Development Application

Lot 12 (1537) Thomas Road and Lot 50 Nicholson Road, Oakford, WA

Prepared for
Skukuza Ventures Pty Ltd

March 2019
# Project details

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<td>Client</td>
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<td>Prepared by</td>
<td>Planning Solutions</td>
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<td>Planning Solutions Project Consultants WA Transcore Eco Logical</td>
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<td>27 March 2018</td>
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<td>Rev 1</td>
<td>190313 5504 DA Report - Oakford (Rev1).docx</td>
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- Appendix 7: Stormwater Plan
1 Preliminary

1.1 Introduction

Planning Solutions acts on behalf of Skukuza Ventures Pty Ltd, the proponent of the proposed service station development on Lot 12 (1537) Thomas Road and Lot 50 Nicholson Road, Oakford (subject site). Planning Solutions has prepared the following report in support of an Application for Development Approval for a service station and associated access on the land subject of the application.

This report will discuss various matters pertinent to the proposal, including:

- Consultation.
- Site details.
- Proposed development.
- Statutory planning framework.

This development application proposes the use and development of a service station on the subject site, including parking, landscaping, signage and access. The exact same development proposal was granted approval by the Metropolitan East JDAP (MEJDAP) on 29 October 2018.

The purpose of this development application is to address an administrative error identified with the initially approved application. There are no changes or differences between the development approved by the MEJDAP on 29 October 2018 and the development proposed as part of this application. The planning framework applicable to the subject site has not changed in a manner affecting the service station development.

The proposed service station will provide essential fuel retailing and associated convenience services to light and heavy vehicles, including vehicles up to 36.5m in length. The development proposal presents a well configured design which responds to Thomas Road, a major component of the WA freight network which carries up to 20% heavy vehicles.

The service station layout has been deliberately designed to ensure separation between light and heavy vehicle movements, for a high level of functionality and coordinated internal circulation. Overall, the development will provide an essential service to the WA freight network and travelling public, and complements the evolving nature of the surrounding road network, including likely future intersection upgrades.

Planning Solutions requests the Metro East Joint Development Assessment Panel (JDAP) grant approval for the Application for Planning Approval.
2 Background

2.1 Access considerations

The proposed service station development has been the subject of substantial consultation and engagement with the Shire of SJ, Department of Planning, Lands and Heritage, and Main Roads WA.

It is understood that the intersection of Thomas Road and Nicholson Road will be subject to future upgrades. Consultation has been undertaken with Main Roads and the Shire to ensure the proposed service station is designed responsively to integrate with the future intersection upgrades at such time they are implemented.

Having regard for the impending intersection upgrades, the access arrangements for the proposed service station were separated into three phases. An extract from Page 16 of the Shire of SJ’s Responsible Authority Report (RAR) for the 29 October 2018 MEJDAP meeting is provided below, which describes the three access phases:

**Phase 1** is based on the current configuration prior to any road upgrades. It involves provision of a left-in slip lane for the Nicholson Road access and a left-in slip lane for the access on Thomas Road to ensure all vehicles are able to safely manoeuvre into the subject site without impacting the movements of traffic along Thomas and Nicolson Road. Median islands are also included opposite both crossovers to prevent right-turn traffic movements. There would be small paved islands in the centre of both crossovers to delineate the flow of traffic. In addition, a signage strategy and road markings are proposed to ensure safe and correct movement of all vehicles.

Phase 2 consists of an interim roundabout estimated to be completed by MRWA within 12-18 months. To maintain a safe approach to the intersection following construction of the roundabout, Nicholson Road would incorporate diagonal pavement markings to the road shoulders to give the impression of a narrowing carriageway, encouraging drivers to slow down. This is the proposed alternative to a pre-deflection area as was initially opposed by MRWA.

Phase 2 is provided as a concept only to demonstrate that safe access to the subject site can be maintained following road upgrades. The detailed design and construction of the roundabouts will be the responsibility of MRWA. Modifications to the access and egress of the proposal are not required to facilitate the Phase 2 interim roundabout upgrades.

Phase 3 provides an ultimate arrangement for the long term plans for the road network. This is anticipated to be carried out during the next 15 to 20 years. This ultimate arrangement is therefore a long term consideration which is understood to still be undergoing design and funding arrangements.

The agreed traffic management treatments and access arrangements for Phase 1 are reflected on the proposed development plans subject of this application. The agreed traffic management treatments and access arrangements for Phase 2 are reflected on a conceptual plan which includes an indicative roundabout layout.

As the Phase 3 access arrangements relate to an ultimate configuration for the intersection which is a long term consideration and still pending design and funding, no conceptual plan could be prepared. It was accepted, however, that the Phase 2 configuration would ensure the satisfactory operation of the Thomas Road / Nicholson Road intersection.

Refer to Appendix 1 for copies of the Phase 1 and Phase 2 access plans.
2.2 Approved service station development

On 29 October 2018, the MEJDAP granted approval to a service station development on the subject site, which is exactly the same as the service station development subject of this application.

The approved service station development entailed left-in/left-out access to both Thomas Road and Nicholson Road, and included facilities catering for the refuelling of heavy vehicles up to 36.5m in length. The service station development and its access arrangements were supported by the Shire of Serpentine-Jarrahdale and recommended for approval, subject to conditions.

At the time of receiving development approval from the MEJDAP, the following authorities had provided referral advice with respect to the service station development:

- Main Roads WA – support for access to Thomas Road and Nicholson Road, subject to conditions.
- Department of Planning, Lands and Heritage – no objections to the proposed service station and its access arrangements, subject to endorsement from Main Roads.
- Western Power – advice that during construction, no person is to enter the “danger zone” of an overhead powerline or other electrical network assets.

A copy of the determination letter and stamped plans for the service station development approved by the MEJDAP on 29 October 2018 is provided at Appendix 2.
3 Site details

3.1 Land description

Refer to Table 1 below for a description of the land subject to this development application.

Table 1 – Lot details

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Refer to Appendix 3 for a copy of the Certificates of Title and Diagrams.

3.2 Encumbrances

Table 2 below summarises the legal encumbrances applicable to the subject site, as listed on the Certificates of Title and Diagrams.

Table 2 – Encumbrances

<table>
<thead>
<tr>
<th>Encumbrance</th>
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<tr>
<td>Lot 12</td>
<td>J885235 Notification advising that the land is provided with a water supply subject to an agreement with the Water Corporation. The continuation of the service is subject to the current and future owners entering into and complying with the agreement.</td>
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<tr>
<td>Lot 50</td>
<td>D161235 Easement to the State Energy Commission (Western Power) for electrical transmission purposes. The easement relates to the overhead powerlines on Lot 50, and sets out requirements for access and use of the land. A meeting with the Western Power project engineer was held on 7 March 2018 to confirm the implications of this easement on the proposed development. At this meeting it was confirmed that a Western Power ‘clearance assessment’ is required to confirm the height of vehicles accessing the proposed development will not impact upon transmission lines. Western Power also confirmed that this could be completed following planning approval, and on this basis the ‘clearance assessment’ is capable of being addressed as a condition of planning approval. As part of the initially approved application, it is noted that Western Power had provided a referral response that during construction, no person is to enter the “danger zone” of an overhead powerline or other electrical network assets.</td>
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A copy of the encumbrances are provided at Appendix 3.
3.3 Location

3.3.1 Regional context

The subject site is located approximately 30 km south east of the Perth City Centre, and approximately 8km north west of the Byford Town Centre. The subject site has frontage to Thomas Road to the south and Nicholson Road to the west. Thomas Road is classified as a RAV4 road and is proposed to be upgraded to RAV6. Nicholson Road is classified as a RAV4 road between Armadale Road and Thomas Road.

Thomas Road provides a direct east-west connection between Tonkin Highway and South Western Highway, which link the subject site to the broader Perth metropolitan region. Thomas Road is also identified as a freight route by MRWA. It is noted there is currently only one operational fuel retailing facility along the 16km stretch of Thomas Road between the Kwinana Freeway and South Western Highway, which does not provide heavy vehicle refuelling facilities.

The subject site is located within the municipality of the Shire of Serpentine-Jarrahdale (Shire).

3.3.2 Local context, land use and topography

The subject site is located in the suburb of Oakford, and is largely surrounded by rural residential land holdings with commercial uses fronting Thomas Road.

A ‘Bush Forever’ reservation known as the Jandakot Regional Park is located north west of the Thomas Road / Nicholson Road intersection, immediately opposite the subject site.

The subject site is bound by a rural residential landholding to the north and east, Thomas Road to the south and Nicholson Road to the west.

A Liquor Barons liquor store and ‘Oakford Traders’ café are located south of the subject site at Lot 196 (1526) Thomas Road, Oakford. A JDAP approval for the redevelopment this site to accommodate a ‘Oakford Traders Liquor Store, Convenience Store and Fuel Station’ was granted on 9 January 2018 (DAP Ref. DP/13/00615).

Lot 12 currently contains a single building within the north east section of the lot. This building is used for a small scale dog training operation.

Lot 50 is predominately vacant land, but does contain Western Power powerline infrastructure. Lot 50 is provided with an existing access point to Nicholson Road, has been constructed with a hardstand area.

Refer to Figure 1, aerial photograph.
FIGURE 01

LOT 12 (1537) THOMAS ROAD & LOT 50 NICHOLSON RD
OAKFORD, WESTERN AUSTRALIA

LEGEND

AERIAL PHOTOGRAPH

SCALE
1: 2,000 @ A4

DATE
26 February 2018

FILE
01 180226 5504 Aerial Photograph.dwg

REVISION
1DPO/First Draft11.02.2018

THOMAS ROAD
NICHOLSON ROAD

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4 Proposed development

The proposal involves the use and development of a service station on the subject site, including fuel bowsers, retail building, parking, access and signage. The service station will cater for vehicles up to 36.5m in length, and is designed in a manner which responds to future road upgrades.

The proposed service station comprises modern buildings which are attractively designed, with a significant landscaped buffer to Thomas Road for enhanced presentation.

As noted earlier in this report, the exact same service station layout and access arrangements for the subject site were supported by the Shire and approved by the MEJDAP on 29 October 2018.

4.1 Site layout and built form

The proposed service station will provide refuelling facilities for light vehicles and heavy vehicles up to 36.5m in length, and an associated retail building providing for the retail sale of convenience goods and associated products.

Specifically, the proposed development comprises:

- A retail building situated centrally on the subject site, comprising a total sales room area of 126m² and a building gross floor area of 220m².
- Four light vehicle fuel bowsers with eight refuelling bays, and associated fuel canopy orientated to front Thomas Road.
- Three heavy vehicle high-flow fuel bowsers with two refuelling bays, and associated fuel canopy located at the rear of the retail building.
- An enclosed plant yard located on the northern side of the retail building, and enclosed service yard located on the eastern side of the retail building. A loading bay is located immediately adjacent to the service yard.
- One dual access, left-in/left-out crossover to Thomas Road. The Thomas Road crossover is designed to accommodate access for heavy vehicles.
- One dual access, left in/left crossover to Nicholson Road. The Nicholson Road crossover is designed to accommodate egress for heavy vehicles.
- 11 standard car parking bays for customers and staff (including one universal access bay), 3 caravan parking bays and 3 truck parking bays capable of accommodating up to 36.5m B-Triple vehicle size.
- Landscaping along the street frontages, along the lot boundaries and adjacent to the retail building.
- Various signage.

The proposed retail building is located central to the subject site, and orientated with the building entrance and primary frontage to Thomas Road. The retail building is branded as ‘The Foodary’. ‘The Foodary’ is the contemporary model of retail building which comprises architectural elements such as shop front awnings, stool bench seating space and the use of earthy colour tones and rustic styled materials such as cladding, and face brick panelling.

Light vehicle fuel bowsers and canopy are situated south the retail building, fronting Thomas Road. Heavy vehicle bowsers are located north west of the retail building, towards the rear of the lot. This layout concentrates the light vehicle movements to the forecourt of the proposed development, with the heavy vehicle movements separated to the rear of the retail building. Importantly, this layout enables customers to move between the light vehicle bowsers and the retail building without interacting with the heavy vehicles, which is consistent with best practice service station design.
The plant yard, service yard and loading bay are located north and east of the retail building. As a result, the retail building acts as a physical barrier shielding these service areas from view of the streetscapes.

Refer to Appendix 4 for the proposed Development Plans.

4.2 Parking, access and traffic management

As outlined earlier in this report, the access arrangements for the proposed development have been the subject of extensive engagement with both the Department of Planning, Lands and Heritage, and Main Roads WA. Both authorities have supported the access arrangements, which were subsequently approved by the MEJDAP on 29 October 2018. The access arrangements approved by the MEJDAP are exactly the same as the access arrangements proposed as part of this application.

The proposed development has been designed to accommodate heavy vehicles up to 36.5m, with B-Triple standard access and parking at the specific request of Main Roads. This is due to the subject site’s location fronting Thomas Road, a Primary Regional Road and State freight transport route, and acknowledgement that the freight vehicle traffic is earmarked to increase from the existing 17.4% to approximately 20% of all traffic on Thomas Road in the coming years.

The proposed access arrangements are comprised of a single left-in/left-out crossover to Thomas Road, and a single left-in/left-out crossover to Nicholson Road. All commercial vehicles will ingress the subject site via the Thomas Road crossover and will egress via the Nicholson Road crossover.

A range of traffic management treatments are incorporated into the proposed service station’s design and access arrangements, which were outlined in section 2.1 of this report. The traffic management treatments have been considered and supported by the Shire and MRWA.

The proposed development is supported by a Transport Impact Assessment (TIA) prepared by Transcore. The analysis confirms the proposed service station would predominately capture existing trade passing through Nicholson Road and Thomas Road, and that upon construction of the roundabout upgrades, the Nicholson Road / Thomas Road intersection and surrounding road network will easily accommodate the traffic generated by the service station. A summary of the TIA assessment and findings are as follows:

- The service station is conservatively assumed to comprise 80% passing trade for light vehicles and 90% of passing trade for heavy vehicles, estimated approximately 16 and 22 additional trips during the AM and PM peak period respectively.
- This level of traffic represents approximately 1% of additional traffic on Nicholson Road and Thomas Road.
- The Thomas Road / Nicholson Road intersection currently suffers from capacity shortages during peak period, with the proposed solution being the upgrade of the intersection to a two lane roundabout as proposed by Main Roads WA and the DPLH.
- Following construction of the Thomas Road / Nicholson Road intersection upgrades, the 10-year post development horizon demonstrated adequate capacity and exceptional level of service.
- As the proposed crossovers comprise left-in/left-out access only, a capacity assessment of the proposed crossovers is not warranted.

Refer to Appendix 5 – Transport Impact Assessment.
4.3 Operation

The service station and associated retail building outlet will operate 24 hours per day, seven days a week.

Deliveries and waste collection will be undertaken at the loading bay located east of the building. The service vehicles and waste collection trucks will enter the site from Thomas Road, circulate to the rear of the retail building, and access the loading bay in reverse gear. Service vehicles will leave the loading bay and egress onto Nicholson Road.

The underground fuel filling point for the proposed development is located immediately north east of the heavy vehicle bowers. The fuel tankers will access via Thomas Road, manoeuvre to the filling point and egress onto Nicholson Road, similar to the heavy vehicle movements. The location of the filling point ensures fuel tankers can make deliveries without disturbing the circulation of other vehicles.

Service vehicles, waste collection trucks and the fuel tankers will access the site outside the peak operating times of the business, resulting in minimal traffic conflicts between customers, employees and service vehicles.

4.4 Bushfire management

As the subject site is located within a designated bushfire prone area in accordance with the Department of Fire and Emergency Services Map of Bushfire Prone Areas, bushfire management measures have been incorporated into the design and layout of the proposed development. A Bushfire Management Plan (BMP) and Bushfire Risk Management Plan (BRMP) have been prepared by Eco Logical to demonstrate appropriate bushfire risk and management for the proposed development.

A Bushfire Attack Level (BAL) of up to BAL-29 was identified for the subject site, with the BMP concluding that the bushfire protection requirements listing in the BMP provide an adequate standard of bushfire protection for the proposed development. These bushfire protection requirements include the maintenance of an Asset Protection Zone (APZ) over Lot 12. Ongoing management and maintenance of verge land, grassland and understorey within Lot 12 is therefore required to maintain a fuel load less than 2t/ha, achieving a low threat vegetation fuel condition.

The proposed vehicle access ways and surrounding public access network are also compliant with the technical requirements of the guidelines.

Refer to Appendix 6 – Bushfire Management Plan and Bushfire Risk Management Plan.

4.5 Landscaping

The proposed development will incorporate landscaping along the boundaries of the subject site and surrounding the retail building. These landscaping upgrades are focussed within Lot 12, as this lot accommodates the main structures and buildings pertaining to the service station.

A total of approximately 4,455m² landscaped area is provided within Lot 12, located predominately within the rear of the subject site, along the lot boundaries and scattered around the retail building. Substantial landscaping is provided to Lot 12, and is concentrated in areas which will provide the greatest amenity benefit.

A Landscaping Plan is provided within the development plans package at Appendix 3.
4.6 Signage

The proposal incorporates advertising signage on the premises as part of the overall development. Specifically, the proposed signage comprises:

- One 5.5m by 1.25m ‘The Foodary’ building fascia sign on the southern façade of the retail building.
- One 4.3m x 2.9m wall sign on the eastern wall of the retail building.
- One 2.39m x 0.9m and one 2.3m x 0.9m canopy fascia signs located on the southern and western facades of the light vehicle fuel canopy.
- One 2.9m x 0.9m and one 2.39m x 0.9m canopy fascia signs located on the heavy vehicle canopy.
- One 10m high internally illuminated pylon sign fronting Thomas Road, in proximity to Nicholson Road. This sign will incorporate panels containing tenant advertising, as well as advertising panels and digital displays detailing the fuel offerings.
- One 2.3m high internally illuminated promotion sign fronting Thomas Road adjacent to the crossover point.

The proposal includes a mix of illuminated and non-illuminated signage, and incorporates high quality advertising sign panels that complement the architectural style and design of the building. The signage is consistent with ‘Caltex’ and ‘The Foodary’ and corporate branding implemented on all new and refurbished sites across Australia.

Refer to Appendix 4 for the development plans which depict the proposed signage.

4.7 Wastewater management

As the subject site is not currently connected to sewer, an onsite ATU effluent treatment system will be used for the proposed development. The ATU effluent treatment system comprises:

- A 570m² effluent system irrigation area within the landscaped area at the rear of the proposed development.
- This irrigation area is capable of accommodating 2,850L of wastewater per day, providing for 5 staff and 250 patrons using the facilities per day. The 250 patron number assumes that 10% of all patrons will use the facilities.
- The location of the irrigation achieves the necessary clearances from the bore water system, paved areas, fuel tanks, groundwater areas.

The location and specifications of the ATU effluent system are included within the development plans provided at Appendix 4.
4.8 Stormwater management

A set of conceptual stormwater drawings are provided at Appendix 7 which indicate the proposed drainage solution. The stormwater drawings demonstrate that no stormwater runoff will be discharged to a frontage road.

Stormwater will be treated through the use of a Puraceptor system, which captures runoff within the forecourt area. The Puraceptor is an underground collection system which treats stormwater by separating fuels, oils and other potential contaminants from stormwater runoff. The treated stormwater will then be discharged into the site’s main stormwater management system, while the captured contaminants are retained within a separate chamber for collection and removal off site.

Use of a Puraceptor is a standard industry practice, and is generally implemented on all new fuel retailing sites across Australia. A detailed stormwater management plan will be provided in accordance with a condition of planning approval.
5 Statutory planning framework

5.1 Metropolitan Region Scheme

The subject site is zoned Rural under the provisions of the Metropolitan Region Scheme (MRS). The subject site fronts Thomas Road which is reserved as a Primary Regional Road, and Nicholson Road which is reserved as an Other Regional Road under the MRS.

All buildings and major structures are located with substantial setback from the road reservations, and on this basis will not be impacted by the future road widenings and intersection upgrades. The Phase 2 Concept Plan provided at Appendix 1 of this report also demonstrates that the proposed crossovers adequately provide for the impending Nicholson Road / Thomas Road upgrade, and may continue to function following construction of the intersection upgrades.

The proposed development is consistent with the provisions of the MRS and may be approved accordingly.

5.2 State Planning Policies

5.2.1 State Planning Policy No. 3.7 – Planning in Bushfire Prone Areas

The Western Australian Planning Commission (WAPC) State Planning Policy 3.7 – Planning in Bushfire Prone Areas (SPP3.7) seeks to implement effective, risk-based land use planning and development to preserve life and reduce the impact of bushfires on property and infrastructure.

The subject site is situated within an area which is identified as being ‘bushfire prone’ by the Department of Fire and Emergency Services (DFES). Accordingly, the proposed development is required to comply with the relevant policy measures of SPP3.7 and associated documents.

A Bushfire Attack Level (BAL) assessment has been undertaken to determine the potential bushfire risk on the proposed development, generated by the classified vegetation within 100m of the subject site. The BAL assessment is based on post-development conditions in line with the proposed development plans. The assessment concludes the subject site is affected by a BAL rating of up to BAL-29.

As the site achieves a rating above BAL-Low, in accordance with the requirements of SPP3.7, a Bushfire Management Plan (BMP) and Bushfire Risk Management Plan (BRMP) has been prepared for the proposed development, which addresses all relevant requirements of SPP3.7. The BMP identifies a range of bushfire management measures, that on implementation, will enable all proposed areas to be developed with a manageable level of bushfire risk, whilst maintaining compliance with the SPP3.7 Guidelines. This includes the ongoing maintenance of an Asset Protection Zone over the majority of Lot 12.

Refer to Appendix 5 for a copy of the Bushfire Management Plan and Bushfire Risk Management Plan applicable to the proposed development.
5.3 Shire of Serpentine-Jarrahdale Town Planning Scheme No. 2

5.3.1 Zoning, land use and permissibility

The subject site is zoned Rural under the provisions of the Shire of Serpentine Jarrahdale Town Planning Scheme No. 2 (TPS2). Refer Figure 2, zoning map.

The proposed land use is best classified as a ‘Service Station’, defined under TPS2 as:

*Service Station:* means land and buildings used for the supply of petroleum products and motor vehicle accessories and for carrying out greasing, tyre repairs and minor mechanical repairs and may include a cafeteria, restaurant or shop incidental to the primary use; but does not include transport depot, panel beating, spray painting, major repairs or wrecking.

The proposed development provides for the retail sale of fuel products to both light and heavy vehicles, and includes an associated retail building which provides amenities as well as the sale of convenience goods and take-away meals. The proposed land use clearly satisfies the elements of the above definition and is classified as a ‘Service Station’ under TPS2.

The following extract is provided from Page 10 of the Shire’s RAR prepared for the exact same development proposal which was approved by the MEJDAP on 29 October 2018:

> Clause 5.10.1 of TPS2 states “the purpose and intent of the Rural Zone is to allocate land to accommodate the full range of rural pursuits and associated activities conducted in the Scheme Area”.

> Although the proposal does not specifically fall within a ‘rural pursuit’, the proposed land use is one which can be considered in the ‘Rural’ zone under the zoning table. It is considered that the proposal would provide a service for passing traffic and local residents and would not adversely impact on the TPS2 objective.

A Service Station is a ‘SA’ use within the Rural zone, meaning the use is capable of approval at the discretion of the decision-maker, following mandatory advertising. In addition to the above comments by the Shire, the land use is considered appropriate in its context for the following reasons:

- Thomas Road is a major freight route for WA, and currently in a state of transition with impending upgrades expected to be delivered by Main Roads. Heavy vehicle traffic along Thomas Road is also earmarked to increase from the existing 17.4% to approximately 20% of all traffic travelling on Thomas Road in the coming years.
- The proposed development will provide an essential fuel service to the growing number of light and heavy vehicles travelling on Thomas Road, and caters for heavy vehicles up to 36.5m which will support the prosperity of the WA freight industry.
- There is an inherent undersupply of key heavy vehicle fuel retailing services along Thomas Road.
- The design and composition of the facility is sympathetic to the rural character/context of the locality, by virtue of its muted colour tones and rustic architectural features.

For the reasons outlined above it is considered the proposed service station is entirely appropriate within the Rural zone and should be approved accordingly.
5.3.2 Development standards

Part 5.10 of TPS2 provides the general provisions and development standards applicable to the Rural zone. There are no requirements within this section which are applicable to the proposed development.

Part 7 of TPS2 details the general provisions applicable to the entire scheme area. Table 3 below provides an assessment of the proposal against the relevant development standards of Part 7 of TPS2.

Table 3 – Development standards

<table>
<thead>
<tr>
<th>Clause</th>
<th>Requirement</th>
<th>Comment</th>
<th>Compliance</th>
</tr>
</thead>
</table>
| 7.2 Nuisance | No lot, building or appliance shall be used in such a manner as to permit the escape therefrom of smoke, dust, fumes, odour, noise, vibration, or waste products in such quantity or extent or in such a manner as to create or to be a nuisance to any inhabitant of the neighbourhood of such land or to traffic or persons using roads in the vicinity. | The TIA analysis undertaken for the subject site quantifies the anticipated passing trade component of the proposed development to be:  
80% for light vehicles; and  
90% for heavy vehicles.  
Therefore, despite being a vehicle intensive use, the level of traffic actually generated by the proposed development is relatively low, estimated to be approximately 1% of all traffic on the road network.  
Traffic related amenity impacts such as dust, noise or vibration will therefore not be introduced by the proposed development, as this would be an existing condition. | ✓ |
| 7.5 Vehicle Accessways | In the interest of vehicular safety the Council may refuse to permit more than the one vehicular entrance or exit from any lot or may require separate entrances and exits. | The access design and number of crossovers have been the subject of consultation and agreement with Main Roads and the DPLH. | ✓ |
| 7.7 Off Street Parking | Table 5 contains a list of carparking requirements for particular uses. | The parking requirements are addressed in Table 5 below. | ✓ |
| 7.7.4 | Boundary landscaping shall be provided for open parking areas visible from any public street and with more than five parking spaces, and interior landscaping shall be provided for open parking areas with twenty one or more parking spaces. | The proposed development provides both boundary landscaping and vegetation in key interior areas such as adjacent to the outdoor seating area and retail building. | ✓ |
7.10 Landscaping

7.10.1 Unless otherwise approved by the Council landscaping shall be provided for all developments and shall be:

(a) in accordance with the Site Requirements Table where appropriate;

The site requirement tables are addressed in section 5.3.3 below.

7.10.2

(a) planting shall be selected and maintained so as to minimise foliage between 0.5 metres and 1.5 metres above ground level;

No major landscaping is provided in areas which would impact upon drivers sightlines.

(b) the minimum width of landscaped areas shall be 1.5 metres and 2.0 metres when the landscaped area adjoins a street boundary;

Streetscape landscaping is provided at a minimum of 2m.

(c) all landscaping strips shall provide at least one pedestrian crossing point for every continuous ten metres of length.

No pedestrian crossing points are provided.

Variation

Justification: pedestrian crossings are not provided due to the context of the subject site. Specifically, the subject site fronts two arterial roads which do not provide pedestrian infrastructure. Pedestrian activity in this area is therefore anticipated to be low (if not completely non-existent), and does not warrant pedestrian crossing strips.

Having regard to Table 3 above, the proposal is substantially compliant with the relevant development standards under TPS2 and warrants approval accordingly.

5.3.3 Site requirements

Specific site requirements are not provided for the Rural zone, or for a ‘Service Station’ land use. However, for the purpose of providing an indicative measure of the appropriateness of the built form, the ‘All Other Uses’ development standards designated in Table III – Site Requirements have been considered and addressed below.

Table 4 – Table III – Site Requirements for ‘All Other Uses’

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Comment</th>
<th>Compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Setback – Front – 9m</td>
<td>Thomas Road – approx. 14m setback to light vehicle canopy.</td>
<td>✓</td>
</tr>
<tr>
<td>Minimum Setback – Rear – 6m</td>
<td>Setback to Lot 50 (North) – approx 14m to heavy vehicle fuel canopy.</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Setback to Lot 6 (East) – approx 50m from retail building and light vehicle canopy.</td>
<td></td>
</tr>
<tr>
<td>Maximum Plot Ratio – 0.5:1</td>
<td>Retail building GFA is 220m², equating to a plot ratio of approx 0.016 for Lot 12 alone.</td>
<td>✓</td>
</tr>
<tr>
<td>Maximum Site Coverage – 0.5</td>
<td>The combined site area of Lot 12 and 50 is 27,776. Site coverage including structures, crossovers and vehicle movement areas is approximately 10,040m², equating to a 0.36 site coverage.</td>
<td>✓</td>
</tr>
<tr>
<td>Landscaping – 10% of site</td>
<td>Approx 4,455m² of landscaping is provided within Lot 12, equating to approximately 33% of the Lot 12 site area.</td>
<td>✓</td>
</tr>
</tbody>
</table>
As demonstrated in the above table, the proposed development is entirely consistent with the site layout expectations for a commercial type development.

5.3.4 Car parking

Table 5 of TPS2 sets out specific car parking rates for various land uses. An assessment of the car parking requirements for the subject site is provided in **Table 5** below.

**Table 5 – Car parking**

<table>
<thead>
<tr>
<th>Land use</th>
<th>Parking standard</th>
<th>Required car bays</th>
<th>Provided</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service Station</td>
<td>1.5 spaces per service bay plus 1 space per employee.</td>
<td><strong>Light Vehicles</strong></td>
<td>11 standard parking spaces</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8 standard bowser bays – 12 bays</td>
<td>3 caravan spaces</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 employees – 3 bays</td>
<td>8 spaces adjacent to fuel bowsers</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Heavy Vehicles</strong></td>
<td>3 truck parking bays</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 truck filling bays – 3 bays</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>18 bays</strong></td>
<td><strong>25 bays</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Total</strong></td>
<td>(+) 7 bays</td>
</tr>
</tbody>
</table>

As outlined in **Table 5** above, the proposed development will provide adequate parking facilities to cater to both light and heavy vehicles.

5.3.5 Matters to be considered

Due to the minimal extent of development requirements within the Shire’s planning framework, it is understood that the development application will largely be assessed on its merits.

Clause 67 – Part 2 – Schedule 2 (deemed provisions) of the *Planning and Development (Local Planning Schemes) Regulations 2015* (*Regulations*) outlines matters to be given due regard by local government when considering development applications, and provides an appropriate guide to the matters which should be considered under a ‘merit assessment’. **Table 6** below provides an assessment against matters relevant to this proposal.

**Table 6 – Matters to be considered by local government**

<table>
<thead>
<tr>
<th>Relevant matters to be considered</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) the aims and provisions of this Scheme and any other local planning scheme operating within the Scheme area;</td>
<td>The proposed use and development is consistent with the aims and provisions of the Shire’s TPS2 for the following reasons:</td>
</tr>
<tr>
<td></td>
<td>• The proposal seeks approval for a land use which is capable of approval, and consistent with the strategic direction of the surrounding area.</td>
</tr>
<tr>
<td></td>
<td>• The proposed development is entirely consistent with the established amenity of the area, which is characterised by a high degree of vehicle traffic.</td>
</tr>
<tr>
<td></td>
<td>• The proposed development provides an essential service to passing motorists, including heavy vehicle traffic.</td>
</tr>
<tr>
<td></td>
<td>• It has been demonstrated by a suitably qualified traffic consultant that there will be minimal impacts on the surrounding road network.</td>
</tr>
<tr>
<td></td>
<td>• <strong>The exact same development proposal was supported by the Shire and relevant external authorities, and approved by the MEJDAP on 29 October 2018.</strong></td>
</tr>
</tbody>
</table>
**Proposed Service Station**
Lot 12 (1537) Thomas Road and Lot 50 Nicholson Road, Oakford

- **b)** the requirements of orderly and proper planning including any proposed local planning scheme or amendment to this Scheme that has been advertised under the *Planning and Development (Local Planning Schemes) Regulations 2015* or any other proposed planning instrument that the local government is seriously considering adopting or approving;

  - This report demonstrates the proposed development is consistent with the local planning framework applicable to the subject site.

- **c)** any approved State planning policy;

  - Refer section 5.2 of this report.

- **d)** any environmental protection policy approved under the *Environmental Protection Act 1986* section 31 (d);

  - N/A

- **e)** any policy of the Commission;

  - Refer section 5.2 of this report.

- **f)** any policy of the State;

  - Refer section 5.2 of this report.

- **g)** any local planning policy for the Scheme area;

  - Refer section 5.4 of this report.

- **h)** any LSP, activity centre plan or local development plan that relates to the development;

  - N/A

- **i)** any report of the review of the local planning scheme that has been published under the *Planning and Development (Local Planning Schemes) Regulations 2015*;

  - The Shire is currently progressing a draft LPS3. At the time of writing this report, the draft LPS3 had not received consent to advertise and on this basis is not a ‘seriously entertained’ document.

- **k)** the built heritage conservation of any place that is of cultural significance;

  - N/A

- **m)** the compatibility of the development with its setting including the relationship of the development to development on adjoining land or on other land in the locality including, but not limited to, the likely effect of the height, bulk, scale, orientation and appearance of the development;

  - The proposed service station development is entirely compatible with its setting for the following reasons:
    - The subject site has frontage to two major arterial roads, including Thomas Road which is identified as a major freight route for WA.
    - Heavy vehicle traffic along Thomas Road is also earmarked to increase from the existing 17.4% to approximately 20% of all traffic travelling on Thomas Road in the coming years. The proposed development will provide an essential fuel service to the growing number of light and commercial vehicles travelling on Thomas Road.
    - The proposed development has been designed so as to be compatible with both the current and future intersection design of Thomas Road and Nicholson Road.
    - The proposed development has been designed so as to minimise any potential impact on adjoining properties by way of building bulk and traffic impact.
    - Substantial landscaping has been provided to street frontages and along the main retail building frontage, adding to the amenity of the development.
    - The proposal presents an attractive, high quality built form which enhances the appearance of the subject site and its impact on adjoining properties and the streetscape.

  - Having regard to the above, the nature of the proposed development is entirely compatible with its surroundings to ensure no undue impact on the locality.
n) the amenity of the locality including the following —
   (i) environmental impacts of the development;
   (ii) the character of the locality;
   (iii) social impacts of the development;

Environmental Impacts
The proposed development is not anticipated to result in any adverse environmental impacts. Stormwater and wastewater management details are described within section 4 of this report.

Character of the Locality
A key element defining the character of the locality include the road arterial networks (Thomas Road and Nicholson Road), nearby commercial activity to the south and surrounding rural residential land to the north and east. The proposed development is appropriately located within this setting, and through the use of landscaping, screening and design layout, mitigates the impact of the development on adjoining residential areas.

Social Impacts
The proposed development will not have any adverse social impacts on the surrounding locality for the following reasons:
- The 24-hour operation of the service station ensures surveillance of the surrounding area during all hours.
- The proposed service station will provide an essential fuel service to passing light and heavy vehicle traffic.
- The proposed service station will provide employment opportunities and contribute to local economic development.

(p) whether adequate provision has been made for the landscaping of the land to which the application relates and whether any trees or other vegetation on the land should be preserved;

The proposal incorporates 4,455m² of soft landscaping as part of the development, and is concentrated to areas of greatest value.

(s) the adequacy of —
   (i) the proposed means of access to and egress from the site; and
   (ii) arrangements for the loading, unloading, manoeuvring and parking of vehicles;

As outlined in section 4.2 of this report and the supporting Transport Impact Assessment prepared by Transcore (Appendix 5), the proposed means of access to and from the site is designed to both the current and future intersection design of Thomas Road / Nicholson Road.

With regard to service deliveries, a loading zone is provided to the east of the retail building which provides adequate space for service vehicles and stock deliveries.

(t) the amount of traffic likely to be generated by the development, particularly in relation to the capacity of the road system in the locality and the probable effect on traffic flow and safety;

The Transport Impact Assessment prepared by Transcore (Appendix 5) demonstrates that the proposed service station predominately captures existing passing traffic, and will create an insignificant level of additional traffic.

Intersection analysis indicates that intersection of Thomas Road and Kardan Boulevard incorporating the Main Roads WA intersection upgrades will operate satisfactorily during the post development scenario.

(u) the availability and adequacy for the development of the following —
   (i) public transport services;
   (ii) public utility services;
   (iii) storage, management and collection of waste;

(i) Given the nature of the development, the public transport provision is not considered to be a relevant consideration.

(ii) The Water Corporation and Western Power encumbrance restrictions have been considered as
<table>
<thead>
<tr>
<th>(iv)</th>
<th>access for pedestrians and cyclists (including end of trip storage, toilet and shower facilities); access by older people and people with disability;</th>
</tr>
</thead>
<tbody>
<tr>
<td>(v)</td>
<td>part of this development proposal, as demonstrated in section 3.2 of this report.</td>
</tr>
<tr>
<td>(iii)</td>
<td>The development provides for bin storage areas and servicing bay.</td>
</tr>
<tr>
<td>(iv)</td>
<td>Given the context of the subject site, pedestrian and cycling facilities are not considered to be relevant considerations.</td>
</tr>
<tr>
<td>(v)</td>
<td>The development is single storey with no level changes. A disabled bay is provided adjacent to the building entrance.</td>
</tr>
</tbody>
</table>

**(w)** the history of the site where the development is to be located

On 29 October 2018, the exact same service station development proposal was granted approval by the MEJDAP. The proposal and its access arrangements were supported by the Shire, MRWA and other relevant external authorities.

A copy of the determination letter and stamped plans are provided at Appendix 2 for reference.

Having regard to **Table 6** above, the proposal appropriately addresses matters to be given due regard as set out in the deemed provisions. The proposal therefore warrants approval accordingly.

### 5.4 Local Planning Policies

#### 5.4.1 Local Planning Policy No. 4.11 – Advertising

Local Planning Policy No. 4.11 – Advertising (**LPP4.11**) details the development standards applicable to signage.

A Signage Strategy is included within the development plans provided at **Appendix 3**, which includes details of signage including:

- One 5.5m by 1.25m ‘The Foodary’ building fascia sign on the southern façade of the retail building (classified as a roof sign).
- One 4.3m x 2.9m interchangeable wall sign on the eastern wall of the retail building.
- One 2.39m x 0.9m and one 2.3m x 0.9m ‘Caltex’ canopy fascia signs located on the southern and western facades of the light vehicle fuel canopy.
- One 2.9m x 0.9m and one 2.39m x 0.9m ‘Caltex’ and one 2.39m x 0.9m ‘Diesel’ canopy fascia signs located on the heavy vehicle canopy.
- One 10m high internally illuminated pylon sign fronting Thomas Road, in proximity to Nicholson Road. This sign will incorporate panels for ‘Caltex’ and associated ‘The Foodary’, as well as advertising panels and digital displays detailing the fuel offerings.
- One 2.3m high internally illuminated promotion sign fronting Thomas Road adjacent to the crossover point.

**Table 8** below details the development standards of LPP4.11 for each signage category.
### Table 8 – LPP5 development requirements

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Comment</th>
<th>Compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Roof Sign</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A maximum area of 20% of the area of the roof panel on which it is located or 4m², whichever is the lesser.</td>
<td>The proposed ‘The Foodary’ sign comprises an area of up to 3m².</td>
<td>✓</td>
</tr>
<tr>
<td>A maximum width of 2/3 of the width of the roof.</td>
<td>Total roof width – 24.4m Width of sign – 5.1m (less than two thirds)</td>
<td>✓</td>
</tr>
<tr>
<td>Does not protrude above the roof ridge line.</td>
<td>The sign does not protrude above the roof ridge line.</td>
<td>✓</td>
</tr>
<tr>
<td>Does not project more than 300mm from the portion of the building to which it is attached.</td>
<td>The sign does not project from the building.</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Pylon Sign</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The maximum sign face area is 10m² per face, for a maximum of two faces.</td>
<td>For the large pylon sign, an advertised area of approximately 11.65m² is proposed per sign face (two in total). The variation of 1.65m² is minor, negligible and unlikely to have any noticeable visual impacts.</td>
<td>Variation</td>
</tr>
<tr>
<td>The maximum height above the ground is to be 6.5m or the height of a building in close proximity, whichever is the greater, but is not to exceed 10m. The height of a building is defined as the height of the uppermost part of the building aboveground level.</td>
<td>10m high pylon sign is proposed (variation). A 2.3m high promo sign is proposed, which is compliant.</td>
<td>Variation ✓</td>
</tr>
<tr>
<td>Must be mounted as a free-standing structure.</td>
<td>Sign is mounted to the ground.</td>
<td>✓</td>
</tr>
<tr>
<td>Must not be located less than 1.5m from the front property boundary (including the primary and secondary street frontages of a corner lot), and must not project beyond the alignment of any property boundary.</td>
<td>Pylon signs are within 1.5m of the front property boundary. The nature of Thomas Road (including the frequency of vehicles and the type of vehicles likely to access the site) require the signs to be in a location where they’re most visible. Additionally, the signs were approved in this location in the initial application on 29 October 2018.</td>
<td>Variation</td>
</tr>
<tr>
<td>Must not face adjoining premises unless the sign is a minimum of 3.0m from the property boundary of that premises, or unless the landowner of the adjoining premises consents to the sign being a lesser distance from the boundary.</td>
<td>The signs are more than 3m from any adjoining property boundary.</td>
<td>✓</td>
</tr>
<tr>
<td>Must not expose an unsightly back view of the sign to a road or other public place. Must not to be located on a street frontage of a premises along which is located another pylon sign, billboard sign or pole sign.</td>
<td>The signs are two-sided, both sides contain the same types of advertising.</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Justification:</strong> the additional height in the proposed I.D. sign is designed to provide for early identification of the Caltex service station, and enable heavy vehicles to slow and manoeuvre into the subject site in a safe and coordinated manner. This early identification is essential as the proposed Caltex service station is designed to cater up to B-Triple sized vehicles which, due to their weight, have exceptionally long stopping distances.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The 10m I.D. sign is therefore specifically designed to cater to the unique characteristics of the proposed development and its context fronting Thomas Road. The following information is also relevant when considering the size of the I.D. sign:

- The single I.D. sign is required to provide sufficient exposure to both north/south traffic on Nicholson Road and east/west traffic on Thomas Road. Both roads are surrounded by large, established vegetation which would impact the visibility of a smaller I.D. sign upon approach.
- The quantity of heavy vehicle traffic travelling along Thomas Road is earmarked to increase from approximately 17% to 20% in the short term. Early identification of the Caltex service station is therefore important, noting the time it takes for vehicles up to 36.5m to identify the site, slow down and safely ingress the facility.
- The location of the I.D. sign does not compromise vehicle sightlines from the crossovers or intersection. The additional height therefore does not result in any loss in driver’s safety.
- A smaller sign may result in heavy vehicles making sudden lane movements due to late identification of the site.
- The larger sign incorporates various infill panels which contain important information relating to the price of fuels and other products/services offered by the facility. The sign effectively rationalises the extent of freestanding signs onsite through its additional height, which increases its capacity to accommodate infill panels.

The proposed I.D. sign is of a high standard of design and presentation. The proposed I.D. sign is the only freestanding advertising sign within the proposed development. The size and location of the sign is considered appropriate as it will allow for the early identification of the Caltex to passing motorists to ensure the safe manoeuvrability into the site. For these reasons the proposed ID sign should be considered on its merits and approved accordingly.

Wall Sign

A wall sign is to only display the name, logo or slogan of the business premises to which the sign is applied.

The maximum single face area is 10m², and must not extend beyond 12.0m above the ground even if the wall is higher than this.

Must not project more than 300mm from the wall and/or fascia to which it is affixed.

Must not project beyond the edges of a wall and/or fascia.

A wall sign, which extends above a wall, may be considered as a roof sign.

The proposed wall sign contains a logo and information regarding the products offered for sale onsite.

The sign comprises a total area of 12.47m². The 2.47m² variation is minor and unlikely to be noticeable, given the size of the facility and the rural context of the locality. Additionally, the sign was approved as part of the initial application on 29 October 2018.

One wall sign is proposed on the western façade of the retail building.

No sign extends above any wall.

Justification:

- The wall sign is a graphic device which contributes aesthetically to the blank wall on the western façade. The scale of the graphic is simply the result of the size of the blank surface.
- The wall graphic conveniently provides information relating to the opening hours and products offered for sale onsite.
- The size of the graphic is consistent with the bulk/scale of the retail building. Accordingly, the signage is consistent with its surroundings and is unlikely to result in any visually intrusive impacts.

As demonstrated in the above table, the proposed signage is generally consistent with the requirements of LPP4.11. The variation sought to the scale of the pylon sign is considered acceptable in the context of the subject site along Thomas Road and Nicholson Road, and the nature of the use which attracts a substantial portion of heavy vehicles (noting heavy vehicles require adequate distance to identify the site and then slow down when approaching the Thomas Road crossover).
6 Conclusion

This application seeks approval to develop a service station and associated retail building, including access, signage and car parking within the subject site.

The proposed development is entirely appropriate for its context, given its frontage to Thomas Road, a major arterial road and major component of the WA freight network. The service station caters to, and is designed to accommodate, the high quantity of both light and heavy vehicle travelling along Thomas Road.

In summary, the proposal appropriately responds to all relevant aspects of the planning framework and warrants approval for the following reasons:

- The proposal involves the use and development of a Caltex service station on the subject site, which will provide essential services along a stretch of Thomas Road, where there is currently an undersupply of fuel retailing.

- The design and layout of the subject site has been formulated with input from DPLH, the Shire and Main Roads WA. The resultant development provides a contemporary service station which incorporates best practice design, including the separation of heavy vehicle movements from pedestrians and light vehicle traffic.

- The proposed development provides an essential fuel service to the arterial road networks which abut the subject site. Specifically, the development has been designed to cater to B-Triple sized vehicles at the specific request of Main Roads WA, which is identified as a growing market on the Thomas Road freight network.

- ‘The Foodary’ retail building represents Caltex’s contemporary retail building design which incorporates architectural design and material elements producing a modern and attractive building design.

- The development design is substantially compliant with the relevant State and local planning requirements, and demonstrates an acceptable outcome based on a ‘merit assessment’.

- The use and form of development responds to the context of the subject site, which is primarily characterised by its frontage to two arterial roads.

- The various technical reporting prepared in support of the development confirms the proposal is acceptable from a traffic impact, bushfire management and wastewater management perspective.

- The building represents a contemporary design, and provides substantial landscaping areas to contribute to the amenity of the site and surrounding area.

Having regard to the above, the proposal clearly demonstrates the suitability of the proposed development in the context of the locality. Accordingly, we respectfully request the Metro East JDAP approve the Application for Planning Approval.
<table>
<thead>
<tr>
<th>DRAWING</th>
<th>DESCRIPTION</th>
<th>REV</th>
<th>DRAWING</th>
<th>DESCRIPTION</th>
<th>REV</th>
<th>DRAWING</th>
<th>DESCRIPTION</th>
<th>REV</th>
</tr>
</thead>
<tbody>
<tr>
<td>A000</td>
<td>DRAWING LIST</td>
<td></td>
<td>A210</td>
<td>PROPOSED FLOOR PLAN</td>
<td>A</td>
<td>A300</td>
<td>RETAIL CAR CANOPY</td>
<td>A</td>
</tr>
<tr>
<td>A091</td>
<td>SCHEDULE EXTERIOR FINISHES 1</td>
<td>D</td>
<td>A216</td>
<td>ELEVATIONS-SHEET 1 OF 2</td>
<td>F</td>
<td>A303</td>
<td>PLAN</td>
<td>A</td>
</tr>
<tr>
<td>A032</td>
<td>SCHEDULE EXTERIOR FINISHES 1 OF 2</td>
<td>C</td>
<td>A217</td>
<td>ELEVATIONS-SHEET 2 OF 2</td>
<td>F</td>
<td>A304</td>
<td>ELEVATIONS</td>
<td>A</td>
</tr>
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A  FRON T  ELEVATION

BLACK AND WHITE PATTERNED AWNING AT LEADING EDGE OF BLADE AWNING

DECO WOOD HORIZONTAL ALUMINIUM PANELING TO BLADE AWNING

50mm SAFETY STRIP TO GLAZING

LOW GREEN ACRYLIC BLACK PAINT FINISH TO CONCRETE PANELS

COLOURBOND SCREEN FENCE 1800 HIGH WITH GATES AS DETAILED COLOUR: SURF Mist

150mm LYSAGHT LOUVRE SCREEN SLATS

CFC SHEETING WITH PAINT FINISH TO MATCH

D  LEFT SIDE ELEVATION

BL 250
BL 450
BL 390
BL 690

PROJECT
CONSULTANTS WA
PTY LTD

ACN  602 924 336 ABN 40 413 457 574

CONTACT: 08 9330 488 22

CALTEX
Caltex Australia Petroleum Pty Ltd

REV.  BY  DATE  DESCRIPTION OF CHANGE
D  JS  05.12.17  BUILDING LENGTH REDUCED
E  JS  07.12.17  ISSUED FOR SIGN OFF
F  JS  15.02.18  DEVELOPMENT APPLICATION

REV-0

PROJECT
OAKFORD - WA
LOT 12 No 1537 THOMAS ROAD

TITLE
SHOP: ELEVATIONS

DEVELOPMENT

0 1m 2 3 4 5

FILE
A3  P1525-A216  F

SCALE 1:100

APPROVED
REV.

DATE

NOTE: CONSTRUCTION

C.01 Two fire extinguishers required by AS4974-2009 placed on columns each side of canopy facing salesroom.

C.02 Additional fire extinguishers may be required to suit site specific conditions.

C.03 Pump position and spreader size to be confirmed on site to suit canopy column size.

C.04 For floor waste / forecourt drainage, downpipe and canopy box gutter details, refer to the hydraulic engineers documentation.

NOTE: GENERAL

G.01 Drawings noting 'BCD' relate to documentation suitable for use in the Brisbane City Council IBC or associated areas.

G.02 This canopy does not comply for use in the Brisbane City Council area. Modify as necessary if used in this area.

PRINCIPAL CONSULTANT: GUIDANCE NOTES

*The eaves overhang dimensions shown are indicative only and are based on an approximate 10° line off vertical from canopy edge to crest of forecourt. Site specific requirements for drainage/overhangs shall be determined by the civil engineer and dimensions adjusted accordingly.
NOTE:
FIRE EXTINGUISHERS REGD. AS PER
A324046 - PLACED ON COLUMNS EACH SIDE OF
CANOPY FACING THE SALESROOM.
ADDITIONAL FIRE EXTINGUISHERS MAY BE
REQUIRED TO SUIT SITE SPECIFIC CONDITIONS.

THIS DRAWING TO BE READ
IN CONJUNCTION WITH:
FOR SPILL ContAINMENT DETAILS:
ORDER CODE A324
FOR FINISH
ORDER CODE A320
FOR FE & PAPER TOWEL FIXING DETAILS
ORDER CODE A321

LEGEND

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<td>Nom. 38 l/min</td>
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GOVERNMENT OF WESTERN AUSTRALIA
CONSULTANTS WA
PTY LTD
ACN 802 924 338 ABN 40 415 457 574
CONTACT N 9230 499 223

CALTEx
Caltex Australia Petroleum Pty Ltd

rev. by date description of change project title scale development
A JS 15.02.18 DEVELOPMENT APPLICATION OAKFORD - WA RETAIL TRUCK CANOPY PLAN 1:100 A3 P1525-A320

Approach side
Black concrete within Containment area.
Sealer to be applied.
Colour to be batch plant mixed.

Line of change of grade
Edge of canopy over

Painted shroud to canopy column
Water located to allow for shortest run of services.
Air outlet for maintenance purposes only.

Preferred fire extinguisher position
Lighting track
Bay 1
Bay 2

Paper Towel Dispenser (Type)
Reader (This Side Type)
Pump (Type)

600# concrete bollards
140mm high ref. Dwg. STD-B325
BUILDING FASCIA SIGN
1 OFF
STREET PROMO SIGN

MOLDED ACRYLIC PANEL WITH VINYL GRAPHICS
PROMOTIONAL POSTER

1300 OA
1160 SIGN FACE

SIGN ORIENTATION-ID/PRICE BOARD
ID/PRICE SIGNS TO READ LEFT TO RIGHT-PRODUCT THEN PRICE

LEA SCREEN
BLACK
ORANGE
SILVER

AIR & WATER SIGN
1 OFF
FITTED WITH A NON-BEEPING ALARM AND PROGRAMMED TO BE AT LEAST 6DB LESS THAN LEVEL REFERENCED IN TABLE 3.2 OF LLOYD GEORGE ACOUSTIC REPORT

PROJECT CONSULTANTS WA
Caltex Australia Petroleum Pty Ltd

REV. BY DATE DESCRIPTION OF CHANGE
B JS 07.12.17 ISSUED FOR SIGNOFF
C JS 14.02.18 DEVELOPMENT APPLICATION
D JS 16.03.18 AIR & WATER UNIT REVISED

PROJECT
OAKFORD - WA
LOT 12 No 1537 THOMAS ROAD

TITLE
SIGNAGE DETAILS
SHEET 1

SCALE
1:50

DEVELOPMENT
APPROVED
DATE

SIZE
A3
DRAWING NO.
P1525-S110
REV. D
Appendix 1
Phase 1 and Phase 2 Access Plans
Appendix 2
Determination Letter and Stamped Plans – 29 October 2018
Dear Mr Stagno

METRO EAST JDAP - SHIRE OF SERPENTINE JARRAHDALE - DAP APPLICATION - PA18/193 - DETERMINATION

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<tr>
<td>Application Details:</td>
<td>‘Service Station’</td>
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Thank you for your Form 1 Development Assessment Panel (DAP) application and plans submitted to the Shire of Serpentine Jarrahdale on 4 April 2018 for the above-mentioned development.

This application was considered by the Metro East JDAP at its meeting held on 29 October 2018, where in accordance with the provisions of the Shire of Serpentine Jarrahdale Town Planning Scheme No.2, it was resolved to approve the application as per the attached notice of determination.

Should the applicant not be satisfied by this decision, an application may be made to amend or cancel this planning approval in accordance with regulation 17 and 17A of the Planning and Development (Development Assessment Panels) Regulations 2011.

Please also be advised that there is a right of review by the State Administrative Tribunal in accordance with Part 14 of the Planning and Development Act 2005. Such an application must be made within 28 days of the determination, in accordance with the State Administrative Tribunal Act 2004.

Should you have any queries with respect to the conditions of approval, please contact Ms Heather Coles-Bayes on behalf of the Shire of Serpentine Jarrahdale on 9526 1130.

Yours sincerely,

DAP Secretariat

6 November 2018

Encl. DAP Determination Notice
Approved Plans

Cc: Ms Heather Coles-Bayes
Shire of Serpentine Jarrahdale
Planning and Development Act 2005

Shire of Serpentine Jarrahdale Town Planning Scheme No.2

Metro East Joint Development Assessment Panel

Determination on Development Assessment Panel
Application for Planning Approval

Property Location: Lot 12, 1537 Thomas Road and Lot 50 Nicholson Road, Oakford
Application Details: ‘Service Station’

In accordance with regulation 8 of the Planning and Development (Development Assessment Panels) Regulations 2011, the above application for planning approval was granted on 29 October 2018, subject to the following:

Approve DAP Application reference DAP/18/01394 and accompanying plans (Attachment 1) in accordance with Clause 68 of the Planning and Development (Local Planning Schemes) Regulations 2015 and the provisions of the Shire of Serpentine Jarrahdale Town Planning Scheme No. 2 subject to the following conditions:-

1. The development is to be carried out in compliance with the plans and documentation listed below and endorsed with the Shire of Serpentine Jarrahdale stamp, except where amended by other conditions of this consent.

| Plans and Specifications | P1 – P22 received at the Shire Offices on 28 March 2018 and 24 July 2018 and Bushfire Management Plan and Risk Management Plans dated 19 March 2018 |

2. Prior to commencement of works, a landscaping/revegetation plan shall be submitted to and approved by the Shire of Serpentine Jarrahdale. Within 60 days of occupation, the approved landscaping/revegetation plan shall be implemented and maintained thereafter.

3. Prior to commencement of works, a detailed Stormwater Plan shall be submitted to and approved by the Shire of Serpentine Jarrahdale. The approved Stormwater Plan shall be implemented and maintained thereafter.

4. Prior to the commencement of works, a Construction Management Plan shall be submitted to and approved by the Shire of Serpentine Jarrahdale in consultation with Main Roads Western Australia. The Construction Management Plan shall include but not be limited to the following information:-

   - Dust management
   - Traffic management

These approved plans shall be implemented and maintained throughout the construction of the development.
5. Prior to occupation, a lighting plan shall be submitted to and approved by the Shire of Serpentine Jarrahdale in consultation with Main Roads Western Australia. The approved lighting plan shall be implemented and maintained thereafter.

6. Prior to occupation, a monetary contribution equating to 1% of the estimated cost of development (or lesser amount as agreed between the Shire of Serpentine-Jarrahdale and the developer) shall be paid to the Shire of Serpentine Jarrahdale for the establishment of public art in accordance with Council's Local Planning Policy 1.6 – Public Art to the satisfaction of the Shire of Serpentine Jarrahdale.

7. The pylon sign shall be no higher than 7m unless otherwise approved by the Shire of Serpentine Jarrahdale.

8. Prior to Commencement of works, a Noise Assessment and Management Plan shall be submitted to and approved by the Shire of Serpentine Jarrahdale. Once approved, the plans shall be implemented and maintained thereafter.

9. Prior to occupation, Lot 12 Thomas Road and Lot 50 Nicholson Road, Oakford shall be amalgamated into a single lot. Alternatively, a right of carriageway easement shall be registered on the Certificate of Title over the land subject of this approval to secure reciprocal access across the lots as illustrated on the approved plans at the expense of the applicant and to the satisfaction of the Shire of Serpentine Jarrahdale.

**Main Roads**

**Nicholson Road Access**

10. Prior to occupation, the proposed Nicholson Road access is to be designed and constructed to the satisfaction of the Shire, on the advice of Main Roads WA and Department of Planning, Lands and Heritage.

The Nicolson Road access shall operate as left-in/left-out for light vehicles and **left out only turning movements for heavy vehicles** and shall have suitable signage advising motorist of these restricted movements.

The developer shall be responsible for all costs involved in the land acquisition, design and construction of the left turning pocket and solid median to prevent right out turning movements onto Nicholson Road. This includes signage, road markings, relocation of services, and street lighting associated with the turning pocket.
Thomas Road Access

11. Prior to occupation, the proposed Thomas Road access is to be designed and constructed to the satisfaction of the Shire, on the advice of Main Roads WA.

The Thomas Road access shall operate as left-in/left-out for light vehicles and **left in only turning movements for heavy vehicles** and shall have suitable signage advising motorists of these restricted movements.

The developer shall be responsible for all costs involved in the land acquisition, design and construction of the left turning pocket and solid median to prevent right out turning movements onto Thomas Road. This includes signage, road markings, relocation of services, and street lighting associated with the turning pocket.

12. No earthworks shall encroach onto the Nicholson and Thomas Road road reserve.

13. No stormwater drainage shall be discharged onto the Nicholson and Thomas Road road reserve.

14. The applicant shall make good any damage to the existing verge vegetation within the Nicholson and Thomas Road road reserve.

Advertising Signage

15. Signage illumination shall not exceed 300cd/m², and shall not flash, pulsate or chase.

16. Signage shall not contain fluorescent, reflective or retro reflective colours or materials.

17. No unauthorised signage is to be displayed without prior approval from the Shire of Serpentine Jarrahdale in consultation with Main Roads Western Australia.

Advice Notes

1. As you are aware, this intersection is recognised as a dangerous black spot and has received funding from the Road Trauma Fund account to undertake preliminary planning design concepts. At this point in time, the traffic modelling depicts that the preferred intersection treatment at this location is a roundabout treatment, for both interim and ultimate stage.

The applicant is reminded that upon the roundabout being constructed to its ultimate configuration, the existing access on Nicholson Road will be removed and all access into the petrol station development will be achieved via a dedicated service road accessed from the north of Lot 50.

Please be aware that the timing of the construction of the roundabout (both interim and ultimate stages) including the preferred type of intersection treatment for this intersection is subject to change and that Main Roads assumes no liability whatsoever for the information provided.
2. An internal 15% design review has been undertaken for the submitted drawings for this development proposal. The attached design review comments are not to be considered a comprehensive design verification and may not pick-up all the issues. Therefore it is **not** an approval of the presented design.

3. Lot 50 is affected by land reserved in the Metropolitan Region Scheme for "Other Regional Road" and no development will be permitted within this land required for road purposes at some time in the future.

The applicant is advised to contact the Department Planning, Lands & Heritage - Infrastructure Land Use Co-Ordinating Branch (ILUC) for further details in this regard.

4. The applicant must obtain approval from Main Roads before all works are undertaken within the Thomas Road reserve. The applicant seeking access to the Main Roads network will be required to submit an Application as outlined in the "Application Kit and Guidelines" for State Roads.

Application Kits can be found on the Main Roads website >"Our Roads" >"Conducting Works on Roads" >"Applications to Undertake Works on State Roads" >Application Kit and Guidelines for Complex Works OR Application Form for Low Complexity Works.

5. Main Roads agreement is to be obtained prior to any future modifications to signage.

6. Vegetation within the state road reserve shall not be removed or trimmed to improve the visibility of the proposed advertising sign.

Where an approval has so lapsed, no development shall be carried out without further approval having first been sought and obtained, unless the applicant has applied and obtained Development Assessment Panel approval to extend the approval term under regulation 17(1)(a) of the **Planning and Development (Development Assessment Panels) Regulations 2011**.
APPENDIX 2

Proposed development plans – Phase 1
# Drawings List

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**Caltex Australia Petroleum Pty Ltd**

**Project:** OAKFORD - WA

**Lot:** 12 Lot 1537 Thomas Road

**Title:** Drawing List

**Design:** P1525-A000
**Approach Side Elevation**

**Approach Side**

**Road Front Elevation**

**Principal Consultant: Guidance Notes**

* The eaves overhang dimensions shown are indicative only and are based on an approximate 'in line of sight' vertical from canopy edge to crest of forecourt. Site specific requirements for drainage/overhangs shall be determined by the civil engineer and dimensions adjusted accordingly.

** Make up panel

*** If end panel is less than half of 2398mm then divide equally the two end panels.

**** Critical OHS dimension

**Note: Construction**

C1. Product indicator boards not shown for drawing clarity.

**Note: General**

G1. Drawings noting BCC relate to documentation suitable for use in the Brisbane City Council (BCC) or associated areas.

G2. This canopy does not comply for use in the Brisbane City Council area, modify as necessary if used in this area.
Diesel Project Consultants WA Pty Ltd
ACN 602 924 336 ABN 40 415 457 574
Contact No 0430 466 223
Caltex Australia Petroleum Pty Ltd
P20

Downlight track behind sign edge of sign panel to align with lighting track behind. 100mm button sign (see details).

Bottom recessed lighting track

Red ACM fascia - reseesd red lighting strip integral with fascia panels

Fascia sign (retail car canopy - CF3-BL)

Top 150mm lighting track

Silver side to button sign

Top downlight track integral with ACM fascia panels colour 'red'

White colour embossed letters (silver vinyl to sides of letters).

Fascia sign (retail car canopy)

NOTE:

Sign manufacturer note: signage panel sizes & graphics indicative only. For final details refer to approved signage supplier artwork showing panel details & graphics.

Bottom colour details

* Internally illuminated acrylic sign box
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PTY LTD
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M JS 15.62.38 DEVELOPMENT APPLICATION
J JS 14.62.38 EFLUENT UNITS ADDED
K JS 28.13.78 TOWN POCKETS ADDED, TD SIGN MOVED

PROJECT
OAKFORD – WA
LOT 12 No 1537 THOMAS ROAD

TITLE
PROPOSED SITE PLAN
OPTION 9
INTERIM ACCESS ARRANGEMENTS

SCALE 1:1000

DEVELOPMENT

SITE A3

DRAWING NO P1525 – A100

REV. K
Diesel
Clearance 5.5m

Caltex Australia Petroleum Pty Ltd

PROJECT
CONSULTANTS WA
PTY LTD
ACN 602 924 336 ABN 40 415 457 674
PHONE 08 9383 3025

REV. BY DATE DESCRIPTION OF CHANGE PROJECT TITLE
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CRESCENT iNS 1:100 ELEVATIONS

DEVELOPMENT
SIZE DRAWING NO. REVISION
A3 P1525-A321 A

REFERENCE:
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FOR FE & PAPER TOWEL FORGS
PAPER SHEET A331
BUILDING SIDE SIGN
1 OFF

FLEXFACE SIGN WITH SAILTRACK END CONNECTIONS

ALWAYS OPEN
Barista made coffee
AVAILABLE 24/7
Proposed Service Station, Oakford
Lots 12 Thomas Road & Lot 50
Nicholson Road
Transport Impact Assessment

PREPARED FOR:
Caltex Australia Pty Ltd
May 2018
Document history and status

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File name: t17.275.vb.r01b.docx

Author: Vladimir Baltic

Project manager: Behnam Bordbar

Client: Caltex Australia Pty Ltd

Project: Lots 12 Thomas Road & Lot 50 Nicholson Road

Document revision: r01b

Project number: t17.275
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1.0 Summary

This Transport Impact Assessment (TIA) report has been prepared with respect to the proposed Caltex Service Station to be located at Lot 12 Thomas Road and Lot 50 Nicholson Road in Oakford, Shire of Serpentine-Jarrahdale. The site is located at the northeast corner of the existing Thomas Road/Nicholson Road intersection.

The proposal entails a car and truck service station with a retail building plus a small outdoor seating area and parking provision for cars (including ACROD bays), caravans and trucks. A separate loading bay for service vehicles is also provided on site as is a “air & water” bay. A two-point access/egress system is proposed to service the development with one left-in/left-out only crossover on Thomas and Nicholson Roads each.

In accordance with the WAPC document “Transport Impact Assessment Guidelines for Developments, Volume 4 – Individual Developments (2016)” a Transport Impact Assessment is required for developments that are likely to generate high volumes of traffic and, therefore, would have a high overall impact on the surrounding land uses and transport networks. A Transport Impact Assessment is a full assessment outlining the transport aspects of the proposed development. The intent of the Assessment is to provide the approving authority with detailed transport information to confirm that the proponent has adequately considered the transport aspects of the development and that it would not have an adverse transport impact on the surrounding area.

The aim of this TIA is to assess the impact of the development proposal by estimating the traffic which will be generated by the development and the resultant traffic pattern on the surrounding road network. This assessment will include the capacity analysis of the intersection of Thomas Road/Nicholson Road including the proposed development’s crossovers on the two frontage roads.

During the course of preparation of this TIA the Project Team has liaised extensively with Main Roads WA and DoPLH in order to secure a satisfactory access/egress system.
2.0 Introduction

This Transport Impact Assessment has been prepared by Transcore on behalf of Caltex Australia Pty Ltd. The subject of this report is a service station for cars and trucks proposed to be located at the northeast corner of Thomas Road/Nicholson Road (north) intersection in Oakford, Shire of Serpentine-Jarrahdale (refer Figure 1).

Figure 1: Location of the subject site

The subject site is bound by Thomas Road along the south and Nicholson Road (north) along the west. The subject site (approximately 28,000m²) is presently vacant. The immediate surrounding areas are mostly rural and with low density residential and other developments.

The location of the subject site within the Metropolitan Region Scheme is illustrated in Figure 2. The Metropolitan Regional Scheme also confirms that Nicholson Road at this location is classified as Other Region Roads (Blue Roads), and as such controlled by WAPC. Thomas Road has recently been re-classified from Other Regional Roads to Primary Regional Roads and as such is controlled by Main Roads WA. Thomas Road is also a freight route linking Kwinana Industrial zone and Kwinana Freeway at the west end with South Western Highway at the east.

Key issues that will be addressed in this report include capacity of the interaction of Thomas Road/Nicholson Road and suitability of the proposed site’s access system.
Figure 2. Site location within Metropolitan Region Scheme
3.0 Development Proposal

The proposed development comprises a service station with petrol filling positions for cars and trucks and with associated small-scale retail store plus outdoor seating area. The proposed development occupies central space of Lot 12. The subject site, comprising Lots 12 and 50 is currently vacant except for a small-scale canine training operation on the eastern portion of Lot 12. Lot 50 however, is presently affected by a Western Power reservation limiting the development potential of this lot. As such, most of the development and solid structures is situated on Lot 12 with only Nicholson Road access and portion of the internal driveways located on Lot 50.

The details of the development are described as follows:

- Service station shop with a small-scale retail outlet;
- Small outdoor sitting area for patrons;
- A total of eight fuel-filling positions for light vehicles;
- A total of three high flow diesel-filling positions for heavy vehicles;
- One air & water outlet bay for cars;
- A total of 11 car parking bays (inclusive of one ACROD bay);
- A total of three caravan parking bays;
- A total of three heavy vehicle parking bays (triple road train size); and,
- One service vehicle loading bay.

It is Transcore’s understanding that adequate parking supply is provided on site to address the parking demand for the proposed development.

The proposed vehicular access/egress system for the development entails two-point of access/egress with left-in/left-out crossovers on Thomas Road approximately 170m east of Nicholson Road intersection and on Nicholson Road some 90m north of Thomas Road intersection. The proposed access/egress system was developed through extensive liaison with Main Roads WA and DoPLH to allow the following movements:

- **Thomas Road crossover**: Left-in/left-out movements for light vehicles and left-in only movement for large vehicles of up to triple road train composition; and,
- **Nicholson Road crossover**: Left-in/left-out movements for light vehicles and left-out only movement for large vehicles of up to triple road train composition.

The internal site design is developed to allow for the movement of RAV 6 network vehicles to allow for the anticipated upgrade of existing RAV Network classification of Thomas Road from current RAV 4 to RAV 6. The proposed site layout is designed to allow efficient access and egress for all vehicles including service vehicles with minimum number of conflicting paths.
Due to the site location and the type of proposed land uses limited pedestrian or cyclist attraction to the site is expected. As such, no specific pedestrian or cyclist facilities are proposed on abutting roads or within the site.

The proposed development is also cognisant of the pending/planned upgrade of the existing priority-controlled Thomas Road/Nicholson Road T-intersection to a four-way dual-lane roundabout with the realigned Nicholson Road (south) as a new southern leg of the future roundabout. In addition, the site’s Thomas Road crossover allows for the future upgrade of Thomas Road to dual divided standard including the left-turn slip lane for Caltex crossover and the future service road and associated left-turn slip lane for adjacent Lot 6 located immediately to the east of subject site.

It is anticipated that the proposed development could be completed and fully operational by the end of 2020.

Refer to Appendix A for plans of the proposed development for interim and ultimate stages. The ultimate stage assumes upgrade of existing intersection of Thomas Road/Nicholson Road to a four-way, dual-lane roundabout format and upgrade of Nicholson Road to dual divided standard. The base plan for the future upgrades has been provided by DoPLH.
4.0 Existing Situation

The subject site, comprising Lots 12 and 50, is situated at the northeast corner of the existing Thomas Road/Nicholson Road intersection in Oakford (refer Figure 1). The subject site is presently vacant. Lot 50 is subject to Western Power reserve and as such has limited development potential.

The subject site entails two road frontages, Thomas Road to the south and Nicholson Road to the west. A small-scale liquor store/lunch bar site with two crossovers on Thomas Road is located immediately opposite of the subject site. A pair of truck arrest bays are also located on either side of Thomas Road immediately next to the subject site.

The subject locality is sparsely populated and generally of rural character. The subject site is presently vacant except for a small-scale canine training operation at the eastern portion of Lot 12.

4.1 Existing Road Network

**Thomas Road** at this location is constructed as a single-carriageway two-lane road with sealed shoulders. There are no formal pedestrian paths on either side of the road. Refer Figure 3 & Figure 4 for more details.

![Figure 3: Eastbound view along Thomas Road towards the Nicholson Road intersection](image)

Thomas Road is a State Road classified as *Primary Distributor* road in Main Roads WA Metropolitan Functional Road Hierarchy. It is covered by a *Primary Regional*
Roads reservation (Red Road) in the Metropolitan Region Scheme (MRS) and as such is under care and control of Main Roads WA. It operates under a 90km/h speed limit regime, reduced to 70km/h on approaches to Nicholson Road intersection.

According to the latest available traffic count data sourced from Main Roads WA, Thomas Road (east of Nicholson Road) carried approximately 18,800 vpd on a regular weekday (September 2016). The morning peak of 1,635 vph was recorded between 6:30-7:30 AM while the afternoon peak of 1,748 vph was recorded between 4:15-5:15 PM. The classified counts for this road indicate approximately 11.3% participation of heavy vehicles in the total traffic mix.

Thomas Road is also a freight route classified as category RAV Network 4 road but proposed to be upgraded to RAV Network 6.

Nicholson Road, north of Thomas Road, is constructed to a two-lane single-carriageway standard with wide sealed shoulders. Again, due to the remoteness of the area there are no pedestrian paths provided on either side of the road at this location. Nicholson Road, south of Thomas Road, is a typical narrow rural single-carriageway two-lane road. Refer Figure 5 for more details.

Nicholson Road is classified as Distributor A in Main Roads WA Metropolitan Functional Road Hierarchy. It is covered by an Other Regional Roads reservation (Blue Roads) in the Metropolitan Region Scheme (MRS). As such, Nicholson Road is under care and control of WAPC.

Based on the latest available traffic count data supplied by Main Roads WA, Nicholson Road (north of Thomas Road) carried approximately 9,000 vpd on a regular weekday (May 2014). The morning peak of 986 vph was recorded between
6:30-7:30AM while the afternoon peak of 802 vph was recorded between 3:45-4:45PM. The classified counts for this road indicate approximately 17.4% participation of heavy vehicles in the total traffic mix.

Nicholson Road is classified as category RAV Network 4 road between Armadale Road and Thomas Road.

![Northbound view along Nicholson Road (north) from Thomas Road intersection](image)

**Figure 5: Northbound view along Nicholson Road (north) from Thomas Road intersection**

Thomas Road and Nicholson Road form two staggered, priority-controlled T-intersections immediately adjacent to the subject site with Thomas Road having priority. Thomas Road entails single lane with right-turn pockets on approaches to respective intersections with Nicholson Road north and south legs and a left-turn slip lane on the western approach to Nicholson Road (north) intersection. Thomas Road flares on the approach to Nicholson Road intersections with a solid median island facilitating protected right-turn pockets. Both pockets are between 55-60m long. The left-turn slip lane on western approach is approximately 165m.

Nicholson Road (north) entails flares on the approach to Thomas Road intersection forming a 50m long left-turn slip-lane. On the southern side Nicholson Road forms a simple T-intersection with single lane approach.

Information available on Main Roads WA website provides crash statistics for intersections during the five-year period ending in December 2017. Refer **Table 1** for more details.

The crash records indicate that Thomas Road/Nicholson Road (north) intersection recorded a total of 51 road crashes with 10 casualties in the last five-year period. More than half of all crashes were rear end type of crashes with a total of 14 right angle crashes. More details on the crash records are provided in **Table 1**.
The crash records also indicate that during the same period Thomas Road/Nicholson Road (south) intersection recorded a total of six crashes with no casualties. Most of the crashes were right-angle crashes. More details on the crash records are provided in Table 2.

### Table 1. Crash history for the Thomas Road/Nicholson Road (north) intersection

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<td>Rear End</td>
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<td>14</td>
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<tr>
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<tr>
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#### 4.2 Public Transport Access

There are no public transport services available in the subject locality at present. There is insignificant residential density and other land uses in this locality at present to generate the necessary demand for such services.

#### 4.3 Pedestrian and Cyclist Facilities

Due to the proposed type of land use and the location of the subject site pedestrian and cyclist attraction to the site is expected to be non-existent or minimal at best. Inherently, there are no existing pedestrian facilities available in this locality. The existing sealed shoulder on Thomas Road provides for potential cycling activity; however, due to the existing traffic mix and speed significant cycling activity is unlikely to be experienced.
5.0 Changes to Surrounding Transport Networks

The existing two staggered T-intersections of Thomas Road with Nicholson Road are planned to ultimately be replaced with a four-way, dual-lane roundabout intersection with Nicholson Road (south) road realigned to tie in with the roundabout as the southern leg of the intersection. Timing for this intersection upgrade is not known at this stage. Also, Thomas Road is proposed to be upgraded to dual divided standard.

As suggested by Main Roads WA the proposed roundabout is to be designed to accommodate B-triple vehicles in anticipation of upgrade of existing RAV classification of Thomas Road sometime in the future.

DoPLH has provided the concept design for the future Thomas Road/Nicholson Road roundabout and Thomas Road upgrade, which was used by Transcore as the base plan to prepare the development concept plan with associated access/egress system. A copy of this plan is attached in Appendix B.
6.0 Integration with Surrounding Area

Based on the information provided to Transcore, the proposed development is in line with the zoning for the subject site. It is of a commercial/retail character and is expected to address the existing and future demand for this type of service along Thomas Road and Nicholson Road.
7.0 Traffic Assessment

7.1 Assessment Period

Due to the nature of the development it is expected to experience distinct peak activity periods during weekday morning and afternoon peak road network periods.

A review of the existing traffic counts for the surrounding road network and other available information, suggests that the combination of the traffic expected to be generated by the subject development and the peak road network traffic periods is likely to result in the greatest demand on the road network during the typical weekday morning and afternoon peak hours between 6:30-7:30AM and 4:00-5:00PM. As such, trip generation is estimated and traffic analysis is undertaken for these periods.

In line with the requirements of the document “Transport Impact Assessment Guidelines for Developments, Volume 4 – Individual Developments” additional assessment is generally undertaken for a 10-year post development time horizon. Hence, a capacity assessment of the Thomas Road/Nicholson Road intersection is undertaken for the 10-year post-development time horizon which in this case is assumed to be around 2030. It is assumed that by this time Thomas Road and the existing intersection would have been upgraded.

7.2 Trip Generation and Distribution

Traffic generation rates for the proposed development were sourced from the “Trip Generation manual, Institute of Transportation Engineers (2012, 9th edition)” Manual. Specifically, trip rates for “Gasoline/Service Station with Convenience Store Market (945) – Regular Fuelling Points” was applied for the light vehicle trip generation component as follows:

- AM Peak hour: 10.16 trips per fuelling point.
- PM Peak hour: 13.51 trips per fuelling point.
- Weekday: 163 trips per fuelling point.

A passing trade of 80% was assumed for the site due to it being located in a low-density area adjacent to Thomas Road.

The trip rates provided in the ITE Manual are for regular fuelling points. It is expected that the truck fuelling points will generate significantly less traffic.

As most service station patronage to this site relies on passing trade, the trip generation of the truck fuelling points will be influenced by the percentage of heavy vehicles on the adjacent road network. As detailed in Section 4.1 of this report, Thomas Road and Nicholson Road comprise around 11.3% and 17.4% heavy vehicles, respectively.
The passing trade component of trip generation for regular fuelling points was multiplied by an average 14% and the full trip rate retained for the non-passing trade component. Passing trade of 90% was assumed for calculating the adjusted trip rates for heavy vehicles due to subject site being located on a freight route:

\[ T = (0.9 \times 0.14) + (0.1 \times 1) = 0.226 \]

The adjustment factor derived in the equation above means that the truck fuelling points are conservatively estimated to generate 22.6% of the traffic that the regular fuelling points will generate. Accordingly, the adjusted trip rates for the truck fuelling points are as following:

- AM Peak hour: 2.29 trips per fuelling point.
- PM Peak hour: 3.05 trips per fuelling point.
- Weekday: 36.79 trips per fuelling point.

Accordingly, it is estimated that the proposed development would generate approximately 1,412 total daily trips (both inbound and outbound) with approximately 90 and 117 trips (inbound and outbound) during a weekday road network AM and PM peak hours, respectively.

Trips associated with the proposed development comprise a large portion of passing-trade trips (i.e. trips already on the road network and not specifically generated by the proposed development).

It is therefore estimated that the proposed development would generate approximately 271 additional daily trips with additional 16 and 22 AM and PM peak hour trips on the road network, respectively.

The directional split of inbound and outbound trips for the proposed development is estimated to be 50/50 during both weekday peak periods.

With respect to the distribution and assignment of the development-generated traffic, consideration was given to the estimated high proportion of passing trade participation and the proposed format of access/egress system. These patrons will mostly be travelling westbound along Thomas Road and southbound along Nicholson Road, diverting on their way to visit the service station.

Consequently, the assumed directional traffic distribution is as follows:

Inbound traffic:
- 35% of all site-generated traffic from the north; and,
- 65% of all site-generated traffic from the west.

Outbound traffic:
18% of all site-generated traffic to the west; and, 82% of all site-generated traffic to the east.

7.3 Traffic Flows

The traffic movements generated by the proposed development have been manually assigned on the adjacent road network in line with the directional distribution assumptions outlined in the previous section. The resulting traffic movements generated by this development during typical weekday peak hour and total daily traffic volumes are shown in Figure 6.

In order to establish existing traffic flows on abutting road network Transcore undertook traffic surveys (turn counts) at the intersection of Thomas Road/Nicholson Road during the morning and afternoon peak hours on Tuesday 20th February 2018. The result of this survey is presented in Figure 7. No traffic activity was recorded during this time at the Thomas Road/Nicholson Road (south) intersection.

![Figure 6: Estimated traffic flows from the proposed development – Weekday AM/PM/total daily traffic](image-url)
7.4 Analysis of Development’s Crossovers

The proposed two crossovers on adjacent roads (one on Thomas Road and one on Nicholson Road) are both proposed to operate in left-in/left-out format. Details of heavy vehicle movement restrictions for each crossover are discussed in more details in Section 3.0 of this report.

Considering the proposed format of the two crossovers no capacity issues are expected at either access point. Accordingly, detailed capacity assessment of the two crossovers is not warranted.

7.5 Analysis of Local Intersection

In order to establish the traffic operation of the existing Thomas Road/Nicholson Road intersection during the critical weekday morning and afternoon peak periods a capacity analysis using SIDRA computer package was undertaken. This package is a commonly used intersection-modelling tool by traffic engineers for all types of intersections. SIDRA outputs are presented in the form of Degree of Saturation, Level of Service, Average Delay and 95% Queue. These items are defined as following:
**Degree of Saturation:** is the ratio of the arrival traffic flow to the capacity of the approach during the same period. The Degree of Saturation ranges from close to zero for varied traffic flow up to one for saturated flow or capacity.

**Level of Service:** is the qualitative measure describing operational conditions within a traffic stream and the perception by motorists and/or passengers. In general, there are 6 levels of services, designated from A to F, with Level of Service A representing the best operating condition (i.e. free flow) and Level of Service F the worst (i.e. forced or breakdown flow).

**Average Delay:** is the average of all travel time delays for vehicles through the intersection.

**95% Queue:** is the queue length below which 95% of all observed queue lengths fall.

For the purpose of this assessment the existing intersection was modelled as a two-stage T-intersection with reduced capacity for certain legs in order to allow for two-stage movement of light vehicles and single-stage movement for larger vehicles, as observed on site. It is acknowledged that the existing width of the median storage on Thomas Road is sufficient to only accommodate single light vehicle at one time. The model was calibrated separately for morning and afternoon peak periods reflective of actual observed situation during traffic surveys.

The turn volumes at this intersection were based on actual counts while through movements on Thomas Road were derived from Main Roads WA 2016 counts factored up by 4% to allow for the anticipated background traffic growth of 2%p.a. At the same time, classified Main Roads WA counts for both roads were utilised to establish breakdown of existing traffic flows on roads for each vehicle class as requested by Main Roads WA.

The capacity assessment for the 10-year post-development scenario (year 2030) was also undertaken for the weekday peak hour periods. For the purpose of this assessment, typical annual traffic growth of 2%p.a. (cumulative 20% growth) for Thomas Road and Nicholson Road traffic was assumed. For the purpose of this assessment it was also assumed that by this time the existing two staggered priority-controlled T-intersections of Thomas Road/Nicholson Road will be upgraded to a dual-lane, four-way roundabout and Thomas Road will be upgraded to dual divided standard as per current plans.

The results of the SIDRA analysis for the Thomas Road/Nicholson Road intersection for the existing, post-development and 10-year post development scenarios are illustrated in tables Table 3 through to Table 8 and discussed in the following paragraphs. The Thomas Road/Nicholson Road intersection layouts (for existing, post-development and 10-year post-development scenarios) modelled in SIDRA are illustrated in Appendix C of this report.
**Table 3. SIDRA results for the Thomas Road/Nicholson Road intersection – Weekday AM peak period (existing)**

<table>
<thead>
<tr>
<th>Movement Performance - Vehicles</th>
<th>Mov ID</th>
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<th>Demand Flows veh/h</th>
<th>Deg. Sat%.</th>
<th>Average Delay sec</th>
<th>Level of Service</th>
<th>95% Back of Queue Distance m</th>
<th>Prop. Queued</th>
<th>Effective Stop Rate per veh</th>
<th>Average Speed km/h</th>
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**Table 4. SIDRA results for the Thomas Road/Nicholson Road intersection – Weekday PM peak period (existing)**

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<th>Average Delay sec</th>
<th>Level of Service</th>
<th>95% Back of Queue Distance m</th>
<th>Prop. Queued</th>
<th>Effective Stop Rate per veh</th>
<th>Average Speed km/h</th>
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Table 5. SIDRA results for the Thomas Road/Nicholson Road intersection – Weekday AM peak period (post-development scenario)

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<th>Demand Total veh</th>
<th>Flows HV %</th>
<th>Deg. Sat lv</th>
<th>Average Delay sec</th>
<th>Level of Service</th>
<th>95% Back of Queue veh</th>
<th>Distance m</th>
<th>Prop. Queued</th>
<th>Effective Stop Rate per veh</th>
<th>Average Speed km/h</th>
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Table 6. SIDRA results for the Thomas Road/Nicholson Road intersection – Weekday PM peak period (post-development scenario)

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<th>Mov ID</th>
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<th>Demand Total veh</th>
<th>Flows HV %</th>
<th>Deg. Sat lv</th>
<th>Average Delay sec</th>
<th>Level of Service</th>
<th>95% Back of Queue veh</th>
<th>Distance m</th>
<th>Prop. Queued</th>
<th>Effective Stop Rate per veh</th>
<th>Average Speed km/h</th>
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Table 8. SIDRA results for the Thomas Road/Nicholson Road intersection – Weekday PM peak period (10-year post development horizon)

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The result of the SIDRA analysis result shows that this intersection presently operates at capacity with major delays and queues recorded on the northern Nicholson Road approach associated with the limitations of heavy vehicles looking for sufficient gaps in Thomas Road traffic flow to undertake a single right-turn out. The results of the SIDRA analysis are consistent with observations of intersection operation during the two peak road network periods.

As expected, in the post-development stage (year 2020) the delays and queues are further increased on respective approaches to the intersection. As the development mostly draws traffic that is already on the road network, relying on passing trade with very little new traffic generated, the impact on existing operation of this intersection is primarily a result of the growth in background traffic. It is evident that in order to improve the current operation and safety of this intersection physical upgrades are necessary.

In the 10-year post-development scenario, with the planned upgrade of the intersection and Thomas Road, intersection renders significantly better operational results. At this stage, delays and queues on all approaches are significantly improved and the intersection operates at 50% and 67% capacity during the AM and PM peak periods, respectively.

### 7.6 Impact on Surrounding Roads

The bulk of the development’s traffic will already be present on the road network as it relies on passing trade rather than being a significant traffic-generator in its own right. The development is expected to generate only about 19% new trips out of all traffic attracted to the site. This level of traffic is representing approximately 1% of additional traffic on Nicholson Road and Thomas Road (west).

### 7.7 Impact on Neighbouring Areas

Due to the remoteness of the locality and limited number of residential dwelling the traffic impact on local residents will be negligible.

### 7.8 Traffic Noise and Vibration

Due to the location of the proposed development with respect to the surrounding land uses traffic noise and vibration are relevant only to the residential areas directly fronting major local and regional roads which, at this location, are limited.

It generally requires a doubling of traffic volumes on a road to produce a perceptible 3dB(A) increase in road noise. The proposed development will not increase traffic volumes or noise on surrounding roads anywhere near this level.
8.0 Parking

Total car parking provision for the proposed development comprises 11 parking bays for light vehicles which include one ACROD bays, three caravan parking bays and three heavy vehicle parking bays (triple road train size).

It is Transcore’s understanding that sufficient parking supply is provided to address the parking demand of the proposed development.
9.0 Public Transport Access

At present there are no public transport services in the area, however the proposed development is unlikely to generate any demand for public transport services.
10.0 Pedestrian and Cyclist Access

Pedestrian and cyclist patronage to the proposed development is not expected due to the nature and location of the proposed development.
11.0 Conclusions

This TIA has been prepared with respect to the proposed Caltex Service Station to be located at Lot 12 Thomas Road and Lot 50 Nicholson Road in Oakford, Shire of Serpentine-Jarrahdale.

The proposed development comprises a service station with petrol filling positions for cars and trucks and with associated small-scale retail store plus outdoor seating area. The proposed access/egress system comprises was developed through liaison with Main Roads WA and DoPLH and entails two left-in/left-out crossovers on each of the abutting roads - Nicholson Road and Thomas Road.

It is Transcore’s understanding that sufficient parking supply is provided to address the parking demand for the proposed land uses.

The assessment undertaken in this report indicates that the traffic from this development will have insignificant impact on the surrounding road network as it largely relies on passing trade (i.e. traffic already present on the local road network).

The traffic assessment undertaken in this report indicates that Thomas Road and its intersection with Nicholson Road operate at capacity and the planned upgrade to the intersection and Thomas Road will ideally need to be implemented within the next 5 years to address traffic operational issues and requirements.
Appendix A

SITE PLANS – INTERIM AND ULTIMATE
Appendix B

THOMAS ROAD & NICHOLSON ROAD (ROUNDABOUT) INTERSECTION UPGRADE PLAN – CONCEPT
Appendix C

THOMAS ROAD & NICHOLSON ROAD INTERSECTION
SIDRA LAYOUT PLAN – INTERIM & ULTIMATE
Existing and Post-Development Thomas Road/Nicholson Road Intersection Layout
Modelled in SIDRA
Upgraded (10-year post-development) Thomas Road/Nicholson Road Intersection
Layout Modelled in SIDRA
Appendix 6
Bushfire Management Plan and Bushfire Risk Management Plan
Bushfire Management Plan

Development of Caltex Service Station – Oakford
Lot 12 (1537) Thomas Rd, Oakford

Prepared for
Caltex Australia Petroleum Pty Ltd

19 March 2018
DOCUMENT TRACKING

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This report should be cited as ‘Eco Logical Australia March 2018. Bushfire Management Plan, Development of Caltex Service Station – Lot 12 (1537) Thomas Road, Oakford. Prepared for Caltex Australia Petroleum Pty Ltd.’

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1 Introduction

1.1 Project overview

Eco Logical Australia (ELA) was commissioned by Caltex Australia Petroleum Pty Ltd. to prepare a Bushfire Management Plan (BMP) to support a development application (DA) being prepared for the development of a service station at Lot 12 (1537) Thomas Road, Oakford (hereafter referred to as the subject site, Figure 1).

The proposed development will include:

- Clearing of existing vegetation; and
- Construction of new retail store, canopies, fuel bowsers, underground fuel tanks, parking areas etc. as depicted in Figure 1 and Figure 2.

The proposed development will result in an intensification of land use.

The entirety of the subject site is within a designated bushfire prone area as per the Western Australia State Map of Bush Fire Prone Areas (DFES 2017), which triggers bushfire planning requirements under State Planning Policy 3.7 Planning in Bushfire Prone Areas (SPP 3.7; WAPC 2015) and reporting to accompany submission of the development application in accordance with the associated Guidelines for Planning in Bushfire Prone Areas v 1.3 (the Guidelines; WAPC 2017).

This assessment has been prepared by ELA Bushfire Consultant Sarah Muller and Senior Bushfire Consultant Daniel Panickar (FPAA BPAD Level 2 Certified Practitioner No. BPAD37802-L2) with quality assurance undertaken by Senior Bushfire Consultant, Bruce Horkings (FPAA BPAD Level 3 Certified Practitioner No. BPAD29962-L3).

1.2 Purpose and application of the plan

The primary purpose of this BMP is to act as a technical supporting document to inform planning assessment.

This BMP is also designed to provide guidance on how to plan for and manage the bushfire risk to the subject site through implementation of a range of bushfire management measures in accordance with the Guidelines.

1.3 Environmental considerations

Clearing of native vegetation is proposed for this development which will be assessed as part of the DA and referred to regulatory authorities if required.

All revegetation will be maintained as landscaping in a low-threat state.
Figure 1: Site overview
Figure 2: Proposed development
2 Bushfire assessment results

2.1 Bushfire assessment inputs

The following section is a consideration of spatial bushfire risk and has been used to inform the bushfire assessment in this report.

2.1.1 General

The subject site is located in the Shire of Serpentine Jarrahdale and is bound by Nicholson Road to the west, Thomas Road to the south, a private rural-residential property to the east, and a Western Power easement to the north.

Visual assessment of surrounding vegetation did not identify any recent fire scars and fire history was not able to be determined. Accumulation of vegetative matter over time, combined with the moderate to high risk of ignition associated with high levels of public access would potentially facilitate a bushfire occurrence in this area.

2.1.2 Fire Danger Index

A blanket rating of FDI 80 is adopted for Western Australian environments, as outlined in AS 3959–2009 and endorsed by Australasian Fire and Emergency Service Authorities Council (AFAC).

2.1.3 Vegetation classification

Vegetation within the subject site and surrounding 150 m (the assessment area) was assessed in accordance with the Guidelines and AS 3959-2009 Construction of Buildings in Bushfire Prone Areas (SA 2009) with regard given to the Visual guide for bushfire risk assessment in Western Australia (DoP 2016).

Site inspection was undertaken on 19 February 2018.

The following vegetation classes and exclusions were identified within the assessment area as depicted in Figure 3 and listed below:

- Class B woodland;
- Class D scrub;
- Class G grassland; and
- Exclusions as per clause 2.2.3.2 (e) and (f) (i.e. non-vegetated areas and low-threat vegetation).

Photographs relating to each vegetation type are included in Appendix A.

The Bushfire Attack Level (BAL) assessment addresses this topic further in Section 2.2.2.

2.1.4 Topography and slope under vegetation

Effective slope under vegetation was assessed for a distance of 150 m from the subject site in accordance with the Guidelines and AS 3959-2009 and is depicted in Figure 3. Slope under all areas of classified vegetation within the assessment area was assessed as upslope/flat.

The BAL assessment addresses this topic further in Section 2.2.2.
2.1.5 Distance between proposed development areas and classified vegetation
Separation distances between proposed development areas within the subject site and classified vegetation are discussed in the BAL assessment in Section 2.2.2.
Figure 3: Vegetation classification

Legend
- Subject site
- 100m site assessment
- 150m site assessment
- Contour (5m)
- Photo location

Vegetation classification
- Class B woodland
- Class D scrub
- Class G grassland
- Excluded as per clause 2.2.3.2 (e) and (f)
- Area to be modified to low threat state
2.2 Bushfire assessment outputs

A BAL assessment has been undertaken in accordance with SPP 3.7, the Guidelines, AS 3959-2009 and the bushfire assessment inputs in Section 2.1.

2.2.1 Bushfire Attack Level (BAL) assessment

All land located within 100 m of the classified vegetation depicted in Figure 3 is considered bushfire prone and is subject to a BAL assessment in accordance with AS 3959-2009.

A Method 1 BAL assessment (as outlined in AS 3959-2009) has been completed for the proposed development and incorporates the following factors:

- State adopted Fire Danger Index (FDI);
- Vegetation class;
- Slope under classified vegetation; and
- Distance between proposed development areas and the classified vegetation.

Based on the identified BAL, construction requirements for proposed buildings can then be assigned. The BAL rating gives an indication of the expected level of bushfire attack (i.e. radiant heat flux, flame contact and ember penetration) that may be received by proposed buildings and subsequently informs the standard of construction required to increase building survivability.

2.2.2 Method 1 BAL assessment

Table 1 and Figure 4 display the Method 1 BAL assessment (in the form of BAL contours) undertaken for the proposed development in accordance with AS 3959-2009 methodology. The results show that all new structures (i.e. Canopy, Bowsers, Retail store etc.) within the subject site are located in areas subject to a BAL rating of BAL-29 or lower.

The Guidelines state;

The bushfire construction requirements of the Building Code of Australia only apply to certain types of residential buildings (being Class 1, 2 or 3 buildings and/or Class 10a buildings or decks associated with a Class 1, 2 or 3 building) in designated bushfire prone areas. As such, AS 3959 does not apply to all buildings. Only vulnerable or high-risk land uses that fall within the relevant classes of buildings as set out in the Building Code of Australia will be required to comply with the bushfire construction requirements of the Building Code of Australia. As such, the planning process focuses on the location and siting of vulnerable and high risk land uses rather than the application of bushfire construction requirements.

As none of the proposed structures is a Class 1, 2 or 3 buildings and/or Class 10a buildings or decks associated with a Class 1, 2 or 3 building, construction to AS 3959-2009 is not required for this proposal. However, in consideration of section 5 of AS3959-2009, it is recommended that the following elements are considered during construction for bushfire protection:

- Walls - constructed from non-combustible material to a height of 400 mm;
- Joints, vents, weepholes – no gaps greater than 3 mm;
- Window assemblies - constructed from non-combustible material;
- Window glazing - Grade A safety glass minimum 4 mm thickness for windows less than 400 mm from the ground;
- Sliding doors – door frames to be constructed from metal and glazing to be Grade A safety glass complying with AS 1288;
- Roof – constructed from non-combustible material and all junctions/penetrations sealed to prevent gaps greater than 3 mm.
### Table 1: Method 1 BAL calculation

<table>
<thead>
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<th>Plot and vegetation classification</th>
<th>Effective slope under vegetation</th>
<th>Hazard separation distance (m)</th>
<th>BAL rating</th>
<th>Comment</th>
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<td></td>
<td></td>
</tr>
<tr>
<td>Plots 2 and 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Plot 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Class D scrub</td>
<td></td>
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<td>Plots 6 and 7</td>
<td></td>
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<table>
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<th>Hazard separation distance (m)</th>
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<td>G</td>
<td>&lt;6</td>
<td>BAL-FZ</td>
<td>No new structures proposed in this area</td>
</tr>
<tr>
<td></td>
<td>6-&lt;8</td>
<td>BAL-40</td>
<td>No new structures proposed in this area</td>
</tr>
<tr>
<td></td>
<td>8-&lt;12</td>
<td>BAL-29</td>
<td>No new structures proposed in this area</td>
</tr>
<tr>
<td></td>
<td>12-&lt;17</td>
<td>BAL-19</td>
<td>New structures proposed in this area</td>
</tr>
<tr>
<td></td>
<td>17-&lt;50</td>
<td>BAL-12.5</td>
<td>New structures proposed in this area</td>
</tr>
<tr>
<td>B</td>
<td>&lt;10</td>
<td>BAL-FZ</td>
<td>No new structures proposed in this area</td>
</tr>
<tr>
<td></td>
<td>10-&lt;14</td>
<td>BAL-40</td>
<td>No new structures proposed in this area</td>
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<td>BAL-FZ</td>
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<td></td>
<td>27-&lt;100</td>
<td>BAL-12.5</td>
<td>New structures proposed in this area</td>
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<tr>
<td>Excluded – clause 2.2.3.2 (e) &amp; (f)</td>
<td></td>
<td>N/A</td>
<td></td>
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</table>
Figure 4: Bushfire Attack Level (BAL) contour map
3 Assessment against the Bushfire Protection Criteria

3.1 Compliance

The proposed development is required to comply with policy measures 6.2, 6.5 and 6.6 of SPP 3.7 and the Guidelines.

In response to the above requirements of SPP 3.7 and the Guidelines, bushfire management measures have been devised for the proposed development in accordance with Guideline acceptable solutions where possible to meet compliance with bushfire protection criteria.

Table 2 outlines the Acceptable Solutions (AS) that are relevant to the proposal and summarises how the intent of each Bushfire Protection criteria has been achieved. No Performance Solutions (PS) have been used for this proposal. These management measures are depicted in Figure 5.

Table 2: Summary of solutions used to achieve bushfire performance criteria

<table>
<thead>
<tr>
<th>Bushfire Performance Criteria</th>
<th>AS</th>
<th>PS</th>
<th>N/A</th>
<th>Comment</th>
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<tr>
<td>Element 1: Location</td>
<td>☒</td>
<td>□</td>
<td>□</td>
<td>No proposed above-ground assets (i.e. Canopy, Bowsers, Retail Store etc.) are located in areas subject to BAL ratings of BAL-40 or greater.</td>
</tr>
<tr>
<td>Element 2: Siting and design of development</td>
<td>☒</td>
<td>□</td>
<td>□</td>
<td>APZs will be implemented between the proposed assets and classified vegetation in the form of car parking areas, landscaping beds (maintained as low-threat vegetation), and other cleared areas (refer to Figure 5).</td>
</tr>
<tr>
<td>Element 3: Vehicular access</td>
<td>☒</td>
<td>□</td>
<td>□</td>
<td>A minimum of two access routes to/from the subject site are available (south and west onto Thomas Road and Nicholson Road respectively). These are major roads servicing the area and comply with requirements outlined in the Guidelines.</td>
</tr>
<tr>
<td>Element 4: Water</td>
<td>☒</td>
<td>□</td>
<td>□</td>
<td>The subject site has a reticulated water supply which will be extended to all relevant areas of development.</td>
</tr>
</tbody>
</table>

3.2 Additional management strategies

A BRMP has been prepared for the proposed development in accordance with Policy measure 6.6 of SPP 3.7. This plan (provided in Appendix B) details how high-risk components of the proposed development will be managed to reduce bushfire risk.

All landscaping areas within the subject site will be maintained in accordance with Standards for Asset Protection Zones (Appendix C).
Figure 5: Spatial representation of bushfire management strategies

Legend
- Access point *(Refer to inset)
- Subject site *(Reticulated water will be extended to required areas)
- Asset protection zone *(Refer to inset)
- Access / egress route
4 Implementation and enforcement

Implementation of the BMP applies to Caltex Australia Petroleum Pty Ltd. and the Shire of Serpentine Jarrahdale to ensure bushfire management measures are adopted and implemented on an ongoing basis. A summary of the bushfire management measures described in Section 3, as well as a works program, is provided in Table 3. These measures will be implemented to ensure the ongoing protection of life and property assets is achieved. Timing and responsibilities are also defined to assist with implementation of each measure.

Table 3: Proposed works program

<table>
<thead>
<tr>
<th>No.</th>
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<th>Responsibility</th>
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<td>Prior to occupancy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Ensure all new structures are located outside of areas subject to BAL-FZ and BAL-40 as per the design in Figure 4.</td>
<td>Caltex Australia Petroleum Pty Ltd.</td>
</tr>
<tr>
<td>2</td>
<td>Undertake and maintain landscaping in accordance with Appendix C.</td>
<td>Caltex Australia Petroleum Pty Ltd.</td>
</tr>
<tr>
<td>3</td>
<td>Extend reticulated water supply to appropriate areas</td>
<td>Caltex Australia Petroleum Pty Ltd.</td>
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<tr>
<td>Ongoing management</td>
<td></td>
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</tr>
<tr>
<td>4</td>
<td>Comply with Bushfire Risk Management Plan</td>
<td>Caltex Australia Petroleum Pty Ltd.</td>
</tr>
<tr>
<td>5</td>
<td>Compliance with fire break order</td>
<td>Caltex Australia Petroleum Pty Ltd. and the Shire of Serpentine Jarrahdale</td>
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</table>
5 Conclusion

In the author’s professional opinion, the bushfire protection requirements listed in this assessment provide an adequate standard of bushfire protection for the proposed development consistent with the aim and objectives of SPP 3.7 and associated guidelines and is recommended for approval.

Daniel Panickar
Senior Bushfire Consultant
FPAA BPAD Certified Practitioner
No. BPAD37802-L2

Bruce Horkings
Senior Bushfire Consultant
FPAA BPAD Certified Practitioner
No. BPAD29962-L3
References


## Appendix A Plates

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<td><img src="image2" alt="Class D scrub" /></td>
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Appendix B Bushfire Risk Management Plan
Bushfire Risk Management Plan

Development of Caltex Service Station – Oakford
Lot 12 (1537) Thomas Rd, Oakford

Prepared for
Caltex Australia Petroleum Pty Ltd

19 March 2018
DOCUMENT TRACKING

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<tr>
<td>Project Manager</td>
<td>Daniel Panickar (BPAD37802-L2)</td>
</tr>
<tr>
<td>Prepared by</td>
<td>Sarah Muller, Daniel Panickar (BPAD37802-L2)</td>
</tr>
<tr>
<td>Reviewed by</td>
<td>Bruce Horkings (BPAD29962-L3)</td>
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<tr>
<td>Approved by</td>
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1 Introduction

1.1 Project overview

Eco Logical Australia (ELA) was commissioned by Planning Solutions, on behalf of Caltex Australia Petroleum Pty Ltd. to prepare a Bushfire Risk Management Plan (BRMP) to support a development application (DA) being prepared for the development of a service station located at Lot 12 (1537) Thomas Rd; Oakford (hereafter referred to as the subject site, Appendix A, Figure 2).

The proposed development will include:

- Clearing of existing vegetation;
- Construction of new retail store, canopies, fuel bowsers, underground fuel tanks, parking areas etc. as depicted in Appendix A, Figure 3.

The proposed development will result in an intensification of land use.

The entirety of the subject site is within a designated bushfire prone area as per the Western Australia State Map of Bush Fire Prone Areas (DFES 2017), which triggers bushfire planning requirements under State Planning Policy 3.7 Planning in Bushfire Prone Areas (SPP 3.7; WAPC 2015) and reporting to accompany submission of the development application in accordance with the associated Guidelines for Planning in Bushfire Prone Areas v 1.3 (the Guidelines; WAPC 2017).

This assessment has been prepared by ELA Bushfire Consultant Sarah Muller and Senior Bushfire Consultant, Daniel Panickar (FPAA BPAD Certified Practitioner No. BPAD37802-L2.) with quality assurance undertaken by Senior Bushfire Consultant, Bruce Horkings (FPAA BPAD Level 3 Certified Practitioner No. BPAD29962-L3).

1.2 Purpose and application of the plan

The primary purpose of this BRMP is to act as a technical supporting document to inform planning assessment in conjunction with the corresponding Bushfire Management Plan (BMP).

SPP 3.7 (Policy Measure 6.6) requires development applications for high-risk land uses (such as petrol stations) in areas between BAL-12.5 and BAL-29 to be accompanied by a risk management plan for any flammable on-site hazards. The Bushfire Risk Management Plan (BRMP) prepared by ELA for the subject site (ELA 2018) identifies all new proposed structures within the subject site as being located within areas subject to a BAL rating of BAL-29 or lower.

The Building Code of Australia bushfire construction requirements only apply to residential buildings and associated structures. The Guidelines therefore require the planning process to focus on location and siting of high risk land uses rather than application of bushfire construction requirements.
Under the *Dangerous Goods Safety (Storage and Handling of Non-Explosives) Regulations 2007* (the Regulations), the operator will also be required to complete a separate risk assessment that addresses risks other than bushfire for the proposed development. The Regulations also require operators to prepare an emergency plan for petrol stations. An emergency management plan will be developed for the subject site, which will set guidelines for the management of an emergency, disaster or major incident at the site. The emergency plan for the fuel station will reflect the site layout and bushfire risk post-construction.
2 Potential bushfire scenarios

The BMP (ELA 2018) identifies and classifies the existing bushfire hazards within 150 m of the subject site, based on existing vegetation and slope and separation distance to the vegetation.

Based on this information, ELA has assessed potential bushfire scenarios that could affect the subject site. The potential bushfire scenarios have been used to inform a bushfire risk assessment (refer to Section 3) and assist in development of appropriate bushfire mitigation responses (refer to Section 5). The following bushfire scenarios were assessed:

1. Bushfire approaching the subject site from the east/north-east;
2. Bushfire approaching the subject site from the south; and
3. Bushfire approaching the subject site from the west.

A description of each potential bushfire scenario is provided in the following subsections and November-February wind roses for Medina Research Centre (Station No. 9194, approximately 11.5 km from the subject site) used to identify potential directions of bushfire attack are provided in Appendix B, Figure 4-Figure 11 (BoM 2018).

2.1 Scenario 1: Bushfire approaching the subject site from the east/north-east

A bushfire approaching the subject site from the east/north-east is possible; and would likely be spread by easterly winds in the morning that are common throughout the bushfire season (BoM 2018). It is likely however, that a change in wind direction in the afternoon (from the west and south-west) would alter the direction of fire spread, away from the subject site (BoM 2018). There are also numerous firebreaks, tracks and managed lands to the north and east of the subject site that would aid in limiting fire spread.

2.2 Scenario 2: Bushfire approaching the subject site from the south

A bushfire approaching the subject site from the south through grassland fuel is possible and would likely be spread by south-east winds in the morning and south-west winds in the afternoon which are common throughout the bushfire season (BoM 2018). The presence of cleared areas to the south of the subject site (agricultural land and Thomas Road) however, would potentially provide the opportunity for a fire suppression response, which could contain a fire in this area before significant impacts are experienced at the subject site.

2.3 Scenario 3: Bushfire approaching the subject site from the west

A bushfire approaching the subject site from the west is possible; and would likely be spread by south-west winds in the afternoon that are common throughout the bushfire season (BoM 2018). The presence of cleared areas to the west of the subject site (agricultural land and Nicholson Road) however, would potentially provide the opportunity for a fire suppression response, which could contain a fire in this area before significant impacts are experienced at the subject site.
3 Bushfire risk assessment methodology

Australian and New Zealand Standard AS/NZS ISO 31000:2009 Risk Management—Principles and Guidelines (SA & SNZ 2009) provides an internationally recognised approach to risk management. Methodology for this process is further described in Risk Management Guidelines: Companion to AS/NZS 4360:2004 (SA & SNZ 2004), which defines the risk assessment process as outlined in Figure 1.

AS/NZS ISO 31000:2009 is adopted by DFES, as documented in the agency’s Bushfire Risk Management Framework (DFES 2015), to formalise and communicate the approach of managing bushfire risk across the department in the aim of leading to improved coordination and effectiveness of bushfire risk management processes.

From a bushfire management perspective, this methodology can be useful in determining:

1. The inherent bushfire risk (i.e. the initial level of risk prior to risk treatment and mitigation); and
2. The residual bushfire risk (i.e. the level of risk remaining following risk treatment and mitigation).

Inherent and residual bushfire risk can be determined for individual bushfire events on the basis of the following risk criteria, which is used to inform the likelihood and consequence of such events:

- **Likelihood** of ignition and bushfire occurrence takes into consideration the bushfire history of the area, risk of ignition, vegetation type, fuel age and load, slope under vegetation and predominant fire weather conditions; and
- **Consequence** or impact from bushfire on life, property and the environment takes into consideration the degree and severity of potential bushfire scenarios, location of bushfire hazard areas, assets present in the area and the level of management and suppression response available.

The three bushfire scenarios identified in Section 2 have been subject to bushfire risk assessment through determination of likelihood and consequence in accordance with the rating tables outlined in Table 1 and Table 2. This process determines the inherent bushfire risk of the event and informs the level of mitigation or management response required to reduce the risk to an acceptable level. The risk assessment matrix used to determine inherent and residual bushfire risk is outlined in Table 3.

**Table 1: Likelihood rating system**

<table>
<thead>
<tr>
<th>Likelihood rating</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Almost certain</td>
<td>Consequence expected to occur in most circumstances; may occur once every year or more</td>
</tr>
<tr>
<td>Likely</td>
<td>Consequence will probably occur in most circumstances; may occur once every five years</td>
</tr>
<tr>
<td>Possible</td>
<td>Consequence might occur at some time; may occur once every twenty years</td>
</tr>
<tr>
<td>Unlikely</td>
<td>Consequence is not expected to occur; may occur once every one-hundred years</td>
</tr>
<tr>
<td>Rare</td>
<td>Consequence may occur only in exceptional circumstances; may occur once every five-hundred or more years</td>
</tr>
</tbody>
</table>

1 The determined consequence rating is the most likely outcome, not the worst case.
Table 2: Consequence rating system

<table>
<thead>
<tr>
<th>Consequence rating</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catastrophic</td>
<td>A large number of severe injuries, widespread damage and displacement of the community, significant impact on the environment</td>
</tr>
<tr>
<td>Major</td>
<td>Extensive number of injuries requiring hospitalisation, significant damage and impact on the community, longer term impacts on the environment</td>
</tr>
<tr>
<td>Moderate</td>
<td>Some injuries requiring medical treatment but no fatalities, localised damage and short-term impact on the environment</td>
</tr>
<tr>
<td>Minor</td>
<td>Small number of injuries but no fatalities, some damage and disruption but no lasting effects</td>
</tr>
<tr>
<td>Insignificant</td>
<td>No injuries or fatalities, little damage or disruption</td>
</tr>
</tbody>
</table>

Table 3: Risk assessment matrix

<table>
<thead>
<tr>
<th>Likelihood</th>
<th>Consequence</th>
<th>Insignificant</th>
<th>Minor</th>
<th>Moderate</th>
<th>Major</th>
<th>Catastrophic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Almost Certain</td>
<td>High</td>
<td>High</td>
<td>Extreme</td>
<td>Extreme</td>
<td>Extreme</td>
<td></td>
</tr>
<tr>
<td>Likely</td>
<td>Medium</td>
<td>High</td>
<td>High</td>
<td>Extreme</td>
<td>Extreme</td>
<td></td>
</tr>
<tr>
<td>Possible</td>
<td>Low</td>
<td>Medium</td>
<td>High</td>
<td>Extreme</td>
<td>Extreme</td>
<td></td>
</tr>
<tr>
<td>Unlikely</td>
<td>Low</td>
<td>Low</td>
<td>Medium</td>
<td>High</td>
<td>Extreme</td>
<td></td>
</tr>
<tr>
<td>Rare</td>
<td>Low</td>
<td>Low</td>
<td>Medium</td>
<td>High</td>
<td>High</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Risk level</th>
<th>Risk response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>Acceptable risk. Application of standard management measures will ensure risk level remains low and risk should be eliminated or reduced as time permits.</td>
</tr>
<tr>
<td>Medium</td>
<td>Potentially unacceptable risk. Development of site specific management measures may be required to lower the risk level and risk should be reduced as soon as reasonably practicable.</td>
</tr>
<tr>
<td>High</td>
<td>Potentially unacceptable risk. Development of additional site specific management measures will be required to lower the risk level and requires urgent action as soon as possible.</td>
</tr>
<tr>
<td>Extreme</td>
<td>Unacceptable risk. Additional site-specific mitigation will be required to lower the risk level and an immediate mitigation response is required.</td>
</tr>
</tbody>
</table>
Figure 1: Risk assessment process as per AS/NZS ISO 31000:2009
4 Bushfire risk assessment

4.1 Risk context
Risk is being assessed to inform bushfire mitigation for the subject site for the protection of life and property within and adjacent to the site. The risk assessment adopts a broad area and supports a tenure blind approach to ensure wider risk impacts and adjoining lands are captured to suitably address potential risk.

4.2 Risk identification
Bushfire risk is identified in the potential bushfire scenarios outlined in Section 2, which indicate the potential bushfire events that could impact life and property within the subject site and adjacent land. These three scenarios are considered to cover the majority of bushfire events that could occur in order to develop suitable mitigation and manage as much of the bushfire risk as possible.

4.3 Risk analysis and evaluation
Risk analysis and evaluation for each of the three potential bushfire scenarios is provided in Table 4, which specifies the likelihood and consequence of each scenario with and without management measures to determine inherent and residual risks.

Due to the storage and handling of flammable materials within the subject site, the potential consequence of a bushfire entering the site would be greater than if flammable materials were not present.

ELA is of the view that following implementation of management measures, the risk of ignition will not be reduced due to the ongoing level of public access and presence of off-site classified vegetation and on-site flammable goods. Therefore, bushfire risk management measures are likely to reduce the level of consequence resulting from the bushfire event, rather than the likelihood of the event occurring. For example, an evacuation plan will reduce the potential impacts on life; thus reducing the level of consequence received from the bushfire event, but the likelihood of the event occurring will not be reduced.
### Table 4: Bushfire risk assessment

<table>
<thead>
<tr>
<th>Bushfire scenario</th>
<th>Comments</th>
<th>Likelihood</th>
<th>Consequence</th>
<th>Inherent risk</th>
<th>Mitigation</th>
<th>Likelihood</th>
<th>Consequence</th>
<th>Residual risk</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1) Bushfire approaching subject site from the east/north-east</strong></td>
<td>Limited fire run, patchy fuel distribution, firebreaks and managed land present. Vegetation bordering subject site boundary. Greatest level of impact would occur under adverse fire weather conditions with an easterly wind (common during bushfire season). Consequence is not expected to occur; may occur once every one-hundred years based on fire history, suppression response capability, fuel types, anticipated rate of spread etc. Some injuries requiring medical treatment but no fatalities, localised damage and short-term impact on the environment based on analysis of assets.</td>
<td>Unlikely</td>
<td>Moderate</td>
<td>Medium</td>
<td>Unlikely</td>
<td>Minor</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td><strong>2) Bushfire approaching subject site from the south</strong></td>
<td>Low, grassy fuel loads, firebreaks and roads to limit rate of spread, numerous points of access for fire suppression, greatest level of impact would occur under adverse fire weather conditions with a south to south-east wind. Consequence may occur only in exceptional circumstances; may occur once every five-hundred or more years based on fire history, suppression response capability, fuel types, anticipated rate of spread etc. Some injuries requiring medical treatment but no fatalities, localised damage and short-term impact on the environment based on analysis of assets.</td>
<td>Rare</td>
<td>Moderate</td>
<td>Medium</td>
<td>Rare</td>
<td>Minor</td>
<td>Low</td>
<td></td>
</tr>
</tbody>
</table>

Implementation of management measures identified in Section 5
<table>
<thead>
<tr>
<th>Bushfire scenario</th>
<th>Comments</th>
<th>Likelihood</th>
<th>Consequence</th>
<th>Inherent risk</th>
<th>Mitigation</th>
<th>Likelihood</th>
<th>Consequence</th>
<th>Residual risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>3) Bushfire approaching subject site from the west</td>
<td>Continuous fire run, patchy fuel distribution. Presence of firebreaks and roads would limit rate of spread. Greatest level of impact would occur under adverse fire weather conditions with a westerly wind (common during bushfire season). Consequence is not expected to occur; may occur once every one-hundred years based on fire history, suppression response capability, fuel types, anticipated rate of spread etc. Some injuries requiring medical treatment but no fatalities, localised damage and short-term impact on the environment based on analysis of assets.</td>
<td>Unlikely</td>
<td>Moderate</td>
<td>Medium</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5 Bushfire management measures

Results of the bushfire risk assessment indicate that all bushfire scenarios pose an equal level of inherent risk to life and property.

Implementation of the management measures provided in the following subsections prioritise protection of life and property and will reduce bushfire risk (residual risk) within the subject site.

5.1 Fire protection and detection equipment

The proposed service station will be fitted with a monitored alarm system, which when activated triggers an automatic response to the nominated security company.

Fire extinguishers will be located within the subject site at each filling point, and inside the building as required. There will be emergency stop buttons for the fuel system at each Point of Sale and externally on the front of the building. Only personnel trained in the use of extinguishers should be utilising this equipment and only if safe to do so.

A Spill Response Kit will be maintained on the subject site at the front of the retail building, accessible to the forecourt. Fire services are to be called in the event of a spill that covers more than 2 m² and cannot be cleaned with a spill kit at site or it is not considered safe to do so.

5.2 Evacuation plan and assembly points

Caltex Australia Petroleum Pty Ltd. is required to develop an emergency management plan for the subject site in accordance with Australian Standard 3745-2010 Planning for emergencies in facilities, identifying evacuation triggers and depicting muster points on-site.

5.3 Personnel training

All occupants working at the subject site must be trained in responding to and managing all emergency incidents in accordance with the emergency management plan for the site. A record of training must be kept up to date and debrief sessions held after all training exercises or incidents.

An evacuation exercise must be carried out at least annually. All occupants working on the site are required to participate.

5.4 Bushfire suppression

The Oakford Volunteer Bush Fire Brigade is located approximately 1 km from the subject site and is expected to provide a best-case emergency suppression response time of 30 minutes in the event of an emergency.

5.5 Landscaping

All landscaping areas within the subject site will be maintained in accordance with Standards for Asset Protection Zones (WAPC 2017).
5.6 Additional measures

Manifest

Dangerous goods sites must maintain a current manifest and a dangerous goods site plan, to allow an appropriate response by Emergency responders in the event of an emergency, such as a fire.

The manifest and dangerous goods site plan for dangerous goods that will be stored and handled at the service station will need to be developed in accordance with the relevant Dangerous Goods Safety Guidance Note (DMP 2014).

The emergency management plan refers to critical information for emergency response being located in the HAZMAT/HAZCHEM emergency boxes which will be located at the front of the building and inside the retail building. This information includes the Emergency Plan, Dangerous Goods Manifest, Register of Dangerous Goods and Hazardous Materials, Safety Data Sheets for bulk products kept on site and dangerous goods site layout plan.

Ignition sources

Operators of dangerous goods sites are required to manage potential ignition sources, such as hot works and electrical equipment, within any on-site hazardous areas.

Placard and marking

A placard, readily visual for Emergency responders and providing visual warnings of the hazards associated with storage of fuel, will be required at the subject site in accordance with DMP Storage and handling of dangerous materials Code of Practice (DMP 2010).

Signage and notices will also be required in accordance with AS 1940-2004 The storage and handling of flammable and combustible liquids (AS 1940-2004; SA 2004) and any relevant state guidance.
6 Conclusion

ELA expects that through implementation of the management measures outlined in this BRMP, inherent bushfire risk to life and property within and surrounding the subject site can be reduced.

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FPAA BPAD Certified Practitioner
No. BPAD37802-L2

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No. BPAD29962-L3
References


Department of Fire and Emergency Services (DFES) 2015, *Guidelines for Preparing a Bushfire Risk Management Plan*, Department of Fire and Emergency Services, Western Australia.


Appendix A Proposed development

Figure 2: Subject site
Figure 3: Proposed development
Appendix B January wind roses for Medina Research Centre (Station No. 9194; BoM 2018)
Figure 4: Wind Rose (November – 9am)
Rose of Wind direction versus Wind speed in km/h (01 Apr 1983 to 11 Aug 2017)

Calm times seeded, refer to attached note for details

MEDINA RESEARCH CENTRE
Site No: 02014 • Opened Apr 1983 • Still open • Latitude: -32.2208° • Longitude: 115.5073° • Elevation 14m

An asterisk (*) indicates that calm is less than 0.5%.
Other important info about this analysis is available in the accompanying notes.

3 pm Nov
550 Total Observations

Calm *

Figure 5: Wind Rose (November – 3pm)
Rose of Wind direction versus Wind speed in km/h (01 Apr 1983 to 11 Aug 2017)

Custom lines selected, refer to attached note for details

**MEDINA RESEARCH CENTRE**

Site No. 209194 - Opened Apr 1993 - Gill Oxen - Latitude: -32.2205° - Longitude: 115.0070° - Elevation: 14m

An asterisk (*) indicates that calm is less than 0.5%. Other important info about this analysis is available in the accompanying notes.

9am Dec
999 Total Observations

Calm 1%

Figure 6: Wind Rose (December – 9am)
Figure 7: Wind Rose (December – 3pm)
Figure 8: Wind Rose (January – 9am)
Rose of Wind direction versus Wind speed in km/h (01 Apr 1983 to 11 Aug 2017)

Custom times selected, refer to attached note for details

MEDINA RESEARCH CENTRE
Site No: 00274 • Opened Apr 1983 • Still Open • Latitude: -32.2808° • Longitude: 115.8075° • Elevation 14m
An asterisk (*) indicates that calm is less than 0.5%
Other important info about this analysis is available in the accompanying notes.

3 pm Jan
563 Total Observations

Calm *

Figure 9: Wind Rose (January – 3pm)
Figure 10: Wind Rose (February – 9am)
Figure 11: Wind Rose (February – 3pm)
Appendix C Standards for Asset Protection Zones

The following standards have been extracted from the Guidelines for Planning in Bushfire Prone Areas v 1.2 (WAPC 2017).

Every habitable building is to be surrounded by, and every proposed lot can achieve, an APZ depicted on submitted plans, which meets the following requirements:

a. **Width:** Measured from any external wall or supporting post or column of the proposed building, and of sufficient size to ensure the potential radiant heat impact of a fire does not exceed 29kW/m² (BAL 29) in all circumstances.

b. **Location:** the APZ should be contained solely within the boundaries of the lot on which a building is situated, except in instances where the neighbouring lot or lots will be managed in a low-fuel state on an ongoing basis, in perpetuity (see explanatory notes).

c. **Management:** the APZ is managed in accordance with the requirements of ‘Standards for Asset Protection Zones’ (below):

- Fences: within the APZ are constructed from non-combustible materials (e.g. iron, brick, limestone, metal post and wire). It is recommended that solid or slatted non-combustible perimeter fences are used
- Objects: within 10 metres of a building, combustible objects must not be located close to the vulnerable parts of the building i.e. windows and doors
- Fine Fuel load: combustible dead vegetation matter less than 6 millimetres in thickness reduced to and maintained at an average of two tonnes per hectare
- Trees (> 5 metres in height): trunks at maturity should be a minimum distance of 6 metres from all elevations of the building, branches at maturity should not touch or overhang the building, lower branches should be removed to a height of 2 metres above the ground and or surface vegetation, canopy cover should be less than 15% with tree canopies at maturity well spread to at least 5 metres apart as to not form a continuous canopy (Figure 6).

![Figure 6: Illustrated tree canopy cover projection (WAPC 2017)](image)
• **Shrubs (0.5 metres to 5 metres in height):** should not be located under trees or within 3 metres of buildings, should not be planted in clumps greater than 5m² in area, clumps of shrubs should be separated from each other and any exposed window or door by at least 10 metres. Shrubs greater than 5 metres in height are to be treated as trees

• **Ground covers (<0.5 metres in height):** can be planted under trees but must be properly maintained to remove dead plant material and any parts within 2 metres of a structure, but 3 metres from windows or doors if greater than 100 millimetres in height. Ground covers greater than 0.5 metres in height are to be treated as shrubs

• **Grass:** should be managed to maintain a height of 100 millimetres or less.

**Additional notes**

The Asset Protection Zone (APZ) is an area surrounding a building that is managed to reduce the bushfire hazard to an acceptable level. Hazard separation in the form of using subdivision design elements or excluded and low threat vegetation adjacent to the lot may be used to reduce the dimensions of the APZ within the lot.

The APZ should be contained solely within the boundaries of the lot on which the building is situated, except in instances where the neighbouring lot or lots will be managed in a low-fuel state on an ongoing basis, in perpetuity. The APZ may include public roads, waterways, footpaths, buildings, rocky outcrops, golf courses, maintained parkland as well as cultivated gardens in an urban context, but does not include grassland or vegetation on a neighbouring rural lot, farmland, wetland reserves and unmanaged public reserves.
Appendix 7
Stormwater Plan