Attachment 4 to Item 2.1.2.

Traffic Report

Date of meeting: 17 October 2024
Location: Council Chambers
Time: 10am

TRAFFIX
TRAFFIC AND TRANSPORT PLANNERS

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Reference: 20.544r02v02

8 November 2023

Balma Projects Pty Ltd
PO Box 7226
BAULKHAM HILLS NSW 2153

Attention: Mark Hanna, Senior Legal Counsel

Re: Proposed Hotel Development (DA0120/22)
27 Douglas Road, Kurrajong Heights
Response to TfNSW's Request for Information (TfNSW Reference: SYD22/00792/02)

Dear Mark,

We refer to the proposed hotel development at 27 Douglas Road, Kurrajong Heights. TRAFFIX has been forwarded comments from Transport for NSW (TfNSW) concerning the proposal as contained in a letter dated 11 September 2023 (TfNSW Reference: SYD22/00792/02).

TRAFFIX has reviewed all relevant comments and has responded to each item below. This is with reference to the Traffic Impact Assessment (TIA) which accompanied the Development Application (Ref: 20.544r01v09 dated 26 September 2023).

References

- An inspection of the subject site to physically measure available sight distance was carried out on Tuesday 31 October 2023.
- Austroads Guide to Road Design Part 3: Geometric Design (2023).
- Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections (2023).
- Publicly available five-year crash data from TfNSW website for the period of 2018 to 2022.

Vehicle Speed on Bells Line of Road

Austroads 2023 specifies that the 'Design Speed' is a fixed speed for the design and correlation of geometric features of a carriageway that influence vehicle operation. It further notes that design speed should not be less than the expected operating (85th percentile) speed for the road.

TRAFFIX concur with TfNSW that the design speed is typically adopted 10km/h higher than the posted speed limit in the absence of any other evidence, i.e. new intersections.

In this regard, Bells Line of Road has been observed to employ multiple permanent and mobile speed enforcement cameras on approach to the subject site, notably, a permanent speed camera is located some 400 metres south of Warks Hill Road as shown in **Figure 1**. Furthermore, a high degree of speed compliance was observed over a one-hour period during our site inspection.

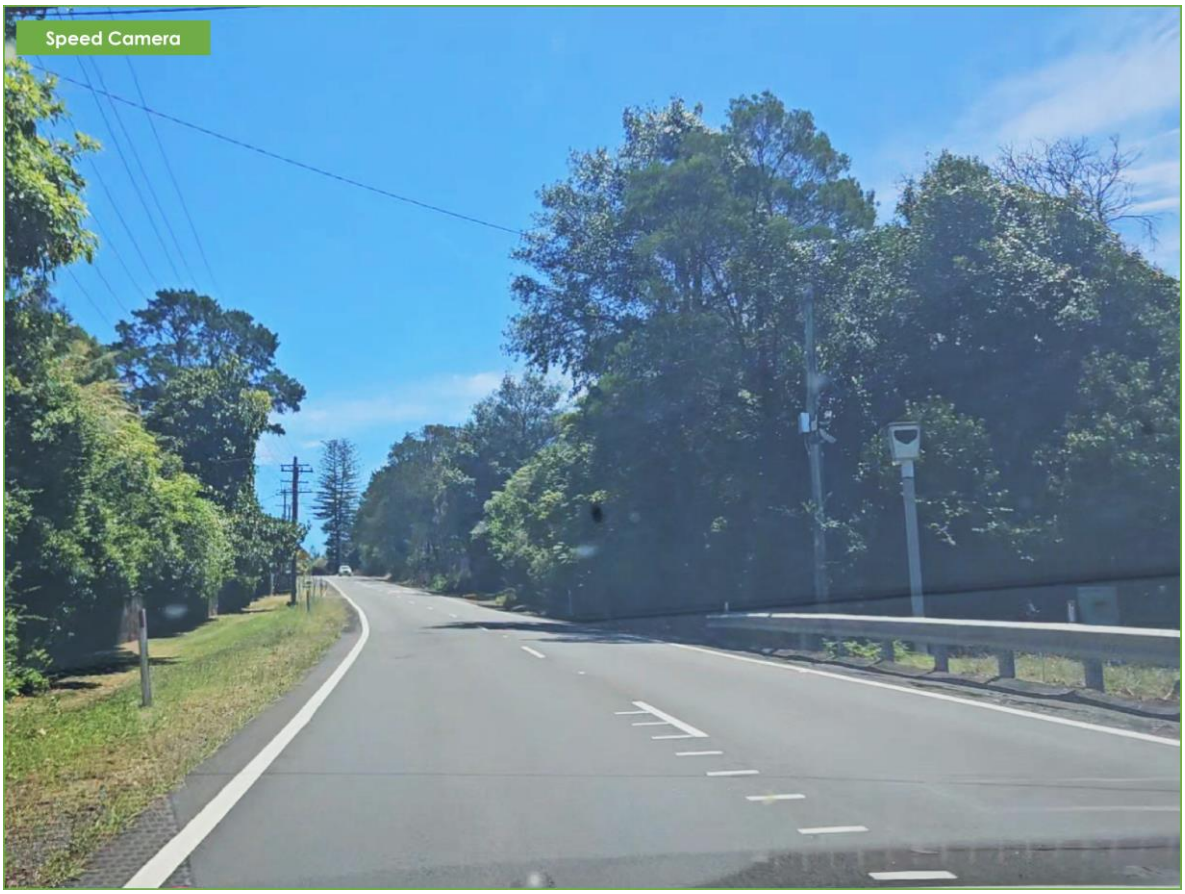


Figure 1: Permanent Speed Camera on Bells Line of Road

On the above basis, it is in our view that a 10km/h higher design speed is unwarranted in the circumstance and Bells Line of Road can be expected to have an operational speed of 60km/h (i.e. 85th percentile speed) which is appropriate to be adopted as the 'design speed' in this instance, in accordance with Austroads 2023.

Notwithstanding, if TfNSW have internal surveys identifying speed of vehicles along Bells Line of Road are consistently travelling 10km/h above the legal speed limit corresponding to an 85th percentile speed of 70km/h, we consider this an existing network safety issue to be addressed by NSW Police and/or TfNSW as part of their on-going responsibilities as the asset owner. If this is the case, TfNSW/Police could consider increased speed enforcement or reducing the speed limit for sections of road.

Crash Data

TRAFFIX has also undertaken a review of the available five-year crash data published by TfNSW for the period between 2018 to 2022 in the immediate vicinity of the subject site in preparing this response.

The crashes are summarised in **Figure 2** noting only one (1) crash have been recorded at the Bells Line of Road / Warks Hill Road intersection involving a vehicle losing control resulting in serious injury. This recorded crash does not indicate a particular safety issue with respect to sight distance availability on either the minor or major road approaches.

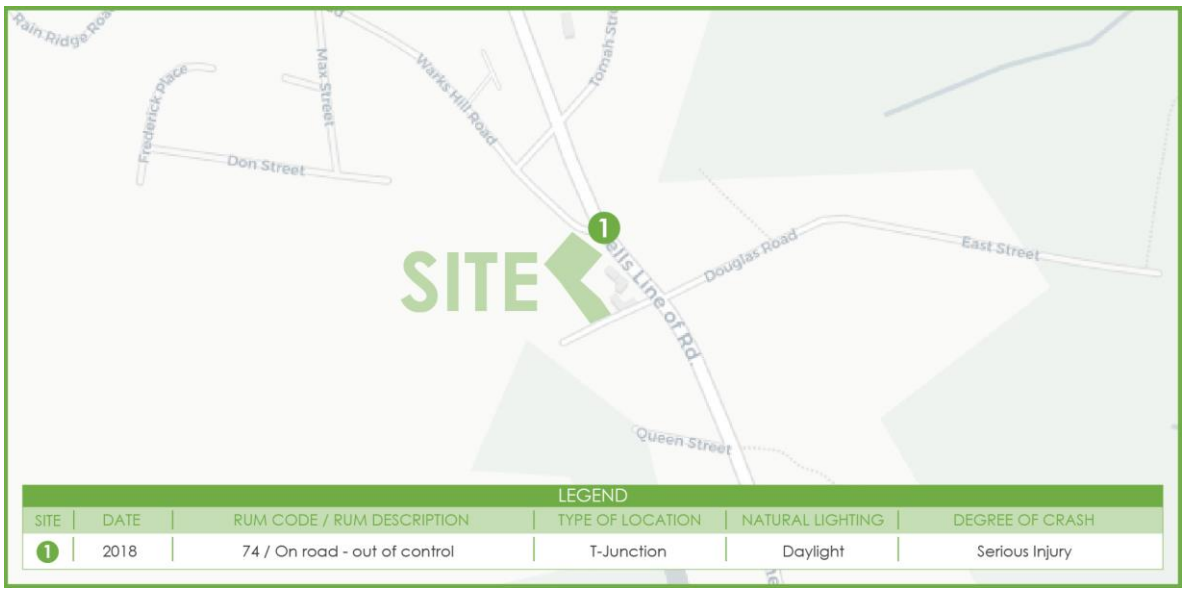


Figure 2: Crash Data

Item 1.

> *The revised plans still show both access points having simultaneous entry/exit arrangement. Given Douglas Road and Warks Hill Road currently operate as two-way roads, the proposal fails to demonstrate how one- way movement at these access points will be enforced.*

TRAFFIX Response:

Plans have been amended (to be sent to TRAFFIX for inclusion) and are provided at reduced scale in **Attachment 1** showing an ingress driveway via Douglas Road and egress driveway via Warks Hill Road as well as one-way clockwise circulation through the site in accordance with TfNSW and Council requirements.

Item 2.

Bells Line of Road through Kurrajong Heights experience increased traffic on the weekends (i.e. peak time for the proposed development) and drivers may struggle to find an acceptable gap in the traffic to turn out from Warks Hill Road with the proposed configuration. This intersection has sight distance constraints with what appears to be ~110m to the south. Please note a design speed of 70 km/h requires a minimum SISD of 151m.

TRAFFIX Response:

Site Inspection Results

As mentioned above, a site inspection was undertaken on the 31 October 2023 at the intersection of Warks Hill Road and Bells Line of Road. The following design aspects were considered during the inspections:

- Bells Line of Road has a posted speed limit of 60km/hr;
- 1.1m driver eye height;
- 1.25m top of car height;
- 0.65m object height (indicator light); and
- 5.0m minimum between driver and conflict point.
- Note that photos are taken from the side of Bells Line of Road viewing a bollard placed in the verge immediately north of Warks Hill Road approximately 5.0m behind the centre of the northbound lane depicting a car waiting to turn out of Warks Hill Road for the safety of our staff, noting unobstructed visibility between two objects is mutual.

The site inspection revealed the following sight distance is available at the intersection of Warks Hill Road and Bells Line of Road:

- Approximately 123m for southbound traffic along Bells Line of Road (**Figure 2**); and
- Approximately 138m for northbound traffic along Bells Line of Road (**Figure 3**).

Minimum Gap Sight Distance Assessment

As defined by Austroads, Minimum Gap Sight Distance (MGSD) is "*based on distances corresponding to the critical acceptance gap that drivers are prepared to accept when undertaking a cross or turning manoeuvre at intersections*".

In this regard, Austroads 2023 specifies a MGSD of 83m for both left and right turning vehicle from a minor road (i.e. a critical acceptance gap of 5 seconds to approaching vehicles with an 85th percentile speed of 60km/h).

Figure 2 and **3** demonstrates the available sight distance to the south and north is approximately 138m and 123m respectively, exceeding the MGSD requirement of 83m for both left and right turning vehicle from Warks Hill Road. MGSD is considered to be met.

Figure 2: Warks Hill Road Sight Distance to Southbound Traffic (Approx. 123m)

Figure 3: Warks Hill Road Sight Distance to Northbound Traffic (Approx. 138m)

Safe Intersection Sight Distance Assessment

As defined by Austroads, Safe Intersection Sight Distance (SISD) is "*the minimum sight distance which should be provided on the major road at any intersection". It is also the minimum distance required for a driver of a vehicle on the major road to observe a vehicle on a minor road approach moving into a collision situation (e.g. in the worst case, stalling across the traffic lanes), and to decelerate to a stop before reaching the collision point*".

It is reiterated that the adopted design speed at this location is 60km/h based on our earlier discussion. Accordingly, for a design speed of 60km/h and reaction time of 1.5 seconds (reasonable for mountainous roads with consistently tight alignments) requires a corresponding SISD of 114m.

Figure 2 and **3** demonstrates the available sight distance to the south and north is approximately 138m and 123m respectively, exceeding the SISD requirement of 114m. SISD is considered to be met.

Summary of Findings

On the above basis, our assessment identifies that both MGSD and SISD are satisfied at the Warks Hill Road / Bells Line of Road intersection and vehicles are able to turn from Warks Hill Road onto Bells Line of Road satisfactorily.

Notwithstanding, it is in our view that strict application of SISD or MGSD are not appropriate for existing mountainous roads built long before the current standards or guidelines were published, and the onerous should not be placed on the developer to resolve existing geometric design constraints associated with these types of roads.

It is further noted that Warks Hill Road is an existing collector road used by local residents of Kurrajong Heights on a daily basis with no recorded side impact collisions at the Warks Hill Road / Bells Line of Road intersection for the five-year period between 2018 to 2022 indicating there are no known sight distance issues.

Item 3.

> *Douglas Road is located on a crest and a slight bend. It is also concealed to drivers travelling northbound on Bells Line of Road until about ~60m south of the intersection. This may cause rear end crashes as more vehicles slow down to turn left into Douglas Road on Bells Line of Road.*

TRAFFIX Response:

TRAFFIX concur with TfNSW that the Douglas Road / Bells Line of Road intersection is concealed due to existing road geometry and the continuous edge line through the intersection on the south-western side of the road. This is further acknowledged by the installation of an intersection warning sign (**Figure 4**) on the northbound approach to the intersection.

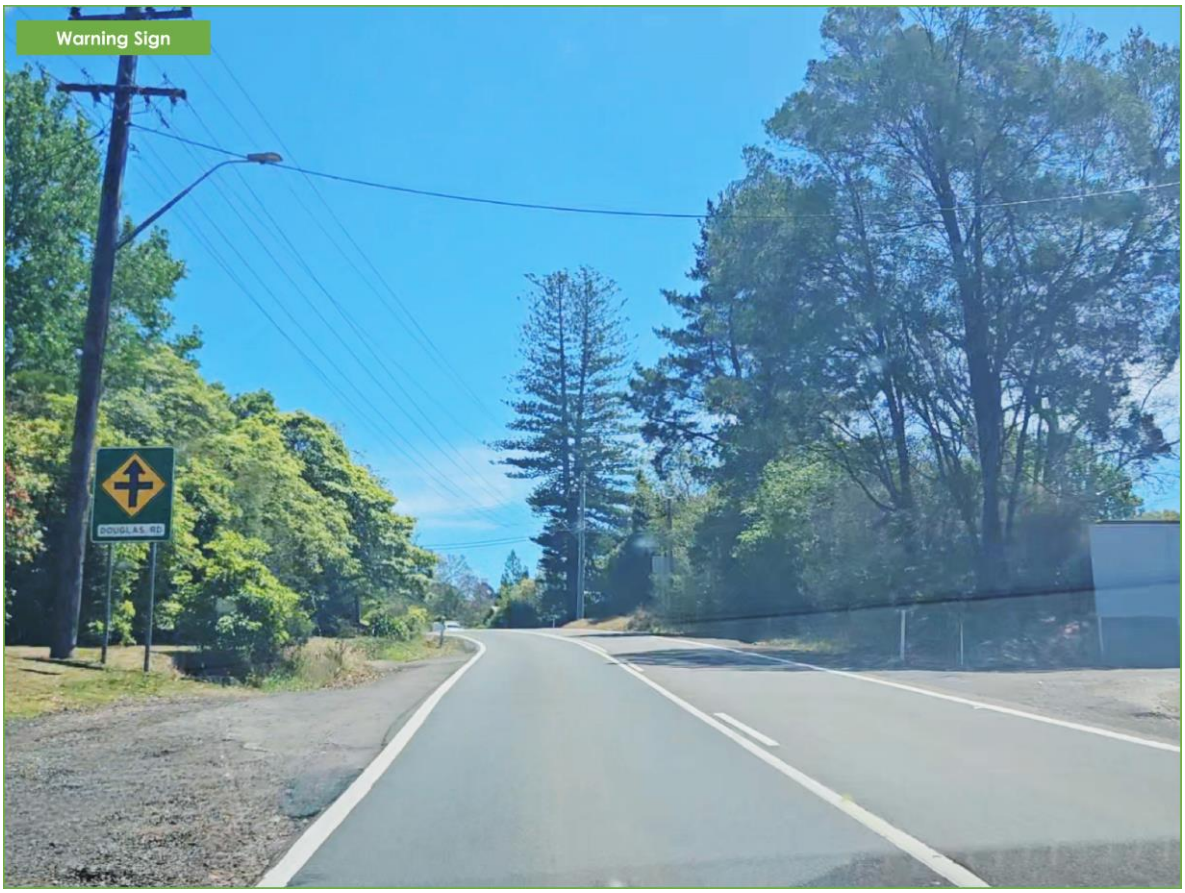


Figure 4: Douglas Road Intersection Warning Sign on Bells Line of Road

Notwithstanding, the existing IGA X-Press Kurrajong Height and restaurant located at 1255 Bells Line of Road, Kurrajong Heights relies on a similar vehicular ingress arrangement via Douglas Road. The existing IGA and restaurant development is expected to generate comparable traffic volumes to the development proposal and a review of the five-year period between 2018 to 2022 shows no rear-end crashes has occurred in the immediate vicinity of Douglas Road / Bells Line of Road.

On the basis that the existing development relying on a similar vehicle ingress arrangement for the past 10 years has operated without any safety issues, it is in our view the Douglas Road / Bells Line of Road will continue to operate satisfactorily as per existing.

Item 4.

Drivers turning right into Douglas Road will also have poor sight distance looking south down Bells Line of Road and may not be able to judge appropriate gap distance to make the turn. Sight distance details at this intersection is requested please.

TRAFFIX Response:

Austroads 2023 specifies a MGSD of 67m for right turning vehicle from a major road across one lane (i.e. a critical acceptance gap of 4 seconds to approaching vehicles with an 85th percentile speed of 60km/h).

Figure 5 demonstrates the available sight distance to the south is greater than 67m, therefore satisfying the MGSD requirement of 67m for vehicles turning right from Bells Line of Road onto Douglas Road.

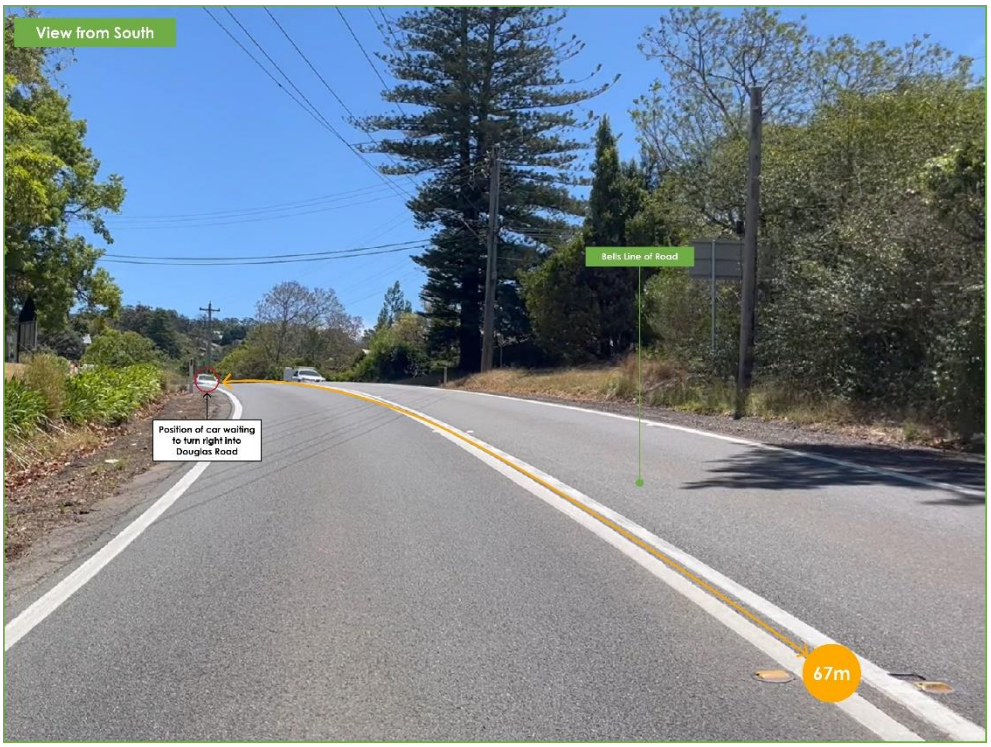


Figure 5: Bells Line of Road Sight Distance to Northbound Traffic (Approx. 67m)

Item 5.

Vehicles slowing to turn right from Bells Line of Road into the one-way entry on Douglas Road may also cause delays and safety issues on Bells Line of Road. The impact to the road network cannot be ascertained noting the traffic report does not provide details of traffic volumes on Bells Line of Road.

TRAFFIX Response:

The proposed hotel development is expected to primarily attract traffic from Sydney, therefore, vehicles are expected to predominantly arrive northbound turning left into Douglas Road. Tourist traffic from central regional areas of NSW in the southbound direction are expected to be negligible and are not be expected to cause delays and safety issues on Bells Line of Road.

On the contrary, the existing IGA X-Press Kurrajong Height and restaurant located at 1255 Bells Line of Road, Kurrajong Heights would attract a more balanced traffic distribution in both directions and there are no evidence of delay or safety issues at the Bells Line of Road / Douglas Road intersection.

On the above basis, it is in our view that traffic surveys and modelling are unwarranted, and our position remains that the traffic generated by the proposed development will have minimal impacts on the surrounding road network.

Item 6.

> *Please provide a sight distance check to demonstrate that vehicles can safely turn into and out of Douglas Road / Warks Hill Road.*

TRAFFIX Response:

Vehicles turning left into Douglas Road from Bells Line of Road do not need to give way to traffic and therefore not subject to any MGSD requirements.

Vehicles turning right into Douglas Road from Bells Line of Road has been addressed under **Item 4**.

Vehicles turning left and right onto Bells Line of Road from Warks Hill Road has been addressed under **Item 1**.

Summary

Based on our site investigations and findings, the proposed development is expected to operate satisfactorily with minimal traffic impacts, and continued support is therefore given on transport planning grounds.

We trust the above is of assistance and please don't hesitate to contact the undersigned should you have any queries.

Yours faithfully,

Traffix

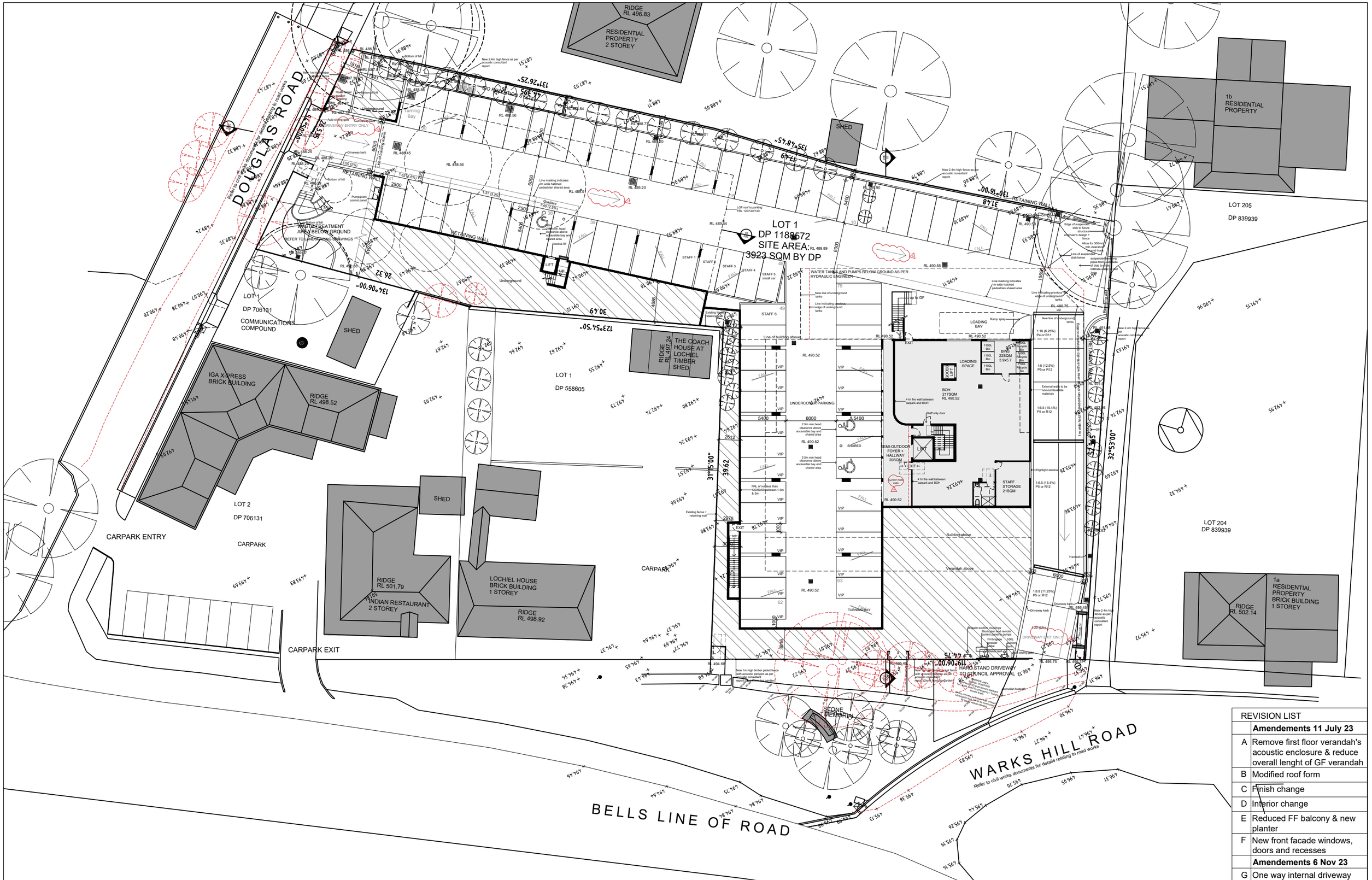
[redacted]

Thomas Yang
Executive Engineer

Encl: Attachment 1 – Amended Plans

ATTACHMENT 1

Amended Plans



REVISION LIST	
	Amendements 11 July 23
A	Remove first floor verandah's acoustic enclosure & reduce overall lenght of GF verandah
B	Modified roof form
C	Finish change
D	Interior change
E	Reduced FF balcony & new planter
F	New front facade windows, doors and recesses
	Amendements 6 Nov 23
G	One way internal driveway

Legend

Boundary Line
Existing RL
RL 485.92 Proposed RL
Tree removal

Issue	Description	Issue Date
1	DA	17.03.22
2	DA	11.07.23
3	DA Amended	06.11.23

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ARCHEBIOSIS ARCHITECTS

Project
Kurrajong Heights Hotel & Accommodation

Drawing content
Lower Ground Floor Site Plan

Scale
1:400@A3

Drawing No.
SK102

Client
Balma Projects Pty Ltd

Project Status
DA

Date
6/11/2023

Issue No.
3

TRAFFIC IMPACT ASSESSMENT

Proposed Hotel Development
27 Douglas Road, Kurrajong Heights

Reference: 20.544r01v09
Date: September 2023

TRAFFIX
TRAFFIC & TRANSPORT PLANNERS

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Document Set ID: 8586613
Version: 1, Version Date: 26/09/2023

DOCUMENT VERIFICATION

Job Number	20.544			
Project	27 Douglas Road, Kurrajong Heights			
Client	Balma Projects Pty Ltd			
Revision	Date	Prepared By	Checked By	Signed
v09	26/09/2023	Neil Caga	Vince Doan	[redacted]

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CONTENTS

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1. INTRODUCTION

TRAFFIX has been commissioned by Balma Projects Pty Ltd to undertake a traffic impact assessment in support of a development application (DA) relating to a hotel development at 27 Douglas Road, Kurrajong Heights. The development is located within the Hawkesbury City Council Local Government Area (LGA) and has been assessed under that Council's controls.

This report documents the findings of our investigations and should be read in the context of the Statement of Environmental Effects (SEE), prepared separately.

In addition to the above, reference should be made to Council's email correspondence dated 28 March 2023 specifically, Item 6 – Traffic and Parking.

The report is structured as follows:

- Section 2: Describes the site and its location
- Section 3: Documents existing traffic conditions
- Section 4: Describes the proposed development
- Section 5: Assesses the parking requirements
- Section 6: Assesses traffic impacts
- Section 7: Discusses access and internal design aspects
- Section 8: Presents the overall study conclusions

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2. LOCATION AND SITE

The subject site at 27 Douglas Road, Kurrajong Heights is located approximately 4.2 kilometres northwest of Kurrajong town centre and is legally identified as Lot 1 of DP1188572. More specifically, it is located on the northern side of Douglas Road and southwestern side of the Bells Line of Road and Warks Hill Road intersection.

The site is irregular in configuration and has a total site area of 3,867m^2. It has a northern boundary of 52.3 metres and western boundary of 93.4 metres to neighbouring residential properties, with a southern frontage to Douglas Road of 26.5 metres. The remaining eastern boundary of 141.2 metres comprises a 44.8 metre frontage to Bells Line of Road and Warks Hills Road, and 96.4 metres to existing retail developments.

The site is currently vacant and provides vehicular access via a gate from Douglas Road, situated on the southern frontage of the site.

A Location Plan is presented in **Figure 1**, with a Site Plan presented in **Figure 2**. Reference should also be made to the Photographic Record presented in **Appendix A**, which provides an appreciation of the general character of roads and other key attributes in proximity to the site.

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Figure 1: Location Plan

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Figure 2: Site Plan

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3. EXISTING TRAFFIC CONDITIONS

3.1 Road Network

The road hierarchy in the vicinity of the site is shown in **Figure 3** with the following roads of particular interest:

- Bells Line of Road: forms part of a TfNSW Main Road (MR 184) that traverses east-west between Kurrajong Road in the east and Chifley Road in the west. Within the vicinity of the site, it is subject to 60km/h speed zoning and accommodates a single lane of traffic in each direction. Bells Line of Road does not permit on on-street parking on either side of the road.
- Warks Hill Road: a local road that traverses north-south between a dead-end at Kurrajong Heights and Bells Line of Road in the west. Within the vicinity of the site, it is subject to 50km/h speed zoning and accommodates a single lane of traffic in each direction. Warks Hill Road permits unrestricted on-street parking along both sides of the road.
- Douglas Road: a local road that traverses east-west between East Street in the east and private driveways in the west. It is subject to 50km/h speed zoning and accommodates a single lane of traffic in each direction, east of the Bells Line of Road. It should be noted that Douglas Road, west of the Bells Line of Road, generally accommodates a single unsealed road.

It can be seen from **Figure 3** that the site is conveniently located with respect to the main arterial road serving the region, being Bells Line of Road, with connections to the north and south via Warks Hill Road and Douglas Road, respectively. As such, traffic is able to be distributed onto the wider road network, minimising traffic impacts.

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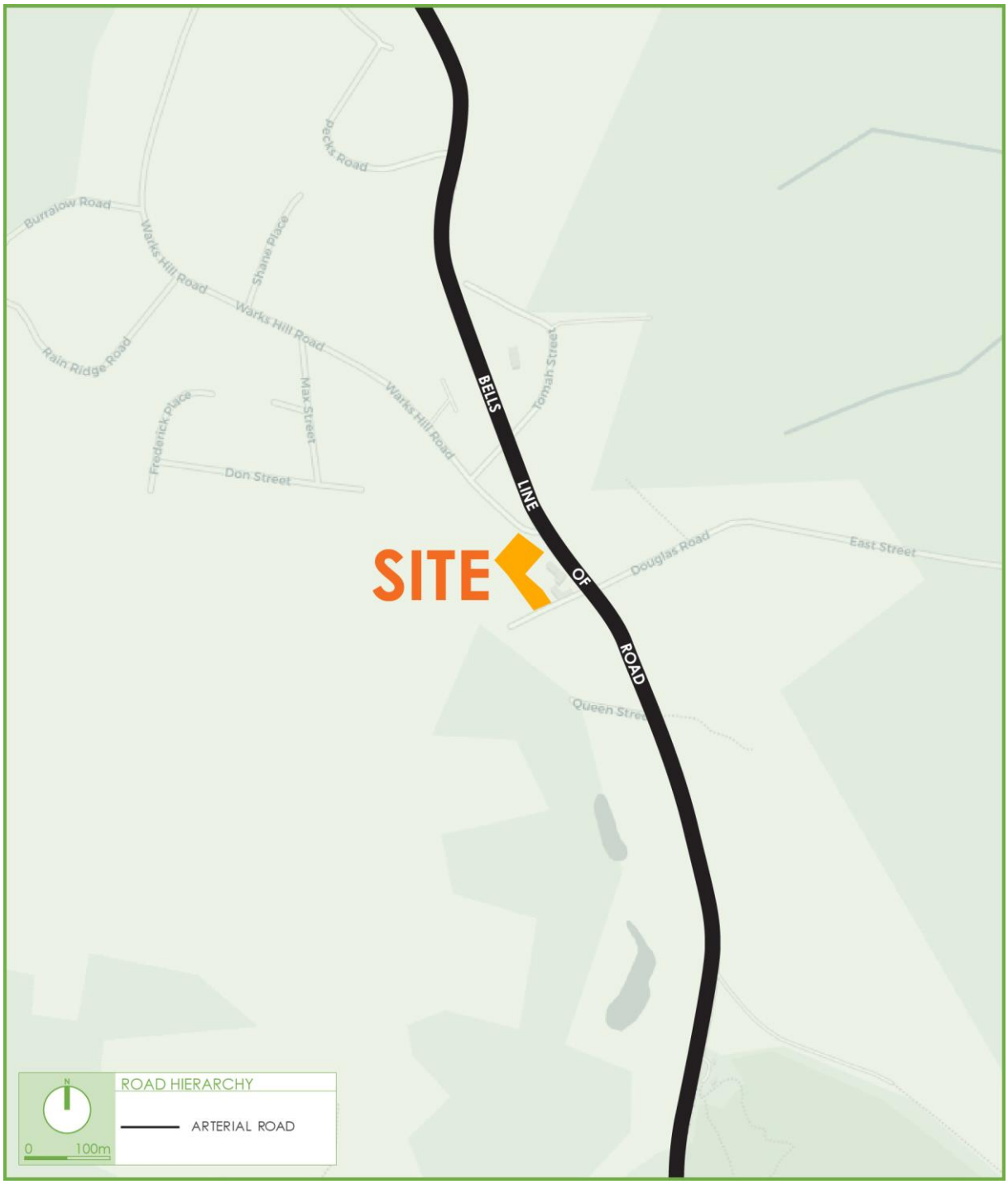

Figure 3: Road Hierarchy

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3.2 Public Transport

The subject site is located within 50 metres of bus stops along Bells Line of Road, which provide bus services along Route 682 between Berambing and Kurrajong to Richmond. Furthermore, this bus route provides connection to Richmond Railway Station, thereby connecting commuters to the wider public transport network. These bus stops and route are presented in **Figure 4** below.

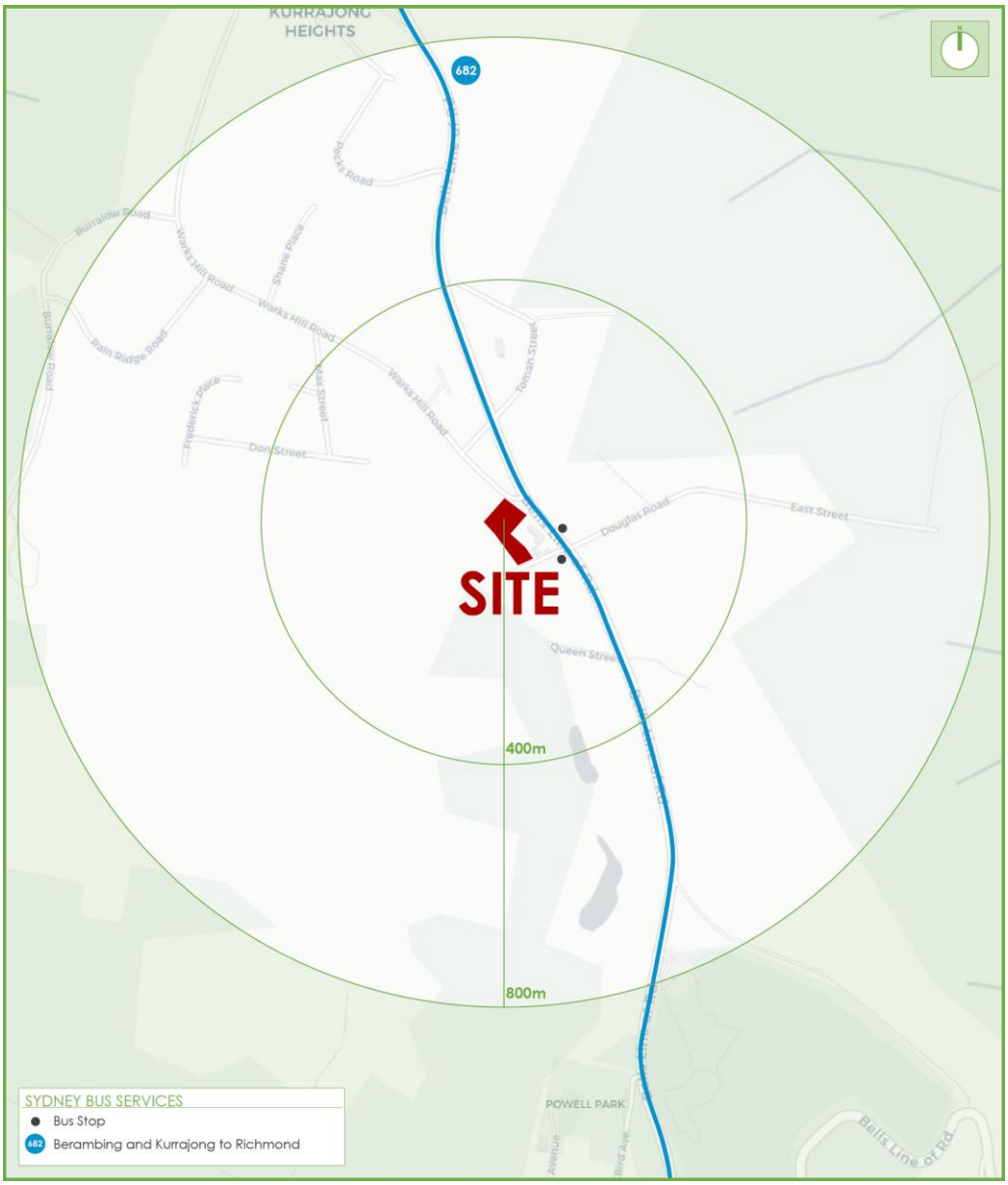

Figure 4: Public Transport

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4. DESCRIPTION OF PROPOSED DEVELOPMENT

A detailed description of the proposed development is provided in the SEE, prepared separately. In summary, the development for which approval is now sought comprises the following components and associated gross floor areas (GFA):

- Construction of a hotel development with a total area of 1,415m^2 GFA, including:
  - 163m^2 GFA within the Lower Ground Floor;
  - 772m^2 GFA within the Ground Floor; and
  - 480m^2 GFA within the First Floor.
- Construction of ancillary components including amenities, kids area, patron circulation areas, foyers, smoking areas and associated back-of-house areas;
- Construction of nine (9) cabins and ancillary day spa;
- Provision of a total of 75 car parking spaces within an at-grade car park
- Provision of a loading bay that is able to accommodate an 8.8 metre long medium rigid vehicle (MRV); and
- Provision of two (2) vehicular accesses from Douglas Road and Warks Hill Road.

The parking and traffic impacts arising from the development are discussed in **Section 5** and **Section 6**. Reference should be made to the plans submitted separately to Council which are presented at reduced scale in **Appendix B**.

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5. PARKING REQUIREMENTS

5.1 Car Parking

Reference should be made to the Parking Assessment Report prepared by John Coady Consulting.

5.2 Accessible Parking

The Hawkesbury DCP 2002 does not provide accessible car parking rates and provisions for hotel developments. As such, the accessible car parking rates and provisions have been assessed under the Building Code of Australia (BCA) *Disability (Access to premises – Buildings) Standards 2010*. The accessible parking rate for the proposed development is 1 space for every 50 car parking spaces or part thereof (Class 6).

Application of this rate to the total 75 car parking spaces equates to a requirement for two (2) accessible parking spaces. In response, the development proposes two (2) accessible parking spaces, thereby compliant with the minimum requirements of the BCA.

5.3 Motorcycle and Bicycle Parking

The Hawkesbury DCP 2002 does not provide motorcycle or bicycle parking rates and provisions for hotel developments. As such, the development does not propose any motorcycle and bicycle parking spaces.

5.4 Refuse Collection and Servicing

The Hawkesbury DCP 2002 does not provide loading bay provisions for hotel developments. Nevertheless, the development proposes a single loading bay for all refuse collection and servicing within the lower ground floor area, situated on the west side of the club building. This loading bay is able to accommodate an 8.8 metre long MRV, with the service vehicle able to enter and egress the development in a forward direction. Accordingly, this refuse collection and servicing arrangement is considered acceptable, given the nature and scale of the development.

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5.5 Courtesy Shuttle Bus Service

The Hawkesbury DCP 2002 does not have a requirement for a courtesy bus service. Nevertheless, the development proposes to utilise the loading bay for shuttle bus pick-up and drop-off. This courtesy bus is proposed to provide services throughout the Kurrajong region, hence considered appropriate for the proposed development.

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6. TRAFFIC AND TRANSPORT IMPACTS

6.1 Development Trip Generation

6.1.1 Club Component

The RMS Guide to Traffic Generating Developments 2002 recommends the analysis of traffic generation for a proposed 'Hotel – Traditional' development be based on surveys of similar existing hotels.

In addition to the above, the utilisation of the proposed development is more akin to a 'Club' development. As such, the RMS Guide provides the following similar advice for 'Club' developments:

> *'Surveys of licensed clubs conducted by the RTA in 1978 indicate that it is difficult to generalise on their traffic generation because of the diversified nature of clubs. Traffic generation is affected by such factors as the provision of live entertainment, gambling facilities, number of members and club location. Behavioural changes since 1978, such as the introduction of random breath testing, also make such generalisations more difficult.'*

Traffic generation rates are therefore not specified in the RMS Guide for this type of development and in any event, such a rate would not be as accurate or reliable. As such, the RMS Guide prefers a methodology based on a survey assessment of comparable developments. TRAFFIX has had extensive experience with developments of this nature and has identified an average traffic generation rate, based on surveys of comparable developments. This average rate is summarised as follows:

- 2.38 veh/hr per 100m^2 GFA (evening peak period)

Application of the average traffic generation rate to the proposed 1,415m^2 GFA and assuming a modal split of 50:50 for this component of the development, will result in the following anticipated traffic generation for the club component:

- 34 veh/hr during the evening peak period (17 in, 17 out)

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6.1.2 Accommodation Component

The RMS Guide to Traffic Generating Developments 2002 provides the traffic generation rates for casual accommodation (motels) at rate of 0.4 vehicle trips per unit. Application of this rate to the proposed nine (9) cabins and assuming a modal split of 80:20, will result in the following anticipated traffic generation for the accommodation component:

- 4 veh/hr during the evening peak period (3 in, 1 out)

6.1.3 Combined Traffic Generation

The combined vehicle trip generation of the development is summarised as follows:

- 38 veh/hr during the evening peak period (20 in, 18 out)

6.2 Traffic Impacts

The above traffic generation is considered to be a conservative assessment, with the impact of anticipated traffic generation expected to be significantly less, given the following:

- The abovementioned traffic generation rate is applicable to the club component of the proposed development's evening peak period. This evening peak period is not expected to coincide with the surrounding network PM peak period and as such, the anticipated traffic generation will have minimal impacts on the surrounding network;
- The proposed development is significantly smaller than the comparable surveyed developments. The anticipated trip generation is therefore expected to be reduced for the proposed development;
- The development proposes two (2) vehicular accesses, resulting in the anticipated traffic volumes being distributed onto Warks Hill Road and Douglas Road. As a result, the traffic impacts on the surrounding intersections are anticipated to be marginal and, in any event, well within typical fluctuations in background traffic volumes; and
- The development proposes a courtesy bus service that will provide services throughout the Kurrajong region. Accordingly, this service will provide an alternative mode of transportation and assist in reducing the traffic generation of the proposed development;

As a result, the traffic generation of the proposed development is considered to have minimal impacts on the surrounding road network and is supportable on traffic planning grounds.

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7. ACCESS AND INTERNAL DESIGN ASPECTS

7.1 Vehicular Access

7.1.1 Light Vehicle Access

The development proposes a total of 75 car parking spaces (User Class 2) with access via Douglas Road and egress via Warks Hill Road (being local roads). It will therefore require a Category 2 driveway under AS2890.1 (2004), being a combined entry and exit width of 6.0 to 9.0 metres. In response, the development proposes a 6.1 metre wide entry access via Douglas Road and a 6.1 metre wide egress via Warks Hill Road. These vehicular access arrangements are superior to the requirements of AS2890.1 (2004) and is consistent to the requirements from TfNSW correspondence, therefore acceptable.

7.1.2 Heavy Vehicle Access

The development requires refuse collection and servicing to be conducted by an 8.8m long MRV. It is noted that access for an MRV can only be obtained via Warks Hill Road due to the lower head height clearances under the cabins (via Douglas Road). This arrangement is considered acceptable as waste collection and service vehicles would only access the development during off-peak periods and generally outside of operational hours.

A swept path analysis of all design vehicles entering and exiting the proposed development, including the service vehicle, has been included in **Appendix C**, demonstrating satisfactory operation of the proposed vehicular accesses.

7.2 Internal Design

The internal car park complies with the requirements of AS2890.1 (2004), AS2890.2 (2018) and AS2890.6 (2009), with the following characteristics noteworthy:

7.2.1 Parking Modules

- All patron / visitor car parking spaces have been designed in accordance with AS2890.1 (2004) User Class 2, being a minimum width of 2.5 metres and length of 5.4 metres.

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- All staff car parking spaces have been designed in accordance with AS2890.1 (2004) User Class 1, being a minimum width of 2.4 metres and length of 5.4 metres.
- All accessible parking spaces have been designed in accordance with AS2890.6 (2009), being a minimum width of 2.4 metres, length of 5.4 metres and provide an adjacent shared zone with the same dimensions.
- It is proposed that the internal circulation will be one-way in a clockwise direction for light vehicles as shown in Drawing TX.01 (Appendix C). All line-marking to show arrows for one-way within the main circulation areas. It is noted that the Architectural plans by Archebiosis dated 11 July 2023 show the internal circulation in the parking area to be two-way. This is an oversight. We recommend (and are instructed the applicant will agree that) a condition be imposed to the effect that internal circulation be one way in a clockwise direction with access from Douglas Road and egress via Warks Hill Road (although heavy vehicle access for refuse collection, servicing, loading dock and the like may have access from Warks Hill Road).
- The loading bay to be designed in accordance with AS2890.2 (2018) to accommodate an 8.8 metre long MRV, being a minimum width of 3.5 metres and length of 8.8 metres.
- All spaces located adjacent to obstructions of greater than 150mm in height are provided with an additional width of 300mm.

7.2.2 Ramps

- All accesses are provided a maximum gradient of 1 in 20 (5%) for the initial 6.0m inside the property boundary, in accordance with AS 2890.1 (2004) Section 3.3 (a).
- The internal ramp has been designed in accordance with AS2890.2 (2018) to accommodate an 8.8 metre long MRV, being a maximum gradient of 1 in 6.5 (15.4%) and containing gradient transitions with a maximum rate of change of 1 in 16 (6.25%).

7.2.3 Clear Head Heights

- A minimum clear head height of 2.2 metres is to be provided for all trafficable areas of the car park area, as required under AS2890.1 (2004).
- A minimum clear head height of 2.5 metres is to be provided for all accessible parking spaces and adjacent shared areas, as required under AS2890.6 (2009).

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- A minimum clear head height of 4.5 metres is to be provided for trafficable areas of the 8.8 metre long MRV, as required under AS2890.2 (2018).

7.2.4 Other Considerations

- Dead-end aisles are provided with the required 1.0 metre aisle extension, as required under AS2890.1 (2004) Figure 2.3.
- Visual sight triangles have been provided for all vehicular accesses, as required under AS2890.1 (2004) Figure 3.3.
- All columns are located outside of the parking space design envelope, as required under AS2890.1 (2004) Figure 5.2.
- A swept path analysis has been undertaken and included in **Appendix C** demonstrating satisfactory vehicle movements of an 8.8 metre long MRV to/from the loading dock.

7.3 Summary

In summary, the internal configuration of the car park has been designed in accordance with AS2890.1 (2004), AS2890.2 (2018) and AS2890.6 (2009). It is however envisaged that a condition of consent would be imposed requiring compliance with these standards and as such any minor amendments considered necessary (if any) can be dealt with prior to the release of a Construction Certificate.

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8. CONCLUSION

In summary:

- The proposal seeks approval to construct a hotel development at 27 Douglas Road, Kurrajong Heights, comprising a club component of 1,415m^2 GFA, nine (9) cabins and total provision for 75 car parking spaces.
- The car parking requirements for the proposed development should be referred to the Parking Assessment Report prepared by John Coady Consulting.
- The anticipated traffic generation rate for the proposed development was determined based on surveys of comparable developments and the RMS Guide to Traffic Generating Developments 2002. Application of these rates resulted in an anticipated traffic generation of 38 veh/hr during the evening peak period, which would be distributed across two (2) vehicular accesses onto Warks Hill Road and Douglas Road.

  This is considered a conservative assessment, given that the envisaged peak period of the club component of the proposed development would not coincide with the network peak period of the surrounding roads. Accordingly, the traffic generation of the proposed development is considered to have minimal impacts on the surrounding road network.
- The internal configuration of the car park area has been designed in accordance with AS2890.1 (2004), AS2890.2 (2018) and AS2890.6 (2009). It is however envisaged that a condition of consent would be imposed requiring compliance with these standards. As such, any minor amendments considered necessary (if any) can be dealt with prior to the release of a Construction Certificate.

This traffic impact assessment therefore demonstrates that the subject application is supportable on traffic planning grounds. TRAFFIX anticipates an ongoing involvement during the development approval process.

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APPENDIX A

Photographic Record

Document Set ID: 8586613
Version: 1, Version Date: 26/09/2023

View looking north along Bells Line of Road at the intersection with Warks Hill Road

View looking east along Warks Hill Road at the intersection with Bells Line of Road

Document Set ID: 8586613
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View looking west along Warks Hill Road from the subject site's access driveway

View looking south along Bells Line of Road at the intersection with Douglas Road

Document Set ID: 8586613
Version: 1, Version Date: 26/09/2023

View looking east along Douglas Road at the intersection with Bells Line of Road

View looking west along Douglas Road showing the gravel road

Document Set ID: 8586613
Version: 1, Version Date: 26/09/2023

View looking west along Douglas Road showing the sealed road

View looking north at the proposed exit access driveway of the development

View looking west along Douglas Road showing the gravel road

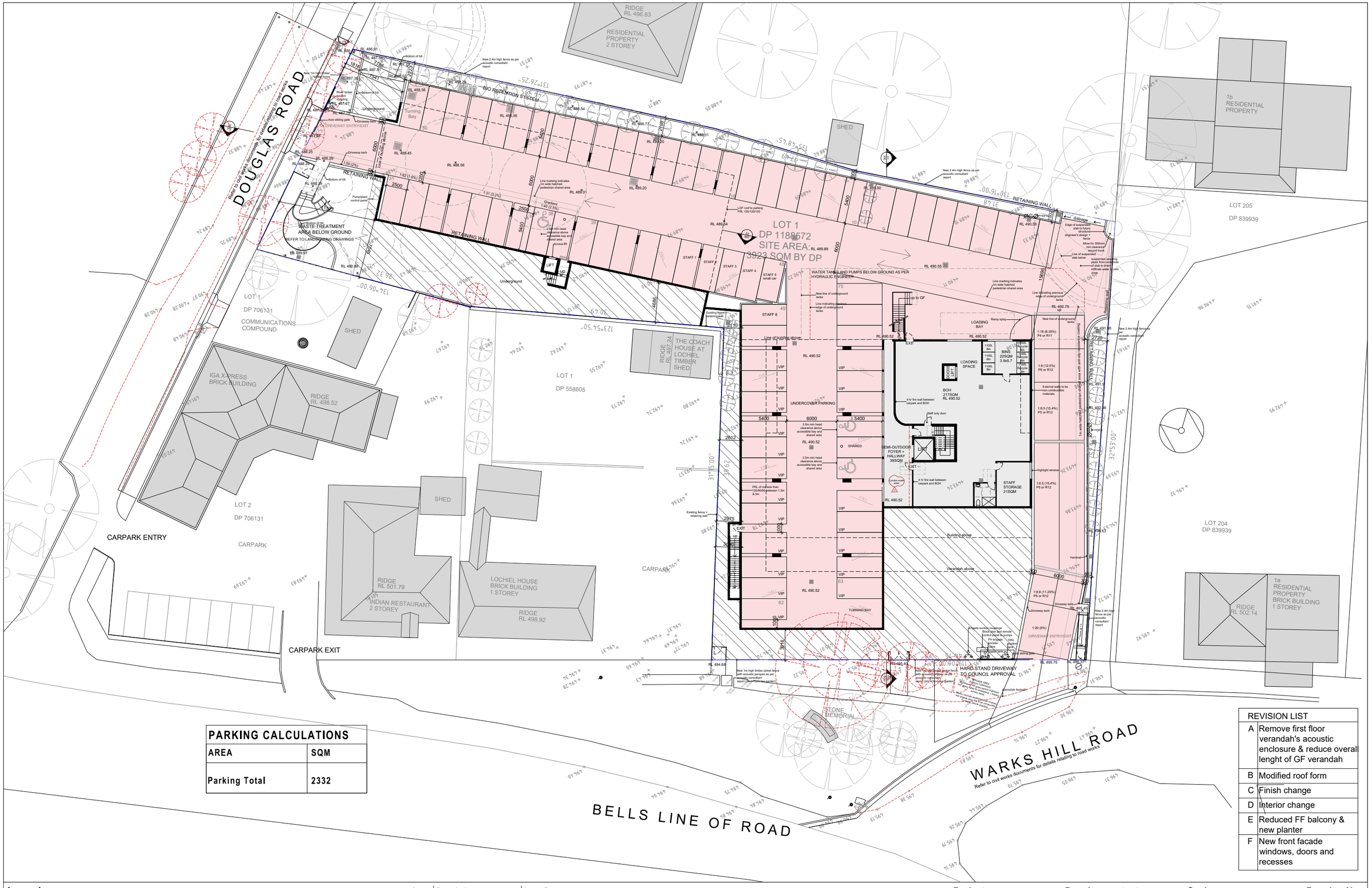
View looking east along Douglas Road showing the sealed road

Document Set ID: 8586613
Version: 1, Version Date: 26/09/2023

APPENDIX B

Reduced Plans

Document Set ID: 8586613
Version: 1, Version Date: 26/09/2023



PARKING CALCULATIONS	
AREA	SQM
Parking Total	2332

REVISION LIST	
A	Remove first floor verandah's acoustic enclosure & reduce overal lenght of GF verandah
B	Modified roof form
C	Finish change
D	Interior change
E	Reduced FF balcony & new planter
F	New front facade windows, doors and recesses

Legend

Boundary Line
Existing RL
RL 485.92 Proposed RL
Tree removal
Car Park Area

Issue	Description	Issue Date
1	DA	17.03.22
2	DA	11.07.23

Shop 3B, 780 Bourke St, Redfern NSW 2016
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ARCHEBIOSIS ARCHITECTS

Project Kurrajong Heights Hotel & Accommodation

Drawing content Car Park Area Calculations

Scale 1:400@A3

Drawing No. SK403

Client Balma Projects Pty Ltd

Project Status DA

Date 11/07/2023

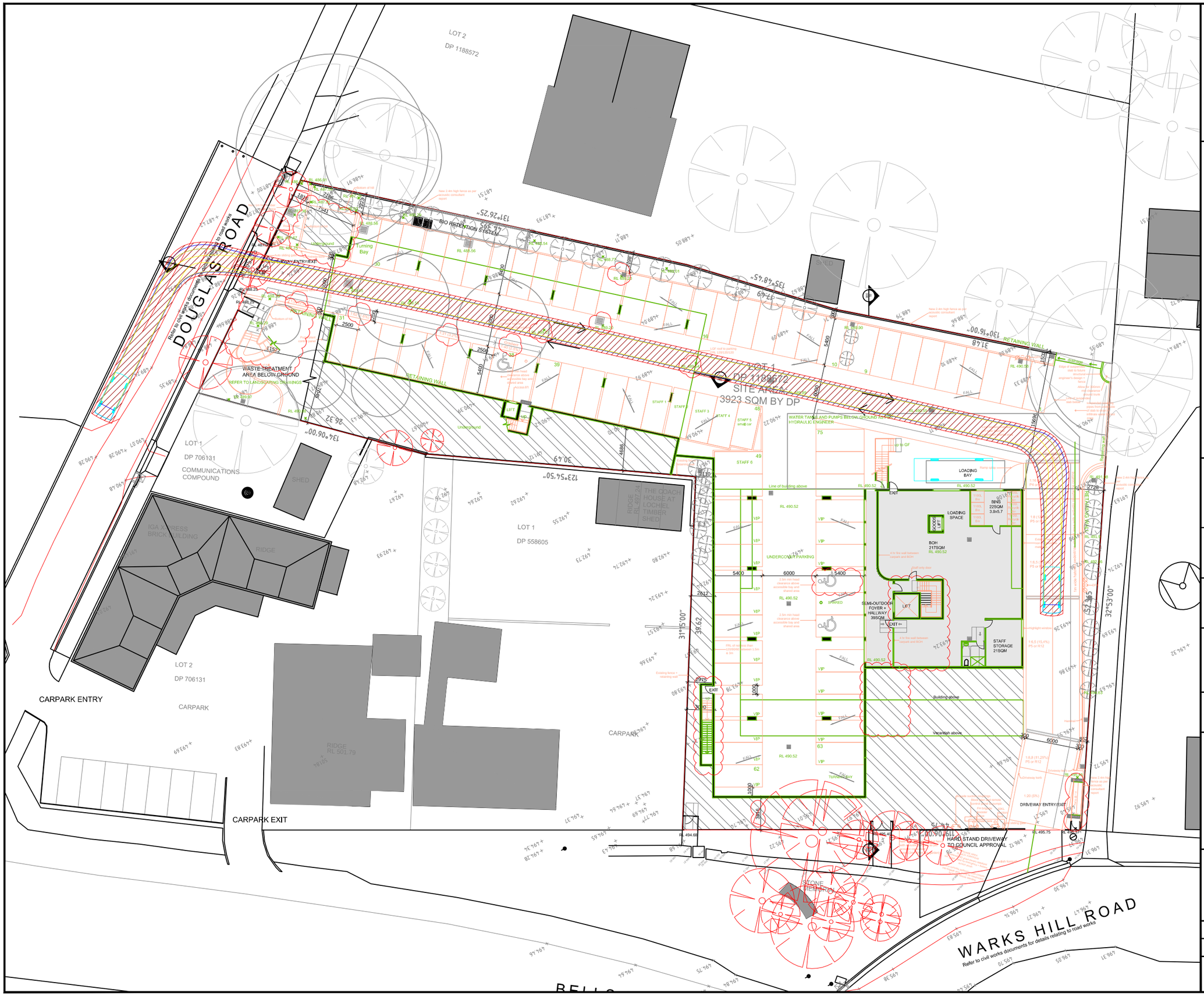
Issue No. 2

Document Set ID: 8586613
Version: 1, Version Date: 26/09/2023

APPENDIX C

Swept Path Analysis

Document Set ID: 8586613
Version: 1, Version Date: 26/09/2023



Notes:

This drawing is prepared for information purposes only. It is not to be used for construction.

TRAFFIX is responsible for vehicle swept path diagrams and/or drawing mark-ups only. Base drawing prepared by others.

Vehicle swept path diagrams prepared using computer generated turning path software and associated CAD drawing platforms. Vehicle data based upon relevant Australian Standards (*AS/NZS 2890.1:2004 Parking facilities - Off-street car parking*, and/or *AS2890.2:2002 Parking facilities - Off-street commercial vehicle facilities*). These standards embody a degree of tolerance, however the vehicle characteristics in these standards represent a suitable design vehicle and do not account for all variations in vehicle dimensions / specifications and/or driver ability or behaviour.

Rev.	Revision Note	By.	Date
A	Swept Path Analysis	NC	14-09-2023

Swept Path Legend

- Wheel Path
- Vehicle Body Envelope
- Clearance Envelope (300mm)

Architect
Archebiosis Architects

Client
Balma Projects Pty Ltd

Scale / Plan Orientation

0 4 8 12 16m
1:400 @ A3

Project Description
27 Douglas Road
KURRAJONG HEIGHTS NSW 2758

Drawing Prepared By

TRAFFIX
TRAFFIC AND TRANSPORT PLANNERS
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PO Box 1124
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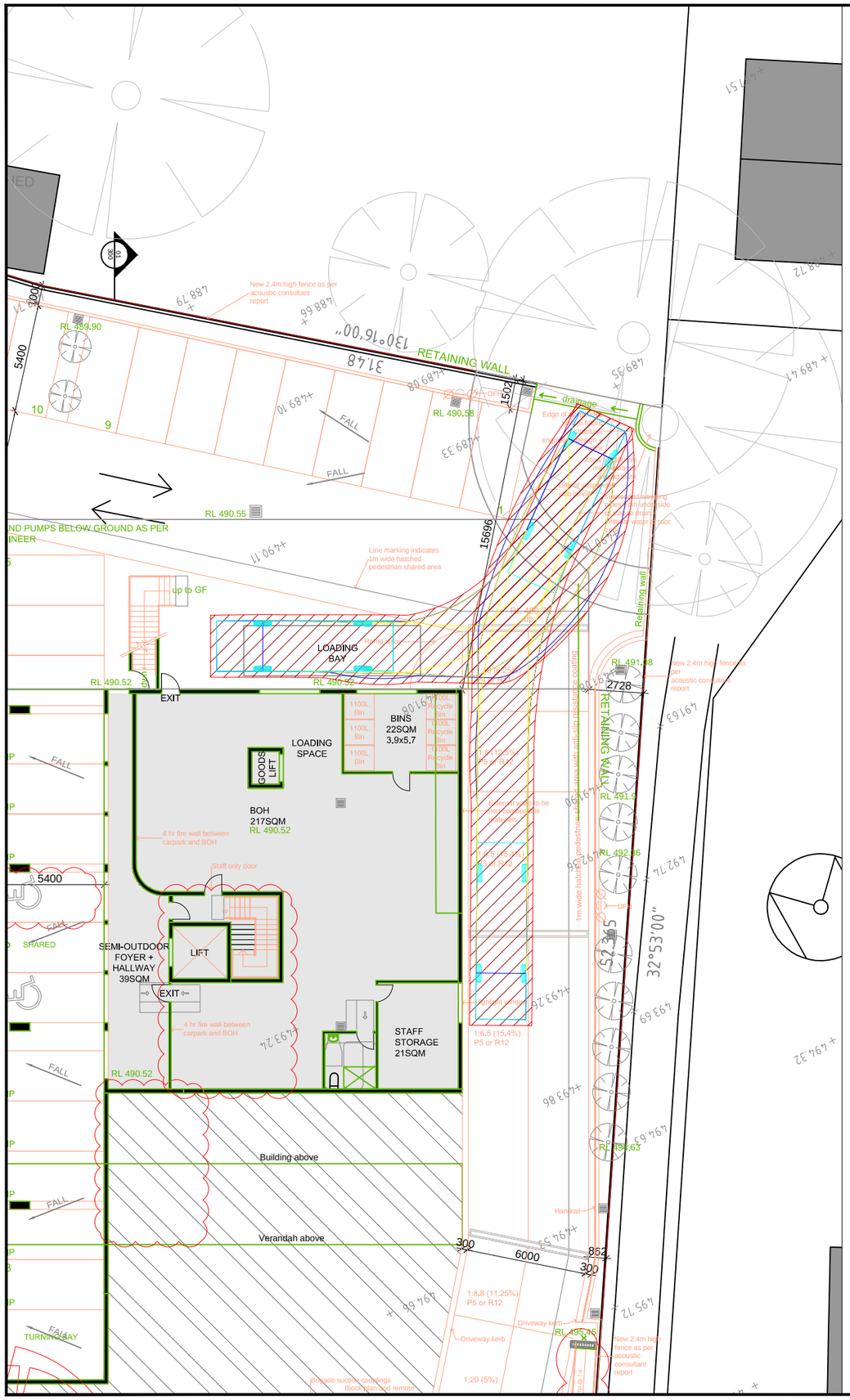
Drawing Title
Swept Path Analysis
Lower Ground Floor - Carpark Area
B99 Design Vehicle
Vehicle General Circulation

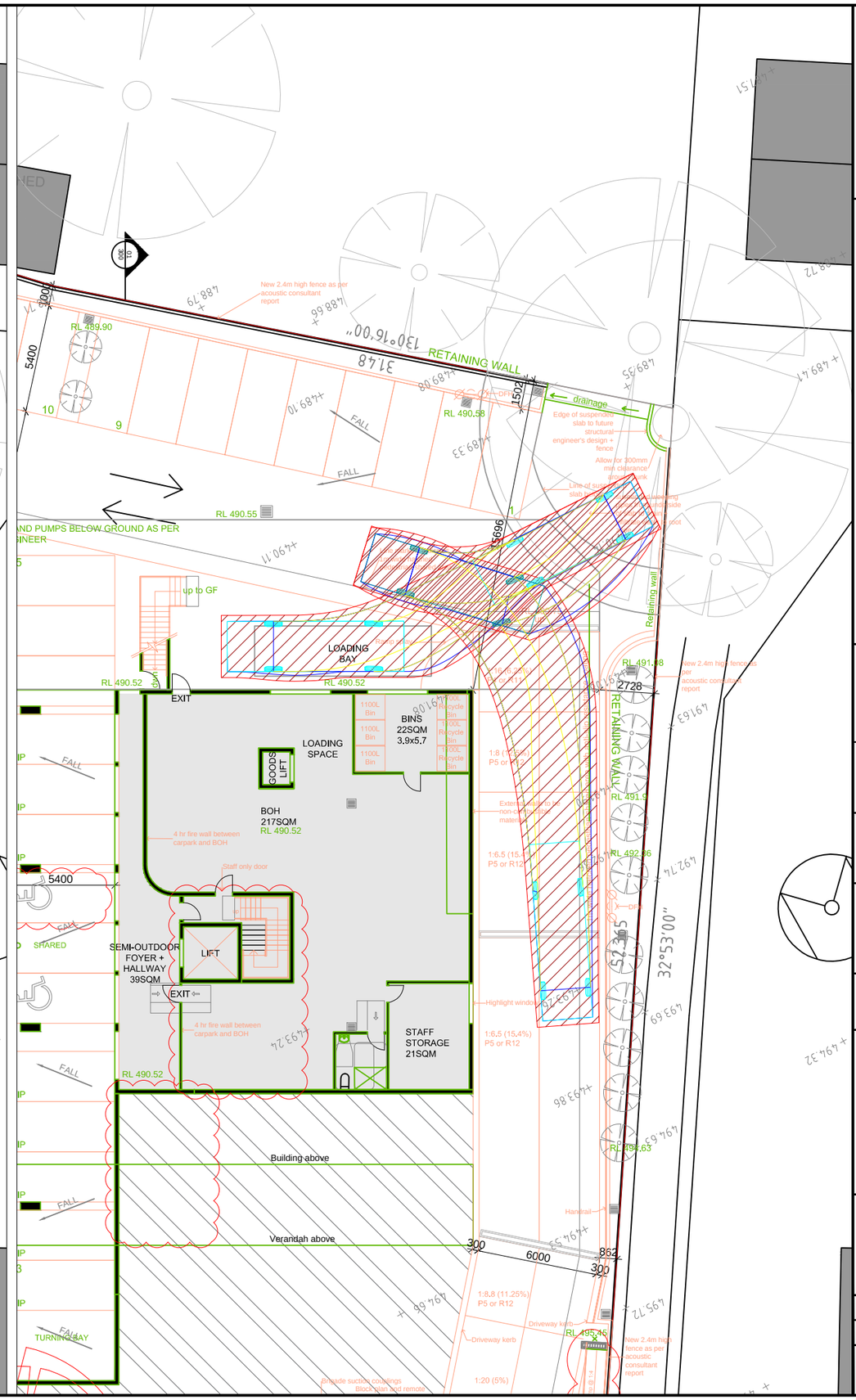
Drawn:	Checked:	Date:
NC	VD	14-09-2023

20.544d12v01 TRAFFIX [230912 Plans] Design Review + Civil Plans.dwg

Project No.	Drawing Phase	Drawing No.	Rev.
20.544	RFI	TX.01	A

Document Set ID: 8586613
Version: 1, Version Date: 26/09/2023





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Rev.	Revision Note	By.	Date
A	Swept Path Analysis	NC	14-09-2023

Swept Path Legend

- Wheel Path
- Vehicle Body Envelope
- Clearance Envelope (300mm)

Architect
Archebiosis Architects

Client
Balma Projects Pty Ltd

Scale / Plan Orientation

0 2.5 5 7.5 10m
1:250 @ A3

Project Description
27 Douglas Road
KURRAJONG HEIGHTS NSW 2758

Drawing Prepared By

TRAFFIX
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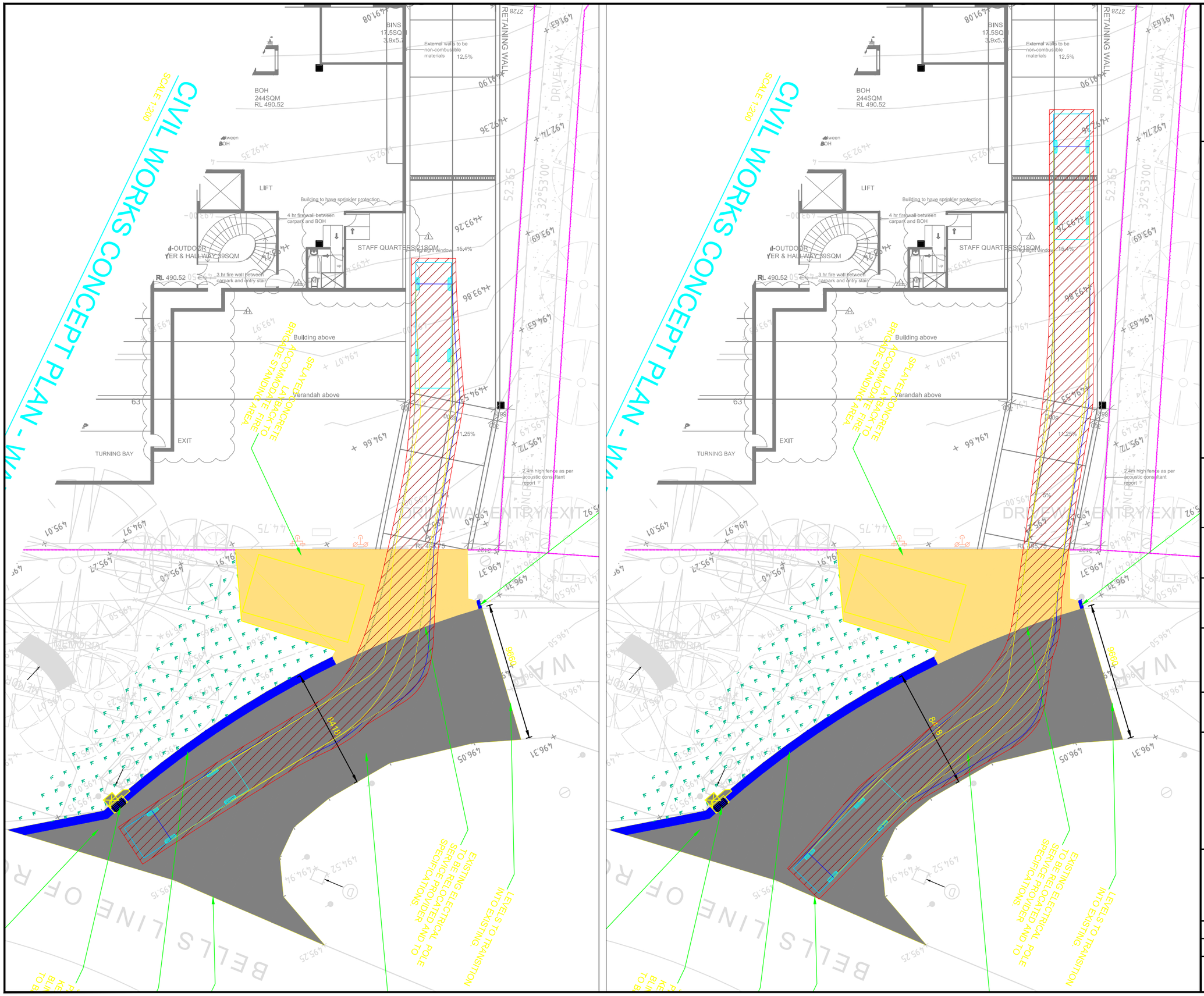
Drawing Title
Swept Path Analysis
Lower Ground Floor - Loading Bay
8.8m Medium Rigid Vehicle
LEFT: Entry Movement
RIGHT: Exit Movement

Drawn:	Checked:	Date:
NC	VD	14-09-2023

20.544d12v01 TRAFFIX [230912 Plans] Design Review + Civil Plans.dwg

Project No.	Drawing Phase	Drawing No.	Rev.
20.544	RFI	TX.02	A

Document Set ID: 8586613
Version: 1, Version Date: 26/09/2023



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Rev.	Revision Note	By.	Date
A	Swept Path Analysis	NC	14-09-2023

Swept Path Legend

- Wheel Path
- Vehicle Body Envelope
- Clearance Envelope (300mm)

Architect
Archebiosis Architects

Client
Balma Projects Pty Ltd

Scale / Plan Orientation

0 2.5 5 7.5 10m
1:250 @ A3

Project Description
27 Douglas Road
KURRAJONG HEIGHTS NSW 2758

Drawing Prepared By

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Drawing Title
Swept Path Analysis
Warks Hill Road - Vehicular Access
8.8m Medium Rigid Vehicle
LEFT: Entry Movement
RIGHT: Exit Movement

Drawn:	Checked:	Date:
NC	VD	14-09-2023

20.544d12v01 TRAFFIX [230912 Plans] Design Review + Civil Plans.dwg

Project No.	Drawing Phase	Drawing No.	Rev.
20.544	RFI	TX.03	A

Document Set ID: 8586613
Version: 1, Version Date: 26/09/2023