.D. BOLTS AND FRAMES. PROVIDE FLATTENED EXPANDED METAL TO ALL GRATES
3. ALL PIT COVERS & GRATES TO BE SECURELY BOLTED DOWN.
4. ALL UPVC PIPES TO HAVE SOLVENT WELDED JOINTS.

STORMWATER RUNOFF CALCULATIONS

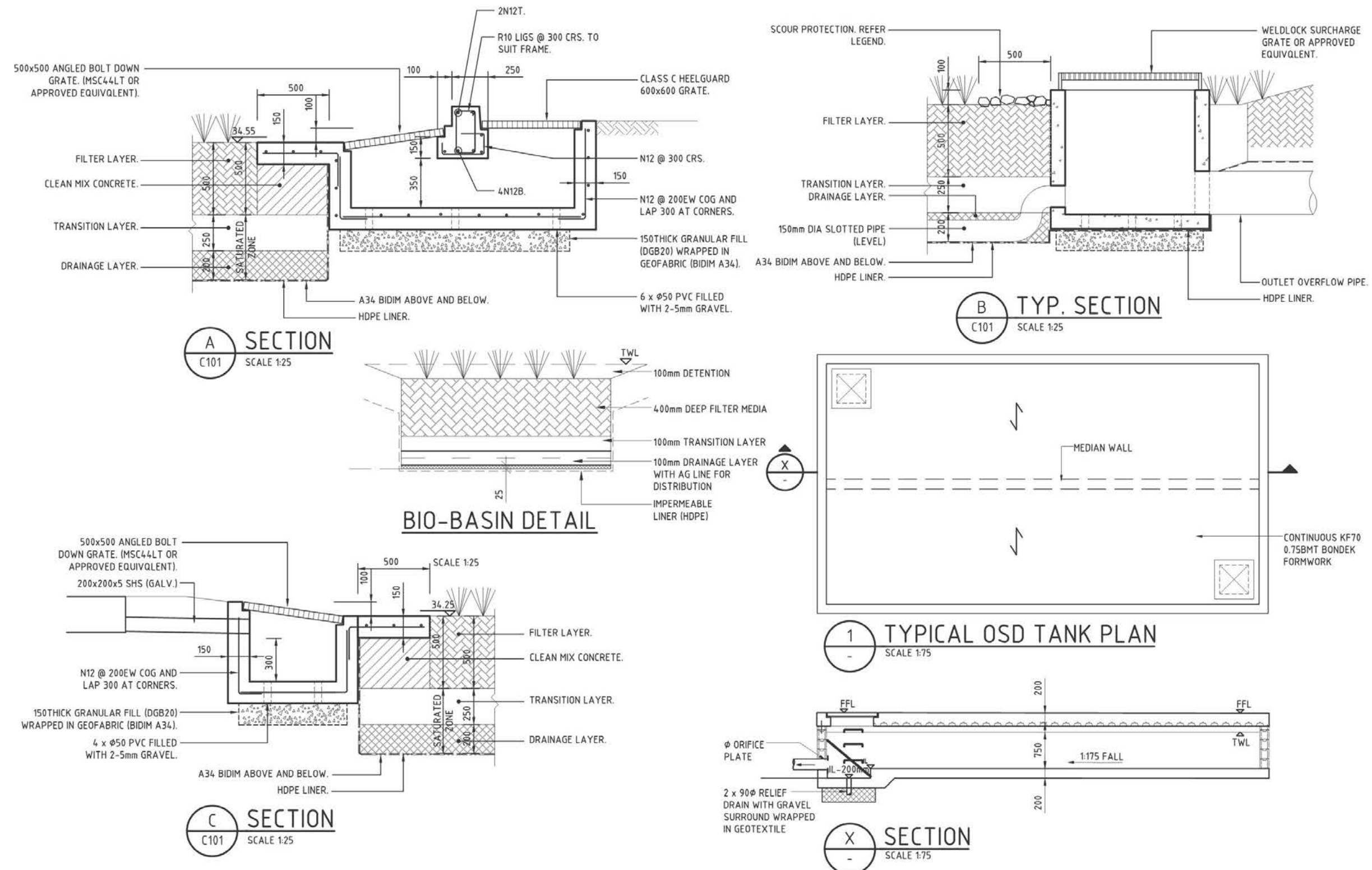
USING FORMULA $Q = 0.00028 CAI$
WHERE Q = DISCHARGE IN LITRES PER SECOND
 C = A RUNOFF COEFFICIENT (SEE TABLE)
 A = CATCHMENT AREA IN SQ.M.
 I = RAINFALL INTENSITY IN MILLIMETRES PER HOUR
 $100 I_{10}$ = 127 MM/HR FOR 100 YEAR RETURN PERIOD 10 MINUTE DURATION STORM

Line Schedule								
	Upstream		Length	Grade		Diameter	Downstream	
	Surface	IL					Surface	IL
1	8.40	7.80	22	1:88	upvc	225	8.15	7.55
2	8.15	7.55	16	1:34	upvc	225	8.15	7.08
3	8.15	7.80	2.5	1:50	SHS	200x200x5	8.05	7.75
4	8.00	7.45	6	1:120	upvc	225	8.00	7.40
5	8.00	7.40	1	1:20	upvc	225	8.05	7.35
6	8.15	7.08	15	1:250	upvc	225	8.15	7.02
7	8.15	7.85	16	1:160	upvc	225	8.35	7.75
8	8.35	7.75	21	1:105	upvc	225	8.15	7.55
9	8.15	7.55	12	1:48	upvc	225	8.40	7.30
10	8.40	7.30	14	1:56	upvc	225	8.10	7.05
11	7.90	7.65	2	1:10	upvc	200x200x5	7.80	7.45
12	8.10	7.75	6	1:20	SHS	200x200x5	7.85	7.45
13	7.75	7.43	5	1:125	upvc	225	8.30	7.39
14	8.30	7.39	28	1:215	upvc	225	8.25	7.26
15	8.25	7.26	14	1:233	upvc	225	8.10	7.20
16	8.05	7.65	2	1:7	SHS	200x200x5	7.85	7.35
17	7.85	7.30	2	1:40	upvc	225	8.10	7.25
18	8.10	7.05	3	1:100	upvc	225	8.15	7.02
19	8.15	7.02	7	1:175	rcp	375	7.85	6.98

Pit Schedule					
Tag	Type	Size	RL Top	Invert	Cover
A	Junction	450x450	8.40	7.80	Class B Grate – Field Inlet
B	Inlet	450x450	8.15	7.55	Class D Grate - Heelguard
C	Inlet	450x450	8.05	7.75	Class B Grate – Field Inlet
D	Inlet	450x450	8.00	7.45	Class B Grate – Field Inlet
E	Inlet	450x450	8.00	7.40	Class B Grate – Field Inlet
F	Access	600x600	8.05	7.20	Class D Solid Lid
G	Access	600x600	8.15	7.08	Class D Solid Lid
H	Inlet	450x450	8.30	7.85	Class D Grate - Heelguard
J	Inlet	450x450	8.15	7.85	Class D Grate
K	Junction	450x450	8.35	7.75	Class D Solid Lid
L	Inlet	450x450	8.15	7.55	Class D Grate - Heelguard
M	Junction	600x900	8.40	7.30	Class D Solid Lid
N	Inlet	450x450	7.80	7.45	Class B Grate – Field Inlet
O	Inlet	450x450	7.85	7.45	Class B Grate – Field Inlet
P	Inlet	450x450	7.75	7.43	Class B Grate – Field Inlet
Q	Junction	600x900	8.32	7.39	Class D Solid Lid
R	Junction	600x900	8.25	7.25	Class D Solid Lid
S	Inlet	450x450	7.85	7.35	Class B Grate – Field Inlet
T	Inlet	450x450	7.85	7.30	Class B Grate – Field Inlet
U	Access	600x600	8.1	7.20	Class D Solid Lid
V	Access	600x600	8.1	7.05	Class D Solid Lid
W	Junction	Humeceptor	8.15	7.02	Class D Solid Lid

Revisions		General Notes		Drawing Notes	
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Issue Description	Date	CHK	INT		

Client		Architect		Project		Scale		Series	
McDonald's Australia Limited ABN: 43 008 486 928 02 9675 5555 design@west@kai.mcd.com		Richmond+Ross CONSULTING ENGINEERS AND PROJECT LEADERS 38 Wiloughby Road, Crows Nest NSW 2085 TEL: (02) 9490 9600 FAX: (02) 94381224		McDONALD'S WEST RICHMOND		N/A			
Project Manager		Consultants		Location		NOTES AND SCHEDULES			
NEDGI NATIONAL DEVELOPMENT GROUP				CNR, MARION RD & TRENNERY ST, WEST RICHMOND SA 5033		Project Number		Drawing Number	
						180160		C110	



Revisions		General Notes		Drawing Notes	
A	DA ISSUE	06-12-19	SD JK	Do not scale this drawing. The drawing shows design intent only. All dimensions to be checked on site prior to construction or production. Construction details to be confirmed by contractor/manufacturer. This is a computer generated drawing. Do not amend by hand. Figure dimensions are to be used. Contact architect for clarification if dimensions are not clear. All dimensions are in millimeters. All discrepancies and omissions on site must be reported to the architect for their comments or approval prior to commencing work.	
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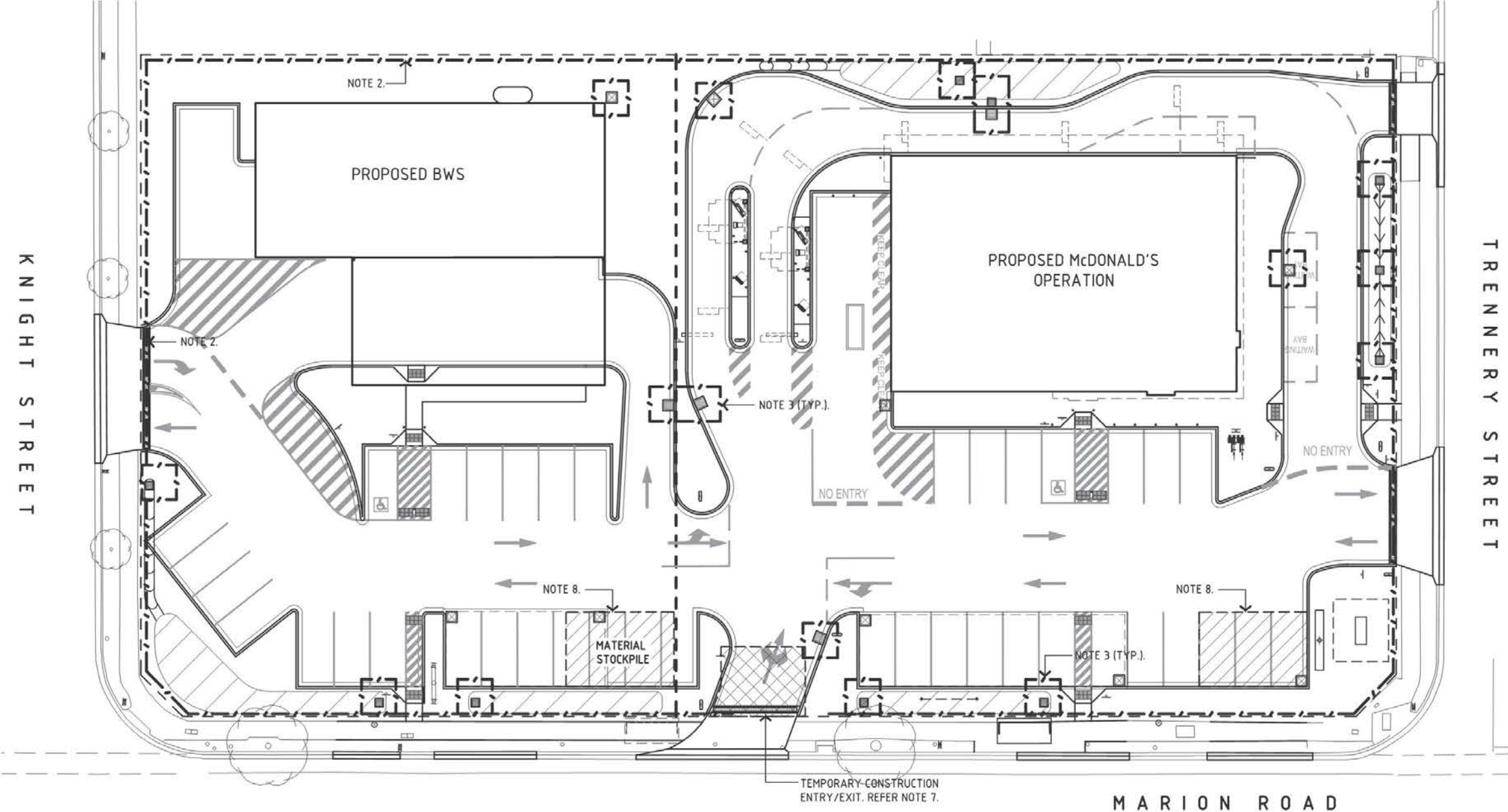
Project Manager
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NATIONAL DEVELOPMENT GROUP

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CONSULTANTS

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DA ISSUE		
NOT FOR USE DURING CONSTRUCTION		
Scale	Series	
AS NOTED		
Drawing	OSD TANK & BIO BASIN DETAILS	
Project Number	Drawing Number	Issue
180160	C111	A



E & S CONTROL NOTES:

1. BUILDER IS RESPONSIBLE FOR ESTABLISHING AND MAINTAINING EROSION AND SEDIMENT CONTROL MEASURES. ALL MEASURES SHALL BE INSPECTED EACH WORKING DAY AND MAINTAINED AS REQUIRED. BUILDER SHALL UPDATE THE CONCEPTUAL E&S PLAN TO REFLECT THEIR STAGING AND REQUIREMENTS.

2. BUILDER SHALL PROVIDE SEDIMENT FENCING MATERIAL DURING CONSTRUCTION TO THE LOW SIDE BOUNDARIES. TIE SEDIMENT FENCING MATERIAL TO CYCLONE WIRE SECURITY FENCE. SEDIMENT CONTROL FABRIC SHALL BE AN APPROVED MATERIAL (E.G. HUMES PROPEX SILT STOP) STANDING 300 ABOVE GROUND AND EXTENDING 150 BELOW GROUND.
3. EXISTING AND NEW DRAINS LOCATED WITHIN THE SITE SHALL TO HAVE DROP INLET GRATE WRAPPED IN APPROPRIATE GEOTEXTILE FABRIC AND PLACED INTO POSITION WITHIN CONCRETE SURROUND.

4. NO PARKING OR STOCKPILING OF MATERIALS IS PERMITTED ON THE LOWER SIDE OF THE SEDIMENT FENCE.

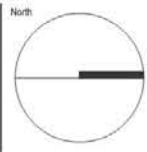
5. GRASS VERGES SHALL BE MAINTAINED AS MUCH AS PRACTICAL TO PROVIDE A BUFFER ZONE TO THE CONSTRUCTION SITE.

6. ROOF DRAINAGE IS TO BE CONNECTED TO THE STORMWATER SYSTEM AS SOON AS PRACTICAL.
7. CONSTRUCTION ENTRY/EXITS SHALL BE AS PER DETAIL. BUILDER SHALL ENSURE ALL DROPPABLE SOIL AND SEDIMENT IS REMOVED PRIOR TO CONSTRUCTION TRAFFIC EXITING SITE. BUILDER SHALL ENSURE ALL CONSTRUCTION TRAFFIC ENTERING AND LEAVING THE SITE DO SO IN A FORWARD DIRECTION.

8. MATERIAL STOCKPILES (E.G. SAND OR SOIL) SHALL BE CONTAINED WITHIN A SILT FENCE IN ACCORDANCE WITH 'SEDIMENT FENCE DETAIL' AND PLACED OUTSIDE OF FLOW PATHS OF STORMWATER.

9. BUILDER TO INSTALL GRAVEL BAGS (AS DETAILED) WHERE REQUIRED.

Revisions		General Notes		Drawing Notes	
B SITE ENTRIES REVISED		25-03-20 SH SH		Do not scale this drawing. The drawing shows design intent only. All dimensions to be checked on site prior to construction or production. Construction details to be confirmed by contractor/manufacturer. This is a computer generated drawing. Do not amend by hand. Figure dimensions are to be used. Contact architect for clarification if dimensions are not clear. All dimensions are in millimeters. All discrepancies and omissions on site must be reported to the architect for their comments or approval prior to commencing work.	
A DA ISSUE		09-12-19 SH JK			
Issue Description		Date		CHK. INT.	



Client
McDonald's Australia Limited
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design@west@bkl.mcd.com

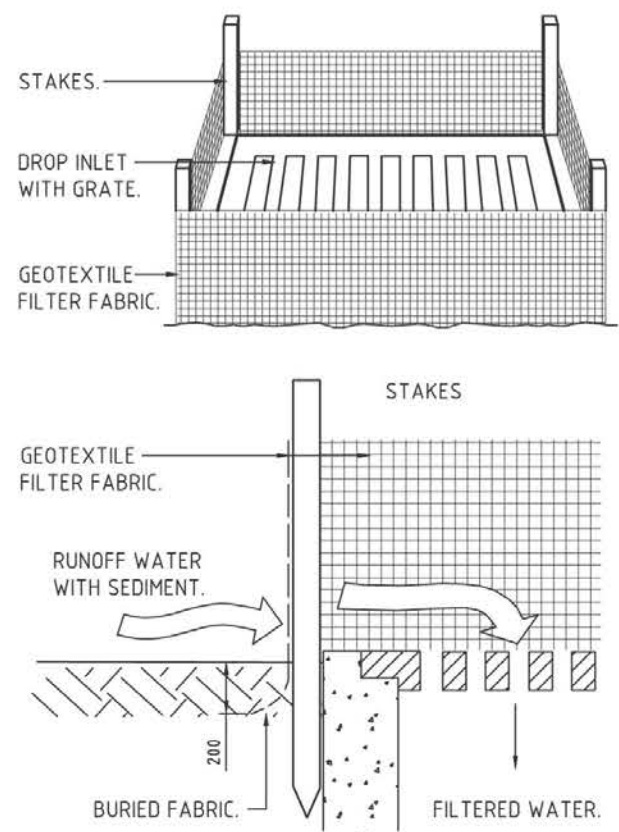
Project Manager
NDGI
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Architect
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CONSULTING ENGINEERS AND PROJECT LEADERS
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TEL: (02) 9490 9600
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Consultants

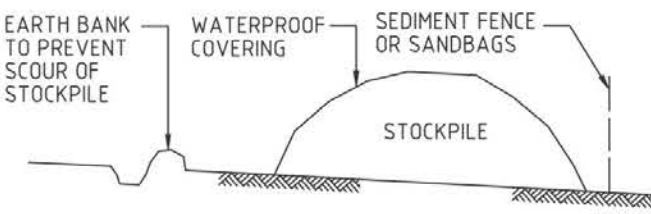
Project
McDONALD'S WEST RICHMOND

Location
CNR. MARION RD & TRENNERY ST.
WEST RICHMOND
SA 5033

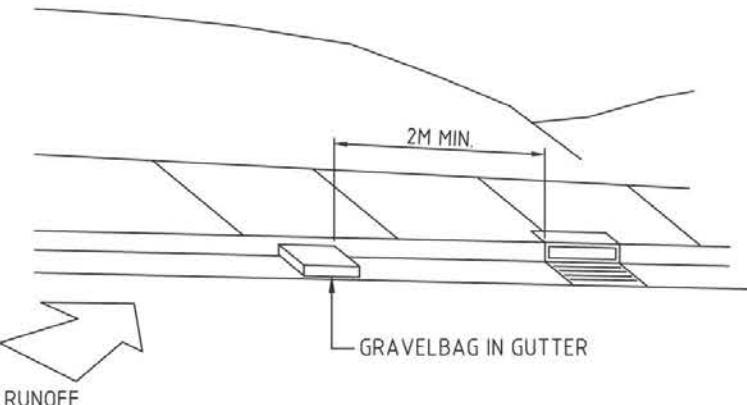
DA ISSUE		
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Scale	Series	
1:300	BIO_MOD 425	
Drawing		
CONCEPT E & S C PLAN		
Project Number	Drawing Number	Issue
180160	C301	B



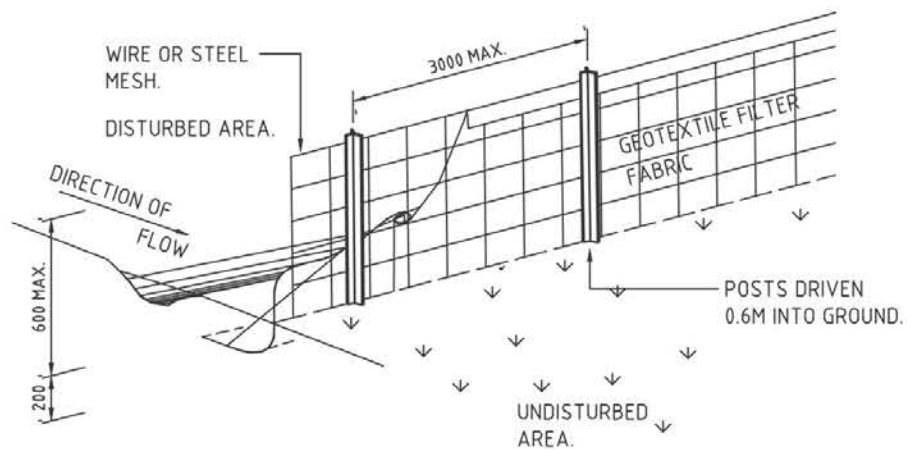
SEDIMENT TRAP TO STORMWATER SUMP



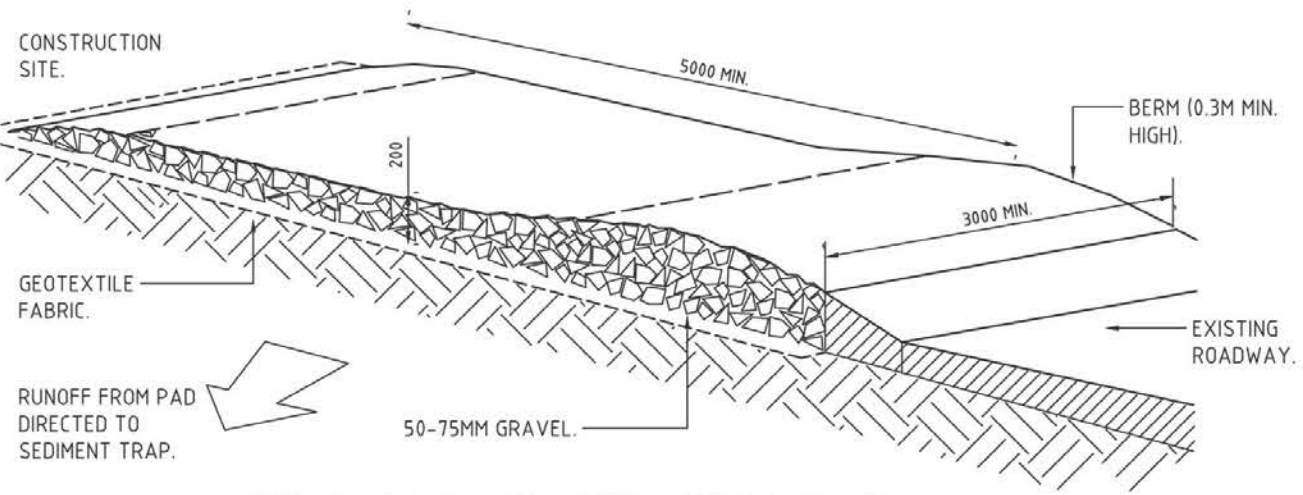
BUILDING MATERIAL STOCKPILES



GRAVELBAG KERB SEDIMENT TRAP



SEDIMENT FENCE



TEMPORARY CONSTRUCTION EXIT

Revisions		General Notes		Drawing Notes	
A DA ISSUE		Do not scale this drawing. The drawing shows design intent only. All dimensions to be checked on site prior to construction or production. Construction details to be confirmed by contractor/manufacturer. This is a computer generated drawing. Do not amend by hand. Figure dimensions are to be used. Contact architect for clarification if dimensions are not clear. All dimensions are in millimeters. All discrepancies and omissions on site must be reported to the architect for their comments or approval prior to commencing work.			
Issue Description		Date	CHK	INT	

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Consultants

Project

McDONALD'S WEST RICHMOND

Location

CNR, MARION RD & TRENNERY ST,
WEST RICHMOND
SA 5033

DA ISSUE		
NOT FOR USE DURING CONSTRUCTION		
Scale	Series	
N/A		
Drawing		
EROSION & SEDIM. CONTROL DETAILS		
Project Number	Drawing Number	Issue
180160	C310	A



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**STORMWATER MANAGEMENT PLAN
FOR
PROPOSED McDONALD'S OPERATION
CRN MARION RD & TRENNERY STREET
WEST RICHMOND SA 5033**

Job Ref: 18/0160

Date: December 2019

Revision: A

Prepared By:

E. Sowada

MSE (Civil) Dip. Eng MIEI

PRINCIPALS: PETER ROSS, BE, FIEAust, CPEng
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STUART PIPER, B.Arch (Hons), Grad Dip Prop (Hons)
COMMERCIAL * RESIDENTIAL * INDUSTRIAL * RETAIL * INSTITUTIONAL * TILT-UP * LEISURE * TOURISM

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1.0 INTRODUCTION

Richmond and Ross Pty Ltd, Consulting Engineers, were engaged to carry out a Stormwater Management Plan for the proposed McDonalds at Cnr Marion Road and Trennery Street, West Richmond SA 5033. This report addresses the management of stormwater, within the proposed site boundaries.

The below assessment is based on site survey, hydraulic and hydrological calculations with respect to the proposed development works and in accordance with relevant Council's policies.

Reference should also be made to the civil drawings within the DA package.

1.1 SITE DETAILS

The area being developed for the McDonalds has a total area of approximately 4,337m² and is relatively flat with a slope at a low gradient to the north-west. The subject Lot consists of, an existing commercial building (Marconi Pizza/BWS) and existing single house with associated five (5) access road crossings: 4 crossings from Marion road and 1 crossing from Trennery Street, carpark. In addition to the above there is some minimal, very low permeability level of landscape within the existing house.

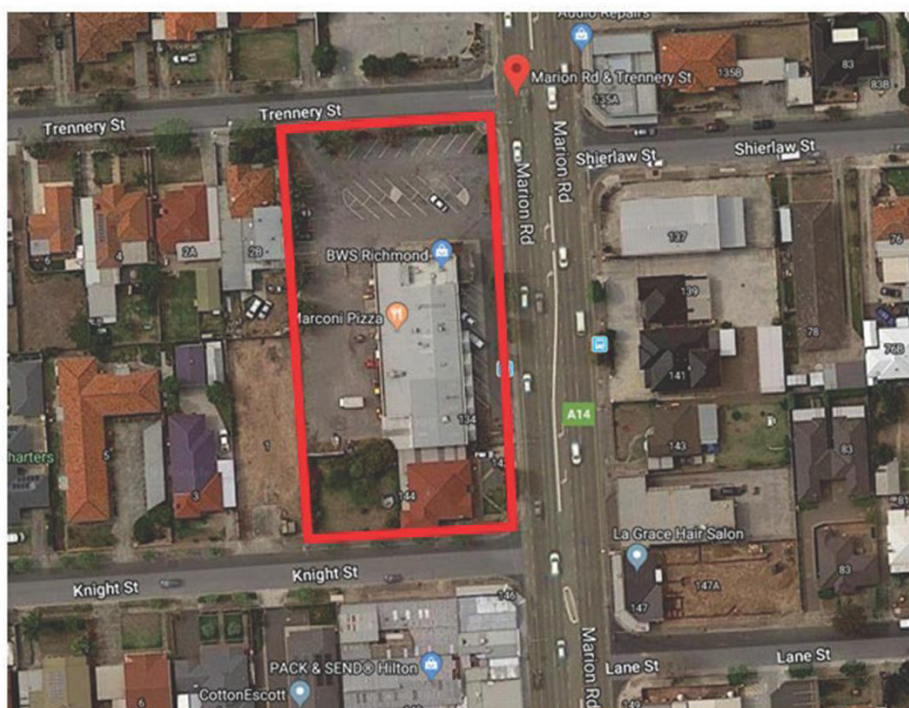


Figure 1 - Proposed Site Aerial Photograph

2.0 STORMWATER CONCEPT

It is proposed demolish existing buildings and to divide the site to two separate operations:

- McDonald's fast food outlet with Drive Thru and associated customer parking. Entry to the site is proposed to be from Marion Road and Trennery Street and exit Trennery Street only;
- BWS and associated customer parking. Entry to the site is proposed to be from Knight Street and Trennery Street and exit via Knight Street only;

It is proposed to provide individual stormwater systems for each site but with one combined discharge point to the council system. Stormwater concept for each operation is based on the same principles:

- Maximum discharge from the newly developed site has been calculated as if the site is undeveloped with 25% impervious area.
- There is only one connection/discharge point to the council's stormwater system.
- There is no increase in the overall/maximum discharge volumes from the site for 5 and 100 year AIR (10min rain event).
- Each development has an individual stormwater network with a separate OSD system.
- Maximum discharge rate from each development has been calculated based on individual site areas (Total site area: 4,337m² (100%); BWS Site area: 1,848m² (43%); McDonald's Site area: 2,489m² (57%).
- Stormwater from new roofs and pavement drains to a new underground pipe network;
- All runoff from the BWS roof will be directed to a 5kl over ground rainwater tank. The collected water will be used for landscape irrigation within the site. Overflow from the tanks will be connected to the OSD system prior to discharge from the site.
- Bio retention basins are proposed to filter the majority of the runoff.
- A Humeceptor is proposed to treat stormwater prior to it leaving the site. This is to capture hydrocarbons and to reduce TSS from areas of carpark which don't drain to bio basins (TSS removal without the Humeceptor is approximately 81%).

For additional information refer to civil plans attached in Appendix A of this report.

3.0 STORMWATER QUANTITY MANAGEMENT

The proposed development consists of two separate operations. It is intended to provide a separate stormwater system for each one, with a combined connection point within the site, prior to discharge to council's drainage network:

Estimated Pre-Dev Max Discharge from the Overall Site:	114 L/sec (100% for 100Yr ARI)
Post-Dev. Max Discharge from the BWS Site:	49 L/sec (43% for 100Yr ARI)
Post-Dev. Max Discharge from the McD's Site:	65 L/sec (57% for 100Yr ARI)

Stormwater Management Plan

Proposed McDonald's Operation
West Richmond SA 5033

Furthermore, two separate underground OSD tanks have been provided at the downstream end of each stormwater drainage system (BWS-network A and McD's-Network B) as part of the overall drainage plan. Those tanks have been sized to cater for each development individually with discharge limits set to meet maximum combined volumes.

For more details refer to civil plans attached in Appendix A of this report.

4.0 STORMWATER QUALITY MANAGEMENT

Water Quality Management

A stormwater quality improvement train is proposed as follows-

4.1 Rainwater Tank

The rainwater is designed to allow the reuse of collected rainwater for garden watering.

A 5kl rainwater tank has been proposed which has been modelled within MUSIC.

4.2 Gross Pollutant Traps (GPT's)

A Humeceptor is proposed. The purpose is to –

- Satisfy requirement for a specific treatment measure for total hydrocarbons.
- Increase the TSS treatment rate.

4.3 Bio remediation basins

Four basins are proposed and are shown on the civil drawings. Reference should be made to the drawings for sizes and locations.

4.4 Swales

Two swales are proposed and are shown on the civil drawings. Reference should be made to the drawings for sizes and locations.

4.5 Water Quality Outcome – MUSIC Modelling

MUSIC modelling was undertaken for the proposed treatment train. The model was set up using the latest MUSIC-Link data and in accordance with City of West Torrens requirements. A copy of the MUSIC link summary sheet is included in the appendices.

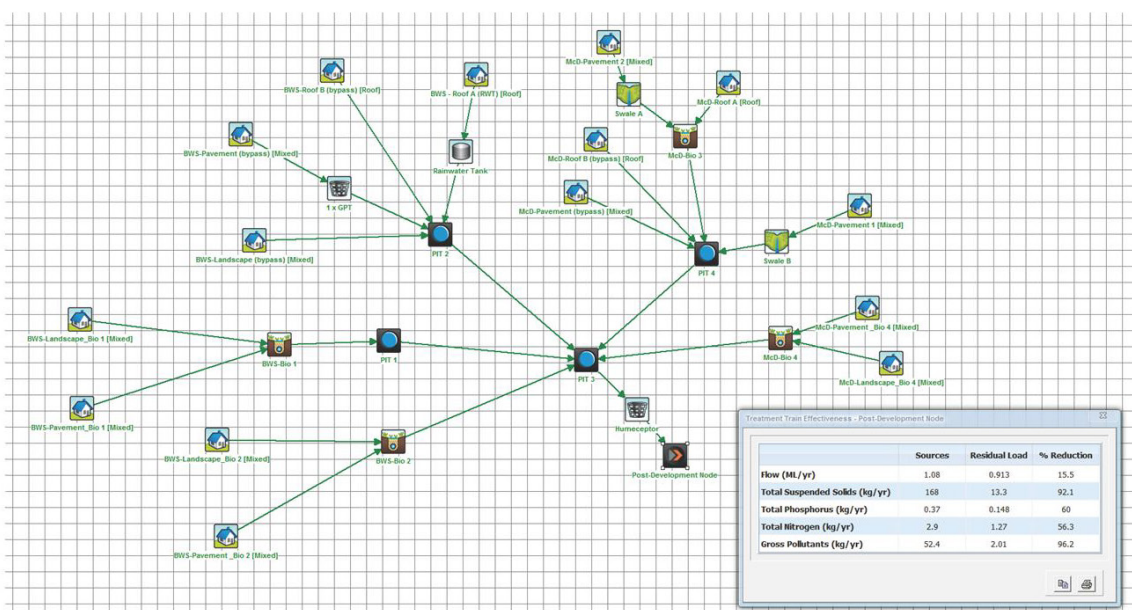


Figure 2: Treatment train and Pollution Removal as modelled in MUSIC

The removal rates calculated for the treatment train are as follows-

	Source	Residual	% Reduction	Target
TSS	168	13.3	92.1	80
TP	0.37	0.148	60.0	60
TN	2.9	0.27	56.3	45
GP	52.4	2.01	96.2	90

A copy of the MUSIC link summary sheet is included in the appendices.

5.0 OVERLAND FLOW PATHS

If storms greater than design occur or if the outlet is blocked, the site has been graded to allow an overland flow path to form which protects the building. Levels about the building will allow for pavement flows significantly above the design flows while remaining beneath building floor levels.

Overland flows will exit the site to the streets on the low sides of the site.

6.0 CONCLUSION

We believe that the proposed system satisfies the relevant requirements of City of West Torrens for stormwater.

A

APPENDIX A – Proposed Stormwater Drainage Plans

Stormwater Management Plan

Proposed McDonald's Operation
West Richmond SA 5033



2nd December 2019

7886DARreport

Chief Executive Officer
West Torrens Council
165 Sir Donald Bradman Drive
Hilton, SA 5033

Attention: Mr. Josh Banks

Dear Josh,

Access Planning (SA) Pty Ltd
ABN 57 089 702 241

235 Henley Beach Road
Torrensville SA 5031

Telephone 08 8130 7222
Facsimile 08 8130 7299
admin@accessplanning.com.au

www.accessplanning.com.au

RE: PROPOSED RESTAURANT, INCLUDING ASSOCIATED DRIVE-THROUGH SERVICE, CAR PARKING AND SIGNAGE, AND BOTTLE SHOP RELOCATION, INCLUDING ASSOCIATED DRIVE-THROUGH AND CARPARKING – 134 to 140 MARION ROAD, WEST RICHMOND.

1.0 INTRODUCTION

This report has been prepared in relation to an application by McDonald's Australia Limited involving the establishment of a restaurant with associated drive-thru, carparking, landscaping and signage and the relocation of an existing bottle shop with associated drive-thru and carparking, at the above address.

The subject land is located in the Neighborhood Centre Zone, Richmond Policy Area 14, as depicted on Zone Map WeTo/8 of the West Torrens Council Development Plan, as consolidated 12 July 2018.

This proposal constitutes a consent use in the zone.

In preparing this report I can confirm that I have inspected the subject land and its locality, reviewed the proposal plans and supporting documents, had regard to the *Development Act 1993* and the *Development Regulations 2008* and assessed the proposal against the relevant provisions of the City of West Torrens Council Development Plan.

2.0 SUBJECT LAND & LOCALITY

The subject land comprises of three Torrens Title Allotments, copies of which are included in the application documents:

- Allotment 63 in Filed Plan 144691, as contained within Certificate of Title Volume 5693 Folio 953,
- Allotment 64 in Filed Plan 144692, as contained within Certificate of Title Volume 6153 Folio 839,
- Allotment 65 in Filed Plan 144693, as contained within Certificate of Title Volume 5849 Folio 113.

These allotments fronts Marion Road, with secondary frontages to Trennery and Knight Streets, West Richmond.

The subject land currently comprises of a carpark, a BWS Liquor store, some vacant shops, and a dwelling. The subject site and locality are depicted in figure 1 below.



Figure 1: Subject Site and locality

The combined site area is approximately 4336m². It has a frontage of some 44.7m to Trennery Street with a corner cut off of approximately 4.2m at Marion Road. It's southern frontage to Knight Street is approximately 46.86m long, with a similar corner cut to Marion Rd of about 4.2m. Its eastern boundary fronts Marion Road, with a length of approximately 84.8m.

The land abuts two allotments to the west; one which accommodates a two-storey detached dwelling, the other a vacant lot; both are located in the Neighborhood Centre Zone.

Development generally north, west and east is low density residential comprising in the main, single storey detached dwellings.

Development along Marion Road on both sides and for some distance to the north and south of the subject land is given over to a range of commercial and retail land including a Caltex Woolworths service station, offices associated with professional services, and shops. There is a Hungry Jack's restaurant and associated drive-through approximately 60m north of the subject site.

Adelaide Airport is less than 450m to the west of the site. As a result of this proximity, there is a building height restriction of 14m for the subject site, and it is also in an area affected by air traffic noise, as shown in Map WeTo/8- Development Constraints.



A small section of the site is shown to be subject to low levels of inundation. Marion Road is recognized as a Secondary Arterial Road in Map WeTo/8- Transport and is a public transport route.

Marion Road has a daily traffic volume of approximately 36,300 vehicles (annual average daily traffic-two-way flow; 2019) for both directions.

3.0 THE PROPOSED DEVELOPMENT

The proposal involves the establishment of a restaurant with an integrated drive-thru, car parking, landscaping and signage, and the relocation and redevelopment of the existing bottle shop and associated drive-thru, as described below.

Building 1 – Restaurant/take away with drive-thru

Construction of a single storey, contemporary designed building of 427m² floor area comprising a restaurant/café/ take-away and drive-thru facility to be located on the north-western corner of the subject site (drive-thru to the rear of building). The building will face Marion Road with vehicular access/egress from both Marion Road, Knight and Trennery Streets.

The building will accommodate a dining room, cafe with a seating capacity of 70 seats, serving facilities, kitchen and 'back of house' storage and staff facilities/amenities, patron amenities, service area (corral) and a small Playland area for young children. Three windows (cashier, and two serveries) are located in the western elevation of the building to serve patrons of the drive-thru.

The building adopts a simple form comprising a 6.075m high parapet which screens the roof and roof mounted plant, with an elevated, glazed feature corner rising to 7.245m which accommodates the play facilities in the playland area and allows extensive access to natural light to this aspect of the building.

Significant articulation is provided to the building by way of variation in parapet height as described above, as well as the use of a variety of building material and colour. Vertical and horizontal projections and the use of shade canopies and window placement/building openings highlight various aspects of the land use, such as defining service points, building entries and windows. Signage is also incorporated as a design feature and is coordinated throughout the development.

The building exhibits a substantial setback of 23m from Marion Road, 10.4 from Marion Road and 7.0 from the western property boundary.

Building 2- Bottle shop with drive-thru

The BWS building is also a single storey contemporary designed building with a floor area of 272m². This will replace the current building which BWS occupies.

The development will comprise of a bottle shop situated on the south-western side of the subject site, with an associated drive-thru facility located to the east of the building and parallel to Marion Rd.

The development will take access from both Marion Road and Knight Street, with access also to Trennery Street via the McDonalds site. This will be a BWS franchise.

The building will have a total height of 5.7m comprising a wall height of 4.5m and façade of 1.2m. It will measure 25m by 10.86m, with a dual lane drive-thru facility under cover of 9.24m wide x 18.0m long (166m²), skillion roofed canopy.



The proposed building accommodates a shop floor area and a stock room with attached cool room, staff lunchroom, and staff toilet. The stock room will have roller door access for the purpose of deliveries and the drive thru will be secured when the shop is closed by roller doors at either end.

Access/loading bay/car parking/bicycle parking

Access and egress to the development will be by way of two-way crossovers from both Trennery and Knight Street, as well as one existing crossover maintained on Marion Road as entry only. The second of the existing crossovers on Marion Road is to be removed.

Shared parking and access rights are proposed over both sites with 39 parking spaces available.

The McDonald's drive-thru is accessed via the main car park with two entry and ordering lanes which extend along the southern side of the building and then converge into one lane to the windows for pick up and payment on the western wall of the building. A one-way exit-only crossover leads to Trennery Street. Two waiting bays are proposed along the northern wall of the building with an alternative exit path back to the main car park then via internal driveways to both side streets. There is queuing space to up to 12 vehicles in the drive-thru lanes.

The car park and loading bay associated with the restaurant are designed to allow for 14-pallet delivery trucks to enter from Marion Rd, reverse into the bay, and exit to the north on Trennery Street.

The BWS will have a double lane drive-thru to be entered via a single lane entry from the main carpark, entry from the north and exit to the south. There is a capacity for 6 vehicles under the canopy.

Deliveries will be made to the southern end of the building with a loading bay of 4.6m wide and in excess of 11.5m long designed to allow for a semi-trailer up to 15.5m in length to enter reverse into the bay and exit in a forward direction.

Both Trennery and Knight Streets are short dead-end roads, all traffic turning west will be limited to local residential use. The majority of traffic will turn east to exit to Marion Road.

McDonald's Australia Ltd has engaged GTA Consultants to provide an independent traffic assessment of the site. Their report is provided as an attachment to this report.

In general terms the car park layout is a function of a need to accommodate traffic flows associated with the drive-thru facilities and this has largely dictated the design and layout of the development.

This layout for the most part locates the parking areas to the Marion Road frontage of the land. The corner location is such that the car park will be visible from all three adjoining roads and thus to passing traffic most likely to access the site. The visibility of the car park to passing traffic makes it more readily identifiable and the access points more obvious than if the car parks were located at the rear of the building as sought by the terms of the concept plan.

The layout of the site provides outlook into the site from the adjoining roads across a landscaped area which enhances the security of the site by having this public area open to observation from the adjoining roads, as well as from within the building and neighbouring land uses.

Service delivery occurs once daily with a combination of goods delivery and rubbish collection.



Delivery times are arranged to avoid peak trading periods and the site has been designed to provide access for service vehicles up to 15 metres in length.

Car parking and access otherwise accords with the relevant Australian Standards, and in accordance with the report prepared by GTA Consultants, car parking provision is sufficient to meet peak demand as identified in that report.

Disabled persons car parking will be provided to meet current AS 2890.1 standards. Access ways will also be to these standards.

Bicycle parking will be provided for both establishments. There is an existing bus stop along the site's frontage onto Marion Rd. which is proposed to be moved to allow safe entry into the site from Marion Road.

Trading Hours

The proposed hours of operation of the restaurant/take-away with drive-thru facility will be 24 hours per day, seven days of the week.

The current hours of operation of the bottle shop are as follows:

- 8am-8pm Monday-Wednesday,
- 9am-9pm Thursday-Friday,
- 8:30am-9pm Saturday,
- 10am-7pm Sunday.

Trading of the BWS will be as per their present licence conditions.

Signage/Flagpoles

There will be a range of signs associated with both developments dealt with in this application.

McDonald's will have a range of signs fixed to the restaurant building in accord with the high standard of McDonald's corporate signage. They will include:

- Two flagpoles, 8.5m high, 4m apart, location identified on the plans provided with this application, on the frontage of Marion Rd;
 - The McDonald's red and yellow flag,
 - The Australian flag.
- Ancillary signs including wall signs, directional signs, menu board signs, speed signs, and pedestrian access signs are also proposed, as shown in plans;
 - Wall signs:
 - Rear and drive-thru walls have one sign each; the signature "M".
 - Front wall has the signature "M", McCafe Centre and Play Place signs
 - The remaining side elevation has the "Big M" sign, McDonalds over the entrance, and on the tower a Play Place, McCafe and "Big M".

The BWS bottle shop and drive-thru facility proposes the following signage, as shown in the plans:

- Retention of the existing advertising freestanding 12m high pylon sign adjacent to Marion Road,
- Removal of second pylon sign of approximately 6m height,
- car park signage consisting of non-illuminated aluminium reflective signage on galvanized steel pole, identifying a shared zone, speed signs, and pedestrian crossings,



- Eight A0 poster boards along the entrance walls of the proposed building, advertising current specials, to be changed regularly.

A freestanding sign application is proposed to be the subject of a separate consent.

Waste Management

Both sites will be serviced by commercial waste contractors.

The BWS site be provided with a dedicated and fenced waste storage area which will accommodate 2 commercial rubbish bins, and which is sited adjacent the loading bay on the southern side of the building. Rubbish/recycling will be collected regularly on demand.

The McDonald's store will be provided with two commercial bins located in the Corral area. These bins are generally collected every 2 days but may be more regularly emptied if demand dictates.

McDonald's restaurant staff will conduct litter patrols a couple of times a day to keep the restaurant grounds and surrounds clean. A record is kept by the store of this activity. Litter patrols will extend to the streets in close proximity to the store.

Fencing and Landscaping

Extensive landscaping is to be located along the common boundary with the adjoining houses to the west, with a width of 1.5m minimum, expanding out the 4.1m wide. There will also be 1.5m wide landscaping minimum on the frontage with Marion Rd.

All landscaping will be irrigated with electronic controllers and garden maintenance is a high priority of all McDonald's developments.

McDonald's approach to landscaping is for a high standard of planting (using mature stock for feature trees) and regular ongoing maintenance. Water sensitive design is a feature of McDonald's landscaping philosophy. There is a garden store in the corral for storage of garden tools and materials.

The landscaping around the BWS will complement in design, and maintenance will be of the same standard.

Care will be taken to ensure sight lines to entry signs and pedestrians using the footpath and approaching traffic on adjacent streets are maintained.

A 1.8m high lapped timber paling fence is proposed to the western boundary. The fence will have no air gaps to maximise noise attenuation.

4.0 DEVELOPMENT ASSESSMENT

The subject land is situated within the Neighbourhood Centre Zone, and more particularly within Richmond Policy Area 14 of the West Torrens Council Development Plan, consolidated 21 April 2016, as shown on Zone and Policy Area Map WeTo/8.



Figure 2: Subject Site and Zoning

Source: West Torrens Council Development Plan

I have examined the provisions of the Development Plan, both as it applies generally to the City of West Torrens, and specifically to the Neighbourhood Centre Zone and Richmond Policy Area 14, and consider the following provisions of the Development Plan to be most relevant to an assessment of the application at hand.

4.1 Relevant provisions of the Development Plan

Neighbourhood Centre Zone

Objectives 1, 2, 3

Principles 1, 3, 5, 6.

Richmond Policy Area 14

Objectives 1

Desired Character statement

Principles 1, 2, 3, 4, 5

General Section

Advertisements

Objectives 1-3

Principles 1 to 18, 21-24

Building near Airfields

Objectives 1

Principles 1, 2, 3, 4, 6

Centres and Retail Development

Objectives 1, 2, 3

Principles 1, 2, 3, 4, 5

Crime Prevention

Objective 1

Principles 1, 2, 3, 4, 5, 6, 7, 8, 10



Design and Appearance

Objective 1, 2

Principles 1, 2, 3, 4, 9, 10, 11, 12, 13, 14, 15, 16, 19, 20, 21

Energy Efficiency

Objectives: 1, 2

Principles: 1, 2, 3

Hazards

Objective 2, 4

Principles 4, 6, 7

Interface Between Land Uses

Objectives 1, 2 & 3

Principles 1, 2, 3, 5, 6, 7, 8, 9, 13.

Landscaping, Fences and Walls

Objectives 1 and 2

Principles 1, 2, 3, 4, 5, 6

Natural Resources

Objectives 3, 4, 5, 6,

Principles 5, 6, 7, 8, 9, 10, 13, 14

Orderly and Sustainable Development

Objectives 1, 2, 3, 4, 5

Principles 1, 3, 5, 6, 7, 8

Siting & Visibility

Principles: 8

Transportation and Access

Objective 2, 4

Principles 1, 2, 3, 5, 6, 8, 9, 10, 12, 13, 14, 21, 24, 26, 27, 28, 29, 30, 32, 34, 35, 36, 37, 38, 39, 40, 42 to 53

Waste Management Facilities

Objective 1

Principles 1, 4, 6, 13

Not all of the above provisions have been directly referenced in the following report as there is a high degree of repetition evident in the policy approaches set out in the objectives and principles under each of the headings above.

4.2 Neighbourhood Centre Zone

Neighbourhood Centre Zone

Objectives

- 1 A centre providing a range of shopping, community, business, and recreational facilities for the surrounding neighbourhood
- 2 A centre that provides the main focus of business and community life outside a district centre, and provides for the more frequent and regularly recurring needs of a community
- 3 A centre accommodating residential development in conjunction with non-residential development.

Principles:

1. The following forms of development are envisaged in the zone:
 - a. Restaurant
 - b. Shop



- 2 Development listed as non-complying is generally inappropriate.
- 3 Development comprising a variety of residential and non-residential uses should only be undertaken if such development does not prejudice the operation of existing or future non-residential activity within the zone.
- 5 Vehicle parking should be provided in accordance with the rates set out in Table WeTo/2- Off Street Vehicle Parking Requirements or Table WeTo/6- Off Street Vehicle Parking Requirements for Designated Areas (whichever applies)

Richmond Policy Area 14

Objectives

1. Development that contributes to the desired character of the policy area.

Desired Character Statement

This policy area will function as a neighbourhood centre providing a range of services and facilities to cater for the daily and weekly needs of the surrounding population. Currently, a diverse range of facilities is provided, with the exception of a supermarket. The policy area should have a maximum total gross leasable retail floor space in the order of 2500 square metres.

Retailing will be the predominant activity in the area marked 'Retail Core' on the Concept Plan Map WeTo/22 - Richmond Neighbourhood Centre.

Densely planted landscape buffers will be provided along the interface of the centre and adjoining zones.

Principles

- 1 The following forms of development are envisaged in the zone:
 - Shop
- 2 The policy area should have a maximum gross leasable retail floor space in the order of 2500 square metres
- 3 The retail focus of the public area, in terms of the major proportion of gross leasable floor space dedicated for retail purposes, should be located between Trennery Street and Passmore Street
- 4 Development should not be undertaken unless it is consistent with the desired character for the policy area.
- 5 Development should occur in accordance with Concept Plan Map WeTo/22-Richmond Neighbourhood Centre and in particular:
 - a. The area marked 'retail core' should predominantly accommodate retail land uses
 - b. The area marked 'retail/office, service, commercial, community and entertainment facilities, bulky goods outlets and small-scale, low traffic- generating retail outlets
 - c. Be setback on the front property boundary, except where development is located within 10metres of a residential zone, in which case, the development should be set back at least 5 metres from the front property boundary
 - d. Should not exceed two storeys (8.5m) in height
 - e. Provide vehicle access primarily from side streets
 - f. Provide landscaping areas measuring no less than 3 metres in width.

The proposed development of a shop and a restaurant is envisaged development in the Neighbourhood Zone.

Parking is provided in accordance land use specific requirements based on traffic assessments off similar development as evidenced in the assessment undertaken by GTA.



Ample parking is available on site with shared parking and access providing maximum flexibility and economy in the provision of parking areas and for service access.

Whilst an assessment of the actual floor area of retail development in the Centre zone has been undertaken, I note that the retail floor space limit of 2500m² is expressed in very general terms and if it is exceeded, it would only be by a very small margin.

The development will incorporate a high standard of landscaping which is a significant improvement on the very limited site landscaping now provided on site and although not consistently 3m wide, the combination of various areas of site landscaping between the buildings and property boundaries will significantly enhance the presentation of the development to the adjoining road network, and act as a visual buffer to adjoining development to the west

In accord with the above principles, the development provides vehicle access/egress from both the adjoining side streets within only access from Marion Road. Given the nature of the adjoining local road network, it is not expected that there will be any significant intrusion of traffic from the subject land into the adjoining Residential area.

Building form and scale is consistent with the expectation of the Development Plan and do not exceed 2 storeys, and both are under the maximum height of 8.5m.

4.3 Advertisements

General Section

Objectives

- 2 Advertisements and/or advertising hoardings that do not create a hazard.**
- 3 Advertisements and/or advertising hoardings designed to enhance the appearance of the building and locality.**

Principles

- 1 The location, siting, design, materials, size, and shape of advertisements and/or advertising hoardings should be:**
 - (a) consistent with the predominant character of the urban or rural landscape
 - (c) coordinated with and complement the architectural form and design of the building they are to be located on.
- 2 The number of advertisements and/or advertising hoardings associated with a development should be minimised to avoid:**
 - (a) clutter
 - (b) disorder
 - (c) untidiness of buildings and their surrounds
 - (d) driver distraction.
- 3 Buildings occupied by a number of tenants should exhibit co-ordinated and complementary advertisements and/or advertising hoardings to identify the tenants and their type of business.**
- 4 The content of advertisements should be limited to information relating to the legitimate use of the associated land.**
- 5 Advertisements and/or advertising hoardings should:**
 - (a) be completely contained within the boundaries of the subject allotment
 - (b) be sited to avoid damage to, or pruning or lopping of on-site landscaping or street trees
 - (c) not obscure views to vistas or objects of high amenity value.



- 7 Advertisements and/or advertising hoardings attached to buildings should not be sited on the roof or higher than the walls of a building.
- 8 The total advertisement area on the fascias, parapets, gable ends, windows and other surfaces of buildings should not exceed:
 - (a) 20 per cent of the sides of the building
 - (b) in relation to the front wall of a building, 20 per cent of the area above 3.7 metres or above a canopy.
- 10 Advertisements should be designed to conceal their supporting advertising hoarding from view.
- 11 Advertisements should convey the owner/occupier and/or generic type of business, merchandise or services using simple, clear and concise language, symbols, print style and layout and a small number of colours.
- 12 Advertisements which perform a secondary role in identifying the business, goods or services should only be readable in the immediate vicinity of the site.
- 14 Advertisements and/or advertising hoardings should not create a hazard by:
 - (a) being so highly illuminated as to cause discomfort to an approaching driver, or to create difficulty in the driver's perception of the road or persons or objects on the road
 - (b) being liable to interpretation by drivers as an official traffic sign, or convey to driver's information that might be confused with instructions given by traffic signals or other control devices, or impair the conspicuous nature of traffic signs or signals
 - (c) distracting drivers from the primary driving task at a location where the demands on driver concentration are high
 - (d) obscuring a driver's view of other road or rail vehicles at/or approaching level crossings, or of pedestrians or of features of the road that are potentially hazardous (e.g. junctions, bends, changes in width, traffic control devices).
- 16 Freestanding advertisements and/or advertising hoardings should be:
 - (a) limited to only one primary advertisement per site or complex (except where a site has multiple road frontages, in which case, one freestanding advertising hoarding per road frontage is appropriate)
 - (b) of a scale and size in keeping with the desired character of the locality and compatible with the development on the site.
- 17 Except where otherwise specified in a particular zone, policy area or precinct, free standing advertisements should be designed within the following parameters:

Zone/Policy Area	Advertisement area (square metres)	Additional advertisement area per metre of site frontage with a public road or public thoroughfare (square metres)	Maximum height (metres)
District Centre Zone	6	0.15	9
Neighbourhood Centre Zone			

- 18 Advertisements and/or advertising hoardings incorporating any flags, bunting, streamers, or suspended objects should:
 - (a) be placed or arranged to complement and accord with the scale of the associated development
 - (b) other than flags, not be positioned higher than the building they are attached or related to
- 21 Advertisements and/or advertising hoardings incorporating any flags, bunting, streamers, or suspended objects should:



- (a) **be placed or arranged to complement and accord with the scale of the associated development.**

The advertising is designed, coloured and sited to be integrated with the development of the site as a BWS and a McDonald's restaurant, the development of which will result in a net improvement to the appearance and amenity of the site, including co-ordinated advertising, significant areas of landscaping and a high quality built form.

For the McDonald's development, advertising on the site generally is limited to the buildings where it is fully integrated with the building design and form.

There are also two (2) flagpoles of 8.5m in height proposed, fronting Marion Road, and car park signage internally on the site indicating speed, shared zones and pedestrian crossings.

These are shown in more detail in the plans accompanying with this application.

The BWS development will retain the existing 12m high pylon sign and the remaining advertising is limited to ancillary car park signage and eight A0 poster boards on the facade of the building positioned at eye level.

The proposed approach to advertising is for signage that is well designed and professionally constructed, with a limited range of colours and a restrained message. The signs will not be a discordant element in a locality characterised by extensive arterial road frontages, high traffic volumes and a somewhat discordant array overhead high and low voltage power lines and supporting poles.

Ancillary signage is typical of both land uses; they are located well within the site, are of low scale and are not generally or highly visible to passing traffic on the surrounding road network as they are intended to viewed internally in respect to the directional and information signs, and where located on the buildings are viewed for the most part against the background of the building on which they are sited . As such they will have minimal impact on the amenity of the locality.

The signs are not of an excessive scale nor are they of a nature that will distract motorists from the primary task of driving, and in fact they are a common form of signage associated with commercial development on busy arterial roads.

The advertising is consistent with the hierarchy of signage sought by the Development Plan with the directional and information signs forming a high proportion of the lower scale signs on the site.

The proposed signage does not move, rotate (other than in respect to the menu board which is changed once a day from the breakfast menu to the afternoon/evening menu) or incorporate flashing lights, and lighting lux is not so high as to impact on the safety of passing traffic.

No portable advertising is proposed.

The signage will not detract unreasonably from the amenity of the locality and warrants support given the specific attributes of the land referred to above.



4.4 Crime Prevention

General Section

Objective

- 1 A safe, secure, crime resistant environment where land uses are integrated and designed to facilitate community surveillance.

Principles

- 1 Development should be designed to maximise surveillance of public spaces through the incorporation of clear lines of sight, appropriate lighting and the use of visible permeable barriers wherever practicable.
- 2 Buildings should be designed to overlook public and communal streets and public open space to allow casual surveillance.
- 3 Development should provide a robust environment that is resistant to vandalism and graffiti.
- 4 Development should provide lighting in frequently used open spaces pedestrian areas and other vulnerable parts of centres and residential areas including those:
 - (a) along dedicated cyclist and pedestrian pathways, laneways and access routes
 - (b) around public facilities such as toilets, telephones, bus stops, seating, litter bins, automatic teller machines, taxi ranks and car parks.
- 5 Development, including car park facilities should incorporate signage and lighting that indicate the entrances and pathways to, from and within sites.
- 6 Landscaping should be used to assist in discouraging crime by:
 - (a) screen planting areas susceptible to vandalism
 - (b) planting trees or ground covers, rather than shrubs, alongside footpaths
 - (c) planting vegetation other than ground covers a minimum distance of two metres from footpaths to reduce concealment opportunities.

Both McDonald's and BWS are experienced retailers who work closely with the police to ensure that site security is maintained at the highest level, and the site design incorporates a range of techniques to achieve this goal, including:

- lighting throughout the site including within the car parking area, entrance and generally around the building;
- clear staff/public surveillance of the car park area from within the building;
- video surveillance to maximise safety for employees and customers;
- landscaping with groundcovers and feature trees to maintain appropriate lines of sight, thus maximising surveillance into the site from the surrounding road network;
- Staff training to cope with emergency situations.

It is in the best interest of both establishments to maintain a safe environment at all times for both customers and employees of the business.

Similarly building finishes are robust with a combination of site security measures referred to above and 24-hour operation in the case of the McDonald's store which minimises the potential for anti-social behaviour and graffiti vandalism on the site.



4.5 Design and Appearance

General Section

Objectives

- 1 Development of a high design standard that responds to and reinforces positive aspects of the local environment and built form.

Principles

- 1 The design of a building may be of a contemporary nature and exhibit an innovative style provided the overall form is sympathetic to the scale of development in the locality and with the context of its setting with regard to shape, size, materials and colour.
- 2 The external walls and roofs of buildings should not incorporate highly reflective materials which will result in glare to neighbouring properties or drivers.
- 3 Where a building is sited on or close to a side boundary, the side boundary wall should be sited and limited in length and height to minimize:
 - a. The visual impact of the building as viewed from adjoining properties
 - b. Overshadowing of adjoining properties and allow adequate sun light to neighbouring buildings
- 11 Permanently fixed external screening devices should be designed and coloured to complement the associated building's external materials and finishes.
13. Buildings, landscaping, paving and signage should have a coordinated appearance that maintains and enhances the visual attractiveness of the locality.
- 19 Outdoor storage, loading and service areas should be:
 - a. Screened from public view by a combination of built form, solid fencing and/or landscaping
 - b. Conveniently located and designed to enable the manoeuvring of service and delivery vehicles,
 - c. Sited away from sensitive land uses

The above provisions promote the enhancement of visual amenity throughout the Zone through appropriate siting, high quality design and landscaping.

The building is located in an area that has a dominant commercial character deriving from the range of uses aligned along Marion Road and east of the subject land where buildings are generally commercial in nature, scale, appearance and form.

Views along Marion Road are dominated by a mixture of traffic, power poles and overhead wires and lights, with overhead infrastructure being a feature in the immediate locality along both sides, but particularly to western side of Marion Road.

The overall height, bulk and scale of the proposed restaurant building will be sympathetic to its interface location with adjoining residential development and its locality; building design is of high quality and low scale, with co-ordinated colour schemes, signage, setbacks and landscaping that present a neat and tidy appearance.

The use of lower level structural elements in the building design assists in providing a rising degree of scale to the building and creating articulation and shadow lines that break up the mass of the otherwise relatively modest (for the site) buildings.

Site coverage is low and provides ample opportunity for setback from the boundaries, site landscaping and car parking to be accommodated on the site.

All areas not required for vehicle parking and manoeuvring will be extensively landscaped as per the landscaping plan provided, with trees and shrubs to provide shade and additional site screening elements.



Building setbacks from all road frontages are extensive and well in excess of the relevant Development Plan provisions. Car parking is readily visible and accessible to passing traffic on these roads.

No outdoor storage areas are required, all rubbish and other storage requirements being accommodated within dedicated screened areas.

Service access is catered for and is undertaken out of peak hour trade periods to avoid conflict between service vehicles, customer vehicles and pedestrians, with ample manoeuvring area to enable service vehicles to enter and exit the site in a forward direction.

Amongst other things the development;

- is well-designed and of a character and form that will enhance the attractiveness of this part of Marion Road, with attention to built form, design, siting and landscaping all intended to improve the amenity of the locality;
- addresses interface issues, such as noise, visual impact, and privacy that arise due to the proximity of housing;
- will enhance the character of the area through high quality building design and extensive site landscaping;
- provides co-ordinated signage commensurate with the use of and dimensions of the land;
- adopts careful design to minimise impact on residential amenity;
- buffers adjacent housing by screen plantings and an acoustic fence.

4.6 Interface between Land Uses

General Section

Objectives

- 1 Development located and designed to prevent adverse impact and conflict between land uses.**
- 2 Protect community health and amenity from adverse impacts of development.**
- 3 Protect desired land uses from the encroachment of incompatible development.**

Principles

- 1 Development should not detrimentally affect the amenity of the locality or cause unreasonable interference through any of the following:**
 - (a) the emission of effluent, odour, smoke, fumes, dust or other airborne pollutants
 - (b) noise
 - (c) vibration
 - (d) electrical interference
 - (e) light spill
 - (f) glare
 - (g) hours of operation
 - (h) traffic impacts.
- 6 Non-residential development on land abutting a residential zone should be designed to minimise noise impacts to achieve adequate levels of compatibility between existing and proposed uses.**
- 8 Development with the potential to emit harmful or nuisance-generating air pollution should incorporate air pollution control measures to prevent harm to human health or unreasonable interference with the amenity of sensitive uses within the locality.**
- 13 Chimneys or exhaust flues associated with commercial development (including cafes, restaurants and fast food outlets) should be designed to ensure they do not cause a nuisance or health concerns to nearby sensitive receivers by:**



- (a) incorporating appropriate treatment technology before exhaust emission are released to the atmosphere
- (b) ensuring that the location and design of chimneys or exhaust flues maximises dispersion and takes into account the location of nearby sensitive uses.

The manner in which the site development addresses interface issues associated with noise has already been dealt with above as have matters pertaining to 24-hour opening for the restaurant and drive-thru facility, and site traffic.

The combination of building siting and fencing will go a substantial way to considerably reducing the high levels of noise presently experienced by the adjoining houses from traffic noise on the adjoining arterial roads, noting the land is high noise environment resulting from its proximity to the airport and flight paths.

The site will be lit for security purposes, but lights will be directed and shielded in such a manner to avoid light spill into the adjoining residential properties.

The key sources of potential odours from the development are associated with cooking and waste storage on the McDonald's premises. With regard to cooking, the kitchen will be operated in accordance with the Food Standards Code under the Food Act 2003 and Australian Standard 4674 – Design, Construction and Fit out of Food Premises; and will accord with the Environment Protection (Air Quality) Policy 1994, under the Environment Protection Act, both of which are intended to minimise the potential for the site to generate cooking odours.

The design and operation of the restaurant will incorporate an exhaust ventilation system which complies with the relevant Australian Standard for cooking odour extraction, and operations will involve minimising any odour that may be discharged by the development. McDonald's adopt a strict regime of cleaning and maintenance of exhaust systems to ensure that any build-up of fat is removed from filters and exhaust hoods daily and from ducting and mechanical plant monthly.

All waste will be stored in the proposed waste storage area (corral). This area is of a sufficient size to accommodate the number of required bins and is cleaned regularly as part of the premises on-going operation.

The waste associated with the BWS will be mostly cardboard and plastic, with very little risk of producing odours from waste. Furthermore, this use is already existing, no new impacts will result from the upgrade of facility.

4.7 Landscaping Fences and Walls

General Section

Objectives

- 1 The amenity of land and development enhanced with appropriate planting and other landscaping works, using locally indigenous plant species where possible.
- 2 Functional fences and walls that enhance the attractiveness of development

Principles

- 1 Development should incorporate open space and landscaping in order to:
 - (a) complement built form and reduce the visual impact of larger buildings (eg taller and broader plantings against taller and bulkier building components)
 - (b) enhance the appearance of road frontages
 - (c) screen service yards, loading areas and outdoor storage areas
 - (d) minimise maintenance and watering requirements
 - (e) enhance and define outdoor spaces, including car parking areas
 - (f) provide shade and shelter



- (g) assist in climate control within buildings
 - (h) maintain privacy
 - (i) maximise stormwater re-use
 - (j) complement existing native vegetation
 - (k) contribute to the viability of ecosystems and species
 - (l) promote water and biodiversity conservation.
4. A minimum of 10 per cent of a development site should be landscaped. The development site refers to the land which incorporates a development and all the features and facilities associated with that development, such as outbuildings, driveways, parking areas, landscaped areas, service yards and fences. Where a number of buildings or dwellings have shared use of such features and facilities, the development site incorporates all such buildings or dwellings and their shared features and facilities.
5. A landscape area of at least 3 metres in width should be provided between non-residential development and the boundary of a residential zone.

A landscaping plan prepared by landscape architects Taylor's is provided in conjunction with this application.

Landscaping comprises an area of some 20% of the site.

A landscaping plan accompanies the application and includes the following features which have been adopted to enhance the development by:

- establishing landscaping beds adjacent to all site boundaries;
- utilising plants that will grow to screen the fences located along the western boundary of the land;
- locating the larger proportion of the overall landscaping adjacent the street boundary to maintain a quality appearance to the public realm;
- using plant species that will include grasses, medium height shrubs and small trees in scale with the proposed building but designed not to impede casual surveillance;
- using low-height planting adjacent the access driveway to maintain adequate sight lines;
- adopting a planting schedule that includes native plants, to foster the principles of Water Sensitive Urban Design.

Both McDonald's and BWS pride themselves on the ongoing maintenance of landscaping to a high standard which is important to the overall public presentation of the site and which will improve the appearance of the site and in turn improve the amenity of the locality.

4.8 Transportation and Access

General section

Objectives

- 2 Development that:
- (a) provides safe and efficient movement for all motorised and non-motorised transport modes
 - (b) ensures access for vehicles including emergency services, public infrastructure maintenance and commercial vehicles
 - (c) provides off street parking
 - (d) is appropriately located so that it supports and makes best use of existing transport facilities and networks.
 - (e) provides convenient and safe access to public transport stops.



Principles of Development

- 2 Development should be integrated with existing transport networks, particularly major rail and road corridors as shown on Location Map and Overlay Maps - Transport, and designed to minimise its potential impact on the functional performance of the transport network.
- 5 Land uses that generate large numbers of visitors such as shopping centres and areas, places of employment, schools, hospitals and medium to high density residential uses be located so that they can be serviced by existing transport networks and encourage walking and cycling.
- 8 Development should provide safe and convenient access for all anticipated modes of transport.
- 12 Development should be designed to discourage commercial and industrial vehicle movements through residential streets and adjacent other sensitive land uses.
- 13 Industrial/commercial vehicle movements should be separated from passenger vehicle car parking areas.
- 14 Development should provide for the on-site loading, unloading and turning of all traffic, including any waste collection vehicles, likely to be generated.
- 24 Development should be provided with safe and convenient access which:
 - (a) avoids unreasonable interference with the flow of traffic on adjoining roads
 - (b) provides appropriate separation distances from existing roads or level crossings
 - (c) accommodates the type and volume of traffic likely to be generated by the development or land use and minimizes induced traffic through over-provision
 - (d) is sited and designed to minimize any adverse impacts on the occupants of and visitors to neighboring properties.
- 26 The number of vehicle access points onto arterial roads as shown on Overlay Maps - Transport should be minimised, and where possible access points should be:
 - (a) limited to local roads
 - (b) shared between development
- 27 Development with access from roads with existing or projected traffic volumes exceeding 6000 vehicles per day should be sited to avoid the need for vehicles to reverse onto or from the road.
- 32 Development should be sited and designed to provide convenient access for people with a disability.
- 34 Development should provide off street parking and specifically marked disabled car parking places to meet anticipated demand in accordance with Table WeTo/2- Off Street Parking Requirements
- 35 Development should be consistent with Australian Standard AS 2890 Parking facilities.
- 36 Vehicle parking areas should be sited and designed to:
 - (a) facilitate safe and convenient pedestrian linkages to the development and areas of significant activity or interest in the vicinity of the development
 - (b) include safe pedestrian and bicycle linkages that complement the overall pedestrian and cycling network
 - (c) not inhibit safe and convenient traffic circulation
 - (d) result in minimal conflict between customer and service vehicles
 - (e) avoid the necessity to use public roads when moving from one part of a parking area to another
 - (f) minimise the number of vehicle access points to public roads
 - (g) avoid the necessity for backing onto public roads



- (h) where practical, provide the opportunity for shared use of car parking and integration of car parking areas with adjoining development to reduce the total extent of vehicle parking areas and the requirement for access points
- (i) not dominate the character and appearance of a centre when viewed from public roads and spaces
- (j) provide landscaping that will shade and enhance the appearance of the vehicle parking areas.
- (k) include infrastructure such as underground cabling and connections to power infrastructure that will enable the recharging of electric vehicles.

37 Vehicle parking areas should be designed to reduce opportunities for crime by:

- (a) maximising the potential for passive surveillance by ensuring they can be overlooked from nearby buildings and roads
- (b) incorporating walls and landscaping that do not obscure vehicles or provide potential hiding places
- (c) being appropriately lit
- (d) having clearly visible walkways.

40 Vehicle parking areas should be sealed or paved in order to minimise dust and mud nuisance.

41 To assist with stormwater detention and reduce heat loads in summer, outdoor vehicle parking areas should include landscaping.

42 Vehicle parking areas should be line-marked to delineate parking bays, movement aisles and direction of traffic flow.

43 On-site visitor parking spaces should be sited and designed to:

- (a) not dominate internal site layout
- (c) be accessible to visitors at all times.

This layout for the most part locates the parking areas to the front of the buildings proposed.

The location of the carpark is such that it is visible from Marion Rd, as well as the side streets- Trennery and Knight Streets, and thus to passing traffic most likely to access the site. The visibility of the car park to passing traffic makes it more readily identifiable and the access points more obvious than if the car parks were completely located at the rear of the building.

The layout of the site provides outlook into the site from the adjoining roads across a landscaped area which enhances the appearance and the security of the site by having this public area open to observation from the adjoining roads, as well as from within the building and neighbouring land uses.

Delivery times are arranged to avoid peak trading periods and the site has been designed to provide access for service vehicles up to 15 metres in length. Commercial vehicle access will be limited to daylight hours.

Car parking and access otherwise accords with the relevant Australian Standards (AS 2890) and provides convenient access for people with disabilities.

Car parking provision is sufficient to meet peak demand expected to occur on site.



5.0 SUMMARY

The proposed development is considered an appropriate form of for the following reasons:

- The development is appropriately located in a Neighbourhood Centre zone;
- Reasonable noise attenuation and light overspill measures will be adopted to minimise impacts from these aspects of the development;
- The overall height, bulk and scale of the proposed buildings are in accord with the expectations of the Development Plan and are sympathetic to the existing commercial character along Marion Road;
- The proposal will be constructed from quality materials and together with proposed landscaping will significantly enhance the appearance and visual amenity of the subject land and locality;
- The proposed development is consistent with the desired character of the relevant zone and policy area, and the both shop and restaurant are envisaged land uses;
- Access to the site will be taken via appropriately designed crossovers and driveways from both Trennery and Knight Streets, with limited access from Marion Road;
- Delivery vehicles access and manoeuvrability has been carefully considered and resolved;
- Advertising associated with the development is not extensive and does not create undue visual clutter, it is not a discordant element in the locality, which is characterised by extensive arterial road frontage, high traffic volume, extensive arrays of overhead high and low voltage cables.
-
- Signage internal of the site is generally low and of a small scale, not visible from the road and passing vehicles;
- All signage is professionally designed, compatible with the proposed development on the land and, where located on the building, are integrated with the design in form, siting and colour.

Having regard to the foregoing I am of the opinion that the proposal is worthy of approval by the Council.

Should you have any questions regarding the above report, please do not hesitate to contact on 81307222 or at dhutchison@accessplanning.com.au.

Yours sincerely,

A handwritten signature in blue ink that reads 'D Hutchison'.

David Hutchison BA CPP PIA
ACCESS PLANNING (SA) PTY LTD

Proposed McDonalds & BWS

134-142 Marion Road, West Richmond
Transport Impact Assessment



Prepared by: GTA Consultants (SA) Pty Ltd for McDonalds Australia
on 29/11/19
Reference: S181380
Issue #: A



Proposed McDonalds & BWS

134-142 Marion Road, West Richmond
Transport Impact Assessment

Client: McDonalds Australia

on 29/11/19

Reference: S181380

Issue #: A

Quality Record

Issue	Date	Description	Prepared By	Checked By	Approved By	Signed
A	29/11/2019	Final	Paul Morris	Sarah Hartland	Paul Morris	

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1. INTRODUCTION

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S181380 // 29/11/19
Transport Impact Assessment // Issue: A
Proposed McDonalds & BWS , 134-142 Marion Road,
West Richmond

1

1.1. Background

A Development Application is currently being sought for a proposed McDonald's restaurant and a redeveloped BWS store on land at 134-142 Marion Road in West Richmond.

GTA Consultants (GTA) was commissioned by McDonalds Australia Limited in November 2019 to provide a transport impact assessment of the proposed development.

1.2. Purpose of this Report

This report sets out an assessment of the anticipated transport implications of the proposed development, including consideration of the following:

1. Existing traffic and parking conditions surrounding the site
2. Parking demand likely to be generated by the proposed development
3. Suitability of the proposed parking in terms of supply (quantum) and layout
4. Traffic generation characteristics of the proposed development
5. Proposed access arrangements for the site
6. Transport impact of the development proposal on the surrounding road network.

1.3. References

In preparing this report, reference has been made to the following:

- West Torrens Council Development Plan – consolidated 12 July 2019
- Australian Standard/ New Zealand Standard, Parking Facilities, Part 1: Off-Street Car Parking AS/NZS 2890.1:2004
- Australian Standard, Parking Facilities, Part 2: Off-Street Commercial Vehicle Facilities AS 2890.2:2002
- Australian Standard / New Zealand Standard, Parking Facilities, Part 6: Off-Street Parking for People with Disabilities AS/NZS 2890.6:2009
- Plans for the proposed development prepared by Richmond & Ross Architects
- Traffic and car parking surveys undertaken by GTA Consultants as referenced in the context of this report
- Various technical data as referenced in this report
- An inspection of the site and its surrounds
- Other documents as nominated.

2. EXISTING CONDITIONS

02



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2.1. Subject Site

The subject site is located on the west side of Marion Road between Knight Street and Trennery Street in West Richmond. The site of approximately 4,340 metres² has frontages of approximately 91 metres to Marion Road, approximately 45 metres to Knight Street and approximately 45 metres to Trennery Street.

The site is located within a Neighbourhood Centre zone and currently comprises a BWS Liquor store, vacant shops and a residential dwelling (southern portion). The surrounding properties include a mix of residential (to the west) and commercial land uses (on both sides of Marion Road). Notably a petrol station and fast food restaurant is located to the north.

The site provides 39 parking spaces (formally marked) however there is additional space behind the building for informal parking and loading facilities. The site has 5 driveways with 4 to Marion Road (3 commercial and 1 residential) and 1 to Trennery Street.

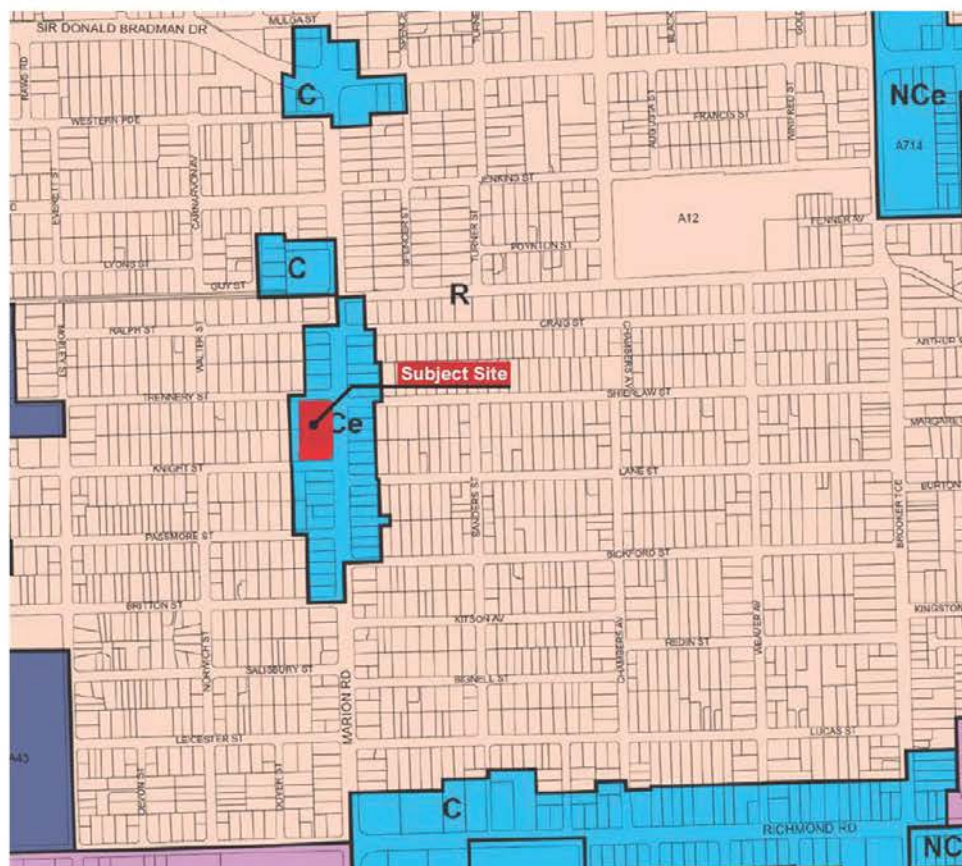
The location of the subject site and the surrounding environs is shown in Figure 2.1, and the land zoning is shown in Figure 2.2.

Figure 2.1: Subject Site and its Environs



(PhotoMap courtesy of NearMap Pty Ltd)

Figure 2.2: Land Zoning



(Reproduced from West Torrens Council Development Plan)

2.2. Road Network

2.2.1. Adjoining Roads

Marion Road

Marion Road is an arterial road under the care and control of Department of Planning Transport and Infrastructure. It is a two-way road aligned in a north to south direction and configured with dual 2-lane carriageways 7.8 metres wide separated by a central 3.1 metre wide raised median set within a road reserve 24.5 metres wide (approx.). A bicycle lane is provided on each side of Marion Road and operates between 7-10am and 3-7pm Monday to Friday.

Marion Road carries approximately 36,300 vehicles per day in the vicinity of the subject site¹.

¹ Based on DPTI Traffic Survey dated 2019

Figure 2.3: Marion Road (Adjacent to Site)



Knight Street

Knight Street is a local road under the care and control of the City of Marion. It is a two-way road configured with a 2 lane, 9.3 metre wide carriageway set within a 16 metre wide road reserve (approximately). Parking is permitted on both sides of the street except for a portion on the northern side near Marion Road.

Knight Street carries approximately 330 vehicles per day² and links to Marion Road at a T-junction. A general urban 50km/h speed limit applies to this street. Knight Street is shown in Figure 2.4.

Figure 2.4: Knight Street (View east with site on left)



² Traffic survey dated 14 November 2019

Trennery Street

Trennery Street is a local road under the care and control of the City of Marion. It is a two-way road configured with a 2 lane, 7.9 metre wide carriageway set within a 14 metre wide road reserve (approx). Parking is permitted on both sides of the street.

Knight Street carries approximately 500 vehicles per day³ and links to Marion Road at a T-junction which is controlled by a stop sign. A general urban 50km/h speed limit applies to this street.

Figure 2.5: Trennery Street (View west with site on left)



2.2.2. Surrounding Intersections

The following intersections currently exist in the vicinity of the site:

- Marion Road and Shierlaw Street (unsignalised)

2.2.3. Traffic Volumes

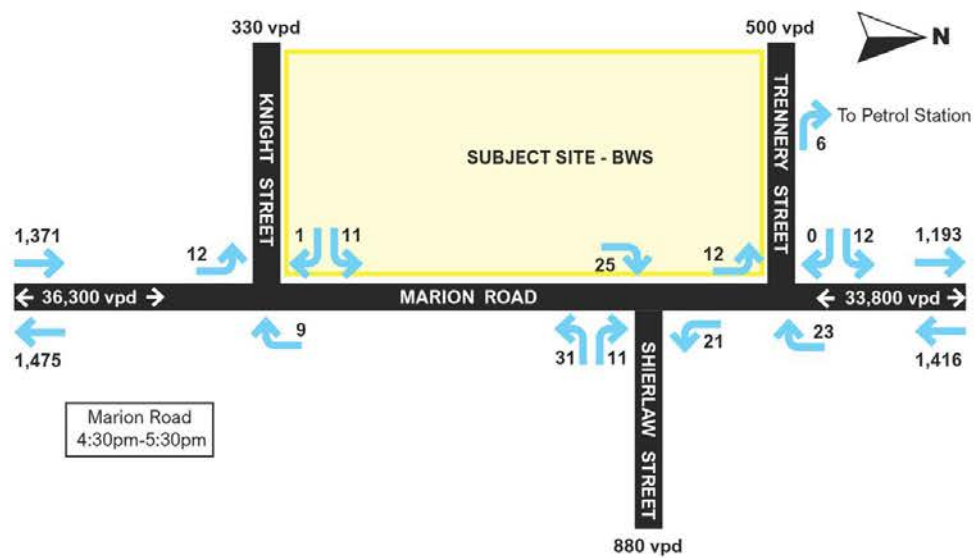
GTA Consultants undertook traffic movement counts on key roads in the vicinity of the site on 14th November 2019 during the 4pm to 7pm period. Data available from Department of Planning Transport and Infrastructure provided recent traffic volumes for Marion Road traffic from the Richmond Road and Sir Donald Bradman Drive intersection to the south and north respectively.

It is noted that the existing BWS store recorded 49 trips during the peak hour, with 29 of these trips via the driveways on Marion Road (that is left in and left out of the site).

The PM peak hour traffic volumes are shown in Figure 2.6.

³ Traffic survey dated 14 November 2019

Figure 2.6: Existing PM Peak Hour & Daily Traffic Volumes



2.2.4. Crash History

A review of the reported crash history for the roads and intersections adjoining the subject site has been sourced from the Department of Planning Transport and Infrastructure database for the most recent 5 year period 2014 to 2019.



A summary of the crashes for the last available five year period (2014 to 2018) is presented in Table 2.1.

Table 2.1: Crash Summary

Location	Crash Type	Number	Outcome
A Marion Road / Trennery Street	Right Angle	1	PDO
	Right Turn	1	PDO
	Side Swipe	1	PDO
B Marion Road / Shierlaw Street	Rear End	1	PDO
	Right Angle	1	Minor Injury
C Marion Road / Knight Street	Right Angle	1	PDO
	Right Turn	1	PDO
D Mid-block on Marion Road	Rear End	4	PDO
	Side Swipe	1	Minor Injury
Total		12	

Source: Department of Planning Transport and Infrastructure

Table 2.1 indicates a crash rate of less than 0.6 crashes per year at the intersections adjacent the site. No specific pattern of crashes is evident given the low number and different type of crashes recorded.

2.3. Sustainable Transport Infrastructure

2.3.1. Public Transport

Figure 2.7 shows the subject site in relation to existing public transport routes within its vicinity whilst Table 2.2 summarises the road based routes and major destinations that can be reached using these services.

Figure 2.7: Public Transport Map



The site is serviced by a number of bus routes on weekdays, however only the H20 operates on weekends past the site.

Table 2.2: Bus Services

Service	Route Nos	Route Description	Distance to Nearest Stop (m)	Significant Destinations On Route	Frequency On/Off Peak
Bus	100	Arndale Centre Interchange to Glen Osmond	10 metres	Woodville Road, Holbrooks Road, Marion Road & Cross Road	Half-Hourly to Hourly Monday – Saturday
	101	Arndale Centre Interchange to Flinders University	10 metres	Woodville Road, Holbrooks Road, Marion Road & Sturt Road	Half-Hourly to Hourly Monday – Saturday
	H20	Paradise to City, then to Glenelg	10 metres	Marion Road, Henley Beach Road, city, The Parade & St Bernards Road.	Half-Hourly to Hourly 7 days
	J7	West Lakes Centre Interchange to Marion Centre Interchange	10 metres	Queen Elizabeth Hospital, Findon Road, Adelaide Airport, Marion Road & Morphett Road	Hourly Monday –Friday
	J8	West Lakes Centre Interchange to Marion Centre Interchange	10 metres	Queen Elizabeth Hospital, Findon Road, Adelaide Airport, Marion Road & Morphett Road	Hourly Monday –Friday

2.3.2. Pedestrian Infrastructure

Pedestrian paths are located on both sides of each street and road adjacent the site.

2.3.3. Cycle Infrastructure

Bicycle lanes operate on Marion Road between 7-10am and 3-7pm Monday to Friday.

3. DEVELOPMENT PROPOSAL

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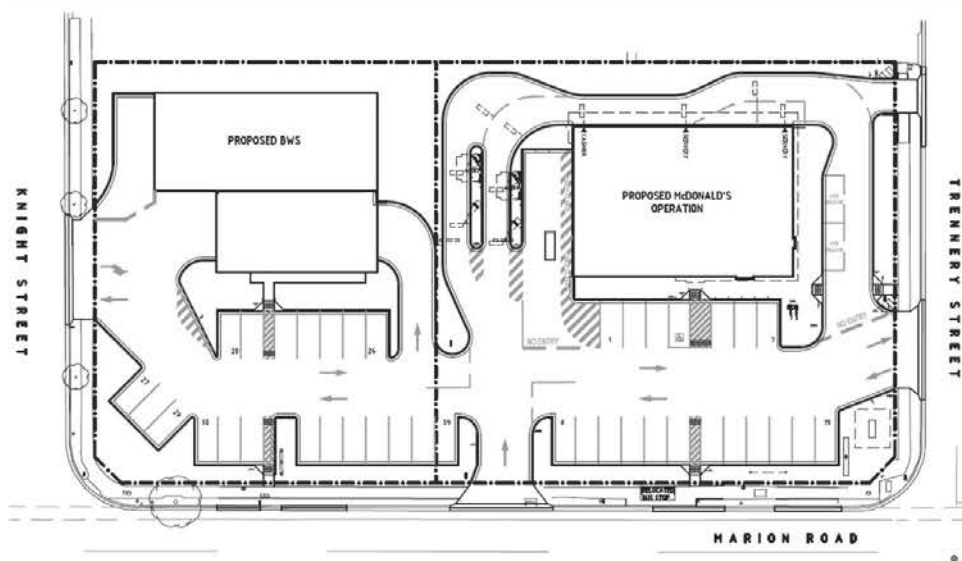
12

3.1. Land Uses

The proposed development will include a redeveloped retail shop (BWS Store) and a fast food store (McDonald's restaurant) in individual buildings on the site, as summarised in Table 3.1.

Table 3.1: Development Schedule

Use	Size
McDonalds Restaurant	60 internal seats with drive-thru facility
BWS Store	272 square metres with drive-thru facility



3.2. Car Parking

Car parking for the proposal is to be provided with 39 spaces including 2 disability parking spaces.

3.3. Vehicle Access

New access points will be provided on Knight Street (1), Marion Road (1) and Trennery Street (2).

3.4. Bicycle Facilities

Bicycle parking will be provided adjacent the McDonalds building.

3.5. Pedestrian Facilities

Pedestrian connections to both buildings will be provided with paths from Marion Road and Trennery Street.

3.6. Loading Areas

Loading docks will be provided for both buildings to accommodate the largest delivery vehicle.

4. PARKING

04



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4.1. Development Plan Car Parking Requirements

The rates for the provision of car parking are set out in the West Torrens Council Development Plan. It is noted that the adjacent public transport services will not justify the site as being located in a designated area, where lower parking rates can be applied. Parking rates relevant to the proposed development are specified in Table WeTo/2 as outlined below;

Restaurant (fast food/family):

- *with dine-in and drive through facilities, greater of 1 per 3 square metres of total floor area (internal and external seating) or 1 per 2 seats (internal seating) and a car queuing area for a maximum of 12 vehicles with 4 car spaces back from the ordering point.*

Shop (not within a centre)

7 per 100 square metres gross leasable area

Application of these rates to the proposed development are shown in Table 4.1.

Table 4.1: Development Plan Car Parking Requirements

Land Use	Car Parking Rate	Number of Seats or Floor Area	Statutory Car Parking Requirement
Restaurant (428sq.m)	<i>greater of 1 per 3 square metres of total floor area (internal and external seating) or 1 per 2 seats (internal seating) and a car queuing area for a maximum of 12 vehicles with 4 car spaces back from the ordering point.</i>	70 seats OR 428 sq.m	35 OR 143
Shop (272sq.m)	<i>7 per 100 square metres gross leasable area</i>	272 sq.m	19
Total			162 or 54

[1] This level of onsite car parking excludes seats contained within the party room as these are considered ancillary to the overall development and do not generate a requirement for peak car parking.

Table 4.1 indicates that the proposed development generates a statutory car parking requirement of up to 162 spaces.

The Development Plan suggests a rate of parking which will result in a very large over-supply of parking. The appropriate parking rate for a fast-food restaurant is better assessed based on empirical data from other similar uses.

4.2. Empirical Assessment

An empirical assessment of the car parking requirements for this site has been made using parking demand surveys undertaken by GTA (and a number of other engineering consultancies) of approximately 25 convenience restaurants (including McDonald's restaurants) throughout Australia.

The results of these surveys indicate a parking rate of 0.35 spaces per internal seat provided (not including the party room seating). On this basis, the restaurant comprising of 70 internal dining room seats would be expected to generate a peak parking demand of 21 spaces.

Parking surveys of large format liquor stores by GTA in Australia has found a parking rate of 3 spaces per 100 square metres would represent the weekday and weekend parking demands at these sites.

A revised assessment of parking demands has been undertaken based on the above rates in Table 4.2.

Table 4.2: Empirical Car Parking Demands

Land Use	Car Parking Rate	Number of Seats or Floor Area	Statutory Car Parking Requirement
Fast Food (428sq.m)	0.35 spaces per internal seat provided (not including the party room seating)	70 seats	25
Shop (272sq.m)	3 per 100 square metres gross leasable area	272 sq.m	8
Total			33

4.3. Adequacy of Parking Supply

Based upon the above discussions and analysis, it is clear that the proposed car parking provision of 39 spaces will be capable of accommodating the peak parking demand of 33 spaces likely to be generated by the proposed development.

It is noted that this methodology has been used and accepted for a number of recently approved McDonalds restaurants in South Australia including Woodville, Port Adelaide and Kadina, and a BWS Store in Eastwood.

4.4. Car Parking Layout

The proposed car parking layout has been assessed against the relevant Australian/New Zealand Standards for Off-Street Car Parking 2890.1:2004, Australian/New Zealand Standards (herein referred to as AS/NZS 2890.1).

The car park design is generally consistent with the Australian Standards and GTA notes the following in regards to the parking area layout:

- The parking spaces are suitable for User Class 3A: short term, high turnover parking. As such, parking spaces will generally be 2.6 metres wide and 5.4 metres long.
- Aisle widths are provided exceeding the 6.6 metres required by the Australian Standards for a User Class 3A parking facility.
- Aisle widths will exceed the minimum requirements of AS/NZS2890.1.
- The McDonalds drive thru lanes have a queuing capacity of up to (approximately) 15 vehicles including 4 vehicles at the ordering points with dual ordering lanes.

- The BWS drive thru lanes will provide two lanes under a canopy in front of the store which will also enable customers to park and enter the store to collect purchases.
- A loading bay is to be located adjacent to the McDonalds drive thru lanes on the southern edge of the restaurant.
- A loading bay will be located on the southern side of the proposed BWS building.
- Two waiting bays are located on the northern edge of the fast food restaurant.
- The McDonalds drive thru lane will have a direct exit to Trennery Street (at the existing driveway).

Disabled parking spaces will be located along the east McDonalds frontage and meet the dimensions of 'Australian / New Zealand Standards for Off-Street Parking Facilities for People with Disabilities' (2009, henceforth referred to as AS/NZS2890.6).

No specific spaces for disability parking will be provided for the BWS store as people can park adjacent the front door under the canopy for direct in-vehicle service.

5. SUSTAINABLE TRANSPORT INFRASTRUCTURE

05



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5.1. Bicycle End of Trip Facilities

The West Torrens Council Development Plan does specify the following rate in regard to bicycle parking provision;

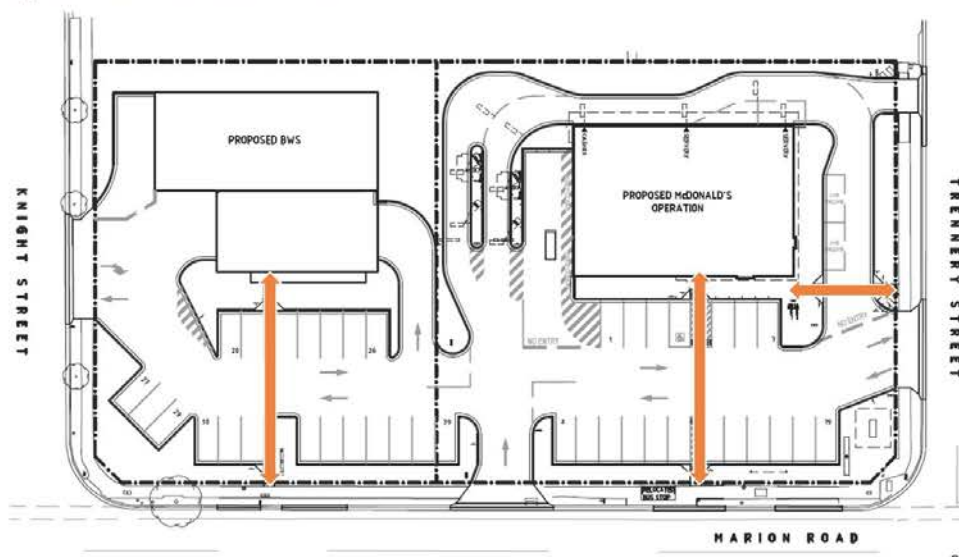
On site secure bicycle parking racks for 3 bicycle spaces per 50 employees non-residential development

Based on the above rates and assuming under 50 employees the proposed development has a statutory requirement of 3 bicycle parking spaces. The provision of 4 bicycle parking spaces meets the statutory requirement and is considered appropriate.

5.2. Walking and Cycling Network

The proposed development will provide pedestrian links from Marion Road to both the BWS and McDonalds buildings, and also from Trennery Street to the McDonalds building. These are shown in Figure 5.1.

Figure 5.1: Pedestrian Access Paths



5.3. Public Transport

The site is accessible by public transport with a bus stop located adjacent the site. The bus stop will need to be relocated to the north of the proposed driveway, which impacts the current bus stop location. Pedestrian routes within the site will connect to the Marion Road footpath which provides access to this bus stop.

6. LOADING FACILITIES

06



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6.1. Development Plan Requirements

The West Torrens Development Plan provides the following Principles of Development Control (PDC) in the 'Transportation and Access' section with regard to development loading facilities. The relevant PDCs are as follows:

14 Development should provide for the on-site loading, unloading and turning of all traffic, including any waste collection vehicles, likely to be generated.

6.2. Proposed Loading Arrangements - McDonalds

The McDonalds loading bay will be located on the southern side of the building adjacent the drive-through entry lanes. It has been designed such that an articulated service vehicle (McDonald's delivery vehicle) can enter and exit the site in a forward direction. A swept path assessment of the delivery vehicle access has been undertaken and is shown in Figure 6.1 and Figure 6.2.

Figure 6.1: Truck Entering Loading Area from Marion Road

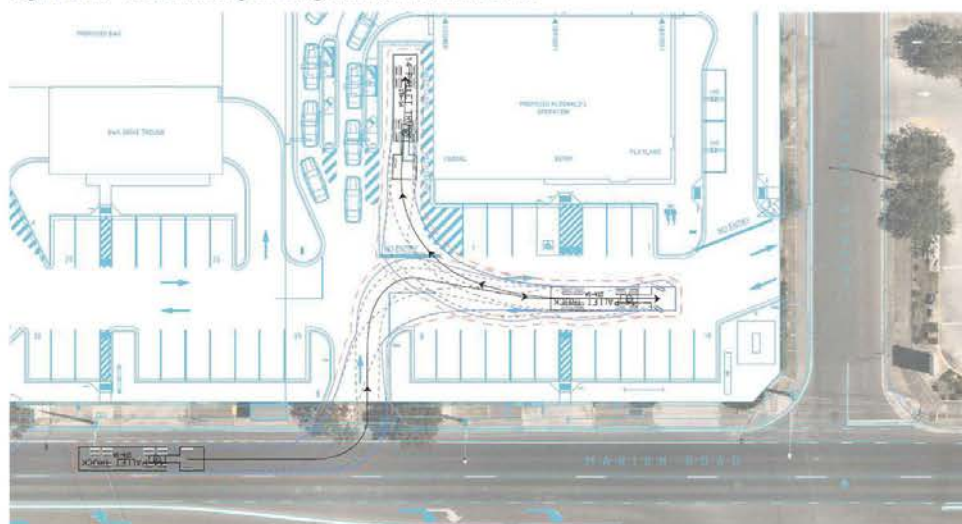
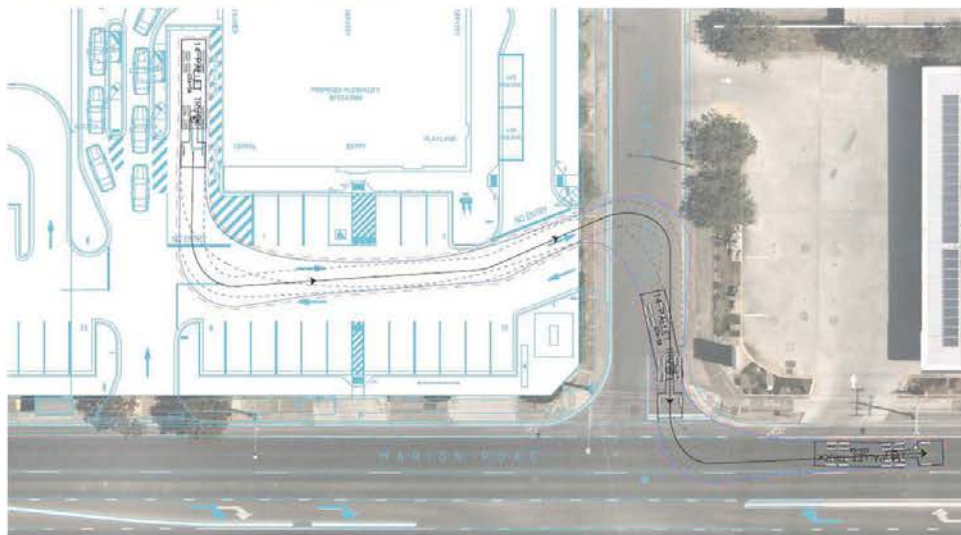


Figure 6.2: Truck Exiting to Trennery Street



The proposed layout for loading may occasionally require heavy and light vehicles to mix, however there is sufficient space for any truck to manoeuvre within the proposed aisle without impacting car parking spaces.

On the basis of typical McDonald's loading and delivery procedures there will be on average up to 2 deliveries in a 24 hour period. GTA notes the safe operation of other McDonald's stores through Australia whereby similar layouts exist and operate with little impact on adjacent car park areas and customer vehicle movements.

6.3. Proposed Loading Arrangements - BWS

The BWS loading bay will be located on the southern side of the building adjacent the drive-through exit lanes. The BWS loading bay has been designed such that a 12.5 metre class rigid service vehicle (BWS delivery vehicle) can enter and exit the site in a forward direction. A swept path assessment of the delivery vehicle access has been undertaken and is shown in Figure 6.3 and Figure 6.4.

Figure 6.3: 12.5m Truck Entering Loading Area from Marion Road/Knight Street

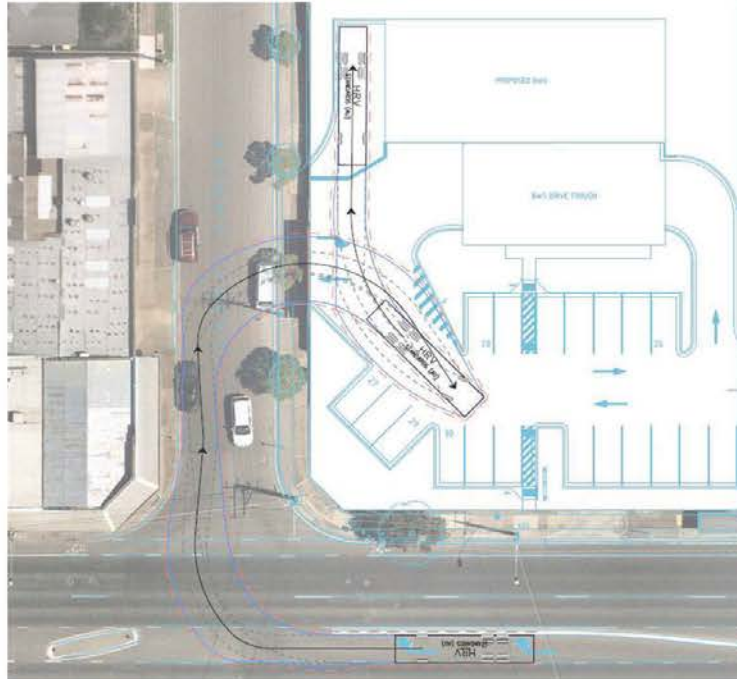
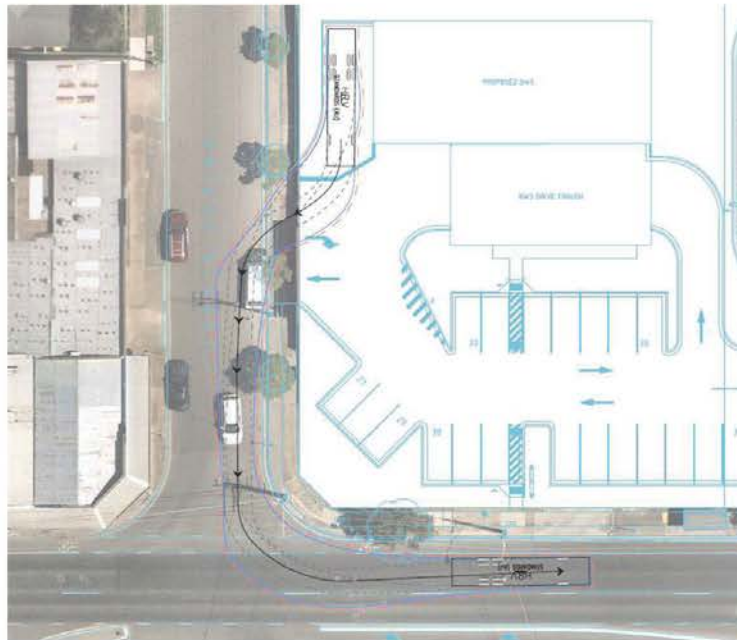


Figure 6.4: 14m Truck Exiting to Knight Street



The proposed layout for loading may occasionally require heavy and light vehicles to mix, however there is sufficient space for any truck to manoeuvre within the proposed aisle without impacting car parking spaces.

On the basis of typical BWS loading and delivery procedures there will be on average of 1 delivery per day.

6.4. Refuse Collection

Refuse collection will utilise the loading docks as discussed earlier. Waste collection vehicles will typically be up to 10.5 metres in length and occur on a weekly basis. These vehicles will operate in a similar manner to the delivery vehicles.

7. TRAFFIC IMPACT ASSESSMENT

07



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7.1. Traffic Generation

7.1.1. McDonalds Design Rates

As estimate of the traffic generation of the proposed development was made with reference to surveys undertaken by GTA Consultants of several existing convenience restaurants (including McDonald's restaurants).

The results of these surveys indicate the following traffic generation rates:

- road network PM peak movements: 0.55 / seat + 28 for drive through
- restaurant peak hour movements: 1.13 / seat + 77 for drive through

Application of the above rates to the proposed 70 internal seats anticipates traffic generation of 67 trips during road network peak hour (typically 5:00pm – 6:00pm), 156 movements during the restaurant peak hour (typically 6:00pm – 7:00pm).

The peak hour traffic volumes accords with observed traffic volumes for McDonald's stores, for instance, Frewville which recorded 126 trips per hour during the road network peak period.

It is noted from previous surveys that up to 70% of traffic to the McDonalds restaurant will be drive through service which would equate to 109 trips.

For the purpose of analysis, it has been conservatively assumed that the restaurant peak hour occurs during the road network peak hour.

7.1.2. BWS Design Rates

Typical traffic generation rates for specific land uses are provided within the RTA Guide. However, no traffic generation rate is provided for a liquor store. Therefore the traffic generation rate for the proposed liquor store has been sourced from GTA's database of traffic generation surveys. The traffic generation rates applicable to the proposed developments are shown below.

<i>Liquor Store</i>	<i>Peak Hour</i>	<i>8.9 trips per 100 sq. m</i>
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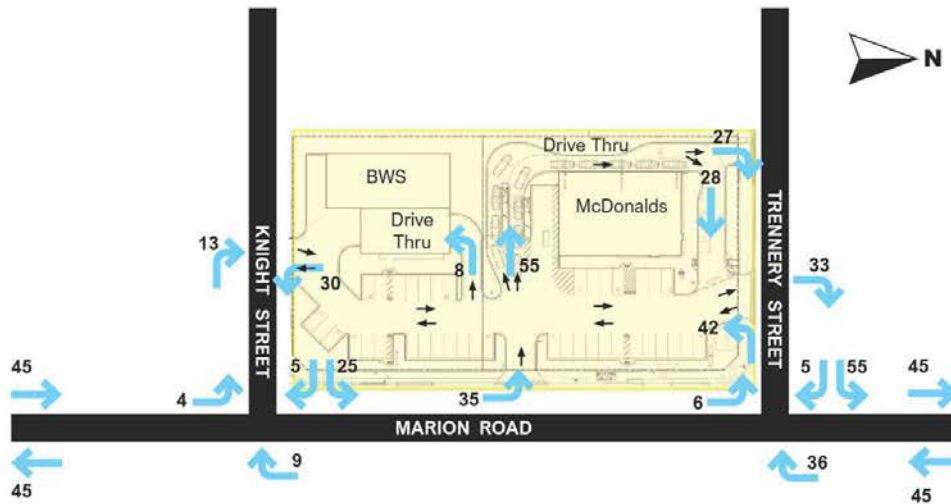
A survey of the existing BWS store on the subject site identified a peak period traffic generate rate of approximately 6.5 trips per 100 square metres of floor space.

Application of the above rates to the proposed 272 square metres floor space anticipates a traffic generation of 24 trips during the peak hour.

7.1.3. Distribution and Assignment

The directional distribution and assignment of traffic generated by the proposed development has been developed based on a 50% split to the north and south on Marion Road. Based on the above, Figure 7.1 has been prepared to show the estimated marginal increase in turning movements in the vicinity of the subject property following full site development. It is noted that no trips are shown to the west of the site on Knight Street or Trennery Street. The limited connectivity of the streets to the west would not provide any advantage for access back to Marion Road, as vehicles would need to travel some 600 metres to Richmond Road to the south, and there is not connectivity to Sir Donald Bradman Drive to the north (the stormwater drain north of Ralph Street obstructs vehicle access). Any trips to the west would likely be local residents.

Figure 7.1: PM Peak Hour Site Generated Traffic Volumes



7.2. Traffic Impact

Post development traffic volumes at each intersection are shown in Figure 7.2. It is noted that an adjustment to left turn movements has been made which are higher due to drivers choosing to turn left and then U-turn on Marion Road to travel back to the south. This is based on the observed difficulty in turning right during the road network peak period onto Marion Road. This is not an issue outside of peak hours with gaps available in the traffic flows on Marion Road to enable right turns.

Figure 7.2: Post-Development PM Peak Hour Traffic Volumes



SIDRA modelling has been undertaken for the intersections of Trennery Street and Knight Street with Marion Road. The PM peak period has been modelled for this location as it is expected to be the worst case scenario with the network peak aligning with the proposed development peak period.

For the purposes of assessing the intersection operation, the standard T-intersection arrangement has been utilised as the central median storage on Marion Road for the stage crossing scenario is quite narrow and not likely to be utilised by all drivers.

7.2.1. Trennery Street / Marion Road

Table 7.1 provides a summary of the outputs of the Base Case in comparison to the Post Development scenario.

Table 7.1: Trennery Street / Marion Road SIDRA Analysis - Predicted

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No Cycles	Average Speed km/h
South: Marion Road (S)												
1	L2	19	0.0	0.384	5.5	LOS A	0.0	0.0	0.00	0.02	0.00	57.0
2	T1	1446	2.5	0.384	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.8
Approach		1465	2.4	0.384	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.7
North: Marion Road (N)												
8	T1	1493	2.3	0.394	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
9	R2	62	0.0	0.273	23.6	LOS C	0.9	6.2	0.88	0.98	0.98	38.6
Approach		1555	2.2	0.394	1.0	NA	0.9	6.2	0.04	0.04	0.04	57.9
West: Trennery Street												
10	L2	72	1.5	1.125	258.5	LOS F	11.3	81.1	1.00	2.34	4.83	9.0
12	R2	6	16.7	1.125	721.7	LOS F	11.3	81.1	1.00	2.34	4.83	6.2
Approach		78	2.7	1.125	296.0	LOS F	11.3	81.1	1.00	2.34	4.83	8.8
All Vehicles		3098	2.3	1.125	8.0	NA	11.3	81.1	0.04	0.08	0.14	48.1

The SIDRA analysis indicates that the right turn movement into Trennery Street from Marion Road will remain within the available storage length of the existing right turn lane. Both the left and right turn movements from Trennery Street result in increased delays however this is typical for local street intersections with Marion Road where high peak hour flows occur.

The SIDRA model indicates the potential for queueing on Trennery Street based on vehicles from the proposed development. The length of the queue is longer than the distance between Marion Road and the proposed access points on Trennery Street, which suggests that any significant queueing will be accommodated within the subject site (i.e. from the drive through lane or car park access point).

7.2.2. Knight Street / Marion Road

Table 7.2 provides a summary of the outputs of the Base Case in comparison to the Post Development scenario.

Table 7.2: Knight Street / Marion Road SIDRA Analysis - Predicted

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deq. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Marion Road (S)												
1	L2	14	0.0	0.383	5.5	LOS A	0.0	0.0	0.00	0.01	0.00	57.0
2	T1	1446	2.5	0.383	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.8
Approach		1460	2.5	0.383	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.8
North: Marion Road (N)												
8	T1	1493	2.3	0.393	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
9	R2	19	0.0	0.083	20.9	LOS C	0.2	1.7	0.85	0.94	0.85	39.9
Approach		1512	2.2	0.393	0.3	NA	0.2	1.7	0.01	0.01	0.01	59.3
West: Knight Street												
10	L2	40	2.6	1.071	295.3	LOS F	7.1	50.5	1.00	1.78	3.26	7.6
12	R2	5	0.0	1.071	865.3	LOS F	7.1	50.5	1.00	1.78	3.26	5.3
Approach		45	2.3	1.071	361.5	LOS F	7.1	50.5	1.00	1.78	3.26	7.3
All Vehicles		3017	2.3	1.071	5.6	NA	7.1	50.5	0.02	0.04	0.05	51.1

The SIDRA analysis indicates that the right turn movement into Knight Street from Marion Road will remain within the available storage length of the existing right turn lane. Both the left and right turn movements from Trennery Street result in increased delays however this is typical for local street intersections with Marion Road where high peak hour flows occur.

The SIDRA model indicates the potential for queueing on Knight Street based on vehicles from the proposed development. The length of the queue is longer than the distance between Marion Road and the proposed access points on Trennery Street, which suggests that any significant queueing will be accommodated within the subject site (i.e. from the car park access point).

7.3. Mitigating Measures and Intersection Works

No mitigating measures are considered required due to the proposed development as the existing right turn lanes on Marion Road will continue to cater for the predicted right turn movements into the site. Whilst the traffic modelling indicates there could be queueing on Knight Street and Trennery Street during the road network peak periods, no widening of these roads is required as it may only occur during the road network peak period. The remainder of the day will operate satisfactorily with little queueing based on the temporal distribution of traffic throughout the day.

Parking restrictions will be required in Knight Street and Trennery Street on both sides of the road between Marion Road and the main access points to cater for heavy vehicle entry and exit movements. These are shown in Figure 7.3.

Figure 7.3: Parking Restriction Required



(PhotoMap courtesy of NearMap Pty Ltd)

8. CONCLUSION

08

Based on the analysis and discussions presented within this report, the following conclusions are made:

1. The proposed development will comprise a McDonalds restaurant, a BWS store and associated car parking and access points on Marion Road, Trennery Street and Knight Street.
2. The proposed development generates a Development Plan parking requirement of 162 or 54 parking spaces based on each land use, which will be an oversupply of parking when considering actual parking demands of these land uses.
3. The proposed supply of 39 spaces will provide adequate parking for the indicated parking demands based on empirical data for other similar McDonalds and BWS stores in metropolitan Adelaide.
4. The proposed parking layout is consistent with the dimensional requirements as set out in the Development Plan and/or Australian/New Zealand Standards for Off Street Car Parking (AS/NZS2890.1:2004 and AS/NZS2890.6:2009).
5. The provision for bicycle facilities will be appropriate for the proposed uses with 2 bicycle parking spaces in the McDonalds portion of the site.
6. Access to the site will be via an entry from Marion Road, and entry/exits on Trennery Street and Knight Street. The proposed development will consolidate four existing driveways on Marion Road to one entry only driveway.
7. The provision of loading docks adjacent each building will accommodate the typical vehicles for McDonalds and rigid vehicle for BWS. Each vehicle will be able to enter and exit the site in a forward direction.
8. The site is expected to generate up to 180 vehicle movements in the peak hour for the development, which would typically occur outside of the road network peak period.
9. The traffic analysis of the proposed development considered the road network PM peak hour of a weekday as the critical period, and assumed the development would peak at this time (as a worst case scenario).
10. There is adequate capacity in the surrounding road network to cater for the traffic generated by the proposed development, with the existing right turn lanes on Marion Road capable of accommodating the predicted traffic movements for the development.
11. The lack of access via the street network to the west of the site to Sir Donald Bradman Drive (to the north), and limited connectivity to Richmond Road (to the south) would not provide any benefits to customers of the development by using these streets.
12. The traffic analysis indicates a worst case scenario of queueing in Trennery Street and Knight Street during the combined peak periods (for the development and road network) however any queueing which may occur can be accommodate on the subject site.
13. Parking restrictions on each side of Knight Street and Trennery Street will be required to enable access by heavy vehicles to and from the proposed development.
14. The existing bus stop adjacent the site on Marion Road will need to be relocated to the north of the proposed driveway.



REF: S181380

DATE: 25 March 2020

Access Planning
235 Henley Beach Road
TORRENSVILLE SA 5031

Attention: Mr. David Hutchison

Dear David,

RE: DA211/1286/2019 – 142 MARION ROAD WEST RICHMOND – RESPONSE TO TRAFFIC MATTERS FOR COUNCIL AND DPTI

I refer to the comments provided by the City of West Torrens regarding traffic management at the proposed development at 140 Marion Road in West Richmond. A referral response has also been received from Department of Planning Transport and Infrastructure for the proposed development. This letter has been prepared to respond to the Council comments and DPTI referral response.

Response to DPTI Referral Comments:

The key matters from the DPTI referral response is in the following point:

1. *A final access and parking plan shall be submitted to the satisfaction of DPTI and Council prior to construction. This plan shall include:*
 - *The Marion Road access being angled at 70 degrees to the road to reinforce it's ingress only operation.*
 - *Modifications to the Trennery Street access to ensure that it meets Figure 3.1 in AS/NZS 2890.1:2004 and the Trennery Street driveway is designed to meet the access at 90 degrees (or as close as possible);*
 - *Modifications to the waiting bay egress to ensure that vehicles exiting the site cross the boundary at 90 degrees (or as close as practicable)*

The plans have been revised to include the proposed Marion Road driveway to align at 70 degrees to Marion Road.

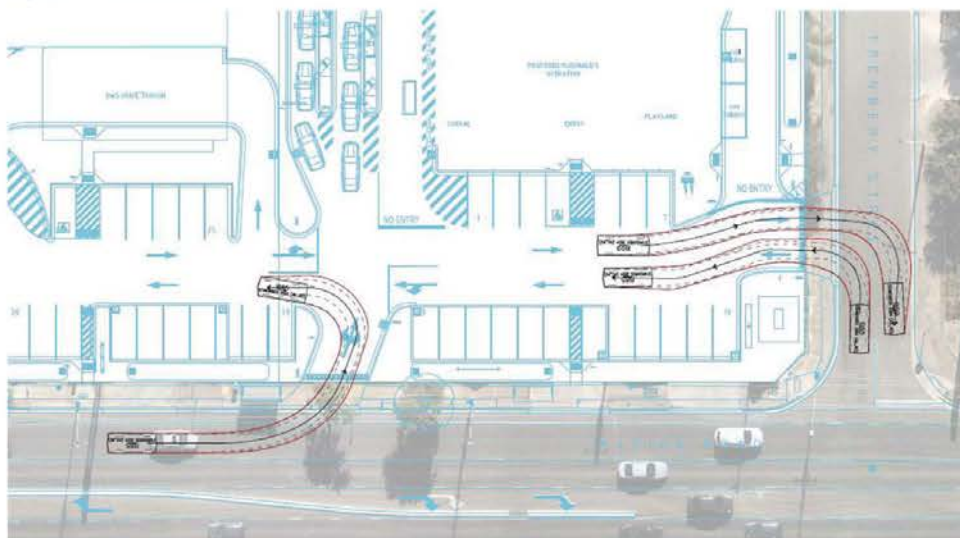
The Trennery Street driveway has been modified to provide a more perpendicular approach and crossover to the kerb, as well as achieve the intent of the relevant Standard as referred to by DPTI.

The realigned driveway will facilitate as close as practicable a perpendicular crossing for vehicles exiting the waiting bay laneway. It is noted that the number of vehicles exiting the waiting bay lane will be very low as most vehicles will exit the drive-thru lane direct to Trennery Street to the north.

These are shown in Figure 1 below:

VIC | NSW | QLD | SA | WA
Level 5, 75 Hindmarsh Square
ADELAIDE SA 5000
PO Box 119
RUNDLE MALL SA 5000
t// +618 8334 3600
ABN 66 137 610 514
www.gta.com.au

Figure 1: B99 access

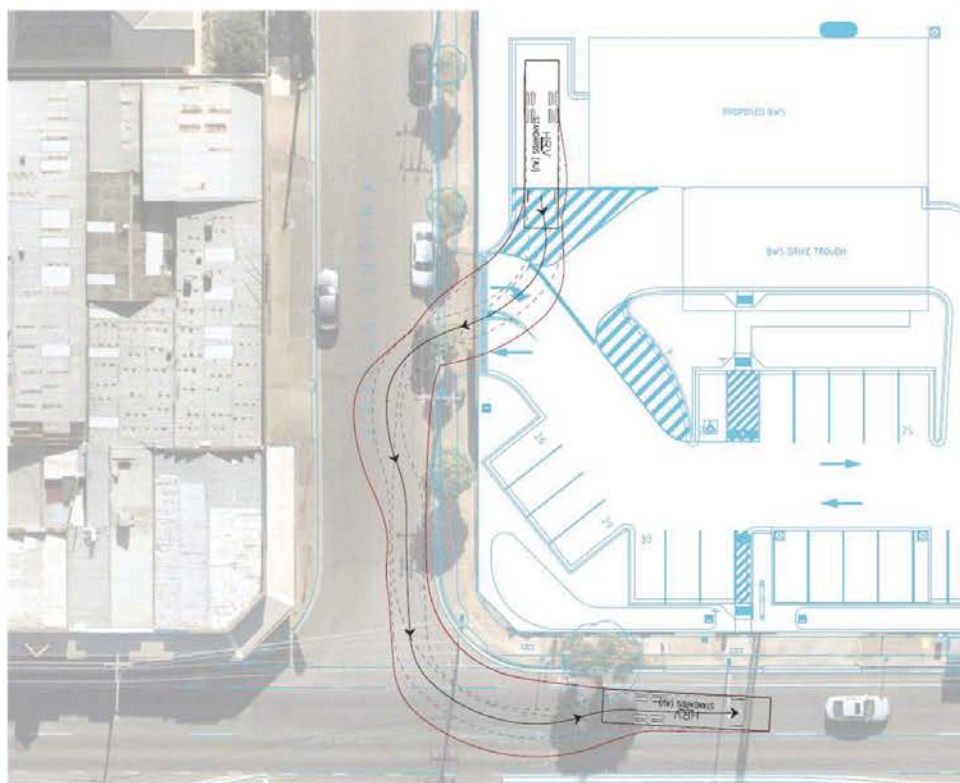


Response to Council Comments:

1. *Knight Street Access - the large expanse of manoeuvring area, the wide crossover proposed and the deviation of the parking aisle alignment make this area vague in terms of right of way and the directional flow, which would lead to potential traffic conflicts. Council recommends that the layout of this access point and intersection point be amended. One option may be to reverse the flow of the drive through for the liquor store so that a vehicle on entering from Knight Street can then either travel to the car park or (in the same direction) enter the drive through of the liquor store. The crossover at Knight Street also looks excessively wide and should be narrowed and the manoeuvring area for the service truck to the loading area amended by widening the hatched area to assist the reversing manoeuvre.*

The plans have been reviewed based on Council comments in order to reduce the width of the Knight Street crossover, and also provide increased traffic control within the site for the loading dock and drive-thru exit area. The revised crossover to Knight Street has been reduced in width through a minor relocation of the BWS building to provide additional turning width for loading vehicles and associated revision of the turn paths from Knight Street. It has also been revised to accommodate exit manoeuvres by the McDonalds truck (as discussed later in this report). Refer to Figure 2 for the revised layout with exit turn path. The entry manoeuvre is shown in Figure 3 and Figure 4 later in this report.

Figure 2: 12.5m HRV exit

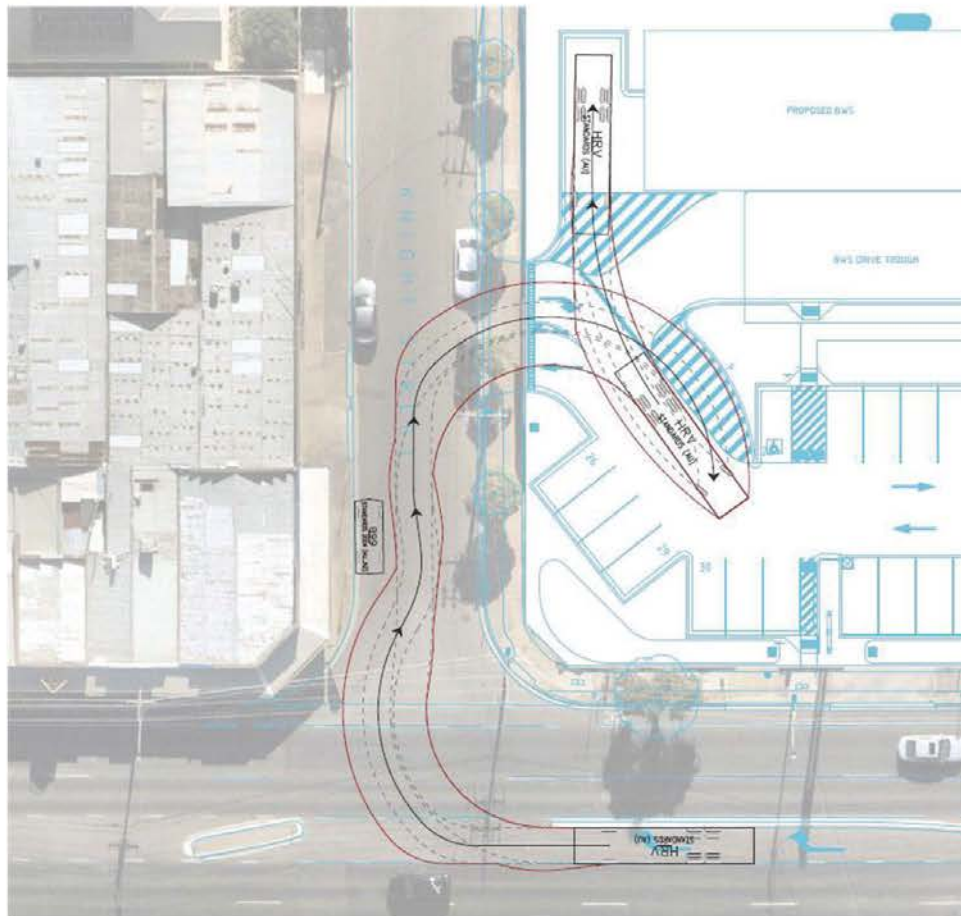


2. The turn path diagram for the HRV truck access to the liquor store loading area (see Figure 6.3 of the GTA report) requires parking to be prohibited along the southern side of Knight Street. The subject parking area is a long-standing arrangement and was provided to assist the existing businesses, therefore its removal is not supported by City Assets. The turn path assessment should be reviewed with the on-street parking on the southern side of Knight Street being retained. The proposed No Stopping controls for the northern side of Knight Street (abutting the subject site) is supported.

The turn path diagrams for the truck entry and exit movements to BWS and McDonalds (exit only) have been revised to accommodate the concerns raised by Council with a review of the turn paths demonstrating the ability to not impact the loading zone on the southern side of Knight Street. Observations on site indicate the loading zone is typically not occupied which provides two options for truck entry to the street.

Trucks could use the loading zone space when it is not occupied to traverse the street, however if it is occupied there is sufficient space to traverse around a vehicle in this space. The low volume of traffic on Knight Street would typically enable a truck to manoeuvre as shown without conflicting with opposing traffic.

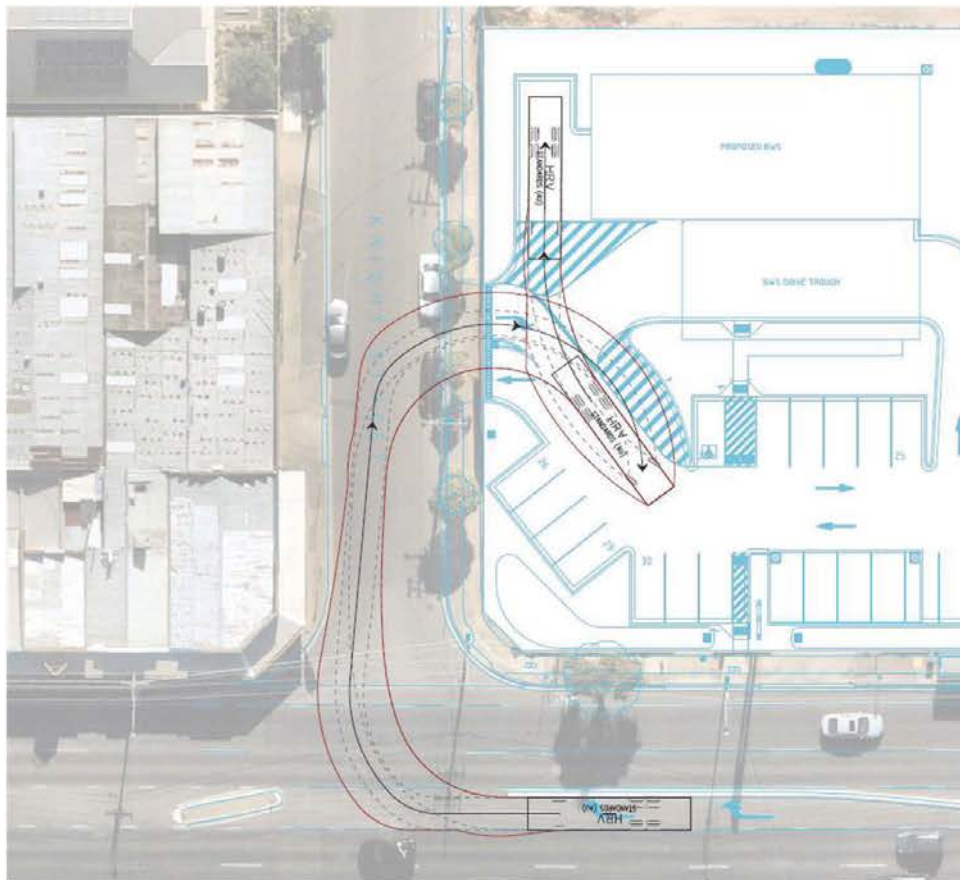
Figure 3: Truck entry with loading zone occupied



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Figure 4: Truck entry with loading zone unoccupied



3. An additional disabled parking space should be provided for the liquor store by possibly converting space 20 to a disabled space and space 21 to a clear zone space.

A disability parking space has been provided with reconfiguration of the BWS car park, associated with the revised loading dock for the store. Refer to updated plans.

4. While a pedestrian link is shown from Marion Road towards the liquor store building, it is unclear how pedestrians are then directed across the double-lane drive-through area into the building. Further clarification should be provided.

The proposed BWS store layout plan provides details the route for people across the drive-thru lanes, which is a typical layout for BWS sites across Australia. The volume of traffic on the drive-thru lane will typically be low which provides pedestrian with adequate and safe passage across the lanes. This route provides a convenient undercover access between the car park and the store front doors.

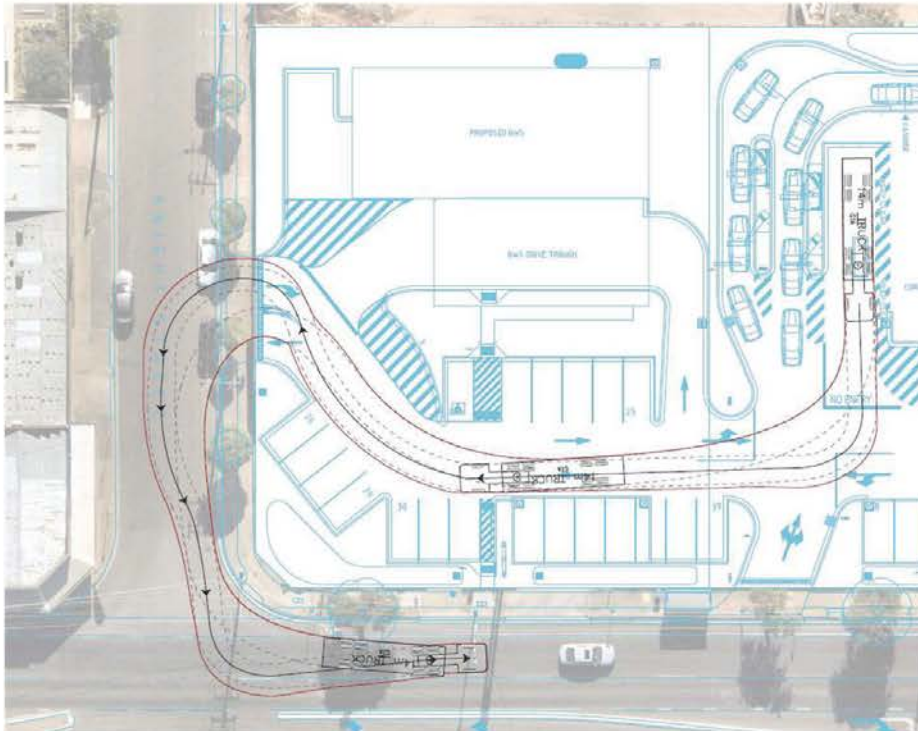
5. *The proposed entry-only lane on Marion Road is of concern. In the event that the queuing for the fast food drive through becomes congested, entry movements would be affected from Marion Road, which could affect the kerbside lane of Marion Road. If this access were to be changed to exit-only, there would be no likelihood of the kerbside lane in Marion Road being affected, as queueing and congestion would be confined to within the site.*

The proposed site layout has adequate space for any queues that may form for the proposed McDonalds drive-thru lane, given it has a dual ordering point. DPTI has not suggested any changes to the proposed entry driveway other than alignment of the driveway to 70 degrees. The proposed driveway will operate satisfactorily and not typically be impacted by any queues from the proposed drive-thru lane within the site.

6. *The proposed service vehicle for the fast food outlet involves a large articulated vehicle. Given the size of this vehicle and the acute angle of the exit to Trennery Street, there are concerns with the impact of this vehicle on Trennery Street. Details of this design vehicle (for input into Autotrack) should be provided to allow Council to check and verify the exit turn path into Trennery Street. Even as shown in Figure 6.2 of the GTA report, where the driver of the articulated vehicle has to make the correct positioning and turn necessary, there is potential for entry movements from Marion Road into Trennery Street to be obstructed already. Poor positioning of the exit vehicle would make the situation worse.*

A review of the McDonalds delivery truck has been undertaken given the comments raised by Council, with a revised exit path proposed via the BWS driveway to Knight Street. This will enable the McDonalds delivery truck to avoid having to turn right onto Trennery Street and avoid the potential concerns raised by Council. A revised delivery truck path is shown in Figure 5 below.

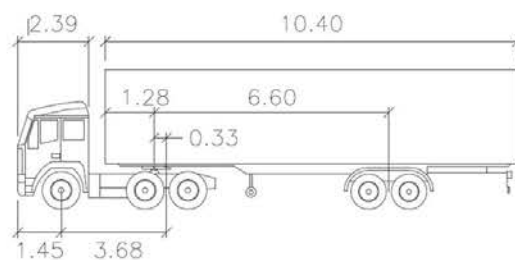
Figure 5: McDonalds 14m Semi site exit turn path



Given the general frequency of McDonalds delivery trucks at 1 per day and occurring out of peak periods, the proposed truck route will be satisfactory. It will not require any changes to parking controls on the southern side of Knight Street.

Details of the design vehicle is shown in Figure 6 below.

Figure 6: 14m Semi design vehicle details



14m SEMI

	meters		
Tractor Width	: 2.40	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 34.4
Tractor Track	: 2.40	Articulating Angle	: 70.0
Trailer Track	: 2.50		

7. The SIDRA assessment for the future conditions shows that the degree of saturation would exceed 1.0 and that queues would be quite extensive, for example 81m in Trennery Street which would extend beyond the boundary of the site. The main car park aisle is located close to Marion Road. As a consequence, it may be likely that exiting cars from the subject site would queue across the Trennery Street roadway and block access for traffic proceeding west to the relatively large residential area west of the subject site. Changing the Marion Road access to exit-only may be an option.

The SIDRA assessment provided indicates that the Degree of Saturation for Trennery Street would exceed 1 based on 5 vehicles turning right. It is clear that any vehicles attempting to turn right (both existing and proposed) will impact traffic on Trennery Street through potential excessive delays while waiting to cross Marion Road.

However, SIDRA analysis for unsignalised intersections is limited in its ability to account for gaps in very high opposing traffic flows and is unable to fully account for gaps generated by traffic signals to the north and south which will platoon traffic on this road. An attribute of SIDRA output is as the Degree of Saturation approaches 1 due to very high flows on the major road, the queues and delays on the side street begin to grow exponentially and may not be reflective of the final actual on site conditions. Therefore, we would anticipate that the intersection will likely operate better than shown in the SIDRA analysis with queues that are shorter than indicated in the model.

It should be noted that the median queue length from the SIDRA model for the intersection is 31 metres which would be 5 – 6 vehicles. This suggests the typical queue would be less than the 95th percentile queue referred to in the report.

Notwithstanding the above, if excessive queues and delays are experienced by vehicles waiting to cross Marion Road, it is likely that the vehicles will turn left onto Marion Road, potentially reducing the overall queues and delays at the intersection. The SIDRA model has indicated very few vehicles are likely to turn right given the very high flows on Marion Road.

It is also noted that as part of the DPTI response, they raised no concerns surrounding the performance of the unsignalised intersections or the entry only access from Marion Road.

I trust this letter provides enough information to clarify the concerns raised by Council however I would be please to discuss these further if required. Should you have any questions or require any further information, please do not hesitate to contact me on (08) 8334 3600.

Yours sincerely

GTA CONSULTANTS



Paul Morris
Director

M.TransTraff, MAITPM



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Brendan Fewster

From: Ourania Baslis
Sent: Wednesday, 19 February 2020 10:19 AM
To: Development; zaph13
Subject: meeting attendee dev application 1286/2019

To whom it may concern, Today I made contact with council regarding expression of interest to attend meeting for development application 1286/2019 Marion Rd. Wrst Richmond, between Trennery and Knight. We are the home owners of 2 Trennery Street West Richmond that is the boundary residential property of the referred development application. We would like to be involved and participate in any discussions regarding this matter. Conversation today with Development officer Brendan Fewster acknowledged my interest and has invited me to site development plans asap.

We have concerns about how this may impact us and our family residence.

Please acknowledge that I, Ourania Baslis and Daughter Zafiro Papanikitas would like to attend meeting and possibly present our concerns regarding this matter and how our proposal for consideration can be addressed eg Traffic management, emmissions control, noise minimization and resale value.

yours faithfully

Ourania en Baslis



26th February 2020

Ref: 7786responsetoreps

The Chief Executive Officer
City West Torrens
165 Sir Donald Bradman Drive
Hilton, SA 5033

Attention Mr. Brendan Fewster

Dear Brendan

Access Planning (SA) Pty Ltd
ABN 57 089 702 241

235 Henley Beach Road
Torrensville SA 5031

Telephone 08 8130 7222
Facsimile 08 8130 7299
admin@accessplanning.com.au

www.accessplanning.com.au

Re PROPOSED RESTAURANT, INCLUDING ASSOCIATED DRIVE-THROUGH SERVICE, CAR PARKING AND SIGNAGE, AND BOTTLE SHOP, INCLUDING ASSOCIATED DRIVE-THROUGH AND CARPARKING – 134 to 140 MARION ROAD, WEST RICHMOND.

I refer to the single submission that was received from the land owner at 2 Trennery Street, West Richmond in response to the category 2 public notification of the above development.

The representors property is located to the rear of the subject land and adjoins the proposed McDonald's restaurant.

The representors property is located in the Neighbourhood Centre zone. Under the present Development Plan provisions, a dwelling is a non-complying land use unless located above a non-residential development.

The dwelling predates the present Development Plan provisions and enjoys existing use rights.

Issues identified by the representor include:

- Traffic management,
- emissions control,
- noise minimisation
- resale value.

Traffic Management

A traffic and car parking report has been provided by GTA Consultants that confirms the vast majority of traffic exiting the McDonald's development will exit to the east back to Marion Road, with only local traffic exiting to the west past the representor's property.

Traffic volumes from the McDonald's store are expected to peak at 167 trips in the evening park hour (typically 6:00pm – 7:00pm), with up to 109 of these movement expected to occur through the western-most crossover which adjoins the representors property. Thereafter numbers decline significantly so that late evening and night time volumes are well below the peak level.



With extensive on site security as outlined in the application report, and on site traffic management design which is intended to keep vehicle speeds low, anti-social behaviour by drivers is not anticipated.

Odour issues.

The key sources of potential odours from the development are associated with cooking and waste storage on the premises.

With regard to cooking, the kitchen will be operated in accordance with the Food Standards Code under the Food Act 2003 and Australian Standard 4674 – Design, Construction and Fit out of Food Premises and will accord with the Environment Protection (Air Quality) Policy 1994, under the Environment Protection Act, both of which are intended to minimise the potential for the site to generate cooking odours.

Moreover, McDonalds adopt a strict regime of cleaning and maintenance of exhaust systems to ensure that any build up of fat is removed from filters and exhaust hoods daily and from ducting and mechanical plant monthly.

With regard to waste, all waste will be stored in the proposed waste storage area (corral). This area is of a sufficient size to accommodate the number of required bins and will be cleaned regularly as part of the premises on-going operation.

The design and operation of the restaurant will incorporate an exhaust ventilation system which complies with the relevant Australian Standard for cooking odour extraction, and operations will involve minimising any odour that may be discharged by the development.

It is relevant to note that the vast majority of McDonald's stores are located in close proximity to housing, odour complaints are rarely if ever made

Traffic noise. Noise generally

The dwelling on the land in question is a two story dwellings with alterations undertaken after its initial construction to add rooms to the side rear and above. As a consequence the building is erected on the common boundary with the subject land.

The boundary wall consists of a 2 storey high (approximately 6.5m high) solid besser block wall on the boundary to the two storey component of the dwelling, with a single store (approximately 4.0m high) besser block wall extending to encompass the side wall of the single storey component of the dwelling.

Detail of the wall is shown in the photograph below.

The building adjoins the car park of the existing BWS and is adjacent the recently developed 24-hour service station at the corner of Trennery Street and Marion Road.

The dwelling is located just off the flight path to Adelaide airport as a consequence it is subject to regular and loud aircraft noise from 6am to 11pm.



Figure 1: Common boundary masonry wall

Acoustic treatments included as a part of the application involve the construction of a 1.8 metre high acoustic (lapped timber paling) fence along the western boundary of the site, where it abuts the existing house. This fence will replace an existing ramshackle 1.8m high metal fence located at the rear of the house which extends for the length of the common boundary with the subject land, and a short length of good neighbour fencing forward of the dwelling to the street frontage.

With these features in place and mechanical services designed to meet a noise limit of 35dBA, the development, including expected ground level noise from the drive through and the car park will be 5dBA below the night time noise limit prescribed in the EPAs Environment Protection (Noise) Policy 2007.

More particularly, the proposed acoustic amelioration measures will have the additional benefit of screening existing background noise from traffic movement along Marion Road.

Noise from traffic will be ameliorated by the above works and existing features of the dwelling, noting that just about all traffic leaving the site will exit to the east to Marion Road rather than to the west across the front of the representors land

Devaluation of property

Concerns have been raised regarding loss of property value however no justification has been provided to confirm this.

The site and adjoining land have been zoned for a non residential use for a considerable period of time and this is reflected in the range of commercial land uses existing in the locality.



Envisaged uses in the zone include, amongst other things;

- child care facility
- petrol filling station
- place of worship
- pre-school
- primary school
- recreation area
- **restaurant**
- shop
- supermarket.

All of which would have an impact on the amenity and character of the locality and thus influence land values, as would the lands proximity to the noise and impacts from Marion Road and the nearby airport.

Nonetheless, loss in property value is not a relevant matter for consideration is the assessment of a development application.

Summary

Having regard to the representation received, the type and nature of the proposed development, and the context of the locality, it is considered that the proposal demonstrates an high degree of consistency with the relevant provisions of the West Torrens (City) Development Plan.

The proposed development, is an envisaged use in the zone and is a use with a proven track record of coexisting with its neighbouring commercial and residential neighbours and the arterial road network from which it takes its access.

The proposal will not in my view compromise or detract from the amenity of adjoining residential neighbor and in some respects is likely to enhance the amenity of the representors property .

For all of the above reasons I am of the view that the application warrants the approval of the Panel.

Please do not hesitate to contact me on 81307222 or by email dhutchison@accessplanning.com.au if you have any queries regarding any of the above.

Yours sincerely,

A handwritten signature in blue ink that reads 'D Hutchison'.

David Hutchison
ACCESS PLANNING

Preliminary Traffic, Flooding & Stormwater Assessment

Development Application No: 211/1286/2019

Assessing Officer: Brendan Fewster
Site Address: 142 Marion Road, WEST RICHMOND SA 5033, 134-140 Marion Road, WEST RICHMOND SA 5033, 1/134-140 Marion Road, WEST RICHMOND SA 5033, 2/134-140 Marion Road, WEST RICHMOND SA 5033, 3/134-140 Marion Road, WEST RICHMOND SA 5033, 4/134-140 Marion Road, WEST RICHMOND SA 5033
Certificate of Title: CT-5693/953, CT-5825/573, CT-5849/113, CT-5849/113, CT-5825/573, CT-5849/113, CT-5825/573, CT-5849/113, CT-5825/573, CT-5849/113, CT-5825/573
Description of Development Construction of a restaurant and retail shop with drive-thru facilities and associated signage, car parking and landscaping

TO THE TECHNICAL OFFICER - CITY ASSETS

Please provide your comments in relation to:

- ☐ Site drainage and stormwater disposal
- ☐ Required FFL
- ☐ On-site vehicle parking and manoeuvrability
- ☐ New Crossover
- ☐ Your advice is also sought on other aspects of the proposal as follows:

.....
.....

PLANNING OFFICER - Brendan Fewster

DATE 5 February, 2020



Memo

To Brendan Fewster
From Richard Tan
Date 05-Feb-2020
Subject 211/1286/2019, 142 Marion Road, WEST RICHMOND SA 5033, 134-140 Marion Road, WEST RICHMOND SA 5033, 1/134-140 Marion Road, WEST RICHMOND SA 5033, 2/134-140 Marion Road, WEST RICHMOND SA 5033, 3/134-140 Marion Road, WEST RICHMOND SA 5033, 4/134-140 Marion Road, WEST RICHMOND SA 5033

Brendan Fewster,

The following City Assets Department comments are provided with regards to the assessment of the above development application:

1.0 FFL Consideration – Finished Floor Level (FFL) Requirement

- 1.1 In accordance with the provided 'Site Survey' (ACS, Ref: 09019-1/1-01, dated 22/10/2019), the FFLs of the proposed development (8.50 minimum) have been assessed as satisfying minimum requirements (8.35) in consideration of street and/or flood level information.

2.0 Verge Interaction

- 2.1 In association with new development, driveways and stormwater connections through the road verge need to be located and shaped such that they appropriately interact with and accommodate existing verge features in front of the subject and adjacent properties. Any new driveway access shall be constructed as near as practicable to 90 degrees to the kerb alignment (unless specifically approved otherwise) and must be situated wholly within the property frontage.

New driveways and stormwater connections are typically desired to be located a minimum 1.0 metre offset from other existing or proposed driveways, stormwater connections, stobie poles, street lights, side entry pits and pram ramps, etc. (as measured at the front property boundary). An absolute minimum offset of 0.5m from new crossovers and stormwater connections to other existing road verge elements is acceptable in cases where space is limited.

These new features are also desired to be located a minimum of 2.0 metres from existing street trees, although a lesser offset may be



City of **West Torrens**

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acceptable in some circumstances. If an offset less than the desired 2.0 metres is proposed or if it is requested for the street tree to be removed, then assessment for the suitability of such will be necessary from Council's Technical Officer (Arboriculture).

2.1.1 Provided civil plan has not included existing verge features on the plan.

It is recommended that the applicant should provide a plan clearly indicated all new proposed and existing verge features that will be retained/removed to be provided to Council for further assessment. It is also recommended that revised plans indicating satisfaction to the above requirements should be provided to Council.

2.1.2 Multiple existing street trees are in direct conflict with new proposed crossover.

It is recommended that further assessment from Council's Arboriculture team is required.

2.2 Stormwater from the site has been proposed to be discharged directly into the existing SEP which will not be supported by City Assets. Stormwater from the site should be discharged via stormwater connection through the road verge area to be constructed of shape and material to satisfy Council's standard requirements

- 100 x 50 x 2mm RHS Galvanised Steel or
- 125 x 75 x 2mm RHS Galvanised Steel or
- Multiples of the above.

It is recommended that revised plans clearly and accurately indicating satisfaction of the above criteria be provided to Council.

2.3 It is noted that the multiple existing crossovers will be made redundant. These redundant crossovers should be reinstated to vertical kerb prior to the completion of any building works at the applicant's expense. It should also be indicated on revised plans that any redundant crossovers will be reinstated.

It is recommended that revised plans showing the reinstatement of redundant crossovers be provided to Council.

2.4 I noted that a temporary construction access has been proposed on a permanent access on Marion Road. Council strongly suggest that the temporary construction access should be relocated off Marion Road,



to avoid potential issues (ie. drag out, traffic etc) that may arise during construction stage.

- 2.5** Due to the conflict of the existing bus stop to the proposed access, the bus stop has been proposed to be relocated. City Assets has consulted DPTI regarding the bus stop relocation proposal. Until such proposal has been signed approved, this crossover proposal shall not be supported as the existing bus stop is in direct conflict with proposed crossover.

In the event that the bus stop relocation proposal has been supported, then the following works are deemed necessary in the circumstances of the bus stop relocation and are to be undertaken by Council or a contractor appointed by Council.

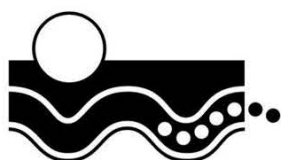
The extent of the works associated with the bus stop relocation are as indicated below with the estimated cost to be in the order of **\$10,890.00** (inclusive of GST).

The cost includes removing existing bus stop (shelter, signage), reinstatement of verge, installation of new bus stop (shelter, signage, pads, base preparation etc), and relevant construction activities (such as waste disposal, traffic management etc). Any costs associated with the upgrading of bus stop (shelter etc) will be at Council's expense.

A financial deposit in the amount of **\$5,445.00 (GST inclusive)** will be required to be paid to City of West Torrens, should you wish to enter into agreement to relocate the bus stop fronting the development. This deposit is refundable in case of refusal of this Development Applicant or formal application withdrawal post Development Application approval.

Payment of this deposit is necessary prior to Council being able to approve the new access to this property and hence approve access for the proposed development application.

The final costs will only be determined once a Council staff or a contractor acting on Council's direction is engaged. Any additional costs associated with the alterations to the bus stop relocation in excess of \$10,890.00 (inclusive of GST) will be borne by Council. An invoice detailing the final amount of the verge feature alterations will be issued separately upon completion of works.



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It is recommended that clarification and commitment from the applicant is sought in regards to the alteration works to the existing public infrastructure.

3.0 Traffic Requirements

The following comments have been provided by Council's Traffic Consultant, Mr Frank Siow:

I refer to the above development associated with a liquor store and fast food outlet (McDonald's). I have reviewed the information provided, in particular the traffic report prepared by GTA Consultants. The subject site is located within the Neighbourhood Centre Zone Richmond Policy Area 14 of the Development Plan.

I note that Page 13 of the GTA report refers to 60 internal seats for the fast food outlet, while subsequent pages of the report refers to 70 seats. The accompanying planning report also refers to 70 seats. I have assessed the parking requirement for the food outlet based on 70 seats.

The proposal comprises of a liquor store outlet of 272m² floor area with a drive through facility, and a fast food outlet with 70 seats and drive through facility. The fast food drive through has 2 entry order points and 2 waiting bays. An overall total of 39 parking spaces would be provided on-site, including one disabled parking space adjacent to the fast food outlet building entrance.

3.1 **Parking Assessment**

Table WeTo/2 specifies the following parking rates relevant to the development:

Restaurant

Greater of 1 per 3m² TFA or 1 per 2 seats (internal) and a car queuing area for a maximum of 12 vehicles with 4 car spaces back from the ordering point.

Shop

7 spaces per 100m² GLA

The parking rate for the restaurants seems excessively high. In my experience, a parking rate of 1 space per 3 seats is typically adopted for assessing such developments.

Based on the parking rate of 1 space per 3 seats and 7 spaces per 100m², the parking required for the proposed development would be:



- Restaurant - 23.3 spaces
- Shop - 19.0 spaces
- TOTAL - 42 spaces (rounded down)

As the parking provision would be 39 spaces, the estimated parking shortfall would therefore be 3 spaces.

In my experience with liquor store developments, this type of retail land use would generate parking at a much lower rate than 7 spaces per 100m². Typically, parking rates of 2.5 to 3.0 spaces per 100m² would be adopted for assessing liquor store developments. If the liquor store were to be assessed at a parking rate of 3 spaces per 100m², the overall total parking requirement for the liquor store and fast food outlet would be 32 spaces (rounded up). The proposed parking provision of 39 spaces would exceed this requirement.

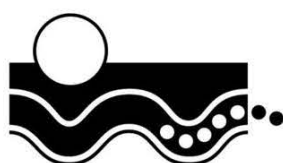
The drive through facility for the fast food outlet would have 2 entry lanes at the order point. The proposed layout would be capable of meeting the Development Plan requirement for the order point queue and the overall maximum queue for the drive through facility.

The provision of 4 bicycle parking spaces is considered to be adequate. Two bicycle parking spaces are shown adjacent to the fast food outlet building entrance. The other two bicycle parking spaces should be located closer to the liquor store building entrance, say adjacent to space 20.

An additional disabled parking space should also be provided for the liquor store, say space 20 with space 21 being amended to a clear zone space. This would reduce the on-site parking provision to 38 spaces.

In summary, if conservatively a parking rate of 7 spaces per 100m² were to be adopted for the liquor store assessment, the overall total parking requirement for the proposed development would be 42 spaces. Typically, with the provision of bicycle parking and the proximity of the site to bus services, a 10% discount to the parking requirement would be accepted to encourage the use of other modes of transport. The parking requirement would be reduced to 38 spaces (rounded up). The provision of 38 spaces (with the additional disabled parking space amendment) would satisfy this requirement.

In the more likely scenario that the liquor store would generate a parking demand significantly less than 7 spaces per 100m², the



City of **West Torrens**

Between the City and the Sea

parking required for the overall development would be less than the parking provision of 38 spaces.

Therefore, based on the above assessment, I am satisfied that adequate parking would be provided for the development.

I recommend the following:

- **An additional disabled parking space with clear zone be provided for the liquor store.**
- **Two bicycle parking rails be provided for the liquor store close to the building entrance.**

3.2 Car Parking Layout and Servicing

I have a number of concerns with the access and car parking layouts:

1. The Knight Street access point comprises of the two-way entrance to the car parking spaces, a wide manoeuvring area to the loading zone on the southern side of the liquor store building and a double-lane exit from the drive through of the liquor store. The large expanse of manoeuvring area, the wide crossover proposed and the deviation of the parking aisleway alignment make this area vague in terms of right of way and the directional flow, which would lead to potential traffic conflicts. I recommend that the layout of this access point and intersection point be amended. One option may be to reverse the flow of the drive through for the liquor store so that a vehicle on entering from Knight Street can then either travel to the car park or (in the same direction) enter the drive through of the liquor store. The crossover at Knight Street also looks excessively wide and should be narrowed and the manoeuvring area for the service truck to the loading area amended by say widening the hatched area to assist the reversing manoeuvre. Given the potential conflict and impact of the service truck on general traffic at the Knight Street entrance, a condition should be included to restrict the use of the loading area by service trucks to off-peak periods only, for example 7am to 10am.
2. The turn path diagram for the HRV truck access to the liquor store loading area (see Figure 6.3 of the GTA report) requires parking to be prohibited along the southern side of Knight Street. The subject parking area is a long-standing arrangement and was provided to assist the existing businesses, therefore its removal is not supported by City Assets. The turn path assessment shall be



City of **West Torrens**

Between the City and the Sea

reviewed by the Applicant with the on-street parking on the southern side of Knight Street being retained. The proposed No Stopping controls for the northern side of Knight Street (abutting the subject site) is supported.

3. As previously indicated, an additional disabled parking space should be provided for the liquor store by say converting space 20 to a disabled space and space 21 to a clear zone space.
4. While a pedestrian link is shown from Marion Road towards the liquor store building, it is unclear how pedestrians are then directed across the double-lane drive through area into the building. Further clarification should be provided by the Applicant to show how safe access can be provided for pedestrians to and from the liquor store.
5. The proposed entry-only lane in Marion Road is of concern. In the event that the queuing for the fast food drive through becomes congested, entry movements would be affected from Marion Road, which could affect the kerbside lane of Marion Road. If this access were to be changed to exit-only, there would be no likelihood of the kerbside lane in Marion Road being affected, as queueing and congestion would be confined to within the site. Amending the access to exit-only may also assist in addressing the service vehicle access issue for the fast food outlet (see later discussions below).
6. The proposed service vehicle for the fast food outlet involves a large articulated vehicle. Given the size of this vehicle and the acute angle of the exit to Trennery Street, I am concerned about the impact of this vehicle on Trennery Street. Details of this design vehicle (for input into Autotrack) should be provided by the Applicant to allow Council to check and verify the exit turn path into Trennery Street. Even as shown in Figure 6.2 of the GTA report, where the driver of the articulated vehicle has to make the correct positioning and turn necessary, there is potential for entry movements from Marion Road into Trennery Street to be obstructed already. Poor positioning of the exit vehicle would make the situation worse. While the articulated vehicle is the maximum size service vehicle indicated, it would be likely that rigid trucks would also service the loading area. My assessment of a 12.5m HRV indicates that the HRV would also potentially cause obstruction to traffic entering Trennery Street from Marion Road. Straightening out the aisleway to meet at right angle with Trennery



Street may be an option to address this issue, but would require the building to be shifted back. Alternatively, with the exit-only option (see dot point 5 above) to Marion Road, the exit movement from the fast food outlet loading area could be reviewed to utilise this more direct exit route to Marion Road. The bus stop relocation would need to be reconsidered with this option.

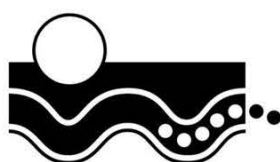
7. The proposed No Stopping controls on the southern side of Trennery Street abutting the subject site and on the northern side abutting the existing petrol station site are supported.
8. With the proposed location of the loading area for the fast food outlet being adjacent to the drive through entry lanes, servicing of the fast food outlet should be restricted to off-peak periods only, say 7am to 10am, to minimise traffic conflicts.
9. The proposed direct egress from the drive through of the fast food outlet to Trennery Street would be acceptable. The pedestrian sight line requirement (as per AS/NZS 2890.1-2004) shall be satisfied at the Trennery Street boundary.
10. All traffic control devices proposed within the site shall be in accordance with the DPTI's Code of Technical Requirements and other relevant Australian Standards.

3.3 Traffic Impact

I make the following comments:

There is no SIDRA assessment provided for the existing situation at Knight Street/Marion Road and Trennery Street/Marion Road. The results of the assessment for the existing situation would enable the impact of the proposal to be properly assessed against the future conditions arising from the development.

The SIDRA assessment for the future conditions shows that the degree of saturation would exceed 1.0 and that queues would be quite extensive, for example 81m in Trennery Street which would extend beyond the boundary of the site. The main car park aisleway is located close to Marion Road. As a consequence, it may be likely that exiting cars from the subject site would queue across the Trennery Street roadway and block access for traffic proceeding west to the relatively large residential area west of the subject site.



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As previously discussed, the option of providing an exit-only access to Marion Road from the subject site warrant further consideration to deal with the vehicle access issue (discussed in Section 3.2). There may be some further redistribution of traffic exiting the site if the exit-only access is provided, which may help alleviate the traffic impact on the two affected intersections. Minor widening of the affected streets may also need to be considered to address the traffic impact issues.

Finally, the Applicant shall liaise with DPTI regarding the bus stop relocation and confirmation shall be provided to Council that a suitable design for the bus stop relocation has been accepted by DPTI.

4.0 Waste Management

- 4.1** Due to the nature of this application being a commercial development, it is recommended that further assessment from Council's Waste Management Team is required.

It is recommended that further assessment from Council's Waste Management Team is required.

5.0 Stormwater Management

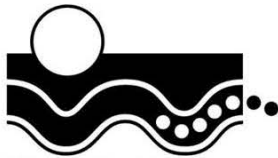
- 5.1** Stormwater management plan has been provided, however, no supporting calculation has been attached. I noted that the stormwater detention has been calculated based on 100 year ARI storm event, which is stricter than Council's requirement. However, internal check has indicated that the pre-development discharge rate is incorrect, which is highly likely due to the incorrect runoff coefficient of 0.75.

Stormwater detention measures will be required to be undertaken to limit the peak discharge rate for the site critical 20 year ARI storm event to equivalent to a predevelopment arrangement with a 0.25 runoff coefficient.

In calculating the stormwater detention requirements, runoff from any existing structures and buildings to be maintained must be taken into consideration.

It is recommended that an indication of how the storage is to be provided and calculations supporting the nominated volume be submitted to Council.

- 5.2** The provided stormwater management plan has provided a screenshot of the result of stormwater quality generated by MUSIC



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Between the City and the Sea

model. It should be noted that this result can be affected by the input parameter when developing the MUSIC model.

It is recommended that the MUSIC model developed should be provided for further assessment.

Regards
Richard Tan
Civil Engineer

Arboricultural Assessment of Street Trees

Development Application No: **211/1286/2019**

REFERRAL DUE DATE:

Assessing Officer:	Brendan Fewster
Site Address:	142 Marion Road, WEST RICHMOND SA 5033, 134-140 Marion Road, WEST RICHMOND SA 5033, 1/134-140 Marion Road, WEST RICHMOND SA 5033, 2/134-140 Marion Road, WEST RICHMOND SA 5033, 3/134-140 Marion Road, WEST RICHMOND SA 5033, 4/134-140 Marion Road, WEST RICHMOND SA 5033
Certificate of Title:	CT-5693/953, CT-5825/573, CT-5849/113, CT-5849/113, CT-5825/573, CT-5849/113, CT-5825/573, CT-5849/113, CT-5825/573, CT-5849/113, CT-5825/573
Description of Development	Construction of a restaurant and retail shop with drive-thru facilities and associated signage, car parking and landscaping

TO THE TECHNICAL OFFICER – CITY ASSETS

Please provide your comments in relation to:

- ☐ **The removal of or impact upon the Street Tree**
- ☐ **Species of Tree:**
- ☐ **Your advice is also sought on other aspects of the proposal as follows:**

PLANNING OFFICER - Brendan Fewster

DATE 18 March 2020

FROM THE TECHNICAL OFFICER

I have examined the plans as requested and provide comments as follow.

As with all development applications it must be proven beyond reasonable doubt that all alternatives have been explored so not to hinder the progress of any street tree(s).

Any proposed development that does not consider “AS4970 Protection of Trees on Development Sites”, is likely to require revision until all plans accurately correspond with the specific tree information detailed in this standard.

Verge interaction must consider all services that cross council land including stormwater outlets (and other) which will need to be maintained a minimum of 2.0m from any existing street tree (unless existing or otherwise negotiated).

A site investigation has revealed and together with the information provided that at Knight Street, there are four existing *Fraxinus griffithii* (Flowering Ash) street trees adjacent to this development. The street tree located 16.3m from the western boundary and the street tree located 25.9m are both in conflict with the proposed crossover location on Knight Street.

City operations will support the removal of these two existing street trees to accommodate this crossover location.

On Marion Road frontage there are two existing *Callistemon harkness* (bottlebrush) street trees that are in conflict with the proposed crossover location and also the potential location for the relocated bus stop.

City Operations in this instance will support the removal of these two existing street trees.

With reference to the City of West Torrens, Fees and Charges Document 2019-2020 "Tree removal for driveway construction", once Council has assessed all circumstances and considered it acceptable that a street tree can be removed, a fee is calculated based on Council's standard schedule of fees and charges.

The fee is used to offset the loss of the asset (street tree) to the community, with funds received invested in Council's annual Greening Program.

As a result of the proposed development on Marion Road, City Operations has considered the health, structure, form, useful life expectancy, and age of the four street trees and will support their removal.

- Tree 1 = \$690.00
- Tree 2 = \$690.00
- Tree 3 = \$920.00
- Tree 4 = \$920.00
- Total = \$3220.00**

A total fee of \$ 3220.00 will be required prior to the commencement of any work.

Please note, under no circumstances is any individual other than council staff permitted to interfere with a street tree. If pruning etc. is required, council must be notified via the appropriate request, and council staff will perform all works associated with the community asset.

Final crossover locations will be confirmed once appropriate consultation has been received from the applicant and they have submitted "an application to construct a vehicle crossing place(s) across council land".

Rick Holmes
Arboriculture Assistant
165 Sir Donald Bradman Drive
Hilton SA 5033

Telephone: 8416 6333
Fax: 8443 570
Email: rholmes@wtcc.sa.gov.au

DATE: 19/03/2020

















Waste Management Assessment

Development Application No: 211/1286/2019

Assessing Officer: Brendan Fewster

Site Address: 142 Marion Road, WEST RICHMOND SA 5033, 134-140 Marion Road, WEST RICHMOND SA 5033, 1/134-140 Marion Road, WEST RICHMOND SA 5033, 2/134-140 Marion Road, WEST RICHMOND SA 5033, 3/134-140 Marion Road, WEST RICHMOND SA 5033, 4/134-140 Marion Road, WEST RICHMOND SA 5033

Certificate of Title: CT-5693/953, CT-5825/573, CT-5849/113, CT-5849/113, CT-5825/573, CT-5849/113, CT-5825/573, CT-5849/113, CT-5825/573, CT-5849/113, CT-5825/573

Description of Development Construction of a restaurant and retail shop with drive-thru facilities and associated signage, car parking and landscaping

TO TEAM LEADER WASTE MANAGEMENT - REGULATORY SERVICES

Please provide your comments in relation to:

☐ Any aspect that you feel needs further attention or detail

.....
.....



Memo

To Brendan Fewster
From Nick Teoh
Date 18-Mar-2020
Subject 211/1286/2019 142 Marion Road, WEST RICHMOND SA 5033, 134-140 Marion Road, WEST RICHMOND SA 5033, 1/134-140 Marion Road, WEST RICHMOND SA 5033, 2/134-140 Marion Road, WEST RICHMOND SA 5033, 3/134-140 Marion Road, WEST RICHMOND SA 5033, 4/134-140 Marion Road, WEST RICHMOND SA 5033

Dear Brendan Fewster

The following Waste Management comments are provided with regards to the assessment of the above develop application:

Waste Management

BWS

More information is requested regarding bin store to be placed adjacent to the loading bay:

- Location and size of bin store
- Size and type of bins

The proposed location is considered suitable for collection by MRV with entry and exit to Knight Street in a forward direction.

McDonalds

The proposed waste management solution for McDonalds is endorsed. It is recommended that McDonalds install public bins in the carpark and at the drive-through exit to contain possible litter from escaping the property boundary.

Commercial waste collection is to be collected in accordance to Environment Protection (Noise) Policy 2007 that is, between 7.00am and 7.00pm on weekdays and between 9.00am and 7.00pm on Sunday or public holidays.

Kind regards

Nick Teoh
Team Leader Waste Management

In reply please quote: 2020/00291/01, Process ID: 613282
 Enquiries to: Marc Hryciuk
 Telephone: 7109 7877
 E-mail: dpti.luc@sa.gov.au



Government of South Australia

Department of Planning,
 Transport and Infrastructure

TRANSPORT PLANNING AND
 PROGRAM DEVELOPMENT

Transport Assessment

GPO Box 1533
 ADELAIDE SA 5001

ABN 92 366 288 135

2 March 2020

Mr Brendan Fewster
 City of West Torrens
 165 Sir Donald Bradman Drive
 HILTON SA 5033

Dear Mr Fewster

SCHEDULE 8 - REFERRAL RESPONSE

Development No.	211/1286/19
Applicant	McDonald's Australia Limited
Location	140-142 Marion Road, West Richmond
Proposal	Construction of a restaurant and retail shop with drive-thru facilities, signage, car parking and landscaping

I refer to the above development application forwarded to the Commissioner of Highways (CoH) in accordance with Section 37 of the *Development Act 1993*. The proposed development involves development adjacent a main road as described above.

The following response is provided in accordance with Section 37(4)(b) of the *Development Act 1993* and Schedule 8 of the *Development Regulations 2008*.

CONSIDERATION

The subject site abuts Marion Road, an arterial road under the care, control and management of the Commissioner of Highways as well as Knight Street and Trennery Street, local roads under the control of the City of West Torrens. Marion Road is classified as a Major Traffic Route, Primary Freight Route, Major Cycling Route and a Standard Frequency Public Transport Corridor under DPTI's *A Functional Hierarchy for South Australia's Land Transport Network*. Marion Road is gazetted for 26.0 metres B-double/PBS L2A vehicles, carries 35,000 vehicles per day (5% Commercial Vehicles) and has a 60km/h speed limit at this location.

Road Safety and Access

The development site currently consists of a commercial building (with a number of retail tenancies including a bottle shop) and a dwelling. Access to the dwelling is via a single access to Marion Road and access to the commercial building is via three access points to Marion Road and one on Trennery Street. The subject development consists of a new bottle shop with drive through and a fast food restaurant with drive through. Access to the site is proposed to be via a single ingress on Marion Road, a two-way access on Knight Street as well as a two-way access and a separate egress on Trennery Street. The department is supportive of the proposed access arrangements as they improve the safety and efficiency of Marion Road.

GTA Consultants has undertaken a traffic impact assessment for the development which indicates that the development will have some impact on Marion Road with most of the impact being at the Marion Road/Knight Street and Marion Road/Trennery Street junctions. From the analysis undertaken by GTA, it would appear that the right turn lanes in to the above roads will have sufficient capacity to cater for the development. Consequently, DPTI does not require any upgrading of Marion Road to support the development.

#15157109

With respect to the Marion Road access, it is understood that this access will be approximately 6.1m wide in order to facilitate the entry of delivery vehicles. Whilst the width of the ingress is acceptable, the design is likely to result in the access being utilised by patrons as a two-way access. In order to ensure the ingress only operation of the access, it is recommended that the access be modified so that it is angled at 70 degrees to the road. The proposed location of this access requires the relocation of the existing bus stop. The relocated bus stop will need to be DDA compliant.

It is noted that the Trennery Street access appears not to meet figure 3.1 in AS/NZS 2890.1:2004 and that the angle of the access is not ideal due to the tight entry turn and exiting vehicles not approaching the road at 90 degrees. It is also noted that the waiting bay design results in vehicles not approaching the boundary at 90 degrees. In view of the above, it is recommended that the access design be amended to ensure consistency with AS/NZS 2890.1:2004 and that vehicles cross the Trennery Street boundary at 90 degrees (or as close as practicable). The department agrees that the proposed bans parking along Trennery Street will be required to facilitate heavy vehicle movements and to ensure the safe operation of this street.

The Knight Street access is located a reasonable distance from the Marion Road/Knight Street junction. The department considers that the proposed parking restrictions along Knight Street will be necessary to ensure the safe movement of vehicles along this section of Knight Street as well as to minimise the potential for vehicles to queue from the site access to the adjacent junction. In order to reduce the potential for conflict at the Knight Street access, consideration should be given to ensuring all entering vehicles have priority over vehicles exiting the proposed drive through.

Service Vehicles

It is proposed that the bottle shop will be accessed by 12.5m Heavy Rigid Vehicles and that the restaurant will be accessed by 14m semi-trailers. The loading bay for the bottle shop is immediately adjacent the Knight Street access and the loading bay for the restaurant is immediately adjacent to the Marion Road access. Given the proximity of the loading bays to the access points, there is a potential for some conflict between service vehicle movements and other vehicles accessing the site.

Signage and Landscaping

The proposal includes both signage and landscaping. The department considers that the proposed illuminated signage is acceptable provided that luminance is limited to 150cd/m². With respect to landscaping, it is noted that the vegetation adjacent to the Marion Road/Knight Street and Marion Road/Trennery Street corners is low growing. This is supported as it will maximise the available sight lines at this location. It is also noted that whilst the majority of the landscaping adjacent to the Marion Road access is also low growing, two trees are also proposed at this location. As these are likely to impact on sight lines and also interfere with service vehicle movements, it is recommended that the two trees be removed from the plan.

ADVICE

The Department of Planning, Transport and Infrastructure supports the proposed development and advises the planning authority to attach the following conditions to any approval:

1. A final access and parking plan shall be submitted to the satisfaction of DPTI and Council prior to construction. This plan shall include:
 - The Marion Road access being angled at 70 degrees to the road to reinforce its ingress only operation.
 - Modifications to the Trennery Street access to ensure that it meets figure 3.1 in AS/NZS 2890.1:2004 and the Trennery Street driveway is designed to meet the access at 90 degrees (or as close as practicable).

#15157109

- Modifications to the waiting bay egress to ensure that vehicles exiting the site cross the boundary at 90 degrees (or as close as practicable).
2. The largest vehicle permitted to access the site shall be a 14 metre semi-trailer.
 3. All vehicles shall enter and exit the site in a forward direction.
 4. All off-street parking shall be designed in accordance with AS/NZS 2890.1:2004 and AS/NZS 2890.6:2009. All commercial vehicle facilities shall be designed in accordance with AS 2890.2:2018. Clear sightlines, as shown in Figure 3.4 'Minimum Sight Lines for Pedestrian Safety' in AS 2890.2:2018, shall be provided at the property line to ensure adequate visibility between vehicles leaving the site and pedestrians on the adjacent footpath.
 5. All vegetation adjacent to the Marion Road/Knight Street and Marion Road/Trennery Street junctions and the Marion Road access shall be low growing (i.e. less than 1.0m tall) to maximise sight lines at these locations.
 6. A Traffic Management Plan for the construction period of the development shall be produced to the satisfaction of DPTI and Council prior to the commencement of construction. This plan shall detail the types, volumes and distributions of traffic and how they will be managed. All traffic movements shall be in accordance with this plan.
 7. Any redundant crossover/s shall be closed and reinstated to Council's satisfaction at the applicant's cost prior to the development becoming operational.
 8. The existing bus stop adjacent the Marion Road frontage of the site shall be relocated to the satisfaction of DPTI and Council. The relocated bus stop will need to be DDA compliant. The applicant shall contact Mr Wayne Stewart, Senior Project Officer, Public Transport Services on telephone (08) 7109 7240 or via email wayne.stewart@sa.gov.au to discuss this relocation. All costs with this work shall be borne by the applicant. These works shall be completed prior to operation of the development.
 9. Any infrastructure within the road reserve that is demolished, altered, removed or damaged during the construction of the project shall be reinstated to the satisfaction of the relevant asset owner, with all costs being borne by the applicant.
 10. All stormwater run-off shall be collected on-site and discharged without jeopardising the integrity and safety of the adjacent road network. Any alterations to drainage infrastructure required to facilitate this shall be at the applicant's cost.

Yours sincerely



**A/MANAGER, TRANSPORT ASSESSMENT
for COMMISSIONER OF HIGHWAYS**

A copy of the decision notification form should be forwarded to dpti.developmentapplications@sa.gov.au

#15157109

6.2 12-20 Arthur Lemon Avenue, UNDERDALE

Application No 211/791/2019

DEVELOPMENT APPLICATION DETAILS

DESCRIPTION OF DEVELOPMENT	Combined Application: Land division - Torrens Title; SCAP No. 211/D094/2019; Creating five (5) additional allotments, a new public road, construction of five (5) two-storey detached dwellings and associated landscaping and alterations to and relinquish existing use rights of existing building on proposed Lot 1
APPLICANT	Ekistics C/- Fyfe Pty Ltd
APPLICATION NUMBER	211/791/2019 (211/D094/2019)
LODGEMENT DATE	9 August 2019
ZONE	Residential Zone
POLICY AREA	Medium Density Policy Area 18
APPLICATION TYPE	Merit
PUBLIC NOTIFICATION	Category 1
REFERRALS	Internal <ul style="list-style-type: none"> City Assets External <ul style="list-style-type: none"> State Commission Assessment Panel (SCAP) South Australian Water Corporation (SA Water) Environment Protection Authority (EPA)
DEVELOPMENT PLAN VERSION	Consolidated 12 July 2018
DELEGATION	<ul style="list-style-type: none"> The relevant application proposes a merit form of development which does not meet the minimum site area requirements in the relevant Zone or Policy Area by 7.5% or more.
RECOMMENDATION	Support with reserved matters and conditions
AUTHOR	Brendan Fewster

SUBJECT LAND AND LOCALITY

The subject land is formally described as Allotment 54 Deposited Plan 67591 in the area named Underdale Hundred of Adelaide, Volume 5948 Folio 226, more commonly known as 12-20 Arthur Lemon Avenue, Underdale. The subject site is an irregular shape with a 67.13 metre (m) wide frontage to Arthur Lemon Avenue and a frontage of 72.41m to Witty Court. The land is 5097 square metres (m²) in total area.

While there are no encumbrances or Land Management Agreements on the Certificate of Title, it is noted there are two services easements over the land.

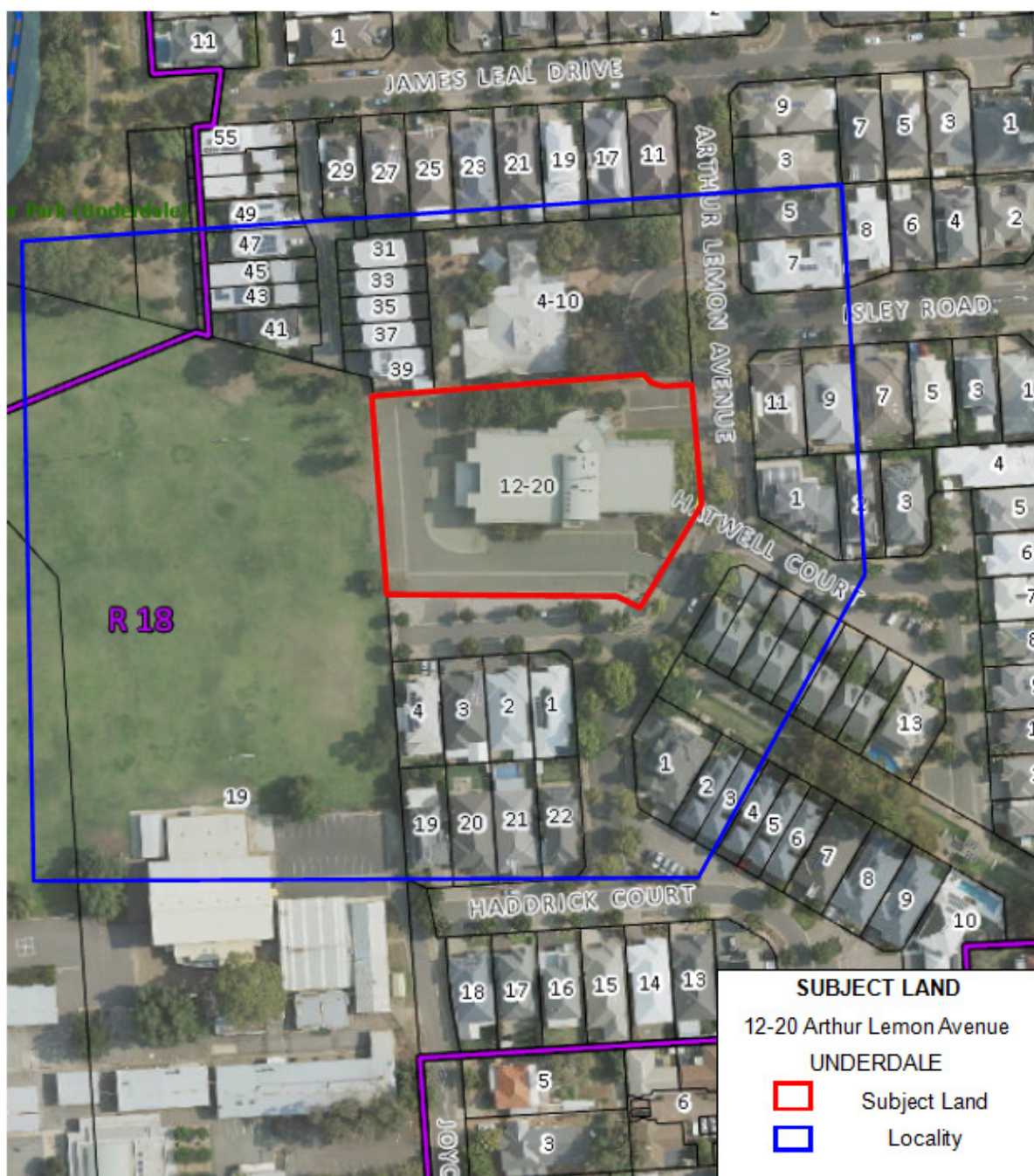
The site currently contains a large two-storey commercial building that was formerly used by the University of South Australia for educational purposes. The building is currently vacant. There is a bitumen car park around the curtilage of the building on the northern, southern and western sides with parking for in excess of 60 vehicles.

The site is relatively flat and is covered almost entirely by the commercial building and hard paved surfaces. There are no Regulated Trees on the subject site, and while there appears to be several Regulated Trees on the adjacent childcare centre site to the north, these trees would not be affected by the proposed development.

The locality includes the former University site that has been redeveloped into a housing estate. To the north is a childcare centre and residential development comprising detached dwellings and two storey residential flat buildings. To the east and south is predominantly detached and row dwellings, while to the west is the grounds of the Underdale High School.

The amenity of the locality is relatively high due to the quality of the surrounding housing stock and the spacious and vegetation character derived from the school grounds, the Torrens Linear Park and small public reserves.

The subject land and locality are shown on the aerial imagery and maps below.





RELEVANT APPLICATIONS

DA Number	Description of Development	Decision	Decision Date
211/913/2017	Construction of five(5) two-storey group dwellings	Pending (on-hold)	
211/903/2017	Land division - Torrens Title; DAC No. 211/D130/17 (Unique ID 58914); Create five (5) additional allotments, the alteration to an existing building and the creation of a public road	Pending (on-hold)	
211/922/2009	Building alterations and internal works including partial demolition and new openings	Approved	09/11/2009
211/1453/2004	Land Division - Torrens Title DAC No. 211/D138/04 Total of 3 allotments	Approved	14/02/2005
211/1452/2004	Land Division - Torrens Title (Lot 889 Holbrooks Rd) DAC No. 211/D137/04 Total of 145 allotments	Approved	23/05/2005

PROPOSAL

The application is for a 'combined' land division and dwelling proposal.

The proposed division of land is in the form of a Torrens Title land division to create five (5) additional allotments (1 allotment into 6). The proposed residential allotments range in size between 141m² and 229m², with an average site area of 184m². The existing commercial building will be retained on an exclusive allotment of 3558m².

The application includes the construction of five (5) two-storey detached dwellings. All the dwellings and their allotments would have frontage to a new public road. The proposed dwellings are of a modern design with a common architectural style. The building facades have a rectilinear form that feature parapet walls, a front portico, rear balcony, double garaging and contrasting materials. External materials and finishes include brick and vertical Scyon cladding (brown and black), rendered banding and side walls (grey), colorbond garage doors and aluminium frame windows and doors (monument).

The main front walls of the dwellings would be located in close proximity to the new public road. The rear yard of the dwellings would be adjacent to the school grounds.

A small portion of the western façade of the existing commercial building will be removed to accommodate the new public road. The proposal also includes relinquishing the existing use rights of the building, as existing car parking associated with the building is to be removed.

The relevant plans and documents are contained in **Attachment 2**.

PUBLIC NOTIFICATION

The application is a Category 1 form of development pursuant to Schedule 9, Part 1, 2(a)(i) & 5 of the *Development Regulations 2008*. It has been determined that the land to be divided would be used for a purpose (i.e. residential) that is consistent with the objective of the zone and that the proposed division of land would not change the nature or function of an existing road. In this regard, both Arthur Lemon Avenue and Witty Court would remain as local roads.

As the proposal is Category 1, public notification was not required to be undertaken.

INTERNAL REFERRALS

Department	Comments
City Assets	<ul style="list-style-type: none"> • It is unclear how the existing building on the land will be serviced (stormwater, water, sewer etc.) and whether there is existing services located within the footprint of the new development or laneway. • The proposed laneway should have kerb and gutter along both sides of road. Typical laneway design would include central spoon drain drainage and kerb only along the edge of road. • A 300mm wide reserve land strip (not road) between the laneway and the remaining existing allotment (Lot 1) should be provided. This is to ensure there is no future accessing or servicing of Lot 1 via the laneway. • No information has been provided in relation to detailed pavement design, landscaping and verge finishes, lighting, services or landscaping of the reserve area between allotments 2 and 3. • The number of spaces would provide sufficient on-street visitor parking allowance for the five proposed dwellings in this instance. • The proposed dwellings would be suitable for standard Council waste servicing. To facilitate this, the design of the laneway will need to accommodate the forward entry and exiting of the laneway for the waste vehicle. An area has been provided at the northern end of the laneway which has been utilised for the turning of a waste vehicle. • The direct connection of the new laneway to Witty Court is considered acceptable and direct impacts of this to the existing arrangement of Witty Court are considered manageable. • Detention calculations nominate an acceptable total volume of stormwater detention and nominate it to be achieved through a combination of allotment and public based measures, however there is no justification for how this spread of detention has been determined or how or what scale flow restrictions are to be utilised. • Council is satisfied with the proposed approach for stormwater quality treatment, however further demonstration will be required in the final detail design of the roadworks to ensure the proposed unit has been scaled appropriately to the specific catchment of this application. • A pit to collect runoff from the carpark on Lot 1 should be separate from the drain from the new laneway. • As no site or road verge level information has been provided, the suitability of the FFL's has not been considered.

	Following detailed discussions with Council staff, the applicant has adequately addressed the above matters by way of amendments and additional information. Some matters will also be addressed as part of the Statement of Requirements. City Assets is now satisfied with the proposal subject to the inclusion of conditions that are outlined in the recommendation.
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EXTERNAL REFERRALS

Department	Comments
SCAP	<ul style="list-style-type: none"> SCAP raised no concerns with the proposal. Standard conditions of consent have been included in the recommendation.
SA Water	<ul style="list-style-type: none"> SA Water raised no concerns with the proposal. The developer will be required to meet the requirements of SA Water for the provision of water and sewerage services. Standard conditions of consent have been included in the recommendation.
EPA	<ul style="list-style-type: none"> Please refer to the EPA's advice for Development Application 211/D130/17 (EPA Reference 34156) dated 16 August 2017. Initial advice suggested that preliminary site investigations be undertaken. Additional documentation provided in October 2017 was not considered to address this request. Based on the series of additional reports and advice provided by Golder & Associates the EPA Site Contamination Team have advised it is up to Council to determine whether a Site Audit is required. No further comments have been made. It is up to the Council to determine suitability of the site for its intended use.

A copy of the relevant referral responses is contained in **Attachment 3**.

RELEVANT DEVELOPMENT PLAN PROVISIONS

The subject land is located within the Residential Zone and, more specifically, within Medium Density Policy Area 18 as described in the West Torrens Council Development Plan.

The relevant Desired Character statements are as follows:

Residential Zone - Desired Character:

This zone will contain predominantly residential development. There may also be some small-scale non-residential activities such as offices, shops, consulting rooms and educational establishments in certain locations. Non-residential activities will be complementary to surrounding dwellings.

Allotments will be at very low, low and medium densities to provide a diversity of housing options in different parts of the zone. The range of allotment sizes will support the desired dwelling types anticipated in each policy area, and the minimum allotment sizes shall be treated as such in order to achieve the Desired Character for each policy area and, in turn, reinforce distinction between policy areas. Row dwellings and residential flat buildings will be common near centres and in policy areas where the desired density is higher, in contrast to the predominance of detached dwellings in policy areas where the distinct established character is identified for protection and enhancement. There will also be potential for semi-detached dwellings and group dwellings in other policy areas.

Residential development in the form of a multiple dwelling, residential flat building or group dwelling will not be undertaken in a Historic Conservation Area.

Landscaping will be provided throughout the zone to enhance the appearance of buildings from the street as viewed by pedestrians, provide an appropriate transition between the public and private realm and reduce heat loads in summer.

Medium Density Policy Area 18 - Desired Character:

Allotments in this policy area will be at medium density, accommodating a range of dwelling types including residential flat buildings, row dwellings, group dwellings, semi-detached dwellings and some detached dwellings on small allotments. Allotment amalgamation to create larger development sites will occur to maximise the density of development while also achieving integrated design outcomes, particularly within a comfortable walking distance of centre zones. Vehicle access will occur from side streets and new rear public and private laneways wherever possible, also supporting the retention of existing street trees.

New buildings will contribute to a highly varied streetscape. Buildings will be up to 3 storeys and provide a strong presence to streets, other than in the part of the policy area in Underdale, Ashford (other than allotments adjacent to Residential Character Ashford Policy Area 22) and allotments bounded by Anzac Highway, Morphett Road and Cromer Street in Camden Park where buildings will be up to 4 storeys. Parking areas and garages will be located behind the front facade of buildings.

Buildings on the edge of the policy area which adjoin residential policy areas at lower densities will pay particular attention to managing the interface with adjoining dwellings, especially in terms of the appearance of building height and bulk, and overshadowing.

Development will be interspersed with landscaping, particularly behind the main road frontage, to enhance the appearance of buildings from the street as viewed by pedestrians, provide an appropriate transition between the public and private realm and reduce heat loads in summer.

Additional provisions of the Development Plan which relate to the proposed development are contained in **Attachment 1**.

QUANTITATIVE STANDARDS

The proposal is assessed for consistency with the quantitative requirements of the Development Plan as outlined in the table below:

DEVELOPMENT PLAN PROVISIONS	STANDARD	ASSESSMENT
SITE AREA <i>Medium Density Policy Area 18 PDC 7</i>	Detached Dwelling 250m ² (min.)	144m ² - 229m ² Does Not Satisfy
SITE FRONTAGE <i>Medium Density Policy Area 18 PDC 7</i>	No standard	7.7m – 15.2m Satisfies

SITE COVERAGE <i>Medium Density Policy Area 18</i> PDC 5	70% (max.)	75% max Does Not Satisfy
PRIMARY STREET SETBACK <i>Medium Density Policy Area 18</i> PDC 5	3m (min.)	0-1.6m – ground floor 0-2.0m – upper floor Does Not Satisfy
SIDE SETBACKS <i>Residential Zone</i> PDC 11	Side 1m minimum - vertical side wall is 3 metres or less 2m minimum - vertical side wall is between 3 and 6 metres	900mm min Does Not Satisfy
REAR SETBACK <i>Medium Density Policy Area 18</i> PDC 5	4m (min.)	2.2m min Does not satisfy
BUILDING HEIGHT <i>Medium Density Policy Area 18</i> PDC 5	3 storeys or 12.5m (max.)	2 storeys (6.77m) Satisfies
PRIVATE OPEN SPACE <i>Residential Development</i> PDC 19	24m ² with a minimum dimension of 3m	29m ² min Satisfies
LANDSCAPING <i>Module: Landscaping, Fences & Walls</i> PDC 4	A minimum of 10 per cent of a development site	10% approx. (inclusive of private yards) Satisfies
CARPARKING SPACES <i>Medium Density Policy Area 18</i> PDC 7	2 spaces per dwelling (one to be covered)	2 covered spaces per dwelling Satisfies
DOMESTIC STORAGE <i>Site Facilities and Storage</i> <i>Module</i> PDC 4	Minimum storage area of 8m ³	Approx 8m ³ available within garages, WIR, under stairs and bedrooms Satisfies

ASSESSMENT

In assessing the merits or otherwise of the application, the proposed development is discussed under the following sub-headings:

Site Contamination

PDC 13 of the General Section (Hazards) states that *“development, including land division, should not occur where site contamination has occurred unless the site has been assessed and remediated as necessary to ensure that it is suitable and safe for the proposed use”*.

The application has been referred to the Environment Protection Authority (EPA). The EPA has referred to previous comments that were made for an earlier application (211/D130/17) that requested a preliminary site investigation be undertaken. The EPA further queried the adequacy of a Soil Contamination Investigation Report and a letter prepared by Golder Associates that was provided in response to this request.

The applicant provided a “Summary of Environmental Assessments and Site Contamination Status” prepared by Golder Associates. The summary refers to several environmental assessments that have been undertaken between 2002 and 2016. Of particular relevance is the *Supplementary Assessment of Site* dated 13 April 2016 and the *Preliminary Environmental Site Assessment* dated 19 July 2002 both of which were prepared by Golder Associates. It appears that this information was provided after the EPA provided their referral response. The additional documentation had not been considered by the EPA in forming their referral response. The EPA has since reviewed this documentation and advised they have no further comment to make and Council must now determine the suitability of the land for future residential use.

Golder Associates has confirmed that, apart from small-scale printing operations within the building, there has been no potentially contaminating activities on the site and no evidence of contamination in the soils around the existing building. In regard to the printing operations, Golder Associates confirm that:

“Based on further review of site printing operations, noted to potentially fall within the definition of ‘Printing Works’ (defined as a PCA), Golder is of the opinion that the printing operations were of a limited nature and do not present a significant risk to future land use”

It has been concluded by Golder Associates that:

“Current and historical land uses that have the potential to result in site contamination are considered to be negligible and are not expected to pose an issue with respect to the intended residential land use. The findings of the intrusive soil investigation support the conclusions of the desktop (site history) assessment that contamination risks at the site are low”.

Given the low contamination risk, the land is considered suitable and safe for residential use.

Land Division

The proposed Torrens Title land division will create six allotments from one existing allotment along with a new section of public road.

The proposed allotments have the following site areas and frontages:

Lot	Site Area (m ²)	Frontage (m)	Dwelling Type
1	3558	Existing	No use
2	183	10.39	Detached Dwelling
3	141	7.77	Detached Dwelling
4	229	15.2	Detached Dwelling
5	209	14.0	Detached Dwelling
6	159	9.46	Detached Dwelling

PDC 6 and 8 of Medium Density Policy Area 18 prescribe a minimum site area of 250m² for detached dwellings. The minimum site area for semi-detached dwellings and residential flat buildings is 200m² and 150m² respectively.

While the proposed allotments would, as defined by Schedule 1 of the *Development Regulations 2008*, accommodate detached dwellings by virtue of having exclusive frontages to a public road (new road) and no common party walls, the proposed dwellings are akin to semi-detached dwellings or residential flat buildings in terms of their design, siting and appearance (i.e. wall to wall). When assessed against detached dwelling standard, the proposal would have a site area shortfall of up to 109m² or 43 percent. While this is a significant shortfall in percentage terms, the residential allotments would have an average site area of 184m², which is generally within the range for semi-detached dwellings and residential flat buildings.

Notwithstanding the allotment size shortfalls, it has been demonstrated by the built form proposal that the allotments are large enough for the proposed dwellings to reasonably satisfy the relevant quantitative requirements relating to building height and scale, private open space, site coverage and vehicle access and manoeuvrability. Furthermore, the streetscape and character impacts would not be significant given that the proposed frontages are wide enough for a dwelling to suitably address the street and the overall site density would be within the desired medium density range. The proposed allotments are also consistent with those of the adjoining 'terrace' development to the north. The subject land is also within a separate/distinct enclave of housing that will pose very little impact to the streetscape of Witty Court due to the spatial separation.

Intended Use of Existing Building

The site currently contains a large two-storey commercial building that was formerly used by the University of South Australia. The building is located on proposed Lot 1 and has been vacant for some time. The building currently has existing use rights as a 'distant education facility', which was approved under Development Application 210/P046/92.

As some of the existing car parking associated with the building is to be removed to accommodate the proposed residential development, the proposal includes relinquishing the existing use rights of the building. By relinquishing the existing use rights, the building is to remain vacant until such time as approval is granted for a new land use.

As the proposed division of land would reduce the building curtilage and in doing so result in a significant loss of car parking, the future use of land and/or adaptability of the building needs to be considered to ensure the new allotment is orderly and appropriate from a future land use perspective. This is reinforced by Objective 2 and PDC 2 of the General Section (Land Division).

The applicant has confirmed that the building is to be retained and adapted for reuse as supported accommodation (i.e. retirement village). While no plans have been submitted at this stage, the size of the building, the internal layout and good structural condition is such that the building lends itself to a residential use of this nature. Supported accommodation is an envisaged use within the Residential Zone and Medium Density Policy Area 18 and there is considered to be adequate remaining car parking to accommodate the future development of the land for this purpose.

Accordingly, and on balance, the proposed division of land and the subsequent relinquishing of the existing use rights of the existing building is considered orderly and appropriate in this instance.

Dwelling Density and Desired Character

The Desired Character for Medium Density Policy Area 18 envisages medium density development that includes *"a range of dwelling types including residential flat buildings, row dwellings, group dwellings, semi-detached dwellings and some detached dwellings on small allotments"*.

As previously considered, the proposed development has an overall dwelling density that is within the envisaged medium density range and consistent with other medium density developments within the estate. The subject land is also within walking distance local shopping facilities on Henley Beach Road and public transport (bus) routes along Holbrooks Road and Henley Beach Road.

From a streetscape perspective, the proposed dwellings would not appear cramped or visually overbearing due to their modest height and the spatial separation afforded by the adjacent school oval and the new public road.

The overall dwelling density and allotment layout of the proposal is considered compatible with the existing and desired built form characteristics of the locality.

Design and Appearance

The proposed dwellings are designed with an integrated form and common architectural style. The dwellings are modern, with well-proportioned and articulated facades that include parapet walls, a front portico, rear balcony, double garaging and contrasting materials. External materials and finishes include brick and vertical Scyon cladding (brown and black), rendered banding and side walls (grey), colorbond garage doors and aluminium frame windows and doors (monument).

Although the proposed buildings have a continuous form with some repetition, the front projections and wall recesses would break up the building mass and the use of different materials add visual interest. The façades include windows and balconies to the upper floors to facilitate passive surveillance of the adjacent public road and school oval and the dwelling entrances are readily identifiable.

The Desired Character and PDC 5 of the Medium Density Policy Area 18 envisage building heights up to three storeys or 12.5 metres above ground level. The proposal comprises two storey dwellings with a maximum height of 6.77 metres. The proposed building height is therefore considered appropriate.

Overall, the design and appearance of the proposed development is considered to adequately address the relevant provisions of the Development Plan and in particular would satisfy Objective 1 and PDC 1, 2 and 5 of the General Section (Design and Appearance).

Boundary Setbacks

The front setback for dwellings in Medium Density Policy Area 18 should be a minimum of 3 metres as recommended by PDC 5. While the front walls of the proposed dwellings are setback less than 3 metres, the siting of the dwellings with minimal front setbacks is appropriate in this instance as the dwellings will have frontage to a 'new' road and thus form a 'new' streetscape that is largely screened by the existing commercial building.

Similarly, the rear setbacks of between 2.2 metres and 4.4 metres are less than the recommended setback of 4 metres. The reduced rear setbacks would not have any adverse amenity impacts as the rear of the dwellings is immediately adjacent to the oval of the Underdale High School.

The side boundary setbacks for Dwelling 1 and 5 satisfy PDC 11 of the Residential Zone except for a small section of the upper storey toward the of Dwelling 5. This small section of wall would have minimal impact on the visual amenity of the adjoining dwelling given the location of an existing outbuilding and trees on the adjoining property and the modest size and scale of the proposed dwelling.

Road Design, Services and Infrastructure

PDC 1 of the General Section (Land Division) requires new allotments to be capable of being serviced economically and conveniently with public utilities and formed all-weather public roads.

The proposal includes an extension to the existing public road network, with a new section of road approximately 30 metres in length to connect with Witty Court. Witty Court is a relatively short no-through road that closes adjacent to the school oval. The road is served from Arthur Lemon Avenue, which is a 'local' road. A Parking and Traffic Assessment prepared by GTA Consultants confirms that the proposed development would generate only 45 vehicle trips on a daily basis, which would not adversely impact upon traffic flows on Witty Court and Arthur Lemon Drive. The provision of three on-street spaces, in addition to the on-site provision for each dwelling, would satisfy the car parking requirements of the Development Plan.

Council's City Assets Department has reviewed the preliminary road design and considers the "*laneway style road*" to be acceptable in principle. The final detailed design will be presented to Council for approval as prescribed by Part 9, Division 2 of the *Development Regulations 2008*.

As required by Section 33 of the *Development Act 1993* and Regulation 54 of the *Development Regulations 2008*, the applicant will be required to provide all necessary road, sewer, electricity and stormwater infrastructure prior to Council issuing clearance to the State Commission Assessment Panel. Alternatively, the applicant would be required to enter a financial security bond with Council for the required infrastructure works.

Council's City Assets Department has confirmed that existing road, sewer, electricity and stormwater services are readily accessible to the proposed allotments and could be extended where required without any capacity-related issues or constraints. Conditions of consent have been included to ensure that all public infrastructure is provided to the satisfaction of Council.

The proposal therefore satisfies Objective 1 and PDC 1 of the General Section (Land Division).

Overlooking

The proposed dwellings have a layout such that all front and rear windows face directly onto the new road or the oval of the adjacent high school. As the adjacent areas are 'public' rather than private land, front and rear upper storey windows and balconies are not required to include treatments/screening for privacy purposes. The upper storey windows and balconies on the side elevations of Dwelling 2, 3 and 5 will comprise either raised sills or fixed obscure glazing to a height of 1.7 metres above the floor level.

The proposed privacy measures are considered adequate in preventing 'direct' views from the upper storey windows into the habitable room windows and yard areas of adjoining properties. The proposal therefore satisfies PDC 27 of the General Section (Residential Development).

Overshadowing

Given the two-storey scale of the proposed dwellings and the north to south orientation of the land, it is reasonable to expect that some shadow would be cast over the adjoining land immediately to the south. As the nearest residential property to the south is at least 15 metres away, there would be no overshadowing impacts.

Internally, the proposed dwellings would receive considerable natural light in the mornings and afternoons, which would be well in excess of two hours of natural light during the day in winter as required under PDC 11 of the General Section (Residential Development).

The proposal is considered to satisfy Principle of Development Control 10, 11 and 12 of the General Section (Residential Development).

SUMMARY

When balanced against the existing site and locality characteristics and the Desired Character for Medium Density Policy Area 18, the proposed division of land and associated residential development is considered to be an orderly and desirable form of development. The relinquishing of existing use rights of the existing commercial building is also considered orderly and appropriate given that it could be reasonably adapted for reuse as supported accommodation.

The dwelling density and allotment layout of the proposal sufficiently accords with the Desired Character and is compatible with the pattern and built form characteristics of the locality. Except for the site area shortfalls and boundary setback dispensations, the proposal satisfies the relevant quantitative provisions of the Development Plan.

Having considered all the relevant Objectives and Principles of the Development Plan, the proposal is not considered to be seriously at variance with the Development Plan.

On balance, the proposed development sufficiently accords with the relevant provisions contained within the West Torrens Council Development Plan Consolidated 12 July 2018 and warrants Development Plan Consent and Land Division Consent.

RECOMMENDATION

The Council Assessment Panel, having considered all aspects of the report, the application for consent to carry out development of land and pursuant to the provisions of the *Development Act 1993* resolves to GRANT Development Plan Consent and Land Division Consent for Application No. 211/791/2019 by Ekistics, C/- Fyfe Pty Ltd for Combined Application: Land division - Torrens Title; SCAP No. 211/D094/2019; Creating five (5) additional allotments, a new public road, construction of five (5) two-storey dwellings and associated landscaping and alterations to and relinquish existing use rights of existing building on proposed Lot 1 at 12-20 Arthur Lemon Avenue, Underdale (CT5948/226) subject to the following conditions of consent and reserved matters:

Reserved Matters

The following information shall be submitted for further assessment and approval by the City of West Torrens as reserved matters under Section 33(3) of the *Development Act 1993*:

1. A Construction Management Plan (CMP) for the proposed development. The CMP should identify potential issues and appropriate measures to minimise impacts and disruption to surrounding residents and business owners during the construction phase of the development.
2. A Soil Erosion and Drainage Management Plan (SEDMP) must be prepared and submitted to the satisfaction of Council and must be implemented in accordance with the EPA's Stormwater Pollution Prevention Code of Practice for the Building and Construction Industry (March 1999) to prevent soil sediment and pollutants leaving the site or entering watercourses during development of the site and construction of dwellings.

Development Plan Consent Conditions:

1. The development must be undertaken, completed and maintained in accordance with the plans and information detailed in this Application except where varied by any conditions listed below:
2. All stormwater design and construction for the proposed dwellings will be in accordance with Australian Standards and recognised engineering best practices to ensure that stormwater does not adversely affect any adjoining property or public road and, for this purpose, stormwater drainage will not at any time:
 - a) Result in the entry of water into a building; or
 - b) Affect the stability of a building; or
 - c) Create unhealthy or dangerous conditions on the site or within the building; or
 - d) Flow or discharge onto the land of an adjoining owner; or
 - e) Flow across footpaths or public ways.

Reason: To ensure that adequate provision is made for the collection and dispersal of stormwater

3. The following stormwater management measures for the dwellings shall be installed and operational prior to occupation of the dwellings:
 - A rainwater tank plumbed to deliver recycled water to all toilets and laundry cold water outlet; and
 - A minimum of 90 percent of the roof area of each dwelling to be plumbed to direct stormwater runoff to the rainwater tank for that dwelling.

Reason: To ensure that adequate provision is made for the collection and dispersal of stormwater

4. All driveways, parking and manoeuvring areas will be formed, surfaced with concrete, bitumen or paving (including the use of appropriately designed permeable and/or pervious pavements), and shall be properly drained prior to occupation. These surfaces shall be maintained in reasonable condition at all times to the satisfaction of Council.

Reason: To ensure safe and convenient vehicle access and to suppress dust.

5. That all landscaping shall be planted in accordance with the approved plans (Landscape Plan prepared by Qattro dated 17 March 2020) prior to occupation of the dwellings approved herein. Any person(s) who have the benefit of this approval will cultivate, tend and nurture the landscaping and shall replace any plants which may become diseased or die.

Reason: To enhance the amenity of the site and locality and to mitigate against heat loading

6. That upper storey windows and balconies on the side elevations of Dwelling 2, 3 and 5 shall be fitted with fixed obscure glass, solid screens or raised sills to a minimum height of 1.7 metres above the upper floor level to minimise the potential for overlooking of adjoining properties, prior to occupation of the building. The glazing in these windows shall be maintained to the satisfaction of Council at all times.

Reason: To maintain the privacy of neighbouring residents

7. A minimum 1800mm high pre-coloured sheet metal fence shall be erected along the full extent of the eastern side of the 0.3m reserve strip adjacent the new public road.

Reason: To ensure no future vehicular access can be obtained from the proposed new road and Future Allotment 1.

Land Division Consent Conditions

Council Requirements

8. Detailed designs and specifications for all civil engineering works, including roads, turning-heads, culverts, footpaths, stormwater drainage, common trenching, lighting, signage, line marking and pram ramps are to be submitted to Council for approval. Such works shall not commence prior to the written approval of Council.

Reason: To satisfy the prescribed requirements of the Development Regulations 2008

9. The detailed design of all roads, footpaths and other public areas shall comply with the requirements of the Disability Discrimination Act.

Reason: To satisfy the prescribed requirements of the Development Regulations 2008

10. All drainage/stormwater systems shall be appropriately designed and constructed to the satisfaction of Council, including kerbs and water tables, swales, sumps, and underground pipes.

Reason: To satisfy the prescribed requirements of the Development Regulations 2008

11. All stormwater drains and other stormwater drainage works serving more than one allotment and not wholly located within roads or reserves to be vested in Council pursuant to the Road Property Act, shall be contained within an easement for drainage purposes that is to be identified on the final plan. Such easements shall be a minimum width of 3.0 metres and delineated to the satisfaction of Council.

Reason: To satisfy the prescribed requirements of the Development Regulations 2008

12. A landscape plan shall be provided showing extent and type of street tree planting within the road verge to the satisfaction of Council.

Reason: To satisfy the prescribed requirements of the Development Regulations 2008

13. Existing road pavements and verge areas shall be reinstated as required to Council specification after excavation trenching and underground services have been installed.

Reason: To satisfy the prescribed requirements of the Development Regulations 2008

14. The applicant shall comply with SA Power Networks Technical Standards for underground residential distribution of electricity.

Reason: To satisfy the prescribed requirements of the Development Regulations 2008

15. All electricity supply and telecommunication services for the development shall be installed underground.

Reason: To satisfy the prescribed requirements of the Development Regulations 2008

16. All street and public area lighting shall comply with the Lighting Code AS1158. The style and type of lighting shall be to the satisfaction of Council and SA Power Networks.

Reason: To satisfy the prescribed requirements of the Development Regulations 2008

SCAP Requirements

17. The financial and augmentation requirements of the S A Water Corporation shall be met for the provision of water supply and sewerage services. (S A Water 90080/17).

The necessary easements shall be granted to the S A Water Corporation free of cost.

SA Water Corporation further advise that an investigation will be carried out to determine if the water and/or sewer connection/s to your development will be costed as standard or non-standard.

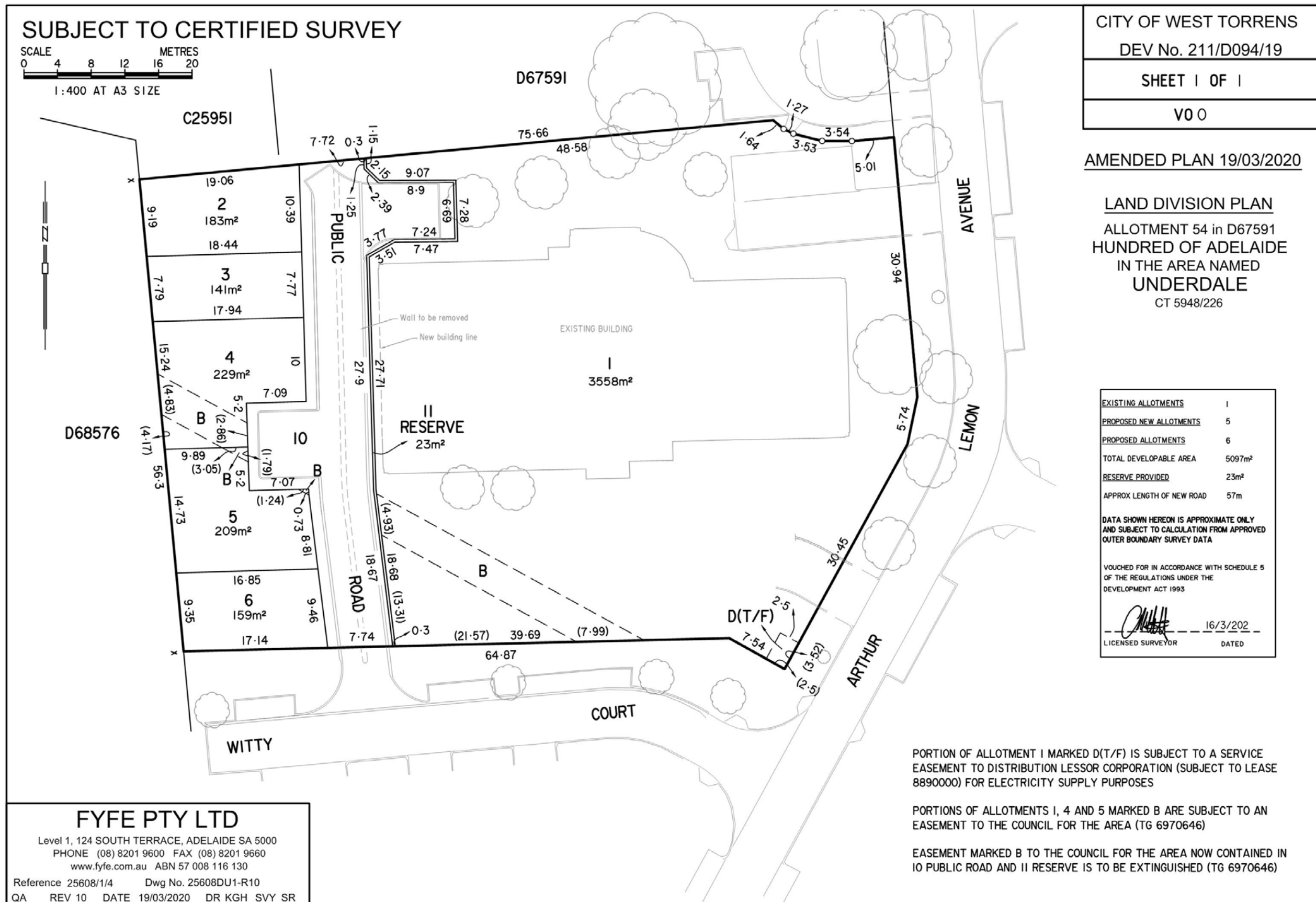
18. Payment of \$38,080.00 into the Planning and Development Fund (5 allotment/s @ \$7,616.00 /allotment). Payment may be made by credit card via the internet at www.edala.sa.gov.au or by phone (7109 7018), by cheque payable to the Department of Planning, Transport and Infrastructure marked "Not Negotiable" and sent to GPO Box 1815, Adelaide 5001 or in person, by cheque or credit card, at Level 5, 50 Flinders Street, Adelaide.
19. A final plan complying with the requirements for plans as set out in the Manual of Survey Practice Volume 1 (Plan Presentation and Guidelines) issued by the Registrar General to be lodged with the State Commission Assessment Panel for Land Division Certificate purposes.
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Attachments

1. **Relevant Development Plan Provisions**
2. **Proposal Plans & Documentation**
3. **Agency & Internal Referral Responses**

Relevant Development Plan Provisions

<u>General Section</u>		
Crime Prevention	Objectives	1
	Principles of Development Control	1, 2, 3, 4, 5, 6, 7, 8 & 10
Design and Appearance	Objectives	1 & 2
	Principles of Development Control	1, 2, 3, 5, 9, 10, 11, 12, 13, 14, 15, 16, 19, 20, 21, 22 & 23
Energy Efficiency	Objectives	1
	Principles of Development Control	1, 2, 3 & 4
Hazards	Objectives	1, 2 & 9
	Principles of Development Control	1, 2, 3 & 13
Infrastructure	Objectives	1, 2 & 3
	Principles of Development Control	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 & 16
Interface between Land Uses	Objectives	1, 2 & 3
	Principles of Development Control	1, 2, 3, 4 & 5
Land Division	Objectives	1, 2, 3 & 4
	Principles of Development Control	1, 2, 3, 4, 5, 6, 8, 10, 11, 12, 13, 14, 15, 16 & 17
Landscaping, Fences and Walls	Objectives	1 & 2
	Principles of Development Control	1, 2, 3, 4, 5 & 6
Orderly and Sustainable Development	Objectives	1, 2, 3, 4 & 5
	Principles of Development Control	1, 2, 3, 4, 5, 6, 7 & 8
Residential Development	Objectives	1, 2, 3 & 4
	Principles of Development Control	1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 18, 19, 20, 21, 23, 24, 27, 28, 29, 30 & 31
Transportation and Access	Objectives	1, 2, 3 & 4
	Principles of Development Control	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44 & 45
Waste	Objectives	1 & 2
	Principles of Development Control	1, 2, 3, 4 & 5





18 March 2020

REF No.: 00614-002

West Torrens Council
165 Sir Donald Bradman Drive
HILTON SA 5033

Attention: Brendan Fewster

By Email: Bfewster@wtcc.sa.gov.au

Dear Brendan,

RE: RESPONSE TO REQUEST FOR FURTHER INFORMATION – RESIDENTIAL DEVELOPMENT AT
12-20 ARTHUR LEMON AVENUE, UNDERDALE

We refer to Development Application 211/D094/19 for five detached dwellings, together with the creation of new residential allotments and a public road at 12-20 Arthur Lemon Avenue, Underdale.

Pursuant to Section 39(6) of the *Development Act, 1993*, this letter provides our response to each of the matters raised by Council, and has been informed by the following updated and additional plans and documentation:

- **Appendix 1:** Qattro Architectural plans;
- **Appendix 2:** Existing Services Plan;
- **Appendix 3:** MLEI civil plans and documentation including:
 - » Preliminary Stormwater Advice dated 11 March 2020;
 - » Civil Stormwater Calculations dated 11 March 2020 (Issue F);
 - » MLEI 'Road Layout Plan' (Dwg. No. C01);
 - » MLEI 'Site Works' Plan (Dwg. No. C04); and
 - » Roadway sectional drawings (Dwg. No. C005);
- **Appendix 4:** GTA Traffic letter dated 17 March 2020; and
- **Appendix 5:** Fyfe Plan of Division.

The following discussion outlines our response to each of the items raised in Council's email dated 15 November 2019, together with the additional feedback provided by Council during the meeting held on 27 February 2020.

def:E-KIS-TICS[noun]:The Science of Human Settlements...

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1. Planning Considerations

1.1 Intended use of building occupying Lot 1

The development seeks to create a separate allotment for the existing two-storey building, which has existing land use rights to operate as a 'distant education facility' (as approved by Development Application 210/P046/92). This building was formerly owned and occupied by the University of South Australia.

The proposed development will remove existing parking associated with the existing building. Accordingly, to ensure the existing building does not continue to operate with a shortfall of onsite parking, the application is also seeking consent to relinquish the existing use rights to operate the distance education facility. Accordingly, the building will remain unoccupied until an approval has been obtained for another use. *We note that as the existing use rights will be relinquished, the building cannot be reused/occupied unless another approval is first obtained.*

Notwithstanding, Council has requested further clarification on the intended future use of the building. We understand the Council has requested this additional information to ensure the existing building will still be capable of accommodating an appropriate future use, in accordance with the relevant provisions of the Development Plan.

In response to Council's request, we confirm the intention to reuse the existing building situated on Lot 1 as a Retirement Village to be established pursuant to the provisions of the *Retirement Villages Act, 2016*. Although the design of the development is subject to further refinement, the development will include internal alterations, external façade upgrades and additions, and is expected to accommodate in the order of 40 independent living units, together with communal facilities and services commonly provided for a Retirement Village. The Retirement Village will be serviced by the two existing carparks to the south and north of the building, comprising approximately 46 parking spaces for residents and visitors.

We confirm that the development satisfies the requirements of Schedule 10, Cl. 20(1)a) of the *Development Regulations, 2008*. Accordingly, the State Coordinator General has confirmed that the State Commission Assessment Panel (SCAP) will be the relevant authority responsible for the assessment of the application (which is yet to be formally lodged).

It is important to note that the decision to 'call in' the application by the SCG was informed by a preliminary planning assessment carried out by DPTI administration. Although this preliminary assessment does not imply that a formal application lodged with the SCAP will be approved, it does indicate general support for the intended future use of the land and building.

In addition to the above, we are of the opinion that the adaptive reuse of the existing distant education facility building as a Retirement Village is closely aligned with the relevant provisions of the Development Plan for the reasons outlined below:



- Policy Area PDC 1 lists Residential Flat Buildings and Supported Accommodation (including Retirement Villages) as 'envisaged' forms of development;
- The subject site is generously separated from adjacent residential development to the south and east and accordingly, the proposed development is not expected to result in adverse interface impacts;
- Upgrades to the external appearance of the building and improvements to landscaping will also significantly improve the appearance of the building when viewed from the public realm and adjacent properties;
- The development will provide carparking at a rate which meets or exceeds the minimum parking rate of one (1) space per living unit prescribed within Table WeTo/2 – Off Street Vehicle Parking Requirements; and
- As previously discussed, the proposed development will provide a range of communal services and facilities to support the needs of the residents, as contemplated by Supported Accommodation provisions of the Development Plan.

The proposed Retirement Village is also ideally located adjacent two complementary land uses including the Early Life childcare centre to the north and the Underdale Highschool to the west, providing opportunities for partnerships and intergenerational interactions with these adjoining uses.

2. Civil Considerations

The following discussion addresses each of the civil matters raised by Council's engineering team and subsequent amendments made to the design have also been informed by the discussions which transpired during the meeting held with Council representatives on 27 February 2020.

2.1 Existing Service Location

As requested by Council, the services plan attached as **Appendix 2** accurately depicts the location all existing service arrangements for the existing building. The services plan illustrates that all major service connections are to the east and south of the existing building, adjacent Arthur Lemon Avenue and Witty Court, respectively. New service runs will be contained within the boundaries of Lot 1 and are not expected to be affected by the plan of division.

The redirection of services (if required) will be identified during the detailed design phase of the development, and illustrated on the plans submitted with Council.

2.2 Laneway Design

2.2.1 Increased width of the road verge adjacent each dwelling

As requested by Council, the verge adjacent each dwelling has been increased by 250mm, resulting in an overall verge area width of 1.4 metres (refer to Dwg. No. CO1 in **Appendix 3**). The increased width will accommodate the temporary storage of bins prior to collection, as well as service infrastructure. We confirm that all services



will be designed to Council's satisfaction and in accordance with the relevant Australian Standards, with additional details provided during the detailed design phase of the development.

2.2.2 Public road to include a central spoon drain

The revised Road Layout Plan (Dwg. No. CO1) found in **Appendix 3** illustrates that the road design has been amended to include a central spoon drain.

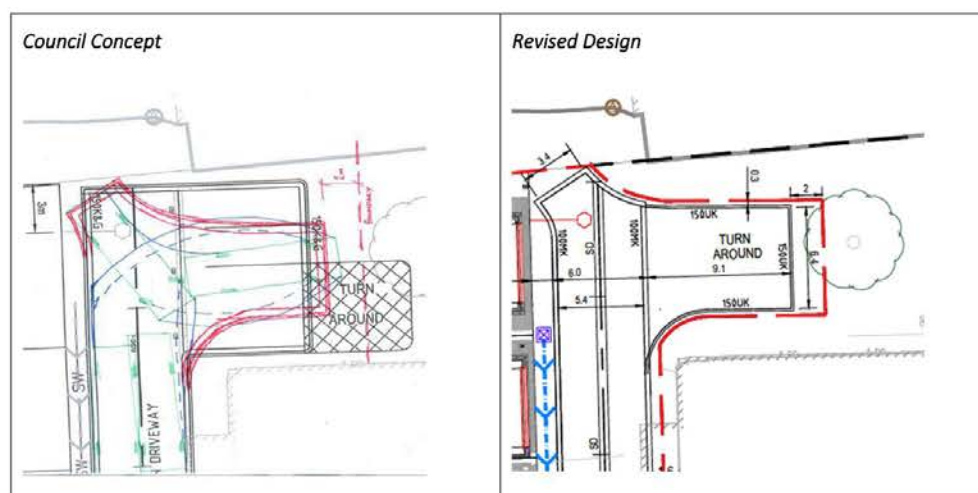
2.2.3 Provide a 300mm 'Reserve Strip' between the new public road and Lot 1

The revised plan of division contained within the **Appendix 5** includes a 300mm reserve strip which extends along the edge of the new public road to prevent vehicles accessing Lot 1 via the new roadway.

2.3 Waste Servicing

The design of the turn-around bay has been modified to reflect the sketch design provided by Council as illustrated in Figure 2.1 below:

Figure 2.1 Turn-around bay design



Further to our meeting with Council on 27 February 2020, the width of the road has been slightly adjusted to accommodate Council refuse vehicles. Notwithstanding and in accordance with the Council's request, the width of the turn-around bay has been kept to a minimum, to ensure the road is not misconstrued as on-street parking. Swept turning paths prepared by GTA Consultants are illustrated in the revised GTA report contained within **Appendix 4**.

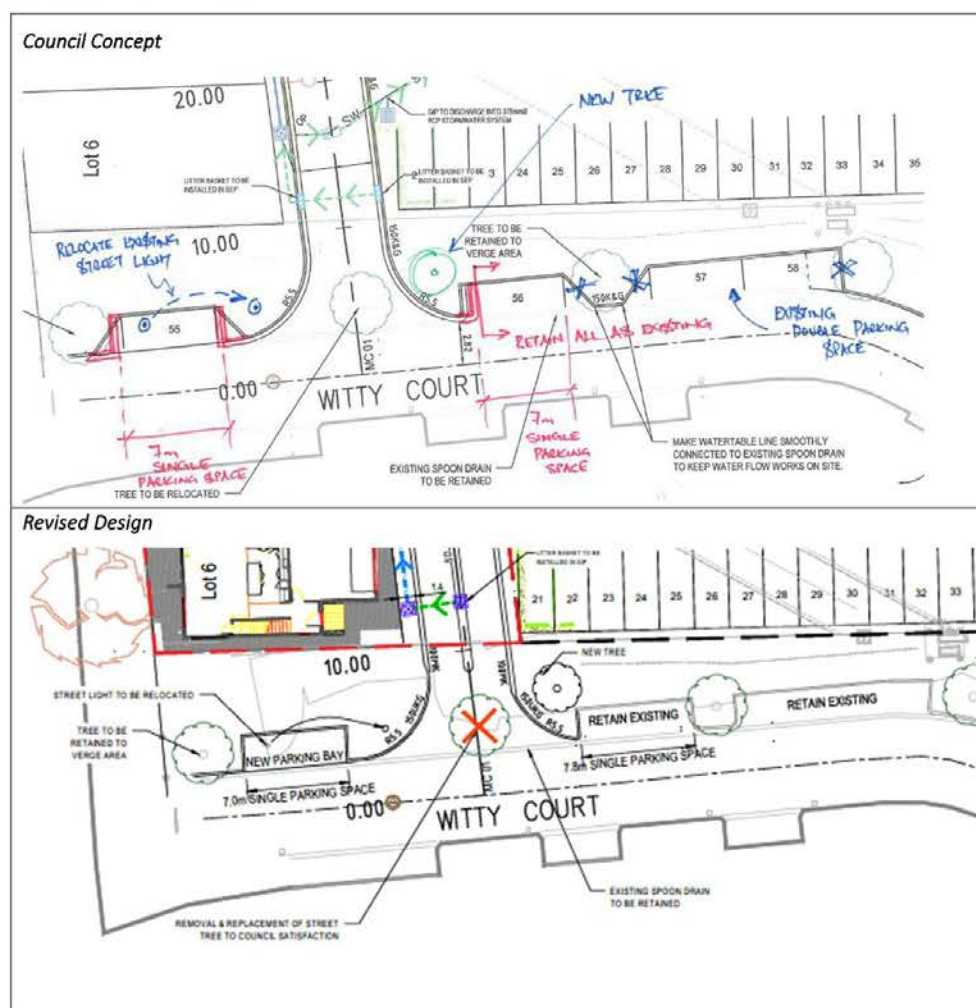
The swept turning path prepared by GTA illustrates that the additional 2 metres of land to the east of the turn-around bay is not required to accommodate safe and convenient service vehicle movements. Accordingly, our client welcomes the opportunity to engage with Council during the detailed design phase of the development to discuss the option of reducing the setback between the property boundary and eastern end of the turn-around bay.



2.4 Witty Court Interface

Upgrades and alterations to the western end of Witty Court are required to accommodate the new road connection with Witty Court. The proposed modifications to Witty Court are conceptually illustrated on the Road Layout Plan (Dwg. No. CO1) attached as **Appendix 3**, and precisely reflects the sketch design provided by Council, as illustrated in Figure 2.2 below.

Figure 2.2 Witty Court Upgrades





2.5 Traffic and Manoeuvrability

Traffic advice provided by Council confirms that each dwelling will achieve acceptable sightlines for vehicles reversing from garages provided boundary fencing is not installed along site frontages.

The revised plans found within the **Appendix 3** confirms that front boundary fencing is not proposed.

2.6 Stormwater Management Requirements

2.6.1 Stormwater detention and retention methodology and justification

Council has requested further clarification and justification for the stormwater detention methodology for the development. The Preliminary Stormwater Drainage report prepared by MLEI is contained within **Appendix 3** and details the stormwater management methodology for the development.

Dwellings situated on Lots 2, 4 and 5 will each be connected to 3,000 litre retention tanks plumbed into toilets and cold laundry fixtures. In addition to satisfying relevant water sensitive urban design provisions of the Development Plan, the rainwater tanks will offset Council's stormwater detention requirements for these dwellings.

Dwellings situated on Lots 3 and 6 will each be attached to 1000 litre rainwater tanks, and detention for these dwellings will be provided within the 450mm diameter underground concrete pipe, which will also detain surface water collected from the new road.

A 65mm orifice plate will be used to restrict stormwater flows discharging into Council's stormwater drainage system to 7.21L/s.

2.6.2 Confirm the specific stormwater treatment device to be used to manage water quality

MLEI have confirmed that all stormwater collected from the development will be treated using an 'Enviro Australis' Enviro G30 filtration system, prior to discharging to Council's stormwater drainage network. The device has been selected to address the water quality treatment levels specified by the State-wide Water Sensitive Urban Design Policy. Further details on the selected water treatment device is attached to the accompanying stormwater calculations (Issue F) contained within **Appendix 3**.

2.6.3 Easement removed Lot 1

The stormwater management system for the development has been revised, with stormwater collected from the development site to be conveyed via a new underground drainage pipe traversing the existing stormwater easement, to the existing discharge point situated in Lot 1. Making use of the existing easement overcomes the need for an additional easement to be created over Lot 1.

The revised stormwater management system is illustrated on the Road Layout Plan (Dwg. No. C01) attached as **Appendix 3**, and the easement has been removed from the updated plan of division contained within **Appendix 5**.



2.7 Finished Floor Level Requirements

Roadway sectional drawings illustrating the gradient and level difference between the spoon drain and garage level of Residence 1 and 2 is illustrated in **Appendix 3** (Dwg. No. C05).

To ensure each dwelling is adequately protected from inundation, we understand Council generally requires the FFL of dwellings to be 350mm (minimum) above the adjacent street water table. However, the cross sections illustrate that the FFL Residence 5 will be positioned approximately 266mm above the spoon drain level.

Although the FFL's fall slightly short of achieving Council's requirements, we understand that the FFL's cannot be elevated further without comprising driveway grades. Further, we understand that Council is prepared to support slightly lower FFL's in this circumstance taking into account the low stormwater catchment levels of the public roadway, and the design of the public road which includes a central spoon drain that will direct water away from each dwelling.

2.8 Alterations to the western façade of the existing building

Further to Council's request, the demolition plan has been updated to accurately reflect the proposed new property boundary between the road and Lot 1 (Dwg. No. 11876 A001 within **Appendix 1**). A sectional drawing of the western elevation (post demolition and reconstruction) relative to the property boundary has also been prepared and is provided in **Appendix 1** (Dwg. No. 11876 A011).

2.9 Other Matters

The plans prepared by Qattro which are attached as **Appendix 1** have been updated to reflect the amendments discussed above.

We trust that above information, together with the accompanying plans and documentation now satisfactorily addresses all outstanding matters raised by Council.

We understand that the application is required to be presented to Council Assessment Panel (the 'Panel') for consideration. Accordingly, we respectfully request that the application is considered by the Panel at its meeting scheduled for 14 April 2020.

Should you wish to discuss the contents of this letter in further detail, please do not hesitate to contact the undersigned on 7231 0286.

Yours Sincerely,

A handwritten signature in blue ink, appearing to read 'R. Gagetti'.

Robert Gagetti
Associate



Appendix 1. Revised Architectural Plans

Qattro

12044



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PROJECT ADDRESS:

ARTHUR LEMON AVE

UNDERDALE STAGE 1
-UNDERDALE TOWNHOUSES


ARCHITECTURE

-UNDERDALE TOWNHOUSES	A0000	COVER SHEET	C
-UNDERDALE TOWNHOUSES	A0001	GENERAL NOTES PAGE	C
-UNDERDALE TOWNHOUSES	A0002	SITE PLAN	C
-UNDERDALE TOWNHOUSES	A0003	TITLE PLAN	C
-UNDERDALE TOWNHOUSES	A0004	LANDSCAPE PLAN	C
-UNDERDALE TOWNHOUSES	A0005	SLAB AND PLUMBING PLAN	C
-UNDERDALE TOWNHOUSES	A0006	ROOF PLAN	C
-UNDERDALE TOWNHOUSES	A0007	STREET ELEVATION	C

PERSPECTIVES & 3 DIMENSIONAL VIEWS
INDICATIVE ONLY. NOT ALL BUILDING ELEMENTS ARE SHOWN

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UNDERDALE STAGE 1 ARTHUR LEMON AVE COVER SHEET					A0000

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THESE GENERAL NOTES TO BE READ IN CONJUNCTION WITH OTHER DRAWINGS, DOCUMENTS, SCHEDULES AND SPECIFICATIONS

GENERAL NOTES

ALL CONSTRUCTION TO COMPLY WITH RELEVANT AUSTRALIAN BUILDING CODES AND STANDARDS

FOUNDATIONS, EXCAVATIONS, REINFORCEMENT PLACEMENT, ETC. TO BE INSPECTED AND APPROVED BY ENGINEER OR BUILDING SURVEYOR PRIOR TO ANY CONCRETE PLACEMENT

GROUND LEVELS AND FINISHED FLOOR LEVELS INDICATED ARE APPROXIMATE ONLY AND ARE TO BE CONFIRMED ON SITE

HOT WATER UNIT INSTANTANEOUS GAS WITH 5 STAR RATING TO BE WALL MOUNTED AS PER MANUFACTURER'S RECOMMENDATION AND TO COMPLY WITH AS4552

STORMWATER TO BE DISCHARGED TO STREET WATERTABLE OR RAINWATER TANK IN ACCORDANCE WITH COUNCIL REQUIREMENTS AND/OR DIRECTION

SURFACE WATER RUN-OFF FROM NOT LESS THAN 50sqm OF ROOF CATCHMENT AREA TO BE STORED IN RAIN WATER TANK AND, PLUMBED TO EITHER A TOILET, WATER HEATER OR LAUNDRY COLD WATER AND, INLET/OVERFLOW ON RAIN WATER TANK MUST BE FITTED WITH INSPECT PROOF AND NON DEGRADABLE SCREENS

ANY DISCREPANCIES IN DOCUMENTS AND/OR ON SITE TO BE REPORTED TO THE DESIGNER BEFORE ANY WORK IS COMMENCED

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS, DOCUMENTATION, SCHEDULES AND SPECIFICATIONS

BUILDER TO CHECK AND CONFIRM ALL PLAN AND SITE SET OUT DIMENSIONS PRIOR TO COMMENCEMENT OF CONSTRUCTION

WRITTEN DIMENSION TO BE TAKEN IN PREFERENCE TO SCALE

ALL STEEL LINTELS ARE TO BE HOT DIPPED GALVANISED, SIZES AS PER ENGINEERS DETAILS AND DESIGN

PROVIDE WALL TIES TO ALL BRICKWORK AT MAXIMUM 600mm CENTRES IN EACH DIRECTION AND WITHIN 300mm OF ARTICULATED JOINTS. SPACING OF WALL TIES TO TOP AND SIDES OF OPENING TO BE HALVED

PROVIDE INSULATION BATTS TO CEILING AND TO WALLS AS PER ENERGY REPORT.

NO VARIATION MAY BE MADE TO THIS DRAWING WITHOUT PRIOR APPROVAL OF THE PROPRIETOR OR DESIGNERS

REFER TO ENGINEERS DESIGN, DOCUMENTATION, CALCULATION AND SPECIFICATION FOR STRUCTURAL, ELECTRICAL, HYDRAULIC AND CIVIL DETAILS (IF APPLICABLE)

ALL MATERIALS AND EQUIPMENT SHALL BE NEW, FREE OF BLEMISHES OR DAMAGE. ANY DEFECTIVE OR FAULTY EQUIPMENT SHALL BE REPLACED AT THE CONTRACTORS EXPENSE

ALL WORK SHALL BE CARRIED OUT IN A NEAT TRADESMAN LIKE MANNER AND TO BE CARRIED OUT BY FULLY QUALIFIED AND LICENSE TRADESPERSONS

ANY DISCREPANCIES IN DOCUMENTS AND/OR ON SITE TO BE REPORTED TO THE DESIGNER BEFORE ANY WORK IS COMMENCED

A/C ACCESS PANEL LOCATION TO LOCATED BY A/C CONTRACTOR AS REQUIRED ON SITE

SITE PREPARATION NOTES

ALL VEGETATION AND DEBRIS SHALL BE REMOVED FROM THE BUILDING AND PAVING AREAS BEFORE ANY FILLING IS PLACED IN POSITION.

ANY EXCAVATION OR FILLING REQUIRED TO PROVIDE A LEVEL SURFACE UNDER THE CONCRETE SLAB SHALL BE IN ACCORDANCE WITH THE ENGINEER'S REPORT

ALL FINISHED LEVELS TO BE VERIFIED BY THE BUILDER PRIOR TO THE COMMENCEMENT OF ANY BUILDING WORK.

ALL SITE AND SETOUT DIMENSIONS SHALL BE CHECKED AND VERIFIED BY THE BUILDER PRIOR TO THE COMMENCEMENT OF ANY BUILDING WORK.

FOOTINGS AND SLAB NOTES

CONCRETE FOOTINGS AND SLABS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE ENGINEER'S REPORT.

ALL CONCRETE SHALL BE HANDLED, PLACED AND COMPACTED IN ACCORDANCE WITH THE REQUIREMENTS OF AS 3600 – 2001.

ALL REINFORCING USED SHALL COMPLY WITH AS 2870 – 2011.

TERMITE PROTECTION SHALL COMPLY WITH AS 3600 PART 1 – 2014.

A CERTIFICATE COMPLYING WITH AS 3600.1 – 2014 STATING METHOD AND DATE OF PROTECTION SHALL BE ISSUED BY THE APPLICATOR.

MASONRY NOTES

ALL FINISHED MASONRY SHALL BE LEFT CLEAN, AND GAPS AT TOPS OF RAKED WALLS, AROUND SERVICE PIPES AND OTHER JUNCTIONS SHALL BE FILLED.

ALL FLASHINGS, MEMBRANES, AND TIES WHERE REQUIRED SHALL BE IN ACCORDANCE WITH THE BCA.

ALL CAVITIES AND REQUIRED WEEPHOLES SHALL BE LEFT CLEAN AND FREE OF MORTAR DROPPINGS.

TIMBER FRAMING NOTES

ALL TIMBER FRAMING SHALL BE IN ACCORDANCE WITH AS 1684 PART 2 – 2006 (RESIDENTIAL TIMBER-FRAMED CONSTRUCTION) NON-CYCLONIC AREAS.

ALL EXPOSED TIMBER MEMBERS SHALL BE OF A SUITABLE DURABILITY CLASS AND PRESERVATION TREATED IF REQUIRED IN ACCORDANCE WITH AS 1684 PART 2 – 2010 (RESIDENTIAL TIMBER-FRAMED CONSTRUCTION) NON-CYCLONIC AREAS.

ALL METAL USED IN STRUCTURAL TIMBER CONNECTIONS SHALL BE PROVIDED WITH CORROSION PROTECTION APPROPRIATE FOR THE PARTICULAR CONDITIONS OF USE.

PROVIDE AS NECESSARY ALL ADDITIONAL TIMBER FRAMING LIKE SOFFIT AND CEILING LININGS, GABLE CLADDING AND SKYLIGHTS ETC.

METALWORK NOTES

ALL MATERIALS, BOLTS AND OTHER FIXINGS SHALL BE SELECTED SO THAT DIRECT CONTACT BETWEEN INCOMPATIBLE METALS OR ALLOYS DOES NOT OCCUR.

WHERE THE USE OF INCOMPATIBLE MATERIALS IS UNAVOIDABLE, THEY SHALL BE SEPARATED BY USE OF AN IMPERVIOUS, NON-CONDUCTING MATERIAL.

ALL STEELWORK NOT ENCASED IN CONCRETE SHALL BE SUITABLY PROTECTED AGAINST CORROSION.

ALL STEELWORK IN CONTACT WITH THE GROUND SHALL BE HOT-DIPPED GALVANISED.

ELECTRICAL NOTES

ALL ELECTRICAL INSTALLATIONS AND WORK SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF AS 3000 AND SA POWER NETWORKS

ALL REQUIRED SELF-CONTAINED SMOKE ALARMS SHALL COMPLY WITH AS 3786 – 1993 OR BE LISTED IN THE SSL REGISTER OF ACCREDITED PRODUCTS AND SHALL BE CONNECTED TO THE CONSUMER MAINS POWER WITH A 9V BATTERY BACKUP

ALL REQUIRED SELF-CONTAINED SMOKE ALARMS TO BE INTERCONNECTED

PLUMBING, SANITARY DRAINAGE AND GAS NOTES

THE INSTALLATION OF ALL HOT AND COLD WATER SERVICES, SANITARY WASTES AND DRAINAGE SHALL BE CARRIED OUT TO THE APPROVAL OF SA WATER AND WHERE APPLICABLE THE SOUTH AUSTRALIAN HEALTH

ALL GAS FITTING WORK MUST BE INSTALLED BY A REGISTERED GAS FITTER OR REGISTERED RESTRICTED LPG INSTALLER.

ALL GAS INSTALLATIONS TO BE CARRIED OUT IN ACCORDANCE WITH AG601 AND A CERTIFICATE OF COMPLIANCE SHALL BE ISSUED IN ACCORDANCE WITH THE GAS ACT AND REGULATIONS 1997 (AS AMENDED).

INTERNAL LINING NOTES

ALL NON WET AREA WALL LININGS SHALL BE 10mm PLASTERBOARD UNLESS OTHERWISE NOTED.

ALL CEILING LININGS SHALL BE 10mm PLASTERBOARD SUITABLE FOR SPANNING 600mm JOIST SPACINGS UNLESS OTHERWISE NOTED.

GLAZING NOTES

ALL GLAZING AND GLAZED ASSEMBLIES SHALL BE MANUFACTURED AND INSTALLED IN ACCORDANCE WITH AS 1288 – 2006

ALL SAFETY GLASS SHALL BE LEGIBLY MARKED OR SHALL BE CERTIFIED.

WET AREA NOTES

WHERE REQUIRED AS A SUBSTRATE IN WET AREAS, PROPRIETARY WATER RESISTANT LININGS MUST BE SUITABLE FOR THE INTENDED FINISH AND MUST BE FIXED TO THE FRAMING IN ACCORDANCE WITH THE MANUFACTURERS DETAILS.

ALL WET AREA DETAILS TO STRICTLY COMPLY WITH NATIONAL CONSTRUCTION CODE

ROOFING AND ROOF PLUMBING NOTES

THE ROOF LAYOUT DRAWN IS DIAGRAMATIC ONLY AND ANY VARIATION TO THE LAYOUT SHALL BE FIRST DISCUSSED WITH THE DESIGNER.

THE ROOF CONTRACTOR SHALL PROVIDE ALL NECESSARY FLASHINGS, CAPPING AND OTHER ITEMS REQUIRED TO MAKE THE ROOF WATERTIGHT AND COMPLETE.

EAVES GUTTERS TO BE PROVIDED WITH UNIFORM MINIMUM FALLS OF 1:500 AND ALL ROOF STORMWATER SHALL BE DIVERTED AWAY FROM THE FOOTINGS AND BUILDING IN ACCORDANCE WITH THE ENGINEER'S REPORT.

ALL ROOF CLADDING SHALL BE FIXED IN ACCORDANCE WITH THE MANUFACTURERS REQUIREMENTS.

STAIR NOTES

STAIRS TO STRICTLY COMPLY WITH NCC REQUIREMENTS

MINIMUM RISER – 115mm
MAXIMUM RISER – 190mm
MINIMUM GOING – 240mm
MAXIMUM GOING – 355mm
2R+G TO BE A MINIMUM OF 550mm AND MAXIMUM OF 700mm
AND BE INSTALLED IN ACCORDANCE WITH AS4586-2013 PART D2-CLAUSE D2.16 OF THE BCA
PROVIDE NON-SLIP FINISH TO LEADING EDGE OF TREAD IN ACCORDANCE WITH BCA REQUIREMENTS.

STAIRS TO BE CONSTRUCTED BY EITHER STAIRLOCK, TOPSTAIRS OR EQUAL.

DOOR AND WINDOWS NOTES

ALL DOOR AND WINDOWS SIZES ARE TO BE CONFIRMED ON SITE PRIOR TO FABRICATION BY SITE MEASUREMENT.

ALL WINDOWS TO BE PROVIDED WITH INSECT SCREEN & KEY LOCKED. WHERE POSSIBLE ALL WINDOWS TO BE KEYED ALIKE.

TOILET DOOR

DOOR TO TOILET TO BE FITTED WITH REMOVABLE HINGES IN ACCORDANCE WITH BCA.

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C	17/03/2020	PLANNING AMENDMENT
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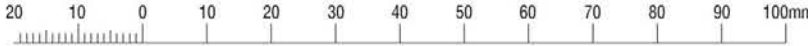
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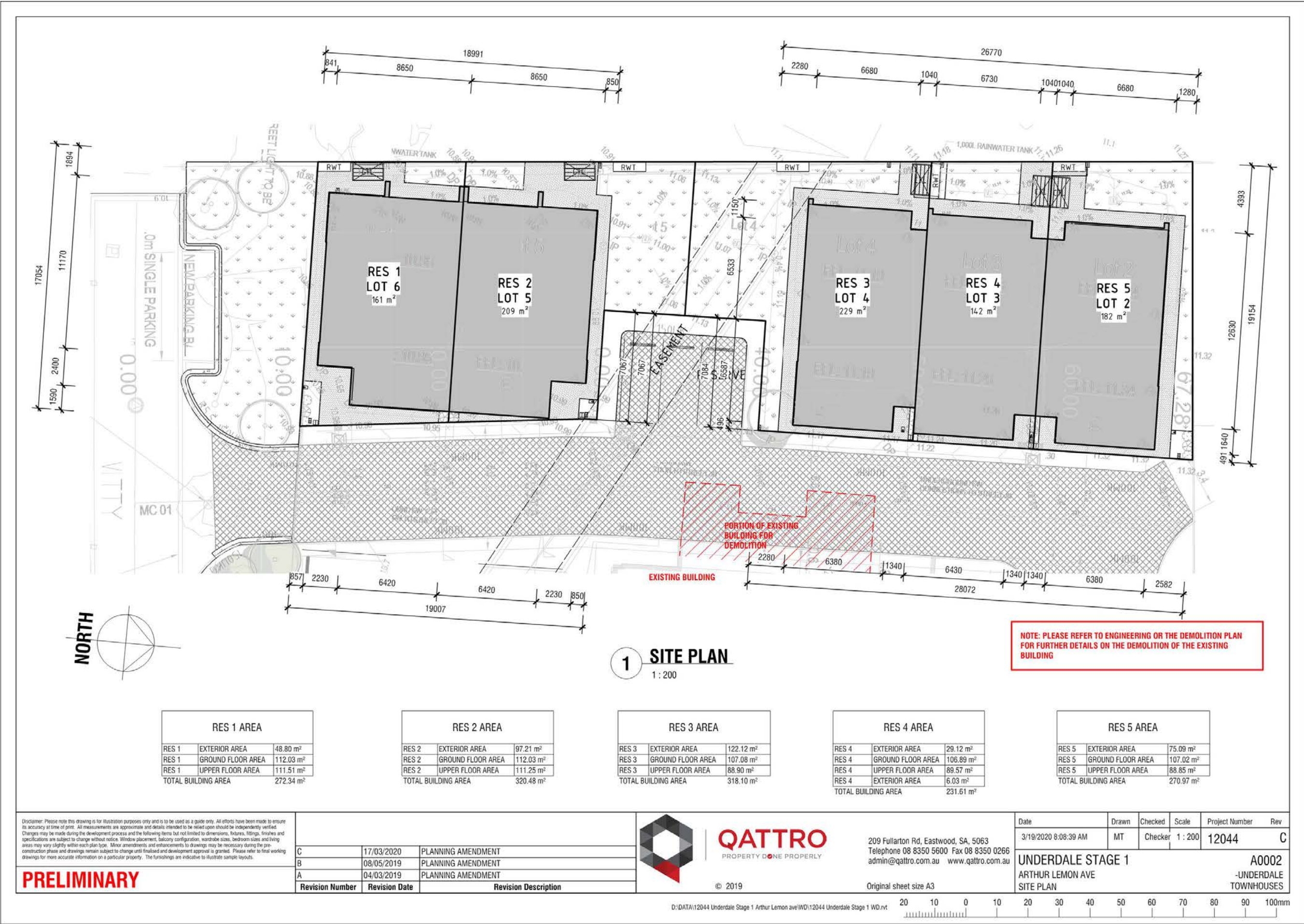
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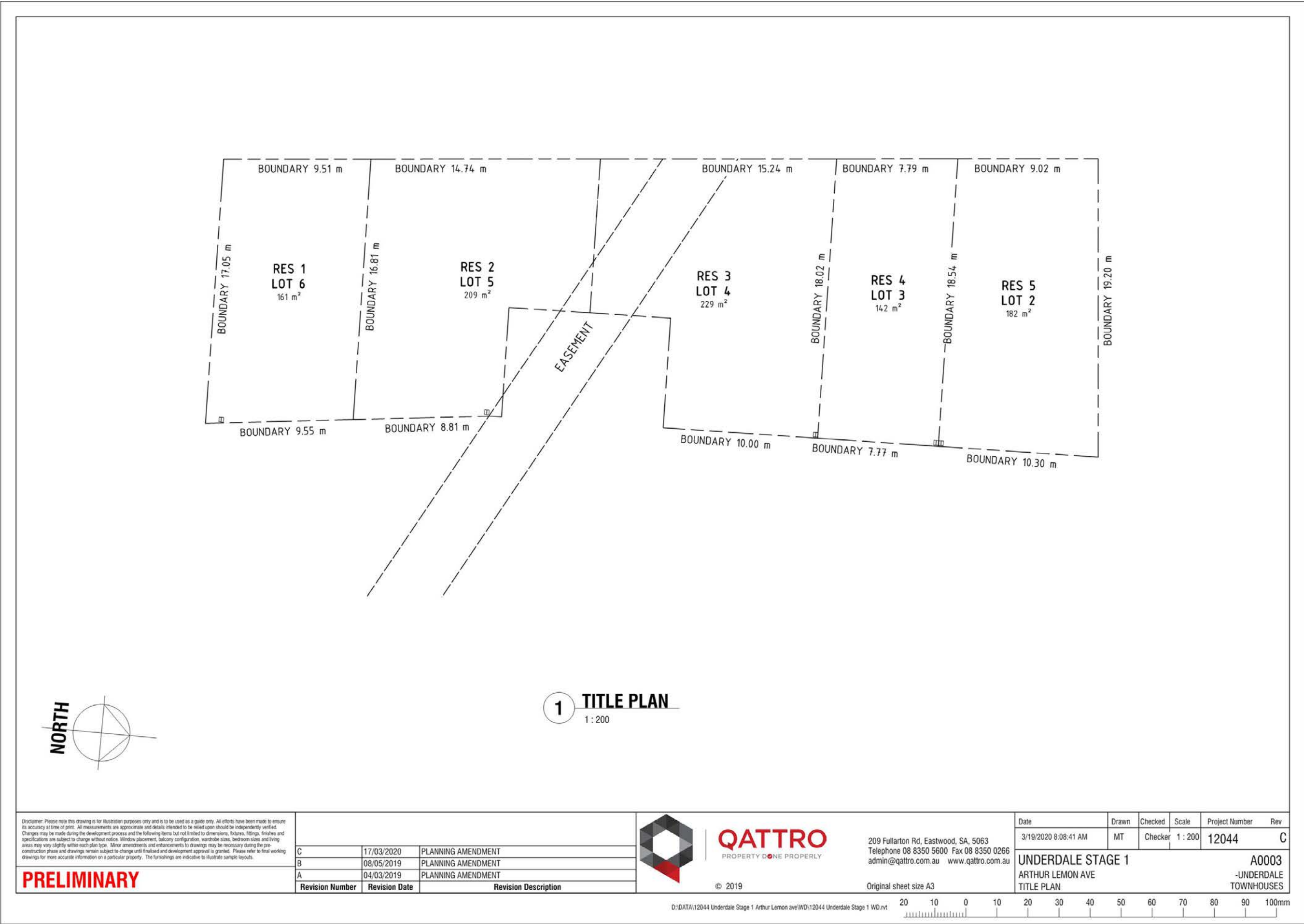
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GENERAL NOTES PAGE				TOWNHOUSES	

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*PLANTING SCHEDULE SUBJECT TO CHANGE

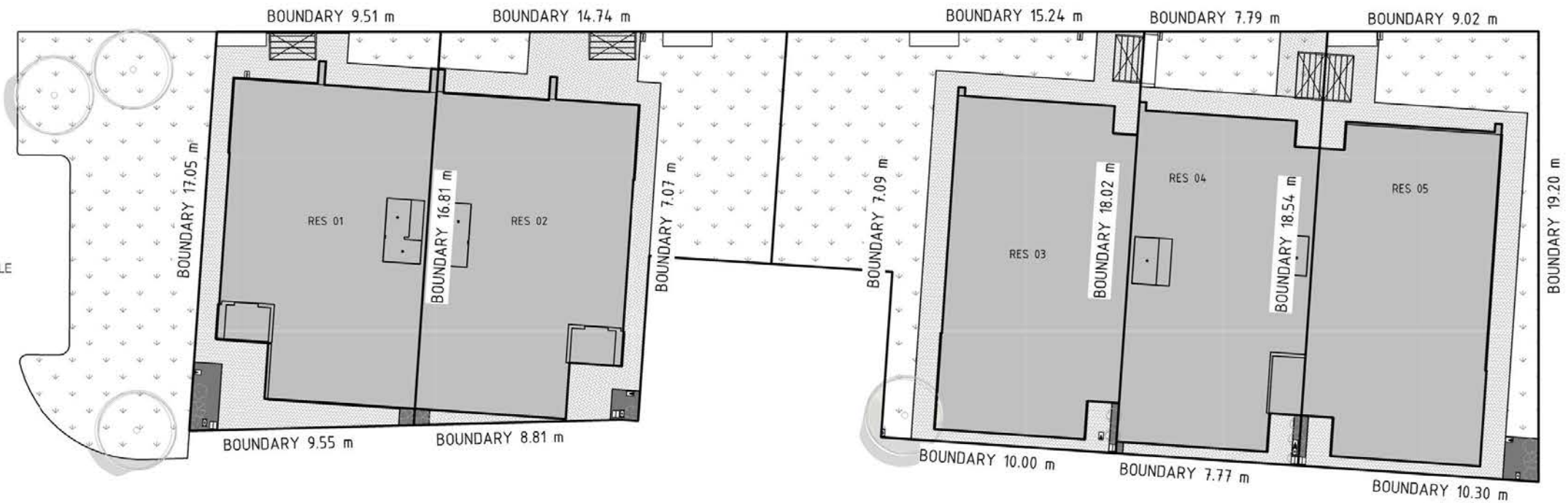
MAX SPACING OF 800mm

- *ONE PLANT IN FRONT AND REAR WHERE SUITABLE

NO.8 BIRD OF PARADISE
NO.9 AGAVAE
NO.10 ORNAMENTAL PEAR
NO.11 MEXICAN LILY
NO.12 YUCCA
NO.13 SILVER STAR YUCCA
NO.14 STANDARD YUCCA
NO.15 CORDYLIE RED STAR

TYPICAL PAVING
REFER TO SELECTIONS SHEET FOR DETAIL

TYPICAL FENCING
1800(h) COLOURBOND GOOD NEIGHBOUR
REFER TO SELECTIONS SHEET FOR DETAIL



1 : 200

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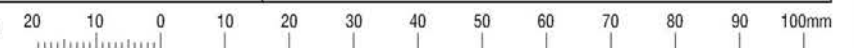
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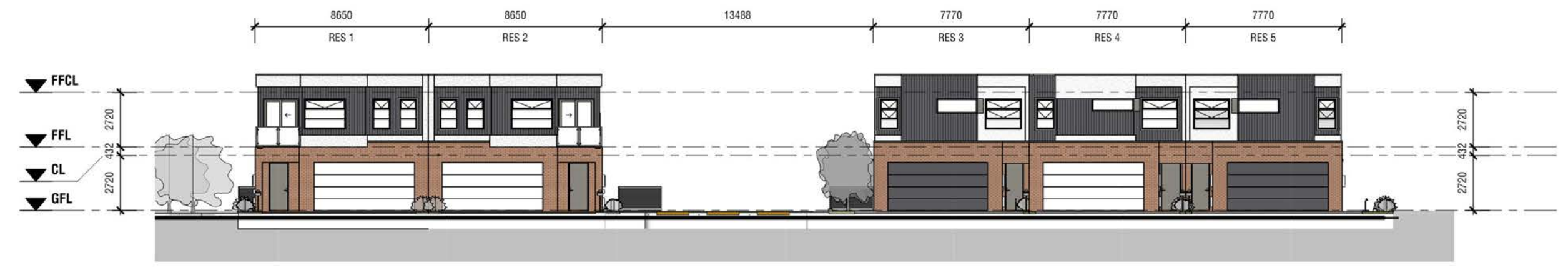
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LANDSCAPE PLAN				TOWNHOUSES	

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STREET ELEVATION
1 : 200




REAR ELEVATION
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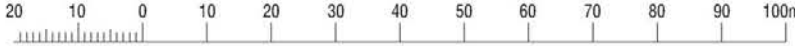
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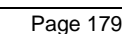
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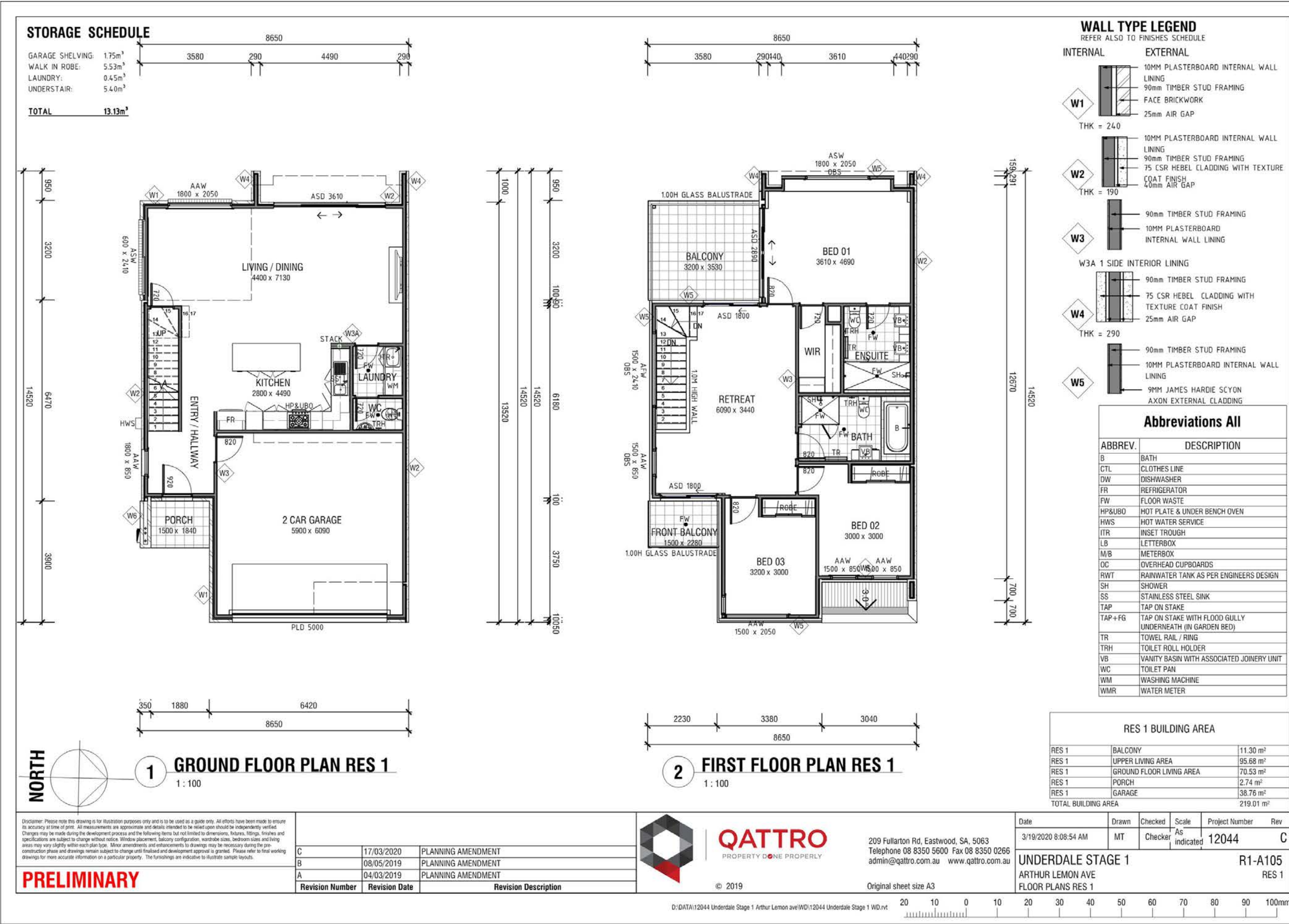
UNDERDALE STAGE 1
ARTHUR LEMON AVE
STREET ELEVATION

A0007
-UNDERDALE
TOWNHOUSES

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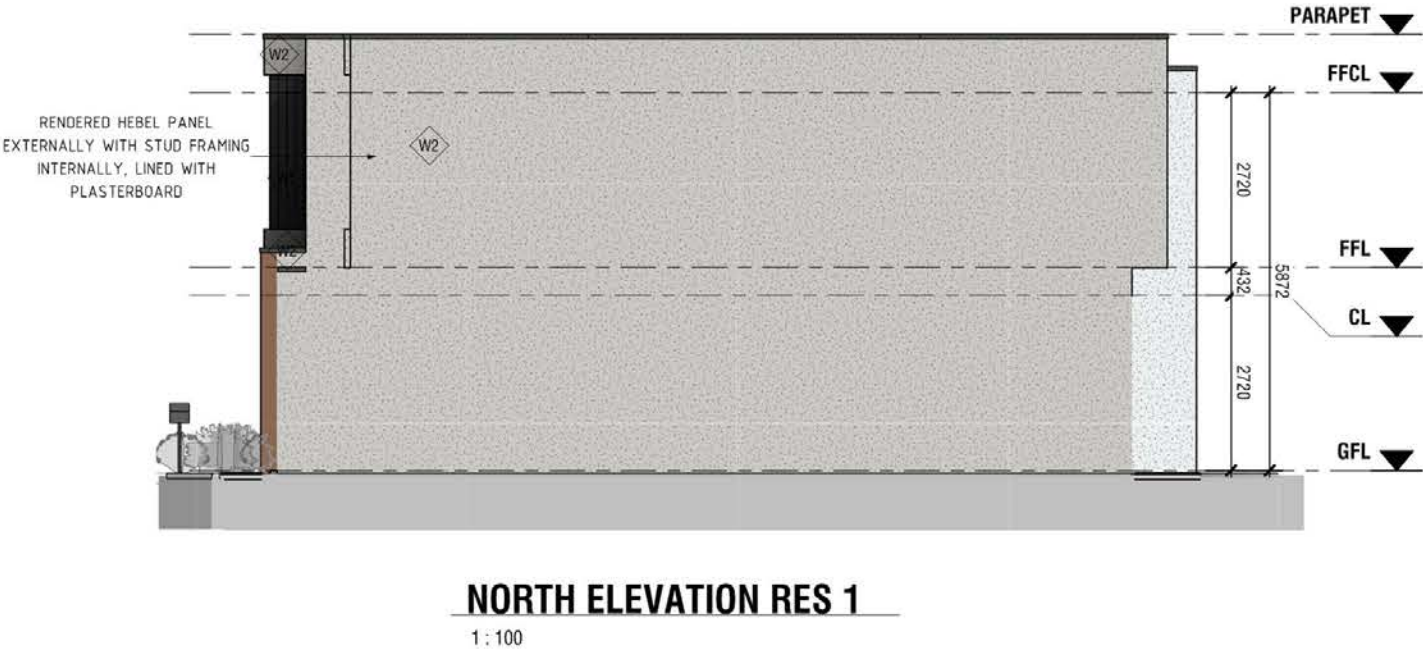
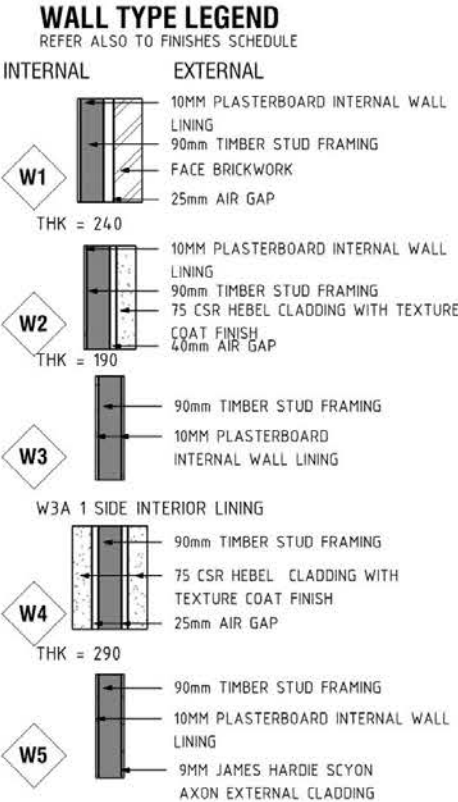




Page 181



Abbreviations All	
ABBREV.	DESCRIPTION
B	BATH
CTL	CLOTHES LINE
DW	DISHWASHER
FR	REFRIGERATOR
FW	FLOOR WASTE
HP&UBO	HOT PLATE & UNDER BENCH OVEN
HWS	HOT WATER SERVICE
ITR	INSET TROUGH
LB	LETTERBOX
M/B	METERBOX
OC	OVERHEAD CUPBOARDS
RWT	RAINWATER TANK AS PER ENGINEERS DESIGN
SH	SHOWER
SS	STAINLESS STEEL SINK
TAP	TAP ON STAKE
TAP+FG	TAP ON STAKE WITH FLOOD GULLY UNDERNEATH (IN GARDEN BED)
TR	TOWEL RAIL / RING
TRH	TOILET ROLL HOLDER
VB	VANITY BASIN WITH ASSOCIATED JOINERY UNIT
WC	TOILET PAN
WM	WASHING MACHINE
WMR	WATER METER



Roof Schedule			
RES	Roof Type	Description	Area
RES 1	RS2	METAL ROOF SHEETING. FINISH AS SPECIFIED. ROOF PITCH AS INDICATED ON PLANS	96.41 m²
Grand total			96.41 m²

Finishes Schedule			
Code	Manufacturer	Type	Colour
FC1	JAMES HARDIE	SCYON AXON CLADDING	RAKU
Face brickwork			
FB1			
Rendered HEBEL			
FH2	CSR	RENDERED HEBEL	DIESKAU
SPANDEK MONUMENT			
FR3	COLORBOND	SPANDEK	MONUMENT
SPANDEK WOODLAND GREY			
FR1	COLORBOND	SPANDEK	WOODLAND GREY
Texture coat compressed fibre cement			
LWPB	James hardie		

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PRELIMINARY

Revision Number	Revision Date	Revision Description
C	17/03/2020	PLANNING AMENDMENT
B	08/05/2019	PLANNING AMENDMENT
A	04/03/2019	PLANNING AMENDMENT



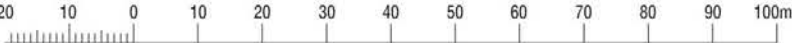
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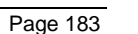
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3/19/2020 8:09:02 AM	MT	Checker	As indicated	12044	C
UNDERDALE STAGE 1					R1-A109
ARTHUR LEMON AVE					RES 1
EXTERNAL ELEVATIONS - RES 1					

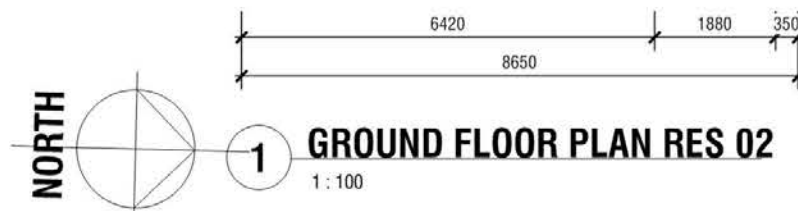
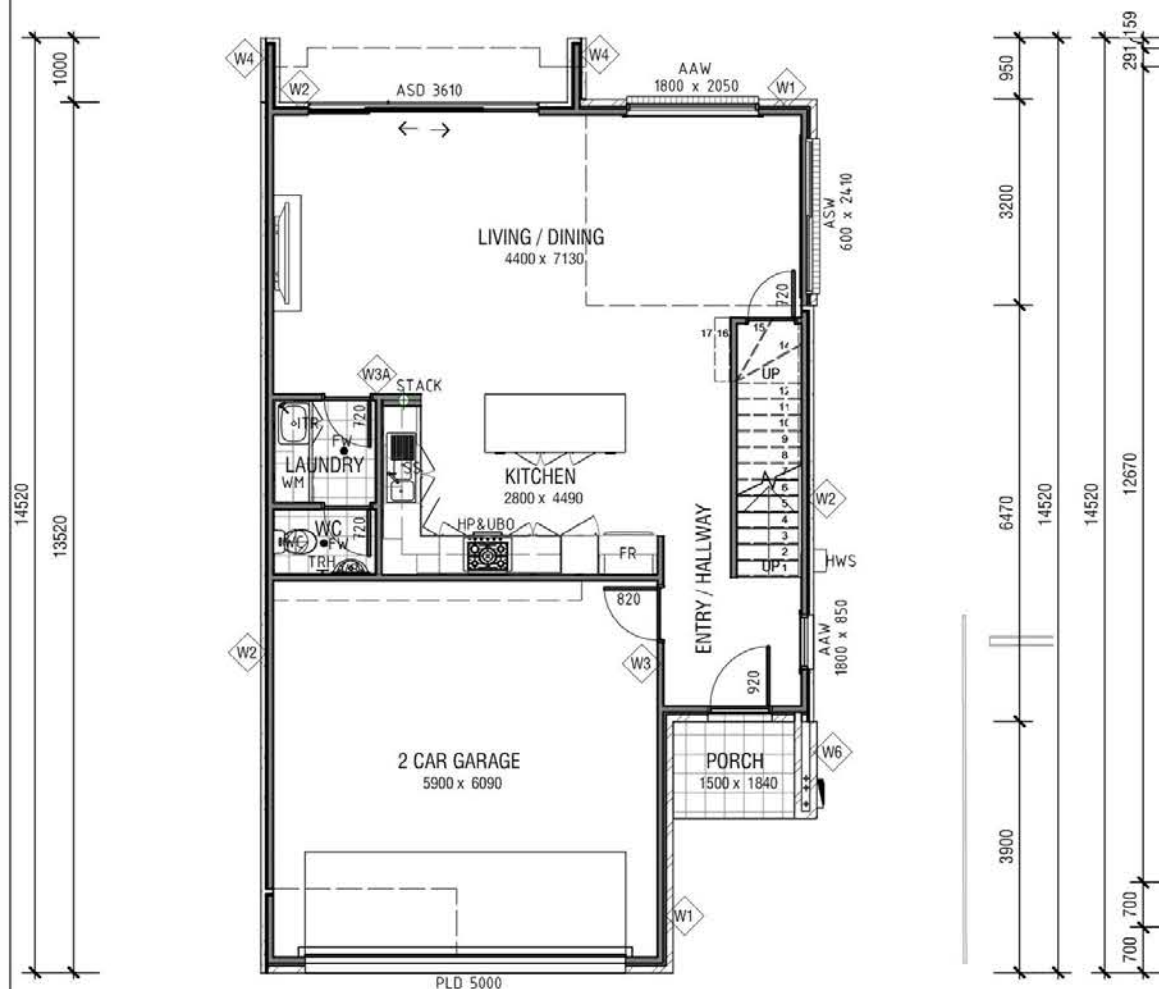
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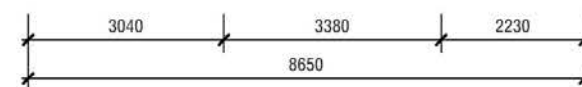
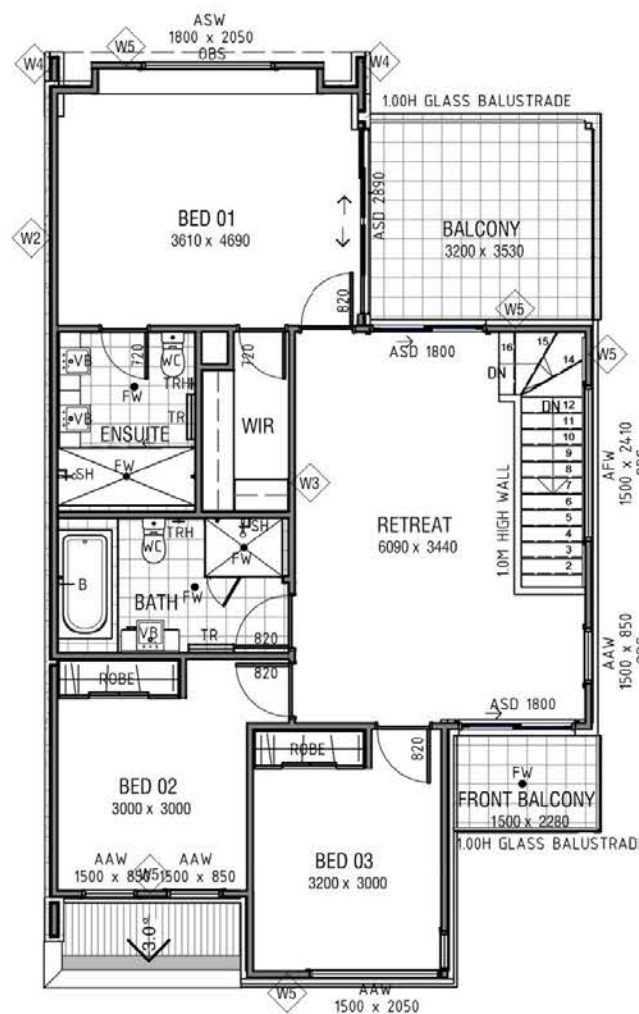
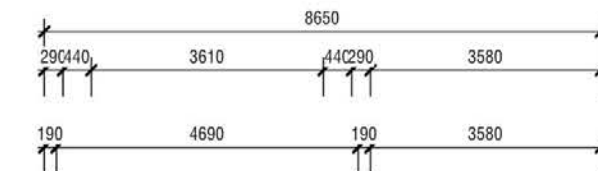


STORAGE SCHEDULE

GARAGE SHELVING:	1.75m ³
WALK IN ROBE:	5.53m ³
LAUNDRY:	0.45m ³
UNDERSTAIR:	5.40m ³
TOTAL	13.13m³

**GROUND FLOOR PLAN RES 02**

1:100

**FIRST FLOOR PLAN RES 02**

1:100

WALL TYPE LEGEND

REFER ALSO TO FINISHES SCHEDULE

INTERNAL	EXTERNAL
W1 10MM PLASTERBOARD INTERNAL WALL LINING 90mm TIMBER STUD FRAMING FACE BRICKWORK 25mm AIR GAP THK = 240	W2 10MM PLASTERBOARD INTERNAL WALL LINING 90mm TIMBER STUD FRAMING 75 CSR HEBEL CLADDING WITH TEXTURE COAT FINISH 40mm AIR GAP THK = 190
W3 90mm TIMBER STUD FRAMING 10MM PLASTERBOARD INTERNAL WALL LINING W3A 1 SIDE INTERIOR LINING	W4 90mm TIMBER STUD FRAMING 75 CSR HEBEL CLADDING WITH TEXTURE COAT FINISH 25mm AIR GAP THK = 290
W5 90mm TIMBER STUD FRAMING 10MM PLASTERBOARD INTERNAL WALL LINING 9MM JAMES HARDIE SCYON AXON EXTERNAL CLADDING	

Abbreviations All

ABBREV.	DESCRIPTION
B	BATH
CTL	CLOTHES LINE
DW	DISHWASHER
FR	REFRIGERATOR
FW	FLOOR WASTE
HP&UBO	HOT PLATE & UNDER BENCH OVEN
HWS	HOT WATER SERVICE
ITR	INSET TROUGH
LB	LETTERBOX
M/B	METERBOX
OC	OVERHEAD CUPBOARDS
RWT	RAINWATER TANK AS PER ENGINEERS DESIGN
SH	SHOWER
SS	STAINLESS STEEL SINK
TAP	TAP ON STAKE
TAP+FG	TAP ON STAKE WITH FLOOD GULLY UNDERNEATH (IN GARDEN BED)
TR	TOWEL RAIL / RING
TRH	TOILET ROLL HOLDER
VB	VANITY BASIN WITH ASSOCIATED JOINERY UNIT
WC	TOILET PAN
WM	WASHING MACHINE
WMR	WATER METER

RES 2 BUILDING AREA

RES 2	UPPER LIVING AREA	95.62 m ²
RES 2	BALCONY	11.30 m ²
RES 2	GROUND FLOOR LIVING AREA	70.92 m ²
RES 2	PORCH	2.71 m ²
RES 2	GARAGE	38.72 m ²
TOTAL BUILDING AREA		219.27 m ²

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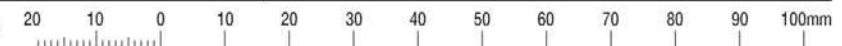
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UNDERDALE STAGE 1
ARTHUR LEMON AVE
FLOOR PLANS RES 2

R2-A105
RES 2

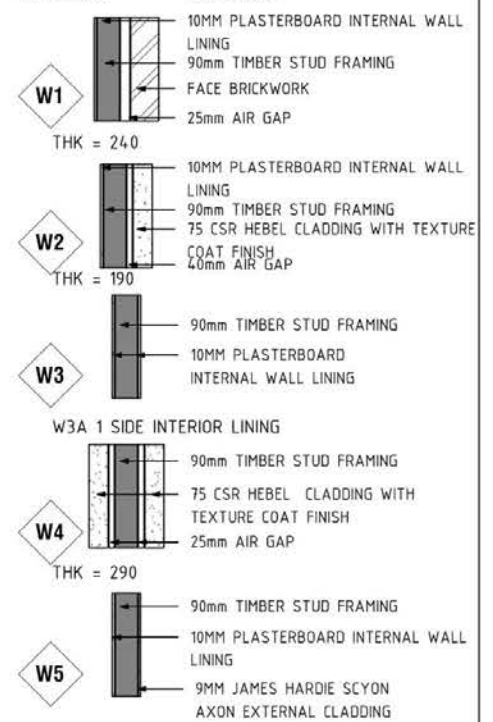
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WALL TYPE LEGEND
REFER ALSO TO FINISHES SCHEDULE

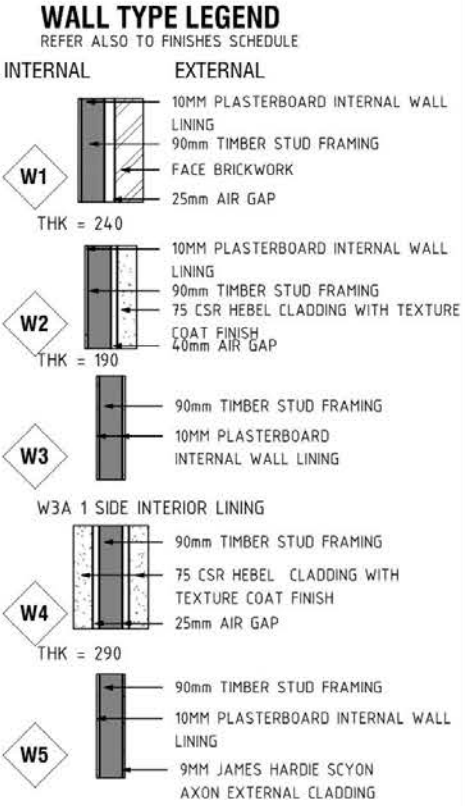
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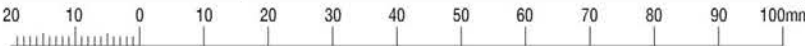
Roof Schedule

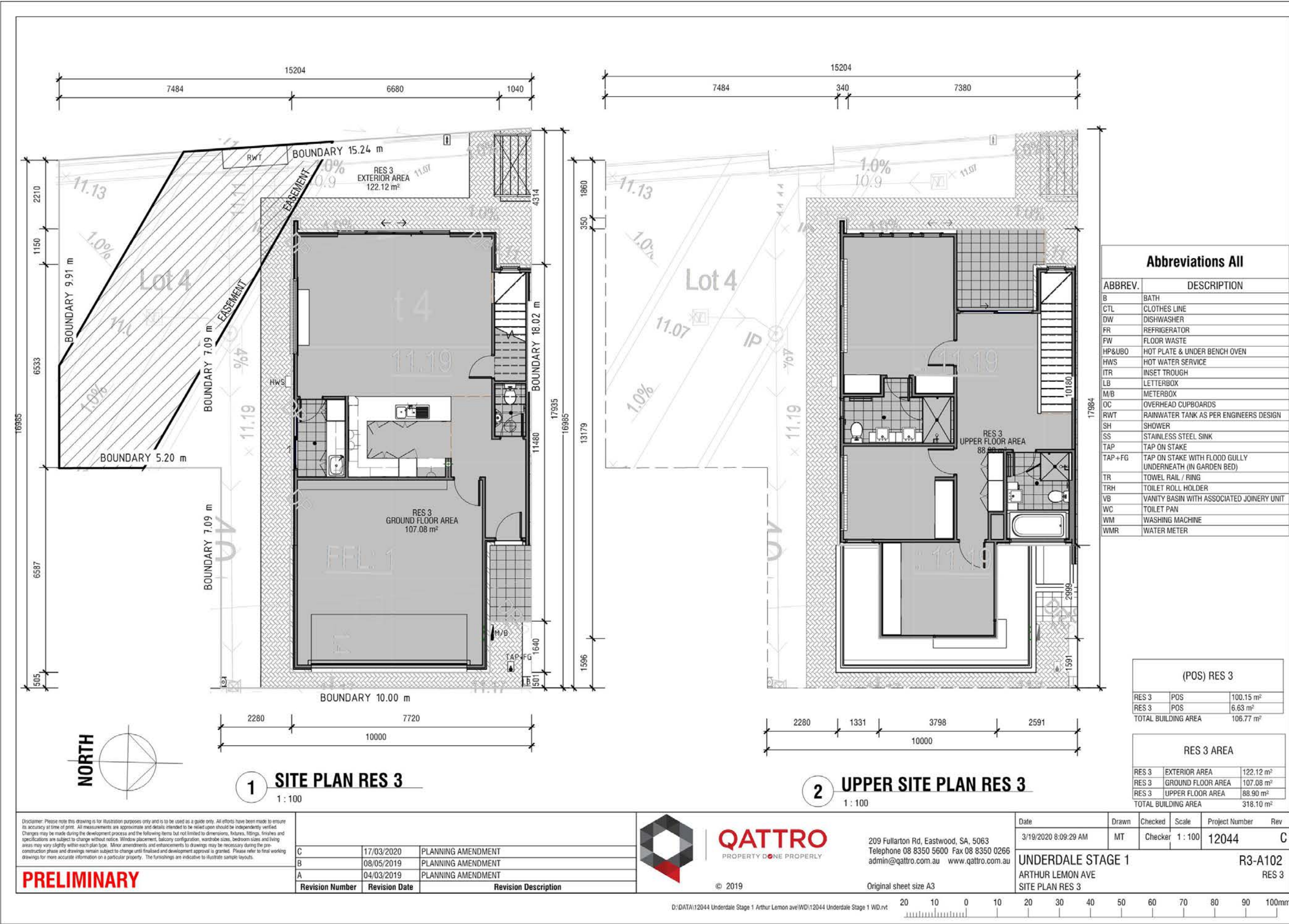
Finishes Schedule

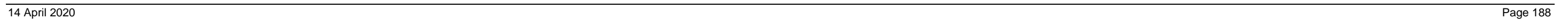
Code	Manufacturer	Type	Colour
FC1	JAMES HARDIE	SCYON AXON CLADDING	RAKU
Face brickwork			
FB1			
Rendered HEBEL			
FH2	CSR	RENDERED HEBEL	DIESKAU
SPANDEK MONUMENT			
FR3	COLORBOND	SPANDEK	MONUMENT
SPANDEK WOODLAND GREY			
FR1	COLORBOND	SPANDEK	WOODLAND GREY
Texture coat compressed fibre cement			
LWPB	James hardie		

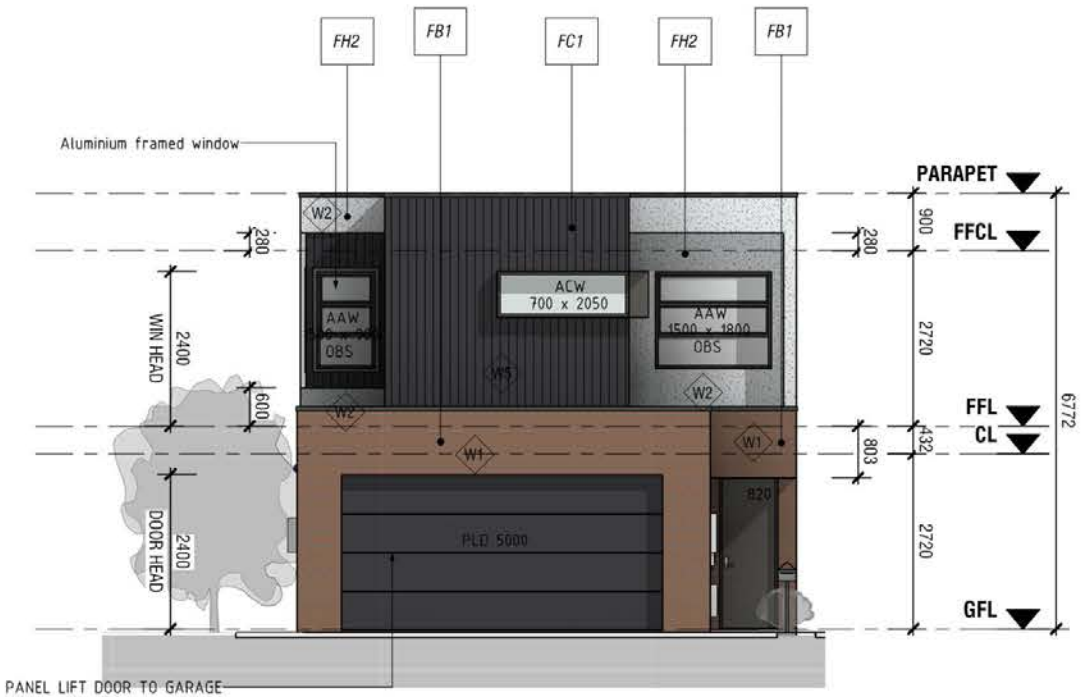


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UNDERDALE STAGE 1				R2-A109	
ARTHUR LEMON AVE				RES 2	
EXTERNAL ELEVATIONS - RES 2					









EAST ELEVATION RES 3
1 : 100



SOUTH ELEVATION RES 3
1 : 100

Abbreviations All	
ABBREV.	DESCRIPTION
B	BATH
CTL	CLOTHES LINE
DW	DISHWASHER
FR	REFRIGERATOR
FW	FLOOR WASTE
HP&UBO	HOT PLATE & UNDER BENCH OVEN
HWS	HOT WATER SERVICE
ITR	INSET TROUGH
LB	LETTERBOX
M/B	METERBOX
OC	OVERHEAD CUPBOARDS
RWT	RAINWATER TANK AS PER ENGINEERS DESIGN
SH	SHOWER
SS	STAINLESS STEEL SINK
TAP	TAP ON STAKE
TAP + FG	TAP ON STAKE WITH FLOOD GULLY UNDERNEATH (IN GARDEN BED)
TR	TOWEL RAIL / RING
TRH	TOILET ROLL HOLDER
VB	VANITY BASIN WITH ASSOCIATED JOINERY UNIT
WC	TOILET PAN
WM	WASHING MACHINE
WMR	WATER METER

WALL TYPE LEGEND
REFER ALSO TO FINISHES SCHEDULE

INTERNAL

EXTERNAL

W1

THK = 240

10MM PLASTERBOARD INTERNAL WALL LINING
90mm TIMBER STUD FRAMING
FACE BRICKWORK
25mm AIR GAP

W2

THK = 190

10MM PLASTERBOARD INTERNAL WALL LINING
90mm TIMBER STUD FRAMING
75 CSR HEBEL CLADDING WITH TEXTURE
COAT FINISH
40mm AIR GAP

W3

90mm TIMBER STUD FRAMING
10MM PLASTERBOARD
INTERNAL WALL LINING

W3A 1 SIDE INTERIOR LINING

90mm TIMBER STUD FRAMING
75 CSR HEBEL CLADDING WITH TEXTURE COAT FINISH
25mm AIR GAP

W4

THK = 290

90mm TIMBER STUD FRAMING
10MM PLASTERBOARD INTERNAL WALL LINING
9MM JAMES HARDIE SCYON
AXON EXTERNAL CLADDING

W5

90mm TIMBER STUD FRAMING
10MM PLASTERBOARD INTERNAL WALL LINING
9MM JAMES HARDIE SCYON
AXON EXTERNAL CLADDING

Roof Schedule			
RES	Roof Type	Description	Area
RES 3	RS2	METAL ROOF SHEETING. FINISH AS SPECIFIED. ROOF PITCH AS INDICATED ON PLANS	93.42 m²
Grand total			93.42 m²

Finishes Schedule			
Code	Manufacturer	Type	Colour
FC1	JAMES HARDIE	SCYON AXON CLADDING	RAKU
Face brickwork			
FB1			
Rendered HEBEL			
FH2	CSR	RENDERED HEBEL	DIESKAU
SPANDEK MONUMENT			
FR3	COLORBOND	SPANDEK	MONUMENT
SPANDEK WOODLAND GREY			
FR1	COLORBOND	SPANDEK	WOODLAND GREY
Texture coat compressed fibre cement			
LWPB	James hardie		

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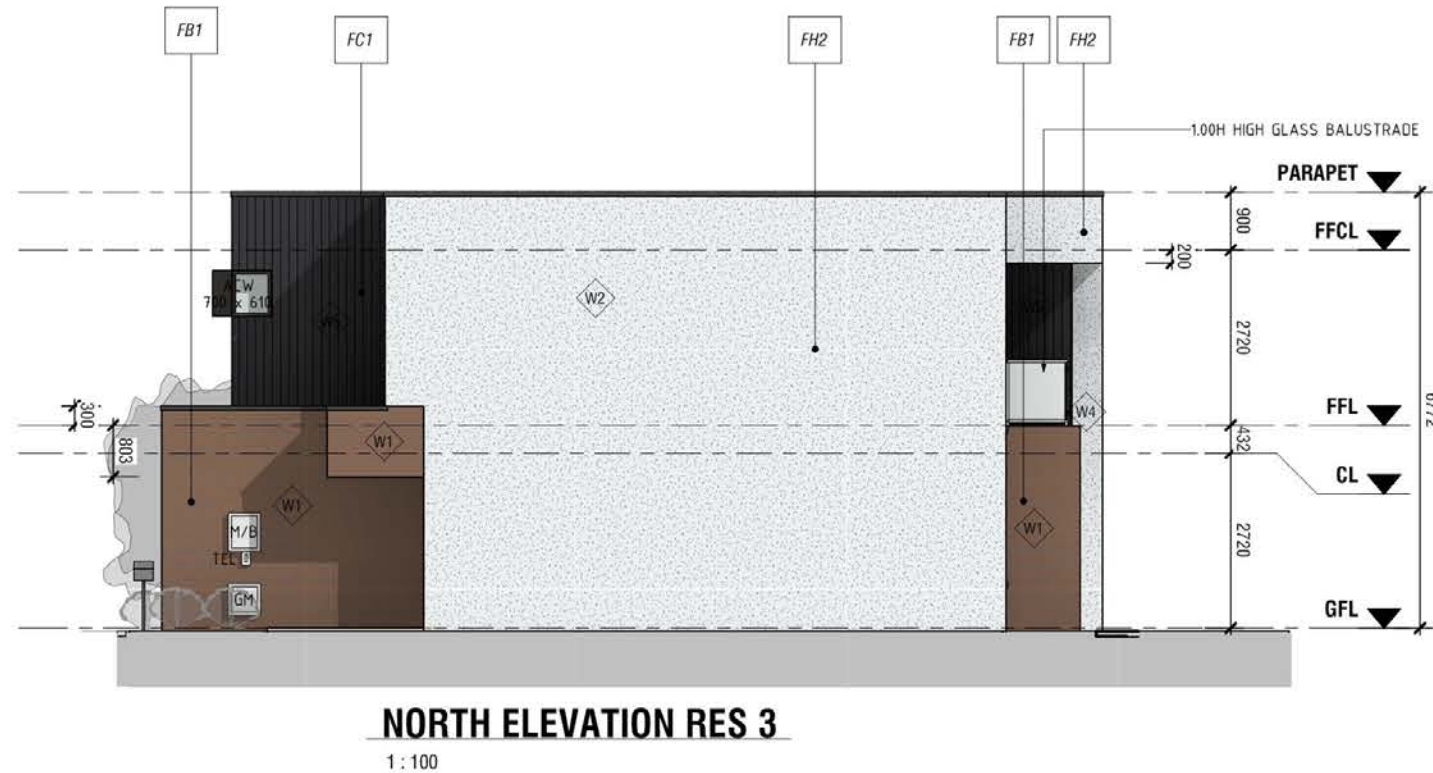
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UNDERDALE STAGE 1
ARTHUR LEMON AVE
EXTERNAL ELEVATIONS - RES 3

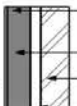
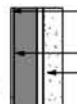

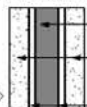

R3-A108
RES 3

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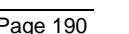
WALL TYPE LEGEND

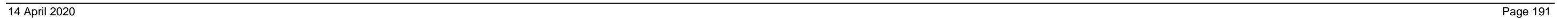
REFER ALSO TO FINISHES SCHEDULE

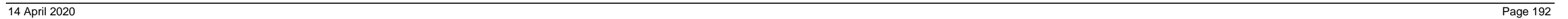
INTERNAL	EXTERNAL
<div style="border: 1px solid black; padding: 5px; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; margin: 10px auto;">W1</div>	 <ul style="list-style-type: none">10MM PLASTERBOARD INTERNAL WALL LINING90mm TIMBER STUD FRAMINGFACE BRICKWORK25mm AIR GAP
THK = 240	
<div style="border: 1px solid black; padding: 5px; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; margin: 10px auto;">W2</div>	 <ul style="list-style-type: none">10MM PLASTERBOARD INTERNAL WALL LINING90mm TIMBER STUD FRAMING75 CSR HEBEL CLADDING WITH TEXTURE40mm AIR GAP
THK = 190	
<div style="border: 1px solid black; padding: 5px; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; margin: 10px auto;">W3</div>	 <ul style="list-style-type: none">90mm TIMBER STUD FRAMING10MM PLASTERBOARD INTERNAL WALL LINING
W3A 1 SIDE INTERIOR LINING	
<div style="border: 1px solid black; padding: 5px; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; margin: 10px auto;">W4</div>	 <ul style="list-style-type: none">90mm TIMBER STUD FRAMING75 CSR HEBEL CLADDING WITH TEXTURE COAT FINISH25mm AIR GAP
THK = 290	
<div style="border: 1px solid black; padding: 5px; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; margin: 10px auto;">W5</div>	 <ul style="list-style-type: none">90mm TIMBER STUD FRAMING10MM PLASTERBOARD INTERNAL WALL LINING9MM JAMES HARDIE SCYON AXON EXTERNAL CLADDING

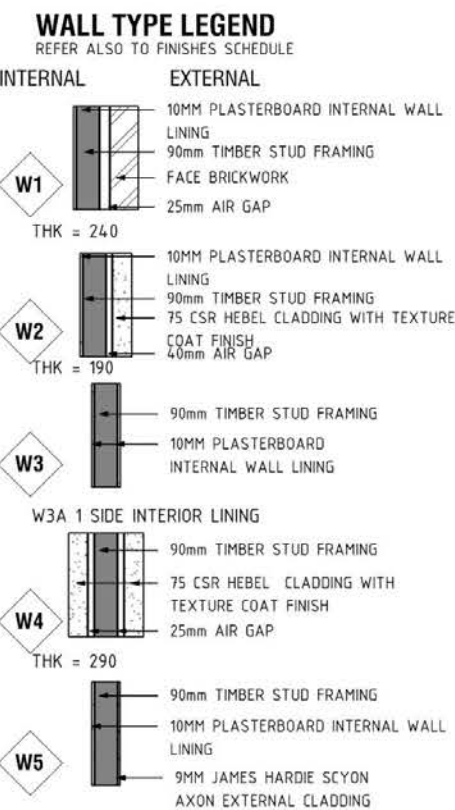
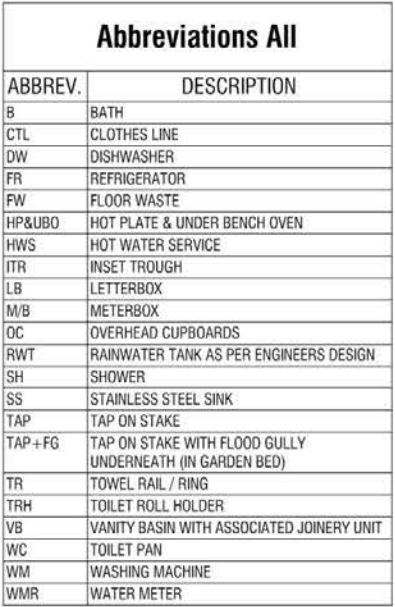
Finishes Schedule			
Code	Manufacturer	Type	Colour
FC1	JAMES HARDIE	SCYON AXON CLADDING	RAKU
Face brickwork			
FB1			
Rendered HEBEL			
FH2	CSR	RENDERED HEBEL	DIESKAU
SPANDEK MONUMENT			
FR3	COLORBOND	SPANDEK	MONUMENT
SPANDEK WOODLAND GREY			
FR1	COLORBOND	SPANDEK	WOODLAND GREY
Texture coat compressed fibre cement			
LWPB	James hardie		

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Finishes Schedule			
Code	Manufacturer	Type	Colour
FC1	JAMES HARDIE	SCYON AXON CLADDING	RAKU
Face brickwork			
FB1			
Rendered HEBEL			
FH2	CSR	RENDERED HEBEL	DIESKAU
SPANDEK MONUMENT			
FR3	COLORBOND	SPANDEK	MONUMENT
SPANDEK WOODLAND GREY			
FR1	COLORBOND	SPANDEK	WOODLAND GREY
Texture coat compressed fibre cement			
LWPB	James hardie		

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Revision Number	Revision Date	Revision Description



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UNDERDALE STAGE 1
ARTHUR LEMON AVE
EXTERNAL ELEVATIONS - RES 4

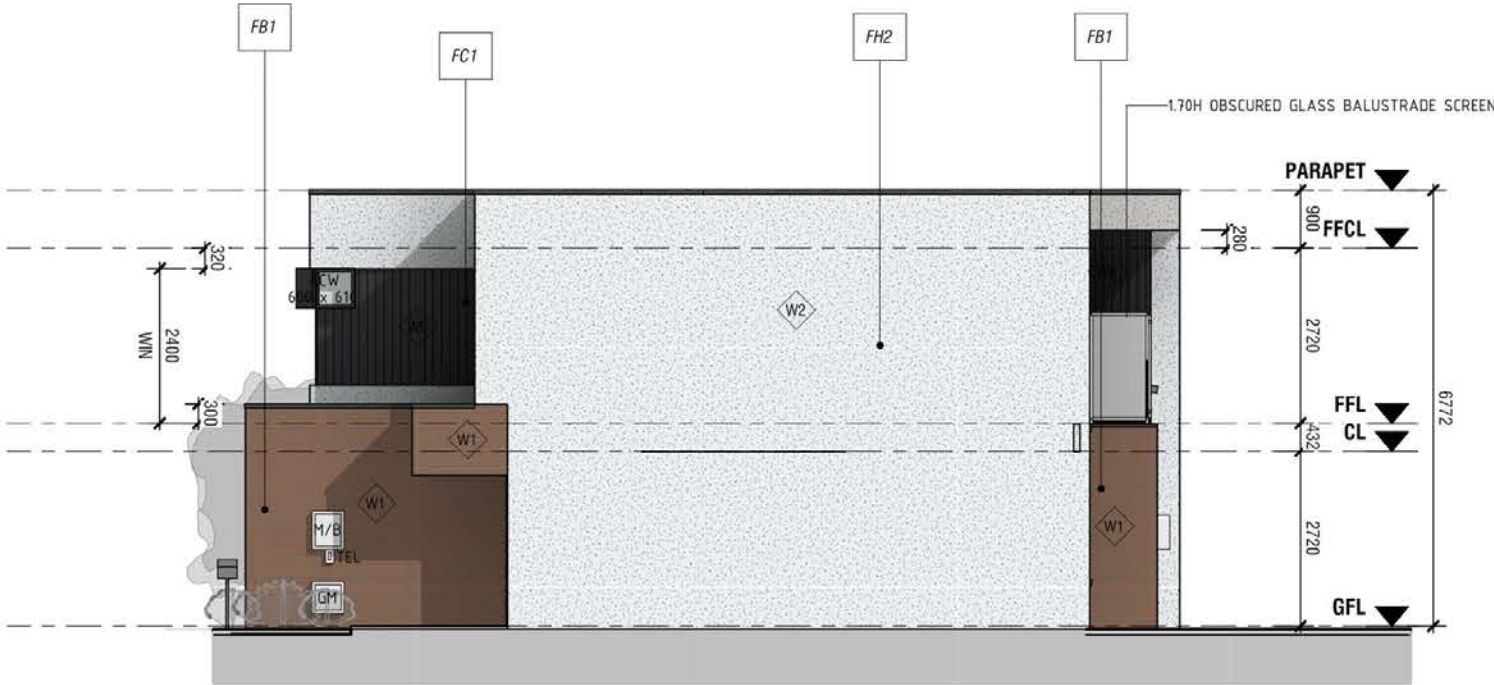
R4-A108
RES 4





WEST ELEVATION RES 4

1 : 100



NORTH ELEVATION RES 4

1 : 100

Abbreviations All	
ABBREV.	DESCRIPTION
B	BATH
CTL	CLOTHES LINE
DW	DISHWASHER
FR	REFRIGERATOR
FW	FLOOR WASTE
HP&UBO	HOT PLATE & UNDER BENCH OVEN
HWS	HOT WATER SERVICE
ITR	INSET TROUGH
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M/B	METERBOX
OC	OVERHEAD CUPBOARDS
RWT	RAINWATER TANK AS PER ENGINEERS DESIGN
SH	SHOWER
SS	STAINLESS STEEL SINK
TAP	TAP ON STAKE
TAP+FG	TAP ON STAKE WITH FLOOD GULLY UNDERNEATH (IN GARDEN BED)
TR	TOWEL RAIL / RING
TRH	TOILET ROLL HOLDER
VB	VANITY BASIN WITH ASSOCIATED JOINERY UNIT
WC	TOILET PAN
WM	WASHING MACHINE
WMR	WATER METER

WALL TYPE LEGEND	
REFER ALSO TO FINISHES SCHEDULE	
INTERNAL	EXTERNAL
W1	10MM PLASTERBOARD INTERNAL WALL LINING 90mm TIMBER STUD FRAMING FACE BRICKWORK 25mm AIR GAP THK = 240
W2	10MM PLASTERBOARD INTERNAL WALL LINING 90mm TIMBER STUD FRAMING 75 CSR HEBEL CLADDING WITH TEXTURE COAT FINISH 40mm AIR GAP THK = 190
W3	90mm TIMBER STUD FRAMING 10MM PLASTERBOARD INTERNAL WALL LINING W3A 1 SIDE INTERIOR LINING
W4	90mm TIMBER STUD FRAMING 75 CSR HEBEL CLADDING WITH TEXTURE COAT FINISH 25mm AIR GAP THK = 290
W5	90mm TIMBER STUD FRAMING 10MM PLASTERBOARD INTERNAL WALL LINING 9MM JAMES HARDIE SCYON AXON EXTERNAL CLADDING

Roof Schedule			
RES	Roof Type	Description	Area
RES 4	RS2	METAL ROOF SHEETING. FINISH AS SPECIFIED. ROOF PITCH AS INDICATED ON PLANS	91.38 m²
Grand total			91.38 m²

Finishes Schedule			
Code	Manufacturer	Type	Colour
FC1	JAMES HARDIE	SCYON AXON CLADDING	RAKU
Face brickwork			
FB1			
Rendered HEBEL			
FH2	CSR	RENDERED HEBEL	DIESKAU
SPANDEK MONUMENT			
FR3	COLORBOND	SPANDEK	MONUMENT
SPANDEK WOODLAND GREY			
FR1	COLORBOND	SPANDEK	WOODLAND GREY
Texture coat compressed fibre cement			
LWPB	James hardie		

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B	08/05/2019	PLANNING AMENDMENT
A	04/03/2019	PLANNING AMENDMENT



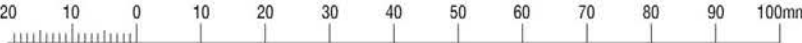
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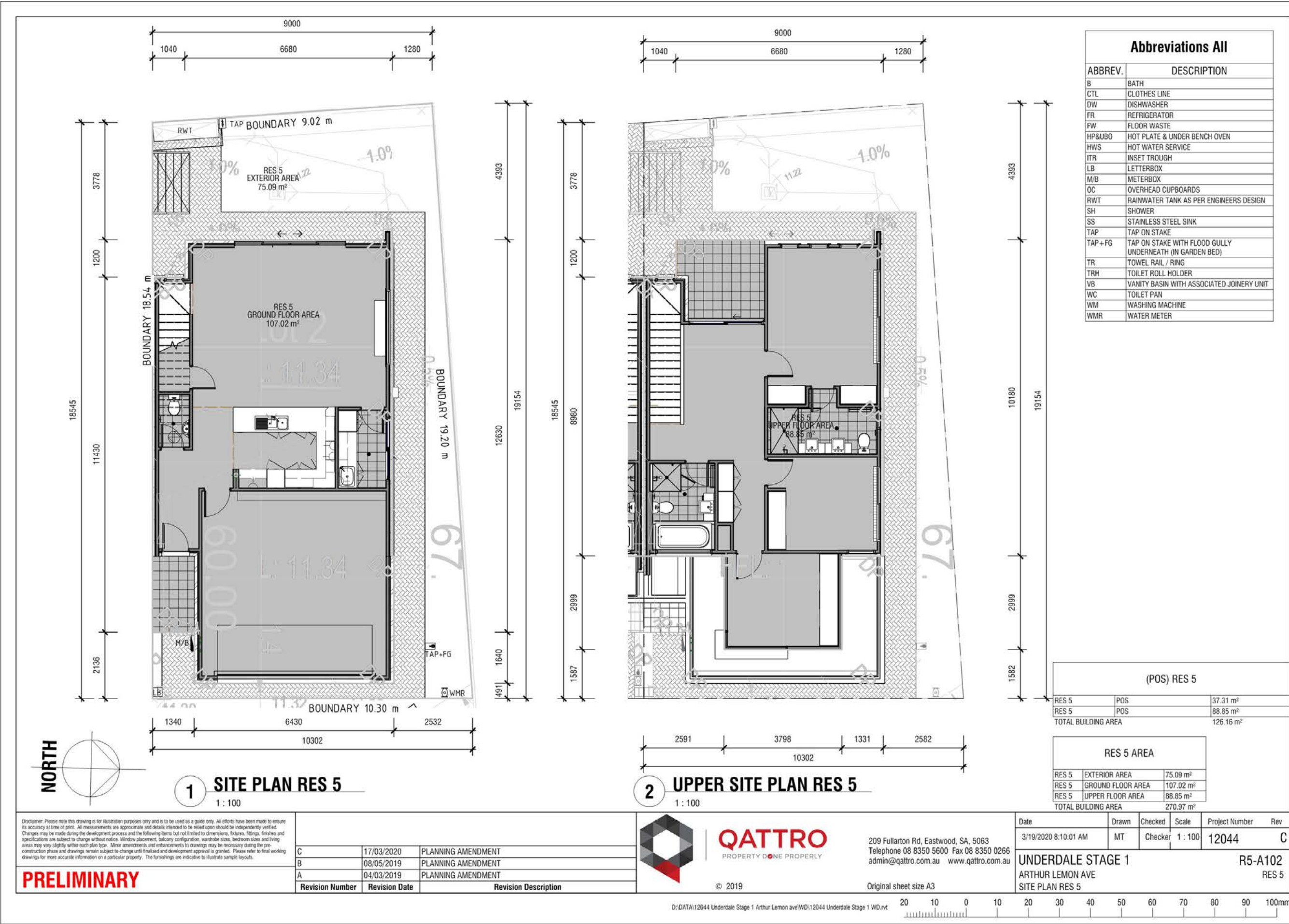
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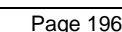
209 Fullarton Rd, Eastwood, SA, 5063
Telephone 08 8350 5600 Fax 08 8350 0266
admin@qattro.com.au www.qattro.com.au

Date	Drawn	Checked	Scale	Project Number	Rev
3/19/2020 8:09:54 AM	MT	Checker	As indicated	12044	C
UNDERDALE STAGE 1				R4-A109	
ARTHUR LEMON AVE				RES 4	
EXTERNAL ELEVATIONS - RES 4					

D:\DATA\12044 Underdale Stage 1 Arthur Lemon ave\WD\12044 Underdale Stage 1 WD.rvt







Page 197

1 : 100

1 : 100

Abbreviations All	
ABBREV.	DESCRIPTION
B	BATH
CTL	CLOTHES LINE
DW	DISHWASHER
FR	REFRIGERATOR
FW	FLOOR WASTE
HP&UBO	HOT PLATE & UNDER BENCH OVEN
HWS	HOT WATER SERVICE
ITR	INSET TROUGH
LB	LETTERBOX
M/B	METERBOX
OC	OVERHEAD CUPBOARDS
RWT	RAINWATER TANK AS PER ENGINEERS DESIGN
SH	SHOWER
SS	STAINLESS STEEL SINK
TAP	TAP ON STAKE
TAP+FG	TAP ON STAKE WITH FLOOD GULLY UNDERNEATH (IN GARDEN BED)
TR	TOWEL RAIL / RING
TRH	TOILET ROLL HOLDER
VB	VANITY BASIN WITH ASSOCIATED JOINERY UNITS
WC	TOILET PAN
WM	WASHING MACHINE
WMR	WATER METER

WALL TYPE LEGEND
REFER ALSO TO FINISHES SCHEDULE

INTERNAL

EXTERNAL

W1

10MM PLASTERBOARD INTERNAL WALL LINING
90mm TIMBER STUD FRAMING
FACE BRICKWORK
25mm AIR GAP

THK = 240

W2

10MM PLASTERBOARD INTERNAL WALL LINING
90mm TIMBER STUD FRAMING
75 CSR HEBEL CLADDING WITH TEXTURE
COAT FINISH
40mm AIR GAP

THK = 190

W3

90mm TIMBER STUD FRAMING
10MM PLASTERBOARD
INTERNAL WALL LINING

W3A 1 SIDE INTERIOR LINING

W4

90mm TIMBER STUD FRAMING
75 CSR HEBEL CLADDING WITH TEXTURE COAT FINISH
25mm AIR GAP

THK = 290

W5

90mm TIMBER STUD FRAMING
10MM PLASTERBOARD INTERNAL WALL LINING
9MM JAMES HARDIE SCYON AXON EXTERNAL CLADDING

THK = 290

Roof Schedule			
RES	Roof Type	Description	Area
RES 5	RS2	METAL ROOF SHEETING. FINISH AS SPECIFIED. ROOF PITCH AS INDICATED ON PLANS	93.42 m ²
Grand total			93.42 m ²

Finishes Schedule			
Code	Manufacturer	Type	Colour
FC1	JAMES HARDIE	SCYON AXON CLADDING	RAKU
Face brickwork			
FB1			
Rendered HEBEL			
FH2	CSR	RENDERED HEBEL	DIESKAU
SPANDEK MONUMENT			
FR3	COLORBOND	SPANDEK	MONUMENT
SPANDEK WOODLAND GREY			
FR1	COLORBOND	SPANDEK	WOODLAND GREY
Texture coat compressed fibre cement			
LWPB	James hardie		

Disclaimer: Please note this drawing is for illustration purposes only and is to be used as a guide only. All efforts have been made to ensure its accuracy at time of print. All measurements are approximate and details intended to be relied upon should be independently verified. Changes may be made during the development process and the following items but not limited to dimensions, fixtures, fittings, finishes and specifications are subject to change without notice. Window placement, balcony configuration, wardrobe sizes, bedroom sizes and living areas may vary slightly within each plan type. Minor amendments and enhancements to drawings may be necessary during the pre-construction phase and drawings remain subject to change until finalised and development approval is granted. Please refer to final working drawings for more accurate information on a particular property. The furnishings are indicative to illustrate sample layouts.

PRELIMINARY

C	17/03/2020	PLANNING AMENDMENT
B	08/05/2019	PLANNING AMENDMENT
A	04/03/2019	PLANNING AMENDMENT
Revision Number	Revision Date	Revision Description



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admin@qattro.com.au www.qattro.com.au

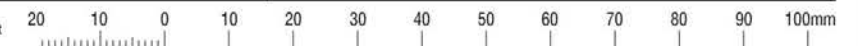
Original sheet size A3

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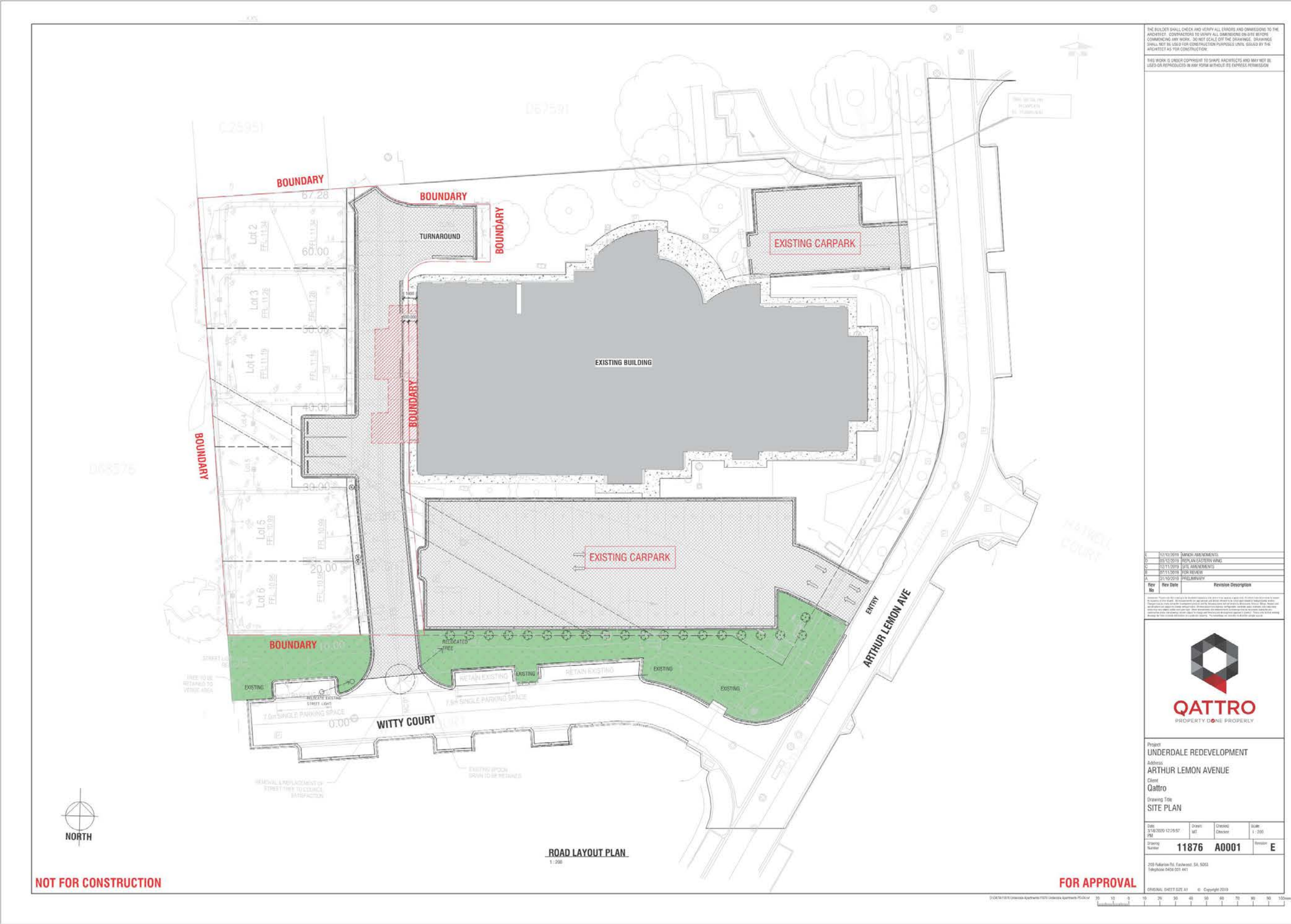
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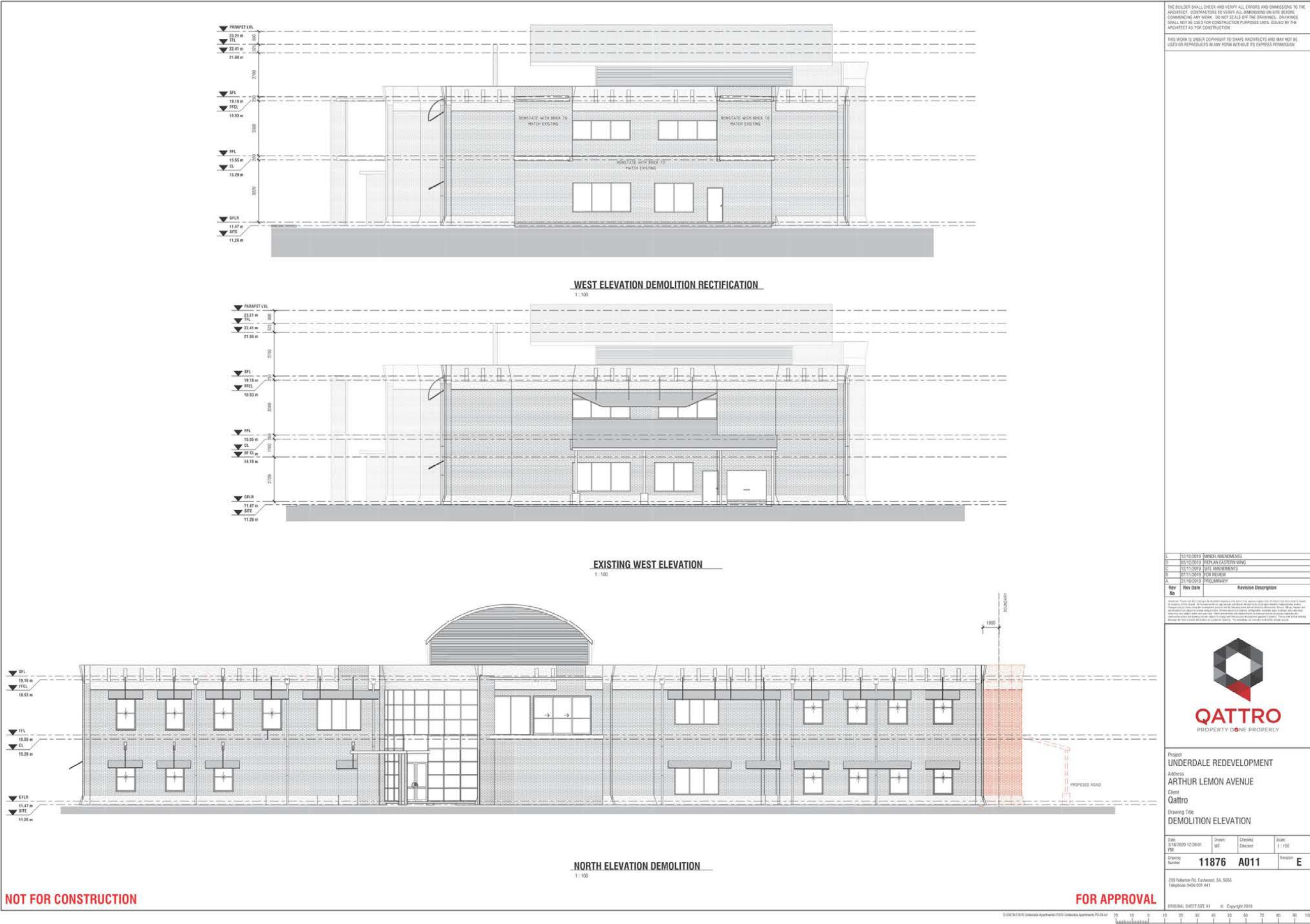
UNDERDALE STAGE 1 R5-A109
 ARTHUR LEMON AVE RES 5
 EXTERNAL ELEVATIONS - RES 5

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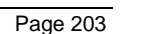








Appendix 2. Site Services Plan





Appendix 3. Civil Plans and Documentation

MLEI



Head Office 452 Pulteney Street
Adelaide, South Australia 5000
08) 8231 2832 mlei@mlei.com.au
mlei.com.au

11th of March 2020

Reference: 2017-6212UN

Rhys Davies
QATTRO
209 Fullarton Road,
Eastwood SA 5063
Email: rdavies@gattro.com.au

Dear Mr. Davies,

**PRELIMINARY STORMWATER DRAINAGE ADVICE FOR 5x TOWNHOUSES DEVELOPMENT & ACCESS
ROAD AT ARTHUR LEMON AVENUE, UNDERDALE**

MLEI have been engaged to assess the implications of a potential development at Arthur Lemon Avenue, Underdale and provide a preliminary stormwater drainage assessment based on our findings.

Site Description

The subject site has an approximate area of 1,511 square metres. It is bounded to the north by an existing block of townhouses as well as a kindergarten, a large sports field belonging to Underdale High School to the west, an existing University of South Australia research institute building towards the east and Witty Court along the southern boundary. The site has a high point of 11.35m AHD (Australian Height Datum) towards the north-eastern boundary at the top of the kerb of the existing carpark, and slopes towards the south-western boundary.

The existing site consists predominately of a bitumen surface as it currently serves as a carpark for the research institute. Adjacent to a portion of the carpark and surrounding the entrance of the institute is a large paved area. Towards the north-east and south-west corners of the site exists small landscaped areas. A side entry pit (SEP) exists in the south-western corner of the carpark at the downstream end of two perpendicular spoon drains – one extending through the east of the carpark and one extending through the north. A grated inlet pit (GIP) is located at a low point in the north-eastern landscaped area.

Proposed Development

The potential development comprises the division of land into 5 residential allotments with a two way access laneway containing 3 car parking spaces as well as a vehicle turn around area. The existing easement will be maintained as car parking spaces and open landscaped area within allotments 4 & 5.

After discussions with City of West Torrens Council representative, Andrew King, it has been agreed that the proposal will include the following;

ADELAIDE + SYDNEY + MILDURA + PORT LINCOLN + DARWIN + MELBOURNE

ABN 29 125 240 459

- A runoff coefficient of 0.25 should be adopted for the 20 year average recurrence interval (ARI) storm event when calculating the pre-development flows.
- The existing point of stormwater discharge may be maintained for the post-developed site (2100mm concrete reinforced pipe stormwater drain located in the Council drainage easement).
- Water treatment should be in accordance with the State-wide Water Sensitive Urban Design Policy.

Pre-development Hydrology

Stormwater runoff generated in the north-eastern landscaped area is collected by the nearby GIP whilst the south-western landscaped area directs flows onto the carpark. The carpark is currently sloped such that all stormwater runoff generated in the bituminised area is conveyed to the SEP located in the south-western corner of the carpark through the two spoon drains. The spoon drains collect all bitumen runoff due to the appropriate trough like sloping of the carpark, and then directs it into the SEP. The paved area is sloped to allow water to flow away from the building and towards the bitumen carpark catchment. The SEP is believed to discharge into the existing underground 2100mm reinforced concrete pipe stormwater drain located in the easement running through the site.

Based on the 20 year ARI storm event and an adopted runoff coefficient of 0.25, the pre-development site will generate a peak stormwater flow of 12.7L/s. Given the designed sloping of the carpark area, majority of the site stormwater runoff flows to the SEP in the south-western corner of the carpark where it is ultimately discharged into the stormwater drain in the easement.

Catchment Analysis

Allotments 2, 4 & 5 will comprise a 3,000L re-use only rainwater tank to be plumbed into all toilets and cold laundry fixtures. The rainwater tank is to be connected to a minimum of 90% of the roof catchment in each allotment. This approach will offset stormwater detention and water quality objectives set by Council, as advised by Council. Allotments 3 & 6 will adopt 1,000L rainwater tanks for re-use only with stormwater detention measures occurring downstream.

Allotments 3 & 6 in addition to the road reserve will satisfy Council's stormwater detention and water quality objectives by other means. Given the council requirement of a pre-development runoff coefficient of 0.25, MLEI have determined that a total detention volume required for the 1 in 20 year ARI storm limited to the pre-development flow rate during the 1 in 20 year ARI for the remaining catchment is approximately 6.9kL. The catchment will utilise a 450mm diameter underground concrete pipe of approximately 43.4m in length to achieve the required detention volume. The detention pipe will be located behind the roadside kerb at a minimum slope of 0.3%.

The laneway will comprise a central spoon drain with a constant longitudinal grade to a low point where a grated inlet pit located in the spoon drain will collect stormwater and convey it into the concrete detention pipe. A 65mm orifice plate will be utilised to restrict flows discharging from the detention pipe to the allowable 7.21L/s.

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Stormwater quality will be treated to the levels specified by the State-wide Water Sensitive Urban Design Policy through the implementation of a 'Enviro Australis' Enviro G30 filtration system, as detailed in the attached pollutant removal efficiencies and calculations, and finally discharged to the existing 2100mm diameter stormwater drain at the existing site point of discharge. In accordance with industry standards, the required treatable flow rate is to be equal to the 1 in 3 month ARI catchment flow rate, which has been calculated to be 3.3L/s. The unit specified above has a maximum treatable flow rate of 22.0L/s and is therefore considered to be suitable for this catchment.

We trust that the preliminary stormwater drainage advice has demonstrated a strategy to ensure the receiving stormwater drainage system is not adversely affected by the potential development at Arthur Lemon Avenue.

If you have any queries regarding this letter, please contact the undersigned on 8231 2832 or by email agiannini@mlei.com.au

Kind Regards,

MLEI Consulting Engineers

Anthony Giannini B.E Hons. (Civil & Structural)
Civil/Structural Engineer

Enc:

- *Civil stormwater calculations*

ADELAIDE + SYDNEY + MILDURA + PORT LINCOLN + DARWIN + MELBOURNE

ABN 29 125 240 459



CONSULTING
ENGINEERS

CIVIL STORMWATER CALCULATIONS

5 Allotments – Arthur Lemon Drive, Underdale

Project reference: 2017-6212

ISSUE F

DATE: 11/03/2020

HEAD OFFICE: 452 PULTENEY STREET, ADELAIDE SA 5000 | (08) 8231 2832
ADELAIDE | SYDNEY | PERTH | MILDURA | PORT LINCOLN
www.mlei.com.au | mlei@mlei.com.au | ABN: 29 125 240 549

CONSULTING
ENGINEERSReference 2017-6212UNProject Arthur Lemon Avenue, UnderdaleChecked by CJGDesigner A. Giannini

Date _____

Index 1Council Requirements

ARI = 20 years → Assume duration of 5 min

Pre-development flow = post-development flow

where pre-development flow calculated using

 $C_{20} = 0.25$ for the site.

ADELAIDE: LEVEL 5, 19 GILLES STREET ADELAIDE SA / (08) 8231 2832
PORT LINCOLN: OFFICE 5, 12 LEWIS STREET PORT LINCOLN SA 5606 / (08) 8683 3884
WWW.MLEI.COM.AU / MLEI@MLEI.COM.AU / ABN: 29 125 240 459



CONSULTING
ENGINEERS

Reference: 2017-6212

Project: Arthur Lemon Drive, Underdale

Checked by:

Designer: AG

Date: 11/03/2020

Index: 1

STORMWATER DETENTION CALCULATIONS			REF./COMMENT																																													
<p>Council Requirements</p> <table border="1"> <thead> <tr> <th></th> <th>Pre</th> <th>Post</th> </tr> </thead> <tbody> <tr> <td>ARI (years)</td> <td>20</td> <td>20</td> </tr> <tr> <td>tc (min)</td> <td>5</td> <td>5</td> </tr> </tbody> </table> <p>Site BOM IFDs</p> <table border="1"> <tbody> <tr> <td>I(10/1) (mm/h)</td> <td>25.6</td> </tr> <tr> <td>Pre-dev I(20/5) (mm/h)</td> <td>121</td> </tr> <tr> <td>Post-dev I(20/5) (mm/h)</td> <td>121</td> </tr> </tbody> </table> <p>Council Specified Pre-Development Runoff Coefficient</p> <table border="1"> <tbody> <tr> <td>Yes</td> <td>0.25</td> </tr> </tbody> </table> <p>Pre-Development Flow</p> <table border="1"> <thead> <tr> <th>Site Surfaces</th> <th>Area (m²)</th> <th>f</th> </tr> </thead> <tbody> <tr> <td>Roof</td> <td>0</td> <td>1.0</td> </tr> <tr> <td>Concrete/Paved/Bitumen</td> <td>857</td> <td>0.9</td> </tr> <tr> <td>Landscaped</td> <td>0</td> <td>0.1</td> </tr> </tbody> </table> <p>Total Area = 857 m² favg = 0.900</p> <table border="1"> <caption>ARR Table 14.6</caption> <thead> <tr> <th>ARI (years)</th> <th>Frequency Factor, F_y</th> </tr> </thead> <tbody> <tr><td>1</td><td>0.8</td></tr> <tr><td>2</td><td>0.85</td></tr> <tr><td>5</td><td>0.95</td></tr> <tr><td>10</td><td>1</td></tr> <tr><td>20</td><td>1.05</td></tr> <tr><td>50</td><td>1.15</td></tr> <tr><td>100</td><td>1.2</td></tr> </tbody> </table> <p>C(10/1) = 0.108 C10 = 0.821 C20 = 0.250</p> <p>Pre Development Flow, Q_{pre} = 7.21 L/s</p> <p>5.3.2 Rational Method (a) The Formula As used in design, the formula of the Rational Method is:</p> $Q_y = 0.278 C_y \cdot I_{t,y} \cdot A \quad (5.1)$ <p>where Q_y = peak flow rate (m³/s) of average recurrence interval (ARI) of Y years C_y = runoff coefficient (dimensionless) for ARI of Y years A = area of catchment (km²) $I_{t,y}$ = average rainfall intensity (mm/h) for design duration of t_c hours and ARI of Y years.</p> <p>The value of 0.278 (or 1/3.6) is merely a conversion factor to balance the units used. If area is in hectares instead of km², the conversion factor is 0.00278 (or 1/360).</p> <p>$C_{10} = 0.1 + (0.7 - 0.1) \times (I_{10} - 25) / (70 - 25)$ $= 0.1 + 0.0133 \times (I_{10} - 25) \quad (14.12)$</p> <p>$C_{10} = 0.9 \times f + C_{10} \times (1 - f) \quad (14.11)$</p> <p>$C_y = F_y \cdot C_{10} \quad (14.13)$</p>				Pre	Post	ARI (years)	20	20	tc (min)	5	5	I(10/1) (mm/h)	25.6	Pre-dev I(20/5) (mm/h)	121	Post-dev I(20/5) (mm/h)	121	Yes	0.25	Site Surfaces	Area (m ²)	f	Roof	0	1.0	Concrete/Paved/Bitumen	857	0.9	Landscaped	0	0.1	ARI (years)	Frequency Factor, F _y	1	0.8	2	0.85	5	0.95	10	1	20	1.05	50	1.15	100	1.2	<p>BOM IFD</p> <p>BOM IFD</p> <p>BOM IFD</p> <p>Pre-Development Catchment Plan</p> <p>ARR Eq. 14.12</p> <p>ARR Eq. 14.11</p> <p>ARR Eq. 14.13</p> <p>Q_{pre} = 7.21</p>
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CONSULTING
ENGINEERS

Reference: 2017-6212

Project: Arthur Lemon Drive, Underdale

Checked by:

Designer: AG

Date: 11/03/2020

Index: 2

STORMWATER DETENTION CALCULATIONS		REF./COMMENT																								
<p>Post-Development Flow</p> <p>Unrestricted Flow: <i>Runoff considered to be undetained</i></p> <table border="1"> <thead> <tr> <th>Site Surfaces</th><th>Area (m²)</th><th>f</th></tr> </thead> <tbody> <tr> <td>Roof</td><td>0</td><td>1.0</td></tr> <tr> <td>Concrete/Paved/Bitumen</td><td>0</td><td>0.9</td></tr> <tr> <td>Landscaped</td><td>0</td><td>0.1</td></tr> </tbody> </table> <p>Total Area = 0 m² favg = 0.000</p> <p>C10 = 0.108 C20 = 0.113</p> <p>Unrestricted Post Development Flow, Qun-post = 0.00 L/s</p> <p>Allowable Flow, Qall = 7.21 L/s</p> <p>Restricted Flow: <i>Runoff considered to be detained</i></p> <table border="1"> <thead> <tr> <th>Site Surface</th><th>Area (m²)</th><th>f</th></tr> </thead> <tbody> <tr> <td>Roof</td><td>218.9</td><td>1.0</td></tr> <tr> <td>Paved/Road Reserve</td><td>615.4</td><td>0.9</td></tr> <tr> <td>Landscaped</td><td>22.7</td><td>0.1</td></tr> </tbody> </table> <p>Total Area = 857 m² favg = 0.904</p> <p>C10 = 0.824 C20 = 0.865</p> <p><i>Refer to attached detention calculations</i></p>		Site Surfaces	Area (m ²)	f	Roof	0	1.0	Concrete/Paved/Bitumen	0	0.9	Landscaped	0	0.1	Site Surface	Area (m ²)	f	Roof	218.9	1.0	Paved/Road Reserve	615.4	0.9	Landscaped	22.7	0.1	<p>Post-Development Catchment Plan</p> <p>ARR Eq. 14.11 ARR Eq. 14.13</p> <p>Qun-post = 0.00</p> <p>Qall = 7.21</p> <p>Post-Development Catchment Plan</p> <p>ARR Eq. 14.11 ARR Eq. 14.13 C20 = 0.865</p>
Site Surfaces	Area (m ²)	f																								
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CONSULTING
ENGINEERS

Reference: 2017-6212

Project: Arthur Lemon Drive, Underdale

Checked by:

Designer: AG

Date: 11/03/2020

Index: 3

STORMWATER DETENTION CALCULATIONS

Detention Calculations

ARI = 20 years
Area = 857 m²
tc = 5 min
C20 = 0.865

Detention Volume Required = 6897 L

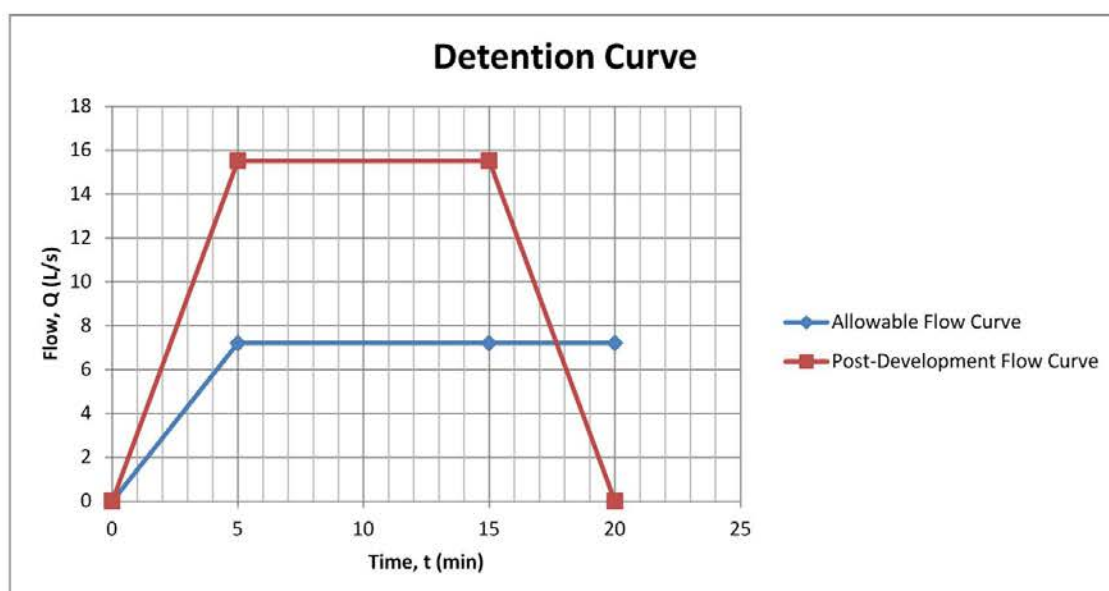
Storm Duration (min)	Intensity (mm/h)	In flow (L/s)	Target Outflow (L/s)	Detention Required (L)
5	121.0	24.9	7.2	4548
6	114.6	23.6	7.2	5153
7	108.2	22.3	7.2	5601
8	101.7	21.0	7.2	5893
9	95.3	19.6	7.2	6029
10	88.9	18.3	7.2	6010
11	86.2	17.8	7.2	6320
12	83.5	17.2	7.2	6563
13	80.7	16.6	7.2	6741
14	78.0	16.1	7.2	6852
15	75.3	15.5	7.2	6897
16	72.6	15.0	7.2	6877
17	69.9	14.4	7.2	6790
18	67.1	13.8	7.2	6638
19	64.4	13.3	7.2	6420
20	61.7	12.7	7.2	6138
21	60.4	12.4	7.2	6141
22	59.1	12.2	7.2	6113
23	57.8	11.9	7.2	6053
24	56.5	11.6	7.2	5961
25	55.2	11.4	7.2	5838
26	53.8	11.1	7.2	5683
27	52.5	10.8	7.2	5496
28	51.2	10.6	7.2	5278
29	49.9	10.3	7.2	5029
30	48.6	10.0	7.2	4748
31	48.0	9.9	7.2	4703
32	47.4	9.8	7.2	4645
33	46.9	9.7	7.2	4572
34	46.3	9.5	7.2	4485
35	45.7	9.4	7.2	4384
36	45.1	9.3	7.2	4269
37	44.5	9.2	7.2	4140
38	44.0	9.1	7.2	3997
39	43.4	8.9	7.2	3840
40	42.8	8.8	7.2	3669
41	42.2	8.7	7.2	3484

42	41.6	8.6	7.2	3285
43	41.1	8.5	7.2	3071
44	40.5	8.3	7.2	2844
45	39.9	8.2	7.2	2603
46	39.3	8.1	7.2	2348
47	38.7	8.0	7.2	2079
48	38.2	7.9	7.2	1796
49	37.6	7.7	7.2	1500
50	37.0	7.6	7.2	1189
51	36.4	7.5	7.2	865
52	35.8	7.4	7.2	527
53	35.3	7.3	7.2	175
54	34.7	7.1	7.2	0
55	34.1	7.0	7.2	0
56	33.5	6.9	7.2	0
57	32.9	6.8	7.2	0
58	32.4	6.7	7.2	0
59	31.8	6.5	7.2	0
60	31.2	6.4	7.2	0

Maximum Detention Volume (L)	Critical Storm Duration (min)	Peak Inflow (L/s)
6897	15	15.51

Detention Curve Data - Detention volume equal to area between curves

Allowable Flow Curve		Post-Development Flow Curve	
Time (min)	Flow (L/s)	Time (min)	Flow (L/s)
0	0	0	0
5	7.21	5	15.51
15	7.21	15	15.51
20	7.21	20	0



Intensity-Frequency-Duration Table

CJG
30/6/17

Location: 34.925S 138.550E Issued: 20/6/2017

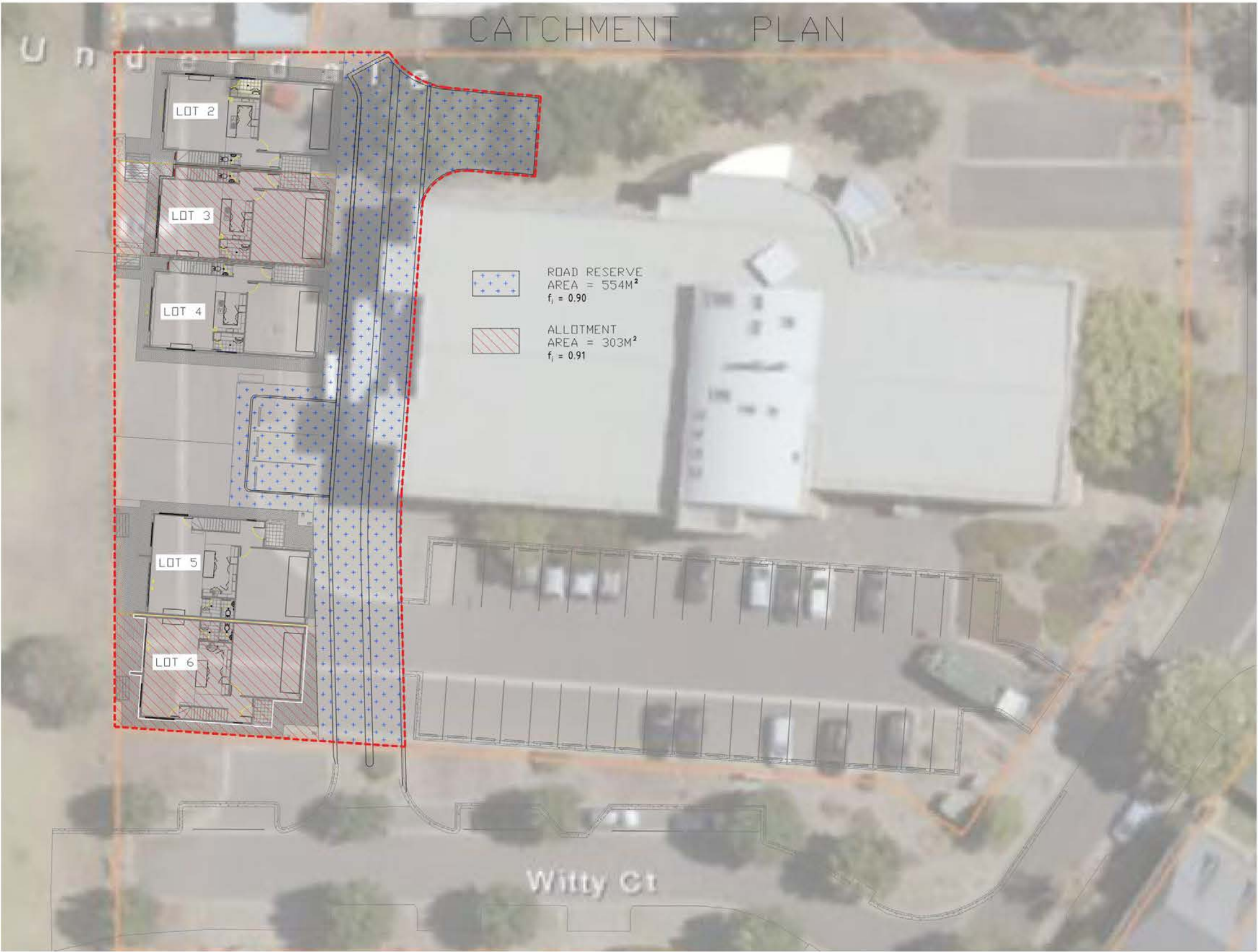
Rainfall intensity in mm/h for various durations and Average Recurrence Interval

Average Recurrence Interval

Duration	1 YEAR	2 YEARS	5 YEARS	10 YEARS	20 YEARS	50 YEARS	100 YEARS
5Mins	41.9	56.8	79.9	97.2	121	156	188
6Mins	39.0	52.9	74.2	90.2	112	145	174
10Mins	31.4	42.5	59.4	71.9	88.9	115	137
20Mins	22.3	30.0	41.7	50.2	61.7	79.2	94.5
30Mins	17.8	23.9	33.0	39.6	48.6	62.2	73.9
1Hr	11.8	15.7	21.5	25.6	31.2	39.7	47.0
2Hrs	7.64	10.2	13.7	16.2	19.7	24.8	29.2
3Hrs	5.93	7.87	10.5	12.4	14.9	18.7	22.0
6Hrs	3.84	5.05	6.66	7.78	9.33	11.6	13.5
12Hrs	2.44	3.20	4.17	4.84	5.76	7.10	8.22
24Hrs	1.50	1.96	2.52	2.91	3.45	4.24	4.89
48Hrs	.869	1.13	1.45	1.67	1.98	2.42	2.78
72Hrs	.621	.802	1.02	1.17	1.39	1.69	1.94

raw data: 16.38, 3.35, 0.83, 34.97, 6.39, 1.52, skew=0.58, F2=4.47, F50=14.98)

© Australian Government, Bureau of Meteorology



Required Detention Volume (m3)			6.897
Internal Pipe Diameter (m)	External Pipe Diameter (m)	Section Area (m2)	Pipe Length (m)
0.225	0.305	0.040	173.462
0.300	0.362	0.071	97.573
0.375	0.445	0.110	62.446
0.450	0.534	0.159	43.366
0.525	0.616	0.216	31.860
0.600	0.698	0.283	24.393
0.675	0.781	0.358	19.274
0.750	0.860	0.442	15.612
0.825	0.946	0.535	12.902
0.900	1.040	0.636	10.841
1.050	1.190	0.866	7.965
1.200	1.350	1.131	6.098
1.350	1.514	1.431	4.818
1.500	1.714	1.767	3.903
1.650	1.866	2.138	3.226
1.800	2.032	2.545	2.710
1.950	2.220	2.986	2.309
2.100	2.388	3.464	1.991
2.250	2.550	3.976	1.735
2.400	2.742	4.524	1.525
2.550		5.107	1.350
2.700	3.030	5.726	1.205
3.000	3.410	7.069	0.976



Project: Arthur Lemon Drive, Underdale

Reference: 2017-6212UN

Designer: AG

Date: 11/03/2020

Checked by:

Index: 1

ORIFICE SIZING CALCULATIONS		REF./COMMENT
<div>Orifice Diameter Calculations for</div> <div>20 ARI</div>		
Using DRAINS Equation 5.7		
OSD storages are usually controlled by circular orifices with the discharge equation being:		
$Q = C_o \cdot \frac{\pi}{4} d^2 \cdot (2gh)^{0.5}$		Equation 5.7
where C_o is a contraction coefficient, taken as a constant of 0.6 in DRAINS, d is the orifice diameter (m), g is the acceleration due to gravity (m/s ²), and h is the height from the water surface to the centre of the orifice (m).		
ADOPT 450mm RCP AT 0.3% GRADE		
Height of water above orifice (pipe full) = Dia. Pipe + (Length of RCP x grade)		
RCP dia. =	0.45 m	
Length =	25.9 m	(max length from outlet)
Grade =	0.3 %	
Orifice Calculation		
Detention volume, V	6.897	m^3
Gravity, g	9.81	m/s^2
Concentration coefficient, Cc	0.6	
Orifice diameter, d	0.069	m
Height of water surface to orifice centre, h	0.528	m
Required discharge rate, Q	7.21	L/s
Orifice diameter	65	mm



Reference: 2018-6212UN

Date:	11/03/2020
-------	------------

Index: 1

REF./COMMENT

ARI (years)	1
tc (min)	5

3 month ARI assumed to equal 0.5×1 year ARI

I(10/1) (mm/h)	25.6
I(1/5) (mm/h)	21.0

= 0.5*1 Year ARI Rainfall Intensity

No	n/a
----	-----

Site Surfaces	Area (m2)	f
Roof	218.9	1
Concrete/Paved/Bitumen	615.4	0.9
Landscaped	22.7	0.1

Total Area = 857 m²
favg = 0.904

ARI (years)	Frequency Factor, F_y
1	0.8
2	0.85
5	0.95
10	1
20	1.05
50	1.15
100	1.2

$C(10/1) =$	0.108
$C10 =$	0.824

C1 = 0.659

Peak Flow, Q1 = 3.3 L/s

ARR Eq. 14.11

ARR Eq. 14.13

Q1 =	3.29
------	------

As used in design, the formula of the Rational Method

$$\begin{aligned} C_{10}^{(1)} &= 0.1 + (0.7 - 0.1) \times ({}^{10}I_1 - 25)/(70 - 25) \\ &= 0.1 + 0.0133 \times ({}^{10}I_1 - 25) \end{aligned} \quad (14.12)$$

$$C_{10} = 0.9 \times f + C_{10}^i \times (1 - f) \quad (14.11)$$

$$C_y = F_y \cdot C_{10} \quad (14.13)$$

$$Q_v = 0.278 C_v, I_v, A \quad (5.1)$$

$$Q_Y = 0.278 C_Y \cdot I_{t_e, Y} \cdot A \quad (5.1)$$

where Q_Y = peak flow rate (m^3/s) of average

C_Y = runoff coefficient (dimensionless) for

A = area of catchment (km^2)

$I_{t,y}$ = average rainfall intensity (mm/h) for

$I_{t_c, T}$ = average random intensity (mm/hr) for design duration of t_c hours and ARI of T years

The value of 0.278 (or $1/3.6$) is merely a conversion

The value of 0.278 (or 1/3.6) is merely a conversion factor to balance the units used. If area is in hectares instead of km^2 , the conversion factor is 0.00278 (or 1/360).

Water Sensitive Urban Design Policy

Performance principle	Performance principle intent	State-wide performance target	Primary focus ⁹
Runoff quality Positively manage the quality of urban runoff through implementing water-sensitive urban design.	To help protect and, where required, enhance, the quality of runoff entering receiving water environments, in order to support environmental and other water management objectives.	Achieve the following minimum reductions in total pollutant load, compared with that in untreated stormwater runoff, from the developed part of the site ⁹ : <ul style="list-style-type: none"> • Total suspended solids by 80 per cent; • Total phosphorus by 60 per cent; • Total nitrogen by 45 per cent; • Litter/gross pollutants by 90 per cent. 	Residential, commercial, industrial and institutional development, and roads, streets and thoroughfares.
Runoff quantity Post-development hydrology should, as far as practical and appropriate, minimise the hydrological impacts of urban built environments on watercourses and their ecosystems.	<ul style="list-style-type: none"> • Help protect waterways and, where relevant, promote their restoration by seeking to limit flow from development to pre-development levels. • Help to manage flood risk, by limiting the rate of runoff to downstream areas to appropriate levels. 	For waterway protection¹⁰: Manage the rate of runoff discharged from the site so that it does not exceed the pre-urban development 1 year average recurrence interval (ARI) peak flow.	Residential, commercial, industrial and institutional development, and roads, streets and thoroughfares, where runoff from these land uses drains to an un-lined watercourse.
		For flood management: For development and other relevant infrastructure that will drain runoff to an existing publicly managed drainage system or to a drainage system such as a creek or watercourse on privately-owned land: <ul style="list-style-type: none"> • the capacity of the existing drainage system is not exceeded; and • there is no increase in the 5 year ARI peak flow and no increase in flood risk for the 100 year ARI peak flow, compared to existing conditions. 	Residential, commercial, industrial and institutional development, and roads, streets and thoroughfares.
Integrated design That the planning, design, and management of WSUD measures seeks to support other relevant State, regional and local objectives.	Implement WSUD in a way that promotes establishment of 'green infrastructure' and achievement of multiple outcomes, for example: public amenity, habitat protection and improvement, reduced energy use and greenhouse emissions, and other outcomes that contribute to the wellbeing of South Australians.	Evidence that relevant stakeholders are engaged at appropriate stages of planning, designing, constructing, and managing WSUD measures so as to maximise the potential for WSUD to contribute to 'green infrastructure' and other relevant State, regional, and local objectives.	Residential, commercial, industrial and institutional development, and roads, streets and thoroughfares.

⁹ These targets are aimed at diffuse pollution from multiple sources, and do not override obligations for specific sites under the Environment Protection Act 1993 and the Environment Protection (Water Quality) Policy 2003.

¹⁰ The principle relating to the waterway protection target is such that the target would not be deemed relevant where, for example, a watercourse that is to receive the runoff is degraded and it has limited potential for future rehabilitation.

Enviro G Series

An in-line single chamber device including fully integrated broad spectrum pollutant removal for low impact catchments

ENVIRO

australis

CIVILMART
#1 in Civil ✓ Built to last

Distributed by:

The Enviro G series is an in-line single chamber device designed to remove the broad spectrum of pollutants transported by run-off water in low impact catchments.

All Enviro models are designed to match pipe size, treated flow and flow velocity.

All models offer the same performance. This has been established and certified by independent parties. The following removal rates were exceeded in full scale controlled testing and/or were verified by university analysis.

Gross Pollutants	100%
Suspended Solids	85%
Total Nitrogen	85%
Total Phosphorous	97%

Other factors include:

Treated flow of pipe diameter ¹	30%
Hydraulic Resistance, k factor	0.425
Nominal service intervals ^{2,3}	1 year
Max particle size by-pass	500 µ
Nominal particle size capture	100 µ
Design service life	100 years
Fully removable internal screens	

Installation instructions are included with each unit at the time of delivery. Site supervision is also available if required.

Physical parameters:

- Enviro's models are designed so that the combined mass and size enable units to be legally transported without special conditions.
- Cover slab removable for ease of installation.
- Riser increments supplied to match invert and surface levels.
- Covers available for B and D duty applications
- Locked down covers supplied.
- More products are available - subject to custom design.

Note 1: Treatment continues after this level is exceeded enabling capture of higher density materials transported by increased energy in flow resulting from higher rainfall intensity.

Note 2: Additional storage of a further 1.4 m³ is available before unit performance is compromised.

Note 3: Load volume allowance of 1m³/ann based on ARQ section 3.7.

Enviro systems include:

- H series oil/water separator
- E series for medium/high impact catchments
- G series for low impact applications

Visit our website and use the selection guide, or contact our design engineers for advice.

Similar to all Enviro systems the G series is simple to install. All Enviro systems arrives complete.



Simply, lift and place directly into final position. The G90 shown below.

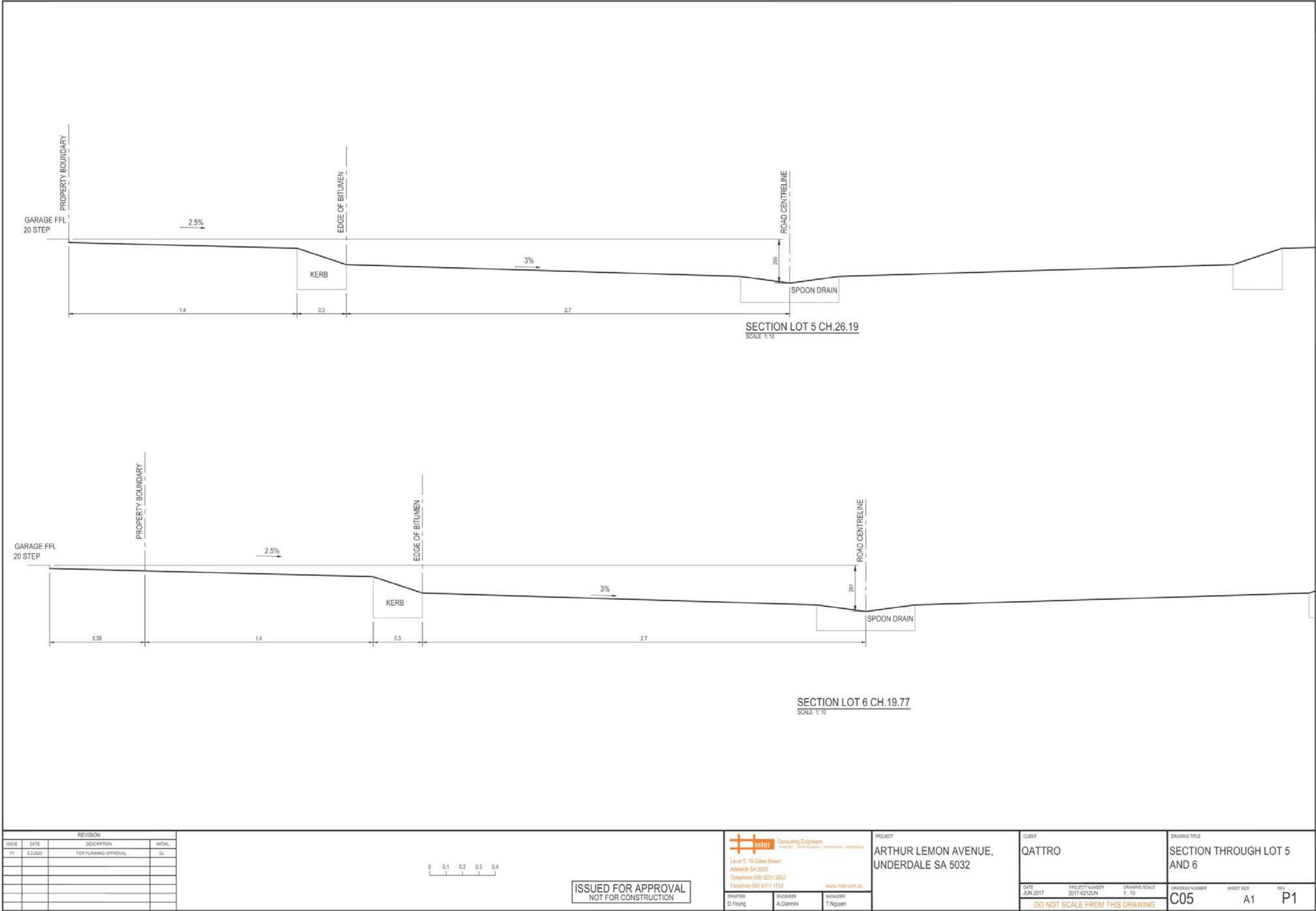


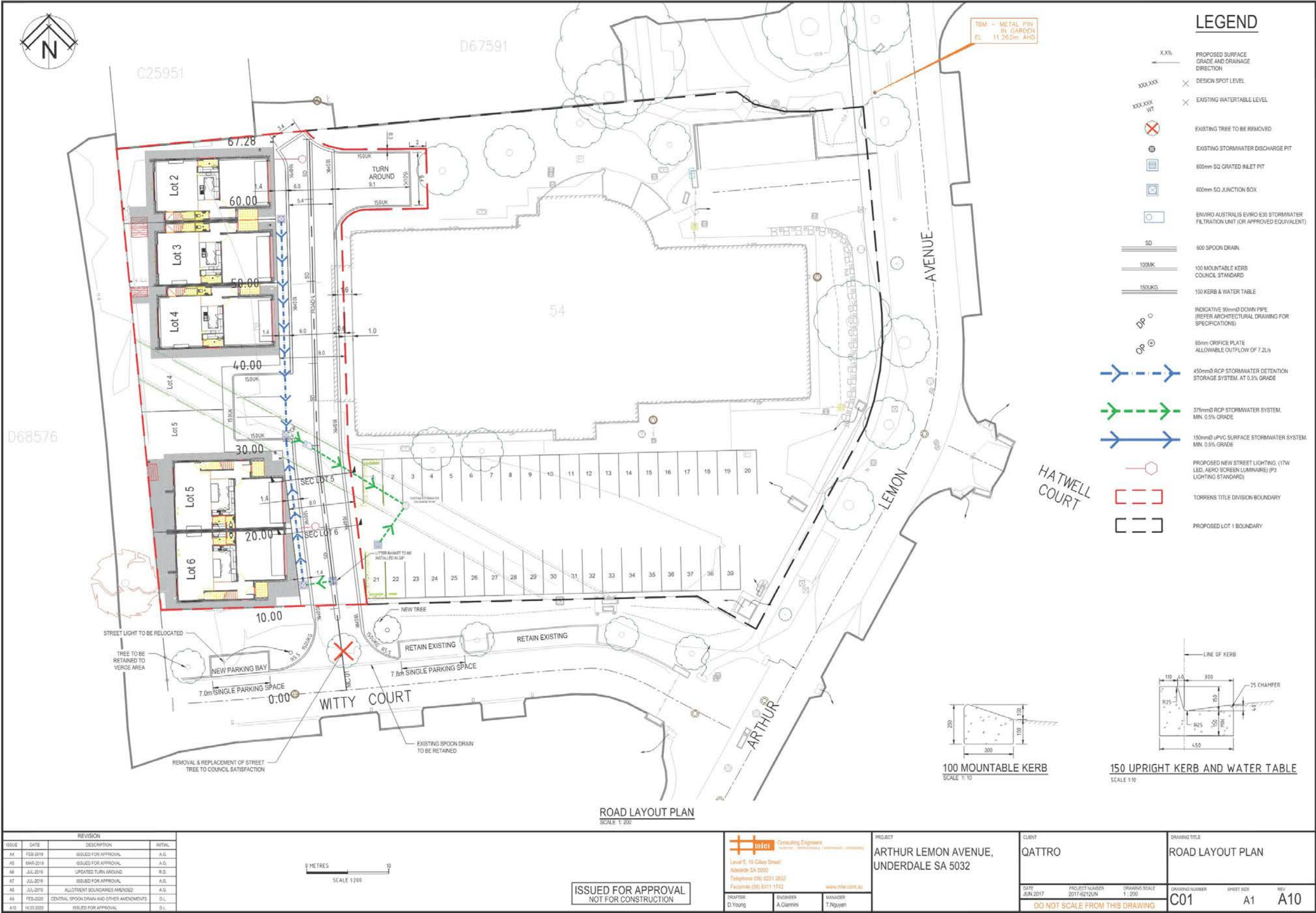
Standard model features are as follows. Custom design features, such as dry sump, G cover duty and telemetry systems are available.

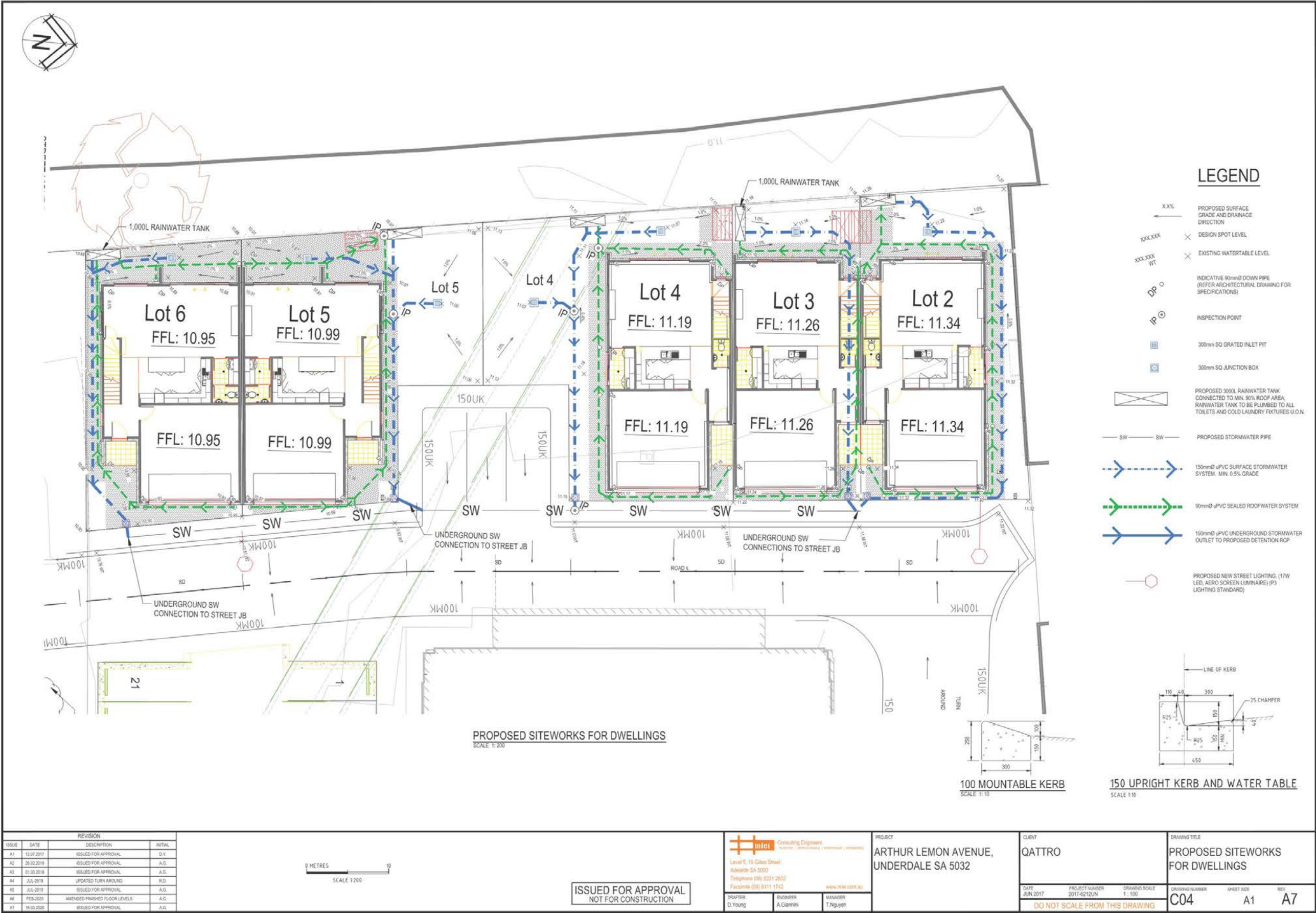
	Model	Pipe Size	Treated Flow and Storage Capacity	Plan Dimensions (external length x width)	Depth Below Invert	Mass	Excavation Volume
Enviro G30		Nominally 300 ID. Can be used for 375mm ID subject to gradient and velocity	22 litres/sec 0.25 m³	1.2m x 0.9m	1.2m	2.6 tonnes	1.7 m³
Enviro G45		450mm ID	66 litres/sec 0.52 m³	1.5m x 1.2m	1.4m	4.6 tonnes	3.3 m³
Enviro G60		600mm ID	142 litres/sec 0.87 m³	2.2m x 1.2m	1.8m	7.5 tonnes	6.2 m³
Enviro G75		750mm ID	258 litres/sec 3.2 m³	2.85m x 1.95m	2.2m	13.3 tonnes	15.9 m³
Enviro G90		Nominally 900 ID. Can be used for 1,050mm pipe size subject to gradient and velocity.	419 litres/sec 3.3 m³	3.6m x 1.95m	2.0m	15.8 tonnes	18.3 m³

Notes: Mass excludes additional riser increments. Excavation volume is a guide with 30% over allowance. Storage volume includes floatable holding chamber.

Page 2 of 4









Appendix 4. Traffic Impact Letter

GTA



REF: S128872

DATE: 17 March 2020

Qattro Built
209 Fullarton Road
EASTWOOD SA 5063

Attention: Mr. Rhys Davies

Dear Rhys,

RE: 12 – 20 ARTHUR LEMON AVENUE, UNDERDALE – PROPOSED RESIDENTIAL DEVELOPMENT – PARKING AND TRAFFIC IMPACT ASSESSMENT

A residential redevelopment on land located at 12-20 Arthur Lemon Drive in Underdale is proposed by Qattro Built. GTA Consultants has been commissioned to undertake a traffic and parking impact assessment of the proposed redevelopment.

Subject Site

The subject site is located at 12-20 Arthur Lemon Avenue in Underdale. The site of approximately 5,095 sq.m has frontage of approximately 67m to Arthur Lemon Avenue and 72m to Witty Court. The site is located within a Residential zone and the site is currently occupied by an existing institutional building used by the University of South Australia. The surrounding properties include a mix of residential and commercial land uses. The notable exception is the Underdale High School located at the rear of the property. The location of the subject site and the surrounding environs is shown in Figure 1.

Figure 1: Subject Site and Environs



VIC | NSW | QLD | SA | WA
Level 5, 75 Hindmarsh Square
ADELAIDE SA 5000
PO Box 119
RUNDLE MALL SA 5000
t// +618 8334 3600
ABN 66 137 610 514
www.gta.com.au

Proposed Development

Based on the plans and information provided to GTA Consultants, the proposed development is to comprise:

- Five (5) residential detached dwellings each comprising three (3) bedrooms and located to the rear of the existing educational facility building. Each dwelling will be free-standing and constructed with abutting walls.
- Each of the dwellings will have a double garage with exclusive access to a newly constructed 6.0-metre-wide public laneway, set within an 8.0 metre wide road reserve which will directly link onto Witty Court.
- At the end of the laneway, a side turning bay has been provided to enable refuse collection vehicles to enter and exit the laneway in a forward motion.
- Three (3) on-street car parking spaces will be provided within the laneway to facilitate visitor parking.
- Four (4) car parking spaces have also been retained on Witty Court. The proposed development site layout is shown in Figure 2.

Figure 2: Proposed Site Layout



Car Parking Assessment

Proposed Development

Development Plan Requirements

Car parking rates within the West Torrens Development Plan (consolidated 12 July 2018) are set out in Table WeTo/2.

The car parking rates applicable to the proposed development are as follows:

Dwelling

- Detached 2 car parking spaces per dwelling, one of which is covered
- Semi-detached
- Row

An assessment of the development plan car parking requirements is set out in Table 1.

Table 1: Development Plan Parking Assessment

Description	Number of Dwellings	Development Plan Parking Rate	Development Plan Parking Requirement (spaces)
Detached Dwelling	5	2 spaces per dwelling	10
Total			10

Based on Table 1, the proposal has a development plan parking requirement of 10 spaces.

GTA Consultants has also referred to the Principles of Development Control within the Lad Division Section. PDC 12 states the following:

PDC 12: "On-street vehicle parking should be provided at a ratio of one car parking space for every two allotments."

The provision of five (5) dwellings on the proposed public laneway would generate an on-street car parking provision of three (3) car parking spaces.

Adequacy of Car Parking Supply

Based on the development plan parking rates, the proposed dwellings would generate a parking requirement of 13 parking spaces including 10 spaces off-street and 3 spaces on-street. Each of the dwellings would comprise a double garage, which meets the rate set out within Table WeTo/2 of the Development Plan. Three (3) 90-degree car parking spaces will also be provided along the laneway. Hence, the parking provision is in accordance with rates set out within the Development Plan.

Car Park Layout

The parking layout has been designed in accordance with Australian Standard/New Zealand Standard for Off-Street Car Parking (AS/NZS2890.1:2004 and AS/NZS2890.6:2009).

Some of the key design features have been detailed:

- Parallel on-street parking spaces on Witty Court will be 2.3 metres wide and 7.0 metres long at the outer spaces and 6.3m for the internal spaces;
- 3 x 90-degree on-street parking spaces on the new laneway will exceed 2.4 metres wide and 5.4 metres long, set within a 6.7m wide aisle, exceeding the minimum User Class 1A requirements;

- The newly proposed laneway has a width of 6.0 metres set within an 8.0 metre wide road reserve, which exceeds the minimum 5.5 metre wide requirement for two-way circulation;
- The detached dwelling's double garages are set within a 7.0 metre wide apron, meeting the minimum requirement; and
- The garages for each of the dwellings have been offset 1.0 metres from the carriageway, which is consistent with typical laneway design within metropolitan Adelaide.

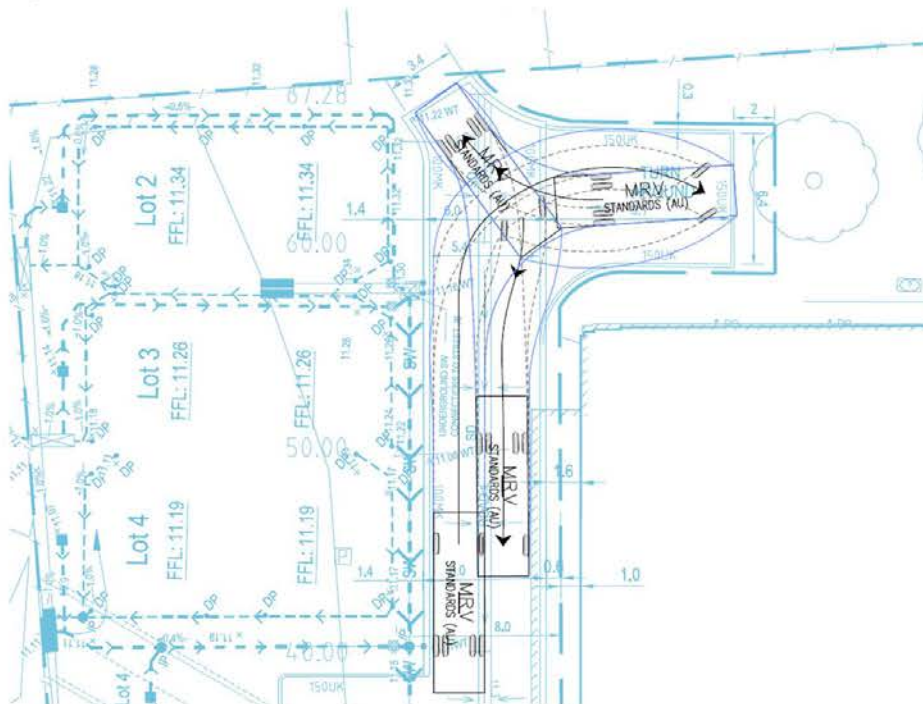
Refuse Collection

It is understood that waste collection for the proposed dwellings is proposed to occur on-street in proposed lane way.

To support the on-street waste collection, GTA has completed a turn path assessment using AutoTURN software to confirm the suitability of a refuse vehicle to manoeuvre within the proposed access way. The results of the assessment are shown in Figure 3.

This layout will provide adequate access for the refuse collection vehicle to enter, perform the manoeuvre within a 3-point-turn and exit in a forward direction.

Figure 3: 8.8m MRV Turn Around Provision



Traffic Impact Assessment

Proposed Traffic Generation

Traffic generation estimates for the proposed development have been sourced from the RTA NSW's *Guide to Traffic Generating Developments* (2002, henceforth referred to as the RTA Guide). The applicable rates are set out as follows:

Dwelling Houses

Daily vehicle trips = 9.0 trips per dwelling

Weekday peak hour vehicle trips = 0.85 trips per dwelling

Based on the above rates, Table 2 sets out the estimated traffic generation for the proposed development.

Table 2: Traffic Generation

Use	No. of Dwellings	Design Generation Rates (per dwelling)		Traffic Generation Estimates (two way trips)	
		Peak Hour	Daily	Peak Hour	Daily
Dwelling House	9	0.85	9	4	45
TOTAL				4	45

Table 2 demonstrates that the proposed development is estimated to generate 4 trips in the peak hour and 45 trips across the day.

Traffic Impact

Witty Court which currently services four (4) residential dwellings is anticipated to increase by an additional 4 trips during the peak hours and 45 trips over a daily period. This is resultant of the five (5) additional dwellings which are proposed on the new public laneway. The additional number of movements is low and would not adversely impact on the nature and function of Witty Court and the surrounding local streets. Access for the existing facility to the east occurs directly via Arthur Lemon Avenue, and as such will not adversely impact on the public laneway or Witty Court.

Conclusion

Based on the analysis and discussions presented within this report, the following conclusions are made:

1. The proposal comprises the construction of five (5) residential detached dwellings, each comprising 3 bedrooms and a double garage. A new public laneway will be constructed from Witty Court, which will exclusively service these dwellings.
2. The proposed development will generate a development plan parking provision of 10 off-street and 3 on-street car parking spaces.
3. The proposed on and off-street supply of 13 spaces is considered to be appropriate as it meets the development plan parking requirements.
4. The proposed parking layout is consistent with the dimensional requirements as set out in Australian/New Zealand Standards for Off-Street Car Parking (AS/NZS2890.1:2004 and AS/NZS2890.6:2009).
5. The proposed development is expected to generate up to 4 vehicle trips during the peak hour and 45 vehicle trips daily, which is considered to be low and not expected to impact on Witty Court and the surrounding road network.
6. The existing building to the east has direct access to Arthur Lemon Drive, and as such doesn't adversely impact on Witty Court and the proposed public laneway.
7. The proposed access layout will provide for waste collection services to enter and exit in a forward direction.

If you have any questions or require any further information, please do not hesitate to contact me on (08) 8334 3600.

Yours sincerely

GTA CONSULTANTS

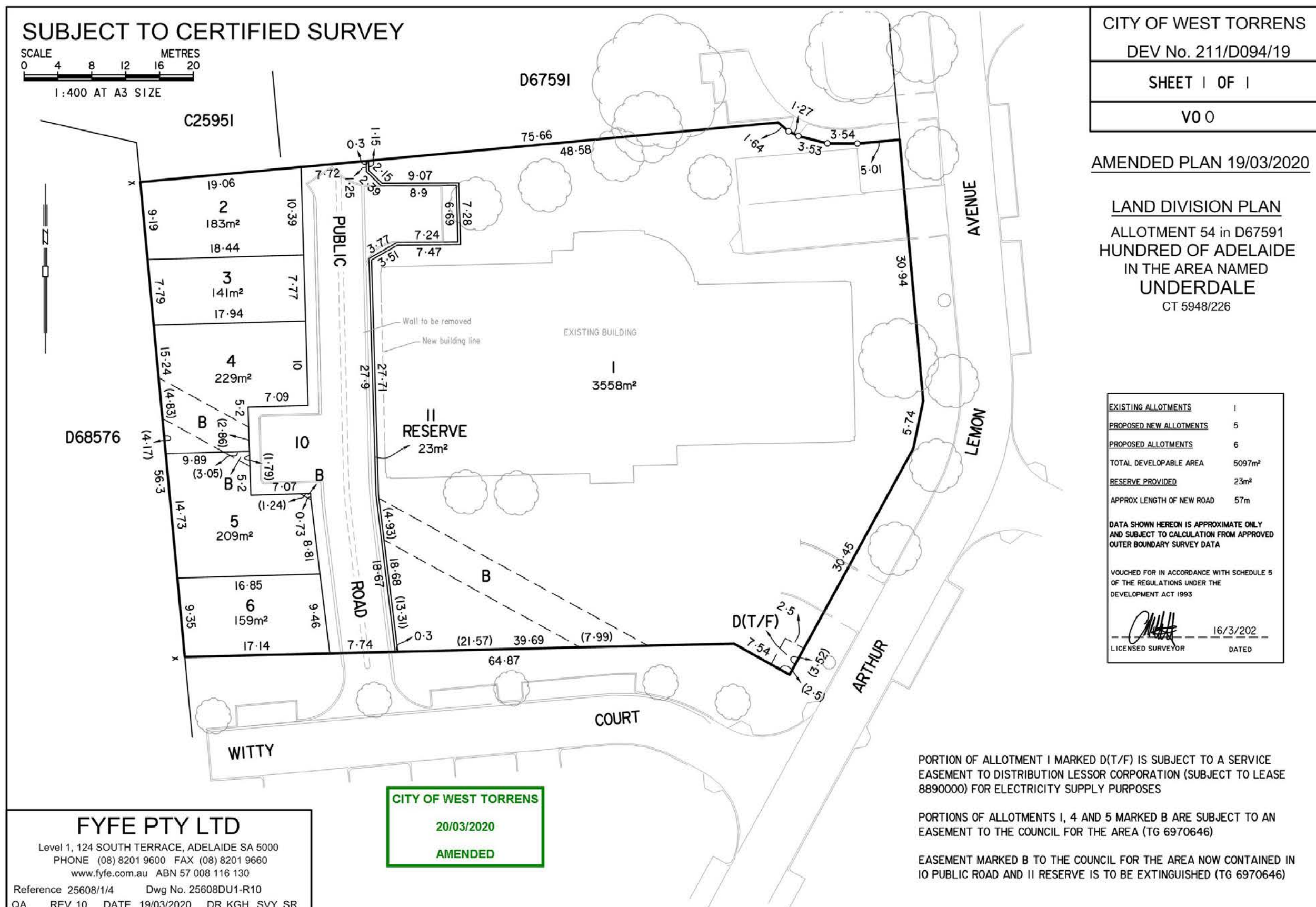





Paul Morris
Director
M. TransTraff



Appendix 5. Plan of Division

Fyfe





Search | Configure Notification Email | Log Out |

Application Form Details - DA. 211/D094/19 (Unique Id. 65866)

[Cancel](#)

NB * represents a mandatory field.

Application Type :

What Consents do you wish to apply for? :

☐ Provisional Development Plan Consent Only

☒ Provisional Development Plan Consent with Land Division Consent

Certificate of Approval Fee: ☒ Pay Now
☐ Pay Later

Is this a combined Land Division/Land Use application? : ☒ Yes
☐ No

Council :

Submitting Agents OrganisationId :

Submitting Agents Name :

Submitted By UserId :

Submitted By Details :

Agents Reference :

APPLICANT DETAILS :

Applicant Salutation :

Applicant First Name :

Applicant Last Name :

Applicant Organisation Name : * (Mandatory if Salutation, First, and Last Name have not been completed)

Postal Address Line 1 :

Postal Address Line 2 :

Postal Address Line 3 :

State :

Country :

OWNER DETAILS :

Owner Salutation :

Owner First Name :

Owner Last Name :

Owner Organisation Name : * (Mandatory if Salutation, First, and Last Name have not been completed)

Postal Address Line 1 :

Postal Address Line 2 :

Postal Address Line 3 :

State :

Country :

CONTACT DETAILS :

Contact Salutation :

https://www.edala.sa.gov.au/edala/Edala.aspx?PageMode=ApplicationMaintain_CSB... 14/08/2019

14 April 2020

Page 234

Contact First Name :	Melissa	*
Contact Last Name :	Sharrad	*
Postal Address Line 1 :	GPO Box 2450	
Postal Address Line 2 :	ADELAIDE 5001	
Postal Address Line 3 :		
State :	South Australia	
Country :	AUSTRALIA	
Telephone 1 :	8201 9600	*
Telephone 2 :		
Fax 1 :	8201 9650	
Fax 2 :		
Email :	edala@fyfe.com.au	
Mobile :		

Existing Use :	Vacant Land - ex Education	< >
Description of Proposed Development :	Land Division	< >

SUBJECT PROPERTY DETAILS :

House Number :		
Lot Number :		
Street :	Arthur Lemon Avenue	*
Suburb/Town :	Underdale	*
Hundred :	Adelaide	*
Reference Section :		

TITLE DESCRIPTION DETAILS :

Title Reference Type :	CT - Certificate of Title	> *
Volume :	5948	*
Folio :	226	*

PLAN PARCEL DETAILS :

Plan Type :	D - Deposited Plan	> *
Deposited Plan Number :	67591	*
Parcel Number :	A54	*

Does either schedule 21 or 22 of the Development Regulations 1993 Or schedule 9, item 16 of the PDI Regs 2019 apply? : ☐ Yes ☒ No

Notes :

< >

Lodgement Date : 09 Aug 2019

Acknowledgement : I acknowledge that copies of this application and supporting documentation may be provided to interested persons in accordance with the Development Regulations 1993

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☒ Yes
☐ No

CONVENTIONAL LAND DIVISION :

Total Area of Land to be Divided : Square metres *

Reserve Area : - Please select - *

Number of existing allotments : *

Number of proposed allotments : *

Number of additional allotments :

COMBINED LAND DIVISION / LAND USE :

Do you wish to provide builder information? : ☐ Now
☒ Later

Building Rules Classification sought? : ☐ Yes
☒ No

Present Classification :

If class 5,6,7,8,9 is sought, state the proposed number of employees :

Male :

Female :

If class 9a is sought, state the proposed number of persons for whom accommodation is provided :

Is classification 9b sought? : ☐ Yes
☒ No

Has the Construction Industry Training Fund Act 1993 levy been paid? : ☐ Yes
☒ No

Development Cost - \$ (do not include fit-out cost) : *

APPLICATION DOCUMENTS [Hide](#)

Document Title	Document Type	Version #	State	File Size (Kb)	Date Uploaded	Notes
Proposal Plan 25608DU1-R8	Proposed Plan of Division	1	Uploaded	268.5100000	09 Aug 2019	Show
Title	Certificate of Title/Lease	1	Uploaded	66.2600000	09 Aug 2019	Show
25608-Planning Report	Miscellaneous	1	Uploaded	28052.4400000	09 Aug 2019	Show
Lodgement Fee Receipt	Miscellaneous	1	Uploaded	29.3300000	09 Aug 2019	Show
Location Plan Enlgt New	Miscellaneous	1	Uploaded	75.5900000	12 Aug 2019	Show
Location Plan New	Miscellaneous	1	Uploaded	319.1800000	12 Aug 2019	Show
LOTS Admin Interests New	Miscellaneous	1	Uploaded	33.5000000	13 Aug 2019	Show
SCAP Regulation 29 Letter New	Miscellaneous	1	Uploaded	871.8400000	14 Aug 2019	Show

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ekistics

12-20 ARTHUR LEMON
AVENUE, UNDERDALE
PLANNING STATEMENT

Land Division & Five
Two-Storey Detached Dwellings

Prepared for:
Qattro

Date:
August 2019

ekistics

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Document Control

Revision	Description	Author	Date
V1	Draft Planning Statement	RG	08/05/2019
V2	Final Planning Statement	RG	27/07/2019

Approved by: Richard Dwyer

A handwritten signature in black ink, appearing to read 'Richard Dwyer'.

Date: 09/05/2019



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1. Executive Summary

Category	Details
PROJECT	Torrens Titles land division and public road, five detached dwellings and extinguishment of the land use rights of an existing educational establishment
ADDRESS OF SITE	12-20 (Lot 54) Arthur Lemon Avenue, Underdale
CERTIFICATE OF TITLE	Lot 54 in Deposited Plan 67591 Certificate of Title Volume 5648 Folio 226
ALLOTMENT AREA	5,097m ²
ALLOTMENT FRONTAGE	Primary Frontage: 60.39 metres to Arthur Lemon Avenue Secondary Frontage: 72.41 metres to Witty Court
LOCAL GOVERNMENT	West Torrens Council
RELEVANT AUTHORITY	West Torrens Council
PRE LODGEMENT PANEL MEETINGS	27 November 2018
DEVELOPMENT PLAN	Consolidated 12 July 2018
ZONING	Residential Zone
POLICY AREA/PRECINCT	Medium Density Policy Area 18
EXISTING USE	Educational establishment with associated parking
PROPOSAL DESCRIPTION	A combined land division and built form application to create six (6) Torrens Titled allotments and a public road, five (5) two storey detached dwellings, alterations to the western façade of the existing building and to extinguish the land use rights of an existing educational establishment.
PUBLIC NOTIFICATION	Category 1
APPLICANT	Qattro
CONTACT PERSON	Rob Gagetti – Ekistics Planning and Design – (08) 7231 0286
OUR REFERENCE	00614

2. Introduction

This planning statement has been prepared in support of an application by Qattro for a combined land division and built form application to create six (6) Torrens Titled allotments and a public road, five (5) two storey detached dwellings, demolition work and alterations to the existing building, and to relinquish the land use rights of an existing education establishment. The address of the site is 12-20 Arthur Lemon Avenue, Underdale.

This planning statement provides information about the subject site and proposed development and addresses the merits of the development application against the relevant provisions of the West Torrens Council Development Plan (consolidated 12 July 2018).

This planning statement has been prepared on the basis of the plans, elevations and supporting documentation summarised below:

- **Appendix 1:** Certificate of Title
- **Appendix 2:** Site plans, elevations, floor plans and perspectives (Qattro)
- **Appendix 3:** Educational Establishment demolition plan and elevations (Qattro)



- **Appendix 4:** Proposed Plan of Division (Fyfe)
- **Appendix 5:** Stormwater drainage methodology and civil plans (MLEI);
- **Appendix 6:** Legal opinion (Botten Levinson)
- **Appendix 7:** Traffic Impact Assessment (GTA)
- **Appendix 8:** Soil Contamination Investigation and letter of opinion (Golder)

3. Background

The following applications have been lodged by Qattro to develop the subject site:

- **Development Application 211/903/2017:** A Plan of Division to establish six (6) Torrens Titled allotments and a new public road, together with alterations to the western façade of the existing Training Facility; and
- **Development Application 211/913/2017:** An application to establish five (5) two storey detached dwellings over proposed Lots 2 to 6.

At the applicant's request, we understand that further assessment and a determination on both applications has been placed on hold.

The proposed application before Council combines the two previously submitted applications into one combined development application for the division of land and the five (5) detached dwellings.

The development has also been revised to address the matters raised in feedback previously provided by Council administration in memorandums and email correspondence to the applicant dated 28 February 2018.

4. The Site and Locality

4.1 The Site

The subject land is located at 12-20 Arthur Lemon Avenue Underdale, and is more particularly described as Certificate of Title Volume 5948 Folio 226 (refer to **Appendix 1**). The location of the site is illustrated in **Figure 4.1** over-page.



Figure 4.1 Plan of the subject site



An easement marked 'B' in favour of West Torrens Council runs diagonally through the south-western corner of the site and occupies land currently used for carparking. A transformer box is located within a 2.5 metre x 3.52 metre service easement marked D(T/F) for electricity supply to the Distribution Lessor Corporation, and is situated within the south-eastern corner of the allotment, at the intersection of Arthur Lemon Avenue and Witty Court.

The subject land measures 5,097m² and has a frontage of 67.13 metres to Arthur Lemon Avenue to the east, and a frontage of 72.41 metres to Witty Court to the South. Both roads are local roads under the care and control of Council. Witty Court is a dead-end road, accommodating four (4) indented parallel parking spaces together with a designated turn-around bay.

The site is relatively flat, with a minor undulating fall to the south-west. There are no Regulated Trees located on, or overhanging the site.

The site accommodates a large two storey building which was described as a 'distance education centre facility' (educational establishment) in Development Application 210/P046/92 and which was formerly occupied by the University of South Australia. To the south and east of the building is the main carpark accommodating

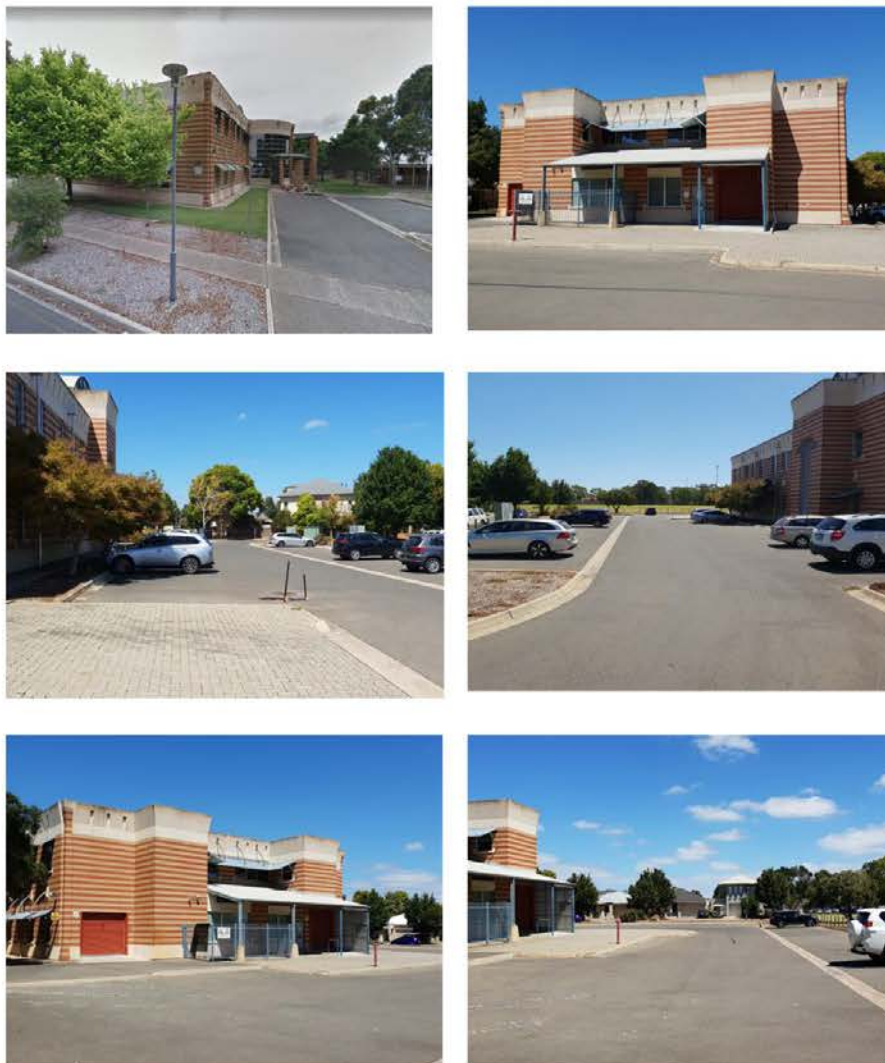


71 parking spaces. Six (6) additional parking spaces are situated to the north of the building, including two (2) disabled parking spaces directly accessible via the main pedestrian entry to the building.

Landscaping comprising small shrubs, mulched garden beds, mature trees and well-manicured lawns occupy the site's frontage to Arthur Lemon Avenue, with similar landscaping also occupying land to the north of the building.

Images of the subject site are displayed in **Figure 4.2** below.

Figure 4.2 Photographs of the subject site



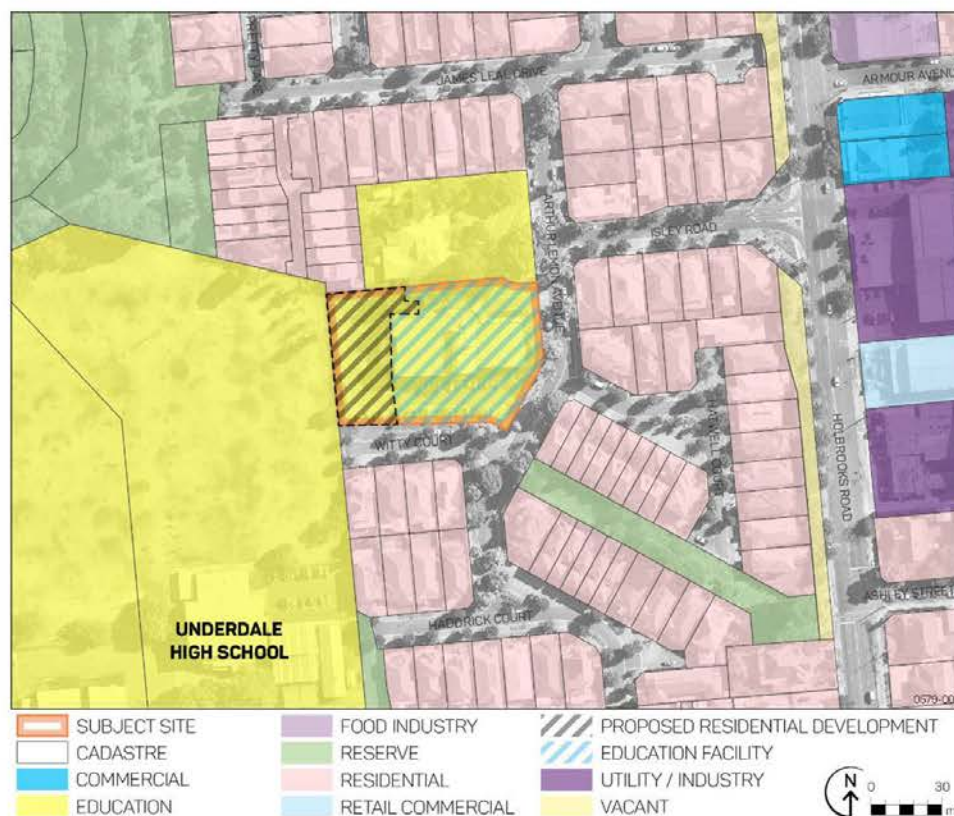
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4.2 The Locality and Surrounding Development

The locality accommodates a mix of institutional, community and residential land uses, as illustrated in **Figure 4.3**.

Figure 4.3 Land use and locality map



Land to the west of the site is occupied by sporting fields forming part of the Underdale High School. To the north, the site primarily adjoins the Gowrie SA Childcare Centre, whilst a two-storey row dwelling adjoins the north-western corner of the site.

The allotment adjoins Witty Court to the south and Arthur Lemon Avenue to the east. Situated on the opposite side of both roads, and to the north of the adjoining Childcare Centre is low to medium density residential development in the form of detached dwellings, semi-detached dwellings, row dwellings and residential flat buildings. Witty Court accommodates four (4) detached dwellings of varying styles, including one two storey detached dwelling at the western end of Witty Court.



5. Proposed Development

The development includes a combined land division and built form application, and includes the following elements:

- The division of land to create six (6) Torrens Titled allotments;
- Alterations to the western façade of the existing Educational Establishment;
- To extinguish the existing land use rights of the existing Educational Establishment; and
- The construction of five (5), two storey detached dwellings accessed by a new public road to be created as part of the proposed plan of division.

Further details on each aspect of the proposed development is provided below.

5.1 Land Division

The Plan of Division is attached as **Appendix 4** and the application seeks to create six (6) allotments, together with a public road.

Lot 1 will accommodate the existing two storey building which is to be retained. The existing Educational Establishment currently incorporates two main carparks situated to the south and west of the existing building, connected by an internal aisle. The western carpark is to be demolished to accommodate Lots 2 to 5 and accordingly, the development includes minor modifications to the southern carpark (to be retained).

A small area of the existing building extends over the proposed western boundary of Lot 1. Accordingly, this application also includes alterations to the western end of the existing building, including demolition works, together with the reconstruction of the new western façade which is to be set back 1.074 metres from the western property boundary. The extent of the demolition works is illustrated on the plans contained within **Appendix 3** (Drawing No. A005 to A011 and Drawing No. A101).

The land division will involve the creation of a new public road comprising a carriageway width of eight (8) metres and road width of six (6) metres. The road will connect with the western end of Witty Court, and terminate at the northern end of the site. The road design includes a turnaround bay at its northern end, together with three (3) on-street parking spaces.

The new public road will provide vehicle and pedestrian access to five (5) Torrens Titled allotments accommodating five (5) two storey detached dwellings. The site area and frontage of each dwelling is illustrated in Table 5.1 over-page.



Table 5.1 Site areas and frontages (Lots 2 to 6)

Allotment No.	Allotment Area (m ²)	Road Frontage (m)
2	182	10.3
3	142	7.7
4	229	10
5	209	18.8
6	161	9.5

The existing easement marked 'B' for drainage purposes will be retained and will traverse part of Lot 1, 4 and 5, and the dwellings proposed for each of these allotments have been designed to avoid encroachment into this existing easement. Portion of the existing easement traversing the proposed new public road is to be extinguished.

A new easement for drainage purposes is also proposed over the land marked 'C'. This easement will provide access to new drainage infrastructure.

5.2 Servicing and Infrastructure

The preliminary civil plan and stormwater methodology for the development has been prepared by MLEI Consulting Engineers and is contained within **Appendix 5**.

The 'Road Layout Plan' provides further detail on the proposed road design, including details of the proposed drainage infrastructure to be situated within the new road, together with the design of the new intersection with Witty Court.

We note that the 'Road Layout Plan' prepared by MLEI illustrates minor modifications to the western end of the carpark situated to the south of the existing building. These minor modifications are required to remove the connection between this carpark and western carpark to be demolished.

Roof and surface water collected from each allotment, together with water collected from the new public road will discharge by kerb and gutter to the one of two side entry pits located at the southern end of Witty Court. Subject to detailed design, water quality will be managed via the use of an ECOSOL – Storm pit (Class 2) prior to connecting with Council's drainage infrastructure traversing the existing easement marked 'B'. As previously discussed, the proposed plan of division includes a new easement marked 'C' to the Council to address the conveyance of stormwater through proposed Lot 1.

The stormwater methodology prepared by MLEI considers the retention and detention requirements for the development. The development has been designed to limit stormwater discharge rates to the pre-developed flows during a 1 in 20 year Average Recurrence Interval (ARI).

MLEI has identified a combined detention volume of 10,445 litres for the dwellings (combined). To satisfy this detention requirement, each dwelling will be equipped with 2,000 litre detention/retention tanks to achieve a total retention/detention volume of 10,000 litres.



The balance of the required detention volume will be provided within a 375mm diameter underground concrete pipe, comprising a length of approximately 49.3 metre, and which is to be installed behind the roadside kerb. An orifice will be installed within the detention pipe to restrict discharge rates to 12.7L/s.

The final design of the drainage system and road network will be submitted as part of the detailed design phase of the development, and the infrastructure will be designed and installed in accordance with the reasonable requirements of Council, prior to receipt of Section 51 clearance of the land division.

5.3 Street Tree Removal

To accommodate the new road connection with Witty Court, the application includes the removal of a street tree which is situated within the Witty Court verge (Figure 5.1).

Figure 5.1 Proposed Street Tree



The applicant proposes to replace the tree to be removed with additional street tree plantings, to the reasonable satisfaction of Council. The applicant also proposes additional plantings within the road verge, in the area previously occupied by the existing turnaround bay to be demolished. The replacement tree and additional plantings will result in an overall improvement to the amenity of Witty Court. The Council will be furnished with a landscape plan during the detailed design phase of the development, prior to Section 51 clearance being issued on the development.



5.4 Detached Dwellings

As previously discussed, Lots 2 to 6 will accommodate five (5) two storey dwellings. The dwellings will not be joined by party walls or share common roofing or services. Instead, each dwelling will be free-standing and constructed with abutting walls. Each dwelling will also have a direct frontage and exclusive vehicle access to the proposed public road forming part of this application. Accordingly, each dwellings is accurately described as a 'detached dwelling' as defined within Schedule 1 of the Development Regulations:

***Detached dwelling** means a detached building comprising 1 dwelling on a site that is held exclusively with that dwelling and has a frontage to a public road, or to a road proposed in a plan of land division that is the subject of a current development authorisation*

Streetscape perspectives for the development are provided in Figures 5.1 and 5.2 below.

Figure 5.2 Eastern Perspective



Figure 5.3 Western Perspective



As illustrated above, the application proposes two complementary designs for each group of dwellings encompassing Dwelling 1 and 2, and Dwelling 3, 4 and 5.



Dwelling 1 and 2 will each comprise a total building footprint of approximately 219m², whilst Dwelling 2, 4 and 5 will each comprise a slightly smaller building footprint of 196m². Each dwelling will accommodate three bedrooms located on the upper level together with a bathroom, ensuite and retreat with direct access to useable upper level balconies. Dwelling 1 and 2 also include small upper level balconies extending from front elevations and providing passive surveillance to the proposed new public road and Witty Court.

The ground floor for each dwelling will accommodate a double garage, laundry, water closet comprising a toilet and basin and large living areas orientated to the north, and directly accessible from ground floor useable private open space.

The dwellings have been designed with minimal front setbacks to create a hard edge built form and sense of visual presence to the public road. The front setbacks of Dwelling 1 and 2 range from 1.2 metres (Dwelling 1) to 0.126 metres (Dwelling 2). Dwelling 3 to 5 will be consistently set back a minimum distance 0.5 metres from their respective front property boundaries. Notwithstanding, the front elevations for all dwellings will have staggered front setbacks, recessed balconies and stepped in upper level walls to reduce the visual impact and scale of the dwellings, and to provide articulation to the buildings.

Dwelling 1 will have a setback of 0.891 metres from its secondary frontage to Witty Court. This setback is in addition to a generously sized road reserve, maximising the separation of Dwelling 1 from Witty Court and reducing the visual impact of the southern elevation of this dwelling when viewed from the public realm and existing residences to the south. Subject to Council consent and the provision of detailed landscaping plans, the applicant proposes to vegetate this section of the road reserve to soften the visual impact of the southern elevation of Dwelling 1.

Dwelling 2 and 3 will accommodate minimum side setbacks of 0.9 metres and 2.28 metres from their northern and southern boundaries, respectively. These setbacks will increase to 6 metres (Dwelling 2) and 7.48 (Dwelling 3) to accommodate useable areas of private open space situated to the side of each dwelling. Dwelling 5 will accommodate a side setback for 1.28 metres from the northern boundary, increasing to 2.582 metres towards the front of the site.

The rear setbacks for each dwelling will progressively increase from a minimum setback of 1.394 metres for Residence 1 to a maximum distance of 4.93 metres for Residence 5.

The dwellings will comprise a total building height of 6.76 metres, inclusive of a 0.9 metre high parapet extending above the wall to conceal the roof form.

The dwellings will be constructed in a variety of materials. At ground level, the primary frontages of each dwelling will be constructed in recycled face brickwork, with garages enclosed by a tilt-up roller door finished in a Woodland Grey colour. Side and rear elevations for all dwellings at both ground and first floors will be constructed in a variety of materials including recycled face brick, rendered hebel and Scyon Axon cladding. The



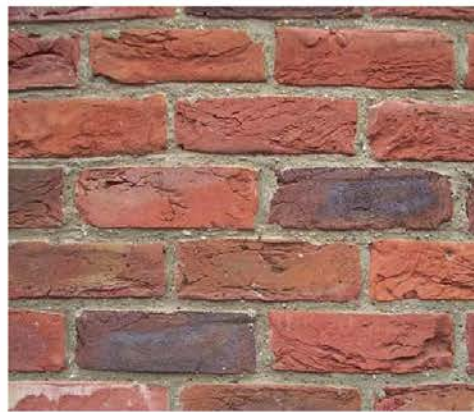
design of each dwelling, encompassing a variety of building materials and colours, staggered wall lines and recessed balconies will achieve a highly articulated built form. Fenestration will be achieved through the use of ground and upper levels windows for each elevation. Figure 5.4 over page illustrates the key building material to be used on the dwellings.

Figure 5.4 Material Pallet

Scyon Axon Wall Cladding



Recycled Face Brick



Rendered Hebel



Colorbond® Tilt up roller door



5.5 Transport, Parking and Access

GTA Consultants have undertaken a detailed traffic and parking assessment to confirm that the proposed access/egress, vehicle manoeuvring and parking arrangements are feasible, safe and achieve the relevant



Australian Standards (refer to **Appendix 7**). This traffic and parking impact assessment sets out an assessment of the anticipated transport implications of the proposed development, including:

- Existing traffic and parking conditions surrounding the site;
- Parking demand likely to be generated by the proposed development;
- Suitability of the proposed parking in terms of supply (quantum) and layout;
- Traffic generation characteristics of the proposed development;
- Proposed access arrangements for the site; and
- Transport impact of the development proposal on the surrounding road network.

As previously stated, vehicle access to dwellings will be obtained via a new public road connecting with Witty Court. Each dwelling will be provided with two (2) onsite and undercover parking spaces. In addition, the new public road includes three (3) on-street parking spaces situated between Residence 2 and 3. As discussed in Section 7.5, the on-street parking is surplus to the onsite parking spaces provided for each dwelling.

The public road also includes a designated turnaround bay to facilitate safe and convenient movements for all vehicles, including service vehicles. It is envisaged that waste will be collected from the road verge by Council's waste collection service. The traffic analysis performed by GTA confirms that the turnaround bay has been designed to accommodate vehicles up to an 8.8 metre long Medium Rigid Vehicle.

As previously discussed, 34 parking spaces situated to the west of the existing building are to be demolished to accommodate the new public road and detached dwellings. However, existing spaces to south of the building will be retained for a future development/use and existing access arrangements from Arthur Lemon Avenue will not be altered.

5.6 Extinguishment of Existing Land Use Rights

We understand that the subject site was previously approved for use as a '*distance education centre facility*'. We note that Council has previously raised concern with the potential shortfall in carparking for the existing land use, following demolition of the existing carpark to the west of the building. To address this concern, the applicant proposes to relinquish the existing land use rights for proposed Lot 1 prior to demolition of the western carpark.

Section 49(3)(a) of the *Development Act, 1993* enables a relevant authority to impose conditions that "*regulates or restricts the use of any land or building subject to development*". Accordingly, the cessation of the approved use of the building may be addressed via an appropriately worded condition attached to the Development Plan Consent.

The application seeks to retain the existing building for adaptive reuse at a later point in time. By extinguishing the existing use of the building as an educational establishment, Council will be in a position to revisit the proposed future use of this building (together with the supply and demand of carparking for the proposed use) once a subsequent development application has been lodged.



5.7 Staging

Section 39(8) of the *Development Act, 1993* enables an application or consent to be undertaken in stages, with separate consents or approvals for various stages.

Although Development Plan and Land Division Consent is being sought for the overall development, the applicant intends to obtain Building Rules Consent in stages, to enable the staged construction of the development.

6. Procedural Requirements

6.1 Relevant Authority

Pursuant to Section 34(1) of the *Development Act, 1993*, the relevant authority to assess and determine the development application is the City of West Torrens.

6.2 Nature of Development

Further to the description of development provided in Section 5, the proposal is perhaps best described as follows:

A combined land division and built form application involving the creation of six (6) Torrens Titled allotments and a new public road, together with associated alterations to the western façade of the existing building, the construction of five (5) detached dwellings and to extinguish the existing land use rights of the existing Educational Establishment.

Pursuant to the Procedural Matters section of the West Torrens Council Development Plan, the application is a 'consent' form of development, to be assessed on its merits against the relevant provisions of the Development Plan.

6.3 Public Notification

The development involves two key components, namely the construction of five (5) detached dwellings together with a plan of division to establish six (6) Torrens Titles allotments together with a new public road.

Schedule 9 Part 1, Cl. 2(a) of the *Development Regulations 2008* assigns the construction of one or more detached dwellings to **Category 1** for the purposes of public notification.

Similarly, Schedule 9 Cl. 5 assigns the following form of land division to **Category 1**:

The division of land (including for the construction of a road or thoroughfare) where the land is to be used for a purpose which is, in the opinion of the relevant authority, consistent with the objective of the zone or area under the relevant Development Plan, other than where the division will, in the opinion of the relevant authority, change the nature or function of an existing road.

The Desired Character Statement for the Policy Area makes reference to the Policy Area accommodating medium density development including "a range of dwelling types including residential flat buildings, row



dwelling, group dwellings, semi-detached dwelling and some detached dwellings on small allotments". Similarly, detached dwellings, group dwellings residential flat buildings, row dwellings and semi-detached dwellings are all listed as envisaged uses within Principle of Development Control 1. Accordingly, the plan of division is clearly aligned with the intent of relevant Policy Area and Zone objectives to accommodate residential development in the form proposed.

The traffic report prepared GTA confirms that additional traffic to be generated by the development will not change the nature or function of any existing road. In particular, GTA notes that the dwellings will generate in the order of four (4) additional trips in the peak hour and 45 additional trips daily. As stated within the GTA Report, this negligible increase in traffic will not change the nature or function of Witty Court or Arthur Lemon Avenue to function as local roads. Accordingly, the proposed division of land satisfies the requirements of Clause 5 of Schedule 9, and is therefore exempt from public notification as a **Category 1** form of development.

The categorisation of the development has also been reviewed by Botten Levinson Lawyers (**Appendix 6**). For the reasons outlined above, Botten Levinson's conclude that the application for a combined land division and built form application in the form proposed is exempt from public notification:

For the reasons set out above, any land division would be a category 1 development in its own right, as would the detached dwelling application. Pursuant to regulation 32(5)(a), the combined applications are to be treated as a category 1 development because the form of the development proposes such that "all of the elements are in Schedule 9 Part 1" as set out in the discussion above.

Again, as the Development Plan is silent on categorisation of a combined application, it follows that any combined application is properly to be regarded as a category 1 development.

6.4 Agency Referrals

The application is exempt from any Agency referrals prescribed by Schedule 8 of the Development Regulations.

Notwithstanding, pursuant to Section 29(3) of the Regulation, we understand that the proposed land division may be referred to Government Agencies for consideration and comment, particularly in relation to servicing and augmentation requirements.

7. Development Plan Assessment

7.1 Overview

The subject land is located within the West Torrens Council and is subject to an assessment against the provisions of the West Torrens Development Plan (consolidated on 12 July 2018). The zoning of the subject site and surrounds is illustrated in **Figure 7.1** below:

Figure 7.1 Zoning and Policy Areas





We have reviewed the provisions of the Development Plan and consider those following most pertinent in the assessment of the application:

Residential Zone

OBJ: 1, 2 & 4

Desired Character Statement

PDC: 1, 5, 7, 10, 12, 13, 14, 15 & 16

Medium Density Policy Area 18

OBJ: 1

Desired Character Statement

PDC: 1, 4, 5, 6 & 8

Energy Efficiency

OBJ: 1 & 2

PDC: 1, 2, 3 & 4

Infrastructure

OBJ: 1, 2, 3

PDC: 1, 3, 4, 5, 6, 8, 9 & 14

Land Division

OBJ: 1, 2, 3 & 4

PDC: 1, 2, 4, 5, 6, 8, 11, 12, 13, 15, 16 & 17

Interface between Land Uses

OBJ: 2

PDC: 1 & 2

Hazards

OBJ: 8 & 9

PDC: 13

Transportation & Access

OBJ: 2 & 4

PDC: 1, 2, 4, 8, 9, 10, 11, 13, 14, 16, 22, 23, 24, 35, 36, 37, 38, 40, 41, 42, 44 & 45

Crime Prevention

OBJ: 1

PDC: 1, 2, 3, 4, 6, 7, 8 & 10

Landscaping, Fences & Walls

OBJ: 1 & 2

PDC: 1, 2, 3, 4 & 6

Waste

PDC: 6

Design & Appearance

OBJ: 1 & 2

PDC: 1, 2, 3, 4, 5, 9, 10, 11, 12, 13, 14, 15, 19 & 20

Orderly & Sustainable Development

OBJ: 1, 2, 3, 4 & 5

PDC: 1, 3, 5, 7

Natural Resources

OBJ: 5, 6 & 7

PDC: 5, 7, 8, 9, 10, 11, 12, 13, 14 & 16

Residential Development

OBJ: 1, 2, 3 & 5

PDC: 1, 3, 4, 5, 7, 8, 9, 10, 11, 12, 13, 14, 16, 17, 18, 19, 21, 23, 27, 30 & 31



Maps and Overlays (WeTo/4)

- Location Map
- Affordable Housing Overlay
- Zone Map
- Policy Area Map

Tables (WeTo/2)

- Off-Street Parking Requirements

7.2 Land Use

The Desired Character Statement for the Policy provides guidance on the intended built form and land use outcomes contemplated for the Policy Area:

Allotments in this policy area will be at medium density, accommodating a range of dwelling types including residential flat buildings, row dwellings, group dwellings, semi-detached dwellings and some detached dwellings on small allotments.

In addition, the Policy Area provides a list of envisaged forms of development:

PDC 1 The following forms of development are envisaged in the policy area:

- *affordable housing*
- *detached dwelling*
- *domestic outbuilding in association with a dwelling*
- *domestic structure*
- *dwelling addition*
- *group dwelling*
- *residential flat building*
- *row dwelling*
- *semi-detached dwelling*
- *small scale non-residential use that serves the local community, for example: -*
 - » *child care facility*
 - » *open space*
 - » *recreation area*
 - » *shop, office or consulting*
- *supported accommodation.*



Consistent with the Desired Character Statement and PDC 1, the development involves the construction of five (5) detached dwellings. Although the dwellings are technically 'detached dwellings' (noting that each dwelling will be freestanding, constructed with abutting walls and will have frontage to a public road), Dwellings 1 and 2 will take on the appearance of semi-detached dwellings, whilst Dwellings 3 to 5 will take on the appearance of row dwellings. We note that these dwellings types are also envisaged for the Policy Area.

Policy Area PDC 4 provides further guidance on the desired density outcome:

PDC 4 *Medium density development that achieves gross densities of between 23 and 45 dwellings per hectare (which translates to net densities of between 40 and 67 dwellings per hectare (where net density can be calculated by dividing 10,000 by the site area and multiplying that number by the number of proposed dwellings for the site) should be in the form of 2 to 4 storey buildings.*

The development will achieve a net density of approximately 54 dwellings per hectare, which satisfies the desired density range of between 40 and 67 dwellings per hectare (net). The two-storey dwellings also satisfy the desired built form outcome of 2 to 4 storeys, and the scale of the development will complement the character of existing residential development found within the locality.

7.3 Site Area and Frontages

Table 7.2 identifies the desired minimum frontage and site area requirements for various dwelling types prescribed by Policy Area PDC 6. Although the dwellings are technically 'detached' they take on the appearance of semi-detached dwellings and row dwellings. Accordingly, the site areas for these dwellings types have also been considered in our analysis.

Table 7.2 *Site Area and frontage requirements (PDC 6)*

Dwelling Type	Site Area (m ²)	Frontage (m)
Detached	250	9
Semi-detached	200	9
Row dwelling	150	5

The site area and frontage proposed for each dwelling is provided as follows:

- Dwelling 1 (Lot 6): 161m² and a 9.5 metre frontage
- Dwelling 2 (Lot 5): 209m² and a 9.5 metre frontage
- Dwelling 3 (Lot 4): 229m² and a 10 metre frontage
- Dwelling 4 (Lot 3): 142m² and a 7.7 metre frontage
- Dwelling 5 (Lot 2): 182m² and a 10.22 metre frontage.

Although the dwellings fall short of achieving the minimum site area requirements prescribed for detached dwellings, the proposed sites areas achieve closer alignment with the prescribed site areas for semi-detached dwellings (in relation to Dwellings 1 and 2) and row dwellings (in relation to Dwellings 3, 4 and 5).



In our opinion, it is reasonable to also have regard to the site area guidelines for semi-detached and row dwellings noting that the Development Plan is a practical guide designed to achieve practical outcomes, and the dwellings take on the appearance and configuration of semi-detached dwellings and row dwellings. Similarly, we are also of the opinion that the shortfall in allotment frontage for Dwelling 4 (Lot 3) is a minor departure from the quantitative frontage requirement, noting that the Development Plan prescribes a minimum site frontage of 5 metres for row dwellings, and Dwelling 4 takes on the appearance and configuration of a row dwelling (i.e. built boundary to boundary with zero site setback).

Finally, we note that the fundamental objective of prescribing the minimum site areas is to ensure development achieves the desired density outcome, does not adversely impact on amenity and is consistent with the established and desired character of a locality. As previously discussed, the development is within the desired density range prescribed by the Development Plan. Further, the development is situated between a sporting oval to the west, and a large existing two storey educational establishment to the east and the slightly lower site area and frontage of each lot will have no direct outward impact on adjoining dwellings and will be of little consequence to established character of the locality.

7.4 Design and Appearance

7.4.1 Building Setbacks

Building setback requirements applicable to the development are prescribed by Residential Zone PDC 11 together with Policy Area PDC 5. A comparison between the proposed and prescribed setbacks is summarised in Table 7.3 below.

Table 7.3 Building setbacks

Minimum setback requirements	Development Plan Requirement(metres)	Proposed (minimums)				
		D1	D2	D3	D4	D5
Primary road frontage	3	0.8	0.1	0.5	0.5	0.5
Secondary road frontage	1	0.8	N.A	N.A	N.A	N.A
Rear boundary setback	4	1.8	2.5	2.2	3	3.8
Side setback	2.79 metres (2 metres plus an additional setback which is equal to the increase in wall height above 6 metres).	N.A	N.A	N.A	N.A	1.4

Table 7.3 illustrates that each dwelling falls short of achieving the minimum setbacks prescribed by the Development Plan. Notwithstanding, and taking into consideration the characteristics of the site and its context within the immediate locality, we are of the opinion that the proposed setbacks are appropriate when assessed on merit for the reasons summarised below:

- As a stand-alone site, the development will create its own unique character and sense of place, and the setbacks of each dwelling from the new public road are not comparable to the setbacks of other dwellings found within the broader locality (i.e. existing dwellings fronting Witty Court);
- The secondary frontage setback of Dwelling 1 from Witty Court of 0.8 metres represents a minor departure from the prescribed minimum setback of 1 metre, and the generous landscaped reserve on



Witty Court (measuring approximately 5.5 metres in width minimum) will ensure the dwelling is adequately recessed and set back from the road alignment and adjacent dwellings to the south;

- The applicant intends to landscape the road verge of Witty Court to further soften the visual impact of the Dwelling 1, recognising that the provision of a comprehensive landscape plan may be addressed as a condition of consent, forming part of the 'Section 51' statement of requirements;
- Each dwelling adjoins a sporting oval to the west, and therefore the shortfall in rear setbacks will have little to no impact on the amenity of the locality; and
- The upper level side setback of Dwelling 5 from the northern boundary increases from approximately 1.5 metres at the western end to 3.5 metres at the eastern end, and existing screening vegetation planted along the southern boundary of the adjoining residence will assist to soften the visual impact of the northern elevation of this dwelling; and
- The proposed development is located to the south of the only adjoining dwelling and therefore will not result in any overshadowing of this adjoining dwelling.

For the reasons outlined above, we are of the opinion that the setbacks proposed for each dwelling are appropriate taking into account the unique characteristics of the site and locality.

7.4.2 Private Open Space

The private open space requirements for the development are prescribed within Residential Development PDC 19:

PDC 19: Dwellings at ground level should provide private open space in accordance with the following table:

Site area per dwelling (square metres)	Minimum area excluding any area at ground level at the front of the dwelling (square metres)	Minimum dimension (metres)	Minimum area provided at the rear or side of the dwelling, directly accessible from a habitable room (square metres)
<300	24, of which 8 may comprise balconies, roof patios and the like, provided they have a minimum dimension of 2 metres	3 (excluding balconies)	16

The area and dimension of ground floor and balcony private open space for Dwelling 2 to 5 comfortably exceeds the minimum requirements prescribed by PDC 19. Further, ground floor and first floor open space for all dwellings will be directly accessible from habitable rooms.

The quantity of private open space for Dwelling 1 also exceeds the prescribed minimum of 24 square metres. Notwithstanding, Dwelling 1 falls marginally short of achieving the minimum dimension requirement of 3 metres at ground level. This departure is offset by a generously proportioned and functional balcony dimensions which exceed the minimums prescribed for balconies and ground floor open space.



Importantly, the balconies for each dwelling are orientated to take advantage of the views provided by the large expanse of open space to the west, maximising amenity for occupants.

For the reasons outlined above, the development is closely aligned with the relevant provisions of the Development Plan in relation to the design, quantity and configuration of private open space.

7.4.3 Site Coverage

Policy Area PDC 5 suggests that dwellings should not exceed a maximum site coverage of 70% (being the area of the covered by the ground floor level of a building, including the dwelling and garage, but excluding unroofed balconies, verandahs and pergolas). Table 7.4 identifies the site coverage achieved by each dwelling, applying the criteria set out in PDC 5.

Table 7.4 Site coverage rates

Dwelling No.	Ground Floor (m ²)	Site Area (m ²)	Site Coverage (%)
Dwelling 1 (Lot 6)	111.13	161	69
Dwelling 2 (Lot 5)	111.13	209	53
Dwelling 3 (Lot 4)	106.84	229	46
Dwelling 4 (Lot 3)	106.89	142	75
Dwelling 5 (Lot 2)	106.84	182	58

Table 7.4 demonstrates that with the exception of Dwelling 4 (which exceeds the maximum recommended site coverage rate by 5%), site coverage for all other dwellings will be less than the recommended maximum site coverage of 70%.

Noting that Dwelling 4 comfortably satisfies the minimum private open space requirements prescribed within the Development Plan and having established that the setbacks of this dwelling are appropriate and will not result in an unreasonable impact on the amenity or character of the locality, we are of the opinion that the exceedance of the site coverage for Dwelling 4 represents a minor departure from the provisions of the Development Plan and will not result in any negative impacts on the internal amenity of the dwelling or any outward impacts beyond the site.

7.4.4 Building Appearance

The following provisions of the Development Plan are considered particularly relevant to the assessment of the building design and external appearance:

Design and Appearance

OBJ 1 *Development of a high design standard and appearance that responds to and reinforces positive aspects of the local environment and built form.*

PDC 1 *Buildings should reflect the desired character of the locality while incorporating contemporary designs that have regard to the following:*

(a) building height, mass and proportion



(b) external materials, patterns, colours and decorative elements

(c) roof form and pitch

(d) façade articulation and detailing

(e) verandas, eaves, parapets and window screens.

PDC 4 *Structures located on the roofs of buildings to house plant and equipment should be screened from view and should form an integral part of the building design in relation to external finishes, shaping and colours.*

PDC 5 *Balconies should:*

(a) be integrated with the overall form and detail of the building

(b) include balustrade detailing that enables line of sight to the street

(c) be recessed where wind would otherwise make the space unusable

(d) be self-draining and plumbed to minimise runoff.

PDC 12 *Buildings (other than ancillary buildings, group dwellings or buildings on allotments with a battle axe configuration) should be designed so that the main façade faces the primary street frontage of the land on which they are situated.*

PDC 13 *Buildings, landscaping, paving and signage should have a co-ordinated appearance that maintains and enhances the visual attractiveness of the locality.*

PDC 14 *Buildings should be designed and sited to avoid extensive areas of uninterrupted walling facing areas exposed to public view.*

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PDC 4 *Building appearance should be compatible with the desired character statement of the relevant zone, policy area or precinct, in terms of built form elements such as:*

(a) building height

(b) building mass and proportion

(c) external materials, patterns, textures, colours and decorative elements

(d) ground floor height above natural ground level

(e) roof form and pitch

(f) facade articulation and detailing and window and door proportions

(g) verandas, eaves and parapets

(h) driveway crossovers, fence style and alignment.



PDC 7 Residential development should be designed to ensure living rooms have an external outlook.

PDC 9 Residential development should provide a high quality living environment by ensuring the following minimum internal floor areas (including internal storage areas but not including balconies and carparking):

(a) studio (where there is no separate bedroom): 37 square metres

(b) 1 bedroom dwelling/apartment: 50 square metres

(c) 2 bedroom dwelling/apartment: 75 square metres

(d) 3+ bedroom dwelling/apartment: 100 square metres.

Having assessed the development against the relevant design and appearance provisions of the Development Plan, we are of the opinion that the proposal exhibits a high degree of architectural merit and is closely aligned with the relevant provisions of the Development Plan for the following reasons:

- In accordance with Design and Appearance PDC 13, all dwellings will have a coordinated appearance, and the dwellings will be constructed in a variety of complementary colours and materials with varied textures and patterns, including rendered hebel panel work, Scyon Axon vertical cladding and recycled face brick. The material selection will achieve an articulated built form outcome, consistent with Design and Appearance PDC 1 together with Residential Development PDC 4;
- Importantly, the façade features referenced above have been applied to all elevations visible from the public realm, including the southern elevation of Dwelling 1 facing Witty Court, together with all western elevations facing the adjacent oval;
- Staggered building setbacks and recessed balconies will create a sense of depth and assist to reduce the overall scale and bulk of the buildings;
- In accordance with Design and Appearance PDC 5, the roof form for each dwelling will extend over each balcony to achieve an integrated built form outcome, as well as protection from the northern and western sun to maximise occupant amenity and promote passive cooling during summer months;
- Ground and upper level living areas have been orientated with an external outlook, with upper level balconies also orientated to overlook the adjoining sporting oval to the west; and
- Each dwelling is generously sized, with floor areas (excluding garages and balconies) comfortably exceeding the minimum floor areas prescribed by Residential Development PDC 9 of 100m².

7.4.5 Crime Prevention through Design

The following Crime Prevention provisions are relevant to the assessment of the application:

OBJ 1 A safe, secure, crime resistant environment where land uses are integrated and designed to facilitate community surveillance.



- PDC 1** *Development should be designed to maximise surveillance of public spaces through the incorporation of clear lines of sight, appropriate lighting and the use of visible permeable barriers wherever practicable.*
- PDC 2** *Buildings should be designed to overlook public and communal streets and public open space to allow casual surveillance.*
- PDC 3** *Development should provide a robust environment that is resistant to vandalism and graffiti.*
- PDC 4** *Development should provide lighting in frequently used public spaces including those:*
- (a) along dedicated cyclist and pedestrian pathways, laneways and access routes*
 - (b) around public facilities such as toilets, telephones, bus stops, seating, litter bins, automatic teller machines, taxi ranks and car parks*
- PDC 5** *Site planning, buildings, fences, landscaping and other features should clearly differentiate public, communal and private areas.*
- PDC 10** *Development should avoid pedestrian entrapment spots and movement predictors (e.g. routes or paths that are predictable or unchangeable and offer no choice to pedestrians).*

The development has been designed to maximise opportunities for passive surveillance of public spaces. In particular, Dwelling 1 and 2 have been designed to include front balconies, providing views and passive surveillance of Witty Court and the new public road. These views in addition to those provided by upper level rear habitable room windows and balconies providing views of the adjoining oval to the west.

Unobstructed views of the public road will also be available from the adjoining carpark to the east, together with existing dwellings within Witty Court.

The proposed new public road has been designed to accommodate a pedestrian pathway along its western side to provide safe passage for pedestrians. In accordance with Crime Prevention PDC 5, perimeter paving and driveways for each dwelling will be constructed in a colour and material which is different to the adjoining pedestrian pathway to provide a clear delineation between public and private spaces.

The proposed development has therefore been designed to create a safe, secure and crime resistant environment, consistent with the relevant Crime Prevention Provisions of the Development Plan.

7.4.6 Domestic Storage

Residential Development PDC 31 provides guidance on the minimum storage area requirements for new dwellings:

- PDC 31:** *A dwelling should incorporate a minimum storage area of 8 cubic metres for goods and chattels, other than food and clothing, within at least one of the following:*
- (a) a non habitable room of the dwelling*
 - (b) a garage, carport or outbuilding*



(c) an on-site communal facility

Onsite storage calculations are provided on the floor plans for each dwelling. Dwelling 1 and 2 are provided with 9.84m³ of domestic storage, whilst Dwellings 3 to 5 will be provided with 11.14m³ of domestic storage. Domestic storage will be provided within linen and laundry cupboards, as well as high-set shelving provided within each garage.

As illustrated on the plans, each dwelling will be provided with a level of domestic storage space which comfortably exceeds the minimum storage requirements prescribed by the Development Plan.

7.4.7 Thermal Comfort and Energy Efficiency

The following Development Plan provisions seek to ensure buildings are appropriately orientated and designed to conserve energy and create comfortable living conditions for occupants:

Energy Efficiency

- OBJ 1** *Development designed and sited to conserve energy and minimise waste.*
- OBJ 2** *Development that provides for on-site power generation including photovoltaic cells and wind power.*
- PDC 1** *Development should provide for efficient solar access to buildings and open space all year around.*
- PDC 2** *Buildings should be sited and designed:*
 - (a) To ensure adequate natural light and winter sunlight is available to the main activity areas of the adjacent buildings*
 - (b) So that open spaces associated with the main activity areas face north for exposure to winter sun*
- PDC 3** *Development should facilitate the efficient use of photovoltaic cells and solar hot water systems by:*
 - (a) taking into account overshadowing from neighbouring buildings*
 - (b) designing roof orientation and pitches to maximise exposure to direct sunlight.*

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- PDC 10** *The design and location of buildings should ensure that direct winter sunlight is available to adjacent dwellings, with particular consideration given to:*
 - (a) windows of habitable rooms, particularly living areas*
 - (b) ground-level private open space*



(c) upper-level private balconies that provide the primary open space area for any dwelling

(d) access to solar energy

PDC 11 *Development should ensure that north-facing windows to habitable rooms of existing dwelling(s) on the same allotment, and on adjacent allotments, receive at least 3 hours of direct sunlight over a portion of their surface between 9.00 am and 5.00 pm on the 21 June.*

PDC 12 *Development should ensure that ground-level open space of existing buildings receives direct sunlight for a minimum of two hours between 9.00 am and 3.00 pm on 21 June to at least the smaller of the following:*

(a) half of the existing ground-level open space

(b) 35 square metres of the existing ground-level open space (with at least one of the area's dimensions measuring 2.5 metres).

PDC 13 *Development should not increase the overshadowed area by more than 20 per cent in cases where overshadowing already exceeds these requirements.*

PDC 18 *Private open space (available for exclusive use by residents of each dwelling) should be provided for each dwelling and should be sited and designed:*

.....

(f) to have a northerly aspect to provide for comfortable year round use

(g) not be significantly shaded during winter by the associated dwelling or adjacent development

(h) to be partly shaded in summer

In accordance with Residential Development PDC 12, private open space and internal living areas of each dwelling will receive access to natural light from approximately midday onwards. Each dwelling has been designed and orientated to maximise the level of sunlight available to private open space, balcony areas and internal living areas. All private open space is orientated to the west, towards the adjoining sports field, and the private open space for Dwelling 2 will also have a northern orientation to maximise access to sunlight through most of the day. Further, the dwellings do not adjoin any other residential development to the immediate south, with shadow cast by Dwelling 1 falling onto the Witty Court. Accordingly, the dwellings will not overshadow any existing residence in the locality and therefore satisfies and does not offend Residential Development PDC 11, 12 & 13.

Thermal comfort through passive cooling will be achieved in several ways. Parapets to the upper levels of Dwelling 3 to 5 will project beyond the wall of western elevations, providing shade to upper level bedrooms and windows. The upper level walls of Dwelling 1 and 2 will also overhang ground floor western elevation living room windows and sliding doors to provide shade to these living spaces during summer months. Balconies



proposed for each residence will also be covered, providing protection from the weather and shade to habitable rooms providing access to balconies.

Finally, each dwelling has been designed with multiple window and door openings at opposite ends of rooms to encourage natural cross ventilation.

Accordingly, the development is closely aligned within the relevant provisions which seek energy efficient designs and occupant amenity through thermal comfort.

7.5 Access and Parking

The application has been assessed against the relevant Transportation and Access provisions of the Development Plan, having regard to the Parking and Traffic Impact Assessment prepared by GTA Consultants (attached as *Appendix 7*).

7.5.1 Parking Demand and Supply

Table WeTo/2 – Off Street Vehicle Parking Requirements prescribes a parking rate of two onsite spaces per detached dwelling, including one undercover space.

Each detached dwelling will be provided with two (2) onsite and undercover parking spaces in accordance with the prescribed parking rates. Whilst the Development Plan does not prescribe a rate for onsite visitor parking, Land Division PDC 12 prescribes an on-street vehicle parking rate of one space per two allotments. In accordance with this provision, the proposed public road has been designed to accommodate three (3) visitor parking spaces.

We also note that the modifications to Witty Court include the relocation of one on-street parking space, thereby ensuring the quantity of on-street parking within the Witty Court is not reduced as a result of the proposed development.

7.5.2 Design of the Proposed Road

The proposed public road will comprise a total width of 8 metres, and will include a carriage way width of 6 metres. GTA conclude that the public roadway has been designed in accordance with the relevant Australian Standard/New Zealand Standard (AS/NZS 2890.1:2004 and AS/NZS 2890.6:2009), specifically:

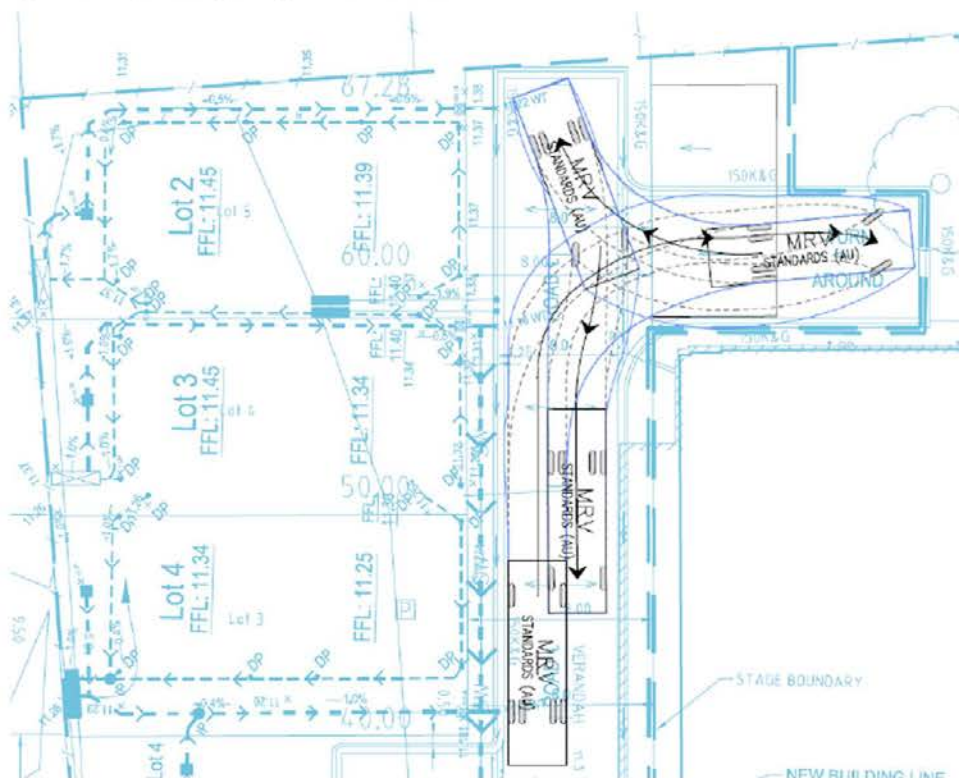
- The relocated parallel on-street space within Witty Court will be 2.3 metres wide and 7.0 metres long at the outer spaces, and 6.3 metres for the internal spaces;
- The 90 degree on-street parking spaces within the proposed public road will be 2.4 metres wide and 5.4 metres long, and positioned within a 6.7 metre wide aisle;
- The proposed carriage way width of 6 metres will accommodate two-way movements, and exceeds the minimum width requirement of 5.5 metres;
- The proposed garages will be located within a 7.0 metre apron thereby achieving to achieve the minimum requirements prescribed by the Standards; and



- The garages have been designed within a minimum offset distance of 1 metre from the carriage way, which is typical for laneway designs throughout metropolitan Adelaide.

It is proposed that each dwelling will be serviced by Council's waste contractor for the collection of refuse. Refuse bins for each dwelling will be placed within the road verge (between the property boundary and the road kerb) for collection. The northern end of the road includes a reversing bay which has been designed to accommodate vehicle movements of an 8.8 metre long Medium Rigid Vehicle (MRV) as illustrated below:

Figure 7.2 Swept turning paths for a 8.8 metre MRV





OBJ 2 *Development that:*

- (a) provides safe and efficient movement for all transport modes*
- (b) ensures access for vehicles including emergency services, public infrastructure maintenance and commercial vehicles*
- (c) provides off-street parking*
- (d) is appropriately located so that it supports and makes best use of existing transport facilities and networks*
- (e) provides convenient and safe access to public transport stops.*

PDC 35 *Development should be consistent with Australian Standard AS 2890 Parking facilities.*

7.5.3 Traffic Generation

Referring to the trip generation estimates identified within the RTA NSW's *Guide to Traffic Generating Developments*, GTA predict that the development will generate in the order of 4 additional peak hour trips and 45 daily trips. GTA conclude that the volume of additional traffic to be generated by the development is low and will not change the nature of function of Witty Court of Arthur Lemon Avenue.

7.6 Stormwater Management

The stormwater drainage methodology for the proposed development and new public road has been prepared by MLEI Consulting Engineers, and is attached to this report as **Appendix 5**.

Roof and surface water collected from each dwelling and allotment will be detained in a 2,000 litre detention/retention tank. An oversized drainage pipe installed within the proposed road reserve (375mm diameter) will also be used to detain water collected from new public road. Stormwater calculations prepared by MLEI confirm that the combined detention area will ensure that stormwater discharged from each allotment and the development site more generally will not exceed the pre-developed rate during the 1 in 20 year ARI, in accordance with the following Natural Resources provisions of the Development Plan:

PDC 8 *Water discharged from a development site should:*

- (b) Not exceed the rate of discharge from the site as it existed in pre-development conditions*

PDC 10 *Development should include stormwater management systems to mitigate peak flows and manage the rate and duration of stormwater discharges from the site to ensure the carrying capacities of downstream systems are not overloaded.*

In addition, all water collected from the surface and roof areas and new road will discharge to Council's drainage network via an 'Ecosol Storm pit' to ensure water quality is managed. The final design/capacity of the treatment device will be determined upon lodgement of detailed design drawings forming part of Council's statement of requirements. The above-mentioned Water Sensitive Urban Design initiatives are closely aligned with the following Natural Resources provisions of the Development Plan:



PDC 8 *Water discharged from a development site should:*

- (a) be of a physical, chemical and biological condition equivalent to or better than its pre-developed state*

PDC 9 *Development should have adequate provision to control any stormwater over-flow runoff from the site and should be sited and designed to improve the quality of stormwater and minimise pollutant transfer to receiving waters.*

PDC 11 *Development should include stormwater management systems to minimise the discharge of sediment, suspended solids, organic matter, nutrients, bacteria, litter and other contaminants to the stormwater system.*

PDC 13 *Stormwater management systems should:*

- (a) maximise the potential for stormwater harvesting and reuse, either on-site or as close as practicable to the source*
- (b) utilise, but not be limited to, one or more of the following harvesting methods:*
 - (i) the collection of roof water in tanks*
 - (ii) the discharge to open space, landscaping or garden areas, including strips adjacent to carparks*
 - (iii) the incorporation of detention and retention facilities*
 - (iv) aquifer recharge.*

PDC 14 *Where it is not practicable to detain or dispose of stormwater on site, only clean stormwater runoff should enter the public stormwater drainage system.*

The Stormwater Management Plan prepared by MLEI Consulting Engineers demonstrates that the development has been designed to satisfy the relevant Natural Resources provisions of the Development Plan.

7.7 Site Contamination

The application seeks to establish a sensitive use on land formerly used for commercial purposes (i.e. a distant educational facility). The following Hazards provisions of the Development Plan are therefore relevant to the assessment of potential site contamination:

OBJ 8 *Protection of human health and the environment wherever site contamination has been identified or is suspected to have occurred*

OBJ 9 *Appropriate assessment and remediation of site contamination to ensure land is suitable for the proposed use and provides a safe and healthy living and working environment*



- At the time of assessment, the building and slab were observed to be in good condition and no evidence of cracking or deterioration were noted;
- Golder's understanding is that due to the small scale nature of printing activities occurring from the site, large quantities of printing chemicals were not stored or used on site and wastes associated with printing activities were likely to be disposed of off-site;
- No underground chemical storage tanks were observed onsite; and
- Extensive surface barriers, including the building slab, provides limited opportunity for soil permeability.

Accordingly, Golder makes the following conclusions with respect to the use of the land for residential purposes:

"Current and historical land uses that have the potential to result in site contamination are considered to be negligible and are not expected to pose an issue with respect to the intended residential land use.

The findings of the intrusive soil investigation support the conclusions of the desktop (site history) assessment that contamination risks at the site are low.

Based on further review of site printing operations, noted to potentially fall within the definition of 'Printing Works' (defined as a PCA), Golder is of the opinion that the printing operations were of a limited nature and do not present a significant risk to future land use"

7.8 Land Division Considerations

The Land Division provisions contained within the General Section of Council's Development Plan seek to ensure the division of land occurs in an orderly and sustainable manner, and that allotments are appropriately designed to accommodate their intended use, are capable of being serviced by all essential services and infrastructure, and are capable of being accessed by an appropriately designed road or thoroughfare.

The proposed plan of division comprises an orderly development outcome which seeks to make efficient use of underutilised land and in manner contemplated by the Development Plan.

Access to the site will be obtained via a new public road which will form a continuation of Witty Court. In accordance with Land Division PDC 13, 14 and 15, the road has been designed in accordance with relevant Australian Standards and accommodates safe and convenient vehicle movements (including waste and emergency service vehicles), together with all essential services and infrastructure, including a new footpath for pedestrian movements. Three (3) on-street visitor parking spaces will also be provided in accordance with Land Division PDC 12.

The proposed allotments will accommodate a form of residential development (i.e. detached dwellings) which is envisaged for the Zone and Policy Area. Proposed Lot 1 has been designed to accommodate the existing two storey building (Educational Establishment), and a separate development application will be submitted in due course for the adaptive reuse of this building for residential purposes.



Finally, we note that each allotment is capable of being serviced by all essential services and infrastructure including water, electricity, gas, telecommunications and stormwater drainage in accordance with Infrastructure PDC 1

PDC 1 *Development should only occur where it has access to adequate utilities and services, including:*

- (a) electricity supply*
- (b) water supply*
- (c) drainage and stormwater systems*
- (d) garbage disposal and recycling collection*
- (e) effluent disposal systems*
- (f) formed all-weather public roads*
- (g) telecommunications services*
- (h) gas services*

The Development Application therefore proposes the orderly division of land in accordance with the relevant provisions of the Development Plan.

8. Conclusion

This planning statement has been prepared in support of an application by Qattro for a combined land division and built form application to create six (6) Torrens Titled allotments and a public road, five (5) two storey detached dwellings, demolition work and alterations to the existing building, and to extinguish the existing use rights to operate an existing Educational Establishment at 12-20 Arthur Lemon Avenue, Underdale.

Following an inspection of the subject site and locality, a review of the proposed plans and associated documentation accompanying the application and a detailed assessment of the proposed development against the relevant provisions of the West Torrens Development Plan, we have formed the opinion that the proposed development represents appropriate and orderly development that deserves favourable consideration for approval. More specifically:

- The application involves the establishment of five (5) detached dwellings which are an envisaged form of residential development for the zone and policy area; and the development will achieve a medium density development outcome of 54 dwellings per hectare (net), satisfying the prescribed density range of between 40 and 67 dwellings per hectare (net);
- Allotment 1 has been designed to retain the existing two storey building for future potential adaptive re-use (subject to a separate development application);



- To address potential shortfall in carparks associated with the existing building, the application proposes to extinguish the existing land use rights of the building as an Educational Establishment prior to the demolition and redevelopment of portion of the existing carpark;
- The dwellings feature a contemporary design outcome and will be constructed in a variety of complementary materials and colours to achieve a highly articulated building form, consistent with the existing residential development found within the broader locality;
- The proposed building setbacks are appropriate in the context of the site and locality and will not result in any outward impact on adjoining properties or the established residential character of the locality;
- The proposed development is generally aligned with all other relevant design related provisions including those relating to private open space (quantity and configuration), site coverage, crime prevention through environmental design, occupant amenity and energy efficiency;
- The Traffic Impact Assessment performed by GTA confirms that the development has been appropriately designed to address all traffic related matters, specially:
 - » projected traffic generation will be negligible and will not change the nature or function of Witty Court or Arthur Lemon Avenue
 - » the road has been designed to accommodate safe and convenient vehicle movements, and the provision of an appropriately designed turn-around bay will ensure all vehicles are capable of entering and exiting the new residential estate in a forward direction; and
 - » onsite and on-street parking has been provided in accordance with the parking provisions prescribed by the Development Plan;
- The supporting documentation prepared by MLEI Consulting Engineers demonstrates the appropriate management of stormwater in accordance with Council's requirements; and
- Various environmental investigations performed by Golder Associates have confirmed that the risk of onsite contamination is considered low and that the previous use of the land (Educational Establishment) is not expected to pose an issue with respect to the intended residential land use.

The proposed development is therefore aligned with the most relevant provisions of the Development Plan and warrants Development Plan Consent, subject to reasonable and relevant conditions.



Appendix 1. Certificate of Title



Government of South Australia
Department of Planning,
Transport and Infrastructure

Product	Register Search
Date/Time	15/06/2016 04:28PM
Customer Reference	
Order ID	20160615010491
Cost	\$140.00

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



Registrar-General

Certificate of Title - Volume 5948 Folio 226

Parent Title(s)	CT 5940/600
Dealing(s) Creating Title	RTC 10286056
Title Issued	05/09/2005
Edition	1
Edition Issued	05/09/2005

REAL PROPERTY ACT, 1886



Estate Type

FEE SIMPLE

Registered Proprietor

UNIVERSITY OF SOUTH AUSTRALIA
OF GPO BOX 2471 ADELAIDE SA 5001

Description of Land

ALLOTMENT 54 DEPOSITED PLAN 67591
IN THE AREA NAMED UNDERDALE
HUNDRED OF ADELAIDE

Easements

SUBJECT TO EASEMENT(S) OVER THE LAND MARKED B TO THE COUNCIL FOR THE AREA (TG 6970646)

SUBJECT TO SERVICE EASEMENT(S) OVER THE LAND MARKED D(T/F) FOR ELECTRICITY SUPPLY PURPOSES
TO DISTRIBUTION LESSOR CORPORATION (SUBJECT TO LEASE 8890000) (223LG RPA)

Schedule of Dealings

NIL

Notations

Dealings Affecting Title

NIL

Priority Notices

NIL



Government of South Australia
Department of Planning,
Transport and Infrastructure

Product	Register Search
Date/Time	15/06/2016 04:28PM
Customer Reference	
Order ID	20160615010491
Cost	\$140.00

Notations on Plan

NIL

Registrar-General's Notes

WITH NEXT DEALING LODGE CT 5940/600
THIS TITLE ISSUED VIDE 10286056
AMENDMENT TO DIAGRAM VIDE 51/2007

Administrative Interests

NIL

* Denotes the dealing has been re-lodged.

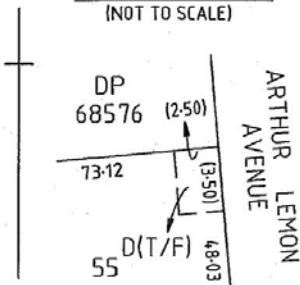


Government of South Australia
Department of Planning,
Transport and Infrastructure

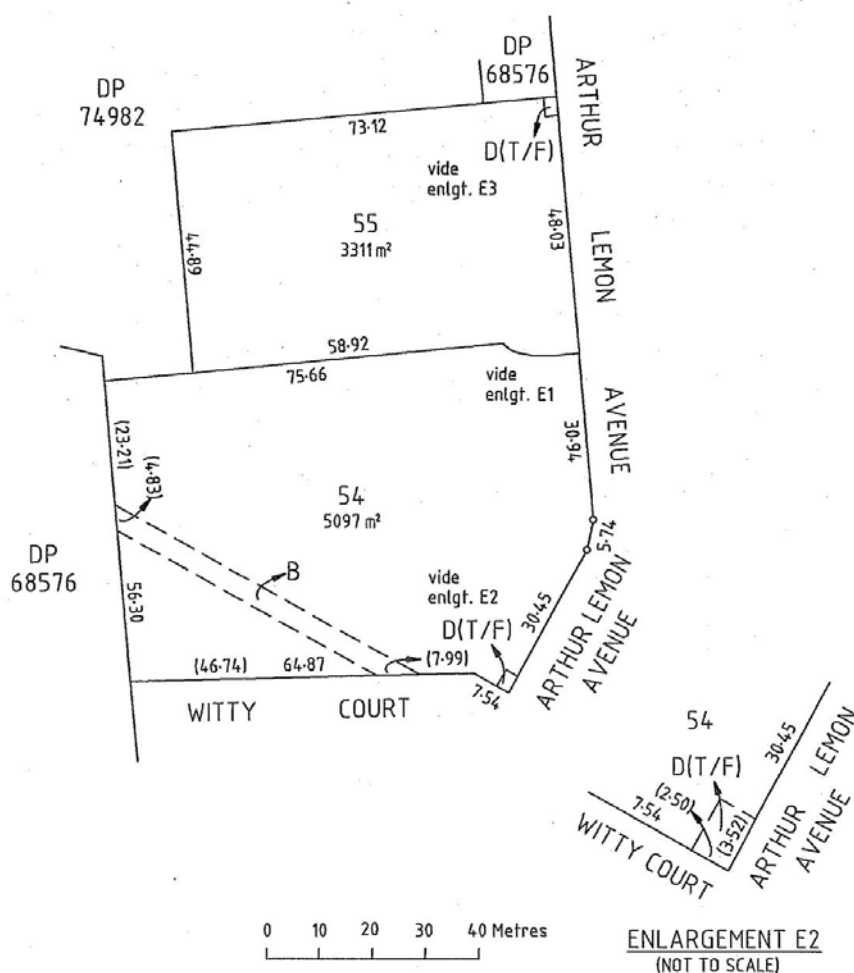
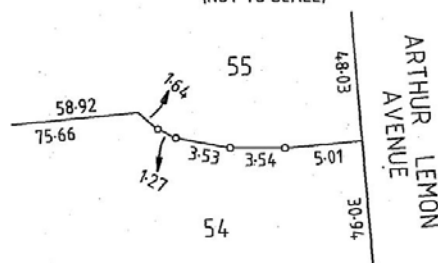
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ENLARGEMENT E1
(NOT TO SCALE)



ENLARGEMENT E2
(NOT TO SCALE)



SUPERSEDED

18/03/2020

Appendix 2. Site plans, elevations, floor plans and perspectives

Qattro

12044



QATTRO
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SUPERSEDED
18/03/2020

PROJECT ADDRESS:

ARTHUR LEMON AVE

UNDERDALE STAGE 1

PROJECT NAME
UNDERDALE STAGE 1
DRAWING SCHEDULE

PROJECT NAME
UNDERDALE STAGE 1
DRAWING SCHEDULE

PROJECT NAME
UNDERDALE STAGE 1
DRAWING SCHEDULE

ARCHITECTURE

31 Presentation
A009 COVER SHEET
A001 GENERAL NOTES PAGE
A002 SITE PLAN
A003 UPPER SITE PLAN
A004 TITLE PLAN
A005 LANDSCAPE PLAN
A006 STREET ELEVATION
A007 SITE PLAN RES 1
A008 FLOOR PLANS RES 1
A009 EXTERNAL ELEVATIONS - RES 1
A010 SITE PLAN RES 2
A011 FLOOR PLANS RES 2

ARCHITECTURE

A010 EXTERNAL ELEVATIONS - RES 2
A014 EXTERNAL ELEVATIONS - RES 2
A015 SITE PLAN RES 3
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A023 SITE PLAN RES 5
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A025 EXTERNAL ELEVATIONS - RES 5
A026 EXTERNAL ELEVATIONS - RES 5

ARCHITECTURE

PERSPECTIVES & 3 DIMENSIONAL VIEWS
INDICATIVE ONLY. NOT ALL BUILDING ELEMENTS ARE SHOWN

FOR APPROVAL

Revision Number	Revision Date	Revision Description
B	08/05/2019	PLANNING AMENDMENT
A	04/03/2019	PLANNING AMENDMENT



QATTRO
smarterurbandevelopment

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Date	Drawn	Checked	Scale	Project Number	Rev
08/05/2019 9:52:19 AM	PD	Checked		12044	B
UNDERDALE STAGE 1 ARTHUR LEMON AVE COVER SHEET					
Original sheet size A3					

200 Fullarton Rd, Enfield, SA 5083 Telephone 08 8350 8500 Fax 08 8350 0256 admin@qattro.com.au www.qattro.com.au	10	20	30	40	50	60	70	80	90	100mm
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Appendix 6. Legal Opinion

Botten Levinson Lawyers



Our ref: JAL/218094

31 July 2019

Mr Richard Dwyer
Ekistics
Level 1,
16 Vardon Avenue
ADELAIDE SA 5000

By email: rdwyer@ekistics.com.au

Dear Richard

**Public notice for land division (DA 211/D130/17) and dwellings (DA 211/913/2017)
- 12-20 Arthur Lemon Avenue, Underdale**

I set describe below the public notice category for the proposed development.

It is proposed to divide the land by land division application (DA 211/D130/17) to retain on proposed Lot 1 the existing improvements on an area of over 3500 m². To the rear of the existing improvements a public road is proposed which will provide access to proposed lots 2 - 6. The new public road will connect to the existing Witty Court, which in turn connects to Arthur Lemon Avenue.

DA 211/913/2017 proposes dwellings on proposed lots 2 - 6.

The Council has advised that the applications would be treated as category 2 applications for the purpose of public notification.

Development Plan

The land is in the Residential Zone and Policy Area 18 – medium density. Pursuant to overlay map We/To/4, the land is also with in the area of affordable housing. Finally, the land is within an area which is subject to the "residential code". Pursuant to that Code, certain forms of development are treated as complying including detached dwellings and semi-detached dwellings.

The desired character for the Policy Area makes reference to accommodating, at medium density, *"a range of dwelling types including residential flat buildings, row dwellings, group dwellings, semi-detached dwellings and some detached dwellings on small allotments"*. PDC 1 for the Policy Area makes express reference to detached dwellings, group dwellings, residential flat buildings, row dwellings and semi-detached dwellings.

Principle 6 for the Policy Area then sets out desired site areas for different forms of

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BL Lawyers Pty Ltd trading as Botten Levinson Lawyers ABN 36 611 397 285 ACN 611 397 285

– 2 –

residential development. PDC 7 then sets out the desired site areas for "affordable housing", noting as set out above, the land is within the affordable housing area designated by the Development Plan.

The land division application

The land division application proposes to establish five additional allotments.

The Development Plan is silent as to the categorisation of the land division application. Clause 5 of Part 1 of Schedule 9 to the *Development Regulations* provides that a land division falls into category 1 where -

The land is to be used for a purpose which, in the opinion of the relevant authority, is consistent with the Objective of the Zone or area under the relevant Development Plan, other than where the division will, in the opinion of the relevant authority, change the natural function of the existing road.

There are two elements to that provision. The first is whether or not the proposed development is consistent with the Objective of the Zone or the area.

The land division is to be used for the purpose of dwellings, just as is expressly envisaged by PDC 1 for the Residential Zone. Clearly the purpose of the Zone is for residential development and the proposed division therefore satisfies the first part of the test in clause 5.

The second part of the test in clause 5 is that the land division will not change the nature or function of the existing road.

A new road is proposed to Witty Court which has a connection to Arthur Lemon Avenue. Witty Court is clearly a residential street, as is Arthur Lemon Avenue, noting however that there is a non-residential use on the site at the present time. There will be some minor modifications to the kerb of the road with the loss of an indented parking bay.

A mere five additional allotments fronting a public road will not change the nature or function of the existing road. On average, there will be an increase in the number of traffic movements in the order of about 45 per day on Witty Court and Arthur Lemon Avenue. Given the capacity of those streets and their present function, that minimal change in traffic volumes will be largely imperceptible. It cannot have any effect on either the nature or function of those roads. The removal of several parking spaces on the roadway does not alter the nature or function of that road.

In my opinion, the Council can and should treat the application for the division of land as a category 1 development consistent with clause 5 of Part 1 of Schedule 9 of the *Development Regulations*.

Land use application

The bundle of plans includes details of the proposed division of the land i.e., the plans drawn by Qattro include an extract from the land division plan prepared by Fyfe.

The plans show five dwellings to be constructed on the land. However, the appearance of the buildings are such that the dwellings identified as residence 1 and

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residence 2, on proposed lots 6 and 5 respectively, have the appearance of being a semi-detached dwelling and residences 3, 4 and 5 on proposed lots 4, 3 and 2 respectively, have the appearance of row dwellings.

However, when one considers the plans in more detail and the application as submitted, it is clear that each of the dwellings are to be 2 storeys and constructed as individual dwellings in the form of detached dwellings. Residence 1 and 2 will be two buildings side-by-side whereas residences 3, 4 and 5, will be three dwellings side-by-side. The form of the buildings is such that each can be constructed individually, and demolished individually. There are no party walls. The roof is not to be shared.

Having regard to various decisions of the ERD Court including *Fusco v City of Mitcham*, it is my opinion that the dwellings are properly to be regarded as detached dwellings.

Within the Development Plan, the Zone has a limited provision under the heading "public notification". The provision notes that public notification is as prescribed in Schedule 9 and also prescribes certain other kinds of development as category 2. Relevantly that includes:

dwelling exceeding one-storey within Residential Policy Area 22 – 33 (my underlining)

The land is in Policy Area 18.

Pursuant to Clause 2(a)(i) of Schedule 9 of the *Development Regulations*, an application for one or more detached dwellings is to be regarded as a category 1 development. As distinct from other forms of dwellings mentioned in clause 2(a), there is no limit to the number of storeys of a detached dwelling to be treated as a category 1 pursuant to clause 2(a).

The Development Plan is silent on the categorisation of detached dwellings in this Policy Area (compared to Policy Areas 22-33). This is therefore not a case of an inconsistency between the Council's Development Plan designation for public notification purposes and the *Development Regulations*. The Development Plan is simply silent as to the form of dwellings within Policy Area 18.

In my opinion, the application for the dwellings being DA 211/913/2017 is properly to be treated as a category 1 development consistent with clause 2(a)(i) of Part 1 of Schedule 9 of the *Development Regulations*.

Given the above, it is strictly not necessary to consider a combined application involving land division and detached dwellings, at least not for the purpose of categorisation. However, for the sake of completeness, I will consider that.

Combined land division and land use application

For the reasons set out above, any land division would be a category 1 development in its own right, as would the detached dwelling application. Pursuant to regulation 32(5)(a), the combined applications are to be treated as a category 1 development because the form of the development proposes such that "all of the elements are in Schedule 9 Part 1" as set out in the discussion above.

Again, as the Development Plan is silent on categorisation of a combined application, it

– 4 –

follows that any combined application is properly to be regarded as a category 1 development.

I trust that this assists you to understand the proper public notice categories for these developments.

Yours faithfully



James Levinson
BOTTEN LEVINSON
Mob: 0407 050 080
Email: jal@bllawyers.com.au

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Appendix 7. Traffic Impact Assessment

GTA Consulting



REF: S128871

DATE: 7 August 2019

Qattro Built
209 Fullarton road
EASTWOOD SA 5063

Attention: Mr. Rhys Davies

Dear Rhys,

**RE: 12 – 20 ARTHUR LEMON AVENUE, UNDERDALE – PROPOSED RESIDENTIAL DEVELOPMENT
– PARKING AND TRAFFIC IMPACT ASSESSMENT**

A residential redevelopment on land located at 12-20 Arthur Lemon Drive in Underdale is proposed by Qattro Built. GTA Consultants has been commissioned to undertake a traffic and parking impact assessment of the proposed redevelopment.

Subject Site

The subject site is located at 12-20 Arthur Lemon Avenue in Underdale. The site of approximately 5,095sq.m has frontage of approximately 67m to Arthur Lemon Avenue and 72m to Witty Court. The site is located within a Residential zone and the site is currently occupied by an existing institutional building used by the University of South Australia. The surrounding properties include a mix of residential and commercial land uses. The notable exception is the Underdale High School located at the rear of the property. The location of the subject site and the surrounding environs is shown in Figure 1.

Figure 1: Subject Site and Environs



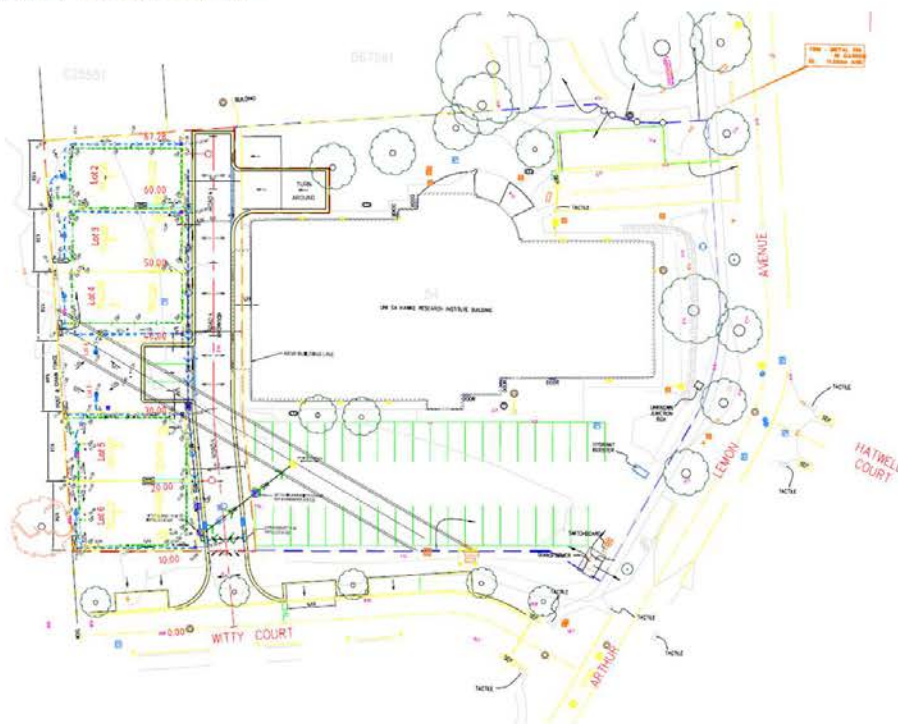
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ABN 66 137 610 514
www.gta.com.au

Proposed Development

Based on the plans and information provided to GTA Consultants, the proposed development is to comprise:

- Five (5) residential detached dwellings each comprising three (3) bedrooms and located to the rear of the existing educational facility building. Each dwelling will be free-standing and constructed with abutting walls.
- Each of the dwellings will have a double garage with exclusive access to a newly constructed 6.0-metre-wide public laneway, set within an 8.0 metre wide road reserve which will directly link onto Witty Court.
- At the end of the laneway, a side turning bay has been provided to enable refuse collection vehicles to enter and exit the laneway in a forward motion.
- Three (3) on-street car parking spaces will be provided within the laneway to facilitate visitor parking.
- Four (4) car parking spaces have also been retained on Witty Court. The proposed development site layout is shown in Figure 2.

Figure 2: Proposed Site Layout



Car Parking Assessment

Proposed Development

Development Plan Requirements

Car parking rates within the West Torrens Development Plan (consolidated 12 July 2018) are set out in Table WeTo/2.

The car parking rates applicable to the proposed development are as follows:

Dwelling

- Detached 2 car parking spaces per dwelling, one of which is covered
- Semi-detached
- Row

An assessment of the development plan car parking requirements is set out in Table 1.

Table 1: Development Plan Parking Assessment

Description	Number of Dwellings	Development Plan Parking Rate	Development Plan Parking Requirement (spaces)
Detached Dwelling	5	2 spaces per dwelling	10
Total			10

Based on Table 1, the proposal has a development plan parking requirement of 10 spaces.

GTA Consultants has also referred to the Principles of Development Control within the Lad Division Section. PDC 12 states the following:

PDC 12: "On-street vehicle parking should be provided at a ratio of one car parking space for every two allotments."

The provision of five (5) dwellings on the proposed public laneway would generate an on-street car parking provision of three (3) car parking spaces.

Adequacy of Car Parking Supply

Based on the development plan parking rates, the proposed dwellings would generate a parking requirement of 13 parking spaces including 10 spaces off-street and 3 spaces on-street. Each of the dwellings would comprise a double garage, which meets the rate set out within Table WeTo/2 of the Development Plan. Three (3) 90-degree car parking spaces will also be provided along the laneway. Hence, the parking provision is in accordance with rates set out within the Development Plan.

Car Park Layout

The parking layout has been designed in accordance with Australian Standard/New Zealand Standard for Off-Street Car Parking (AS/NZS2890.1:2004 and AS/NZS2890.6:2009).

Some of the key design features have been detailed:

- Parallel on-street parking spaces on Witty Court will be 2.3 metres wide and 7.0 metres long at the outer spaces and 6.3m for the internal spaces;
- 3 x 90-degree on-street parking spaces on the new laneway will be 2.4 metres wide and 5.4 metres long, set within a 6.7m wide aisle, exceeding the minimum User Class 1A requirements;
- The newly proposed laneway has a width of 6.0 metres set within an 8.0 metre wide road reserve, which exceeds the minimum 5.5 metre wide requirement for two-way circulation;

- The detached dwelling's double garages are set within a 7.0 metre wide apron, meeting the minimum requirement; and
- The garages for each of the dwellings have been offset 1.0 metres from the carriageway, which is consistent with typical laneway design within metropolitan Adelaide.

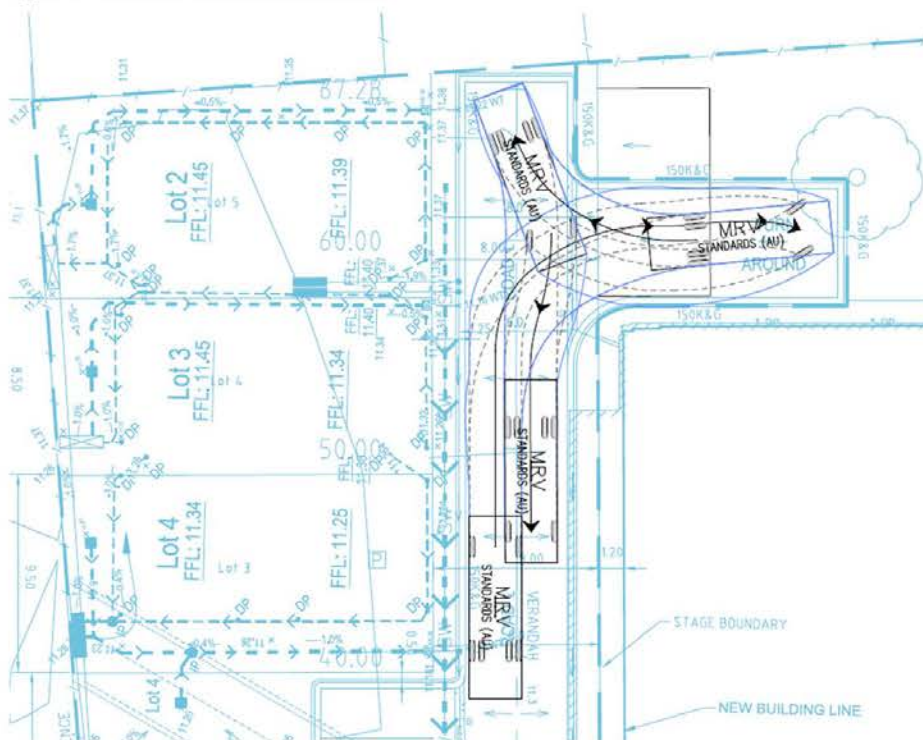
Refuse Collection

It is understood that waste collection for the proposed dwellings is proposed to occur on-street in proposed lane way.

To support the on-street waste collection, GTA has completed a turn path assessment using AutoTURN software to confirm the suitability of a refuse vehicle to manoeuvre within the proposed access way. The results of the assessment are shown in Figure 3.

This layout will provide adequate access for the refuse collection vehicle to enter, perform the manoeuvre within a 3-point-turn and exit in a forward direction.

Figure 3: 8.8m MRV Turn Around Provision



Traffic Impact Assessment

Proposed Traffic Generation

Traffic generation estimates for the proposed development have been sourced from the RTA NSW's *Guide to Traffic Generating Developments* (2002, henceforth referred to as the RTA Guide). The applicable rates are set out as follows:

Dwelling Houses

Daily vehicle trips = 9.0 trips per dwelling

Weekday peak hour vehicle trips = 0.85 trips per dwelling

Based on the above rates, Table 2 sets out the estimated traffic generation for the proposed development.

Table 2: Traffic Generation

Use	No. of Dwellings	Design Generation Rates (per dwelling)		Traffic Generation Estimates (two way trips)	
		Peak Hour	Daily	Peak Hour	Daily
Dwelling House	9	0.85	9	4	45
TOTAL				4	45

Table 2 demonstrates that the proposed development is estimated to generate 4 trips in the peak hour and 45 trips across the day.

Traffic Impact

Witty Court which currently services four (4) residential dwellings is anticipated to increase by an additional 4 trips during the peak hours and 45 trips over a daily period. This is resultant of the five (5) additional dwellings which are proposed on the new public laneway. The additional number of movements is low and would not adversely impact on the nature and function of Witty Court and the surrounding local streets. Access for the existing facility to the east occurs directly via Arthur Lemon Avenue, and as such will not adversely impact on the public laneway or Witty Court.

Conclusion

Based on the analysis and discussions presented within this report, the following conclusions are made:

1. The proposal comprises the construction of five (5) residential detached dwellings, each comprising 3 bedrooms and a double garage. A new public laneway will be constructed from Witty Court, which will exclusively service these dwellings.
2. The proposed development will generate a development plan parking provision of 10 off-street and 3 on-street car parking spaces.
3. The proposed on and off-street supply of 13 spaces is considered to be appropriate as it meets the development plan parking requirements
4. The proposed parking layout is consistent with the dimensional requirements as set out in Australian/New Zealand Standards for Off-Street Car Parking (AS/NZS2890.1:2004 and AS/NZS2890.6:2009).
5. The proposed development is expected to generate up to 4 vehicle trips during the peak hour and 45 vehicle trips daily, which is considered to be low and not expected to impact on Witty Court and the surrounding road network.
6. The existing building to the east has direct access to Arthur Lemon Drive, and as such doesn't adversely impact on Witty Court and the proposed public laneway.
7. The proposed access layout will provide for waste collection services to enter and exit in a forward direction.

If you have any questions or require any further information, please do not hesitate to contact me on (08) 8334 3600.

Yours sincerely

GTA CONSULTANTS



Paul Morris
Director
M.TransTraff



Appendix 8. Site Contamination Investigations

Golder Associates



17 May 2019

Reference No. 1664639-004-L-Rev0

Elias Koukos
Lot One Property Group
PO Box 1142
North Adelaide SA 5006

12-20 ARTHUR LEMON AVENUE, UNDERDALE SA
SUMMARY OF ENVIRONMENTAL ASSESSMENTS AND SITE CONTAMINATION STATUS

Dear Elias,

Golder Associates Pty Ltd (Golder) was engaged by Lot One Property Group (Lot One) to provide a summary of environmental assessments and advise on contamination risks associated with the site located at 12-20 Arthur Lemon Avenue, Underdale. The site is identified as CT 5948 / 226, Deposited Plan 67591.

It's understood Lot One proposes to redevelop the site, which will include the construction of medium density townhouses and the refurbishment of the existing building for residential land use. We understand the existing carpark will remain, whereas the western car park will be removed for construction of the proposed townhouses.

The site layout and proposed development plan is attached.

Summary of Previous Environmental Assessments

Several phases of environmental assessments have been undertaken at the site, as outlined below.

- Preliminary Environmental Site Assessment (ESA), University of South Australia Underdale Campus. Golder Associates, July 2002. Reference 02663016 / 02.
- Supplementary assessment of site, Allotment 54, Deposited Plan 67591, Underdale SA. Golder Associates, April 2016. Reference 1654191-002-L-Rev0.
- Soil Contamination Investigation, Allotment 54, Deposited Plan 67591, Underdale SA. Golder Associates, October 2016. Reference 1664639-003-R-Rev0.

The initial desktop ESA was undertaken for a larger parcel of land, i.e. entire University campus, including the subject site. The desktop ESA indicated that the land had been occupied by University of South Australia (UniSA) since the 1970s and there was no known history of significant contaminating activities.

Golder was subsequently engaged by UniSA in 2016 to undertake a supplementary desktop assessment. The objective of the supplementary assessment was to review potentially contaminating activities (PCAs) applicable to the site and assess potential changes to land uses that may have occurred since the 2002 assessment. The supplementary desktop assessment indicated that site activities had remained unchanged since 2002, with the exception of the inclusion of printing operations (which had occurred within a portion of the existing building).

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golder.com

Elias Koukos
Lot One Property Group

Reference No. 1664639-004-L-Rev0
17 May 2019

In October 2016, Golder was engaged by Qattro Pty Ltd (Qattro) to undertake a soil contamination investigation. The scope of the investigation included drilling and sampling of 10 soil bores and collection of representative fill/soil samples from each location. Soils beneath the existing building footprint were not assessed as part of the investigation. The soil assessment was undertaken based on the guidance within the National Environmental Protection (assessment of site contamination) Measure (the ASC NEPM).

No obvious signs of contamination were encountered in fill and/or the natural soils logged, and laboratory testing results indicated no evidence of contamination in the soils assessed.

The report concluded that contaminants tested were present at concentrations below the adopted health and environmental screening guidelines for standard residential or medium to high density residential land use.

Further information in relation to Printing Operations

With respect to the existing building, it's understood some printing related activities were previously undertaken within a portion of the building. 'Printing Works' are a prescribed PCA, under the Environment Protection Regulations (2009) - Schedule 3, part 1.

Based on the 2016 site inspection and the nature of printing operations undertaken at the site, Golder considers the risks of contamination associated with printing to be negligible. This is based on the following:

- Printing operations were managed by UniSA for internal purposes only, and not undertaken by a commercial printing business.
- Printing operations were minor and of low significance (i.e. multiple photo-copiers and binding equipment), when compared to large scale printing operations (typical of 'Printing Works').
- At the time of assessment, the building and associated slab were observed to be in good condition, with no evidence of cracking or deterioration.
- It's understood large quantities of printing chemicals were not stored or used on site and any wastes were likely to be disposed off-site.
- Printing operations were understood to have been conducted at the site for less than ten years, between 2009 to 2017.
- No underground chemical storage tanks were observed to be on site.
- The proposed development will likely retain the existing building, which will comprise extensive surface barriers (i.e. building slab, paved areas) with limited opportunity for soil access.

Conclusions

Golder concludes the following:

- Current and historical land uses that have the potential to result in site contamination are considered to be negligible and are not expected to pose an issue with respect to the intended residential land use.
- The findings of the intrusive soil investigation support the conclusions of the desktop (site history) assessments that contamination risks at the site are low.
- Based on further review of site printing operations, noted to potentially fall within the definition of 'Printing Works' (defined as a PCA), Golder is of the opinion that the printing operations were of a limited nature and not indicative of a large scale commercial printing business.
- Based on the available assessment information, Golder has identified no evidence of contamination that would preclude the site from redevelopment for medium density residential land uses.

Elias Koukos
Lot One Property Group

Reference No. 1664639-004-L-Rev0
17 May 2019

Important Information

Your attention is drawn to the document – “Important Information”, which is included in Attachment 2 of this report. The statements presented in this document are intended to advise you of what your realistic expectations of this report should be. The document is not intended to reduce the level of responsibility accepted by Golder Associates, but rather to ensure that all parties who may rely on this report are aware of the responsibilities each assumes in so doing.

Closure

If you have any queries or require further information with respect to the above, please do not hesitate to contact the undersigned on (08) 8213 2100.

Yours sincerely,

Golder Associates Pty Ltd



Vince Jukic
Senior Environmental Consultant

VJ/JBC/gp



James Corbett
Principal Environmental Engineer

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Elias Koukos
Lot One Property Group

Reference No. 1664639-004-L-Rev0
17 May 2019

ATTACHMENT 1

Site Layout and Proposed Development Plan





Elias Koukos
Lot One Property Group

Reference No. 1664639-004-L-Rev0
17 May 2019

ATTACHMENT 2

Important Information





GOLDER ASSOCIATES PTY LTD
IMPORTANT INFORMATION RELATING TO THIS REPORT

The document ("Report") to which this page is attached and which this page forms a part of, has been issued by Golder Associates Pty Ltd ("Golder") subject to the important limitations and other qualifications set out below.

This Report constitutes or is part of services ("Services") provided by Golder to its client ("Client") under and subject to a contract between Golder and its Client ("Contract"). The contents of this page are not intended to and do not alter Golder's obligations (including any limits on those obligations) to its Client under the Contract.

This Report is provided for use solely by Golder's Client and persons acting on the Client's behalf, such as its professional advisers. Golder is responsible only to its Client for this Report. Golder has no responsibility to any other person who relies or makes decisions based upon this Report or who makes any other use of this Report. Golder accepts no responsibility for any loss or damage suffered by any person other than its Client as a result of any reliance upon any part of this Report, decisions made based upon this Report or any other use of it.

This Report has been prepared in the context of the circumstances and purposes referred to in, or derived from, the Contract and Golder accepts no responsibility for use of the Report, in whole or in part, in any other context or circumstance or for any other purpose.

The scope of Golder's Services and the period of time they relate to are determined by the Contract and are subject to restrictions and limitations set out in the Contract. If a service or other work is not expressly referred to in this Report, do not assume that it has been provided or performed. If a matter is not addressed in this Report, do not assume that any determination has been made by Golder in regards to it.

At any location relevant to the Services conditions may exist which were not detected by Golder, in particular due to the specific scope of the investigation Golder has been engaged to undertake. Conditions can only be verified at the exact location of any tests undertaken. Variations in conditions may occur between tested locations and there may be conditions which have not been revealed by the investigation and which have not therefore been taken into account in this Report.

Golder accepts no responsibility for and makes no representation as to the accuracy or completeness of the information provided to it by or on behalf of the Client or sourced from any third party. Golder has assumed that such information is correct unless otherwise stated and no responsibility is accepted by Golder for incomplete or inaccurate data supplied by its Client or any other person for whom Golder is not responsible. Golder has not taken account of matters that may have existed when the Report was prepared but which were only later disclosed to Golder.

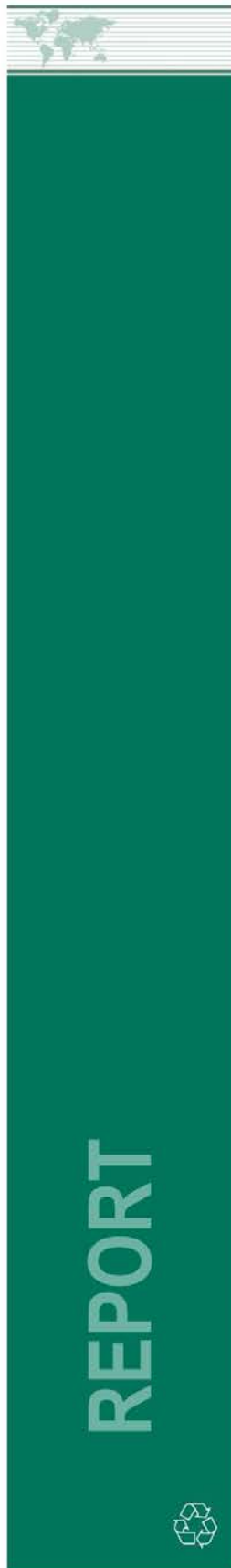
Having regard to the matters referred to in the previous paragraphs on this page in particular, carrying out the Services has allowed Golder to form no more than an opinion as to the actual conditions at any relevant location. That opinion is necessarily constrained by the extent of the information collected by Golder or otherwise made available to Golder. Further, the passage of time may affect the accuracy, applicability or usefulness of the opinions, assessments or other information in this Report. This Report is based upon the information and other circumstances that existed and were known to Golder when the Services were performed and this Report was prepared. Golder has not considered the effect of any possible future developments including physical changes to any relevant location or changes to any laws or regulations relevant to such location.

Where permitted by the Contract, Golder may have retained subconsultants affiliated with Golder to provide some or all of the Services. However, it is Golder which remains solely responsible for the Services and there is no legal recourse against any of Golder's affiliated companies or the employees, officers or directors of any of them.

By date, or revision, the Report supersedes any prior report or other document issued by Golder dealing with any matter that is addressed in the Report.

Any uncertainty as to the extent to which this Report can be used or relied upon in any respect should be referred to Golder for clarification





October 2016

SOIL CONTAMINATION INVESTIGATION

Allotment 54, Deposited Plan 67591, Underdale SA

Submitted to:
Matthew Morrissey
Qattro
209 Fullarton Road
EASTWOOD SA 5063

Report Number. 1664639-003-R-Rev0

Distribution:
1 e-copy - Qattro
1 e-copy - Golder Associates





SOIL CONTAMINATION INVESTIGATION - ALLOTMENT 54, UNDERDALE

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October 2016
Report No. 1664639-003-R-Rev0

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**SOIL CONTAMINATION INVESTIGATION - ALLOTMENT 54,
UNDERDALE**

Record of Issue

Company	Client Contact	Version	Date Issued	Method of Delivery
Qattro	Matthew Morrissey	1664639-003-R-Rev0	14 October 2016	MMorrissey@qattro.com.au



SOIL CONTAMINATION INVESTIGATION - ALLOTMENT 54, UNDERDALE

1.0 INTRODUCTION

1.1 Background

Golder Associates Pty Ltd (Golder) was engaged by Qattro to undertake a geotechnical and contamination investigation for a proposed residential development in Underdale, South Australia. The site covers an area of approximately 4,500 m², and is currently owned and occupied by the University of South Australia (UniSA). The site comprises a building and car parking facilities.

The investigation was undertaken in general accordance with our proposal P1664639-001-L-Rev0, dated 7 September 2016. Details of the geotechnical investigation can be found under separate cover (Golder report reference 1664639-001-R-Rev0).

The investigation comprised a site walkover, intrusive investigation and laboratory testing. This report presents the findings of the contamination investigation, the purpose of which was to provide an overview of contamination conditions across the site.

1.2 Proposed development

Based on the information provided to Golder, it's understood the proposed development will include the construction of five two-storey townhouses (within the western portion of the site), and the refurbishing of the existing building for residential use (apartments). We understand that the existing car park in the south portion of the site is likely to remain, whereas the western car park will be removed for construction of the proposed townhouses.

At the time of the investigation a preliminary layout of the proposed development, including approximate borehole locations, was provided by Qattro. Approximate borehole locations are presented on Figure 1.

1.3 Summary scope of work

The scope of work completed by Golder included the following:

- Preparation of a site specific Health, Safety and Environment Plan (HSEP).
- Site walkover to assess for visual evidence of potential site contamination.
- Intrusive soil investigations, including the drilling of ten (10) soil bores for both geotechnical and contamination purposes.
- Logging of soil conditions at each sampling location, including particular consideration of odours, presence of fill and other relevant observations.
- Collection of soil samples and laboratory analyses of samples for the identified or inferred contaminants of interest, including collection of field duplicates and an equipment rinse blank sample for quality control (QC) purposes.
- Comparison of soil testing results against applicable screening criteria for the proposed land use (mixed residential) and against soil disposal criteria.
- Preparation of this report to document the investigation work performed, present site observations and analytical results, and provide conclusions.



SOIL CONTAMINATION INVESTIGATION - ALLOTMENT 54, UNDERDALE

2.0 SOIL ASSESSMENT

2.1 Sampling and Analysis Rationale

Contamination assessment was undertaken in conjunction with the geotechnical investigation. Borehole locations were agreed with Qattro based on the proposed development and are shown on Figure 1. Borehole locations BH01-BH05 were positioned within the proposed footprint of each townhouse. Remaining boreholes (BH06-BH10) were located across the site at locations near to the existing building. Between four and seven samples were collected from each of the ten boreholes.

Soil sampling and chemical testing focused on near surface soils, where contamination residues were most likely to be present (within shallow fill or from potential releases of chemicals from previous site activities). In addition to the analysis of samples from upper soil layers, a range of deeper samples were tested from across the site to characterise deeper fill and underlying natural soils.

Sampling and testing of soils was undertaken based on field observations of physical evidence of contamination. Selected soil samples recovered from the sampling locations were tested for a broad range of chemicals.

Chemical testing included - heavy metals (HM), organochlorine pesticides (OCP), polycyclic aromatic hydrocarbons (PAHs), total recoverable hydrocarbons (TRH), benzene, toluene, ethyl-benzene and xylene (BTEX), and chemicals contained in a broad screen.

Analytical testing was undertaken by Eurofins-MGT, who are NATA accredited for the testing undertaken.

2.2 Soil investigation methodology

Prior to the commencement of fieldwork, Golder prepared a site-specific Health, Safety and Environment Plan (HSEP). The HSEP identified known hazards to the health and safety of project personnel and the environment, based on an understanding of the work and our experience with similar projects.

Underground service plans were obtained to assist with locating the underground services following which sampling locations were checked for the presence of buried services by a services locator prior to the commencement of the field investigations.

The scope of the intrusive investigation program was undertaken in accordance with standard Golder field procedures, with reference (where applicable) to the following guideline documents:

- National Environment Protection Council 1999 (amended 2013). National Environment Protection (Assessment of Site Contamination) Measure (ASC NEPM).
- Standards Australia 2005. Guide to the investigation and sampling of sites with potentially contaminated soil. Part 1: Non-Volatile and Semi-Volatile Compounds. AS 4482.1-2005.
- Standards Australia 1999. Guide to the investigation and sampling of sites with potentially contaminated soil. Part 2: Volatile Substances. AS 4482.1-1999.
- Relevant Environment Protection Authority guidelines and site contamination information sheets.

The soil investigation methodology is summarised in the Table 1 below.



SOIL CONTAMINATION INVESTIGATION - ALLOTMENT 54, UNDERDALE

Table 1: Summary of Soil Investigation Methodology

Activity	Details
Soil sampling	<p>On 23 September 2016, ten soil bores (BH01-BH10) were drilled by an environmental drilling contractor (In-Depth Drilling Pty Ltd) using a 4WD mounted rig. Drilling was undertaken using push tube methodology. Soil bores were drilled to depths ranging from 1.5 to 4 m below ground level (BGL).</p> <p>Soil cores recovered during the intrusive investigations were discharged from the push tube into a clean core tray. Soil samples were obtained from regular depth intervals and from each separate soil type identified.</p> <p>During sampling, individual identification numbers were assigned to each sample collected, based on the borehole ID, and the depth of the sample measured from the top of the borehole.</p>
Soil gas screening	<p>A calibrated Photo Ionisation Detector (PID) was used to screen selected samples collected for the presence of volatile organic constituents. Soil samples were placed into zip-lock plastic bags and allowed to equilibrate under ambient temperatures before PID measurements were undertaken.</p>
Sample handling	<p>Soil samples were handled exclusively by the Golder field representative, and samples were stored in glass jars supplied by the laboratory.</p> <p>Disposable nitrile gloves were worn by the field representative whilst handling all samples and were replaced prior to the collection of each sample.</p>
Decontamination of sampling equipment	<p>Drilling equipment used to recover the soil samples and core trays used for storing samples were cleaned between sampling locations by scrubbing with phosphate free detergent solution, followed by a potable water rinse.</p>
Quality control blanks and duplicate samples	<p>One equipment blank sample (Rinse 01) was recovered from push tubes used during sampling to demonstrate that the decontamination procedure effectively avoided cross-contamination of samples by the sampling equipment. The equipment blank sample was collected by pouring deionised water over and through the push-tube sampling equipment into an appropriate laboratory supplied sample container.</p> <p>Two field duplicate soil samples were collected and tested to meet QC requirements. This is generally consistent with the recommendations in the ASC NEPM.</p>
Soil logging	<p>Soils encountered at each sampling location were logged in general accordance with the Unified Soil Classification (USC) System and Golder technical procedures. Borehole logs are provided as Appendix A.</p>
Sample Preservation	<p>Soil samples were stored under chilled conditions in a portable cooler prior to delivery to the laboratory. Sample transport was performed in accordance with our chain of custody procedures.</p>
Soil bore abandonment	<p>Soil bores were backfilled using soil cuttings and cores.</p>
Laboratory Analysis	<p>Soil samples were dispatched to a NATA accredited laboratory (Eurofins-MGT) for chemical testing of a broad range of potential contaminants.</p>



SOIL CONTAMINATION INVESTIGATION - ALLOTMENT 54, UNDERDALE

2.3 Screening Guidelines

2.3.1 Human Health and Ecological Screening Guidelines

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

The ASC NEPM provides health-based investigation levels (HILs) and health screening levels (HSLs) applicable to various land uses.

The site is proposed to be redeveloped for mixed residential purposes. On this basis, NEPM settings 'A' (standard residential) and 'B' (medium to high density residential) were considered appropriate for this investigation.

In addition to health screening criteria, the ASC NEPM also provides ecological investigation levels (EILs) and ecological screening levels (ESLs) to assess potential impacts on ecological receptors in soils. These values are typically only applicable to the top 2 metres of the soil profile where plants (and to a lesser degree animals) are likely to interact with the soil.

The screening levels are provided in the soil chemical data tables in Appendix B.

2.3.2 Soil Disposal Criteria

The criteria used to assess the suitability of soils for off-site disposal were those set in the EPA information sheet *Current Criteria for the Classification of Waste including Commercial and Industrial Waste (Listed) and Waste Soil*, dated March 2010.

The waste soil classifications, listed by severity of contamination from lowest to highest, are:

- Waste Fill (WF)
- Intermediate Waste Soil (IWS)
- Low-Level Contaminated Waste (LLCW).

Maximum permissible concentrations of chemicals in these waste classifications are referred to collectively as "the soil disposal criteria", and are presented in soil chemical summary tables in Appendix B.

In addition to chemical content, consideration was given to the physical requirements of WF as defined in the Environment Protection Regulations 2009. "Waste Fill" is defined as waste containing clay, concrete, rock, sand, soil or other inert mineralogical matter in pieces not exceeding 100 mm in length (but does not include waste consisting of or containing asbestos or bitumen).

3.0 RESULTS

The following section summarises the field observations and results of the laboratory soil testing.

All soil sampling locations are presented on Figure 1. Tabulated soil testing results are presented in Appendix B.

3.1 Surface and Subsurface Conditions

Descriptions of the soil encountered and depth intervals identified are summarised in the borehole logs presented in Appendix A. Our explanatory sheets on Terms and Abbreviations and the Method of Soil Classification used in preparing the Borehole Logs are also included.

At the time of the investigation, the majority of the site was occupied by a building in the centre of the site. Paved car parking areas were present within western and southern portions of the site, as well as a smaller car park in the north eastern corner of the site. Access to the site was from Arthur Lemon Drive, where it was noted that the street level was higher than the site.



SOIL CONTAMINATION INVESTIGATION - ALLOTMENT 54, UNDERDALE

Fill was encountered at sampling locations at varying depths across the site. Fill extended to a maximum depth of 1.3 m BGL (BH10). Fill at the site was predominantly logged as sandy gravel and clay with the exception of BH10 where the fill also comprised clayey sand.

Natural soil was encountered beneath the fill at all sampling locations and was predominantly logged as medium to high plasticity clay or sandy clay. The natural soils were typically consistent with the expected local geological conditions.

Soils encountered were free from physical evidence of contamination, i.e. hydrocarbon staining, chemical odours etc.

Groundwater was not encountered during the soil investigation.

3.2 Soil gas (PID) screening

A total of 30 soil samples collected during the field investigation were screened using a PID. The PID readings ranged from 0.1 – 2.9 ppm, which indicated a general absence of significant ionisable volatile compounds in the soils screened.

3.3 Soil Analytical Results

Chemical data summary tables are presented in Appendix B. Where a sample concentration exceeded a relevant screening guideline, the value has been highlighted. Laboratory certificates and chain of custody documentation are presented in Appendix C.

3.3.1 Metals

Seventeen soil samples were tested for metals. Concentrations of metals in the soil samples analysed did not exceed the adopted screening or investigation levels for health and environment for standard residential or medium to high density residential land use.

There were some minor exceedances for metals relative to the waste classification criteria, as follows:

- Copper: BH05-02 at 0.3 m depth (70 mg/kg) and BH09-03 at 0.5 m depth (150 mg/kg) exceeded the WF criteria (60 mg/kg). Both results were reported for samples of fill.
- Manganese: BH05-02 at 0.3 m depth (550 mg/kg) and BH09-03 at 0.5 m depth (1500 mg/kg) exceeded the WF criteria (500 mg/kg). Both results were reported for samples of fill.

3.3.2 Organochlorine and Organophosphorus Pesticides

Three samples were tested for organochlorine pesticides (OCPs). Marginally elevated concentrations of DDT were identified in one soil sample tested (BH10-01). However, these concentrations did not exceed the adopted screening and investigation levels or waste classification criteria. All other concentrations were reported to be less than the LOR.

3.3.3 Polycyclic Aromatic Hydrocarbons (PAH)

Seven soil samples were tested for PAH. Concentrations of PAH in the soil samples analysed did not exceed the adopted screening and investigation levels or waste classification criteria.

3.3.4 Total Recoverable Hydrocarbons (TRH) and BTEX

Six soil samples were tested for TRH and BTEX. Concentrations of TRH and BTEX in the soil samples analysed did not exceed the adopted screening and investigation levels or waste classification criteria.

3.3.5 Broad Screen Analysis

One soil sample was tested for broad screen analysis, which included Phenolic Compounds, Polychlorinated Biphenyls (PCB), Volatile Organic Compounds (VOCs) and cyanide. Concentrations of the listed chemicals were all found to be below the adopted screening and investigation levels or waste classification criteria.



SOIL CONTAMINATION INVESTIGATION - ALLOTMENT 54, UNDERDALE

3.4 Data Validation

An evaluation of the quality of the laboratory testing data for soil samples collected at the site is provided below.

As part of the evaluation of laboratory chemical data, duplicate pair results were compared by determining the relative percentage difference (RPD) between the results. According to AS4482.1-2005 and the ASC NEPM, a soil RPD within the range of -30% to 30% is considered to show acceptable agreement and, conversely, data is considered to have poor agreement where an RPD is outside this range.

The results of internal laboratory quality control procedures are provided within the laboratory certificates (Appendix B). The acceptance criterion for internal laboratory replicates is set at an RPD of -30% to 30%. Laboratory recoveries should be in the range 70% to 130%.

The table below indicates conformance to specific QA/QC requirements for soil laboratory testing data. Duplicate sample and equipment blank results are presented in Appendix B.

Table 2: Soil Data Validation

QA/QC Requirement	Compliant	Comments
Chain of custody documentation completed	Yes	All samples were transported under strict Golder chain of custody procedures.
Samples delivered to laboratory within sample holding times and with correct preservative	Yes	Samples were delivered to the laboratories within the sample holding times and in laboratory-supplied containers prepared with the appropriate preservative (where required).
All analyses NATA accredited	Yes	The laboratory (Eurofins-MGT) was NATA accredited for all the analyses performed.
Field duplicate testing frequency of at least 5% (1 in 20)	Yes	Golder submitted two intra-laboratory field duplicate samples for laboratory testing of various analytes. The intra-laboratory duplicate testing ratio was in general accordance with the recommendations in AS4482.1-2005 and the ASC NEPM (2 duplicates for 17 primary samples analysed).
Field duplicate samples reported RPDs within 30%-50% set by AS4482.1-2005	Mostly	With the exception of one analyte pair (lead - BH03) all analyte test comparisons indicated RPDs within +/-30%. Neither the primary or the duplicate concentrations exceeded the screening guideline, therefore the elevated RPD for lead is not considered to impact the conclusions of this report. Overall the analyte pair RPD results indicated good data correlation between the primary results and duplicate results.
Equipment Blanks frequency of at least 1 per batch	Yes	One equipment rinse blank sample (Rinse 01) was recovered and tested to demonstrate the effectiveness of the decontamination method.
Equipment Blank results below LOR.	Yes	The equipment rinse blank indicated concentrations of heavy metals below the laboratory LOR. These results demonstrated that the equipment decontamination method was adequate.
Acceptable laboratory QC results	Yes	The results of internal and external laboratory duplicates, method blanks, laboratory control spikes and matrix spikes were considered generally acceptable.

In summary, Golder considered that the QA processes and QC testing data provide appropriate confidence that the data can be relied upon for the purpose of this assessment.



SOIL CONTAMINATION INVESTIGATION - ALLOTMENT 54, UNDERDALE

4.0 SUMMARY OF RESULTS

A summary of the results is presented below:

- Data quality was sufficient for the purpose of the assessment.
- Contaminants tested for were present at concentrations below the adopted health and environmental screening and investigation levels for standard residential or medium to high density residential land use.
- There were some minor exceedances for metals relative to the waste classification criteria for Waste Fill.
- A statistical review of copper and manganese concentrations in soils tested was undertaken using ProUCL software (US EPA). Statistical analysis of the data indicated that the 95% upper confidence limit (UCL) for copper and manganese was 53 mg/kg and 474 mg/kg, respectively, which was less than the Waste Fill criteria. Subject to volumes and location of soil that may require disposal, fill may classify as Waste Fill.

A groundwater assessment was not undertaken as part of this investigation.

5.0 IMPORTANT INFORMATION

Your attention is drawn to the document – “Important Information”, which is included in Appendix D of this report. The statements presented in this document are intended to advise you of what your realistic expectations of this report should be. The document is not intended to reduce the level of responsibility accepted by Golder Associates, but rather to ensure that all parties who may rely on this report are aware of the responsibilities each assumes in so doing.

**SOIL CONTAMINATION INVESTIGATION - ALLOTMENT 54,
UNDERDALE****Report Signature Page****GOLDER ASSOCIATES PTY LTD**

Naomi Cooper
Senior Environmental Toxicologist

Toby Carter
Principal Consultant

NC:VJ/TCC/hhh

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October 2016
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SOIL CONTAMINATION INVESTIGATION - ALLOTMENT 54, UNDERDALE

FIGURES

Figure 1: Site Location and Borehole Location Plan

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13 April 2016

Project No. 1654191-002-L-Rev0

Phil Clatworthy
University of South Australia
101 Currie Street
ADELAIDE SA 5000

SUPPLEMENTARY ASSESSMENT OF SITE – LOT 54, DEPOSITED PLAN 67591, UNDERDALE

Dear Phil,

Introduction and objectives

In 2002 the University of South Australia (UniSA) engaged Golder Associates Pty Ltd (Golder) to undertake a Preliminary Environmental Site Assessment (ESA) of its Underdale campus. The purpose of this assessment was to investigate potential environmental impacts at the site and disclose the report (reference 02663016/02, 19 July 2002) to potential purchasers of the land. It is understood that UniSA now intends to sell the land referred to as Lot 54 of Deposited Plan 67591 in Underdale, South Australia (the site – refer attached Figure 1), this being the last remaining block of UniSA-owned land at its former Underdale campus.

In light of the proposed sale of Lot 54, UniSA again intends to disclose the 2002 Golder report to potential purchasers of the site. Given the period of time that has passed since its preparation, however, it has asked Golder to reassess Lot 54 and comment on the currency of the 2002 findings with respect to Lot 54. Golder was therefore commissioned by UniSA to undertake a limited desktop study and site walkover of the site. The work was undertaken in general accordance with our proposal (reference P1654191), dated 29 March 2016. This letter documents our findings.

Scope of services

The scope of services undertaken was as follows:

- Review of the 2002 Golder report.
- Review of historical aerial photographs online (nearmap) for the period 2009 to present.
- Completion of a site walkover of Lot 54 and the current building on this property. This was undertaken in the presence of Phil Clatworthy of UniSA, Director - Facilities Management.
- Preparation of this letter documenting our findings and commentary on the currency of the 2002 report specific to Lot 54 only.

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Phil Clatworthy
University of South Australia

1654191-002-L-Rev0
13 April 2016

Results

Review of 2002 Golder Report

Key findings of our review of the 2002 report in relation to the site are as follows:

- The building that exists on the site (named the Hawke Research Institute Building - identified in the 2002 Golder report as Building X) was constructed in 1993 as the Flexible Learning Centre.
- As part of the initial 2002 work, Building X was not entered or inspected during site walkover activities as historical building activities and uses were not, at that time, expected to result in contamination issues.
- No contamination issues specific to Lot 54 and Building X were highlighted in 2002.
- General conclusions relating to the potential for contamination to exist across the Underdale campus (and therefore including Lot 54 and Building X) were provided in the report. These included the potential for polycyclic aromatic hydrocarbons (PAHs) and heavy metals associated with fill of unknown origin to be present in soils.

The report also highlighted the potential for asbestos to be present in building materials. While this is a reasonable conclusion and important with respect to refurbishment or demolition of the building, it does not relate directly to the potential for contamination of soil or groundwater to exist at the site and will therefore not be discussed further.

Nearmap aerial photograph review

The online mapping service nearmap provides aerial photography for metropolitan Adelaide from 2009 onwards. Photograph intervals are typically one month to five months. Findings of the review were as follows:

- There appears to have been no significant changes to the site between 2002 and 2009.
- The surrounding area to the west of the site appears unchanged since 2001, with sporting grounds still existing adjacent to Building X.
- Land located south of the River Torrens that was previously part of the Underdale campus in 2002 appears to have been developed for residential use largely of a low density type. This residential development appears to have occurred between 2002 and 2010.
- Former Underdale campus land located to north of the River Torrens appears relatively unchanged. According to nearmap it is used by the Nazareth Catholic Community. We understand this is for secondary education.
- The childcare centre to the north of the site appears not to have changed since 2009.

Phil Clatworthy
University of South Australia

1654191-002-L-Rev0
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Site walkover

A site walkover was undertaken on 7 April 2016. Two Golder representatives were escorted through Building X and its immediate surrounds by Mr Phillip Clatworthy of UniSA. Building X contains two floors and a roof level; there is no basement.

The ground floor included the following:

- a foyer area
- plant room – including air-conditioning units, vents and several drain outlet pipes for air-conditioning wastewater
- telecommunications booth
- printing room – including a forklift, multiple printers of various sizes, desks, shelving, general waste and paper bins.
- switch board
- cleaning room – including general cleaning equipment (ie towels, neutral cleaner, and bleach)
- lift engine room – including a bundled engine/power unit
- small kitchenette and
- small film studio

The first floor included the following:

- offices
- kitchen – including a sink and hot water system
- plant room – identical to the ground floor

The roof level included air-conditioning units.

Anecdotal information provided by Phillip Clatworthy indicated that the building has historically been used predominantly for administration purposes; specifically, printing and distribution of documentation for long distance/external education. More recently, a printing business occupied a section of the ground floor.

Conclusions

Information gathered during the review of the 2002 Golder report, review of aerial photography dating back to 2009, and the site walkover, indicates the following:

- The potential for the existence of imported fill at the site is documented as low risk in the 2002 Golder report. In the opinion of Golder this remains a potential issue but is likely of low risk.
- Information collected suggests that on-site activities have remained the same since provision of the Golder 2002 report, with the exception of the inclusion of a printing business on the ground floor. This is unlikely to have resulted in contamination that would impact on reuse or redevelopment of the site.
- Land surrounding the site that was formerly part of the UniSA Underdale campus has generally been redeveloped for a more sensitive use; specifically, low density residential use. Other surrounding land uses remain largely unchanged since 2002.

Based on the above, we are of the opinion that the conclusions of the 2002 Golder that relate to Lot 54 are reasonable. In relation to the potential for there to be contaminated fill at the site, it is worth noting that much of the surrounding former campus land has recently been redeveloped for low density residential use. On this basis, if there were contamination issues relating to fill across the campus land, they are unlikely to be unmanageable. In summary we are of the opinion that contamination risks associated with Lot 54 are low.

Important information

Your attention is drawn to the attached document titled - "Important Information Relating to this Report". The statements presented in that document are intended to inform a reader of the report about its proper use. There are important limitations as to who can use the report and how it can be used. It is important that a reader of the report understands and has realistic expectations about those matters. The Important Information document does not alter the obligations Golder has under the contract between it and its client.

Phil Clatworthy
University of South Australia

1654191-002-L-Rev0
13 April 2016

Closing

We trust this is satisfactory. If you have any queries, please don't hesitate to contact us.

GOLDER ASSOCIATES PTY LTD



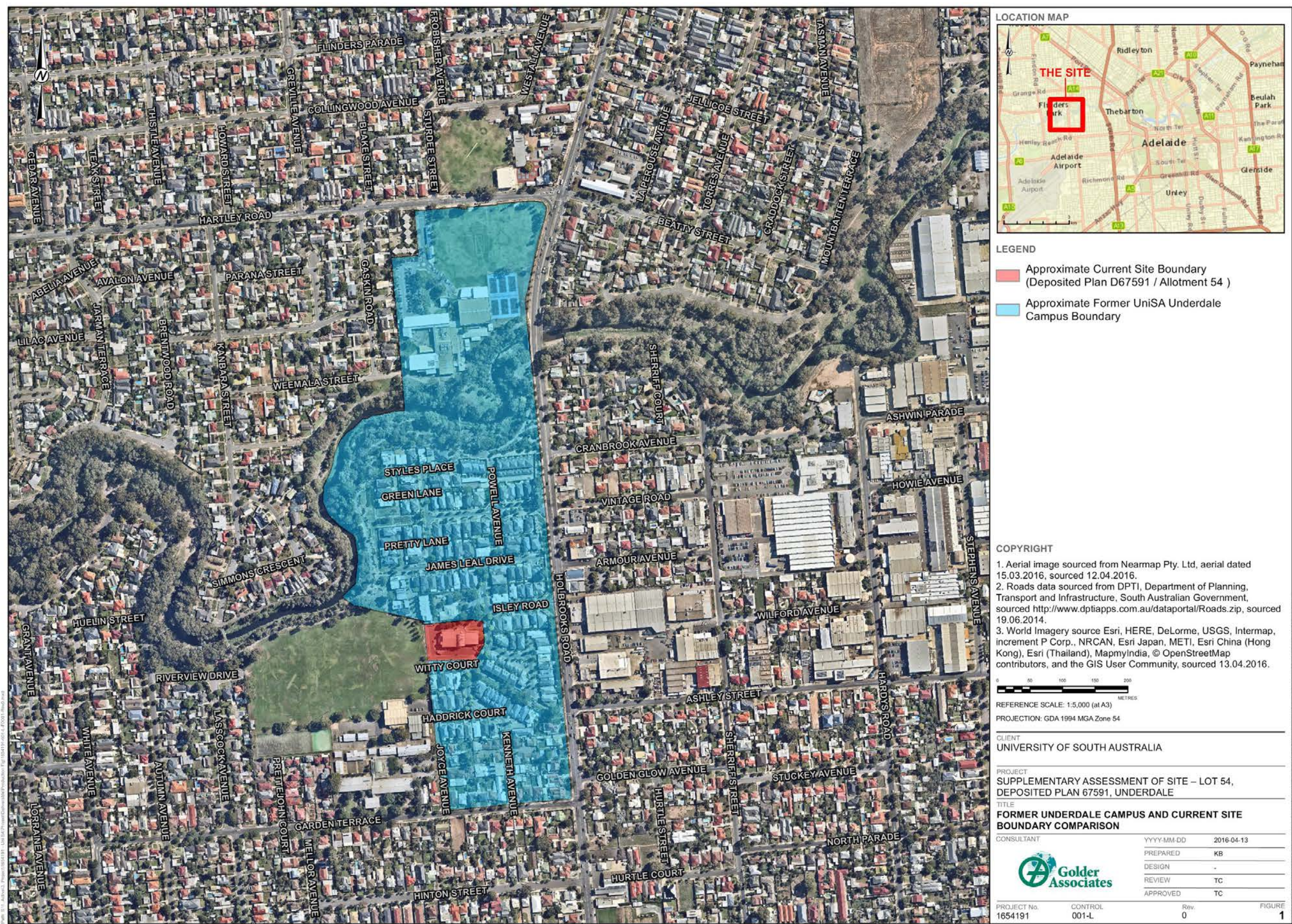
Toby Carter
Principal Consultant

OH/TCSC/sjm

Attachments: Figure 1 – Site location plan

Attachment 1 – Important information relating to this report

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IMPORTANT INFORMATION RELATING TO THIS REPORT

The document ("Report") to which this page is attached and which this page forms a part of, has been issued by Golder Associates Pty Ltd ("Golder") subject to the important limitations and other qualifications set out below.

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The scope of Golder's Services and the period of time they relate to are determined by the Contract and are subject to restrictions and limitations set out in the Contract. If a service or other work is not expressly referred to in this Report, do not assume that it has been provided or performed. If a matter is not addressed in this Report, do not assume that any determination has been made by Golder in regards to it.

At any location relevant to the Services conditions may exist which were not detected by Golder, in particular due to the specific scope of the investigation Golder has been engaged to undertake. Conditions can only be verified at the exact location of any tests undertaken. Variations in conditions may occur between tested locations and there may be conditions which have not been revealed by the investigation and which have not therefore been taken into account in this Report.

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Having regard to the matters referred to in the previous paragraphs on this page in particular, carrying out the Services has allowed Golder to form no more than an opinion as to the actual conditions at any relevant location. That opinion is necessarily constrained by the extent of the information collected by Golder or otherwise made available to Golder. Further, the passage of time may affect the accuracy, applicability or usefulness of the opinions, assessments or other information in this Report. This Report is based upon the information and other circumstances that existed and were known to Golder when the Services were performed and this Report was prepared. Golder has not considered the effect of any possible future developments including physical changes to any relevant location or changes to any laws or regulations relevant to such location.

Where permitted by the Contract, Golder may have retained subconsultants affiliated with Golder to provide some or all of the Services. However, it is Golder which remains solely responsible for the Services and there is no legal recourse against any of Golder's affiliated companies or the employees, officers or directors of any of them.

By date, or revision, the Report supersedes any prior report or other document issued by Golder dealing with any matter that is addressed in the Report.

Any uncertainty as to the extent to which this Report can be used or relied upon in any respect should be referred to Golder for clarification.

GAP Form No. LEG 04 RL 2

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REPORT ON

PRELIMINARY ENVIRONMENTAL SITE ASSESSMENT UNIVERSITY OF SOUTH AUSTRALIA UNDERDALE CAMPUS HOLBROOKS ROAD - UNDERDALE SOUTH AUSTRALIA

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19 July 2002

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EXECUTIVE SUMMARY

Golder Associates has conducted a Preliminary Environmental Site Assessment of the University of South Australia (UniSA) Underdale Campus located at Underdale, South Australia. The property is described in the Certificate of Titles, Volumes 5564 folio 273, 5582/112, 5690/97, 5762/465, 5798/26 and 5123/516.

The aim was to assess the potential impacts on soil and/or groundwater at the site as a result of past or current site activities, which may significantly impact on future development opportunities for the site.

It is expected that part of the site will be developed in the future for residential use, and is currently zoned as follows: North of Torrens River: City of Charles Sturt; Special Use and Linear Park, River Torrens; South of Torrens River: City of West Torrens, Residential 2. From the titles search, it is evident that until the construction of the University the previous landowners were predominately gardeners. This information is supported by the aerial photographs.

A number of buildings, berms and car parks are present on the site which is bounded mainly by roads and a school. The Torrens River runs through the site.

The University holds a license for prescribed and listed wastes, mainly produced by the Arts Department.

Activities which were considered notable in terms of the environment and observed during the site inspection included:

- storage of chemicals, including acids and paints, mainly in the Arts departments;
- use of oil and wood fire furnaces and kilns in the Arts departments;
- maintenance of equipment in the workshop areas; and
- the production of various wastes from the Maintenance Department, School of Photography and School of Jewelry.

Most of the wastes produced appeared to be collected by a private waste contractor.

From our experience with former market gardens and similar educational facilities, as well as the information collected during the site history, potential impacts from past and present activities on the site were considered to be :

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- the presence of polyaromatic hydrocarbons and heavy metals from imported fill materials and the furnaces and kilns on site;
- the presence of organochlorine pesticides, organophosphate pesticides and heavy metals associated with the possible past use of these chemicals and the waste shed;
- petroleum hydrocarbon products associated with maintenance activities and the furnace building belonging to the School of Sculpture; and
- contamination of the soil in the area under the former waste shed.

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1.0 INTRODUCTION

Golder Associates has conducted a preliminary environmental site assessment (ESA) of the University of South Australia (UniSA) – Underdale Campus located at Underdale, South Australia. The assessment was conducted in accordance with Golder Associates proposal dated 15 March 2002 (Reference E026044 / 01), and commissioned by Mr Nathan Warburton of the University of South Australia Property Unit in a letter dated 22 March 2002.

The aim of the preliminary ESA was to assess the potential impacts on soil and/or groundwater at the site as a result of past or current site activities, which may significantly, impact on future development opportunities for the site. The ESA involved a desktop study and site walkover.

This report presents the methodology and results of the site history research and site visit together with a discussion of the potential contamination issues at the site with respect to the possible residential development.

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2.0 SCOPE OF SERVICES

The scope of services undertaken by Golder Associates as part of the preliminary ESA included:

- a site visit;
- a review of selected aerial photographs;
- a Section 7 search;
- a review of readily available Local Government records;
- an inspection of Lands Title Office (LTO) records;
- a review of Primary Industry and Resources South Australia (PIRSA) groundwater information;
- a review of information provided by UniSA (title documentation, location and site layout plans, and a document titled “The University of South Australia, Underdale Campus”); and
- assessment of the information and the preparation of this report.

The assessment works were conducted in accordance with Golder Associates’ technical procedures which are based on the guidelines provided in the NEPC “*National Environmental Protection (Assessment of Site Contamination) Measure*”, 1999 (NEPM), in particular Schedule B(2), Section 3.

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3.0 SITE INFORMATION

3.1 Property Details

The site is located adjacent to the western side of Holbrooks Road and the northern and southern sections are bisected by the Torrens River as shown on Drawing No. 3016D01. It is understood that the site will be sold for possible residential development.

The site details are outlined in Table No. 1.

TABLE NO. 1 – SUMMARY SITE INFORMATION

Address of Site:	University of South Australia – Underdale Campus Holbrooks Road, Underdale
Municipality	City of Charles Sturt & City of West Torrens
Title Information:	Certificate of Title Volume 5564 Folio 273, Certificate of Title Volume 5582 Folio 112, Certificate of Title Volume 5690 Folio 97, Certificate of Title Volume 5762 Folio 465, Certificate of Title Volume 5798 Folio 26, Certificate of Title Volume 5123 Folio 516.
Area of site	Approximately 19.7 ha
Zoning Information:	Northern portion: City of Charles Sturt; Special Use (SU) and Linear Park River Torrens (LP(RT)), Southern portion: City of West Torrens; Residential 2 (R2)
Current Owners:	University of South Australia
Current Occupiers:	As Above

The site is made up of six separate Titles. Copies of the Certificates of Title are included in Appendix A. The site plan is shown on Drawing No. 3016D02.

3.2 Current Use

The site is currently being used as a University Campus, belonging to the University of South Australia. Descriptions of the individual activities are provided in Section 7 of this report.

3.3 Future Use

As this investigation forms part of the University's care of duty policy, at this stage a future land use has not been proposed. It is expected, however, that at least part of the site will be allocated for residential use.

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4.0 SITE HISTORY INVESTIGATION

4.1 Site Plan

The site is located adjacent to the western side of Holbrooks Road and the northern and southern sections are bisected by the Torrens River as shown on Drawing No. 3016D01.

4.2 Zoning

The northern portion of the site is zoned 'Special Use' (SU) by the City of Charles Sturt. The area within eighty metres of the Torrens River is zoned Linear Park (River Torrens) (LP(RT)) by the City of Charles Sturt. The southern portion of the site is zoned 'Residential 2' (R2) by the City of West Torrens. The zoning information is included in Appendix B.

4.3 Current Owners and / or Users

The current owner of the site is the University of South Australia. The site users are university students, employees, suppliers, contractors and the general public. It includes approximately twenty buildings, playing fields, car parks and a maintenance compound. The area has been used for educational purposes for at least the past 30 years. Prior to that the site was used for market gardens.

4.4 Land Title Search, Previous Occupiers and Activities

Up until approximately 1973 the owners of these Titles were predominately gardeners. Since then it has been occupied by UniSA. The ownership details as indicated by the Lands Title Office records are summarised in Table No. 2 overleaf.

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TABLE NO. 2 – SUMMARY OF LAND TITLE INFORMATION

Current Title		Date of Issue	Owner	Occupation
Volume	Folio			
5564	273	--	UniSA	--
4202	467	24-01-1983	Minister of Education	--
Transfer 5381694		11-02-1985	SA College of Advanced Education	
3574	69	07-08-1968	Lancelot Floyd Ridley & Cyril Roy Harcourt Ridley	Gardeners
Transfer 3278016		14-01-1972	Minister of Education	--
947	19	19-02-1913	Ernest Ikuse	Market Gardener
Transfer 747264		24-04-1920	Frank Arthur	Dairyman
Transfer 883735		25-03-1924	George Jennings	Gardener
Transfer 1388024		13-05-1943	Howard Harcourt Ridley & Lancelot Floyd Ridley & Cyril Roy Harcourt Ridley	Gardener
Transfer 1635052		04-08-1950	Hilda Harriet Ridley	--
Transfer 2076666		15-08-1958	The 3 Ridley Bros. as above	Gardeners
5582	112	--	UniSA	--
3969	79	16-11-1973	Land grant in lieu of surrendered Acquired Perpetual Lease No. 301 Registered Book Vol. 947 Fol. 23 William Alfred Philp	Gardener
Transfer 3278016		14-1-1972	Minister of Education	--
Transfer 5381694		11-2-1985	SA College of Advanced Education	--
947	23	20-2-1913	Elizabeth Ann Ould	Wife of William Ould, Laborer
Transfer 735906		22-12-1919	Charlotte Sexton	Married Woman
Transfer 1787793		6-7-1953	Director of War Service Homes	--
Transfer 2123428		1-5-1959	Francis Albert Kerin	Builders Laborer
Transfer 6643733		29-11-1988	Jeanette Dorothy Kerin	--
Transfer 7062835		25-2-1991	David Francis and Anne Cameron	--

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Current Title		Date of Issue	Owner	Occupation
Volume	Folio			
5690	97	--	UniSA	--
2165	6	12-9-1951	Irene Pretoria Emily Robley	Married Woman
Transfer 2182169		12-2-1960	Irene Pretoria Emily Thomas and Elaine Christina Parker	Married Woman
Transfer 3039391		--	Irene Pretoria Emily Thomas and Elaine Christina Parker and Vernon John Robley and Vernon Stephen John Robley	Salesman Student (minor)
Transfer 3839232		13-1-1976	Torrens College of Advanced Education	--
1838	10	26-9-1944	Frederick Henry Newcombe	Gardener
Transfer 1693312		4-9-1951	Irene Pretoria Emily Robley	--
1754	158	3-8-1940	Frederick Henry Newcombe	Gardener
Transfer 1414299		29/8/1944	Howard H Ridley and Lancelot F Ridley and Cyril RH Ridley	--
1427	155	16-7-1926	Frederick Henry Newcombe	Gardener
5762	465	--	UniSA	--
4074	308	13-10-1976	Minister of Education	--
Transfer 5381694		11-2-1985	South Australian College of Advanced Education	--
2325	88	21-5-1954	Desmond Walter Tilley	Gardener
Transfer 1924437		15-12-1955	Albino Berno	Gardener
2282	110	21-8-1953	Frederick Henry Newcombe	Gardener
Transfer 1832638		11-5-1954	Desmond Walter Tilley	Gardener
2282	109	21-8-1953	Desmond Walter Tilley	Gardener
Transfer 1924437		15-12-1955	Albino Berno	Gardener
1754	157	3-8-1940	The Commissioner of Public Works	Easement – Right of way
1427	155	16-7-1926	Frederick Henry Newcombe	Gardener
Cancelled regarding Transfer 1322781 on Vol. 1754/157				
2165	7	12-9-1951	Frederick Henry Newcombe	Gardener
Transfer 1790832		24-7-1953	Desmond Walter Tilley	--
1838	10	26-9-1944	Frederick Henry Newcombe	Gardener

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Current Title		Date of Issue	Owner	Occupation
Volume	Folio			
5798	26	--	UniSA	--
3941	172	1-6-1973	Minister of Education	--
Transfer 5331694		11-2-1985	South Australian College of Advanced Education	--
3749	145	3-2-1971	Italo Zerella	Market Gardener
Acquisition No. 3447531		19-4-1973	Minister of Education	--
3285	104	15-12-1964	Irene Pretoria Emily Thomas and Claire Christina Parker	Widow Married Woman
Transfer 2986013		10-3-1969	Italo Zerella and Gaetana Zerella (Wife)	Market Gardener
Transfer 3163863		23-12-1970	Vito Guido Zerella	--
2325	89	21-5-1954	Frederick Henry Newcombe	Gardener
Transfer 1991117		22-3-1957	Irene Pretoria Emily Thomas	Widow
Transfer 2182140		12-2-1960	Irene Pretoria Emily Thomas and Claire Christina Parker	--
Transfer 2546084		14-2-1964	Giuliano Zugna	--
2282	110	21-8-1953	Frederick Henry Newcombe	Gardener
2165	7	12-9-1951	Frederick Henry Newcombe	Gardener
Transfer 1832638		11-5-1954	Desmond Water Tilley	--
5123	516	--	UniSA	--
4370	514	23-11-1990	South Australian College of Advanced Education	--
4057	799	27-1-1976	Minister of Education	--
Transfer 5381694		11-2-1985	South Australian College of Advanced Education	--
Transfer 6970646		24-8-1990	Easement	--
4045	107	31-7-1975	Minister of Education	--
1783	43	15-10-1941	Samuel Richard Lewis and Charles Lewis	Gardeners
Transfer 1808500		20-11-1953	Gordon C Lewis and Stanly R Lewis	Gardeners
Transfer 1808504		20-11-1953	Raymond Samuel Lewis	Gardener

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Current Title		Date of Issue	Owner	Occupation
Volume	Folio			
Transfer 1865224		26-11-1954	Raymond Samuel Lewis	Gardener
2260	170	15-4-1953	Raymond Samuel Lewis	Gardener
Transfer 2320210		--	Raymond Samuel Lewis and Wife, Helen Grace Lewis	Gardeners
2320	47	22-4-1954	Gordon Charles Lewis – Easement to River	Gardener
804	43	16-4-1909	Samuel Lewis	Farmer
Transfer 1230380		3-3-1937	Samuel R Lewis and Charles Lewis	--
2190	163	20-2-1952	Raymond Samuel Lewis	Gardener
1519	87	21-8-1928	John George Potts	Gardener
Transfer 1400924		24-12-1943	Raymond Samuel Lewis	Gardener
Transfer 1713868		6-2-1952	Annie Morris	--
1709	169	10-8-1938	Annie Morris	--

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5.0 SOURCE INFORMATION

5.1 Review of Selected Aerial Photographs

Aerial photographs of the site and surrounding area were inspected for the years, 1949, 1959, 1969, 1979, 1989 and 2001. These photographs, although at varying scales and detail, provide an indication of the land use at that time. Copies of selected aerial photographs are available in Appendix C.

A summary description of information obtained from the photographs is provided below:

- **1949**

The site appears to be used for market gardens. The majority of the site is vacant cultivated land apart from what appears to be seventeen glasshouses adjacent to the eastern boundary of the site and extending westward to the centre of the southern portion of the site. Further west to the western boundary of the site adjacent to the River Torrens there appears to be four buildings including a residence. There appears to be two other residences on the northern portion of the site across the river and several other buildings/sheds near the centre of this portion of the site. The land surrounding the site also appears to be used for market gardening activities including residences, buildings/sheds, and glasshouses interspersed by vacant parcels of land. The River Torrens appears adjacent to the western boundary of the site and dissects the northern and southern portions of the site.

- **1959**

The site appears similar to the 1949 photograph except that the seventeen glasshouses are no longer apparent. There appears to be four glasshouses extending eastwards from the buildings and residence adjacent to the western boundary of the site. The land use surrounding the site appears to be similar to the 1949 photograph except for to the east where there appears to be a few commercial/industrial buildings along the eastern side of Holbrooks Road.

- **1969**

The site has changed slightly from the 1959 photograph. There appears to be two small buildings near the centre of the southern portion of the site and one small building in the southwestern corner of the site. Another larger building is apparent adjacent to the residence and buildings adjacent to the western boundary of the site. The number and configuration of glasshouses has also changed. There appears to be 30 glasshouses on the southern portion of the site adjacent to the southern bank of the Torrens River where the river dissects the site. The land use surrounding the site has changed considerably since the 1969 photograph. To the west of the site the land use appears to be residential and playing fields associated with the Underdale High School are also apparent. North of the site across Hartley Road there appears to be a sports field associated with a school, commercial/industrial buildings adjacent to Holbrooks Road and residences to the north west of the site. To the east of the site across Holbrooks Road the land use appears to be a mix of commercial/industrial, market gardening and residential use. South of the site the land appears to be used for residential use.

- **1979**

The site has changed significantly from the 1969 photograph the majority of the university buildings are apparent. There appears to be fifteen buildings near the centre of the site near the southern bank of the Torrens River extending southwards. There is a

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vacant grassed area between the buildings and the river. There appears to be one large car park and another smaller car park adjacent to Holbrooks Road and south of the buildings. The northern section of the site across the Torrens River appears to be vacant grassed land used for car parking. The land use surrounding the site appears to be similar to the 1969 photograph except for to the west where the land use appears to be residential and commercial/industrial mix.

- **1989**

The site has changed slightly from the 1979 photograph. There appears to be two additional buildings to the west of the large car park, one large building near the centre of the site and a footbridge that crosses the Torrens River joining the northern and southern portions of the site. On the northern portion of the site across the Torrens River there appears to be two large buildings, six tennis courts and a vacant grassed area. The land use surrounding the site appears similar to the 1979 photograph.

- **2001**

The site has changed slightly from the 1989 photograph. There appears to be one additional building near the centre of the site adjacent to Holbrooks Road and another building west of the large car park near the centre of the site. The land use surrounding the site appears similar to the 1989 photograph.

5.2 Section 7 Information

Section 7 information [Land and Business (Sales and Conveyancing) Act, 1994] from the Environment Protection Authority was requested for only one of the six of the Certificate of Titles, namely Volume 5123, Folio 516. This encompasses the whole of the area south of the Torrens River where it is expected that Section 7 issues may be present. The Section 7 information indicate that there are no records on the public register of:

- environmental assessments;
- waste depots; or
- waste on land.

However there are records on the public register of production of prescribed and listed wastes on the said land. A copy of the licence and the Section 7 information is included in Appendix D.

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6.0 LOCAL GEOLOGY AND HYDROGEOLOGY

6.1 Geology

A review of the 1:50,000 geological map of the Adelaide Region indicates that the site is underlain by the alluvium of river terraces and flood plains, including Pleistocene Sands, Clay (Pooraka Formation, Hindmarsh Clay Formation) and some tertiary gravels.

The Soils Association map of Adelaide (1:50,000 scale) indicates that the surface soils consist of Alluvial Soils – layered stream alluvium clays, silt and gravels associated with the Torrens River Valley.

6.2 Hydrogeology

The Primary Industries and Resources South Australia (PIRSA) groundwater bore database information near the site indicates that the standing water level of the shallow groundwater system in the vicinity of the site is between 5.1 m and 8.0 m below the ground surface.

The groundwater database information is presented in Appendix E and summarised in Table No. 3.

TABLE NO. 3 - SUMMARY OF PIRSA INFORMATION

PIRSA Bore No.	Approx. Distance from site (m)	Direction from the site	Drilled Depth (m)	Depth to Standing Water Level (m)	TDS (mg/L)	Sample Date	Status
7643	420	W	22.9	5.2	1,770	02/1969	unknown
7687	0	On site	12.2	7.6	1,664	12/1972	unknown
12154	200	W	16.7	5.1	1,973	02/1983	operational
14024	520	E	8.0	5.5	2,312	11/1987	unknown
15873	100	E	15.0	8.0	1,513	02/1992	operational
19977	300	NW	18.0	7.4	1,356	11/1999	unknown
20191	230	S	18.0	6.6	2,380	03/2000	unknown

The total dissolved solids (TDS) recorded by PIRSA in groundwater samples from the shallow aquifer varied from around 1,356 mg/L to 2,380 mg/L, indicating the groundwater is typically unsuitable for potable use, but may be suitable for stock watering, irrigation or industrial use.

It is likely that there is some interaction between the uppermost aquifer and the River Torrens, either via leakage from the river to the groundwater, or vice versa.

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7.0 SITE VISIT

Photographs of the site are provided in Appendix F and a site layout plan is included as Drawing No. 3047D02. The site visits were conducted by Mr. Andrew Howes, a Senior Environmental Scientist, of Golder Associates in the presence of Mr. Nathan Warburton of the Property Unit of UniSA. Some individual Departments provided a representative to assist with anecdotal information and accompany the Golder representative.

7.1 South of Linear Park (Torrens River)

The southern part of the campus is the greater part in terms of area and activity. Include in this area is a large Art Department with many disciplines and associated waste as well as the Maintenance Department. The site was inspected in a department to department process, concentrating on those departments which were expected to have a greater potential impact on the environment. In this respect, the following buildings were not entered as part of the inspection as the activities therein were expected not to provide a significant impact to the environment for the purpose of the site history:

- Building A, B and C – School of Education
- Building D – Computer Pools and Flexible Learning Centre
- Building E – Cafeteria, Student Association and National Bank
- Building F – Administration, Campus Services
- Building G – Library, OHS Suite, Muslim Prayer Rooms
- Building H – Lecture Theatres
- Buildings L, M, N and Q - Painting and Drawing, Technology, Gallery, Community Development and Communication
- Buildings S, U, V and X – Nursing, Childcare, Aboriginal and Islander Support Unit and Flexible Learning Centre

Building J – SA School of Art

Messrs. Alan Saunders and Andrew Welch from the School of Jewelry assisted in pointing out the area for equipment storage, the studio and the workshop. The equipment storage area and studios did not contain any chemicals which are expected to have any significant potential impact on the environment. However, the workshop had a soldering area which would have a low impact on the site, being inside the building, and a stone polishing area. The stone polishing equipment was water cooled. The cooling water drained to a sump within the same room. The pH and level of this solution was tested once a week. When there was sufficient solution, a private waste contractor (CleanAway) would collect it, subject to any necessary pH adjustment. It was surmised, by Alan Saunders, that the solution was not always collected by CleanAway, but before this, it was disposed of down the sewer. Other chemicals and activities included some detergents, sulphuric acid, sodium hydroxide (caustic soda), nitric acid and mixtures of these, an oxy-acetalene set and small furnaces for forging jewelry.

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Mr. Robert Mastripolito from the School of Photography, explained the process within this department. The Department is on the first floor of Building J. Chemical wastes are produced in this Department relating to the photographic developing process. Spent fixers are placed into 20 L drums and stored in the dark rooms. Atkins Technicolor collect the waste on request and recycle the silver. The other (more dilute) wastes are released to the sewer, under licence from SA Water, approximately three times per year. Previously, all the waste was mixed and the much larger volume collected by HiTech Waste Disposal on a monthly basis.

No outside tanks relating to the new chemicals or the waste products were observed. The floors of the buildings appeared to be in good repair.

Building K – Sculpture and Ceramics

Mr. David Archer from “Ceramics and Glass” assisted with the site visit in this area. Glass has become a more popular material to study and is a more environmentally friendly substance. However, clays are still worked in this area to produce ceramics and were used a lot in the past. Used clay is re-milled and recycled and, if it has been kilned, it is disposed of as conventional domestic waste. Waste glaze is placed into a bucket but disposal has not yet been considered due to the small volumes. Waste sediment from the grinding / milling process is settled in sediments traps and the aqueous overflow goes to sewage. Spent sandblasting sand is filtered and disposed of in domestic waste.

North of Building K there is an open area and a sealed verandah area. There is staining on the ground, possibly as a result of oil spillage from an oil-fired kiln. There is also an old wood kiln, a gas kiln and an electric kiln in the area. The verandah area appears to have been sealed in the recent past. The rest of the outside area is not sealed and displays poor housekeeping. In a sealed enclosed storeroom, there were limited volumes of various chemicals.

There is also a furnace room belonging to the School of Sculpture. It appears that the furnace has, at least in the past, been oil fired. In this zinc-clad building, there is a sump where the furnace is housed. The walls and floor of this sump are stained with oil. Alongside the furnace there is a large sand bath, most likely used for slow cooling of the artwork. There was no departmental representative to provide details. It is possible however, that the sand bath is not sealed. Outside the furnace room there is another open area where welding and other activities may have occurred.

Building P – Printmaking Department

Mr. Shaw Hendry assisted with this inspection. There is a chemical store within the main building of this department with adequate ventilation and extraction. Although there are many chemicals relating to paint making, they are limited in volume and the likely impact of these chemicals on the outside environment is low.

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Some paint compounds are disposed of down the sinks while others are wrapped up (such as cloths impregnated with paint compounds) and disposed of as conventional waste. Flushing and cleaning of significant amounts of paint compounds is carried out by a jet hose and reports to a sump within the building. Silicon carbide, used for grinding, also goes into this sump. This waste is collected by CleanAway.

The department also has an Acid Room used as part of one of the printing techniques. There are significant acid stains and damage on the floor, to the wooden cupboards under the sinks and to the fumehood area. The floor, however, is concrete and sealed.

Area between the Library (G) and Building P

The area between the present library building and the Printmaking School (adjacent to the parking for disabled persons) used to house a shared services waste storage shed. The shed was allegedly, largely made from timber and had slotted floorboards to provide ventilation. It was attacked by termites and became irreparable. Since then waste has been managed by each individual department.

Building W – Maintenance

An inspection of these buildings and surrounds showed the presence of used oil, kept in drums, as well as storage of termiticides, herbicides, paint and solvents, in limited volumes. Some 25L cans of unleaded fuel are kept in the workshop area but was historically leaded fuel. A 1000 L diesel AST has recently been bunded but this is insufficient in dimensions. There is also a formal washdown bay with an in-line sediment trap (no oil trap). This bay is no longer used as the water overflow reports directly to the Torrens River. Motor vehicles are now washed on the unsealed gravel areas outside the workshops to limit the impact to the Torrens River.

The floor and sealed area immediately outside the workshop has a gradient towards the graveled, unsealed area. Therefore any spills occurring within the workshop would likely end up on unsealed areas. The gravel areas also show significant hydrocarbon staining, even if the surface is lightly scratched.

The maintenance areas are reportedly relatively new as the maintenance department was historically on the “peninsula” between Holbrooks Road and south of the bend in the Torrens River. This area has recently been divested.

Other areas

There are a number of berms around the campus, especially on the east, probably constructed as a visual barrier or for noise control from the carparks and Holbrooks Road. This material

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is fill and although likely to have been sourced from the carparks during construction (which appear lower than natural levels) may contain foreign material.

It is also likely that fill has been used, especially approaching the Torrens River. The Torrens River flows approximately 20 m below the level of the campus with steep stepped gradients down to the water.

Further anecdotal evidence revealed that monthly routine spraying for termites at the Childcare Centre and some other areas occurs.

7.2 North of Linear Park

North of the Torrens River is the School for Physical Education, Exercise and Sport including Building R. The building was not entered but there was evidence of substantial earth movement during construction due to the undulating topography around the oval and tennis courts. As was the case in the southern area, this fill may be sourced from the lower sports field but the possibility been imported soil.

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8.0 OTHER INFORMATION

8.1 Wastes, spills and discharges

As discussed in the site visit information there have been a number of potential and observed wastes around the site.

There are inferred hydrocarbon spills in the maintenance compound, in the furnace building belonging to the School of Sculpture and around the outside kiln area belonging to "Ceramics".

There may be elevated pesticide concentrations near the former timber waste shed under the fence lines and in the former topsoil from the market garden activities.

Asbestos pieces were found in the area west of Building M.

An assortment of hydrocarbon and other wastes may be present near the former timber waste shed.

8.2 Surrounding Land Use

The surrounding land use to the east across Holbrooks Road is a mix of residential and commercial properties. To the south of the site the land is used for residential purposes. West of the site is the Underdale High School sports fields and the Torrens River Linear Park that runs adjacent to the central portion of the site and dissects the northern and southern portions of the site. Further west across the other side of the river the land use is residential. To the north of the site across Hartley Road the land uses include residential, commercial open space and educational use.

8.3 Anecdotal Evidence

Most of the anecdotal evidence was gained during the site visit and therefore this information is included in that section.

The following people provided comment on activities (past and present):

- Mr Alan Sanders, School of Jewellery
- Mr Andrew Welsh, School of Jewellery
- Mr Robert Mastripolito, School of Photography

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- Mr David Archer, School of Ceramics and Glass
- Mr Shaw Hendry, Printing Department
- Mr Nathan Warburton, Property Unit
- Mr. John Granger, Maintenance Department

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9.0 POTENTIAL AREAS / CHEMICALS OF INTEREST

Based on our experience in the assessment and management of other similar sites, and a review of the information collated during the site history assessment, the potentially contaminating activities at the site are presented in Table No. 4.

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TABLE NO 4 – SUMMARY OF POTENTIALLY CONTAMINATING ACTIVITIES

Chemicals of Interest	Associated with	Medium	Persistence & Mobility in soils	Discussion
Metals	Localised inorganic weedicide, pesticide / termiticide and fertiliser applications and storage Imported fill from an unknown source	Surface soils under buildings and sheds and around site in surface soils, fill and former topsoil Stockpiled material and berms	Highly persistence, moderate mobility	Potentially significant. Surface soils could be affected in the vicinity of buildings fencelines, berms, fill near the Torrens River, the Childcare Centre and former waste timber store.
Organochlorine Pesticides (OCPs)	Localised weedicide and pesticide / termiticide application and storage and general use of pesticides. Wood stockpiles	Surface soils under buildings, sheds, paved areas, in glasshouses and around site and former surface soils used for growing crops, gardens and turf.	Moderate persistence, moderate mobility	Potential long term impact from use, preparation and disposal. Possibly concentrated in areas adjacent to buildings or sheds, garden beds, paved and turfed areas, the Childcare Centre and former waste store.
Organophosphate Pesticides (OPPs)	General Use of Pesticides	Former surface soils in areas used for growing crops, grassed areas, garden beds and paved areas	Low persistence, moderate mobility	Potential long term impact from use, preparation and disposal. Possibly concentrated in areas adjacent to buildings or sheds, garden beds, paved and turfed areas.
Total Petroleum Hydrocarbons (TPH) and benzene, toluene, ethylbenzene and xylenes (BTEX)	Use and storage of fuel, lubricants and greases	Surface and subsoils in extreme cases in groundwater in sheds, near drums and storage tanks	Low to moderate persistence, moderate mobility	Potential moderate term if in anaerobic, deeper or dry soils. Concentrated in the vicinity of the maintenance buildings.
Asbestos	Use of asbestos in older buildings	Surface soils adjacent to older buildings and sheds	High persistence in soils, high mobility if air borne	Asbestos pieces would only likely be an issue in the surface soils if the buildings were demolished and pieces of asbestos remained in the surface soils. An asbestos audit was not conducted as part of this investigation. However, asbestos pieces were found in the fill on the western boundary of the site
PAHs	Ash and cinders from boilers, furnaces or foundry waste. Fill material and asphalt	Imported fill material.	Some species are persistence in soils but others are volatile, low mobility	Benzo(a)pyrene is highly carcinogenic. Other PAH species are also show high toxicity. Berms near eastern boundary of site and inferred fill material adjacent to the Torrens River
Soil pH	Variations in acidity is associated with above areas	Soils affected by associated activities.	Once affected, extreme soil pH is persistent	

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10.0 DISCUSSION

The site has been used for horticultural purposes from the early 1910s until the 1970s when the university was built. A number of glasshouses have been located at various locations around the site, which have since been demolished. Since the early 1970s the site has been used for educational purposes.

Based on the historical site research, it is considered that the primary areas and chemicals of interest at the site are:

- polycyclic aromatic hydrocarbons and heavy metals associated with fill of unknown origin and the combustion of waste in the furnaces and kilns at the site;
- organochlorine pesticides, organophosphate pesticides and heavy metals associated with the possible past use of pesticides, herbicides, underfloor treatments and in the area of the former chemical waste shed;
- total petroleum hydrocarbons, benzene, toluene, ethylbenzene and xylenes associated with their storage and use during maintenance activities in the furnace building belonging to the School of Sculpture and the kiln area outside the Ceramics and Glass;
- contamination of the soil in the area under the former waste shed; and
- asbestos (in building materials).

No intrusive environmental investigations was conducted as part of this preliminary ESA.

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11.0 LIMITATIONS OF THIS REPORT

This report has been prepared in accordance with the agreement between The University of South Australia and Golder Associates Pty Ltd (Golder Associates). The services performed by Golder Associates have been conducted in a manner consistent with the level of quality and skill generally exercised by members of its profession and consulting practice. No warranty or guarantee of site conditions is intended.

This report is solely for the use of The University of South Australia and any reliance of this report by third parties shall be at such party's sole risk and may not contain sufficient information for purposes of other parties or for other uses. This report shall only be presented in full and may not be used to support any other objective than those set out in the report, except where written approval with comments are provided by Golder Associates.

The information in this report is considered to be accurate at the date of issue in accordance to the current conditions of the site. This should be considered if the report is used after a significant delay in time.

Attached, as Appendix H is a document entitled "Important Information About Your Preliminary Environmental Site Assessment" which should be read in conjunction with this report. We would be pleased to answer any questions about this important information.

12.0 CLOSURE

If you have any questions regarding this report or if you require any additional information please contact either Adam Kilsby or Andrew Howes in our Adelaide Office.

GOLDER ASSOCIATES PTY LTD



Andrew Howes
Senior Environmental Scientist



Adam Kilsby
Manager, Environmental Services, SA

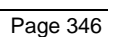
DSG/AWH:AGK:jls

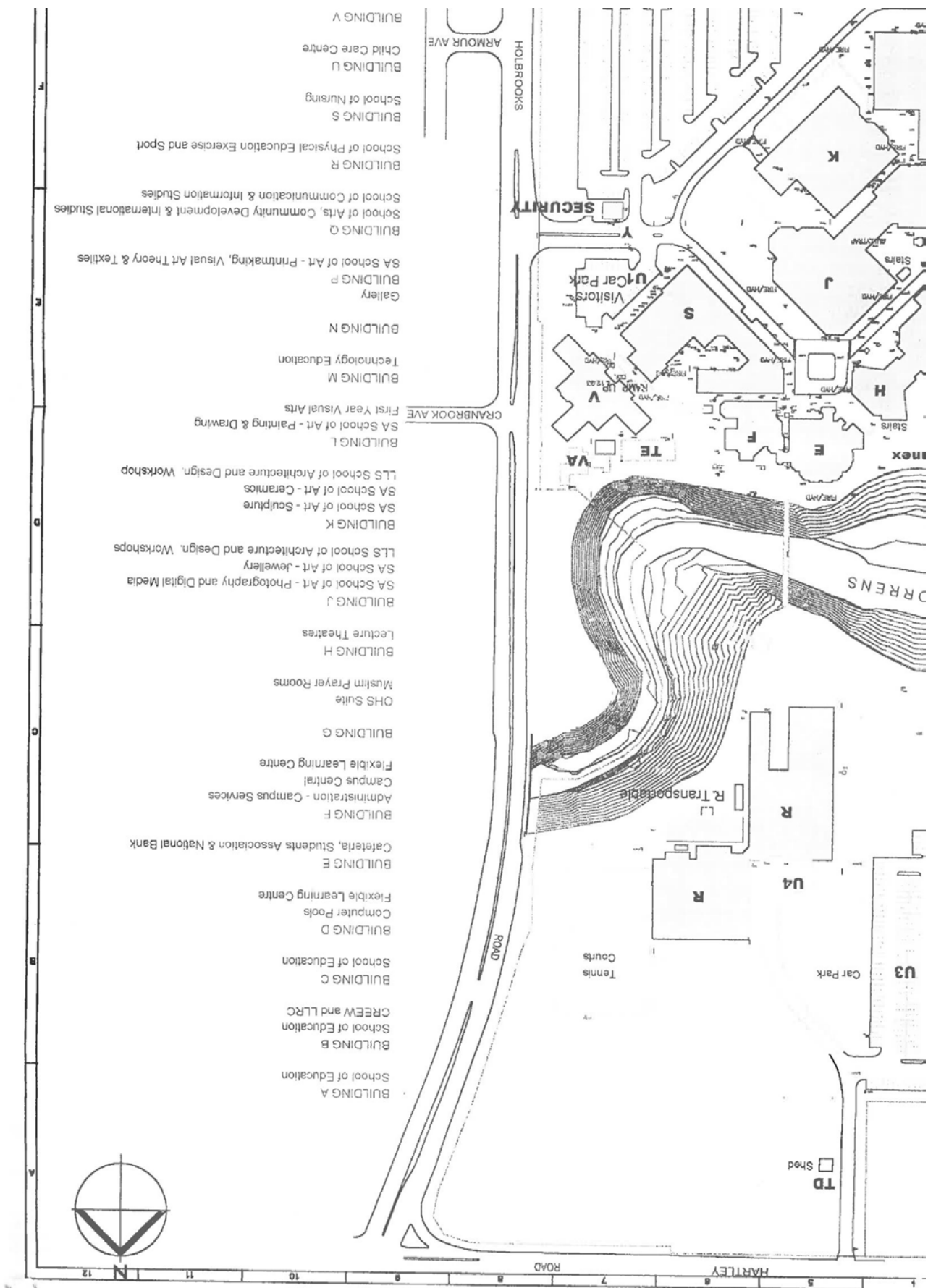
N:\2002\ENV\02663016\OUTGOING\301602RP.DOC

Golder Associates

DRAWINGS

Golder Associates





APPENDIX A
CERTIFICATE OF TITLE

Golder Associates

ORIGINAL
CERTIFICATE OF TITLE

South Australia

Register Book,

Volume 4202 Folio 467

NOW 5564 273

REGISTER

13 FEB 1998

SEARCH



New Certificate for the balance of the Land in Vol.3574 Folio 69

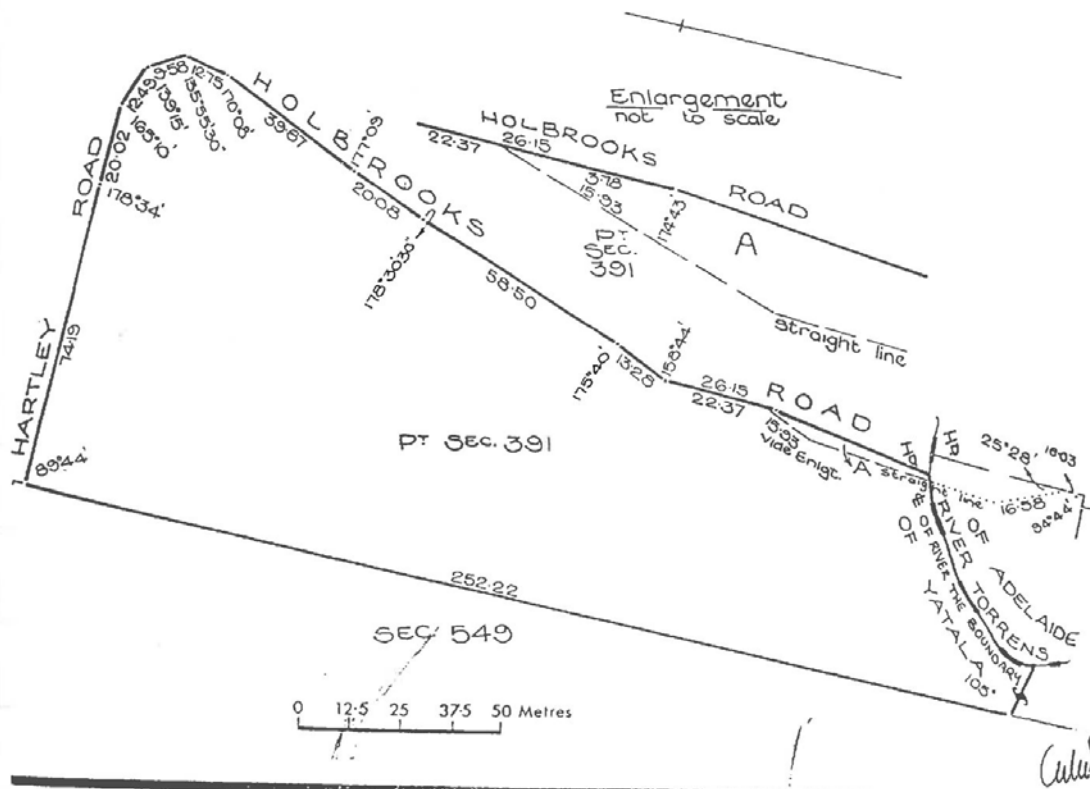
MINISTER OF EDUCATION is the proprietor of an estate in fee simple subject nevertheless to such encumbrances liens and interests as are notified by memorial underwritten or endorsed hereon in PORTION OF SECTION 391 HUNDRED OF YATALA in the area named FLINDERS PARK delineated on the plan hereon by bold black lines SUBJECT to the easement to the Minister of Water Resources more particularly set forth in Transfer 4959625 in and over that portion marked A hereon

In witness whereof I have signed my name and affixed my seal this 24th day of January 1998

Signed the 24th day of January 1998, in the presence of *Joachim* }

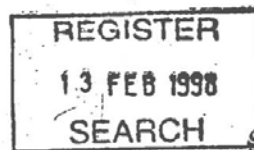
Just Hughes

Deputy Registrar-General





193 COLL



South Australia



Land Grant

[IN DUPLICATE]

Register Book
5582 112
Vol. 3969 Folio 79
C. L. Nairn
Registrar-General

(In lieu of Surrendered Acquired Soldiers Perpetual Lease No. 301 Reg. Book Vol. 947 Fol. 23)

His Excellency the Governor in consideration of one thousand three hundred and fifty two dollars (\$1352-00) heretofore paid to the Treasurer by WILLIAM ALFRED PHILP of Hartleys Road Flinders Park 5025

Gardener _____

hereinafter called the Grantee doth hereby in the name and on behalf of HER MAJESTY GRANT unto the Grantee ALL that _____ Section of land containing approximately five acres _____

or thereabouts situate in the

Hundred of YATALA _____ County of ADELAIDE _____ and numbered 549 _____

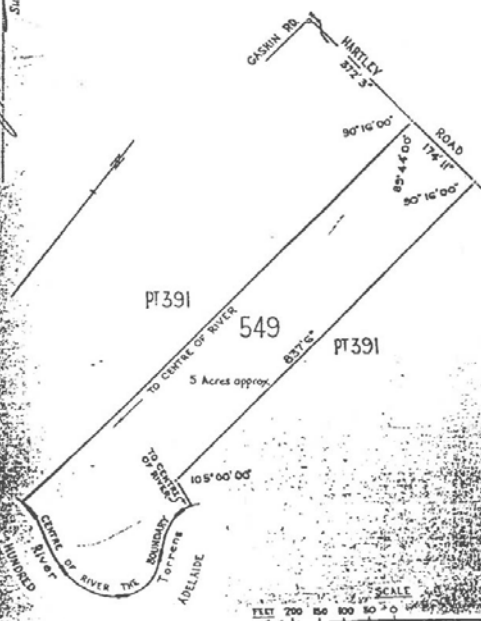
Department of Lands

and delineated in the public maps deposited in the Land Office at ADELAIDE and in the plan in the margin hereof EXCEPT AND RESERVED UNTO HER MAJESTY Her Heirs and Successors all gold silver copper tin and other metals all ores and other substances containing metals all minerals and all gems and precious stones coal and mineral oils upon in or under the said land and all incidental powers as provided for in the Crown Lands Act, 1929-1968 Provided that stone ordinarily used for building or road purposes shall be exempted from this reservation TO HOLD unto and to the use of the Grantee and the Heirs of the Grantee for ever.

GIVEN under the hand of the Governor and the Public Seal of South Australia this sixteenth _____ day of November _____ one thousand nine hundred and seventy three _____

BY COMMAND,

C. L. Nairn
The Minister of Lands
and
Minister of Repatriation



TRANSFER No. 3083039
Commissioner of Highways
OF THE WITHIN LAND. PRODUCED 9/3/97 AT 11 A.M.
DEP. REG. GEN.

TRANSFER No. 3278016
Minister of Education
OF THE WITHIN LAND. PRODUCED 11/12/97 AT 11 A.M.
DEP. REG. GEN.

TRANSFER No. 5331694 TO
UNIVERSITY COLLEGE OF
ADVANCED EDUCATION
OF THE WITHIN LAND. PRODUCED 11.2.1992 AT 2.30pm

APPLICATION 7392709 The within land
is vested in University of South
Australia pursuant to Section 16
of the Statute Amendment and
Repeal (Merger of Tertiary Institutions)
Act 1990 Produced 29.10.1992 at 11.00

ORIGINAL
CERTIFICATE OF TITLE

South Australia

Register Book,

Volume 4074 Folio 308

now Vol 5762 Fol 465

REGISTER
13 FEB 1998
SEARCH



Pursuant to Acquisition 3447530 Registered on Vol.1754 Folio 157
Vol.2282 Folio 109 and Vol.2325 Folio 88

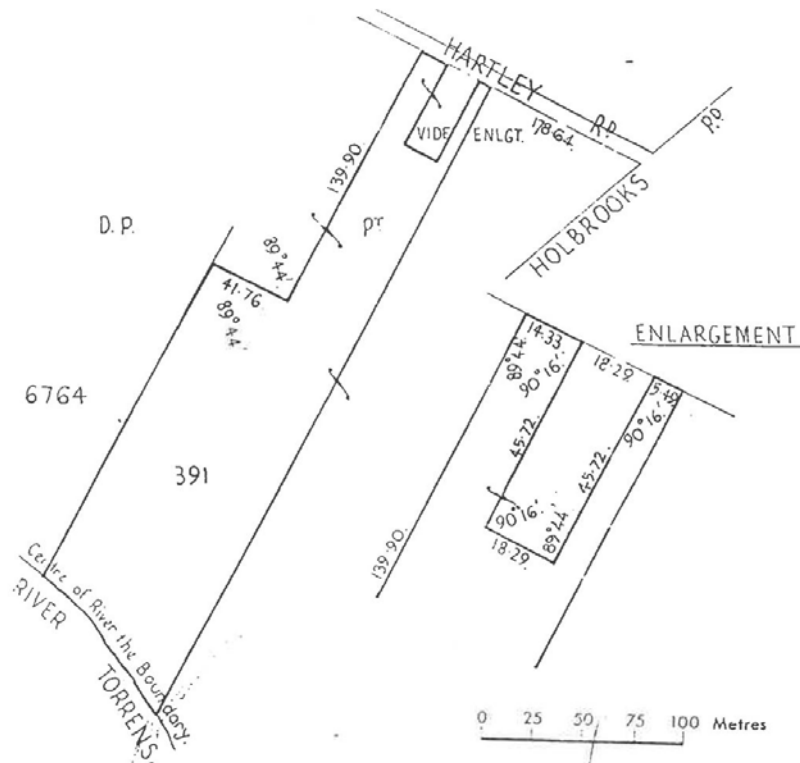
MINISTER OF EDUCATION is the proprietor of an estate in fee simple subject nevertheless to such encumbrances liens and interests as are notified by memorial underwritten or endorsed hereon in PORTION OF SECTION 391 HUNDRED OF YATALA in the area named FLINDERS PARK delineated by bold black lines on the plan hereon

In witness whereof I have signed my name and affixed my seal this *13th* day of *October* 1976

Signed the *13th* day of *October*

1976, in the presence of *R. Halliday*

Deputy Registrar-General



5381694

VOL 4074 FOL 308

TRANSFER 5381694 to SOUTH AUSTRALIAN COLLEGE OF
ADVANCED EDUCATION of the within land Produced
11.2.1985 at 2.30 p.m.



APPLICATION 7392709 The within land is
vested in UNIVERSITY OF SOUTH AUSTRALIA
pursuant to Section 16 of the Statutes
Amendment and Repeal (Merger of Tertiary
Institutions) Act 1990 Produced
29.10.1992 at 11:00




South Australia.

REGISTER

FEB 1938

SEARCH



(CERTIFICATE OF TITLE.)

Register Book,
Vol. 2485 Folio 6
5690 97

Pursuant to Memorandum of Transfer No. 1693312 Registered on Vol. 1838 Folio 10


IRENE PRETORIA EMILY ROBLEY of 58 Park Road Kensington Park
Married Woman


is the proprietor of an estate in fee simple
subject nevertheless to such encumbrances liens and interests as are notified by memorial underwritten or endorsed hereon in
THAT piece of land situated in the HUNDRED of YATALA COUNTY of ADELAIDE
being PORTION OF SECTION 391 more particularly delineated and bounded as appears in the plan in
the margin hereof and therein coloured green

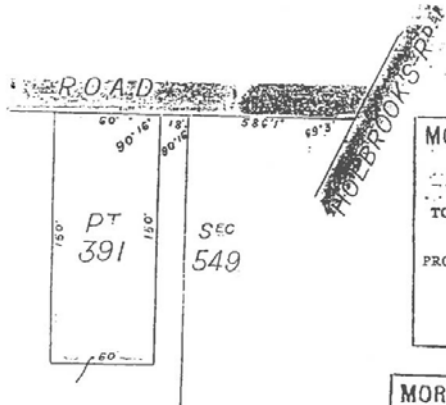
Which said Section is delineated in the public map of the said Hundred deposited in the Land Office at Adelaide.

In witness whereof I have hereunto signed my name and affixed my seal this 9th day of September 1951

Signed the 12th day of September 1951, in the presence of M. Love


Registrar-General.
11/12/240





MORTGAGE No. 1779340 FROM
Irene Pretoria Emily Robley
TO THE NATIONAL MUTUAL LIFE ASSOCIATION OF AUSTRALASIA LIMITED.
PRODUCED FOR REGISTRATION THE 21 DAY OF
May 1951 AT 12.10 p.m.
[Signature]
DRP. REG. GENL.

M.D. 7.47.

MORTGAGE No. 1778117 FROM
Irene Pretoria Emily Robley
TO THE NATIONAL MUTUAL LIFE ASSOCIATION OF AUSTRALASIA LIMITED.
PRODUCED FOR REGISTRATION THE 21 DAY OF
May 1951 AT 12.10 p.m.
[Signature]
DRP. REG. GENL.

MARRIAGE, The within Irene Pretoria Emily Robley, was solemnized to William Alan Thomas of Hartley Road Flinders Park Insurance Inspector on the 27 day of January 1954 at Adelaide. As attested by Certified Copy of Certificate of Marriage No. 1819855 Entered the 18 day of February 1954 at 4 a.m. Produced for registration the 5 day of February 1954 at 11.40 a.m.

[Signature] Dep. Reg. Gen.

TRANSFER No. 2182169 FROM Irene Pretoria Emily Thomas to the said Irene Pretoria Emily Thomas of 74 Pine, Hartley Road Flinders Park and being the OF THE WITHIN LAND. PRODUCED 12/11/60 AT Adelaide. DEP. REG. GEN.

DISCHARGE OF MORTGAGE No. 1778117 BY ENDORSEMENT THEREON. PRODUCED 16.3.1968 AT 11.45 a.m. *[Signature]* DEP. REG. GEN.

MORTGAGE No. 2890969 TO THE CO-OPERATIVE BUILDING SOCIETY OF SOUTH AUSTRALIA PRODUCED 6.2.1968 AT 11.45 a.m. *[Signature]* DEP. REG. GEN.

DISCHARGE OF MORTGAGE No. 2970969 BY ENDORSEMENT THEREON. PRODUCED 27.5.1969 AT 11 a.m. *[Signature]* DEP. REG. GEN.

TRANSFER No. 3039351 to the within named Irene Pretoria Emily Thomas of the "Pines" 23 Hartley Road Flinders Park 5025 widow of an estate of freehold for life and to the within named Claire Christina Parker of the "Pines" 23 Hartley Road Flinders Park 5025 married woman and to Vernon John Robley Solomon and Vernon Stephen John Robley Student a minor born 8.10.1957 both of 20 Raymond Road Para Hills 5056 of an estate in fee simple in remainder expectant upon the determination of the said life estate in the within land. Produced 25.5.1969 at 11.20 a.m. *[Signature]* Dep. Reg. Gen.

TRANSFER No. 3839232 To Temara College of Advanced Education of Holtby Road Underdale 3043 PRODUCED 12/12/67 OF THE WITHIN LAND PRODUCED 13.1.1968 AT 1.10 p.m.

HON. 22
The within land is vested in South Australian College of Advanced Education
Vide 6746365 Produced 2.6.1989 at 14.30.

APPLICATION 7392709 The within land is vested in University of South Australia pursuant to Section 16 of the Statute Amendment and Repeal (Merger of Tertiary Institutions) Act 1990. Produced 29.10.1992 at 11.00.

Page 357



Computer Register Search

LANDS TITLES OFFICE, ADELAIDE

Issued pursuant to the Real Property Act, 1886, and certified overleaf

REGISTER SEARCH OF CERTIFICATE OF TITLE * VOLUME 5123 FOLIO 516 *

OST : \$12.00
REGION : 1ST FLOOR L.T.O.
AGENT : COLL BOX NO : 193
SEARCH DATE : 12/02/1998
SEARCH TIME : 16:36:40

PARENT TITLE : CT 4370/514
AUTHORITY : SC 7392708
DATE OF ISSUE : 25/05/1993
EDITION : 2

REGISTERED PROPRIETOR IN FEE SIMPLE

UNIVERSITY OF SOUTH AUSTRALIA OF NORTH TERRACE ADELAIDE SA 5000

DESCRIPTION OF LAND

ALLOTMENT 1 FILED PLAN 21227
IN THE AREA NAMED UNDERDALE
HUNDRED OF ADELAIDE

EASEMENTS

SUBJECT TO THE EASEMENT OVER THE LAND MARKED A TO THE MINISTER OF PUBLIC
INFRASTRUCTURE (T 3831568)

SUBJECT TO THE EASEMENT OVER THE LAND MARKED B TO THE COUNCIL FOR THE AREA
(TG 6970646)

SCHEDULE OF ENDORSEMENTS

NIL

NOTATIONS

DOCUMENTS AFFECTING THIS TITLE

NIL

REGISTRAR-GENERAL'S NOTES

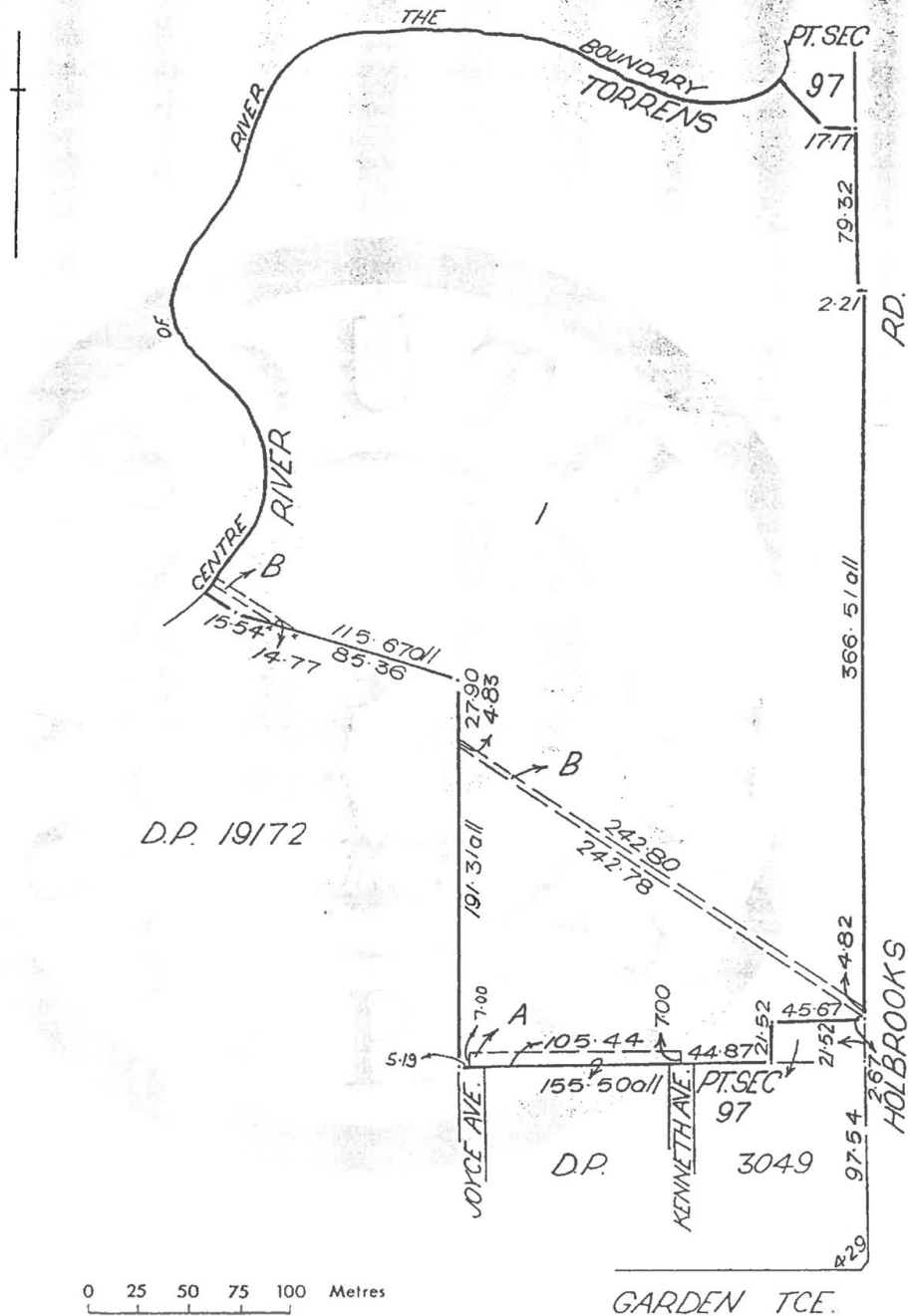
APPROVED FILED PLAN NO UNIQUE IDENTIFIER FX34276

END OF TEXT.

PAGE 1 OF 2

Warning: The information appearing under notations has not been formally recorded in the Register Book and the provisions of the Real Property Act, 1886, as to the conclusiveness of the Certificate overleaf do not extend thereto.

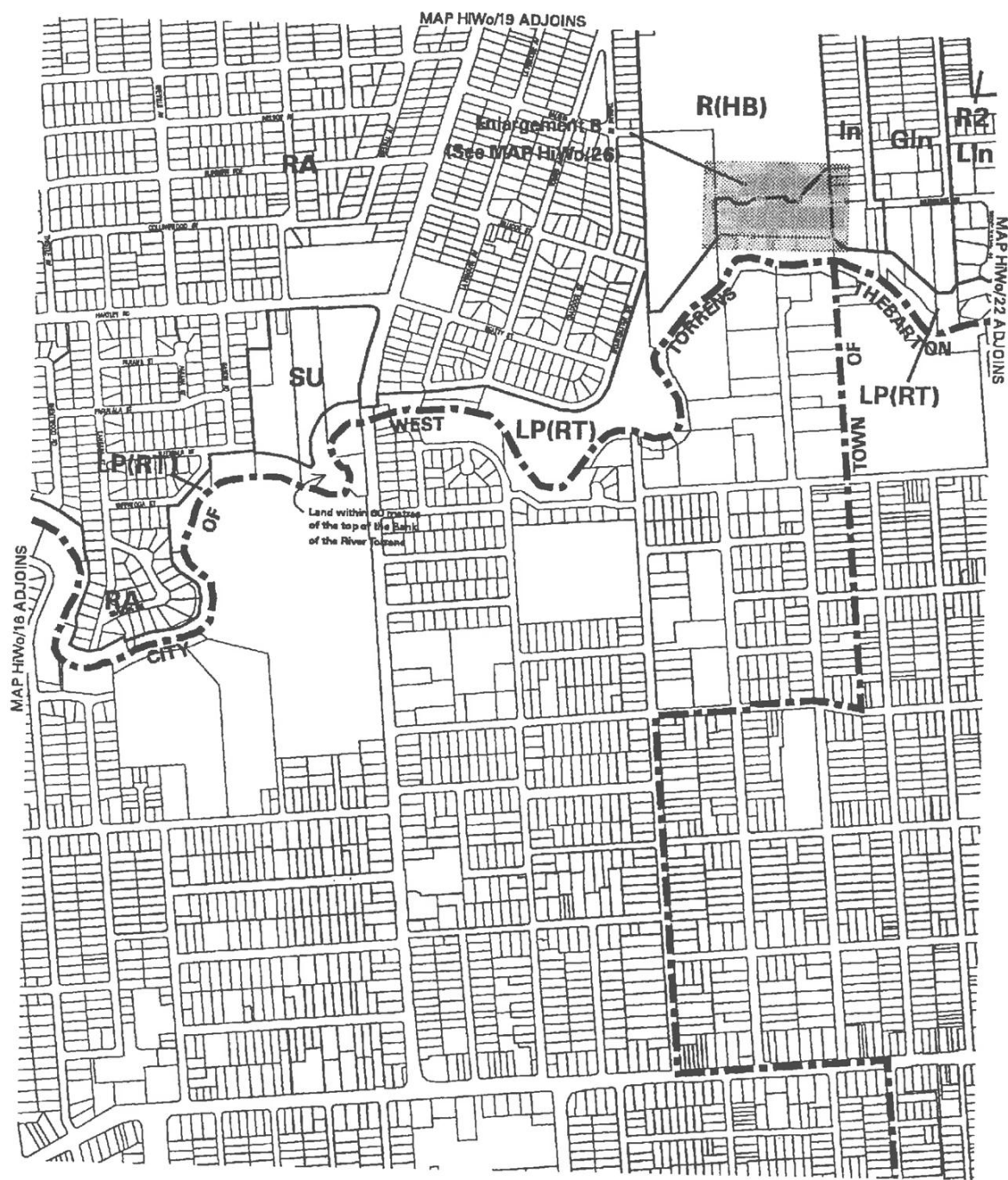
LANDS TITLES OFFICE ADELAIDE SOUTH AUSTRALIA
 DIAGRAM FOR CERTIFICATE OF TITLE VOLUME 5123 FOLIO 516
 SEARCH DATE : 12/02/1998 TIME: 16:36:40



PAGE 2 OF 2

APPENDIX B
ZONING INFORMATION

Golder Associates



Gln General Industry
 Ln Industry
 Ln Light Industry
 LP(RT) Linear Park (River Torrens)
 R(HB) Residential (Hallet Brickworks)
 R2 Residential 2
 RA Residential A
 SU Special Uses

— Zone Boundary
 - - - Development Plan Boundary

Scale 1:10000
 0 0.5km

HINDMARSH AND WOODVILLE (CITY) ZONES MAP HiWo/20

21 January 1999

SPECIAL USES ZONE

Introduction

The objective and principles of development control that follow apply in the Special Uses Zone shown on Maps HiWo/6 to 15 and 18 to 20. They are additional to those expressed for the whole of the council area.

OBJECTIVE

- Objective 1:** A zone accommodating special public and private activities of an institutional or open character.

PRINCIPLES OF DEVELOPMENT CONTROL

- 1 Development undertaken in the Special Uses Zone should be special public or private activities of an institutional or open character.
- 2 The following kinds of development are **complying** in the Special Uses Zone subject to compliance with the following conditions:
 - (a) the conditions prescribed in Table HiWo/1; and
 - (b) no building shall be erected so that any portion of the building is nearer to the existing boundary of any street, road or thoroughfare or to the boundary of any land shown as being required for road widening on the Plan deposited under the provisions of the Metropolitan Adelaide Road Widening Plan Act, 1972-1976, than six metres provided that:
 - (i) where the allotment or plot of land upon which the said building is erected has more than one boundary with an existing street, road or thoroughfare, then no portion of the said building shall be nearer than six metres from the boundary of one such existing street, road or thoroughfare or to the boundary of any land shown as being required for road widening on the Plan deposited under the provisions of the Metropolitan Adelaide Road Widening Plan Act, 1972- 1976, and three metres from the boundary of any other street, road or thoroughfare or to the boundary of any land shown as being required for road widening on the Plan deposited under the provisions of the Metropolitan Adelaide Road Widening Plan Act, 1972-1976; and
 - (ii) where the said building is nearer than six metres from a road, street or thoroughfare or to the boundary of any land shown as being required for road widening on the Plan deposited under the provisions of the Metropolitan Adelaide Road Widening Plan Act, 1972-1976, the said building shall be no nearer than six metres from the boundary of the adjoining allotment which has a frontage to the said street, road or thoroughfare:

Caravan Park
Cemetery
Crematorium

Golf Course
Recreation Area

- 3 The following kinds of development are **non-complying** in the Special Uses Zone:

Abattoir
Amusement Hall
Auction Room
Bank
Billiard Saloon
Bowling Alley
Bus Depot
Bus Station

Office
Office and Dwelling
Petrol Filling Station
Place of Worship
Police Station
Post Office
Prescribed Mining Operations
Primary School

21 January 1999

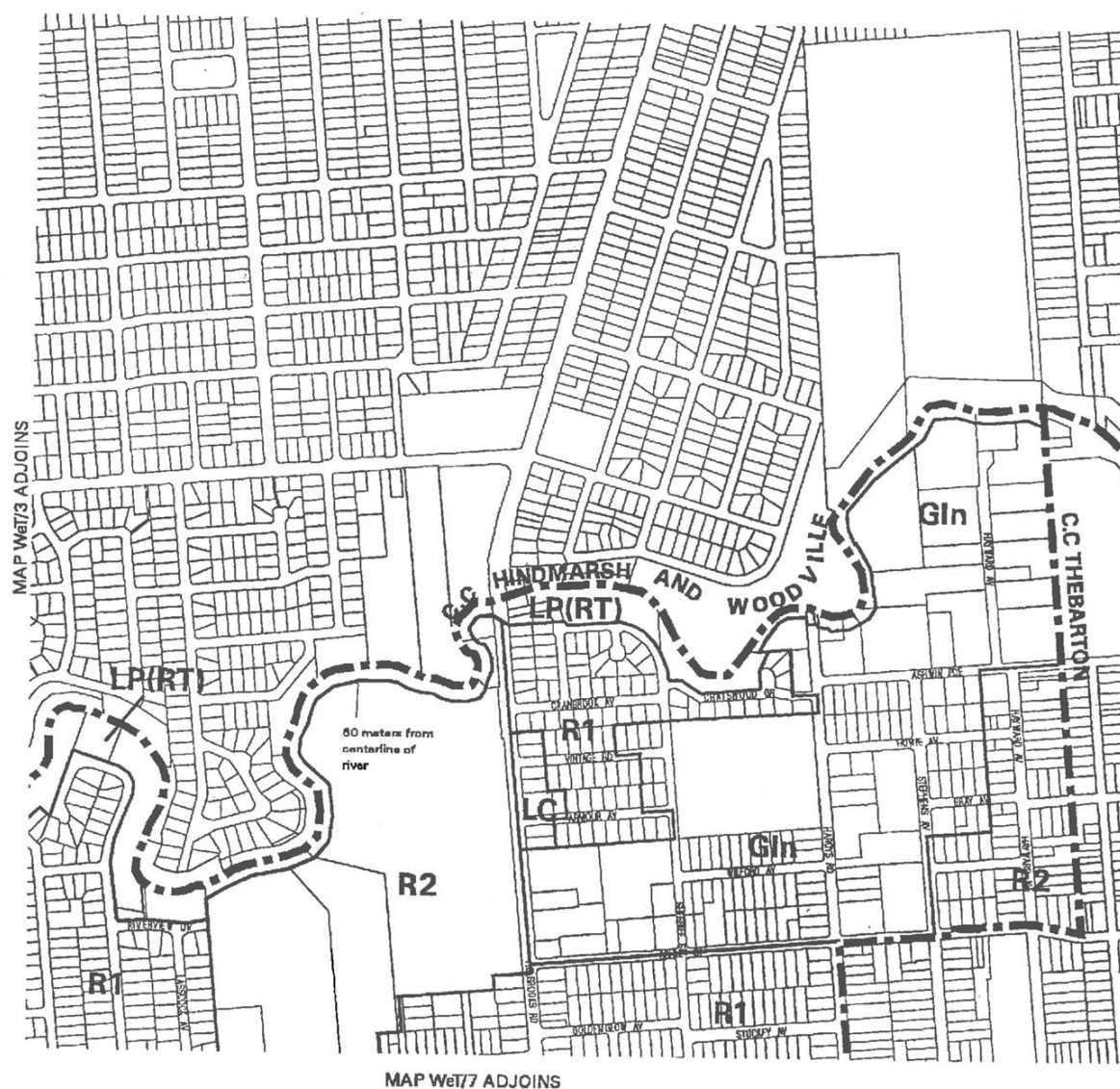
125

Hindmarsh and Woodville (City)

Community Centre
Concert Hall
Consulting Room
Dance Hall
Detached Dwelling
Exhibition Hall
Fire Station
General Industry
Gymnasium
Harbour Installation
Health Centre
Library
Light Industry
Meeting Hall
Motor Repair Station
Motor Showroom
Multiple Dwelling

Radio or TV Studio
Refuse Destructor
Residential Flat Building
Road Transport Terminal
Row Dwelling
Semi-detached Dwelling
Service Industry
Shop
Shop and Dwelling
Skating Rink
Special Industry
Squash Court
Store
Theatre
Timber Yard
Used Car Lot
Warehouse

21 January 1999



Gln General Industry
 LC Local Commercial
 LP(RT) Linear Park (River Torrens)
 R1 Residential 1
 R2 Residential 2

— Zone Boundary
 - - - Development Plan Boundary

Scale 1:10000

0 0.5km

WEST TORRENS (CITY) ZONES MAP WeT/4

2 July 1998

LINEAR PARK (RIVER TORRENS) ZONE

Introduction

The objectives and principles of development control that follow apply in the Linear Park (River Torrens) Zone shown on Maps HiWo/12, 16, 20 and 22. They are additional to those expressed for the whole of the council area.

OBJECTIVES

Objective 1: A zone in which the character, aesthetic appearance, scenic beauty and amenity of the River Torrens and its environs are preserved and enhanced in order to:

- (a) provide recreation areas, particularly passive recreation areas;
- (b) provide a buffer area between metropolitan districts;
- (c) provide for native flora and fauna habitats;
- (d) protect areas of scientific, archaeological or cultural significance;
- (e) provide areas for study and interpretation of natural and human heritage; and
- (f) provide suitable areas to facilitate the expansion of ancillary uses to the existing busway.

Objective 2: The maintenance of the capacity and hydraulic characteristics of the river channel in a manner consistent with flood mitigation control measures in order to avoid flooding outside the channel.

PRINCIPLES OF DEVELOPMENT CONTROL

- 1 Development should preserve and enhance the character and amenity of the River Torrens and its environs.
- 2 Development should be located and designed so as to minimize damage resulting from floodwaters.
- 3 Buildings should be located unobtrusively and should be constructed of materials which blend with the riverine landscape.
- 4 There should be no vehicular crossings through the Linear Park which provide access between the abutting allotment and a public road.
- 5 Development on allotments which abut the Linear Park should not be undertaken unless any surface run-off or wastes produced by the proposed use of the land, can be managed so as to prevent any detrimental effect on existing surface of the Linear Park.
- 6 Development should not be undertaken if the establishment, operation or management of such development is likely to result in:
 - (a) pollution of the River Torrens;
 - (b) unnecessary loss or damage to native vegetation;
 - (c) erosion;
 - (d) creation of dust;
 - (e) nuisance from noise;
 - (f) the introduction of or an increase in the number of pest plants or vermin;

21 January 1999

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Hindmarsh and Woodville (City)

- (g) reduction in capacity of the river channel;
- (h) landfill or landslide; or
- (i) damage to Aboriginal sites, objects or remains as defined under the Aboriginal Heritage Act, 1988.

7 The following kind of development is **complying** in the Linear Park (River Torrens) Zone:

Recreation Area

8 The following kinds of development are **non-complying** in the Linear Park (River Torrens) Zone:

Abattoir	Light Industry
Ambulance Station	Major Public Service Depot
Amusement Hall	Meeting Hall
Amusement Machine Centre	Minor Public Service Depot
Amusement Park	Motel
Auction Room	Motor Race Track
Bank	Motor Repair Station
Billiard Saloon	Non-residential Club
Boarding House	Office
Bowling Alley	Office and Dwelling
Builder's Yard	Petrol Filling Station
Bus Depot	Place of Worship
Bus Station	Police Station
Caravan Park	Post Office
Cemetery	Prescribed Mining Operations
Community Centre	Primary School
Concert Hall	Private Hotel
Consulting Room	Radio or TV Studio
Crematorium	Refuse Destructor
Dance Hall	Residential Club
Dwelling	Road Transport Terminal
Educational Establishment	Service Trade Premises
Electricity Generating Station	Shop
Electricity Sub-station	Shop and Dwelling
Exhibition Hall	Show Ground
Fire Station	Skating Rink
Fuel Depot	Special Industry
Fun Fair	Squash Court
General Industry	Stadium
Gymnasium	Store
Helipad	Theatre
Home Industry	Timber Yard
Hospital	Transmitting Station
Hotel	Warehouse
Indoor Recreation Centre	Waste Disposal Depot
Intensive Animal Keeping	Waste Transfer Depot
Junk Yard	Welfare Institution
Library	

21 January 1999

RESIDENTIAL 2 ZONE

Introduction

The objective and principles of development control that follow apply in the Residential 2 Zone shown on Maps WeT/4, 6 to 9, 12 to 14 and 16 to 18. They are additional to those expressed for the whole of the council area.

OBJECTIVE

- Objective 1:** A zone primarily accommodating detached dwellings on individual allotments and semi-detached dwellings, with row dwellings and residential flat buildings of medium densities in suitable areas.

PRINCIPLES OF DEVELOPMENT CONTROL

- 1 Development undertaken in the Residential 2 Zone should be, primarily, detached dwellings on individual allotments and semi-detached dwellings; but row dwellings and residential flat buildings of medium densities may be suitable in certain parts of the zone.
- 2 Residential development of the land identified as Lots 221, 233 and 229 in Filed Plan 7041 and Lot 239 in Filed Plan 9565, Fitzroy and Penong Avenues, Camden Park, should not prejudice the continuation of existing nearby uses nor the attainment of the objectives for the adjacent General Industry Zone.
- 3 Residential development on that land identified in principle of development control numbered 2 (above) should not be undertaken until environmental audits in respect of land contamination have been undertaken and approved.
- 4 Dwellings located adjacent to noise sources, such as an arterial road or non-residential zone, should be designed and sited to minimize the impacts arising from the noise source by:
 - (a) siting dwellings as far as possible from the noise source. In this respect dwellings adjoining an arterial road should be sited at least eight metres from the street alignment;
 - (b) creating dense physical barriers such as masonry walls, between the noise source and the dwelling;
 - (c) designing dwellings which place service areas between the noise source and living areas; and
 - (d) utilizing appropriate sound insulation methods such as suitable window treatments and roof and wall insulation.
- 5 The following kinds of development are **complying** in the Residential 2 Zone subject to compliance with conditions comprising, where applicable:
 - (a) the conditions prescribed in Table WeT/1;
 - (b) no building being erected, added to or altered on any land so that any portion of such building will be erected, added to or altered nearer than eight metres to the existing boundary of any road, or to the boundary of any land shown as being required for road widening on the Plan deposited under the provisions of the Metropolitan Adelaide Road Widening Plan Act 1972-1976; and
 - (c) no development being undertaken within 60 metres of either side of the boundaries of the River Torrens or within the River Torrens:

Detached Dwelling
Recreation Area

2 July 1998

- 6 The following kinds of development are **non-complying** in the Residential 2 Zone:

Abattoir	Motel
Amusement Hall	Motor Race Track
Amusement Park	Motor Repair Station
Auction Room	Motor Showroom
Bank	Non-residential Club
Billiard Saloon	Office
Bowling Alley	Office and Dwelling
Builder's Yard	Permanent Sewage Treatment Plant
Bus Depot	Post Office
Bus Station	Prescribed Mining Operations
Caravan Park	Private Hotel
Cemetery	Racecourse
Concert Hall	Radio or TV Studio
Consulting Room	Refuse Destructor
Crematorium	Reservoir
Dance Hall	Residential Club
Defence Establishment	Road Transport Terminal
Dog Track	Service Industry
Drive-in Theatre	Shop
Electricity Generating Station	Shop and Dwelling
Exhibition Hall	Show Ground
Fire Station	Skating Rink
Fun Fair	Special Industry
Gas Holder	Squash Court
General Industry	Stadium
Golf Course	Store
Golf Driving Range	Theatre
Gymnasium	Timber Yard
Harbour Installation	Transmitting Station
Hotel	Used Car Lot
Light Industry	Warehouse
Major Public Service Depot	Waterworks
Marshalling Yards	

2 July 1998

APPENDIX C
AERIAL PHOTOGRAPHS

Golder Associates







APPENDIX D
SECTION 7 INFORMATION & WASTE LICENCE

Golder Associates

ENVIRONMENT PROTECTION AUTHORITY

GPO Box 2607 Adelaide SA 5001

Receipt No :
Admin No : 4917
File Reference : EPA/1028; P0405

Golder Associates Pty Ltd
PO Box 22
BURNSIDE SA 5066

Level 5 Australis House
77 Grenfell Street
Adelaide SA 5000

Contact: Lorraine Armstrong
Telephone (08) 8204 2179
Contact: Tanya Allen
Telephone (08) 8207 1879
Fax (08) 8204 2338

28 March, 2002

Dear Sir/Madam,

Section 7 - Land & Business (Sale & Conveyancing) Act, 1994

I refer to your enquiry concerning the parcel of land comprised in

Title Reference CT Volume 5123 Folio 516

Address Lot 1, Holbrooks Road, UNDERDALE 5032 SA

I advise as follows :


The Environment Protection Authority has this land listed on file.

Summary of land use:

University Operation

PARTICULARS OF MORTGAGES, CHARGES & PRESCRIBED ENCUMBRANCES AFFECTING THE LAND

- | | | |
|-----|---|----|
| 53. | Environment performance agreement under section 59 of the <i>Environment Protection Act 1993 that is registered in relation to the land</i> | NO |
| 54. | Environment protection order issued under section 93 of the <i>Environment Protection Act 1993 that is registered in relation to the land</i> | NO |
| 55. | Clean-up order issued under section 99 of the <i>Environment Protection Act 1993 that is registered in relation to the land</i> | NO |
| 56. | Clean-up authorisation issued under section 100 of the <i>Environment Protection Act 1993 that is registered in relation to the land</i> | NO |

 05-04-02
5/4/02
14241

ENVIRONMENT PROTECTION AUTHORITY

GPO Box 2607 Adelaide SA 5001

PARTICULARS RELATING TO ENVIRONMENT PROTECTION

Section 7 - Land & Business (Sales & Conveyancing) Act, 1994

The answers to the following questions are shown :

Environmental Assessments

- 2(3). Does the Environment Protection Authority hold a copy of a report on any environmental assessment of the land or part of the land carried out at any time -
- (a) by or on behalf of the owner or occupier of the land
 - (i) pursuant to an authorisation, agreement or order made under Section 52(1)(b), 59, 93, 99, or 100 of the Environment Protection Act 1993 ; or
 - (ii) for the purposes of a notification under Section 83 of that Act ; or
 - (b) by the Environment Protection Authority (whether alone or jointly with another authority) ; or
 - (c) by a Contaminated Site Auditor recognised by the Environment Protection Authority for the purposes of carrying out such an assessment?

NO

Waste depots

- 3(1). Was a licence to operate a waste depot on the land ever issued under the repealed *South Australian Waste Management Commission Act 1979*, a record of which is on the Public Register?
- (2). Was a licence to operate a waste depot on the land ever issued under the repealed *Waste Management Act 1987*, a record of which is on the Public Register?
- (3). Is an environmental authorisation currently in force under the *Environment Protection Act 1993* in the form of a licence to operate a waste depot on the land, a record of which is on the Public Register?
- (4). Was an environmental authorisation ever issued under the *Environment Protection Act 1993* in the form of a licence to operate a waste depot on the land, being a licence that is no longer in force and a record of which is on the Public Register?

NO

NO

NO

NO

Production of Certain Waste

- 4(1). Was a licence under the repealed *South Australian Waste Management Commission Act 1979*, ever issued for the production of waste of a prescribed kind (within the meaning of that Act) on the land, a record of which is on the Public Register?
- (2). Was a licence under the repealed *Waste Management Act 1987*, ever issued for the production of prescribed waste (within the meaning of that Act) on the land, a record of which is on the Public Register?

YES

YES

ENVIRONMENT PROTECTION AUTHORITY

GPO Box 2607 Adelaide SA 5001

- 4 (3). Is an environmental authorisation currently in force under the *Environment Protection Act 1993* in the form of a licence to carry out an activity that produces listed waste (within the meaning of that Act) on the land, a record of which is on the Public Register? YES
- (4). Was an environmental authorisation ever issued under the *Environment Protection Act 1993* in the form of a licence to carry out an activity that produces listed waste (within the meaning of that Act) on the land, being a licence that is no longer in force and a record of which is on the Public Register? NO

Waste on land

5. Did the former Waste Management Commission under the repealed *Waste Management Act 1987* have any record of waste (within the meaning of that Act) being deposited on the land between 1 January 1983 and 30 April 1995, details of which are on the Public Register? NO

A summary of the activities relating to wastes may be appended. Should you require any further information regarding this land (outside the Public Register details) please contact the Environment Protection Agency to make necessary arrangements.

Details and/or copies of Environmental assessments, licenses and records on the Public Register may be obtained from the Environment Protection Agency on payment of the prescribed fee.

Prior to arranging an examination and/or copies of the required above information please telephone No. (08)8204 2000 to contact the Public Register Administrator to ensure the required details are available upon arrival.

All care and diligence has been taken to access the above information from available records. Historical records provided to the EPA concerning matters arising prior to 1 May 1995 are limited and may not be accurate or complete and therefore the EPA cannot confirm the accuracy of the historical information provided.



Delegate for
ENVIRONMENT PROTECTION AUTHORITY

ENVIRONMENT PROTECTION AUTHORITY

GPO Box 2607 Adelaide SA 5001

NOTES

This parcel of land was used by a business or company who in the course of an industrial or commercial process or a teaching or research activity produced prescribed (hazardous) waste.

WASTE PRODUCED

Laboratory Chemicals

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SA EPA

ENVIRONMENT PROTECTION AUTHORITY

South Australia

LICENCE

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EPA Licence No: 1028

Licence Co-ordinator: Graham Burgan (8204 9401)

Environmental Authorisation under Part 6 of the Environment Protection Act, 1993

University of South Australia

Postal

Address C/o Property Unit GPO Box 2471
ADELAIDE SA 5001

is hereby issued a

Licence to undertake a prescribed activity of environmental significance under Section 36 of the Environment Protection Act, 1993.

The Licensee/s: University of South Australia

Is authorised to undertake the following activity(s) of environmental significance referred to under Schedule 1 of the Act, subject to the conditions below and the Environment Protection Act, 1993 (the Act), and any Environment Protection Policies (eg. Air Quality, Industrial & Machine Noise, Marine, etc) which govern permissible emission or concentration levels.

3(4) Activities Producing Listed Waste

carried on at

City East Campus North Terrace, ADELAIDE 5000 SA (the Premises)

Magill Campus, MAGILL 5072 SA (the Premises)

Part Lot 1 (D44349) Nicholson Avenue, WHYALLA NORRIE 5608 SA (the Premises)

The Levels Campus Lots 10 & 11 Warrendi Road, MAWSON LAKES 5095 SA (the Premises)

Underdale Campus Holbrooks Road, UNDERDALE 5032 SA (the Premises)

This licence will commence on: 01-NOV-1999

It will expire on: 31-OCT-2002

This licence shall remain in force until the expiry date unless sooner suspended, cancelled or surrendered. It is subject to the following conditions, which must be complied with no later than the date of commencement of this licence unless provided for on the right hand side of the condition in the column marked compliance date.

Conditions:

Compliance
Date:

400-262 Definitions

"Act" means the Environment Protection Act SA 1993 as amended.

"ADG Code" means the Australian Dangerous Goods Code 6th edition.

"Agency" means the body in a State or Territory responsible for administering environment legislation or a body or bodies nominated for that purpose.

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South Australia

LICENCE

EPA Licence No: 1028

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"Consignment Authorisation" means an approval which includes a unique identifier granted by an agency or a facility delegated by an agency in the jurisdiction of destination to allow the movement of controlled waste.

"Controlled Waste" means any waste in List 1a or List 1b provided that the waste possesses one or more of the characteristics in List 2. Unless otherwise demonstrated to the satisfaction of the agency in the jurisdiction of destination, wastes in List 1 are considered to possess one or more of the characteristics in List 2.

[Note: Controlled waste for the purposes of this licence and the Environment Protection Act, includes all Listed Waste except the following waste substances:
(i) any waste that is a substance within the meaning of the Dangerous Substances Act 1979; and
(ii) any waste that is a poison within the meaning of the Drugs Act 1908.]

"EPA" means the Environment Protection Authority of South Australia.

"Facility" means a place where Controlled wastes are received.

"Listed Waste" means any waste set out in Part B of Schedule 1 of the Environment Protection Act 1993.

"Measure" means the National Environment Protection (Movement of Controlled Wastes across State and Territory Boundaries) Measure.

"Medical Waste" is defined in the Environment Protection (Waste Management) Policy 1994 and includes Clinical Wastes as referred to in the Australian/New Zealand Standard AS/NZS 3816:1998 "Management of Clinical and Related Wastes".

"Producer" means a person who produces Controlled Waste or a person authorised by an agency in the jurisdiction where the Controlled Waste is produced, to act on behalf of the producer.

"Related Wastes" means Cytotoxic waste, Pharmaceutical waste and Chemical waste referred to in the Australian/New Zealand Standard AS/NZS 3816:1998 "Management of Clinical and Related Wastes".

"Worksafe Code of Practice for Asbestos" means the Code Of Practice and Guidance Notes for Asbestos published by Worksafe Australia dated August 1988.

400-211 If the name and/or address of the Licensee changes, then the Licensee must inform the Environment Protection Authority within one (1) month of the change occurring.

400-213 1. The last date for an application for renewal of this licence is sixty (60) days before expiry.

2. The last date for payment of the licence fee for a renewed licence period is thirty (30) days before expiry.

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South Australia

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EPA Licence No: 1028

400-214 A copy of this licence is to be displayed on a notice board or other suitable place at each place named as a site on which the licensed activities are to be undertaken.

80-36 GENERAL CONDITIONS OF LICENCE APPLYING TO PRODUCERS OF LISTED WASTES.

1. Any waste which is a substance within the meaning of the Dangerous Substances Act 1979 and any waste that is a poison within the meaning of the Drugs Act 1998 must be managed in the same manner as if they were a Controlled Waste for the purposes of this licence.
2. All material used in the course of the activity that becomes part of any listed waste must be stored, contained or treated in a manner that does not cause any of the following :
 - (a) environmental harm; or
 - (b) a risk to health and safety.
3. All listed waste storage containers must be marked to identify the waste contained within them.
4. All containers of listed waste leaving the licensee's premises must display safety warnings in accordance with the Australian Code for the Transport of Dangerous Goods.
5. All listed waste leaving the premises must be removed only by a Waste Transporter currently licensed by the EPA.
6. The licensee must not spill listed waste onto soil.
7. No listed waste is permitted to enter any sewerage system or stormwater drain.
8. Before any listed waste leaves the premises the licensee must advise the transporter of the waste of the following matters:
 - (a) the nature of the waste;
 - (b) any hazards associated with the waste; and
 - (c) any precautions to be taken during the collection, transport or disposal of the waste.
9. The licensee must render such assistance as is necessary to prevent the spillage of any listed waste during loading.
10. The licensee must provide such equipment as is necessary to contain and recover any spill at the loading point.
11. The licensee must not mix solid listed waste with liquid listed waste.

[Note : In general, wastes are incompatible if when mixed or otherwise brought into contact, they are likely to interact and increase the risk to human health and/or the environment. If a waste is classified as a dangerous good, the Australian Dangerous Goods Code relating to the mixing of incompatible goods must be observed. Notwithstanding the above, for the purpose of the Measure, mixing incompatible wastes also includes mixing of incompatible liquids and mixing solid waste with liquid waste.]

WHEN WASTE IS TO BE TRANSPORTED TO A DESTINATION WITHIN

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SOUTH AUSTRALIA.

12. The information set out in Schedule X must be entered on a Waste Transport Certificate by the licensee and the information set out in Schedule Y must be entered by the waste transporter on the same Waste Transport Certificate before any controlled waste on List I(a) is transported off the licensee's premises.
13. The information set out in Schedule A must be entered on a Waste Tracking Form by the licensee and the information set out in Schedule B must be entered by the waste transporter on the same Waste Tracking Form before any controlled waste on List I(b) is transported off the licensee's premises.
14. In the event of a Waste Transport Certificate being required, the licensee must ;
 - (a) retain the green copy of the Waste Transport Certificate for no less than 12 months; and
 - (b) post or otherwise send the pink copy of the Waste Transport Certificate to the EPA within seven days of collection of the waste; and
 - (c) give the white, yellow and blue copies of the Waste Transport Certificate to the transporter of the waste at the time of collection.
15. In the event of a Waste Tracking Form being required, the licensee must;
 - (a) retain the green copy of the Waste Tracking Form for no less than 12 months; and
 - (b) give the yellow and blue copies of the Waste Tracking Form to the transporter of the waste at the time of collection.

WHEN CONTROLLED WASTE IS TO BE TRANSPORTED TO A DESTINATION OTHER THAN WITHIN SOUTH AUSTRALIA.

16. The information set out in Schedule X must be entered on a Waste Transport Certificate by the licensee and the information set out in Schedule Y must be entered by the waste transporter on the same Waste Transport Certificate before any controlled waste on Lists I(a) or I(b) is transported off the licensee's premises.
17. The licensee must;
 - (a) retain the green copy of the Waste Transport Certificate for no less than 12 months; and
 - (b) post or otherwise send the green "Tear-Off" slip to the environment Regulatory Authority or a delegated facility in the State or Territory to which the waste is to be taken; and
 - (c) post or otherwise send the pink copy of the Waste Transport Certificate to the EPA within seven days of collection of the waste; and
 - (d) give the white, yellow and blue copies of the Waste Transport Certificate to the transporter of the waste at the time of collection.
18. No controlled waste destined for another State or Territory is permitted to be removed from the Licensee's premises unless a Consignment Authorisation has been obtained by the Licensee from an agency in the jurisdiction of destination or from a facility delegated by that agency prior to the collection of such wastes.
19. The licensee must confirm that the waste transporter is appropriately licensed in all States or Territories through which the controlled waste will be transported.

400-203 Listed Waste Producer only :

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South Australia

LICENCE

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EPA Licence No: 1025

The Environment Protection Authority may impose or vary conditions during the term of this licence relating to handling and disposal of listed wastes.

400-215 The Licensee must ensure that every employee, agent or contractor responsible for carrying out any task controlled by this licence is properly advised as to the requirements of this licence and the general environmental duty under Section 25 of the Environment Protection Act 1993 that relate to that person's tasks and responsibilities as employee, agent or contractor.

400-212 PROCESS CHANGE - CONSENT for CERTAIN WORKS.

1. During the term of this licence, the Licensee shall not carry out works for the construction or alteration of a building or structure or the installation or alteration of plant or equipment for use for an activity the subject of this licence where such works or alterations are likely to result in :

- (a) an alteration of the process by which the pollution or waste arising from the activity occurs; or
- (b) an increased level of, or change in the nature of, the pollution or waste arising from the activity; or
- (c) a relocation of the point of discharge of pollution or waste at the site the subject of this licence without application for and subsequent approval from the Environment Protection Authority (the Authority).

2. Upon application for the construction, installation or alteration of works the Licensee must provide details to the satisfaction of the Authority, to enable an appropriate assessment of the environmental impact of the proposed works to be made.

400-210 Where a Licensee or related body corporate is required to furnish information of the kind referred to under section 299(1)(f) of the Corporations Law in any annual report to the Australian Securities and Investment Commission (ASIC), the Licensee must provide a copy of the report to the Environment Protection Authority within one (1) calendar month of the lodgement of the report with ASIC.

400-201 The Environment Protection Authority may during the term of this licence impose or vary conditions :

- 1. in relation to testing, monitoring and reporting referred to in Section 52(1)(a) of the Environment Protection Act 1993 (the 'Act');
- 2. which require the Licensee, in accordance with Section 53 of the Act, to prepare a plan of action to be taken in the event of an emergency;
- 3. which require the Licensee to develop an Environment Improvement Programme (EIP) as set out in Section 54 of the Act and to comply with the requirements of the EIP;
- 4. in relation to any activity the conduct of which has not required a licence relating to protection of the environment prior to the commencement of the Act;
- 5. which relate to provision of information relating to the Licensee or any agent or contractor operating on behalf of the Licensee;

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South Australia

LICENCE

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EPA Licence No: 1023

5. which relate to provision of information relating to the activity subject to the licence including the levels of inputs and outputs and the amounts of pollutants or waste generated by the activity.

This licence is not valid unless signed below.



Delegate
Environment Protection Authority
Date: 20 01 00

For Office use only
Date Issued: 20-Jan-2000

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SCHEDULES

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SCHEDULE X (WTC Requirements for Producers)**Producer to insert in Part 1**

- Description of the waste(s) [Use proper shipping name/technical name if applicable for Dangerous Goods]
- The physical nature of the waste
- Waste code(s) (As specified in List 1a)
- Contaminant(s)
- UN Number(s)
- UN Code(s)
- Dangerous Goods Class(es) (UN Class(es)) [and Subsidiary Risk if applicable for Dangerous Goods]
- Packaging Group number
- Amount of waste(s)
- Waste origin code (ANZ Standard Industry Code)
- Type of package (eg bulk) [and number of packages of each type if applicable for Dangerous Goods]
- Facility name
- Facility address
- Facility licence number
- State/Territory of destination
- Name of waste producer
- Address of waste source
- Producer's telephone number
- Emergency contact number in the event of accident or spillage
- Consignment authorisation number (When waste is to be transported to another State or Territory)
- Producer licence number
- Date of dispatch
- Signature of the producer or authorised agent

Producer to insert in "tear-off"

- Name of waste producer
- Address of waste source
- Description of the waste(s) [Use proper shipping name/technical name if applicable for Dangerous Goods]
- Producer licence number
- Quantity of waste

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SCHEDULE Y (WTC Requirements for Transporters)**Transporter to insert in Part 2**

- Name of transporter(s)
- Address of transporter(s)
- Vehicle registration number(s)
- Type of transport eg road, rail
- Transporters licence number(s)
- Date of transport
- Signature of the waste transporter

Transporter to insert in "tear-off"

- Name(s) of transit State(s)/Territory or Territories
- Name of Transporter
- Transporter Licence Number

SCHEDULE A (WTF Requirements for Producers)**Producer to insert in Part A the following;**

- Name of waste producer
- Address of waste source (producer)
- Type of waste collected by marking one of the boxes in Part A of the form
- Amount of liquid waste in litres or numbers of tyres
- Signature of the producer of the waste (or authorised agent)
- Date of collection from the producer of the waste

SCHEDULE B (WTF Requirements for Transporters)**Transporter to insert in Part B the following;**

- The name of the licensed waste transporter
- EPA license number for the waste transporter
- Vehicle registration no. for the waste transporter
- Signature and name of the waste transporter or authorised agent
- Date of collection of by the waste transporter.

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SA 11.1

LIST 1a

Waste stream or wastes having as constituents:	
Acidic solutions or acids in solid form	B100
Antimony, antimony compounds	D170
Arsenic, arsenic compounds	D130
Asbestos	N220
Barium compounds (excluding barium sulphate)	D290
Basic solutions or bases in solid form	C100
Beryllium, beryllium compounds	D160
Boron compounds	D310
Cadmium, cadmium compounds	D150
Ceramic-based fibres with physico-chemical characteristics similar to those of asbestos	N230
Chlorates	D350
Chromium compounds (hexavalent and trivalent)	D140
Clinical and related wastes	R100
Cobalt compounds	D200
Containers which are contaminated with residues of substances referred to in this list	N100
Copper compounds	D190
Cyanides (inorganic)	A130
Cyanides (organic)	M210
Encapsulated, chemically-fixed, solidified or polymerised wastes	N160
Ethers	G100
Filter cake	N190
Fire debris and fire washwaters	N140
Fly ash	N150
Halogenated organic solvents	G150
Highly odorous organic chemicals (including mercaptans and acrylates)	M260

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Waste stream or wastes having as constituents:	
Inorganic fluorine compounds excluding calcium fluoride	D110
Inorganic sulphides	D330
Isocyanate compounds	M220
Lead; lead compounds	D220
Mercury; mercury compounds	D120
Metal carbonyls	D100
Nickel compounds	D210
Organic phosphorus compounds	H110
Organic solvents excluding halogenated solvents	G110
Organohalogen compounds - other than substances referred to in this list	M160
Perc chlorates	D340
Phenols, phenol compounds including chlorophenols	M150
Phosphorus compounds excluding mineral phosphates	D360
Polychlorinated dibenzo-furan (any congener)	M170
Polychlorinated dibenzo-p-dioxin (any congener)	M180
Residues from industrial waste treatment/disposal operations.	N205
Selenium; selenium compounds	D240
Soils contaminated with a controlled waste	N120
Surface active agents (surfactants), containing principally organic constituents and which may contain metals and inorganic materials	M250
Tannery wastes (including leather dust, ash, sludges and flours)	K140
Tellurium, tellurium compounds	D250
Thallium; thallium compounds	D180
Triethylamine catalysts for setting foundry sands	M230
Vanadium compounds	D270
Waste chemical substances arising from research and development or teaching activities including those which are not identified and/or are new and whose effects on human health and/or the environment are not known	T100
Waste containing peroxides other than hydrogen peroxide	E100

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Waste stream or wastes having as constituents:	
Waste from heat treatment and tempering operations containing cyanides	A110
Waste from the manufacture, formulation and use of wood-preserving chemicals	H170
Waste from the production, formulation and use of biocides and phytopharmaceuticals	H100
Waste from the production, formulation and use of inks, dyes, pigments, paints, lacquers and varnish	F100
Waste from the production, formulation and use of organic solvents	G150
Waste from the production, formulation and use of photographic chemicals and processing materials	T120
Waste from the production, formulation and use of resins, latex, plasticisers, glues and adhesives	F110
Waste from the production and preparation of pharmaceutical products	R140
Waste pharmaceuticals, drugs and medicines	R120
Waste resulting from surface treatment of metals and plastics	A100
Waste tarry residues arising from refining, distillation, and any pyrolytic treatment	J150
Waste, substances and articles containing or contaminated with polychlorinated biphenyls (PCBs), polychlorinated naphthalenes (PCNs), polychlorinated terphenyls (PCTs) and/or polybrominated biphenyls (PBBs)	M100
Waste of an explosive nature not subject to other legislation	E120
Zinc compounds	D230

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LIST 1b

Waste stream or wastes having as constituents:	
Animal effluent and residues (abattoir effluent, poultry and fish processing waste)	K109
Grease trap waste	K110
Non toxic salts	D300
Tyres	T140
Waste mineral oils unfit for their original intended use	J100
Waste oil/water, hydrocarbons/water mixtures or emulsions	J120
Wool scouring waste	K190

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SA EPA

LIST 2: CHARACTERISTICS OF CONTROLLED WASTES

Dangerous Goods Class (UN Class')	UN Code	
1	H1	Explosive An explosive substance or waste is a solid or liquid substance or waste (or mixture of substances or wastes) which is in itself capable by chemical reaction of producing gas at such a temperature and pressure and at such a speed as to cause damage to the surroundings.
3	H3	Flammable Liquids The word "flammable" has the same meaning as "inflammable". Flammable liquids are liquids, or mixtures of liquids, or liquids containing solids in solution or suspension (for example, paints, varnishes, lacquers, etc., but not including substances or wastes otherwise classified on account of their dangerous characteristics) which give off flammable vapour at temperatures of not more than 60.5 degrees Celsius, closed-cup test, or not more than 65.6 degrees Celsius, open-cup test. (Since the results of open-cup tests and of closed cup tests are not strictly comparable and even individual results by the same test are often variable, regulations varying from the above figures to make allowances for such differences would be within the spirit of the definition.)
4.1	H4.1	Flammable solids Solids or waste solids, other than those classified as explosives, which under conditions encountered in transport are readily combustible, or may cause or contribute to fire through friction.
4.2	H4.2	Substances or wastes liable to spontaneous combustion Substances or wastes which are liable to spontaneous heating under normal conditions encountered in transport, or to heating up in contact with air, and being then liable to catch fire.
4.3	H4.3	Substances or wastes which, in contact with water, emit flammable gases Substances or wastes which, by interaction with water, are liable to become spontaneously flammable or to give off flammable gases in dangerous quantities.
5.1	H5.1	Oxidising Substances or wastes which, while in themselves not necessarily combustible, may, generally by yielding oxygen, cause or contribute to, the combustion of other materials.
5.2	H5.2	Organic peroxides Organic substances or wastes which contain the bivalent-O-O-structure are thermally unstable substances which may undergo exothermic self-accelerating decomposition.
6.1	H6.1	Poisonous (acute) Substances or wastes liable either to cause death or serious injury or to harm human health if swallowed or inhaled or by skin contact.
6.2	H6.2	Infectious substances Substances or wastes containing viable micro-organisms or their toxins which are known or suspected to cause disease in animals or humans.
8	H8	Corrosives Substances or wastes which, by chemical action, will cause severe damage when in contact with living tissue, or in the case of leakage, will materially damage, or even destroy, other goods or the means of transport; they may also cause other hazards.
9	H10	Liberation of toxic gases in contact with air or water Substances or wastes which, by liberation with air or water, are liable to give off toxic gases in dangerous quantities.
9	H11	Toxic (delayed or chronic)

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PAGE 01

08/03 '02 08:27 2361882042550

Dangerous Goods Class (UN Class ^a)	UN Code	
		Substances or wastes which, if they are inhaled or ingested or if they penetrate the skin, may involve delayed or chronic effects, including carcinogenicity.
9	H12	Ecotoxic
		Substances or wastes which if released present or may present immediate or delayed adverse impacts to the environment by means of bioaccumulation and/or toxic effects upon biotic systems.
9	H13	Capable of yielding another material which possesses H1-H12
		Capable by any means, after disposal, of yielding another material, eg., leachate, which possesses any of the characteristics listed above
		Other Reasons
		Potential to have a significant adverse impact on ambient air quality.
		Potential to have a significant adverse impact on ambient marine, estuarine or fresh water quality.
*UN Class and Code relates to the hazard classification system included in the United Nations Recommendations on the Transport of Dangerous Goods as used in Australia.		

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APPENDIX E
PIRSA GROUNDWATER BORE DATABASE INFORMATION

Golder Associates

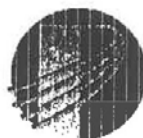
25.MAR.2002 13:18

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NO.098

P.1/10

**PRIMARY INDUSTRIES
AND RESOURCES SA**

Fax To:- Drew Gowling

Fax Number:-83643277

Message From: --Edmund Daniels.

Telephone: (08) 84633005

DATE:25/03/02 1:54 PM

Number of pages including this one :- 10**Customer Services**Ground Floor
101 Grenfell Street
Adelaide SA5000

Telephone:84633005

Facsimile: 84636518

Please find attached relevant information as requested.

If you require further details or have any queries please do not hesitate to
contact me on Ph: 84633005

Kind Regards.

A handwritten signature in black ink, appearing to read 'Edmund Daniels'.

Edmund Daniels.
Customer Services.

1325

The information in this e-mail may be confidential and/or legally privileged. Use or disclosure of the information by anyone other than the intended recipient is prohibited and may be unlawful. If you have received this e-mail in error, please advise by return e-mail or by telephoning +61 8 84633005

Handwritten initials, possibly 'JG' or 'JD', in black ink.

25-3-02

25-3-02

1325

The contents of this facsimile are intended for the person stated above. If you receive this message by mistake, please contact the sender on the number above.

25. MAR '02 (MON) 13:52

COMMUNICATION No. 12 PAGE 1

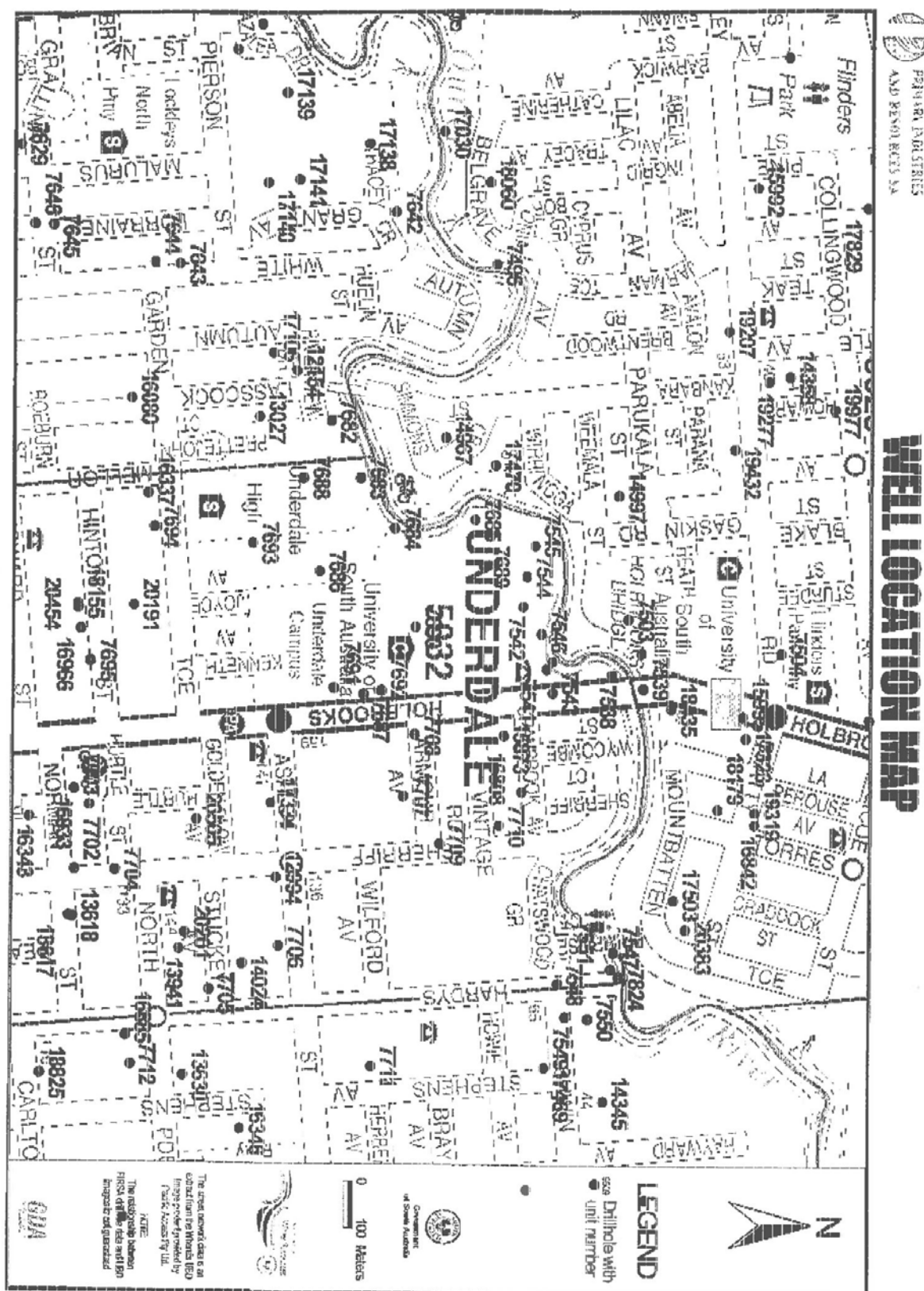
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25 MAR '62 (MON) 13:54

COMMUNICATION No. 12 PAGE 4

25.MAR.2002 13:21

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NO.098

P.5/10



Summary of Latest Water Information for Drillholes



Unit No	Classification	Max Drilled Depth (m)	Orig Drill Date	Current Depth (m)	Cased To (m)	Standing Water Level (m)	Well Yield (Gain)	Salinity TDS (mg/L)	pH	Location	Section	Permit No	Chem Anal	Logs Geol Geophys	Status	Date			
6628 7496	Water Well	149.96	03/46	149.95	03/46	91.44	14.02	03/48	7988	03/48	1554	857	02/52	7.30	Yatala	S 392			
6628 7497	Water Well	144.78		144.78	02/52				1580	871	02/52				Yatala	S 411			
6628 7498	Water Well	125.27		125.27	02/52				1580	871	02/52				Yatala	S 391			
6628 7501	Water Well	6.10		6.10	03/84		8.10	03/84	1982	1100	03/84				Yatala	S 391			
6628 7502	Water Well	11.74		11.74	01/46		7.62	01/46	2090	1155	01/46				Yatala	S 391			
6628 7503	Water Well								1424	785	08/14				Yatala	S 548			
6628 7504	Water Well	140.21	08/88	140.21	08/88	135.65	16.46	10/88	9004	10/88	1900	1049	11/86	7.60	Yatala	S 391			
6628 7538	Water Well	149.35	11/45	149.35	03/88	134.00	20.36	03/02	5939	10/49	1830	1010	11/86	7.50	Adelaide	S 97			
6628 7539	Engineering	9.14	10/80	9.14	10/80										Adelaide	S 95			
6628 7540	Water Point																		
6628 7541	Water Well	182.88		182.88	12/72	43.77	18.29	12/72	1705	942	12/72				Adelaide	S 97			
6628 7542	Engineering	16.20	03/73	16.20	03/73	14.46			1535	646	12/72				Adelaide	S 97			
6628 7543	Engineering	20.05	12/72	20.05	12/72				3715	2067	03/73				Adelaide	S 97			
6628 7544	Engineering	18.10	12/72	18.10	12/72				3840	2138	12/72				Adelaide	S 97			
6628 7545	Engineering	15.80	03/73	15.80	03/73				4045	2253	12/72				Adelaide	S 97			
6628 7546	Water Well	144.00	01/74	144.00	01/74		13.46	01/74	1610	868	11/86				Adelaide	S 97			
6628 7547	Water Well								2583	1430	11/81				Adelaide	S 96			
6628 7548	Water Well	38.71		38.71	11/81		7.32	11/81	2709	1501	11/81				Adelaide	S 96			
6628 7549	Water Well	141.73	01/84	141.73	10/34	113.69	8.23	02/34	4498	02/34	1218	871	02/52	7.50	Adelaide	S 95			
6628 7550	Water Well	31.39		31.39	12/33		3.05	12/33	7988	12/33	3214	1784	12/33	7.50	Adelaide	S 95			
6628 7551	Water Well	6.71		6.71	10/67				3518	1855	10/67				Adelaide	S 96			
6628 7641	Water Well	9.14		9.14	08/70				5300	2966	08/70				Adelaide	S 144			
6628 7642	Water Well	36.59		36.59	01/50		7.52	01/50	5004	01/50	2324	1285	01/50		Adelaide	S 144			
6628 7643	Water Well	22.86		22.86	02/69	22.98	5.16	02/69	1497	02/69	3150	1770	02/69	7.50	Adelaide	S 144			
6628 7644	Water Well	13.72		13.72	02/69		3.05	02/69	988	02/69	3297	1830	02/69	7.00	Adelaide	S 144			
6628 7645	Water Well	4.88		4.88	04/57		4.27	04/57	2072	1145	04/57				Adelaide	S 144			
6628 7646	Water Well	4.88		4.88	03/57		4.57	03/57	1554	857	03/57				Adelaide	S 144			
6628 7647	Water Well	10.97	01/51	10.97	03/52	0.91	8.23	03/52	888	03/52	4006	2230	03/52		Adelaide	S 144			
6628 7682	Water Well	30.48		30.48	01/50		12.19	01/50	7988	01/50					Adelaide	S 97			
6628 7683	Water Well	38.58		38.58	01/50		10.87	01/50	9004	01/50	2983	1430	01/50		Adelaide	S 97			

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NO. 098

P. 6/10



Summary of Latest Water Information for Drillholes



Unit No	Classification	Max Drilled Depth (m)	Orig Date	Current Depth (m)	Cased To (m)	Standing Water Level (m)	Well Yield (Gallons)	Salinity (mg/L)	pH	Location	Section	Permit No	Logs	Status
6628 7664	Water Well	36.58	01/50	36.58	01/50	10.97	12005	2476	1370	Adelaide	S 97			
6628 7665	Water Well	35.05	11/61	35.05	11/61			3600	2001	Adelaide	S 98			
6628 7666	Water Well	12.15	08/14	12.19	08/14			2400	1328	Adelaide	S 97			
6628 7667	Water Well	12.19	12/72	12.19	12/72	7.62	10002	3000	1654	Adelaide	S 97			
6628 7668	Water Well	10.97	01/50	10.97	01/50	3.05	7998	4146	2310	Adelaide	S 97			
6628 7688	Engineering	14.55	03/73	14.55	03/73		198	1479	01/73	Adelaide	S 97			Unknown 03/73
6628 7690	Engineering	30.30	02/73	30.30	02/73		9899	1470	810	Adelaide	S 97			Unknown 02/73
6628 7691	Water Well	204.00	12/73	204.00	12/73	42.09	9899	1551	855	Adelaide	S 19			
6628 7692	Water Well	153.62	12/67	153.62	12/67	48.77	7998	1551	855	Adelaide	S 97			
6628 7693	Water Well	152.40	01/50	142.95	01/50		8003	1380	761	Adelaide	S 97			
6628 7694	Water Well	42.67	01/50	42.67	01/50	4.57	7998	4304	2399	Adelaide	S 97			
6628 7695	Water Well	6.10	11/44	6.10	11/44			1999	07/30	Adelaide	S 97			
6628 7696	Water Well	8.53	07/30	8.53	07/30			1560	871	Adelaide	S 97			
6628 7697	Water Well	18.29	07/34	18.29	07/34			4332	2585	Adelaide	S 96			
6628 7699	Water Well	7.01	01/52	7.01	01/52			4305	2684	Adelaide	S 96			
6628 7701	Water Well							3117	07/34	Adelaide	S 96			
6628 7702	Water Well	12.19	07/34	12.19	07/34			5586	700	Adelaide	S 96			
6628 7703	Water Well	149.05	10/34	149.05	10/34	6.40	10002	1271	700	Adelaide	S 96			
6628 7704	Water Well	144.02	01/46	144.02	01/46	11.75	12005	1169	643	Adelaide	S 96			
6628 7705	Water Well	39.32	09/40	39.32	09/40		7000	2397	1655	Adelaide	S 96			Backfilled
6628 7706	Water Well	10.05	10/55	10.05	10/55	5.33				Adelaide	S 96			
6628 7707	Water Well	147.83	01/34	147.83	02/52			1324	729	Adelaide	S 96			
6628 7708	Water Well	146.30	07/34	146.30	07/34	7.62		1271	700	Adelaide	S 96			
6628 7709	Water Well	144.78	12/37	144.78	12/37	22.85	6003	1400	771	Adelaide	S 96			
6628 7710	Water Well							3047	2027	Adelaide	S 96			
6628 7711	Water Well	138.99	09/34	138.99	09/34	8.23	5005	1218	671	Adelaide	S 95			
6628 7712	Water Well	8.23	09/34	8.23	09/34	4.57	127	6080	3412	Adelaide	S 95			
6628 7713	Water Well	4.57	10/61	4.57	10/61	2.74		5063	2830	Adelaide	S 95			
6628 7714	Water Well	3.70	08/75	3.70	08/75	3.20		1140	628	Adelaide	S 95			
6628 7715	Water Well	7.32	10/49	7.32	10/49	3.95	598	5444	3031	Adelaide	S 95			

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NO. 0398

P. 8/10



Summary of Latest Water Information for Drillholes



Unit No	Classification	Max Drilled Depth (m)	Orig Unit Date	Current Depth (m)	Cased To (m)	Standing Water Level (m)	Well Yield (Gal/m)	Salinity TDS (mg/L)	pH	Location	Section	Permit No	Logs	Status
6628 15335	Water Well	15.00	09/91	15.00	09/91	15.00	7.50	1513	7.50	Yatala	S 381	26151	Operational	
6628 15380	Water Well	15.00	10/91	15.00	10/91	15.00	7.50	1606	7.50	Yatala	S 391	26367	Operational	
6628 15740	Water Well	10.00	11/91	10.00	11/91	10.00	6.00	1317	7.10	Yatala	S 381	26365	Operational	
6628 15873	Water Well	13.00	02/91	15.00	02/91	15.00	8.00	1513	7.80	Adelaide	S 96	26859	Operational	
6628 15945	Water Well	15.00	03/92	15.00	03/92	15.00	7.00	1373	7.40	Yatala	S 392	27164	Operational	
6628 15992	Water Well	15.00	04/92	15.00	04/92	15.00	8.30	1575	7.10	Yatala	S 392	27538	Operational	
6628 15995	Water Well	14.00	03/92	14.00	03/92	14.00	9.00	840	8.00	Yatala	S 350	27364	Operational	
6628 16080	Water Well	14.20	05/92	14.20	05/92	14.00	7.00	2306	7.10	Adelaide	S 97	27868	Operational	
6628 16337	Water Well	15.00	03/93	15.00	03/93	15.00	4011	2233	7.20	Yatala	S 97	29101	Operational	
6628 16343	Water Well	12.00	01/93	12.00	01/93	12.00	4161	2318	7.10	Adelaide	S 96	28522	Operational	
6628 16345	Water Well	15.00	11/92	15.00	11/92	15.00	356	1658	7.20	Adelaide	S 95	27822	Operational	
6628 16722	Water Well	16.00	11/94	16.00	11/94	16.00	4370	2437	6.80	Adelaide	S 144	32809	Operational	
6628 16763	Water Well	9.50	08/94	9.50	08/94	9.50	1940	905	7.40	Yatala	S 392	32363	Operational	
6628 16907	Water Well	10.00	12/93	10.00	12/93	10.00	2950	1636	7.50	Yatala	S 411	30837	Operational	
6628 16908	Water Well	20.50	11/94	20.50	11/94	20.50	2210	1222	6.70	Adelaide	S 96	32710	Operational	
6628 16942	Water Well	16.00	12/94	16.00	12/94	16.00	2140	1183	7.50	Yatala	S 390	32916	Operational	
6628 16879	Water Well	15.00	02/95	15.00	02/95	15.00	2410	1334	7.60	Yatala	S 390	33987	Operational	
6628 16885	Water Well	17.50	01/95	17.50	01/95	15.00	3168	01/95		Adelaide	S 95	33612	Operational	
6628 16802	Water Well	22.00	11/94	22.00	11/94	22.00	1280	705	4.50	Yatala	S 382	30771	Operational	
6628 16833	Water Well	23.00	11/94	23.00	11/94	23.00	4770	2664	7.00	Adelaide	S 96	32872	Operational	
6628 16866	Water Well	15.00	01/95	10.50	01/95	10.50	4460	2488	7.10	Adelaide	S 97	33195	Operational	
6628 17030	Engineering	1.50		1.50						Yatala	S 411			
6628 17106	Water Well	12.00	03/95	12.00	03/95	12.00	3310	2121	6.50	Adelaide	S 144	34209	Operational	
6628 17138	Water Well	8.00	02/95	8.00	02/95	8.00				Adelaide	S 144	34178A	Operational	
6628 17139	Water Well	8.00	02/95	8.00	02/95	7.50				Adelaide	S 144	34178B	Operational	
6628 17140	Water Well	8.00	02/95	8.00	02/95	8.00				Adelaide	S 144	34178C	Operational	
6628 17141	Water Well	8.50	02/95	8.50	02/95	8.50				Adelaide	S 144	34178D	Operational	
6628 17172	Water Well	24.00	03/95	24.00	03/95	24.00	2376	03/95		Adelaide	S 96	34541	Operational	
6628 17272	Water Well	16.50	05/95	13.50	05/95	13.50	2760	1630	7.00	Yatala	S 391	34945	Operational	
6628 17323	Water Well	15.00	05/95	15.00	05/95	15.00	3770	2087	7.00	Yatala	S 390	34947	Operational	

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Summary of Latest Water Information for Drillholes



Unit No	Classification	Max Drilled Depth (m)	Orig Drill Date	Current Depth (m)	Cased To (m)	Standing Water Level (m)	Well Yield (m)	EC (mg/L)	TDS (mg/L)	pH	Location	Section	Permit No	Chem Anal	Logs	Status
6628 17334	Water Well	15.00	09/95	16.00	09/95	16.00		3570	1984	09/95	6.30 Adelaide	S 96	35470			
6628 17409	Water Well	24.00	09/95	24.00	09/95	24.00	1168	3210	1762	09/95	7.30 Adelaide	S 96	35738			
6628 17470	Water Well	16.20	11/95	16.20	11/95	16.20	792	2560	1412	11/95	6.40 Adelaide	S 72	36179			
6628 17601	Water Well	18.00	10/95	18.00	10/95	12.00	792	2830	1559	10/95	7.20 Yatala	S 390	35023			
6628 17602	Water Well	15.00	12/95	15.00	12/95	15.00	792	2620	1452	12/95	7.20 Yatala	S 392	35543			
6628 17603	Water Well	18.50	11/95	18.50	11/95	12.50	2376	1670	921	11/95	6.80 Yatala	S 380	36160			
6628 17798	Water Well	15.00	03/96	15.00	03/96	15.00	792	3210	1782	03/96	8.40 Yatala	S 381	37305			
6628 17829	Water Well	10.50	03/96	10.50	03/96	10.50		2630	1457	03/96	7.50 Yatala	S 392	36658			
6628 17833	Water Well	10.00	02/96	10.00	02/96	10.00	980	3560	1979	02/96	7.20 Adelaide	S 144	37210			
6628 18060	Water Well	30.00	08/96	30.00	08/96	30.00	356	4000	2227	08/96	7.60 Yatala	S 411	36288			
6628 18079	Water Well	12.00	10/96	12.00	10/96	12.00	1168	4170	2323	10/96	7.40 Adelaide	S 97	36830			
6628 18155	Water Well	18.00	01/97	18.00	01/97	18.00	792	4651	2801		Adelaide	S 97	37025			
6628 18179	Water Well	12.70	07/96	12.70	07/96	12.70		2040	1127		Yatala	S 390	38105			
6628 18435	Water Well	18.00	03/97	18.00	03/97	18.00	792	2040	1127		Yatala	S 390	40016			
6628 18625	Water Well	20.00	01/98	20.00	01/98	20.00	720	3500	2001	01/98	Adelaide	S 95	43701			
6628 18653	Water Well	18.00	02/98	18.00	02/98	18.00	792	3130	1731	02/98	Yatala	S 391	44155			
6628 19207	Water Well	10.00	10/98	10.00	10/98	10.00		2730	1613	10/98	Yatala	S 392	46388			
6628 19265	Water Well	25.00	12/98	25.00	12/98	25.00	792	2830	1625	12/98	Yatala	S 391	47200			
6628 19277	Water Well	12.00	01/99	12.00	01/99	12.00	554	3010	1670	01/99	Yatala	S 392	46967			
6628 19319	Water Well	20.00	01/99	20.00	01/99	20.00	792	1780	983	01/99	Yatala	S 390	47367			
6628 19403	Water Well	18.00	02/99	18.00	02/99	18.00	792	4120	2295	02/99	Yatala	S 390	47961			
6628 19404	Water Well	18.00	02/99	18.00	02/99	18.00	792	2700	1496	02/99	Yatala	S 391	47966			
6628 19431	Water Well	18.00	03/99	18.00	03/99	18.00	792	3150	1748	03/99	Yatala	S 390	48207			
6628 19432	Water Well	18.00	03/99	18.00	03/99	18.00	792	4040	2251	03/99	Yatala	S 392	48259			
6628 19486	Water Well	30.00	08/98	30.00	08/98	29.00	3960	3950	2143	08/98	Adelaide	S 144	49817			
6628 19568	Water Well	16.00	08/99	16.00	08/99	16.00	396	2170	1199	08/99	Yatala	S 392	49817			
6628 19977	Water Well	18.00	11/99	18.00	11/99	18.00	740	2450	1356	11/99	Yatala	S 392	50874			
6628 20122	Water Well	30.00	01/00	30.00	01/00	30.00	356	4400	2454	01/00	Adelaide	S 97	51207			
6628 20150	Water Well	15.00	02/00	15.00	02/00	15.00	792	3590	1805	02/00	Adelaide	S 144	48200			
6628 20180	Water Well	21.00	04/00	21.00	04/00	10.00	792	2480	1373	04/00	Adelaide	S 95	52207			

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Summary of Latest Water Information for Drillholes



Unit No	Classification	Max Drilled Depth (m)	Orig Date	Current Depth (m)	Cased To (m)	Standing Water Level (m)	Well Yield (Gal/hr)	Salinity EC (mg/L)	TDS (mg/L)	pH	Location Hundred Section	Permit No	Chem Anal	Logs Drillers Geol Geophysics	Status Date
6628 20191	Water Well	18.00	03/00	14.00	03/00	18.00	6.60	03/06	702	03/00	Adelaide	S 97	52053	●	
6628 20201	Water Well	17.00	04/00	17.00	04/00	17.00	7.00	04/00	1584	04/00	Adelaide	S 96	52368	●	
6628 20383	Water Well										Yatala	S 390	34969	●	
6628 20454	Water Well	15.00		12.00	12/00	12.00	5.40	12/00	792	12/00	Adelaide	S 97	54145	●	
6628 20505	Water Well	18.00	02/01	18.00	02/01	18.00	7.50	02/01	713	02/01	Adelaide	S 98	54473	●	
6628 20577	Water Well	11.00	03/01	11.00	03/01	11.00	11.00	03/01	2520		Yatala	S 411	55031	●	

25.MAR.2002 13:24

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COMMUNICATION No. 12 PAGE 10

APPENDIX F
PHOTOGRAPHS OF SITE



14 October 2016

Project No. 1664639-002-L-Rev0

Matthew Morrissey
Qattro
209 Fullarton Road
Eastwood SA 5063

**ALLOTMENT 54, DEPOSITED PLAN 67591, UNDERDALE SA
ADVICE ON FINDINGS OF CONTAMINATION INVESTIGATION**

Dear Matthew,

Introduction and objective

Golder Associates Pty Ltd (Golder) was recently engaged by Qattro Pty Ltd (Qattro) to undertake a geotechnical and contamination investigation at Allotment 54 of deposited plan 67591 (the site). The site covers an area of approximately 4,500 m², and is currently owned and occupied by the University of South Australia (UniSA). The site includes a building and car park.

Qattro recently entered into a land purchase agreement with UniSA that allows for a 45 day due diligence period to assess the site prior to settlement. Qattro therefore engaged Golder to undertake a geotechnical and contamination assessment of the site to assist with its decision to purchase the site.

The factual findings of the geotechnical and contamination investigation are documented under separate cover. This letter documents Golder's interpretation of the findings of the contamination investigation in light of the proposed purchase and redevelopment.

The development

The proposed redevelopment will include the construction of five two-storey townhouses within the western portion of the site, and the refurbishment of the existing building for residential use. We understand that the existing car park to the south of the site is likely to remain, whereas the western car park will be removed for construction of the proposed townhouses.

Summary of investigation findings

The scope of the investigation included drilling and sampling of 10 soil bores to a maximum depth of 4 m bgl. Soils beneath the existing building footprint were not assessed as part of the investigation. A summary of our key findings are as follows:

- **Site history:** the desktop site history assessment previously undertaken by Golder indicated that the contamination risks at Allotment 54 were low.
- **Current site uses:** current site uses that have the potential to result in contamination are negligible and not expected to pose an issue with respect to the intended residential land use.
- **Ground conditions:** fill and reworked natural soils were encountered at all borehole locations to depths ranging from approximately 0.3 m (BH02) to 1.3 m bgl (BH10). The depth of fill encountered was generally 0.3-0.4 m in paved areas, with deeper fill (up to 1.3 m bgl) encountered in unpaved areas within the eastern portion of the site. Based on our field observations we consider that deeper fill is likely to be reworked natural soil (i.e. site won).

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Golder Associates: Operations in Africa, Asia, Australasia, Europe, North America and South America
A.B.N. 64 006 107 857
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Matthew Morrissey
Qattro

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- **Contamination observations in fill:** no obvious signs of contamination (i.e. hydrocarbon staining, chemical odours) were encountered in the fill and/or natural soils logged.
- **Laboratory results:** copper and manganese was analysed in nineteen soil samples and reported concentrations exceeding criteria for disposal of Waste Fill in two samples tested.

No other exceedances of relevant criteria were reported in samples of fill or natural soil tested.
- **Groundwater:** groundwater was not encountered at the time of the investigation.

Conclusions

Conclusions are presented below:

- The findings of the intrusive investigation support the conclusions of the site history that contamination risks at the site are low.
- Irrespective of the minor exceedances for copper and manganese, based on use of statistics and subject to the volume and location of soil that may require disposal, it is likely that fill soils assessed at the site would comply with the requirements of Waste Fill.
- The fill is likely to be suitable to remain on site in the context of the proposed land use. Given this, the risk of realising this higher disposal cost can be reduced if it is possible to retain excavated soil on site.
- On the basis of our findings, Golder is of the opinion that the contamination status of the site poses a low risk in the context of Qattro's proposed purchase and redevelopment.
- Given the change in land use, the approving Authority may request preparation of a Site Contamination Audit Report (SCAR) as a condition of the Development Approval. As previously recommended, proactive communication of the low risk nature of contamination at the site may assist in a less conservative condition being included.

Closing

We trust this advice is satisfactory. If you have any queries, please do not hesitate to contact us.

GOLDER ASSOCIATES PTY LTD



Vince Jukic
Senior Environmental Consultant

VJ/TC/sjm



Toby Carter
Principal Consultant

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Matthew Morrissey
Qattro

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Important information relating to this report

The statements presented below are intended to inform a reader of the report about its proper use. There are important limitations as to who can use the report and how it can be used. It is important that a reader of the report understands and has realistic expectations about those matters. The Important Information document does not alter the obligations Golder Associates has under the contract between it and its client.

This document ("Report") has been issued by Golder Associates Pty Ltd ("Golder") subject to the important limitations and other qualifications set out below:

- This Report constitutes or is part of services ("Services") provided by Golder to its client ("Client") under and subject to a contract between Golder and its Client ("Contract"). The contents of this page are not intended to and do not alter Golder's obligations (including any limits on those obligations) to its Client under the Contract.
- This Report is provided for use solely by Golder's Client and persons acting on the Client's behalf, such as its professional advisers. Golder is responsible only to its Client for this Report. Golder has no responsibility to any other person who relies or makes decisions based upon this Report or who makes any other use of this Report. Golder accepts no responsibility for any loss or damage suffered by any person other than its Client as a result of any reliance upon any part of this Report, decisions made based upon this Report or any other use of it.
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- The scope of Golder's Services and the period of time they relate to are determined by the Contract and are subject to restrictions and limitations set out in the Contract. If a service or other work is not expressly referred to in this Report, do not assume that it has been provided or performed. If a matter is not addressed in this Report, do not assume that any determination has been made by Golder in regards to it.
- At any location relevant to the Services conditions may exist which were not detected by Golder, in particular due to the specific scope of the investigation Golder has been engaged to undertake. Conditions can only be verified at the exact location of any tests undertaken. Variations in conditions may occur between tested locations and there may be conditions which have not been revealed by the investigation and which have not therefore been taken into account in this Report.
- Golder accepts no responsibility for and makes no representation as to the accuracy or completeness of the information provided to it by or on behalf of the Client or sourced from any third party. Golder has assumed that such information is correct unless otherwise stated and no responsibility is accepted by Golder for incomplete or inaccurate data supplied by its Client or any other person for whom Golder is not responsible. Golder has not taken account of matters that may have existed when the Report was prepared but which were only later disclosed to Golder.
- Having regard to the matters referred to in the previous paragraphs on this page in particular, carrying out the Services has allowed Golder to form no more than an opinion as to the actual conditions at any relevant location. That opinion is necessarily constrained by the extent of the information collected by Golder or otherwise made available to Golder. Further, the passage of time may affect the accuracy, applicability or usefulness of the opinions, assessments or other information in this Report. This Report is based upon the information and other circumstances that existed and were known to Golder when the Services were performed and this Report was prepared. Golder has not considered the effect of any possible future developments including physical changes to any relevant location or changes to any laws or regulations relevant to such location.
- Where permitted by the Contract, Golder may have retained subconsultants affiliated with Golder to provide some or all of the Services. However, it is Golder which remains solely responsible for the Services and there is no legal recourse against any of Golder's affiliated companies or the employees, officers or directors of any of them.
- By date, or revision, the Report supersedes any prior report or other document issued by Golder dealing with any matter that is addressed in the Report.
- Any uncertainty as to the extent to which this Report can be used or relied upon in any respect should be referred to Golder for clarification.

Preliminary Traffic, Flooding & Stormwater Assessment

Development Application No: 211/791/2019

Assessing Officer: Jordan Leverington
Site Address: 12-20 Arthur Lemon Avenue, UNDERDALE SA 5032
Certificate of Title: CT-5948/226
Description of Development: Combined Land division - Torrens Title; SCAP No. 211/D094/19; Creating five (5) additional allotments, a public road and the construction of five (5) two-storey dwellings

1.0 TO THE TECHNICAL OFFICER - CITY ASSETS

Please provide your comments in relation to:

- ☐ Site drainage and stormwater disposal
- ☐ Required FFL
- ☐ On-site vehicle parking and manoeuvrability
- ☐ New Crossover
- ☐ Your advice is also sought on other aspects of the proposal as follows:

.....
.....

PLANNING OFFICER - Jordan Leverington DATE 11 November, 2019



Memo

To Jordan Leverington
From Richard Tan
Date 11-Nov-2019
Subject 211/791/2019, 12-20 Arthur Lemon Avenue, UNDERDALE SA 5032

Jordan Leverington,

The following City Assets Department comments are provided with regards to the assessment of the above development application:

1.0 Land Division Layout

- 1.1 An area of reserve was previously located between Lots 4 and 5 in previous DA 211/913/2017, this is no longer represented. As well as being additional public open space, this also provided additional protection (over the easement width) of the major truck stormwater drain. It should be noted that

It is recommended that the provided plans should be amended to the above.

- 1.2 There appears to be no encroachment of Res 2 & 3 into the existing easement. As such the City Assets Department would be satisfied with the currently proposed footprint of these dwellings.
- 1.3 It is unclear how the existing building to be retained existing services (stormwater, water, sewer etc). It is also unclear whether there is currently any servicing of the building located within the footprint of the new development or laneway which should be further clarified by the applicant.

It is recommended that further clarification to the above should be provided.

- 1.4 **It is important for planner to ensure and be satisfied that appropriate measures and mechanisms are in place that the building to be retained has no existing use rights similar to that which it previously had. The loss of parking and serving due to the establishment of the new road and dwellings removes and unacceptably large amount of parking and access in relation to the previous use of the building.**

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2.0 Traffic Requirements

2.1 Impacts on Remaining Existing Allotment

Based on the ekistics planning report, the applicant seeks to retain the existing building for adaptive reuse at a later point in time, and extinguishing the existing use of the building at this point. Car parking demand of proposed future use of the existing building should comply with relevant car parking requirement.

It is recommended that the relinquished of the existing land use rights should occur prior to the demolition of the western car park.

2.2 Laneway Design

The new road has been designed and presented as a laneway style road. Laneways of similar key dimensionality have been utilised elsewhere within the greater Underdale residential development as a lower order road with a small catchment of properties being serviced by each laneway.

The overall carriageway width of 8.0m and road pavement width of 6.0m would be considered acceptable to Council based on retaining similar functionality requirements as the existing laneways, however City Assets would seek for the paved width to ideally be offset slightly to the east (by 0.25m) to provide improved amenity frontage to the dwellings for the like of bin placement. This however would also be dependent on design requirements for other servicing, including street lighting etc.

It is recommended that plans should be amended to the above requirements.

No information has currently been provided in relation to detailed pavement design, landscaping and verge finishes, lighting, services or landscape of the reserve area between allotments 2 and 3.

It is recommended that the further detailing and final sign-off of the road design and associated elements be conditioned (or similar) in association with final detailing and bonding of public works.

The proposed laneway shown with kerb and gutter along both sides of road. Typical laneway design would include central spoon drain drainage and kerb only along edge of road. This becomes important in addressing driveway access grade to garages with limited setback.



The above correction would see the new stormwater drainage in the laneway moved to centre of road.

It is recommended that plans should be amended to the above requirements.

Provision of a 0.3m wide reserve land strip (not road) between laneway and the remaining existing allotment (Lot 1) should be provided. This is to ensure no future accessing or servicing of Lot 1 to the laneway.

It is recommended that plans should be amended to the above requirements.

The proposed new residential development off of the new laneway involves the creation of five new residential allotments. Typically a provision of one on-street parking space per dwelling is sort to be preserved in association with this nature of development. Given the laneway design, conventional on-street parking is not able to be accommodated. Between Res 2 and 3, three perpendicular parking spaces have been provided within a public reserve area, effectively be on-street parking. These three spaces would provide sufficient on-street visitor parking allowance to support the five proposed dwellings.

Council typically does not support the provision of perpendicular on-street parking, however given the proposal of low volume laneway generated condition of the road it is being proposed on, this arrangement would be considered acceptable in these circumstances. Similarly, the relevant Australian Standard would require these parking spaces to be further setback from the roadway (11.0m from road centreline to nose of parking space) to avoid conflicting traffic movements with reversing traffic. Again, in the specific of this circumstance, the proposed offset would be considered acceptable to Council.

The new dwellings would be suitable for the receipt of the standard Council waste servicing. To facilitate this, the design of the laneway will need to accommodate the forward entry and exiting of the laneway for the waste vehicle (The lane is approximately twice the length of that which would be considered acceptable for a waste vehicle to reverse up the laneway). An area has been provided at the northern end of the laneway which has been utilised for the turning of a waste vehicle. However, the design of the turning vehicle space has been proposed over the property boundary, which will not be accepted. It

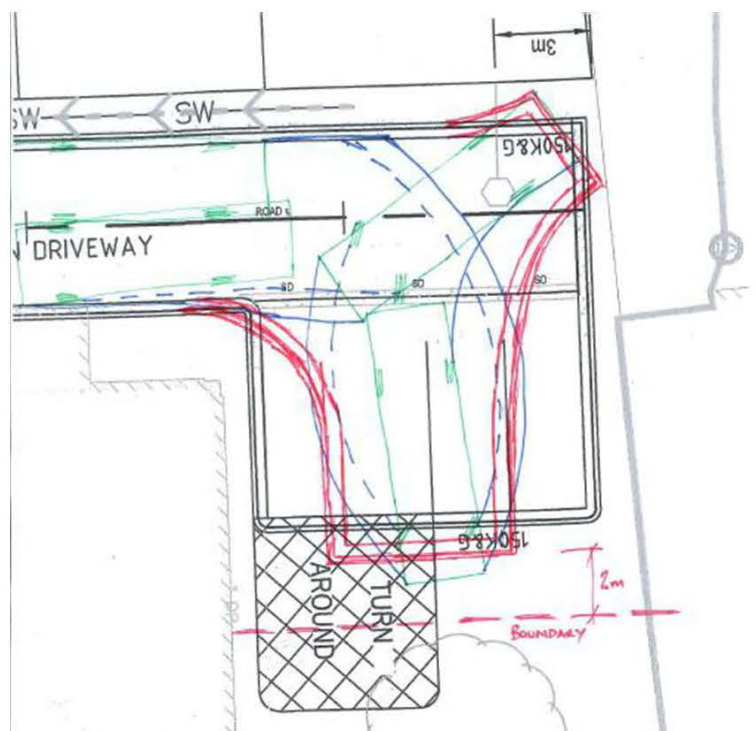


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should also be noted that the property boundary indicated in demolition plan and survey plan is contradicting.

The attached sketch would provide for the type of design solution which Council would be satisfied with in this location, particularly in consideration of this road being a Council asset.



It is recommended that revised design for the northern end of the proposed public laneway be requested from the applicant in consideration of the above information and sketch design.

2.3 Witty Court Interface

The direct connection of the new laneway to Witty Court is considered acceptable and direct impacts of this to the existing arrangement of Witty Court are considered manageable. The new road connection will require the removal of a single existing street tree and the direct loss of an existing on-street parking space servicing Witty Court properties. These impacts are considered acceptable and both are

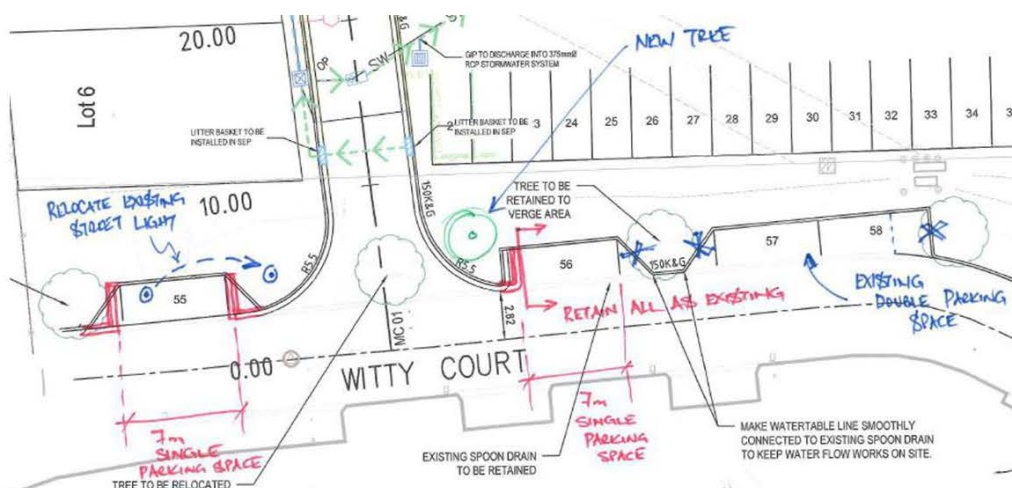
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considered to be able to be offset based on appropriate design alterations to Witty Court.

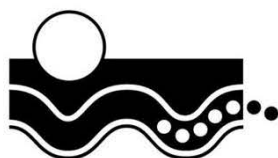
There is an existing turning head located at the far western end of Witty Court (northern side), and although observed to often be used for parking, is actually the current allocation for the turning of a waste vehicle in the street and line marked as a 'No Standing' zone. This turning head will no longer be necessary upon the creation of the laneway as the entrance to the laneway would facilitate for the necessary turning of the waste vehicle.

It is considered that the acceptable extent of alteration of Witty Court would be limited to the connection of the new road, the removal of the exiting turning bay and replacement with a single parallel parking space (to offset the one lost by the new road), the placement of a new street tree and garden bed directly to the east of the new road connection (to offset that lost by the new road) and the relocation of the existing street light to directly east of the new road connection (due to conflict of new parallel space provision with existing light). There is to be no alteration of the existing indented parking on Witty Court east of the proposed new road connection.



It is recommended that altered design be provided in association with this development for the interface with Witty Court be provided in alignment with the above description.

2.4 Traffic and Manoeuvrability



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Council would typically seek a 1m setback of any garage from the property boundary for the purposes of retaining appropriate site lines for vehicles reversing from the garages to pedestrian and traffic. (Noting this offset was achieved in association with other laneway development established in the original development of the Underdale precinct.)

None of the dwellings would achieve this with most have around 0.5m offset and Dwelling 2 having effectively no offset.

It is presumed from the manner in which these dwelling present to the street that they would ultimately not have front street boundary fencing, which in combination of the road carriageway being constructed as a laneway with no footpath along the verge adjacent to these dwelling would assist in offsetting this sightline requirement.

Also in consideration for these dwellings is the low traffic volume of the new laneway and hence reduced risk of conflict.

It is recommended that a condition be included with any development of these dwellings to prohibit the establishment of fences along the road frontages of the allotments.

2.5 Existing services for Lot 1

No information in support of the land division which outlines the current or proposed servicing arrangements to be preserved in relation to the existing building. It would be presumed from site observations that the building is currently serviced from the north eastern corner of the building, which if preserved, would require ongoing servicing to be achieved via the new laneway. This issue may not be relevant as the applicant has proposed to extinguish existing site use. I leave this to the planner's consideration to decide whether this issue needs to be addressed.

3.0 Stormwater Requirements

3.1 Stormwater Detention

Detention calculations nominate an acceptable total volume of stormwater detention and nominate it to be achieved through a combination of allotment and public based measures, however there is no justification for how this spread of detention has been determined or how or what scale flow restrictions are to be utilised.



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It is recommended that further clarification to the above should be provided.

Since the previous application for the site, Council now offers a simplified approach to the management of stormwater if desired by the applicant. This would involve each dwelling having a larger (3000 litre) reuse only tank, collecting the majority (90% minimum) of the roof and delivering water to multiple uses within the dwelling (All toilets and laundry cold). This approach would offset detention and water quality from the dwellings. Detention and water quality from the laneway could then simply be addressed through the utilisation of permeable pavement to replace the spoon drain and a small portion of the pavement width (would require some simple calculations). The oversized pipe within the laneway and proprietary water quality device could be eliminated from the design.

3.2 Stormwater Quality

The stormwater management report provided by MLEI consulting on behalf of the applicant nominates for all stormwater runoff the new road and new dwellings to be directed through a proprietary stormwater quality device prior to being discharged into Council's underground easement drainage thorough the site. The nominated unit being an ECOSOL - Storm Pit 20L - Class 2. This unit being located within the public road and would ultimately be handed over to Council and becoming a Council asset.

This type of unit in principle addresses the areas of stormwater quality improvement which Council would seek to be considered.

In demonstration of the achievement of the specific desired targets and extent of stormwater quality improvement, MLEI have only provided reference to a generic treatment table from the manufacturer's product fact sheet. Council will be satisfied with the proposed approach for stormwater quality treatment, however further demonstration will be required in the final detail design of the roadworks to provide the proposed unit has been scaled appropriately to the specific catchment of this application.

It is recommended that the further detailing and final sign-off of the stormwater quality treatment be conditioned (or similar) in association with final detailing and bonding of public works.

3.3 Stormwater Site Arrangements



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The site stormwater plan nominates a new stormwater pipe connection from the new road to an existing stormwater discharge point of the existing Council stormwater trunk drain, which is located in the existing carpark area to the south of the existing building.

Based on the provided 'Land Division Plan' (FYFE, Sheet 1 of 1, dated 8/8/2019, page 77/120 of Objective ID: A2351154), a stormwater easement has been created across the portion of land to be retained in association with the new building.

3.4 Pit to collect runoff from carpark on Lot 1 to be a separate from the drain from the new laneway. Alternatively, connection to this drain can be though via a junction box.

4.0 FFL Consideration – Finished Floor Level (FFL) Requirement

4.1 Council seeks to ensure that the FFL of all new development is protected from inundation when considering a 350mm stormwater flow depth in the adjacent street water table.

This is typically achieved through establishing the FFL of new development a minimum of 350mm above the highest adjacent street water table.

In association with the above proposed development, no site or road verge level information has been provided due to the road is part of the development, which has not been constructed and as such it is impossible to determine if the proposal will satisfy the above consideration.

Generally simply conditioning that a development satisfy this consideration can have its complications with regards to the ultimately required level of the development in relation to neighbouring properties and the related planning considerations this brings about. It may also bring about the necessity for alterations to the design of the development which are outside of the expectations of the applicant (for example; requiring step(s) up from existing buildings to additions). However, it may be required in this case. I leave this to the planner's consideration to determine whether this issue can be deal as a reserved matter or can be conditioned in a more appropriate way.

Regards
Richard Tan
Civil Engineer

Preliminary Traffic, Flooding & Stormwater Assessment

Development Application No: 211/791/2019

Assessing Officer:	Brendan Fewster
Site Address:	12-20 Arthur Lemon Avenue, UNDERDALE SA 5032
Certificate of Title:	CT-5948/226
Description of Development	Combined Land division - Torrens Title; SCAP No. 211/D094/19; Creating five (5) additional allotments, a public road and the construction of five (5) two-storey dwellings

TO THE TECHNICAL OFFICER - CITY ASSETS

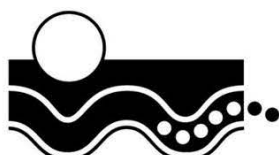
Please provide your comments in relation to:

- ☐ Site drainage and stormwater disposal
- ☐ Required FFL
- ☐ On-site vehicle parking and manoeuvrability
- ☐ New Crossover
- ☐ Your advice is also sought on other aspects of the proposal as follows:

.....
.....

PLANNING OFFICER - Brendan Fewster

DATE 24 March, 2020

City of **West Torrens**

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Memo

To Brendan Fewster
From Richard Tan
Date 24-Mar-2020
Subject 211/791/2019, 12-20 Arthur Lemon Avenue, UNDERDALE SA 5032

Brendan Fewster,

The following City Assets Department comments are provided with regards to the assessment of the above development application:

1.0 Land Division Layout

- 1.1 An area of reserve was previously located between Lots 4 and 5 in previous DA 211/913/2017, this is no longer represented. As well as being additional public open space, this also provided additional protection (over the easement width) of the major truck stormwater drain.
- 1.2 There appears to be no encroachment of Res 2 & 3 into the existing easement. As such the City Assets Department would be satisfied with the currently proposed footprint of these dwellings.
- 1.3 It is unclear how the existing building to be retained existing services (stormwater, water, sewer etc). Although the applicant has provided a site survey plan, however there is no further explanation on whether there is currently any servicing of the building located within the footprint of the new development or laneway. Under such context it is assumed that any existing services within the new development or laneway shall be terminated and removed.
- 1.4 It is important for planner to ensure and be satisfied that appropriate measures and mechanisms are in place that the building to be retained has no existing use rights similar to that which it previously had. The loss of parking and serving due to the establishment of the new road and dwellings removes and unacceptably large amount of parking and access in relation to the previous use of the building.

2.0 Traffic Requirements

2.1 Impacts on Remaining Existing Allotment



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Previously, based on the ekistics planning report, the applicant seeks to retain the existing building for adaptive reuse at a later point in time, and extinguishing the existing use of the building at this point. The new provided planning report has indicated that there is intention to reuse existing building as a retirement village that will accommodate 40 independent living units, with 46 parking spaces for resident and visitors. The proposed car park space has been assessed as meeting Council's requirement, with 40 car park space for resident and 6 for visitors.

2.2 Laneway Design

The new road has been designed and presented as a laneway style road. Laneways of similar key dimensionality have been utilised elsewhere within the greater Underdale residential development as a lower order road with a small catchment of properties being serviced by each laneway.

The overall carriageway width of 8.0m and road pavement width of 6.0m would be considered acceptable to Council based on retaining similar functionality requirements as the existing laneways. A 1.4m verge width has also been provided at the front of property.

No information has currently been provided in relation to detailed pavement design, landscaping and verge finishes, lighting, and services between allotments 2 and 3.

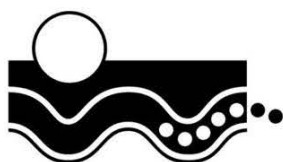
It is recommended that the further detailing and final sign-off of the road design and associated elements be conditioned (or similar) in association with final detailing and bonding of public works.

The proposed laneway has included central spoon drain drainage and kerb only along edge of road has been considered acceptable.

Provision of a 0.3m wide reserve land strip (not road) between laneway and the remaining existing allotment (Lot 1) has be provided and indicated on the plan of division.

Between Res 2 and 3, three perpendicular parking spaces have been provided which would provide sufficient on-street visitor parking allowance to support the five proposed dwellings.

The new dwellings would be suitable for the receipt of the standard Council waste servicing. To facilitate this, the design of the laneway will need to accommodate the forward entry and exiting of the laneway for



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the waste vehicle (The lane is approximately twice the length of that which would be considered acceptable for a waste vehicle to reverse up the laneway). An area has been provided at the northern end of the laneway which has been utilised for the turning of a waste vehicle. The proposed detailing for the turning area still not meeting City Assets requirements. However, both design concept by the applicant and City Assets can be fit within the proposed land division title. City Assets is happy to work together with the planners to come out with a statement of requirements for the road at later stage.

2.3 Witty Court Interface

The proposed Witty Court Interface has been assessed as acceptable, except for the width of the first existing carpark to the east of the junction, marked 7.8m, which I believed is a typo and should be amended.

2.4 Traffic and Manoeuvrability

Council would typically seek a 1m setback of any garage from the property boundary for the purposes of retaining appropriate site lines for vehicles reversing from the garages to pedestrian and traffic. (Noting this offset was achieved in association with other laneway development established in the original development of the Underdale precinct.)

None of the dwellings would achieve this with most have around 0.5m offset and Dwelling 2 having effectively no offset.

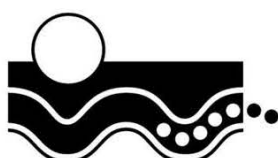
It is presumed from the manner in which these dwelling present to the street that they would ultimately not have front street boundary fencing, which in combination of the road carriageway being constructed as a laneway with no footpath along the verge adjacent to these dwelling would assist in offsetting this sightline requirement.

Also in consideration for these dwellings is the low traffic volume of the new laneway and hence reduced risk of conflict.

It is recommended that a condition be included with any development of these dwellings to prohibit the establishment of fences along the road frontages of the allotments.

2.5 Existing services for Lot 1

No information in support of the land division which outlines the current or proposed servicing arrangements to be preserved in relation to the



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existing building. It would be presumed from site observations that the building is currently serviced from the north eastern corner of the building, which if preserved, would require ongoing servicing to be achieved via the new laneway. This issue may not be relevant as the applicant has proposed to extinguish existing site use. I leave this to the planner's consideration to decide whether this issue needs to be addressed.

3.0 Stormwater Requirements

3.1 Stormwater Detention

The provided 'Civil Stormwater Calculations' (MLEI, Ref: 2017-6212-F, dated 11/03/2020) has been assessed as satisfying minimum requirements.

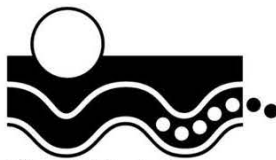
It is recommended that any approval associated with this development included a condition of similar wording to the following;

For Lot 2, 4 & 5;

- **All stormwater management measures for a dwelling, including harvest tanks and supply mechanisms, must be installed and operation prior to occupancy of that dwelling.**
- **Rainwater tank plumbed to deliver recycled water to all toilets and laundry cold water outlet. (Can also be connected to Hot Water Service if desired).**
- **A minimum of 90 percent of the roof area of each dwelling must be plumbed to direct stormwater runoff to the rainwater tank for that dwelling.**

3.2 Stormwater Quality

The stormwater management report provided by MLEI consulting on behalf of the applicant nominates for all stormwater runoff the new road and new dwellings to be directed through a proprietary stormwater quality device prior to being discharged into Council's underground easement drainage thorough the site. The nominated unit being an Enviro G30 filtration system. This unit being located within the public road and would ultimately be handed over to Council and becoming a Council asset.



City of **West Torrens**

Between the City and the Sea

In demonstration of the achievement of the specific desired targets and extent of stormwater quality improvement, MLEI have only provided reference to a generic treatment table from the manufacturer's product fact sheet. The provided brochure has claims that the product is able to achieve the stormwater quality target. Under such context, stormwater quality has been assessed as satisfying minimum requirements. It should be noted that further demonstration will be required in the final detail design of the roadworks to provide the proposed unit has been scaled appropriately to the specific catchment of this application.

It is recommended that the further detailing and final sign-off of the stormwater quality treatment be conditioned (or similar) in association with final detailing and bonding of public works.

3.3 Stormwater Site Arrangements

The site stormwater plan nominates a new stormwater pipe connection from the new road to an existing stormwater discharge point of the existing Council stormwater trunk drain, which is located in the existing carpark area to the south of the existing building via existing stormwater easement.

- 3.4** Pit to collect runoff from carpark on Lot 1 has been separate from the drain from the new laneway.

4.0 FFL Consideration – Finished Floor Level (FFL) Requirement

- 4.1** The proposed minimum FFL for the site has been assessed as satisfying minimum requirements.

Regards
Richard Tan
Civil Engineer



Contact
Telephone
Email

Planning Services
7109 7016
dlptipdclearanceletters@sa.gov.au

State Commission
Assessment Panel

11 September 2019

Level 5
50 Flinders Street
Adelaide SA 5000

City Manager
City of West Torrens
165 Sir Donald Bradman Dr.
HILTON SA 5033

GPO Box 1815
Adelaide SA 5001

08 7109 7061

Dear Sir/Madam

**Re: Proposed Development Application No. 211/D094/19 (ID 65866)
for Land Division by Ekistics**

Further to my letter dated 14 August 2019 and to assist the Council in reaching a decision on this application, copies of consultation agency reports received by the State Commission Assessment Panel (SCAP) are available for your consideration.

IT IS REQUESTED PURSUANT TO SECTION 33 (1) (c) OF THE *DEVELOPMENT ACT 1993* THAT THE COUNCIL INCLUDE IN ITS DEVELOPMENT APPROVAL THE FOLLOWING REQUIREMENTS OF THE SCAP.

1. The financial and augmentation requirements of the S A Water Corporation shall be met for the provision of water supply and sewerage services. (S A Water 90080/17)

The necessary easements shall be granted to the S A Water Corporation free of cost.

SA Water Corporation further advise that an investigation will be carried out to determine if the water and/or sewer connection/s to your development will be costed as standard or non-standard.

2. Payment of \$38,080.00 into the Planning and Development Fund (5 allotment/s @ \$7,616.00 /allotment). Payment may be made by credit card via the internet at www.edala.sa.gov.au or by phone (7109 7018), by cheque payable to the Department of Planning, Transport and Infrastructure marked "Not Negotiable" and sent to GPO Box 1815, Adelaide 5001 or in person, by cheque or credit card, at Level 5, 50 Flinders Street, Adelaide.
3. A final plan complying with the requirements for plans as set out in the Manual of Survey Practice Volume 1 (Plan Presentation and Guidelines) issued by the Registrar General to be lodged with the State Commission Assessment Panel for Land Division Certificate purposes.

Council's particular attention is drawn to the comments by Environment Protection Authority for this application.

Please upload the Decision Notification Form (via EDALA) following Council's Decision.

Yours faithfully,

A handwritten signature in blue ink that reads 'Biljana B.'.

Biljana Prokic
LAND DIVISION COORDINATOR – PLANNING SERVICES
as delegate of the
STATE COMMISSION ASSESSMENT PANEL



10 September 2019

Our Ref: 90080/17

The Chairman
State Commission Assessment Panel
50 Flinders St
ADELAIDE SA 5000

Dear Sir/Madam

SA Water
Level 6, 250 Victoria Square
ADELAIDE SA 5000
Ph (08) 7424 1119
Inquiries Craig Stanway
Telephone 7424 1837

PROPOSED LAND DIVISION APPLICATION NO: 211/D094/19 AT UNDERDALE

In response to the abovementioned proposal, I advise that pursuant to Section 33 of the Development Act it is necessary for the developer to satisfy this Corporation's requirements, which are listed below.

The financial requirements of SA Water shall be met for the provision of water supply and sewerage services.

The augmentation requirements of SA Water shall be met.

The necessary easements shall be vested to SA Water.

If a connection/s off an existing main is required, an investigation will be carried out to determine if the connection/s to your development will be costed as standard or non-standard.

Yours faithfully

Craig Stanway

for MANAGER LAND DEVELOPMENT & CONNECTIONS

Environment Protection Authority

13 Aug 2019

Response Details : Referral Comment

14 Aug 2019

Please refer to the EPA's advice for Development Application 211/D130/17 (EPA Reference 34156) dated 16 August 2017.



Environment Protection Authority
www.epa.sa.gov.au



GPO Box 2607 Adelaide SA 5001
250 Victoria Square Adelaide SA
T (08) 8204 2000 F (08) 8204 2020
Country areas 1800 623 445

EPA Reference: 34156

16 August 2017

Mr Ben Collett
Technical Officer
Development Assessment Commission
GPO Box 1815
ADELAIDE SA 5001

Dear Mr Collett

REG 29 ADVICE- Consultation of Land Division

Development Application No.	211/D130/17
Applicant	Qattro Commercial Pty Ltd (Fyfe Pty Ltd)
Location	A54 DP67591, Hundred Adelaide, 12-20 Arthur Lemon Avenue, Underdale SA 5032.
Proposal	Land Division.

Decision Notification	A copy of the decision notification must be forwarded to: Client Services Officer Environment Protection Authority GPO Box 2607 ADELAIDE SA 5001
-----------------------	--

I refer to the above development application forwarded to the Environment Protection Authority (EPA) in accordance with Regulation 29(3) of the *Development Regulations 2008*. The proposed development involves a land division, which the Development Assessment Commission believes warrants consultation with the EPA.

The following response is provided in accordance with Regulation 29(3) of the *Development Regulations 2008*.

In determining this response the EPA had regard to and sought to further the objects of the *Environment Protection Act 1993*, and also had regard to:

- the General Environmental Duty, as defined in Part 4, Section 25 (1) of the Act; and
- relevant Environment Protection Policies made under Part 5 of the Act.

Please direct all queries relating to the contents of this correspondence to Melissa Chrystal on telephone (08) 8204 1318 or facsimile (08) 8124 4673 or email Melissa.Chrystal@epa.sa.gov.au.

THE PROPOSAL

The proposal is for the land division of one allotment into six torrens title allotments and a public road. Five of the proposed allotments would be situated over an existing carpark area and the sixth allotment would accommodate an existing building formerly owned and occupied by the University of South Australia ('UniSA').

The proposed allotments along the western boundary of the site would have site areas ranging from 155 square metres to 192 square metres. The allotment containing the former UniSA building would have a site area of 3 530 square metres.

SITE DESCRIPTION

The site of the proposed development is 12-20 Arthur Lemon Avenue, Underdale (also described as A54 DP67591). The entire site occupies 5 097 square metres.

The subject site is located within the Residential Zone, Medium Density Policy Area 18 of the *West Torrens Council Development Plan* (consolidated 30 May 2017). A range of medium density dwelling types, including detached dwellings on small allotments, are envisaged in this policy area.

CONSIDERATION

Advice in this letter includes consideration of the location with respect to existing land uses and is aimed at protecting the environment and avoiding potential adverse impacts upon the locality.

It is understood that this application was referred to the EPA for its advice because the EPA holds records relating to the subject land and including an historical EPA licence.

In assessing the proposed development, the EPA considered Land Division Plan, Dwg No 25608DU1-R2, prepared by Fyfe Pty Ltd and dated 18/07/2017.

For the purpose of providing this response, the site has not been inspected but has been viewed using mapping information available to the EPA, including recent aerial imagery, and considered with regard to existing knowledge of the site and the locality.

ENVIRONMENTAL ISSUES

This development application proposes the land division of one allotment into six. Having regard to the zoning of the subject site and nearby land uses, it is envisaged the proposed smaller allotments along the western boundary of the site would be developed for residential purposes.

The subject site previously held an EPA authorisation (1028) for activities producing listed wastes. The listed wastes were produced by medical, laboratory and clinical activities undertaken at the subject site. The authorisation can be viewed at:

http://www.epa.sa.gov.au/data_and_publications/environmental_authorisations_licences

It is noted that the proposed land division (for future residential purposes) would constitute a change of use to a more sensitive land use.

ADVICE

Prior to making a decision on the DA, it is recommended that the planning authority satisfy itself that the site is suitable for future envisaged land uses that would be facilitated by the proposed land division.

As such, it is recommended that the planning authority request that preliminary site investigations (PSI) be undertaken to determine if site contamination is known or suspected to exist at the site due to a potentially contaminating land use that may occurred on the site. A report which documents the PSI should be prepared by an appropriately qualified and experienced site contamination consultant, in accordance with the *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013)*, to the satisfaction of the planning authority.

Should the PSI identify that the site has been used for a potentially contaminating land use and a change to a sensitive land use is proposed, a Site Contamination Auditor accredited by the EPA under Part 10A of the *Environment Protection Act 1993* should be engaged to carry out a Site Contamination Audit for the subject land. If the existing building onsite is retained for a non-sensitive land use, the audit may be limited to the proposed western (ie future residential) allotments only.

The following notes provide important information for the benefit of the applicant and are requested to be included in any approval:

- The applicant is reminded of its general environmental duty, as required by section 25 of the *Environment Protection Act 1993*, to take all reasonable and practicable measures to ensure that the activities on the whole site, including during construction, do not pollute the environment in a way which causes or may cause environmental harm.
- EPA information sheets, guidelines documents, codes of practice, technical bulletins etc can be accessed on the following web site: <http://www.epa.sa.gov.au>

Yours faithfully



Hayley Riggs
Delegate

ENVIRONMENT PROTECTION AUTHORITY

Distribution Details			
Referral Agency Development Assessment Commission	Referred to Agent 20 Jul 2017	First Accessed 17 Aug 2017	
SA Water Corporation	20 Jul 2017	20 Jul 2017	
Environment Protection Authority	20 Jul 2017	21 Jul 2017	
	Referral Document : Document Title REG 29 Advice	Document Type Regard Response	
DPTI - Mark Maintenance Section	20 Jul 2017	24 Jul 2017	
	Referral Documents : Document Title There are no referral documents available	Document Type	
Development Assessment Commission	30 Oct 2017	30 Oct 2017	
Environment Protection Authority	30 Oct 2017	31 Oct 2017	
	Response Details : Referral Comment The EPA's previous advice recommended preliminary site investigations be undertaken. The additional documents uploaded in October 2017 include a Soil Contamination Investigation Report and a letter from Golder Associates. Although the Golder Associates letter refers to a desktop site history, no details are provided. Neither document constitutes a preliminary site investigation or a Site Contamination Audit report. Therefore, the EPA's previous advice is still applicable.	Nature No com	
Development Assessment Commission	07 Mar 2018	07 Mar 2018	
	Response Details : Referral Comment	Document Type DAC Consultation Report	
SA Water Corporation	07 Mar 2018	07 Mar 2018	
Decision Authority City of West Torrens	Distributed for Decision 20 Jul 2017	First Accessed 27 Jul 2017	

-----Original Message-----

From: Riggs, Hayley (EPA) [mailto:Hayley.Riggs@sa.gov.au]
Sent: Friday, 27 March 2020 1:47 PM
To: Brendan Fewster <email@brendanfewsterplanning.com.au>
Cc: Rachel Knuckey <rknuckey@wtcc.sa.gov.au>
Subject: RE: 211/D094/19 (EPA Ref 34156) - 12-20 Arthur Lemon Avenue [SEC=Government, DLM=Sensitive]

Sensitive

Hi Brendan and Rachel

I've consulted with our site contamination team and we can confirm that if Council is happy with an audit not being required, the EPA has no further comment to make as it is ultimately Council's responsibility to make a determination regarding site suitability from a site contamination perspective when considering a proposed change of use. However please note that the EPA has not made, not is it able to make, its own determination regarding site suitability.

I hope that all makes sense. Please feel free to contact me for any further clarification.

Kind regards

Hayley Riggs
Principal Adviser Development Assessment

Strategy and Assessment Directorate | Planning and Impact Assessment Branch Environment Protection Authority
Work Phone (08) 8207 1916
211 Victoria Square Adelaide 5000

This email message may contain confidential information, which also may be legally privileged. Only the intended recipient(s) may access, use, distribute or copy this email.

-----Original Message-----

From: Brendan Fewster <email@brendanfewsterplanning.com.au>
Sent: Friday, 27 March, 2020 12:26 PM
To: Riggs, Hayley (EPA) <Hayley.Riggs@sa.gov.au>
Cc: rknuckey@wtcc.sa.gov.au
Subject: 211/D094/19 (EPA Ref 34156) - 12-20 Arthur Lemon Avenue

Hi Hayley

I trust you're well.

I'm hoping you can assist me with a pretty urgent matter.

I'm currently assisting the West Torrens Council with the assessment of the above application.

Comments were previously provided by the EPA under DA 211/D130/17. These comments were as follows:

The EPA's previous advice recommended preliminary site investigations be undertaken. The additional documents uploaded in October 2017 include a Soil Contamination Investigation Report and a letter from Golder Associates.

Although the Golder Associates letter refers to a desktop site history, no details are provided. Neither document constitutes a preliminary site investigation or a Site Contamination Audit report. Therefore, the EPA's previous advice is still applicable.

I note the applicant provided a Soil Contamination Investigation Report, prepared by Golder dated October 2016, as part of this application which included some site history and series of soil bore logs. From my experience, I would have thought this information constitutes a Preliminary Site Investigation and is therefore reasonable?

Can you please provide some further clarification on the adequacy of the Golder's Soil Contamination Investigation Report.

Regards

Brendan

The content of this email is confidential and/or copyright and is solely for the intended recipient. If you have received this email in error: (i) you must not copy or distribute any part of it or otherwise disclose its contents to anyone; (ii) please let the City of West Torrens know by reply email to the sender and delete all copies from your system. No representation is made that this email is free of viruses or other defects. Virus scanning is recommended and is the responsibility of the recipient.

6.3 272 Marion Road, NETLEY

Application No 211/18/2020

DEVELOPMENT APPLICATION DETAILS

DESCRIPTION OF DEVELOPMENT	Installation of a temporary freestanding pylon sign in association with display home
APPLICANT	Construction Services Australia Pty. Ltd.
LODGEMENT DATE	15 January 2020
ZONE	Residential Zone
POLICY AREA	Low Density Policy Area 20
APPLICATION TYPE	Non-complying
PUBLIC NOTIFICATION	Category 1 (Minor)
REFERRALS	Internal <ul style="list-style-type: none"> • Nil External <ul style="list-style-type: none"> • Nil
DEVELOPMENT PLAN VERSION	Consolidated 12 July 2018
DELEGATION	<ul style="list-style-type: none"> • The relevant application proposes a non-complying form of development and the application is to be determined after a full merit assessment against the Development Plan, except where the relevant development application proposes a change of use to office in a Commercial Zone.
RECOMMENDATION	Support with conditions
AUTHOR	Amelia De Ruvo

BACKGROUND

In September 2019 Development Approval was issued to an application which was for the construction of a two storey detached dwelling to be used as a display home for a period of 5 years. The display home will revert back to a residential dwelling on the cessation of the land use.

The proposed freestanding pylon sign is to be located on site for a temporary basis and only during the time in which the dwelling is used as a display home.

SUBJECT LAND AND LOCALITY

The subject land is formally described as Allotment 21 in Deposited Plan 4698 in the area named Netley Hundred of Adelaide, Volume 5969 Folio 357, more commonly known as 272 Marion Road, Netley. The subject site is rectangular in shape with a 18.29 metre (m) wide frontage to Marion Road, a depth of 45.75m and a site area of 836.8 square metres (m²). It is noted that there are no encumbrances or Land Management Agreements on the Certificate of Title.

The site currently has the two storey detached dwelling under construction, to be used as a display home, with the framing of the dwelling having been completed. The remaining portion of the site is cleared of all structures and vegetation. The site is relatively flat and there are no regulated or significant trees on the subject land or the adjoining land that would be affected by the development.

The locality is mixed use in nature comprised of residential dwellings and commercial land uses. To the west is Southern Cross Care - Pine Springs Retirement Living which contains 58 dwellings. To the east are residential properties which are comprised of a range of dwelling types including detached and semi-detached dwelling, group dwellings and residential flat buildings. The allotment pattern to the east is varied due to the varying dwelling types. The north and south of the subject land, specifically along Marion Road, varies between commercial and residential land uses. The Commercial land uses include but are not limited to consulting rooms, chemists, gym studio and offices. With Marion Road being a secondary arterial road, a bus stop is located 60m north of the subject site.

Being a secondary arterial road, the wider locality of Marion Road is comprised of a range of commercial and industrial land uses. Freestanding pylon signs are a definitive feature of the wider locality due to the nature of Marion Road. The existing freestanding pylon signs vary in size and height with some being internally illuminated.

The site and locality are shown on the aerial imagery and maps below.



RELEVANT APPLICATIONS

DA Number	Description of Development	Decision	Decision Date
211/1019/2018	Construction of a two storey detached dwelling (to be used as a display home for a period of 5 years with associated landscaping and temporary car parking) and the installation of a 1.8m boundary fence.	Development Approval	10 September 2019

PROPOSAL

The proposal seeks to install a freestanding pylon sign to the eastern boundary of the subject site. The proposed pylon sign will have a maximum height of 3.5m and a width of 1m and will be constructed with an aluminium frame. Attached to the frame is a folded composite aluminium panel which details the corporate logo associated with the building company. The pylon sign will not be internally illuminated.

The content of the pylon sign will be restricted to 'first party' advertising of content and products relating directly to the associated business operating from the site.

The relevant plans and documents are contained in **Attachment 2**.

NON-COMPLYING

In accordance with the Procedural Matters of the Residential Zone any advertisement and / or advertising hoarding are listed as a non-complying form of development. In this instance the application for a freestanding pylon sign is considered a non-complying form of development.

The applicant did not provide a Statement of Effect pursuant to Regulation 17 (6)(b) of the *Development Regulations 2008*, as the sign is considered to be used in a manner which is ancillary to the use of the display home. Notwithstanding, a brief statement in support of the development has been provided.

As the administration resolved, under delegation, to proceed with an assessment of the proposal, the application is now presented to the Panel for a decision. Should the CAP resolve to approve the application, the concurrence of the State Commission Assessment Panel is required. Alternatively, should the CAP refuse the application, no appeal rights are afforded to the applicant.

PUBLIC NOTIFICATION

The application is a Category 1 form of development pursuant to Schedule 9 Part 1 (3)(b) of the *Development Regulations 2008*.

- the construction of a building to be used as ancillary to or in association with an existing building and which will facilitate the better enjoyment of the purpose for which the existing building is being used, and which constitutes, in the opinion of the relevant authority, development of a minor nature only;*

For the purposes of this assessment, given the display home is currently under construction this was enough to consider the use as 'existing'.

The proposed signage is considered to be minor in nature only and is unlikely to unreasonably impact the owners or occupiers of land in the locality for the following reasons:

- Signage is reasonably expected within the locality as it is commercial in nature.
- The sign is of a reasonable size and scale.
- The sign does not obscure views of the road and assists with way finding.
- As the proposed sign is not internally illuminated, they are unlikely to cause hazard to motorists or nuisance to adjoining land owners. The illuminance of the sign is unlikely to cause a hazard to road users or nuisance to adjoining land owners as illuminance will be controlled and will be limited to logos and wording only.
- The proposed sign will be used exclusively to advertise the land use approved on the subject land.

As the application was considered to be a Category 1 (minor) application, not public notification was required.

RELEVANT DEVELOPMENT PLAN PROVISIONS

The subject land is located within the Residential Zone and, more specifically, Low Density Policy Area 20 as described in the West Torrens Council Development Plan.

The relevant Desired Character statements are as follows:

Residential Zone - Desired Character	
<p>This zone will contain predominantly residential development. There may also be some small-scale non-residential activities such as offices, shops, consulting rooms and educational establishments in certain locations. Non-residential activities will be complementary to surrounding dwellings.</p> <p>Allotments will be at very low, low and medium densities to provide a diversity of housing options in different parts of the zone. The range of allotment sizes will support the desired dwelling types anticipated in each policy area, and the minimum allotment sizes shall be treated as such in order to achieve the Desired Character for each policy area and, in turn, reinforce distinction between policy areas. Row dwellings and residential flat buildings will be common near centres and in policy areas where the desired density is higher, in contrast to the predominance of detached dwellings in policy areas where the distinct established character is identified for protection and enhancement. There will also be potential for semi-detached dwellings and group dwellings in other policy areas.</p> <p>Residential development in the form of a multiple dwelling, residential flat building or group dwelling will not be undertaken in a Historic Conservation Area.</p> <p>Landscaping will be provided throughout the zone to enhance the appearance of buildings from the street as viewed by pedestrians, provide an appropriate transition between the public and private realm and reduce heat loads in summer.</p>	
<i>Objectives</i>	4
<i>Principles of Development Control</i>	3 & 5

Low Density Policy Area 20 - Desired Character	
<p>Allotments in the policy area will be at low density, accommodating predominantly detached dwellings and some other dwellings types such as semi-detached and group dwellings. There will be a denser allotment pattern close to centre zones where it is desirable for more residents to live and take advantage of the variety of facilities focused on centre zones. Battleaxe subdivision will not occur in the policy area to preserve a pattern of rectangular allotments developed with buildings that have a direct street frontage.</p> <p>Buildings will be up to 2 storeys in height. Garages and carports will be located behind the front façade of buildings.</p> <p>Development will be interspersed with landscaping, particularly behind the main road frontage, to enhance the appearance of buildings from the street as viewed by pedestrians, provide an appropriate transition between the public and private realm and reduce heat loads in summer. Low and open-style front fencing will contribute to a sense of space between buildings.</p>	
<i>Objectives</i>	1
<i>Principles of Development Control</i>	2

Additional provisions of the Development Plan which relate to the proposed development are contained in **Attachment 1**.

QUANTITATIVE STANDARDS

DEVELOPMENT PLAN PROVISIONS	STANDARD	ASSESSMENT
FREE STANDING ADVERTISEMENTS Advertisements PDC 16	1 per site	1 Satisfies

ASSESSMENT

In assessing the merits or otherwise of the application, the proposed development is discussed under the following sub headings:

Desired Character

The Desired Character Statements for both the Residential Zone and Low Density Policy Area 20 do not specifically refer to advertising. However small-scale non-residential activities such as offices, shops and consulting rooms are envisaged within the Zone and specifically within the Policy Area. Small scale non-residential land uses that are of a scale and intensity complementary to the residential character can be acceptable. Considering that non-residential development is acceptable, some form of identification would be required for these land uses.

The identification (advertising) associated with non-residential land uses should be of a scale that is complementary to the surrounding locality. Internal illumination, bold colours or excessive large signs may therefore be inappropriate.

In this particular locality along a major arterial road it is considered that the size, siting, design and appearance of the proposed sign will not undermine the desired character statements within the zone or policy area. This is discussed in more detail below.

Current / Future Land Use

Currently on site an approved two storey detached dwelling, to be used for a temporary period as a display home, is under construction. The display home will be open Monday, Wednesday, Saturday and Sunday from 1pm - 5pm with limited staff numbers on site to reduced impacts, such as noise and lightspill, to the adjacent sensitive land uses. When the subject land is viewed from the public realm it will appear as a residential dwelling. All car parking on site will be located at the rear, therefore the only form of identification for the display home will be the proposed freestanding pylon sign.

The longer term land use of the subject land will be residential in the form of a detached dwelling. A detached dwelling is an envisaged form of development within the Residential Zone, specifically Low Density Policy Area 20. Notwithstanding that advertising in the Residential Zone is a non-complying form of development and contrary to Principle of Development Control (PDC) 6(d) of General Section - Advertisement, the signage that forms part of this development application is in association with an approved form of development within the Policy Area. Despite the minimal impact to the locality from the proposed development, the sign will be removed from the subject land upon cessation of use as a display home. Land use will revert back to residential including the removal of any signage and reinstatement of car parking areas to Private Open Space. On this basis the signage is considered an ancillary and essential component of the temporary display home land use and is therefore considered an appropriate form of development.

Design and Appearance

It has been considered that the proposed sign has been designed in a manner which will be complementary to the residential context. Located to the eastern boundary of the subject land, the proposed sign is not considered out of context with the locality in size with a maximum height of 3.5m and a width of 1m. The scale of the freestanding pylon sign is appropriate when considering the existing built form under construction. The proposed advertisement will be contained within the subject land boundaries with the hoarding concealed by the aluminium fascia panel, satisfying PDC 5 and 10 of the General Section - Advertisement.

The advertisement has a predominantly pink and blue background with white corporate logo, 'Hickinbotham', relating directly to the display home satisfying PDC 4 of General Section - Advertisements. The content of the sign is considered to be simple and appropriate and does not present any clutter or driver distraction, satisfying PDCs 1 and 2 of the General Section - Advertisements. In addition, the sign provides clear information about the proposed use to the public whilst avoiding any disorder or confusion.

For the reasons above the size, height and scale of the sign is considered appropriate in the locality and is not considered to disfigure the urban landscape, satisfying Objective (Obj) 1 and PDC 1 of General Section - Advertisements. Overall the design and appearance of the signage is considered to be compatible with both the existing building and the locality.

Amenity

It is acknowledged that the subject land is located within the Residential Zone, however given the location of the subject land, adjacent to Marion Road, you would expect lesser amenity than other typical residential areas. A typical residential area would be comprised primarily of varying dwelling types, such as detached and semi-detached dwellings, interspersed by parks and recreational areas on quiet local streets. Development, such as the proposed sign, within a traditional residential locality as described above, may not be suitable.

Commercial land uses are generally located on primary and secondary arterial roads, this is to provide greater access to transport routes as well as increased public access. Advertisements along arterial roads is a necessary part of the business to provide identification for the commercial land uses. In this instance advertisements similar to the proposed development are generally located along arterial roads, with multiple examples located within the immediate and wider locality of the subject land, refer to image 1 - 4 below.

While there are sensitive land uses adjacent to the subject land, the proposed sign will not be viewed from the adjacent dwellings POS nor will it be a visually dominating feature at the front of the property. In this instance it is not considered that the proposed sign, being temporary in nature, will negatively impact the adjacent sensitive land uses or the existing character seen with the locality.

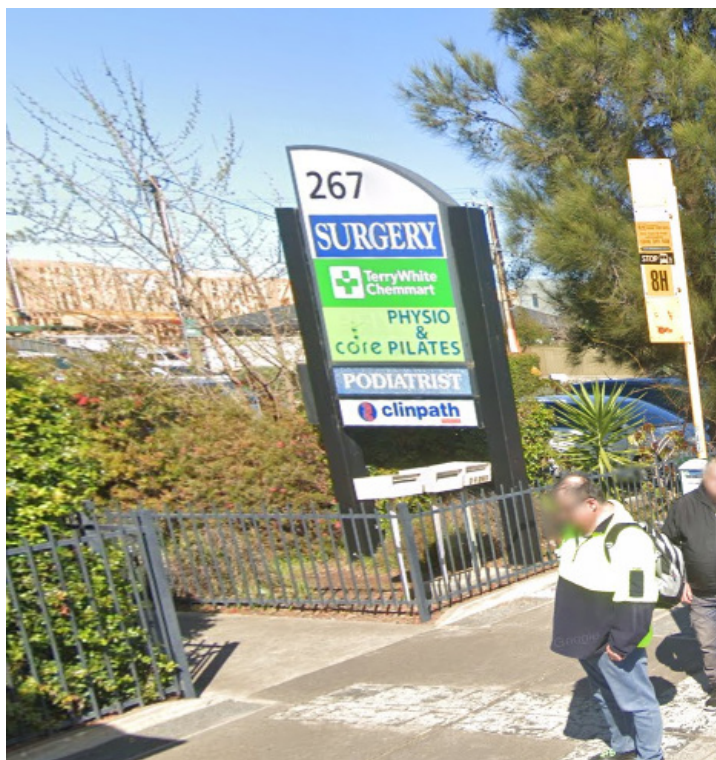


Image 1: Freestanding pylon sign 267-269 Marion Road, Netley



Image 2: Freestanding pylon sign 271 Marion Road, North Plympton



Image 3: Freestanding pylon sign 301 Marion Road, North Plympton.



Image 4: Freestanding pylon sign 294 Marion Road, Netley

Safety

The subject land is located adjacent to a signalised intersection of Marion Road and Galway Avenue. As the sign is not internally illuminated a referral to the Department of Planning, Transport and Infrastructure was not required in accordance with Schedule 8 of *The Development Regulations 2008*.

The safety of road uses when approaching the signalised intersection will not be compromised as the sign is not internally illuminated, has no moving components and does not flash. Additionally the sign is of a simple design that does not use colours that will cause confusion at the signalised intersection. Accordingly Obj 2 and PDC 2(d) and 14 of General Section - Advertisements has been satisfied.

SUMMARY

Despite its non-complying status, the signage proposed is considered to be an appropriate form of development in the context of the subject land and locality. The proposed freestanding pylon sign will be used in association with the existing display home land use and will be removed from the subject site on the cessation of the use of the display home for a period of 5 years.

Having considered all the relevant Objectives and Principles of the Development Plan, the proposal is not considered to be seriously at variance with the Development Plan.

On balance the proposed development does not sufficiently accord with the relevant provisions contained within the West Torrens Council Development Plan Consolidated 12 July 2018 and warrants Development Plan Consent subject to concurrence of SCAP and conditions.

RECOMMENDATION

The Council Assessment Panel, having considered all aspects of the report, the application for consent to carry out development of land and pursuant to the provisions of the *Development Act 1993* resolves to GRANT Development Plan Consent for Application No. 211/18/2020 by Construction Services Australia Pty. Ltd. to install a temporary freestanding pylon sign in association with display home at 272 Marion Road, Netley (CT 5969/357) subject to the concurrence of the State Commission Assessment Panel and the following conditions of consent:

Development Plan Consent Conditions

1. The development must be undertaken, completed and maintained in accordance with the plans and information detailed in this Application except where varied by any conditions listed below.
Reason: To ensure the proposal is developed in accordance with the plans and documents lodged with Council.
2. The proposed freestanding pylon sign including the sign face and supporting structures, approved herein, shall be removed from the subject land on the cessation of the use of the display home in accordance with the Statement of Support provided by Heynen Planning Consultants dated 17 February 2020.
Reason: To ensure that no advertisements will remain on site when the land use reverts to a residential use.
3. No flags, flashing lights or bunting shall be erected on the subject site. The applicant is reminded that any future signs, hoarding, advertising, bunting, or flags should be subject of a further application to Council under the Development Act 1993.
Reason: To ensure the no further development on the site occurs, excluding the proposed development.
4. The content of the signage approved herein shall relate to the legitimate use of the land at all times and shall not be used for third party advertising.
Reason: To ensure the proposal is developed in accordance with the plans and documents lodged with Council.
5. The advertisement, approved herein, shall not be internally or externally illuminated and must not move, flash, blink or rotate in any manner.
Reason: To ensure the proposed signage does not cause undue disturbance, annoyance or inconvenience to motorists.

6. The advertisement, approved herein, shall be maintained in good repair at all times and if damaged will be replaced with a like sign within one (1) month.

Reason: To ensure the development does not unreasonably diminish the amenity of the locality.

Attachments

- 1. Additional Development Plan Provisions**
- 2. Supporting Documents and Plan Set**

Relevant Development Plan Provisions

General Section		
<i>Advertisements</i>	<i>Objectives</i>	<i>1, 2 & 3</i>
	<i>Principles of Development Control</i>	<i>1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23 & 24</i>



Government of South Australia
Department of Planning,
Transport and Infrastructure

Product	Register Search (CT 5969/357)
Date/Time	18/09/2018 03:17PM
Customer Reference	
Order ID	20180918008596
Cost	\$28.75

REAL PROPERTY ACT, 1986



South Australia

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



Certificate of Title - Volume 5969 Folio 357

Parent Title(s)	CT 5176/805			
Creating Dealing(s)	SC 10470333			
Title Issued	15/08/2006	Edition	5	Edition Issued 03/09/2014

Estate Type

FEE SIMPLE

Registered Proprietor

ZHENYU XU
OF 16 OLIPHANT AVENUE OAKLANDS PARK SA 5046

Description of Land

ALLOTMENT 21 DEPOSITED PLAN 4698
IN THE AREA NAMED NETLEY
HUNDRED OF ADELAIDE

Easements

NIL

Schedule of Dealings

Dealing Number	Description
12180015	MORTGAGE TO WESTPAC BANKING CORPORATION

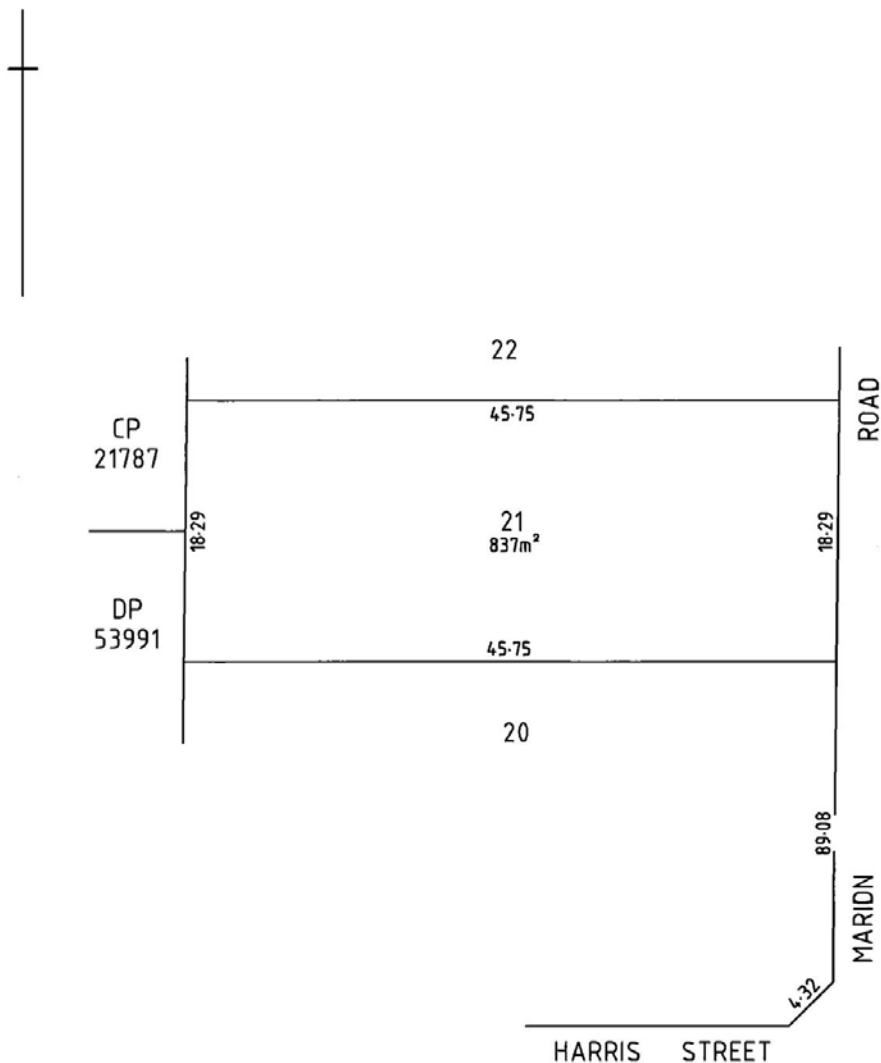
Notations

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



Government of South Australia
Department of Planning,
Transport and Infrastructure

Product	Register Search (CT 5969/357)
Date/Time	18/09/2018 03:17PM
Customer Reference	
Order ID	20180918008596
Cost	\$28.75



0 4 8 12 16 Metres



HEYNEN
PLANNING CONSULTANTS

T 08 8271 7944
Suite 15, 198 Greenhill Road
EASTWOOD SA 5063

ABN 54 159 265 022
ACN 159 265 022

17 February 2020

City of West Torrens
ATT: Amelia DeRuvo
165 Sir Donald Bradman Drive
HILTON SA 5033

By Email

Dear Amelia

**RE: DA 211/18/2020 – 272 MARION ROAD, NETLEY
TEMPORARY DISPLAY HOME SIGNAGE**

I confirm that the applicant (Construction Services Australia Pty Ltd) has engaged Heynen Planning Consultants to prepare a Statement of Support in relation to the abovementioned development application (as per Council's request of 30 January 2020).

Prior to proceeding to my consideration of the planning merit of the proposal and for completeness, I note that the "non-complying status" of the development is brought about by the Procedural Matters Table of the Residential Zone within the City of West Torrens Development Plan (consolidated 12 July 2018) which designates all advertising or advertising hoardings as non-complying.

In accordance with Regulation 17(1) the following brief statement is provided in support of the application. In assessing the development, I am cognisant of the matter of *City of Mitcham v Heathhill Nominees Pty Ltd* [2000] SASC 46, which stated in relation to non-complying development that:

"... The different procedures do not affect the question as to whether provisional Development Plan Consent should be granted or withheld in a particular case."

The above decision was reinforced in the matter of *Klein Research Institute Ltd v District Council of Mount Barker & Ors* [2000] EDLR 482 which states:

12. Whilst the proposed development stands to be assessed procedurally as 'non-complying' development (but with restrictions imposed by s35(3) and (4)), the development in other respects stands to be assessed upon its merits as a matter of planning judgement.

Clearly, a "non-complying" development has the potential to display substantial planning merit, which is the case in relation to this application having considering the Development Plan provisions

With regard to the correct categorisation of the development, Schedule 9 Part 1 of the *Development Regulations* prescribes the following of relevance (my underlining added):

Part 1—Category 1 development

- 3 Any development classified as *non-complying* under the relevant Development Plan which comprises—

- (a) the alteration of, or addition to, a building which, in the opinion of the relevant authority, is of a minor nature only; or
- (b) the construction of a building to be used as ancillary to or in association with an existing building and which will facilitate the better enjoyment of the purpose for which the existing building is being used, and which constitutes, in the opinion of the relevant authority, development of a minor nature only.

Given the circumstances of the site (i.e. the approved display home and land use), I am of the opinion that Schedule 9 Part 1(3)(b) applies and the application should be assigned Category 1 status. Consistent with this opinion, I note that DA 211/1019/2018 was granted Development Approval by Council on 10 September 2019 with the following condition of consent:

“Construction of a two storey detached dwelling (to be used as a display home for a period of 5 years with associated landscaping and temporary carparking) and the installation of a 1.8 metre boundary fence.”

By virtue of the description of development applied by Council (i.e. temporary display home signage) it is apparent that the application for signage is linked to the previous approval for a display home (which the applicant has confirmed is being undertaken).

Plainly, the addition of the signage is ancillary to and in association with the previously approved use of the temporary display home and the signage will cease at the same time the display home use does (the applicant is willing to accede to a condition of consent to this affect).

I turn then to the question of whether the signage is “of a minor nature”. In this regard, I am mindful of the following;

- the sign will not be illuminated;
- the sign is 3.5 metres above ground; and
- the total signage area is approximately 3.7 m² (per side).

I am opinion that the sign is not excessive in size (either with respect to total advertising area or height), noting that the site is located on a secondary arterial road (Marion Road) and that a number of non-residential land-uses with associated signage are located within the locality, see for example:



Figure 1: Signage at 267 Marion Road (Corner of Galway Avenue)

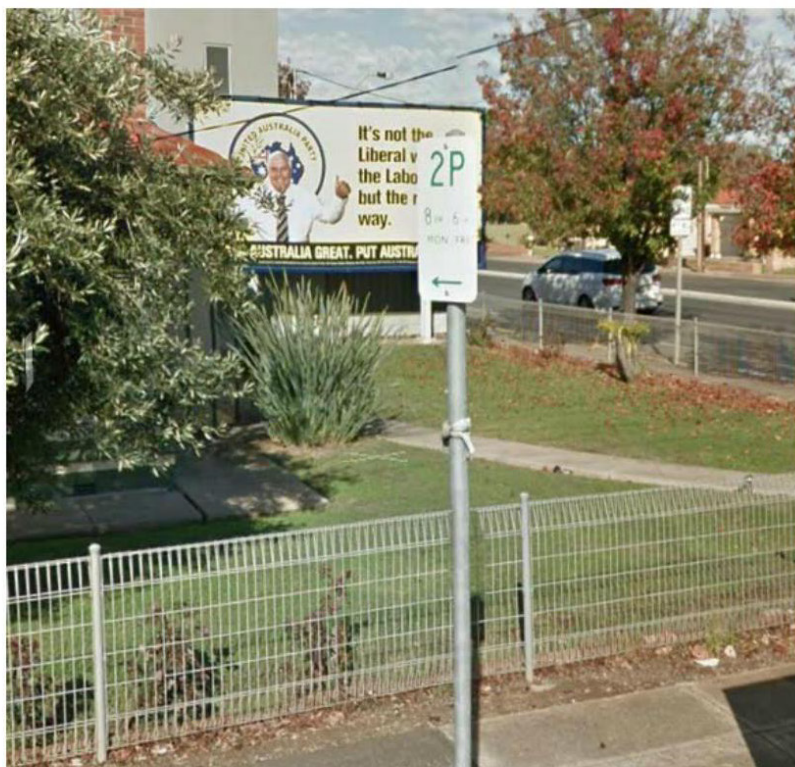


Figure 2: Billboard at 271 Marion Road (Corner Galway Avenue)

Plainly, despite the zoning, the location on a secondary arterial road gives the locality a “unique character” different from the majority of the zone and policy area. Within the locality, signage is not uncommon. Furthermore, approximately 200 m south of the subject site and within the same zone and policy area, I note an ‘X Convenience’ petrol filling station/shop (see Figure 3).

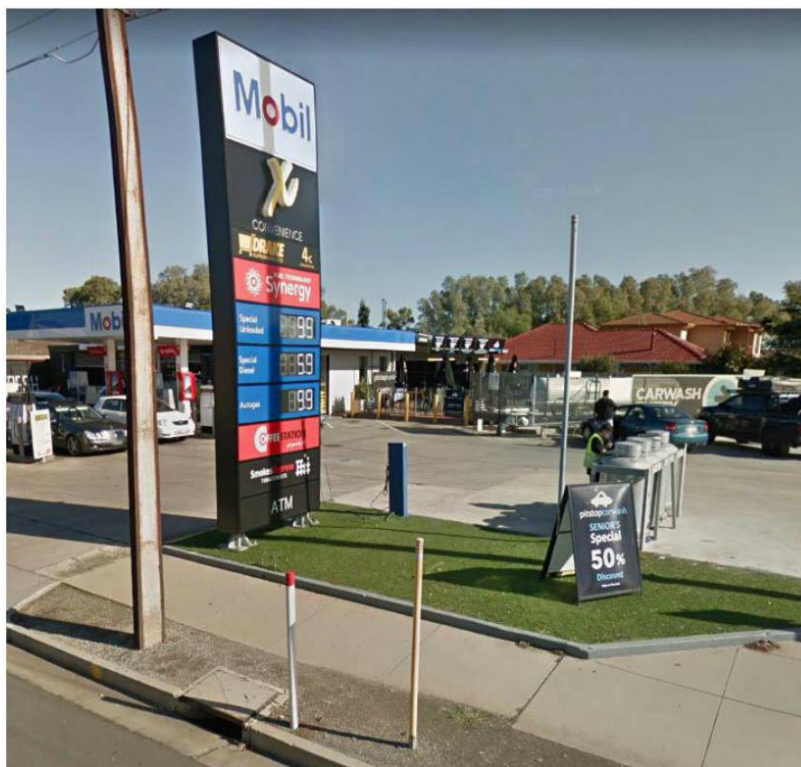


Figure 3: 'X Convenience' Located at 2 Harvey Avenue (Corner Marion Road)

In my opinion, this reinforces that this part of the zone located along Marion Road has a distinct and unique character where signage is common and additional signage is entirely appropriate. Accordingly, considering the locality and the unique circumstances of Marion Road, the proposed signage is a development which is 'minor in nature'.

Equally, the proposal accords with the relevant general section provisions of the Development Plan, see for example:

General Section – Advertisements

Objective 2 Advertisements and/or advertising hoardings that do not create a hazard.

PDC 4 The content of advertisements should be limited to information relating to the legitimate use of the associated land.

PDC 11 Advertisements should convey the owner/occupier and/or generic type of business, merchandise or services using simple, clear and concise language, symbols, print style and layout and a small number of colours.

PDC 22 Advertising and/or advertising hoardings should not be placed along arterial roads that have a speed limit of 80 km/h or more.

Lastly and in light of the foregoing, I also note that Part 4 of the *Development Regulations* prescribes the following of relevance:

Part 4

Regulation 17 (6) A statement of effect is not required if the proposed development consists (wholly or substantially) of— ...

(b) the construction of a new building which is to be used in a manner which is ancillary to, or in association with, the use of an existing building and which would facilitate the better enjoyment of the existing use of the existing building; or...

and the relevant authority considers that the proposed development is of a minor nature.

Accordingly, assuming Council concurs with my opinion as expressed above no Statement of Effect is required (noting again that no public notification is required).

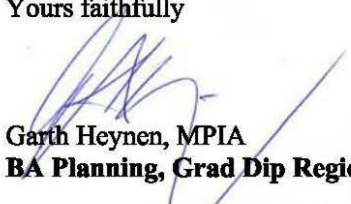
In summary, the proposed temporary display home signage is appropriate and consistent with the Development Plan having regard to:

1. the locality and other signage within the locality;
2. the unique circumstances of the portion of the Residential Zone located along Marion Road (a secondary arterial road);
3. the low and minor scale of the sign;
4. the non-illuminated nature of the sign; and
5. the ancillary nature of the sign (given the established display home use).

In my opinion the development displays substantial planning merit and warrants the granting of Development Plan consent, subject to the concurrence of the State Commission Assessment Panel.

Should you have any queries please contact me at your convenience, otherwise the applicant looks forward to Council's favorable and prompt assessment of the application.

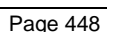
Yours faithfully



Garth Heynen, MPIA

BA Planning, Grad Dip Regional and Urban Planning, Grad Dip Property

cc. Ms R Knuekey, by email



FMG Engineering

42 Fullarton Road NORWOOD SA 5067
PO Box 707 KENT TOWN SA 5071
Ph. (08) 83630222 Fax. (08) 83631555

Job No.: S12467
Design : B.L.
Date : 9/08/2018
Calculations for Proposed : Signage

For : Infinity Signs
Site : Lot 272 Marion Road, Netley

Page No.	Index
1	Calculation for Bored Pier

The work carried out in the preparation of this report has been performed in accordance with the requirements of FMG Engineering's Quality Management System which is certified by NCS International Pty Ltd (formerly NATA) to comply with the requirements of ISO9001. This report is copyright to FMG Engineering. This report was prepared specifically for the client named and for the works described in the plans and specifications. No part of this report including the whole of same shall be used for any other purpose nor by any third party without prior written consent of FMG Engineering.

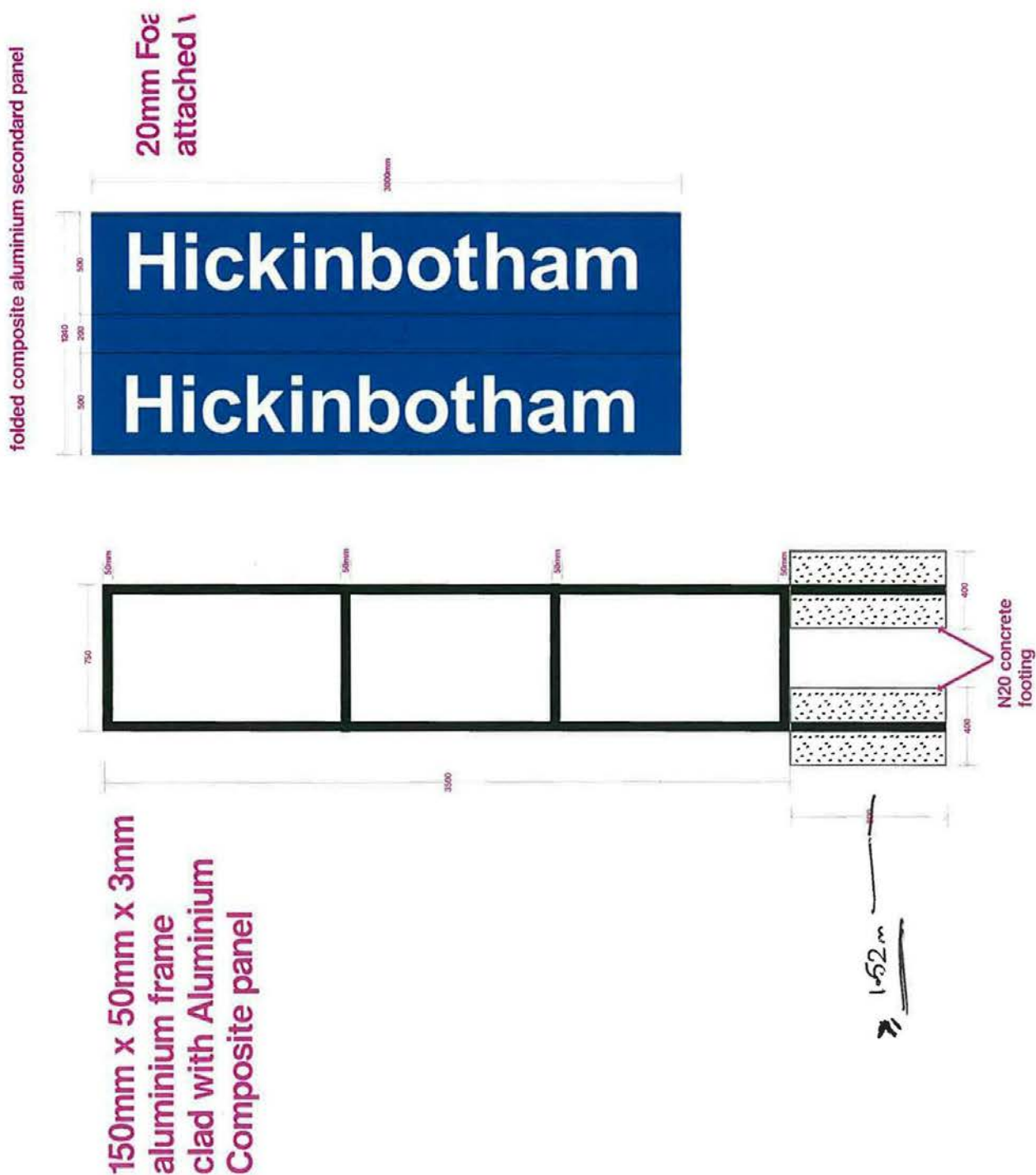


Koukourou Pty Ltd (ACN 083 071 185) trading as FMG Engineering

Sign Design

Job Number: S12467

Ultimate Design Wind Speed, Vz or Vdes	37	m/s	(from Herriot calc)
Solidity Ratio	1		
Kp, Net porosity	1		
Height of Sign, c	3	m	
Distance to top of sign from ground, h	3.5	m	
b, max width of sign	1.24	m	
b/c	0.413333		
c/h	0.857143		
Cp,n	1.460963		
Cfig	1.460963		
Cdyn	1		(unless structure is dynamically wind sensitive)
Wind Pressure, P	1200.035	Pa	
Wind Pressure, P	1.200035	kPa	
Area of Sign	3.72	m ²	(approx)
Wind Force on Sign	4.46413	kN	
Factor of Safety	1.5		for live loads
New Force on Sign, P	6.696195	kN	
Undermining Depth, UD	0.2	m	
Force Acting at Centroid + Undermining			
Centroid of the Area, C	in y direction	1.75	m (approx)
Bending Moment, M = P x (C + UD) =	13.05758	kN.m	
Embedment of Posts			
$D = \frac{[2.37 \times P + \{(2.37 \times P)^2 + 10.6 \times b \times S \times P \times h1\}^{0.5}]}{(2 \times b \times S) + UD}$		1.517	m
Where:			
b = bored pier diameter	0.4	m	(max= pier spacing/3)
P = Total Force on Sign	6.696195	kN	
S = Soil bearing Capacity	80	kPa	
h1 = Moment/Total Force	1.95	m	
Bored Pier Diameter	0.4	m	
Depth of Bored Pier	1.517	m	





Government of South Australia
Department of Planning,
Transport and Infrastructure

Product	Register Search (CT 5969/357)
Date/Time	18/09/2018 03:17PM
Customer Reference	
Order ID	20180918008596
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REAL PROPERTY ACT, 1986



South Australia

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FEE SIMPLE

Registered Proprietor

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OF 16 OLIPHANT AVENUE OAKLANDS PARK SA 5046

Description of Land

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IN THE AREA NAMED NETLEY
HUNDRED OF ADELAIDE

Easements

NIL

Schedule of Dealings

Dealing Number	Description
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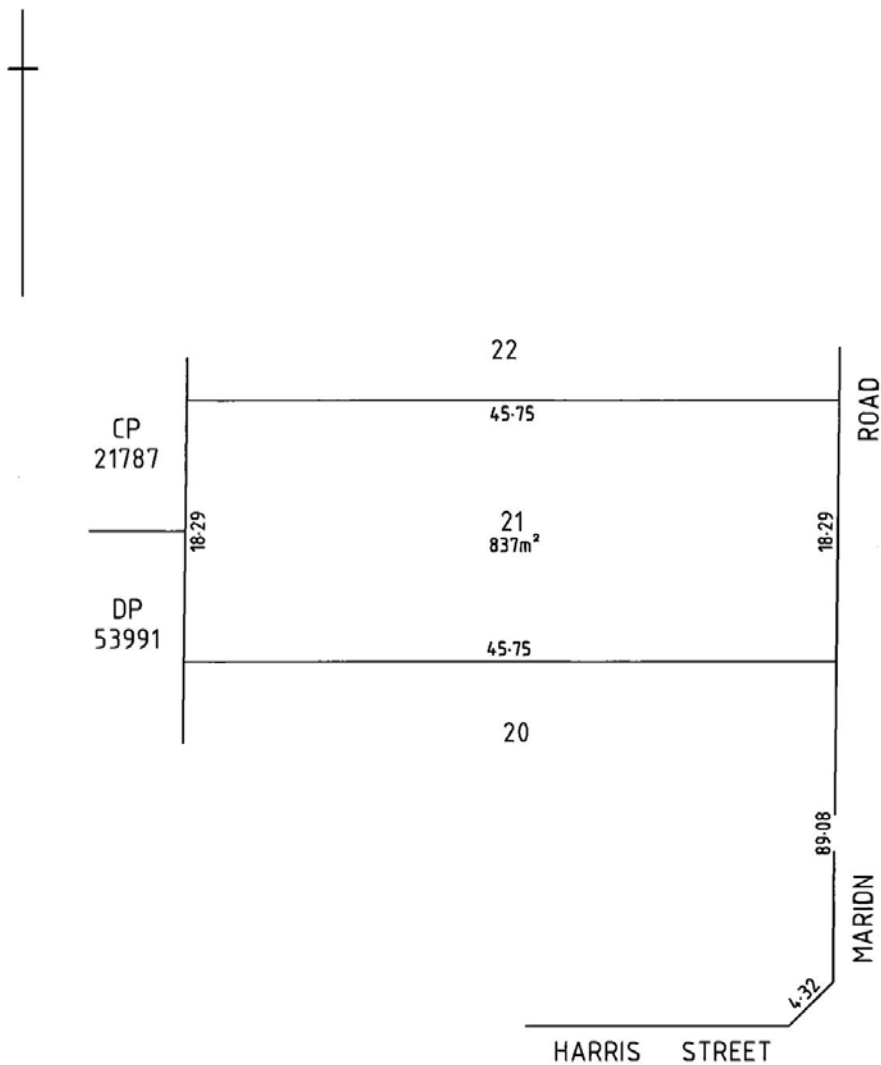
Notations

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



Government of South Australia
Department of Planning,
Transport and Infrastructure

Product	Register Search (CT 5969/357)
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0 4 8 12 16 Metres



HEYNEN
PLANNING CONSULTANTS

T 08 8271 7944
Suite 15, 198 Greenhill Road
EASTWOOD SA 5063

ABN 54 159 265 022
ACN 159 265 022

17 February 2020

City of West Torrens
ATT: Amelia DeRuvo
165 Sir Donald Bradman Drive
HILTON SA 5033

By Email

Dear Amelia

**RE: DA 211/18/2020 – 272 MARION ROAD, NETLEY
TEMPORARY DISPLAY HOME SIGNAGE**

I confirm that the applicant (Construction Services Australia Pty Ltd) has engaged Heynen Planning Consultants to prepare a Statement of Support in relation to the abovementioned development application (as per Council's request of 30 January 2020).

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Plainly, the addition of the signage is ancillary to and in association with the previously approved use of the temporary display home and the signage will cease at the same time the display home use does (the applicant is willing to accede to a condition of consent to this affect).

I turn then to the question of whether the signage is “of a minor nature”. In this regard, I am mindful of the following;

- the sign will not be illuminated;
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- the total signage area is approximately 3.7 m² (per side).

I am opinion that the sign is not excessive in size (either with respect to total advertising area or height), noting that the site is located on a secondary arterial road (Marion Road) and that a number of non-residential land-uses with associated signage are located within the locality, see for example:



Figure 1: Signage at 267 Marion Road (Corner of Galway Avenue)

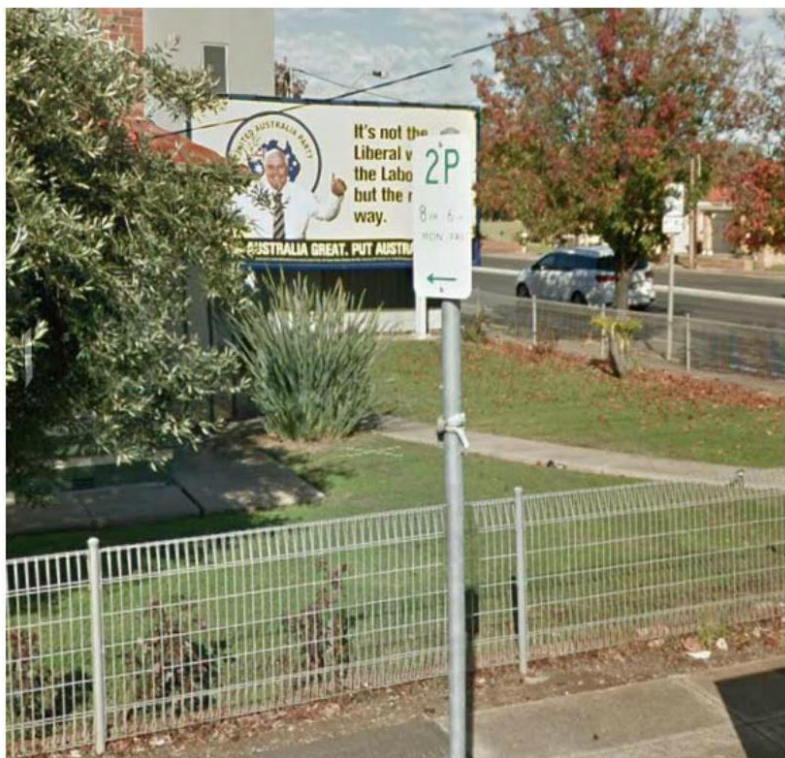


Figure 2: Billboard at 271 Marion Road (Corner Gaiway Avenue)

Plainly, despite the zoning, the location on a secondary arterial road gives the locality a “unique character” different from the majority of the zone and policy area. Within the locality, signage is not uncommon. Furthermore, approximately 200 m south of the subject site and within the same zone and policy area, I note an ‘X Convenience’ petrol filling station/shop (see Figure 3).

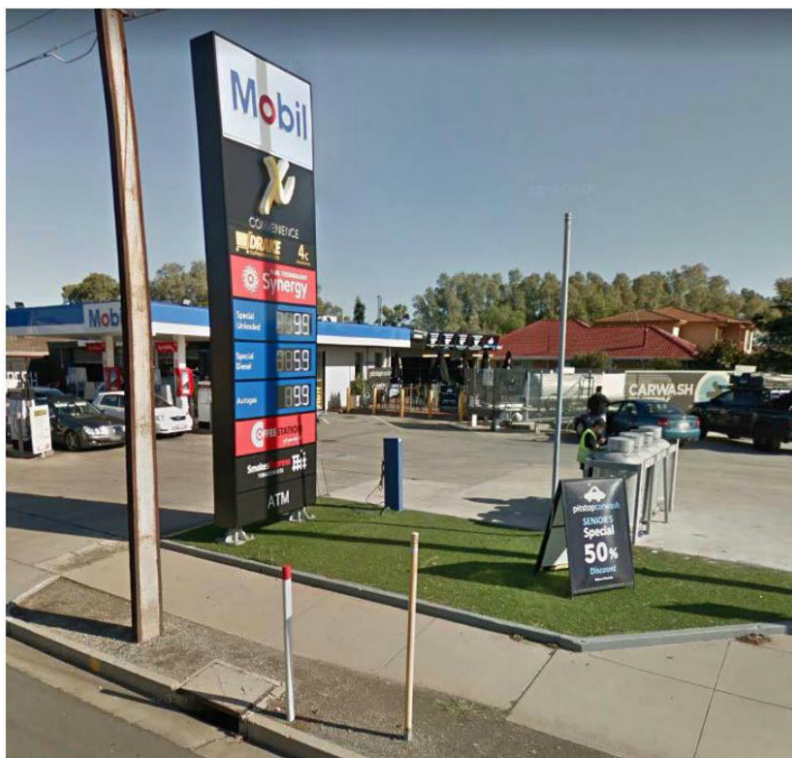


Figure 3: 'X Convenience' Located at 2 Harvey Avenue (Corner Marion Road)

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Part 4

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(b) the construction of a new building which is to be used in a manner which is ancillary to, or in association with, the use of an existing building and which would facilitate the better enjoyment of the existing use of the existing building; or...

and the relevant authority considers that the proposed development is of a minor nature.

Accordingly, assuming Council concurs with my opinion as expressed above no Statement of Effect is required (noting again that no public notification is required).

In summary, the proposed temporary display home signage is appropriate and consistent with the Development Plan having regard to:

1. the locality and other signage within the locality;
2. the unique circumstances of the portion of the Residential Zone located along Marion Road (a secondary arterial road);
3. the low and minor scale of the sign;
4. the non-illuminated nature of the sign; and
5. the ancillary nature of the sign (given the established display home use).

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Should you have any queries please contact me at your convenience, otherwise the applicant looks forward to Council's favorable and prompt assessment of the application.

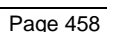
Yours faithfully



Garth Heynen, MPIA

BA Planning, Grad Dip Regional and Urban Planning, Grad Dip Property

cc. Ms R Knuckey, by email



FMG Engineering

42 Fullarton Road NORWOOD SA 5067
PO Box 707 KENT TOWN SA 5071
Ph. (08) 83630222 Fax. (08) 83631555

Job No.: S12467
Design : B.L.
Date : 9/08/2018
Calculations for Proposed : Signage

For : Infinity Signs
Site : Lot 272 Marion Road, Netley

Page No.	Index
1	Calculation for Bored Pier

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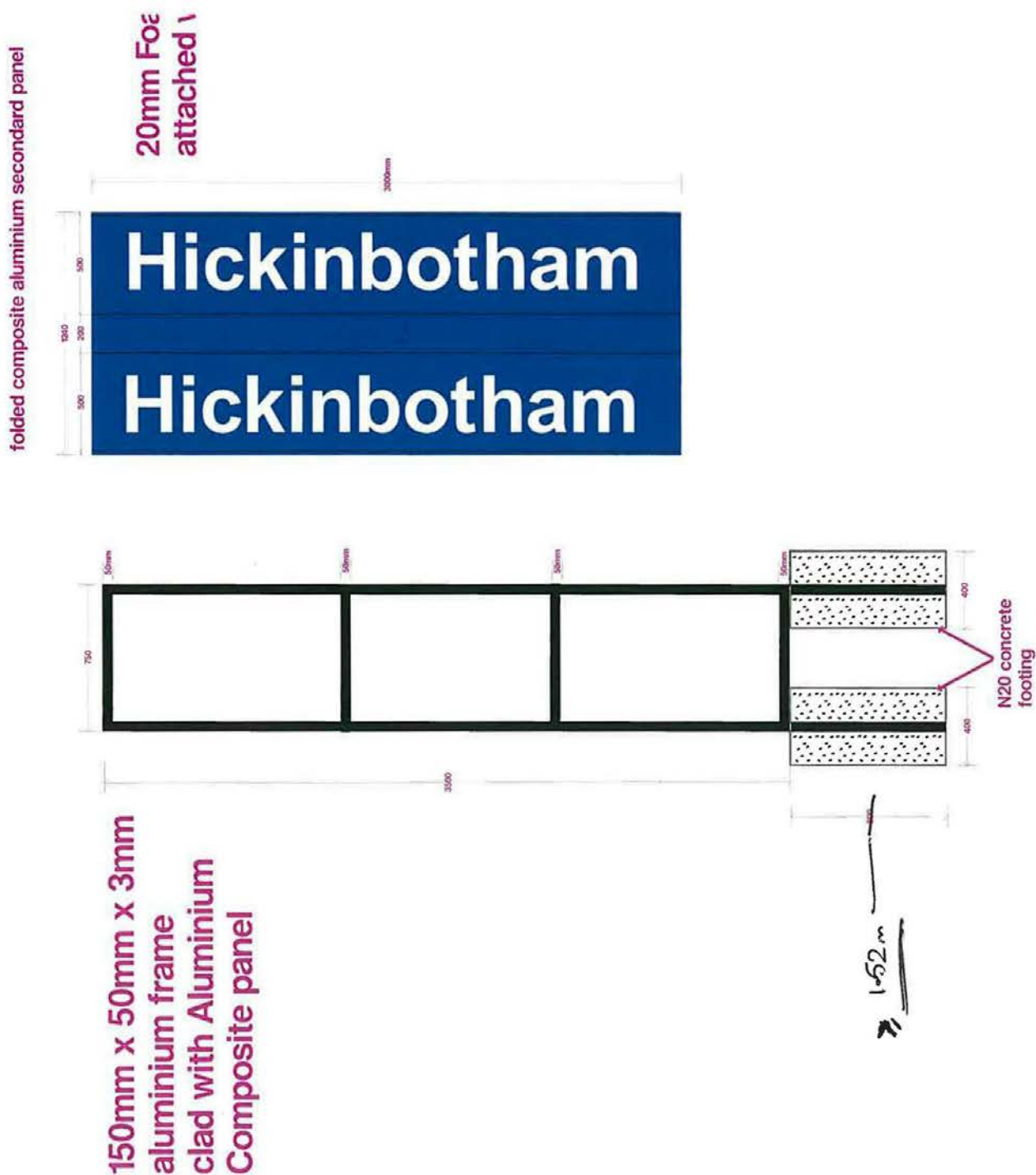


Koukourou Pty Ltd (ACN 083 071 185) trading as FMG Engineering

Sign Design

Job Number: S12467

Ultimate Design Wind Speed, Vz or Vdes	37	m/s	(from Herriot calc)
Solidity Ratio	1		
Kp, Net porosity	1		
Height of Sign, c	3	m	
Distance to top of sign from ground, h	3.5	m	
b, max width of sign	1.24	m	
b/c	0.413333		
c/h	0.857143		
Cp,n	1.460963		
Cfig	1.460963		
Cdyn	1		(unless structure is dynamically wind sensitive)
Wind Pressure, P	1200.035	Pa	
Wind Pressure, P	1.200035	kPa	
Area of Sign	3.72	m ²	(approx)
Wind Force on Sign	4.46413	kN	
Factor of Safety	1.5		for live loads
New Force on Sign, P	6.696195	kN	
Undermining Depth, UD	0.2	m	
Force Acting at Centroid + Undermining			
Centroid of the Area, C	in y direction	1.75	m (approx)
Bending Moment, M = P x (C + UD) =	13.05758	kN.m	
Embedment of Posts			
$D = \frac{2.37 \times P + [(2.37 \times P)^2 + 10.6 \times b \times S \times P \times h_1]^{\frac{1}{2}}}{2 \times b \times S} + UD$		1.517	m
Where:			
b = bored pier diameter	0.4	m	(max= pier spacing/3)
P = Total Force on Sign	6.696195	kN	
S = Soil bearing Capacity	80	kPa	
h1 = Moment/Total Force	1.95	m	
Bored Pier Diameter	0.4	m	
Depth of Bored Pier	1.517	m	



7 CONFIDENTIAL REPORTS OF THE ASSESSMENT MANAGER

Nil

8 SUMMARY OF COURT APPEALS

8.1 Summary of ERD Court matters, items determined by SCAP/Minister/Governor and deferred CAP items - April 2020

Brief

This report presents information in relation to:

1. any planning appeals before the Environment, Resources and Development (ERD) Court;
2. any matters being determined by the State Commission Assessment Panel (SCAP);
3. any matters determined by the Minister of Planning (Section 49);
4. any matters determined by the Governor of South Australia (Section 46); and
5. any deferred items previously considered by the Council Assessment Panel.

Development Application appeals before the ERD Court

Nil

Matters pending determination by SCAP

Reason for referral	DA number	Address	Description of development
Schedule 10	211/L029/20	2 May Terrace, LOCKLEYS	Removal of one (1) regulated tree and one (1) Significant tree
Schedule 10	211/M030/18	192 ANZAC Highway, GLANDORE	Eight-storey residential flat building (40 dwellings) & removal of regulated tree
Schedule 10	211/M015/19	1 Glenburnie Terrace, PLYMPTON	Six-storey residential flat building (32 dwellings) & associated car parking
Schedule 10	211/M018/19	6 Ebor Avenue, MILE END	Mixed use building comprising ground floor shop & residential apartments Note: A further application for a four-storey mixed use building has been lodged with Council.

Matters pending determination by the Minister of Planning

Reason for referral	DA number	Address	Description of development
Section 49	211/V032/20	145 Railway Terrace, MILE END	Upgrade and extension works to existing Netball SA Priceline Stadium
Section 49	211/V031/20	Barcoo Road, WEST BEACH	Change to road network to enable construction of new carrier/access into existing car park and boat launch area into West Beach Boat Ramp.
Section 49	211/V028/20	33-39 Richmond Road, KESWICK TERMINAL	Integrated emergency services sector headquarters precinct comprising a multi-storey office building, multi-desk car park, hardstand area, a storage building with landscaping and other ancillary works
Section 49	211/G003/20	1 Africaine Road, WEST BEACH	Boundary realignment
Section 46	211/D129/19	9, 7, 292-304, 410 Elizabeth, Marion, Anzac Highway, PLYMPTON	Boundary re-alignment
Section 46	211/C130/19	7, 5, 3, 1 Elizabeth Street, PLYMPTON	Community division
Section 49	211/V007/12 V3	Lot 2 in FP 1000, West Beach Road WEST BEACH	Variation - removal of east-west internal road

Matters pending determination by the Governor of South Australia

Nil

Deferred CAP Items

Nil

Conclusion

This report is current as at 27 March 2020.

RECOMMENDATION

The Council Assessment Panel receive and note the information.

Attachments

Nil

9 OTHER BUSINESS

10 MEETING CLOSE