

Traffic and Transport Assessment

Woolworths Petrol Filling Station -
Fischer Street, Torquay

V160136T



Prepared for
Woolworths Limited

10 March 2016

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1 Introduction

Cardno was engaged by Woolworths Limited to undertake a traffic and transport assessment of the Woolworths Petrol outlet proposed on the north-west corner of the shopping centre site on land located at 1160 Horseshoe Bend Road, Torquay.

In the course of preparing this assessment, the subject site and its environs have been inspected, plans of the development (The Retail Group Drawing Nos. TP01 and TP02 – both Revision P3, Plot date 3/03/2016) examined, and all relevant traffic and parking data collected and analysed.

2 Background and Existing Conditions

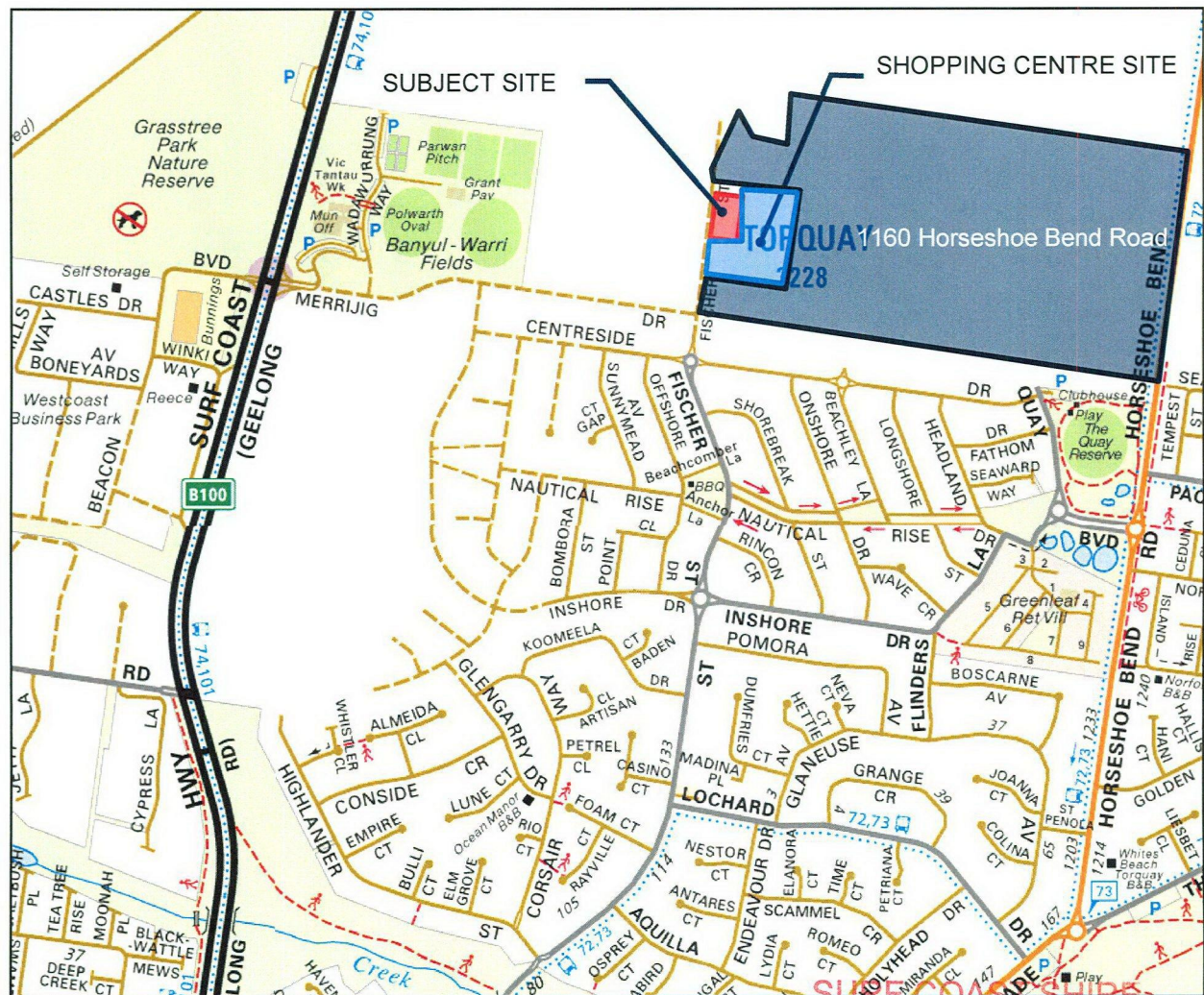
2.1 Location and Land Use

The subject site is located within a large parcel of land located at 1160 Horseshoe Bend Road, Torquay, as shown in Figure 2-1, with street frontages to Fischer Street and an internal access road to the proposed shopping centre car park.

The subject site is currently vacant and is located within the north-west corner of the proposed shopping centre site. The subject site is irregular in shape with an approximate area of 1,870m² with approximately 50m site frontage to Fischer Street. The shopping centre site is currently under construction and includes a Woolworths supermarket and a mix of speciality retail stores.

Aside from the proposed shopping centre, land use within the vicinity of the site consists primarily of residential dwellings and vacant land. Large residential subdivisions are located immediately south and east of the subject site. Land uses of note within the surrounding area also include the Surf Coast Shire Council office and other recreational land uses which are located approximately 700m west of the subject site.

Figure 2-1 Site Location



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2.2 Existing Parking and Access

A total of 264 car parking spaces will be provided as part of the shopping centre development currently under construction. Additionally, on-street angle parking spaces will be provided along the east side of Fischer Street both across the frontage of the proposed petrol filling station site and further to the south, but north of Merrijig Drive.

An access road into the future shopping centre car park has been partly constructed. That shopping centre access road will also provide access to the proposed petrol filling station and form its southern boundary.

2.3 Planning Zones

Figure 2-2 shows the location of the site and the Surf Coast Planning Scheme Zones.

Figure 2-2 Planning Scheme Zones

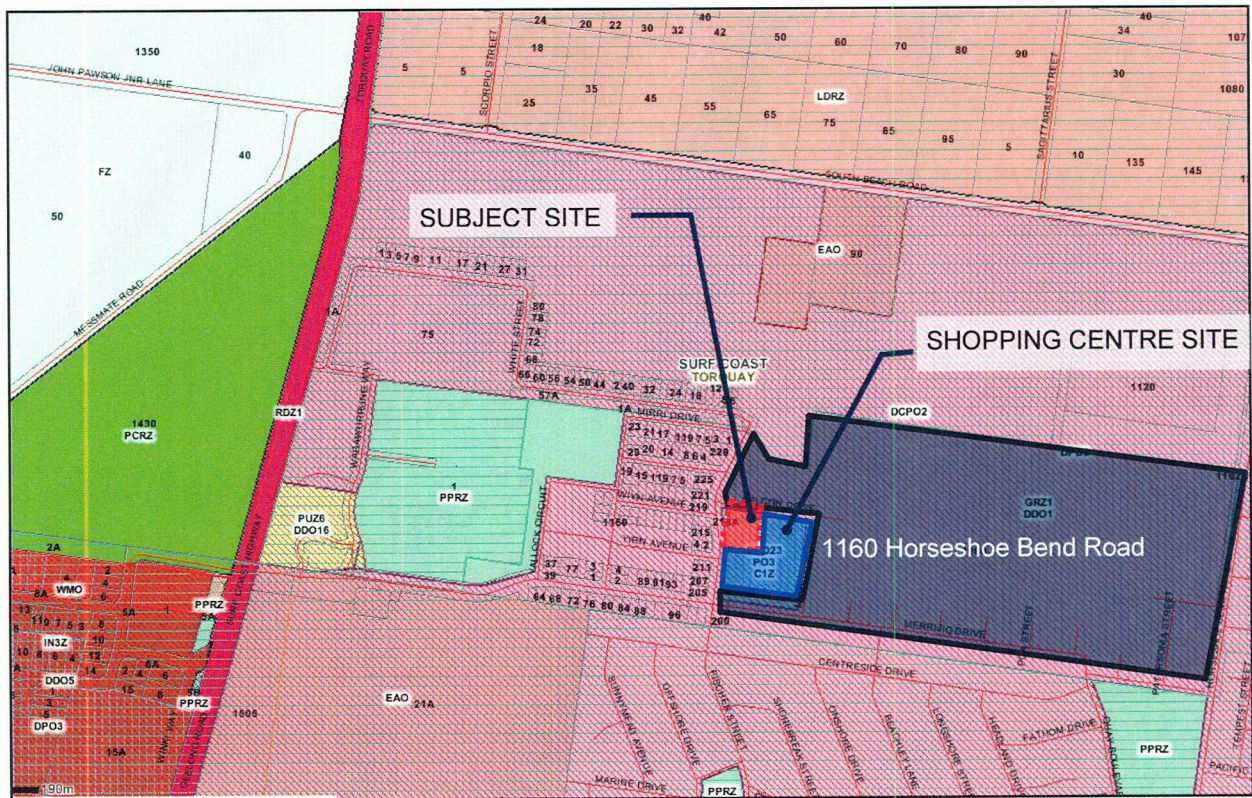


Figure 2-2 shows that the subject site is located within the Commercial 1 Zone (C1Z). Surrounding land uses are generally zoned as General Residential Zone 1 (GRZ1). It is noted that Parking Overlay 3 (PO3) is applicable to the subject site.

The permitted uses for the C1Z are listed in Clause 34.01 of the Surf Coast Planning Scheme.

2.4 Road Network

2.4.1 Fischer Street

Fischer Street is a local road generally running north-south between Bristol Road to the south and White Street to the north. Fischer Street is a two-lane two-way road comprising of a single traffic lane and an on-street bicycle lane in each direction, as shown in Figure 2-3 and Figure 2-4. Indented parking spaces are provided in some sections on both sides of the road.

At the frontage of the subject site, a default speed limit of 50km/h is applicable.

Figure 2-3 Fischer Street, looking south beyond the subject site



Figure 2-4 Fischer Street, looking north to and beyond the subject site



2.4.2 Internal access road within the shopping centre car park, south of the subject site

The Fischer Street access to/from the shopping centre car park has been partly built. It will provide for a full range of turning movements between Fischer Street and the shopping centre car park.

The subject proposed petrol filling site is located on the east side of Fischer Street, immediately north of the Fischer Street shopping centre access. Figure 2-5 shows the current state of construction of that Fischer Street shopping centre access.

Figure 2-5 Access road into the shopping centre, looking east from Fischer Road



3 Proposed Development

3.1 General

Based on the plans prepared by The Retail Group (Drawing Nos. TP01 and TP02 – both Revision P3, Plot date 3/03/2016), it is proposed to develop the site in the form of a Woolworths Petrol outlet with 4 double sided petrol dispensers, an LPG dispenser and a kiosk / pay point building with an approximate floor area of 120m² as summarised in Table 3-1.

Table 3-1 Proposed Development Summary

Component	No./Area
Kiosk (Convenience Shop)	120 m ² (approx.)
Fuel Bowsers	4 (up to 8 vehicles can be served)
Car Spaces (excluding queuing and at bowsers)	11 (Includes: 1 disable space, 1 space for air/water and 1 loading bay)

The site of the proposed development has a total site area of 1,872 m². A limited range of convenience goods would be offered for sale from the kiosk / pay point.

It is understood that provision is also made for the addition of a 2nd LPG dispenser in the future, if warranted by the future fuel sales at the site.

A total of 11 on-site parking spaces are proposed, including 1 for disabled parking, 1 space for patrons utilising the air and water facilities, 1 space adjacent to the waste and recyclables bins area which will be designated as a loading bay with the residual 8 spaces available for general use.

The 4 double sided petrol dispensers will be laid out and installed in a parallel arrangement similar to a 'starter gate' configuration with the LPG dispenser located adjacent to the second easternmost petrol bowser. This pump layout will allow up to 8 vehicles to access the fuel dispensers and refuel concurrently, with additional vehicles able to queue within the site behind those in the process of refuelling.

3.2 Access Provisions

The proposed site plan shows separate site ingress and egress crossovers for the proposed Woolworths Petrol outlet. A new crossover to the shopping centre access road is proposed to provide for ingress to the site and a new crossover at Fischer Street will provide egress from the site. Kerbing will be installed around the remainder of the site as an access control measure with 'soft' landscaping between that kerbing and the site boundaries. Mountable kerbing will also be installed at the crossovers to enable larger delivery vehicles to enter and exit the site in a forwards direction, whilst better channelizing the access movements of smaller vehicles.

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3.3 Loading / Deliveries

The loading bay located in the north-west corner of the site is expected to be used by trucks and vans delivering convenience goods and refuse collection vehicles, when servicing the site.

Fuel deliveries are expected to be undertaken by vehicles up to a 19m semi-trailer, which will enter the site via Fischer Street and the site's southern crossover which is located part way along the shopping centre car park access road. Egress will be via a left turn directly back onto Fischer Street to travel south. The design of the crossovers and internal layout will allow trucks to enter and exit the site in a forwards direction.

Both the petrol and LPG remote fill points for the underground fuel tanks are located close to the site's south western boundary, which will allow patrons to access at least six of the eight proposed refuelling points while fuel deliveries are completed.

Based on previous experience on similar projects, it can be expected that fuel deliveries to the site will be made on average 3 to 4 times per week.

A vehicle swept path plot (Cardno drawing no. V160135T-TR-SK-0001 rev 1) for a 19m semi-trailer showing the proposed petrol tanker delivery path, is attached as Appendix A of this report and confirms the suitability of the proposed site layout to accommodate the delivery vehicle movements.

4 Car Parking Considerations

4.1 Statutory Car Parking Requirements

4.1.1 Car Parking Requirements – Clause 52.06

Clause 52.06 of the Surf Coast Planning Scheme does not specifically refer to parking requirements for a petrol filling station land use, therefore an adequate number of car spaces must be provided to the satisfaction of the Responsible Authority.

For a convenience shop with a leasable floor area that exceeds 80m², Clause 52.06 of the Surf Coast Planning Scheme specifies a car parking requirement of 10 spaces or 3.5 spaces per 100m² leasable floor area if specified in a schedule to a Parking Overlay as shown in Table 4-1.

Table 4-1 Planning Scheme Car Parking Requirements – Clause 52.06-5

Use	Rate (All Zones)	Rate (Parking Overlay)	Car Parking Measure
Convenience shop if the leasable floor area exceeds 80 sq m	10		to each premises
		3.5	to each 100 sq m of leasable floor area

The site of the proposed petrol filling station is located within the Torquay North Neighbourhood Activity Centre for which Parking Overlay P03 is applicable.

According, a parking requirement of 3.5 spaces / 100sqm of leasable floor area is generated, which equates to a total of four (4) car parking spaces for the 120sqm kiosk/pay point proposed.

4.2 Proposed Car Parking Provision

It is proposed to provide a total of 11 spaces on-site as part of the development, including 1 for disabled parking, 1 space for patrons utilising the air and water facilities, and 1 space adjacent to the waste and recyclables bins area designated as a loading bay.

It is noted that the proposed on-site car parking provision exceeds the statutory requirement.

4.3 Adequacy of the Proposed Car Parking Provision

The following influences are relevant to any assessment of the car parking demands likely to be generated at the petrol filling station proposed:

- > Woolworths Petrol outlets typically offer a limited range of convenience goods at the kiosk / pay point to the extent that few motorists are likely to be attracted to the site for convenience goods alone.
- > The majority of the anticipated patronage will be that of motorists purchasing fuel. These patrons typically proceed to the kiosk to pay for the fuel they purchase without moving their vehicles from the position occupied during refuelling, and therefore do not require separate parking spaces.
- > The only regular parking demand likely to be generated at the site is that of the single employee who operates the kiosk, and possibly the parking of a second employee during the changeover of shifts.

Based on the above, it is concluded that the 11 on-site car parking spaces proposed as part of the proposed development, exceeds the statutory car parking requirements for the kiosk/convenience store proposed and will comfortably accommodate all parking demands likely to be generated by the proposal.

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5 Traffic Considerations

5.1 Operating Characteristics of Woolworths Petrol Facilities

Woolworths Petrol outlets have been established at numerous sites, both in Victoria and elsewhere in Australia. Patronage of the outlets is targeted at customers of Woolworths supermarkets with sales receipts for purchases at those stores including 'vouchers' which can be used to purchase fuel at a discounted rate. These days the vouchers are stored electronically on a 'loyalty' card.

Woolworths Petrol outlets are often located within the car park servicing a nearby Woolworths supermarket which allows customers to take the opportunity to purchase fuel as part of their trip to the supermarket, thereby reducing the need for a separate or longer journey to purchase petrol. This is the case in Torquay North where the proposed petrol filling station will be located on a 'pad' site of the Torquay North Neighbourhood Activity Centre within which a shopping centre, that includes a Woolworths supermarket, is currently under construction.

Interview surveys of customers show that a significant proportion of customers purchase fuel as part of their trip to the supermarket either after shopping, utilising the 'voucher' they have just received, or upon their next journey to the site, using a 'voucher' previously credited to their loyalty card during a previous visit.

Customers who do not visit the supermarket during their trip to purchase fuel, generate the balance of trade, with most using 'vouchers' previously obtained and purchase fuel, when convenient. As at 'traditional' petrol sales sites, a significant proportion of this balance of trade for Woolworths Petrol sites is generated from traffic that is passing the petrol sales site as part of a trip made primarily for an unrelated purpose.

5.2 Case Study

The increases in traffic activity likely in the vicinity of the subject site as a result of the proposed development are appropriately estimated by referencing the data from case studies at existing similarly located Woolworths Petrol outlets.

Cardno commissioned traffic volume counts to be undertaken at the Woolworths Petrol Station located at 995 Thompson Road, Lyndhurst on Thursday 1st August 2013 between 7:00am and 7:00pm. This case study site is reflective of the proposed development at the subject site where both sites have the capacity for 8 vehicles to refuel concurrently.

The surveys identified a peak hour volume of 159 vehicle movements (82 inbound and 77 outbound) during any one hour over the extent of the survey period which occurred between 4:45pm and 5:45pm. Based on the number of pumps available, the petrol station generated traffic at a rate of 19.9 vehicle movements per pump.

5.3 Traffic Generation & Distribution

Based on the case study data discussed above, a traffic generation rate of 20 vehicle movements per pump has been adopted for the purposes of this assessment. Application of this rate to the proposed 8 pumps equates to a total of 160 vehicle movements during the peak hour.

Based on the short turnover times required for refuelling at a petrol station, it is assumed that the traffic volumes generated will be evenly split between inbound and outbound vehicle movements (i.e. 80 inbound movements and 80 outbound movements).

It is assumed that 10% of customers will make a trip to the Woolworths Petrol site specifically to purchase fuel, 20% of customers will purchase fuel after visiting the Woolworths supermarket also located within the Torquay North Neighbourhood Activity Centre, and 10% will purchase fuel before shopping. The balance of 60% of patronage will be generated by passing trade or local customers who purchase fuel when required, possibly using a discount 'voucher'/credit previously obtained.

Accordingly, a summary of the traffic anticipated to be generated by the proposed development is detailed in Table 5-1.

Table 5-1 Breakdown of Anticipated Patronage

	Proportion	Vehicle Movements
Customers specifically travelling to proposed outlet to purchase fuel	10%	8 inbound / 8 outbound
Customers purchasing fuel at the completion of their trip to Woolworths Supermarket	20%	16 inbound / 16 outbound
Customers purchasing fuel before their trip to Woolworths Supermarket	10%	8 inbound / 8 outbound
Passing Trade	60%	48 inbound / 48 outbound
Total		80 inbound / 80 outbound

Based on the above, of the 160 vehicle movements expected to be made to and from the proposed Woolworths Petrol outlet site, 144 vehicle movements (or 90% of all anticipated vehicle movements) can be attributed to either customers attracted from passing trade or customers who utilise the petrol station in conjunction with the beginning or end of their shopping trip to the abutting Woolworths supermarket and shopping centre.

Consequently, these customers would likely be using the local road network surrounding the shopping centre development area regardless of whether the proposed petrol outlet is established at the subject "pad" site, or not.

Accordingly, the proposed Woolworths Petrol Outlet is anticipated to generate an estimated 16 new/additional vehicle movements (8 inbound and 8 outbound), not otherwise likely to use the roads in the immediately vicinity of the subject, during a peak patronage hour of the proposed Woolworths Petrol outlet.

Due to the location of the "pad" site with respect to the current and future road network and surrounding development, such 'additional' traffic movements are expected to be evenly split between the northbound and southbound direction on Fischer Street.

5.4 Traffic Impacts

As discussed in section 5.3 of this report the proposed development is expected to generate up to 16 additional vehicle movements in the vicinity of the proposed shopping centre site during the hour of peak patronage of the proposed petrol filling station. All other movements to and from the "pad" site are expected to be those of motorists already using the roads in the vicinity of the site for a potentially unrelated primary purpose, such as attending the abutting shopping centre or Woolworths supermarket.

The anticipated increase in traffic activity on the surrounding road network equates to, on average, 1 vehicle movement every 3³/₄ minutes during the time when the site is operating under peak conditions. With these movements split in both directions along Fischer Street, they are unlikely to have any significant impact on the operations of Fischer Street or the wider road network.

5.5 Vehicle Queuing

The layout of the proposed Woolworths Petrol outlet allows 8 vehicles to refuel simultaneously. The layout also allows some queuing of vehicles behind those in the process of refuelling. If it is assumed that on average a motorist takes approximately 4 minutes to refuel and pay for his/her purchase, a total of 120 motorists will be able to refuel during a single hour at the proposed development. This refuelling capacity clearly exceeds the anticipated peak patronage of 80 customers per hour.

Consequently, it is concluded that any vehicle queuing that may occur, even with 'bunching' of patron arrivals during the hour of peak patronage, will at all times, be contained within the site boundaries of the Woolworths Petrol site and will dissipate quickly.

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6 Conclusions

Based on the foregoing analysis it is concluded that:

- > It is proposed to develop the site as a Woolworths Petrol outlet with 4 petrol dispensers, an LPG dispenser and a kiosk / pay point building with a floor area of approximately 120m²;
- > The proposed parking provision of 11 spaces (including a loading bay) is expected to adequately cater for the expected peak parking demand generated by the proposed development noting the parking demands typically generated will be negligible other than those generated by the kiosk / pay station staff;
- > The proposed Woolworths Petrol site layout provides for up to 8 vehicles to refuel concurrently which is more than sufficient to accommodate the anticipated peak patronage of 80 vehicles per hour and will ensure that any and all vehicle queuing to access the fuel dispensers within the site, is contained entirely within the site boundaries;
- > Adequate loading provision and facilities have been provided on-site;
- > Fuel deliveries to the site will be infrequent and can be completed with minimal impact on the capacity for patrons to access the fuel dispensers and to refuel; and
- > The additional traffic likely to be generated by the proposal is unlikely to have any significant impacts on traffic operations of the existing and future road network in the vicinity of the Woolworths supermarket and shopping centre site.

Woolworths Petrol Filling Station -
Fischer Street, Torquay

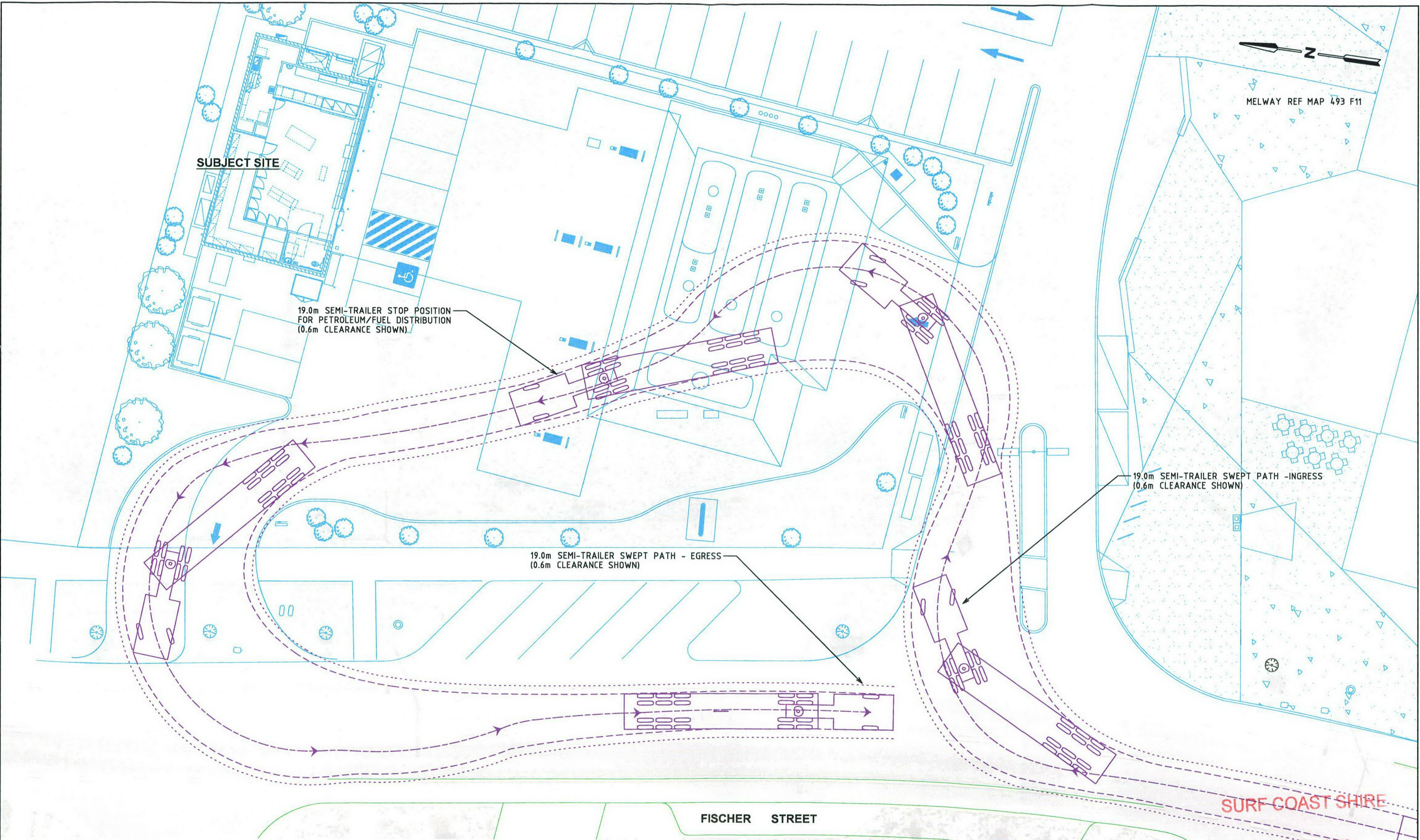
APPENDIX

A

SWEPT PATHS DIAGRAM

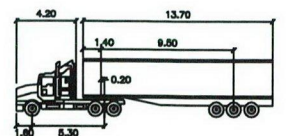
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MELWAY REF MAP 493 F11

DESIGN VEHICLE



AUSTRROADS S ARTICULATED 19M

Tractor Width	: 4.20	Look to Look Time	: 8.0
Trailer Width	: 1.40	Steering Angle	: 27.7
Tractor Track	: 2.20	Articulating Angle	: 73.0
Trailer Track	: 2.20	K-to-K Turning Circle	: 25.1m

FISCHER STREET

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WOOLWORTHS LIMITED
PROPOSED WOOLWORTHS PETROL STATION
FISCHER STREET, TORQUAY NORTH
19.0m SEMI-TRAILER SWEEP PATH ANALYSIS

Datum	Date	Scale	Size
	10.03.16	1:500	A3
Drawing Number	Revisor		
V160136T-TR-SK-0001	1		