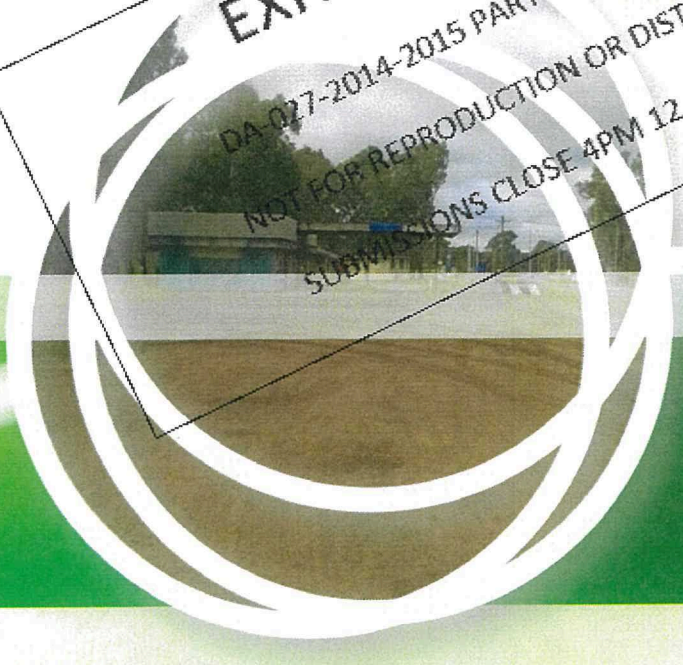

Newell Highway, Gillenbah
Proposed Service Station and Truck Stop
Transport Impact Assessment

transportation planning, design and delivery

GTAconsultants

Newell Highway, Gillenbah
Proposed Service Station and Truck Stop
Transport Impact Assessment

Issue: A 01/10/14

Client: Turnkey Industries P/L
Reference: 14S1586000
GTA Consultants Office: NSW

Quality Record

Issue	Date	Description	Prepared By	Checked By	Approved By	Signed
A	01/10/14	Final	Rebekah Giana, Rhys Hazell	Rhys Hazell	Brett Maynard	B.T.Maynard

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1. Introduction

1.1 Background

It is understood that a development application is to be lodged with Narrandera Shire Council for a proposed service station and truck stop development on the Newell Highway at Gillenbah. The site is located on the northern side of the Newell Highway in the short section that connects the Newell Highway with the Sturt Highway in central west NSW.

The proposed development includes construction of a service area, restaurant and refuelling hard stand areas, as well as associated car and truck parking.

Turnkey Industries NV Ltd engaged GTA Consultants in July 2014 to provide traffic and transport advice, together with the preparation of a transport impact assessment to accompany the development application.

1.2 Purpose of this Report

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

i existing traffic and parking conditions surrounding the site
ii suitability of the proposed parking in terms of supply (quantum) and layout
iii service vehicle requirements
iv pedestrian and bicycle requirements
v the traffic generating characteristics of the proposed development
vi suitability of the proposed access arrangements for the site
vii the transport impact of the development proposal on the surrounding road network.

1.3 References

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

- an inspection of the site and its surrounds on Tuesday 1 July 2014
- Narrandera Shire Council Development Control Plan (DCP) 2013
- Narrandera Shire Council Local Environment Plan (LEP) 2013
- Australian Standard/ New Zealand Standard, Parking Facilities, Part 1: Off-Street Car Parking AS/NZS 2890.1:2004
- Australian Standard, Parking Facilities, Part 2: Off-Street Commercial Vehicle Facilities AS 2890.2:2002
- Australian Standard/ New Zealand Standard, Parking Facilities, Part 6: Off-Street Parking for People with Disabilities AS/NZS 2890.6:2009
- traffic and car parking surveys undertaken by GTA Consultants as referenced in the context of this report
- plans for the proposed development prepared by CKDS Architecture
- other documents and data as referenced in this report.

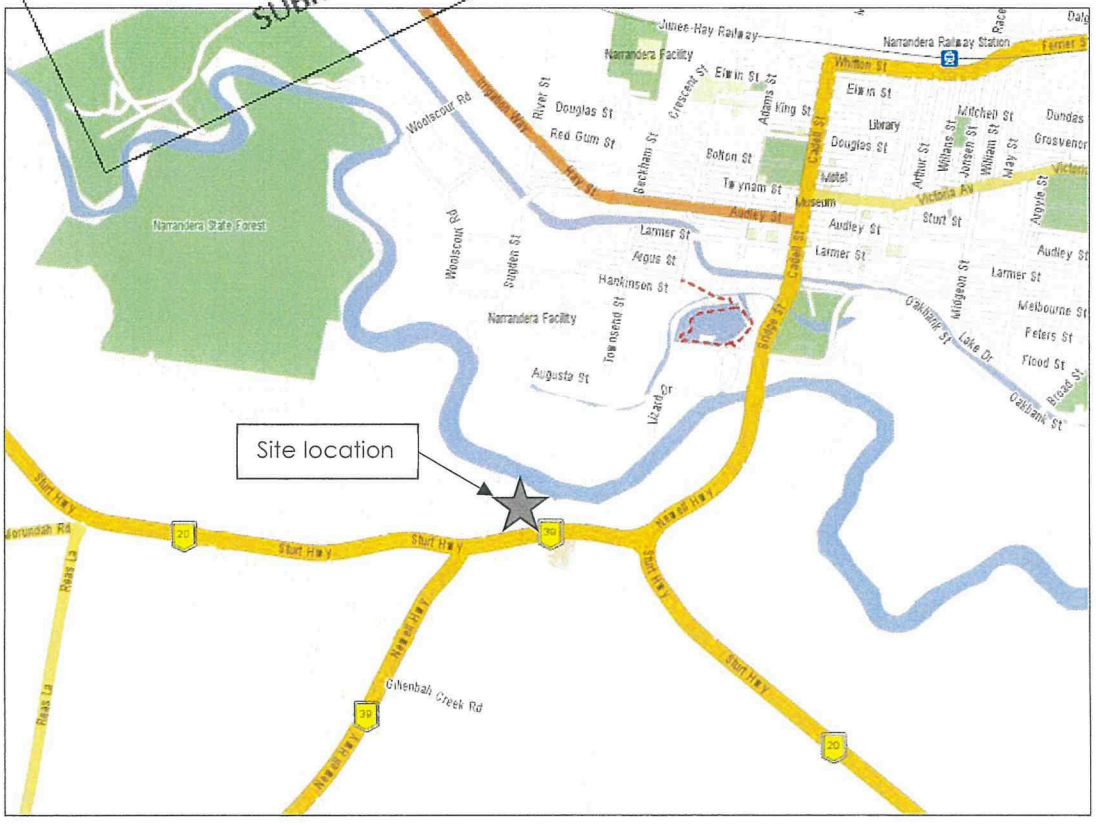
2. Existing Conditions

The subject site is located on the northern side of the Newell Highway, Gillenbah, in central west NSW. The site of approximately 9,040sq.m has a frontage of 250m to the Newell Highway. The site was formerly a service station that has long ceased operations. It is understood that all necessary remediation has occurred on-site.

There are rural residential properties located to the north, between the site and Murrumbidgee River, with the recently redeveloped Caltex service station located east of the site. Commercial properties including a motel and caravan park are located opposite the site on the southern side of the Newell Highway.

The location of the subject site and its surrounding environs is shown in Figure 2.1.

Figure 2.1: Subject Site and Environs



Basemap: Street-directory.com.au

2.1 Road Network

The Newell Highway (SR39) and Sturt Highway (SR20) are classified State Roads and in the vicinity of the site are aligned in an east-west direction. Generally referred to as the Newell Highway along this section through Gillenbah, the highway is really a combination of both highways as they intersect over a distance of approximately 800m. Both highways are key transport corridors through western NSW, with Gillenbah uniquely located in this context.

The Newell Highway has recently been upgraded as part of the Gillenbah Masterplan[1] and Roads and Maritime Services (RMS) safety works. The highway upgrades have resulted in a much improved and formalised road environment in the vicinity, with one traffic lane in each direction. Additional turn bays are provided at intersections and for access to major facilities, including the recently redeveloped Caltex service station. These highway upgrades are included as Appendix A.

A local access road travels in a north-south direction adjacent to the western boundary of the site. It provides access to the rural residential properties (approximately 5 in total) further north and carries very little traffic.

The highway environment in the vicinity is shown in Figure 2.2 to Figure 2.5.

Figure 2.2: Newell Highway (looking east towards the local access road and the site)

Figure 2.3: Newell Highway (looking west towards the Sturt Highway intersection)

Figure 2.4: Newell Highway (looking east past Caltex)

Figure 2.5: Newell Highway (looking west to the site)

2.2 Traffic Volumes

The RMS has provided traffic volume data for this section of the Newell Highway. This data incorporates traffic survey data collected between 2006 and 2010. The results indicate that there is approximately 16,000 vehicles over any 7-day period with approximately 36% comprising heavy

[1] Narrandera Shire Council, Gillenbah Precinct – Gateway to Narrandera, Masterplan Philosophy, April 2009, GHD

vehicles. The peak periods are not pronounced, with slight increases throughout a typical day. Generally, the afternoon period between 3:00pm and 5:00pm is considered the peak in such rural environments.

GTA Consultants also undertook spot check intersection turning movement counts at the time of the site visit (1 July 2014) between 4:00pm and 5:00pm. Overall, approximately 350-370 vehicles use the highway through Gillenbah and the Caltex site currently generates/ captures approximately 110 of these vehicles.

Investigation of the crash history of the highway through this section confirms road safety is not an issue. Overall, three crashes have occurred within 300m of the site over the most recent 5 year dataset. Only one crash resulted in an injury.

3. Development Proposal

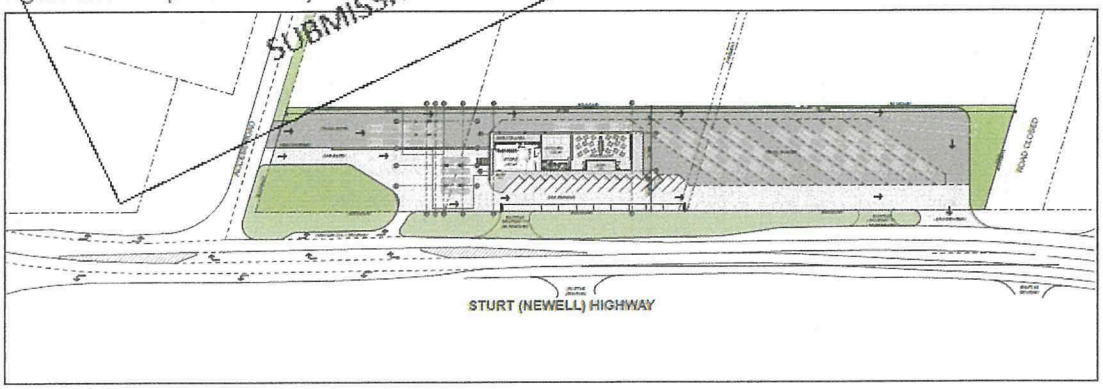
3.1 Land Uses

It is proposed to demolish the existing disused buildings on the site and construct a new service station and truck stop with associated convenience store and restaurant.

The proposed service station will provide four standard double-sided fuel dispensers and two high flow rate fuel dispensers for use by all heavy vehicles. A convenience store (157sq.m) and restaurant (approximately 180sq.m) will also be provided.

The proposed site layout is illustrated in Figure 3.1 and discussed in Section 6.2.

Figure 3.1: Proposed Site Layout



3.2 Vehicle Access

Vehicle access is proposed via three separate driveway crossovers. The highway would provide one entry driveway (cars only) and one exit driveway (all vehicles) while the local access road would accommodate all heavy vehicles entering the site.

The proposed arrangements are considered appropriate, providing for good separation of on-site uses and allowing all vehicles to safely enter and exit the site in a forward direction.

3.3 Car Parking

The proposed development would provide a total of 24 car parking spaces and 11 truck parking spaces. The design vehicle in this section of central west NSW is the B-triple.

The suitability of the car parking provision and layout is discussed in Section 4 of this report.

3.4 Loading Areas

Loading facilities and garbage collection are proposed within a service bay located at the rear of the convenience store.

The suitability of the proposed loading arrangements is discussed in Section 5 of this report.

4. Car Parking

4.1 Car Parking Requirements

The car parking requirements for different development types are set out in the Narrandera Shire Council DCP 2013. Given that Council does not provide rates for service stations, The RMS Guide to Traffic Generating Developments (2002) has been used to calculate the car parking requirements.

A review of the car parking rates and the floor area schedule results in a parking requirement for the proposed development as summarised in Table 4.1.

Table 4.1: Car Parking Requirements

Use	Size	DCP Parking Rate	DCP Parking Requirement
Convenience Store	157m²	5 spaces / 100m²	8 spaces
Restaurant	180m²	15 spaces / 100m²	27 spaces
		Total	**35 spaces**

Based on the above, the proposed development is required to provide 35 car parking spaces.

4.2 Adequacy of Parking Supply

The development proposes a total of 35 parking spaces comprising of 22 car parking spaces (including 1 disabled car space), 2 caravan spaces and 11 truck parking spaces. A separate air/ water fill point and service vehicle bay is also proposed.

Overall, the on-site car parking provision meets Council's DCP requirements and is expected to be capable of accommodating the car parking demands associated with the proposed development.

4.3 Car Parking Layout Review

The car park layout has been reviewed against the requirements of Council's DCP and the Australian Standard for Off Street Car Parking (AS/NZS2890.1:2004 and AS/NZS2890.6:2009). This assessment included a review of the following:

- bay and aisle width
- adjacent structures
- internal circulation
- internal queuing
- parking for persons with disabilities.

The proposed site layout and entry driveways have been designed to maximise access to the site, while allowing for more than adequate queuing space. Vehicles will also be able to pass around the fill locations to access the on-site parking spaces. The queuing area will accommodate approximately 15-20 cars and 3 heavy vehicles (including those at the fill points).

This review indicates that the proposed car parking layout is expected to operate satisfactorily and is shown graphically in Appendix B.

5. Loading Facilities

5.1 Loading Requirements

The loading requirements for developments are contained in the Narrandera Shire Council DCP 2013. The DCP states that loading is to take place on-site at all times and loading areas are to be designed so that the largest potential vehicle can enter and exit the service area in a forward direction.

5.2 Proposed Loading Arrangements

A loading area and garbage collection is proposed in a service bay located at the rear of the convenience store. The service bay has been designed to accommodate a 12.5m large rigid vehicle or 19m articulated truck. The area would be able to be accessed in a forward direction.

The fuel storage tanks would be filled from a central remote filling point, typically by a 19m semi-trailer or B-Double. It is anticipated there would be up to five tanker deliveries per week.

5.3 Vehicle Swept Paths

Swept path assessments using AutoTURN have been provided in Appendix B and indicate that each of the relevant design vehicles can adequately access the site.

6. Traffic Impact Assessment

6.1 Traffic Generation

6.1.1 Design Rates

The proposed service station and truck stop is not expected to generate additional, or 'new' vehicles on the surrounding road network. This is mostly a result of the site's location and proximity along the major central west NSW highway network. A large proportion of vehicles, including cars, cars with caravans and all heavy vehicles typically travel long distances, often interstate and use such service based facilities along their planned route.

Traffic generation estimates for the proposed development have been sourced from the RMS Guide to Traffic Generating Developments (2002). The Guide provides the following formula for the evening peak two-way (in/ out) traffic generation for service stations with convenience stores:

- evening peak hour vehicle trips = 0.04 A(S) + 0.3 A(F)
  or
- evening peak hour vehicle trips = 0.66 A(F)
  where
  A(S) = area of site (m^2)
  A(F) = gross floor area of convenience store (m^2).

The service station site area is approximately 9,040sq.m and the convenience store area is 157sq.m.

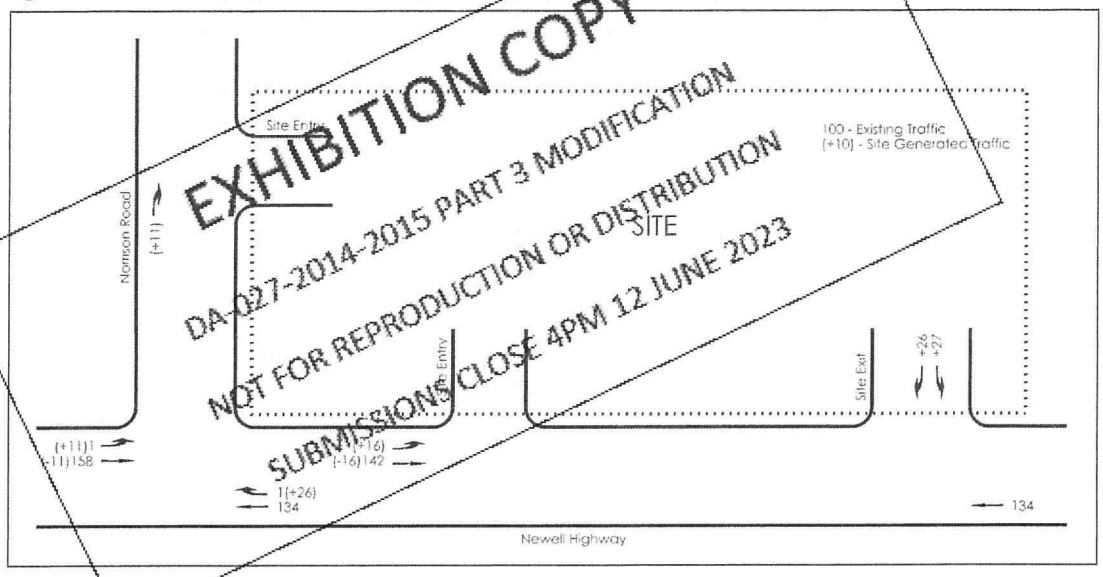
Given that the above rates are largely based on urban locations where site areas are not required to accommodate large truck parking areas, the anticipated site traffic generation has been assessed based on the convenience store area rather than the total site area. Based on this RMS formula, the evening peak site generation would be up to 104 vehicle trips per hour.

The Guide also provides estimates of traffic generation rates for restaurants. Adopting the peak evening rate of 5 vehicle trips per 100sq.m GFA, the restaurant area of approximately 180sq.m would generate up to 9 vehicle trips during the evening peak hour.

As a result the site would be expected to generate up to 111 vehicle trips (in and out) in any peak hour, equivalent to approximately 56 customers per hour. This may also be considered at the higher end of estimations given that the adjacent Caltex site (a much larger and recently redeveloped site) currently generates approximately 115 to 120 vehicle trips in the peak hour to 5:00pm.

The additional development traffic flows have been combined with the existing weekday PM peak hour traffic on the surrounding road network, as shown in Figure 6.1.

Figure 6.1: Post Development Weekday PM Peak Hour Traffic Volumes



6.2 Traffic Impact

The site layout plans illustrate the simple and well laid out design that accommodates all anticipated vehicular activity. The heavy vehicle bays allow forward entry and forward exit while the car with caravan spaces have been located to allow convenient access at all times.

Given that the site does not generate new vehicle trips, the proposed development would not have an impact on the operation or functionality of the surrounding road network. Further, the recent upgrade for this section of the highway has resulted in a safe road environment within a 50km/h speed zone, with more than adequate sight lines in all directions.

The site layout plans have considered access to/ from the commercial properties opposite the site, on the southern side of the Newell Highway. This design is consistent with that recently implemented to the east, where access has been maintained to the caravan park within the right turn bay for entry to the Caltex site.

7. Conclusion

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

i The proposed service station will provide four standard double-sided fuel dispensers and two high flow rate fuel dispensers for use by all heavy vehicles. A convenience store (157sq.m) and restaurant (180sq.m) will also be provided.

ii The proposed development generates a parking requirement of up to 35 car spaces.

iii The proposed supply of 35 spaces meets Council's DCP requirements and is considered to be appropriate having consideration for the RMS Guide to Traffic Generating Developments (2002), the site's location and anticipated heavy vehicle component.

iv The proposed parking layout is consistent with the dimensional requirements as set out in the Australian/New Zealand Standard for Off Street Car Parking (AS/NZS2890.1:2004 and AS/NZS2890.6:2009).

v The provision of a loading area located at the rear of the convenience store is suitable for access by large rigid trucks and semi-trailers.

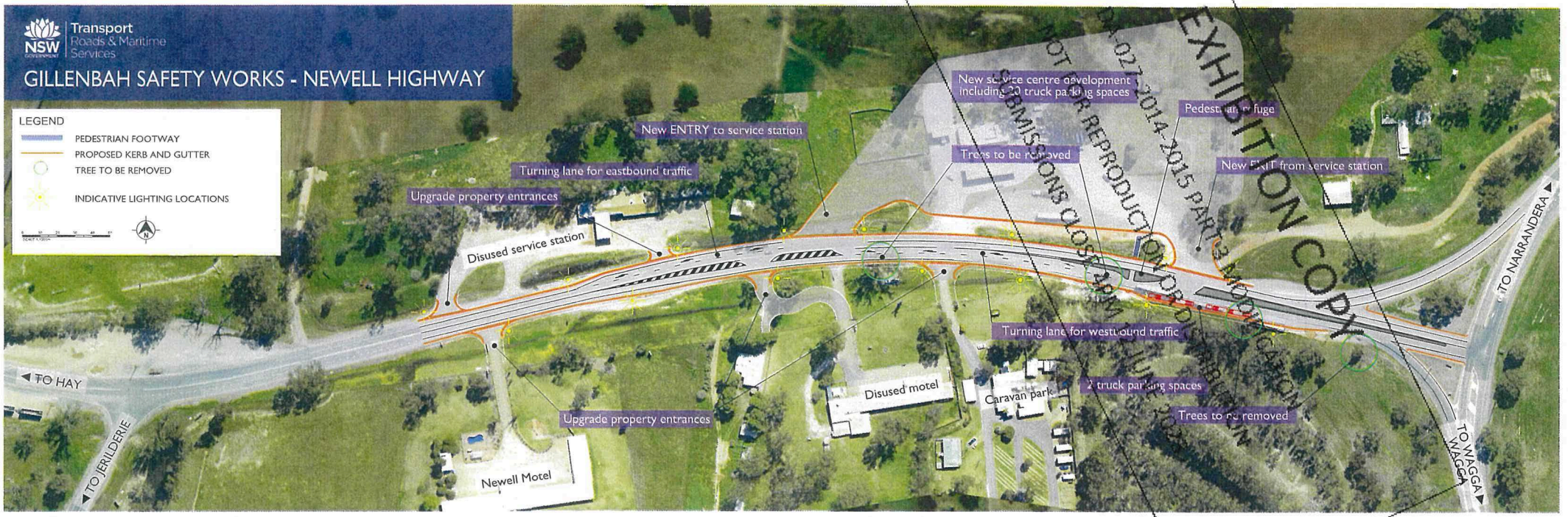
vi The proposed site layout considers adjacent property access and ensures a consistent approach with the recently constructed Caltex site to the east.

vii The traffic generated by the proposal is expected to be passing vehicles already on the road network passing the site.

viii The site is expected to generate up to 111 vehicle movements during the weekday evening peak hour, with no impact on the operation or functionality of the surrounding road network.

Appendix A

Appendix A


Transport
Roads & Maritime
Services
GILLENBAH SAFETY WORKS - NEWELL HIGHWAY
LEGEND
PEDESTRIAN FOOTWAY
PROPOSED KERB AND GUTTER
TREE TO BE REMOVED
INDICATIVE LIGHTING LOCATIONS
New ENTRY to service station
Turning lane for eastbound traffic
Upgrade property entrances
Disused service station
New service centre development including 20 truck parking spaces
Pedestrian refuge
Trees to be removed
New EXIT from service station
Turning lane for westbound traffic
2 truck parking spaces
Trees to be removed
Disused motel
Caravan park
Upgrade property entrances
Newell Motel
TO HAY
TO JERILDERIE
TO NARRANDERA
TO WAGGA WAGGA
EXHIBITION COPY
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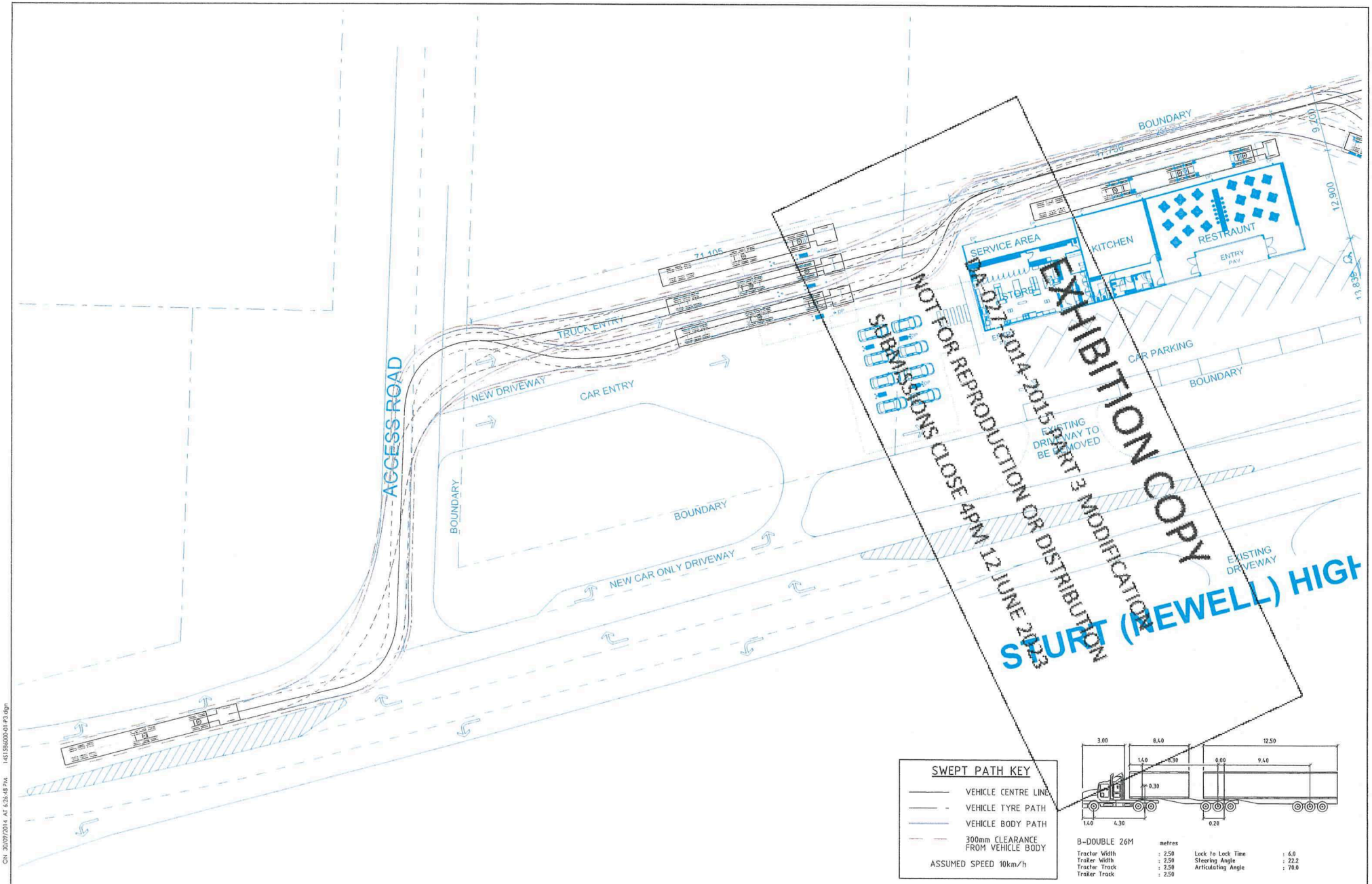
Appendix B



SWEPT PATH KEY

- VEHICLE CENTRE LINE
- VEHICLE TYRE PATH
- VEHICLE BODY PATH
- 300mm CLEARANCE FROM VEHICLE BODY

ASSUMED SPEED 10km/h

B-DOUBLE 26M — metres

Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 22.2
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

Melbourne 03 9851 9600
Sydney 02 8448 1800
Brisbane 07 3113 5000
Canberra 02 6263 9400
Adelaide 08 8334 3600

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PRELIMINARY PLAN
FOR DECISION PURPOSES ONLY SUBJECT TO CHANGE WITHOUT NOTIFICATION

NEWELL HIGHWAY, GILLENBAH -SERVICE STATION
SWEPT PATH ASSESSMENT
26m B-DOUBLE

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APPROVED: RMH
DRAWING NO. 14S1586000-01-01-P3
SHEET: 01 OF 05

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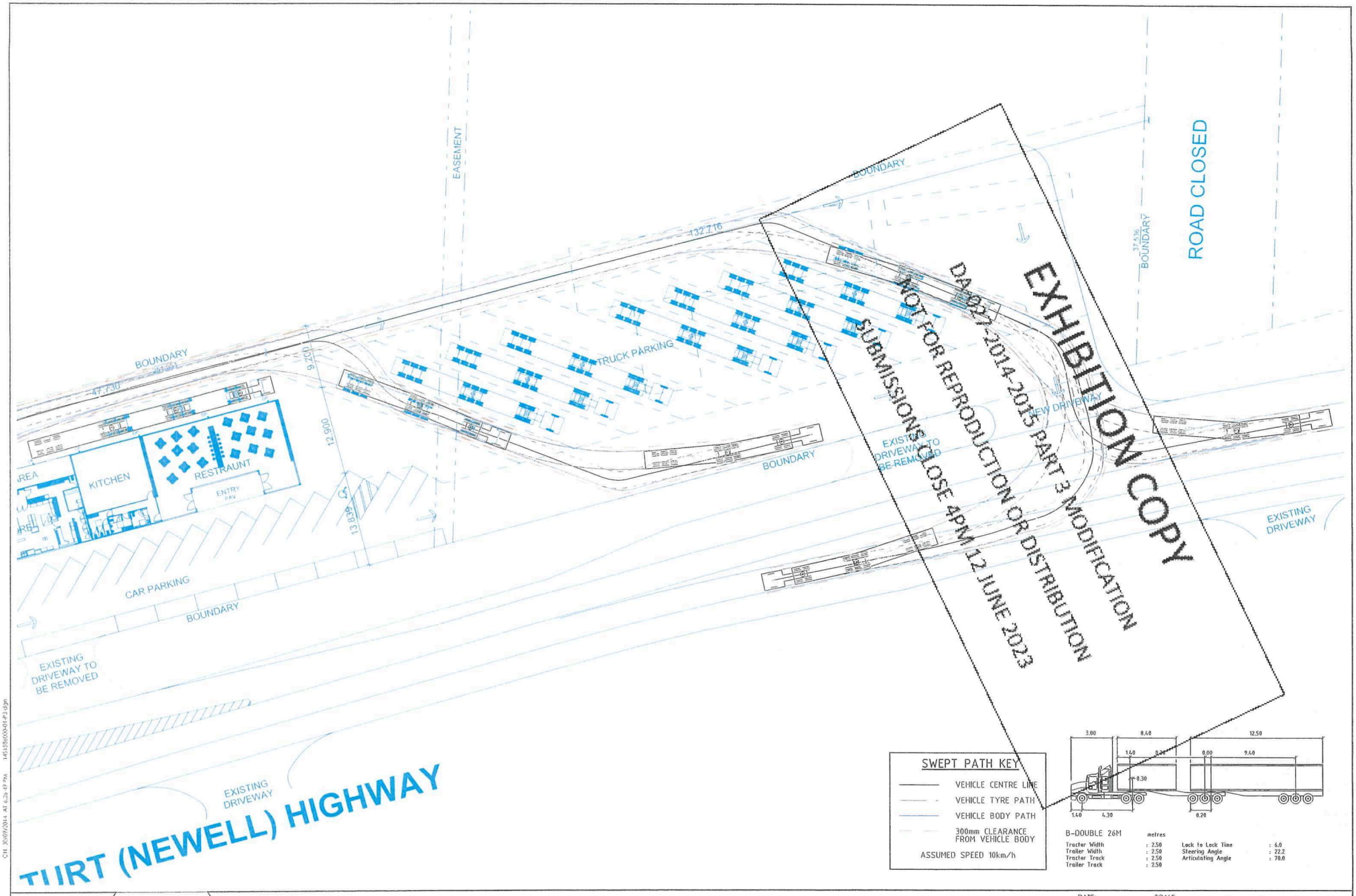

TIRT (NEWELL) HIGHWAY

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Sydney 02 8445 1800
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Canberra 02 6263 9400
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PRELIMINARY PLAN

NEWELL HIGHWAY, GILLENBAH -SERVICE STATION
SWEPT PATH ASSESSMENT
26m B-DOUBLE

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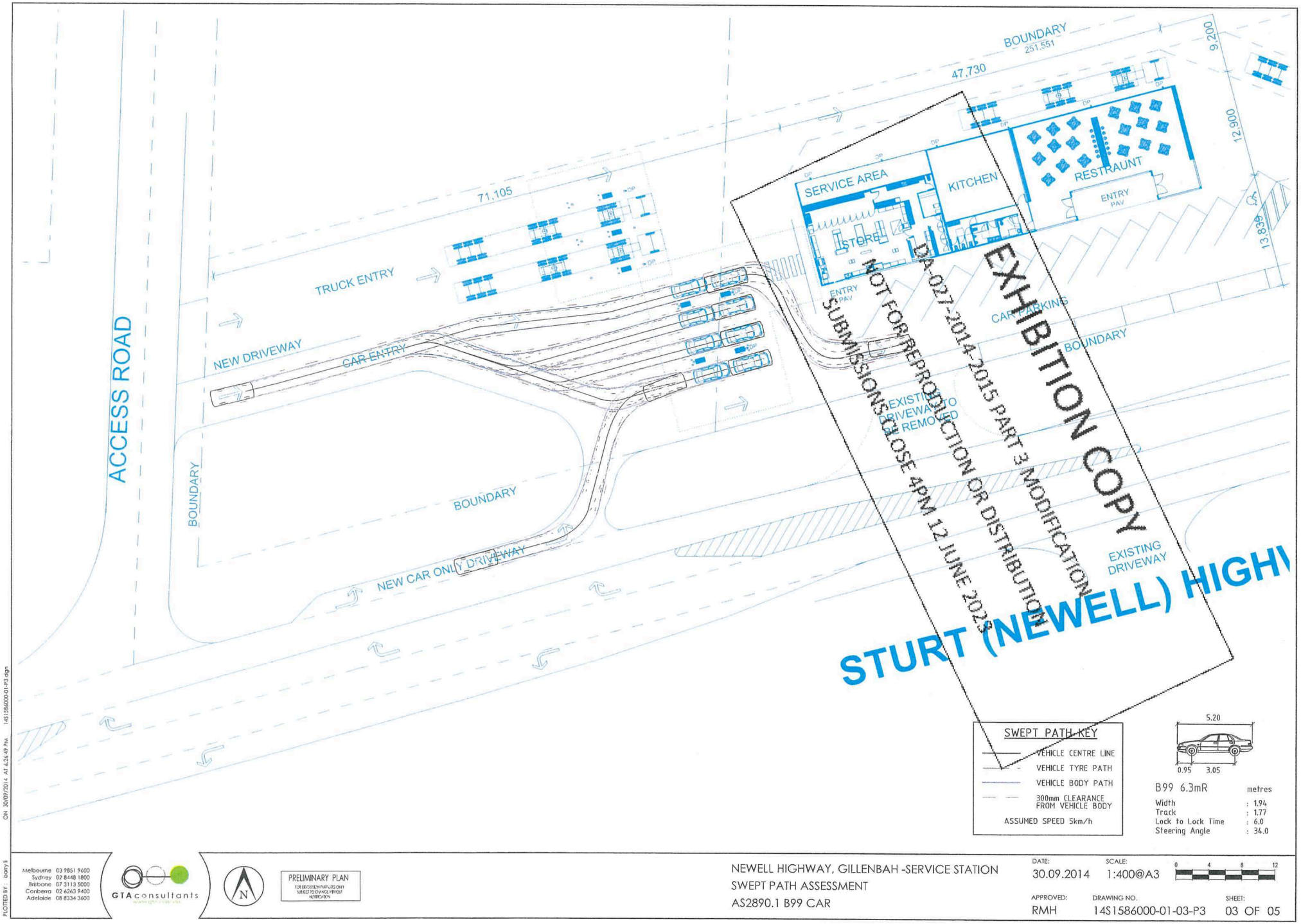

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Sydney 02 8448 1800
Brisbane 07 3113 5000
Canberra 02 6263 9400
Adelaide 08 8334 3600

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PRELIMINARY PLAN
FOR DISCUSSION PURPOSES ONLY SUBJECT TO CHANGE WITHOUT NOTIFICATION

NEWELL HIGHWAY, GILLENBAH -SERVICE STATION
SWEPT PATH ASSESSMENT
AS2890.1 B99 CAR

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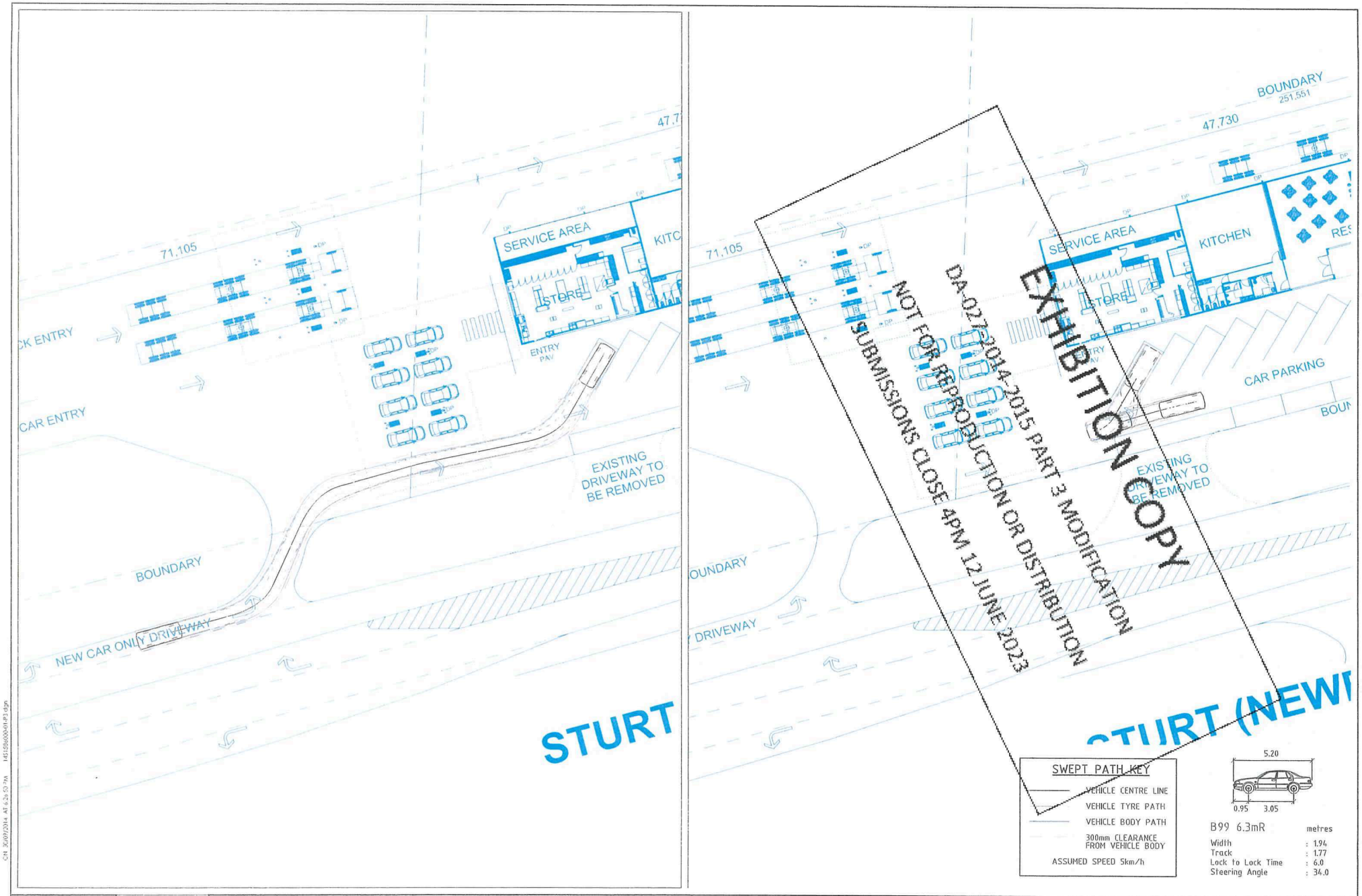

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Sydney 02 8448 1800
Brisbane 07 3113 5000
Canberra 02 6263 9400
Adelaide 08 8334 3600
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PRELIMINARY PLAN

NEWELL HIGHWAY, GILLENBAH -SERVICE STATION
SWEPT PATH ASSESSMENT
AS2890.1 B99 CAR

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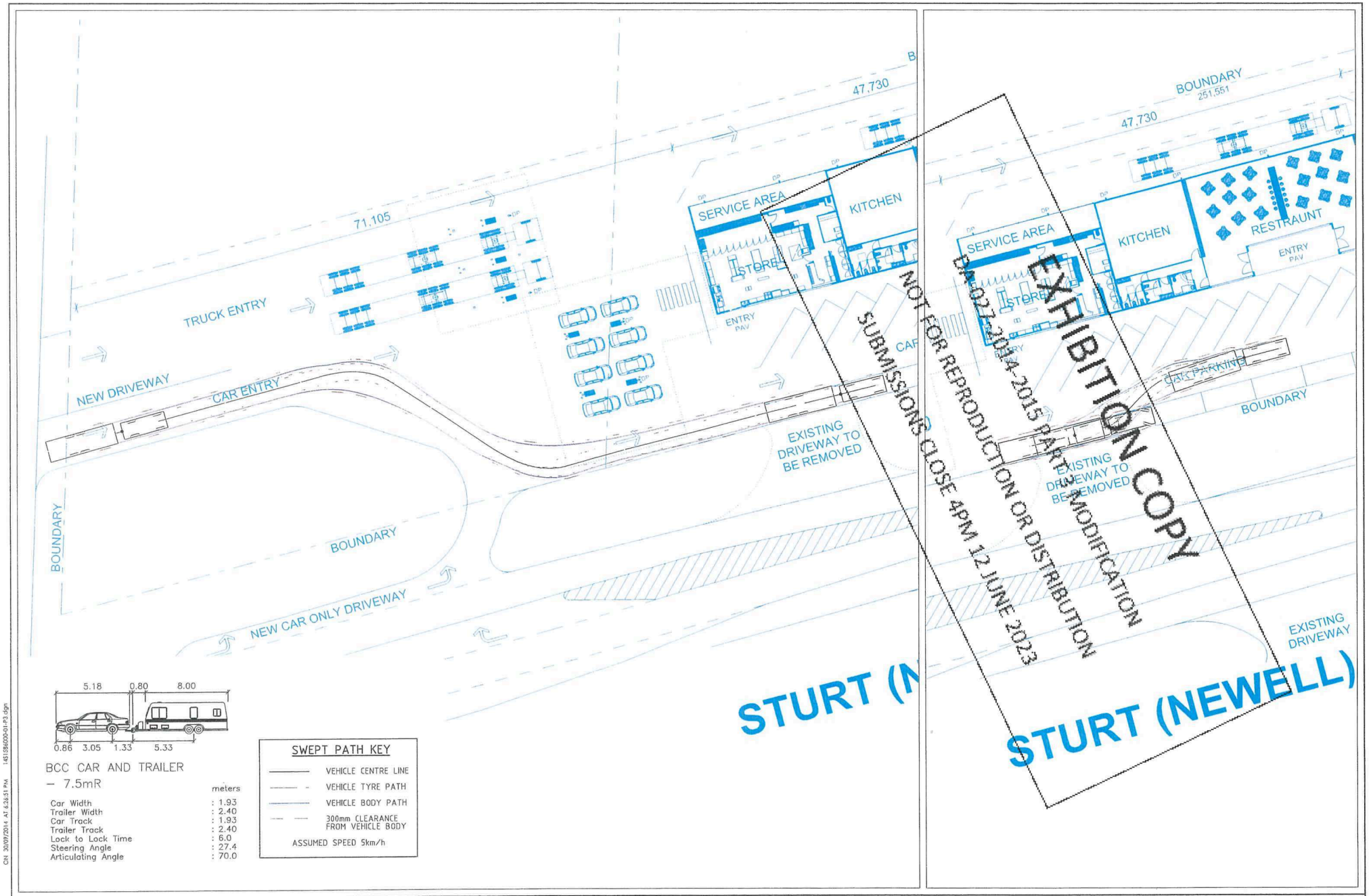

BCC CAR AND TRAILER
– 7.5mR

	meters
Car Width	: 1.93
Trailer Width	: 2.40
Car Track	: 1.93
Trailer Track	: 2.40
Lock to Lock Time	: 6.0
Steering Angle	: 27.4
Articulating Angle	: 70.0

SWEPT PATH KEY

- VEHICLE CENTRE LINE
- VEHICLE TYRE PATH
- VEHICLE BODY PATH
- 300mm CLEARANCE FROM VEHICLE BODY

ASSUMED SPEED 5km/h

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PLOTTED BY tonyl

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PRELIMINARY PLAN
FOR DISCUSSION PURPOSES ONLY SUBJECT TO CHANGE WITHOUT NOTIFICATION

NEWELL HIGHWAY, GILLENBAH -SERVICE STATION
SWEPT PATH ASSESSMENT
CAR AND CARAVAN

DATE: 30.09.2014
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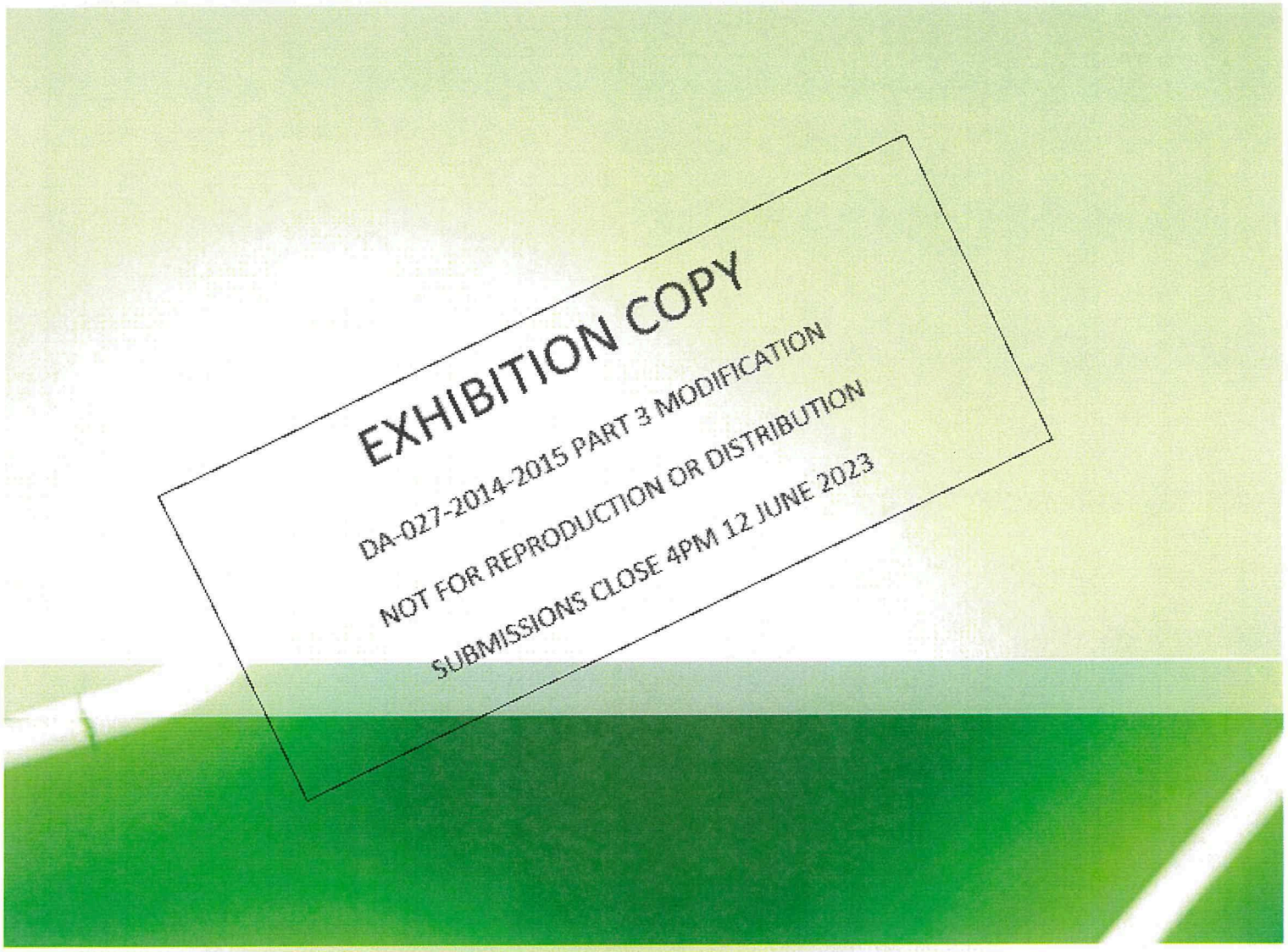

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