ATTACHMENT 5

Revised Traffic Impact Assessment

Prepared by:

Q-Traffic

Proposed Retail / Commercial Development, Hollows Road, Flagstone

Traffic Report

Revision D
13 October 2025

Our Ref: 1548_BLU10

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Q Traffic has prepared this report solely for the benefit and use of our Client for the sole purpose of lodging a development application. This report takes into account the particular instructions and requirements of the client. In preparing this report we assume that all information and documents provided to us by the client or their consultants were complete, accurate and current. Q Traffic will not be liable for any conclusion drawn resulting from omission or lack of full disclosure by the client or their consultants.

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1.0 Introduction

Q Traffic was commissioned to undertake a Traffic Impact Assessment of proposal for a new retail / commercial development on the parcels of land generally bound by Homestead Drive, Hollows Road, New Beith Road and the railway line in Flagstone (i.e. Lot 25007 and 25009 on SP303120).

The proposed development comprises the following land uses and approximate building areas:

- Showroom (four (4) tenancies): 13,768m² GFA
- Food and Drink (four (4) tenancies): 893m² GFA (excluding refuse areas)
- Carwash (one (1) tenancy): 64m² GFA (excluding unenclosed wash bays)
- Workshop (one (1) tenancy): 309m² GFA
- Self storage (one (1) tenancy): 7,900m² NLA

The site is located within the Logan City Council Local Government Area as well as the Greater Flagstone Urban Development Area (UDA), and has been assessed against the relevant controls including the Logan Planning Scheme and the Greater Flagstone UDA Development Scheme, which regulates development in the UDA.

This report provides relevant background information regarding the proposal, and addresses the following key traffic issues:

- Existing and future traffic conditions;
- Vehicular site access arrangements;
- On-site car parking provisions;
- Car park design and configuration;
- Vehicle servicing arrangements; and
- The traffic impacts anticipated as a result of the proposed development.

2.0 Background and Context

2.1 Subject Site and Existing Use

The subject site comprises the parcels of land generally bound by Homestead Drive, Hollows Road, New Beith Road and the railway line in Flagstone (i.e. Lot 25007 and 25009 on SP303120), as shown in **Figure 2.1a** and **Figure 2.1b** below. The site is approximately 6.595 hectares in area, and is currently vacant.

Figure 2.1a: Site Location **Source: Whereis**

Figure 2.1b: Subject Site **Source: Queensland Globe**

2.2 Planning Context and Approval History

The relevant application and planning history pertaining to the subject site and the proposal is summarised as follows:

- The site is located within the Logan City Council Local Government Area as well as the Greater Flagstone Urban Development Area (UDA), and has been assessed against the relevant controls including the Logan Planning Scheme and the Greater Flagstone UDA Development Scheme, which regulates development in the UDA.
- The site is within the Major Centre zone in the Greater Flagstone UDA Development Scheme. This zone provides the central focus of the UDA, and is located around the proposed railway station and transport interchange (located to the west of the site along the existing rail line).
- The subject site is within Stage 7 of Context Area 1, as shown in the endorsed Context Plan provided as **Figure 2.2a** below.
- Transport modelling and planning has taken place to inform the transport network (and other trunk infrastructure) within and surrounding the Flagstone PDA. The bulk of these analyses have been completed by Veitch Lister Consulting (VLC) on behalf of EDQ and Logan City Council (Council) in terms of the transport network.

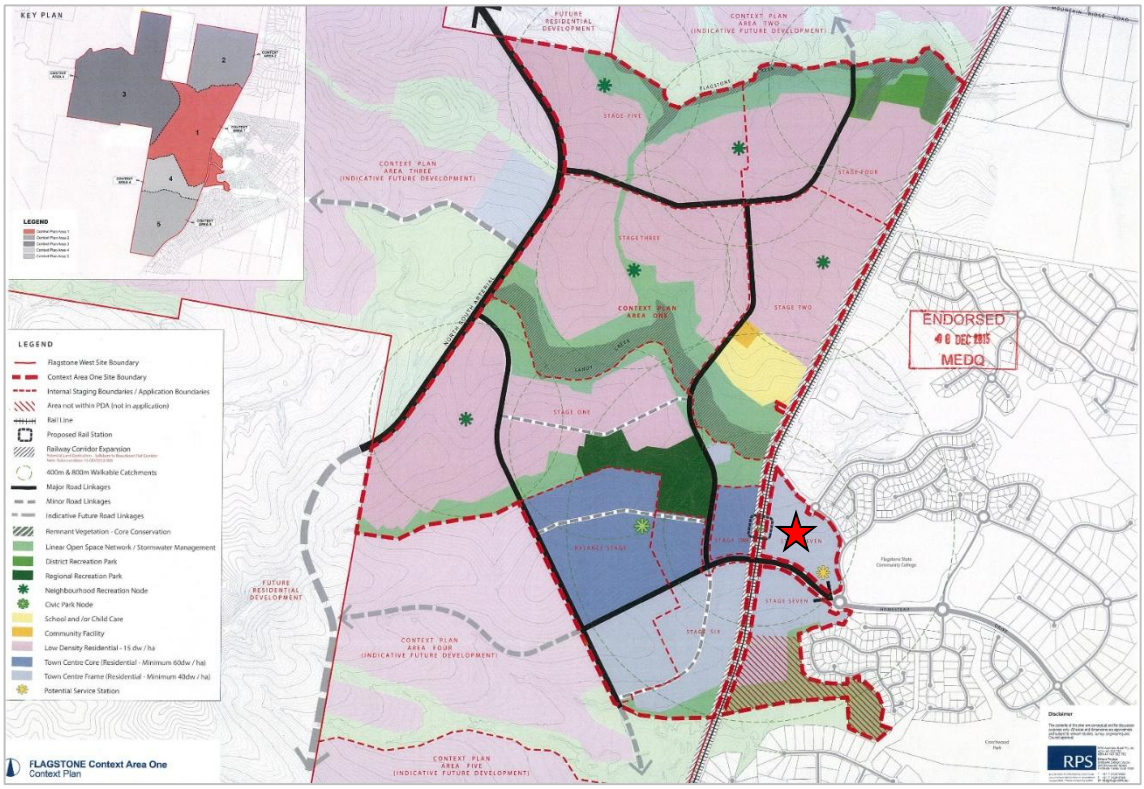

Figure 2.2a: Endorsed Context Plan

- An approval was granted in 2015 for subdivision of the land within Stage 7 of Context Area 1 (DEV2014/637).
- An application for a change to approval DEV2014/637 was subsequently lodged, and approval granted in 2020 under DEV2014/637/23 for a PDA Development Permit for Reconfiguring a Lot (ROL). An extract from the approved plans is provided for reference as **Figure 2.2b** over page.

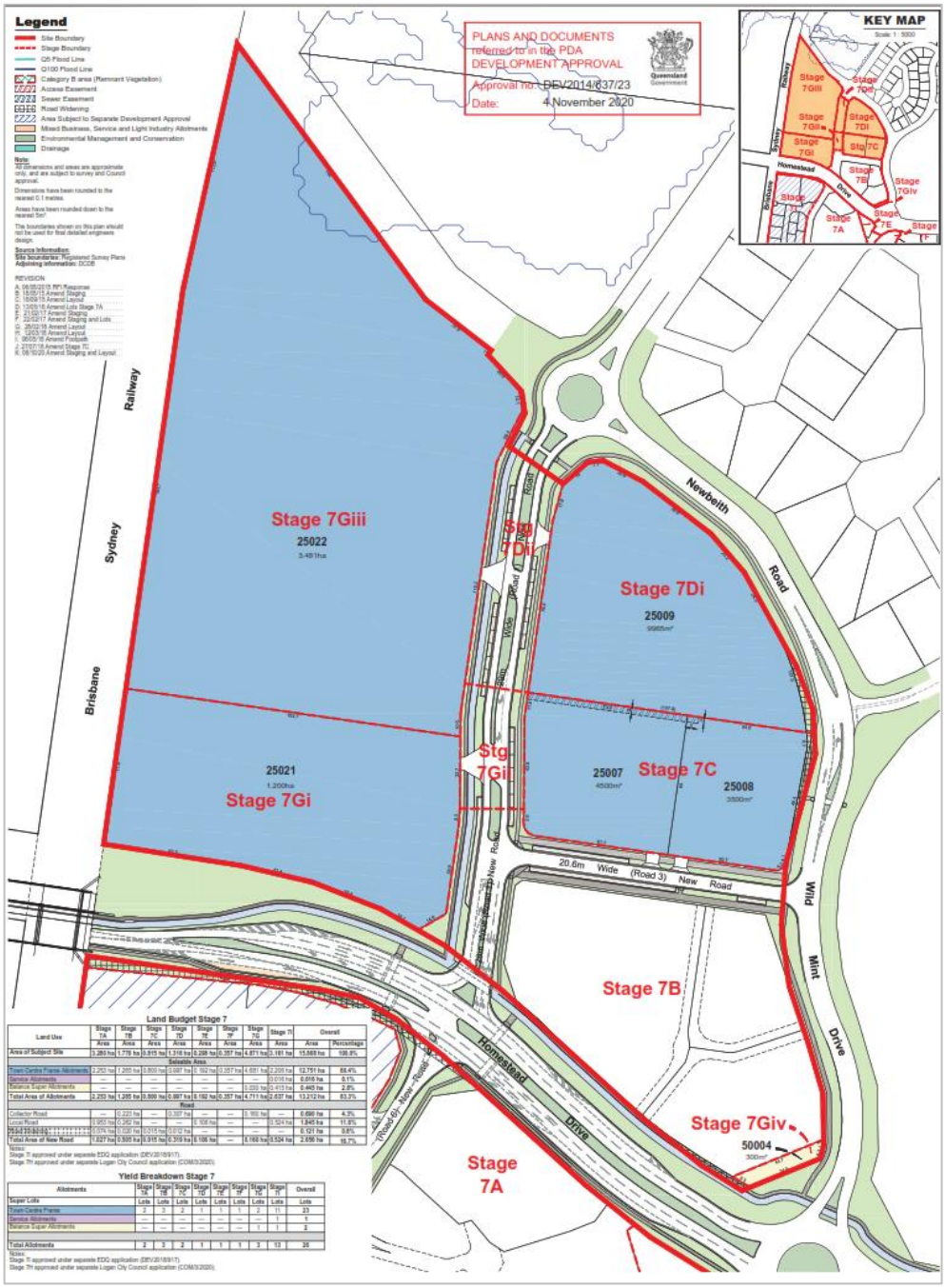

Figure 2.2b: Extract from Approved Plans (DEV2014/637/23)

- As part of the 2015 ROL approval and subsequent 2020 change approval, the traffic impact of development within Stage 7 was assessed and documented in the following reports:
    - "Flagstone Town Centre, Flagstone East Transport Network Statement" dated 5 December 2014, by Cardno.
    - "Flagstone City, Stage 7 – Homestead Drive Signalised Intersection" dated 23 November 2015 and 1 December 2015, by Cardno.
    - "Flagstone Master Plan Development Technical Memorandum" dated 28 February 2018, by SLR Consulting.

  The results of these assessments indicated that the surrounding road network could adequately accommodate the traffic forecast to be generated by development within Stage 7.

- Plans were included in the approval package for the aforementioned ROL approval which show the required road cross-sections within Stage 7 of Context Area 1. Of relevance to this application is the required cross-sections for a Collector Road (2 Lanes), which are as shown the figures below. The cross-section shown in **Figure 2.2c** is applicable to the southern section of the road (CH30 – CH150), and the cross-section shown in **Figure 2.2d** is applicable to the northern section of the road (CH150 – CH280),

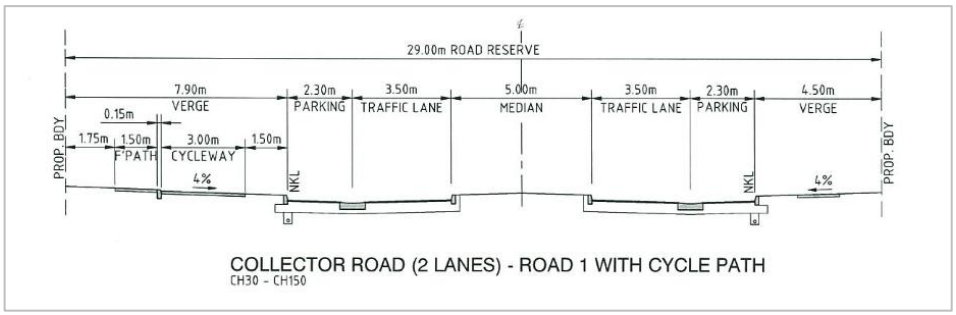

Figure 2.2c: Extract from Approval Package (DEV2014/637/23) – Road Typical Cross Sections

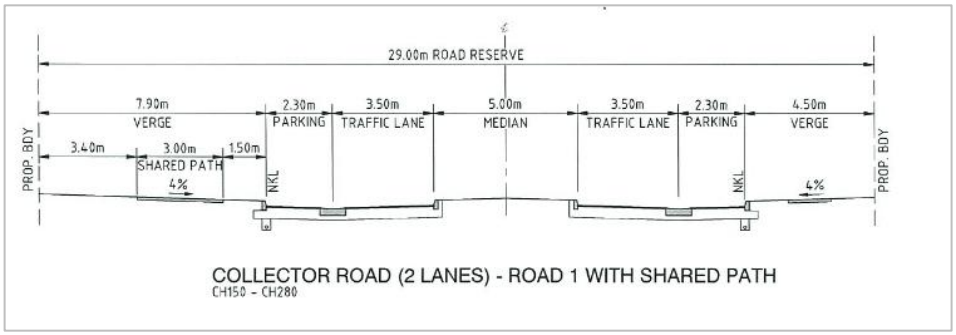

Figure 2.2d: Extract from Approval Package (DEV2014/637/23) – Road Typical Cross Sections

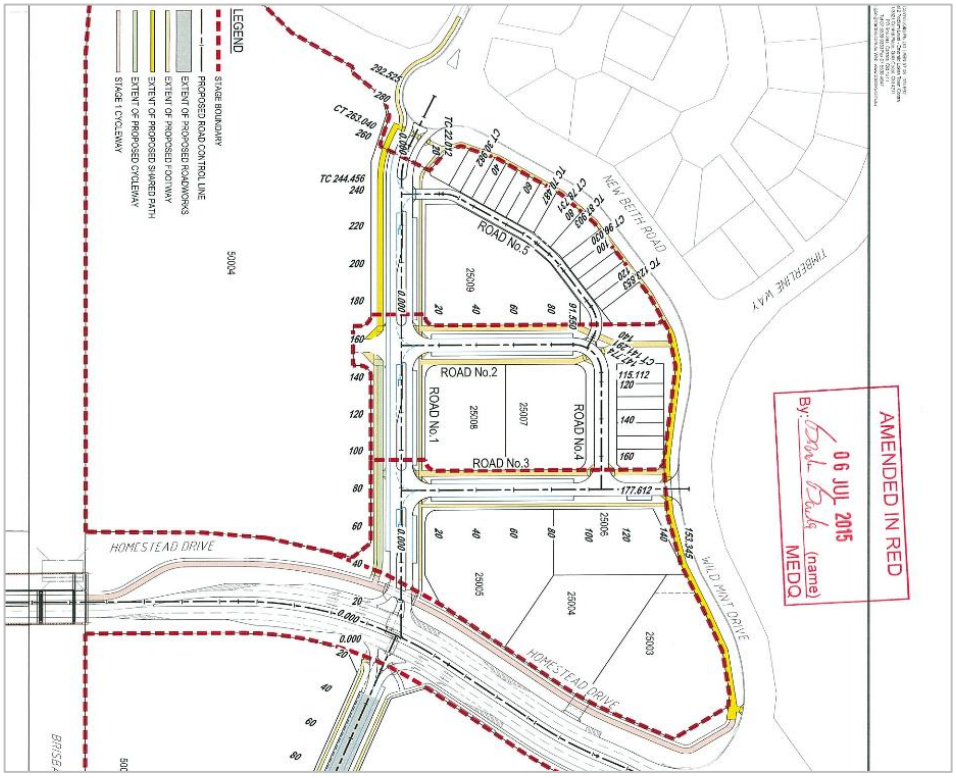

Figure 2.2e: Extract from Approval Package (DEV2014/637/23) – Road Layout Plan

- Subsequent to the 2020 ROL approval, an Operational Works approval was granted in 2021 for modifications to the existing Homestead Drive / Hollows Road / Gates Road signalised intersection. These modifications involve converting this intersection (which currently has restricted movements) to an all-movements intersection, as shown in **Figure 2.2f** below. The intent of these works is to provide a more conventional intersection form, reducing the current turn restrictions / bans and improving access to the surrounding lots and traffic permeability based on the latest planning and modelling.
- The traffic report which accompanied this Operational Works application (prepared by Bitzios Consulting) assessed the impact of development on the subject site and surrounding land upon the (modified) Homestead Drive / Hollows Road / Gates Road signalised intersection, as well as the Homestead Drive / Wild Mint Drive roundabout to the east. The results of this assessment revealed that both of these intersections are expected to be operating generally within acceptable performance limits at the interim (2031) and ultimate (2066) model years, with the proposed all-movements intersection at Homestead Drive / Hollows Road / Gates Road, and subsequent redistribution of traffic.

  The modelling did however reveal that the existing Homestead Drive / Wild Mint Drive roundabout is expected to be approaching the limits of acceptable operation during the critical AM peak period, at 79% degree of saturation under the interim design scenario and 87% degree of saturation under the ultimate design scenario (noting that 85% generally represents the desirable limit of acceptable operation for a roundabout).

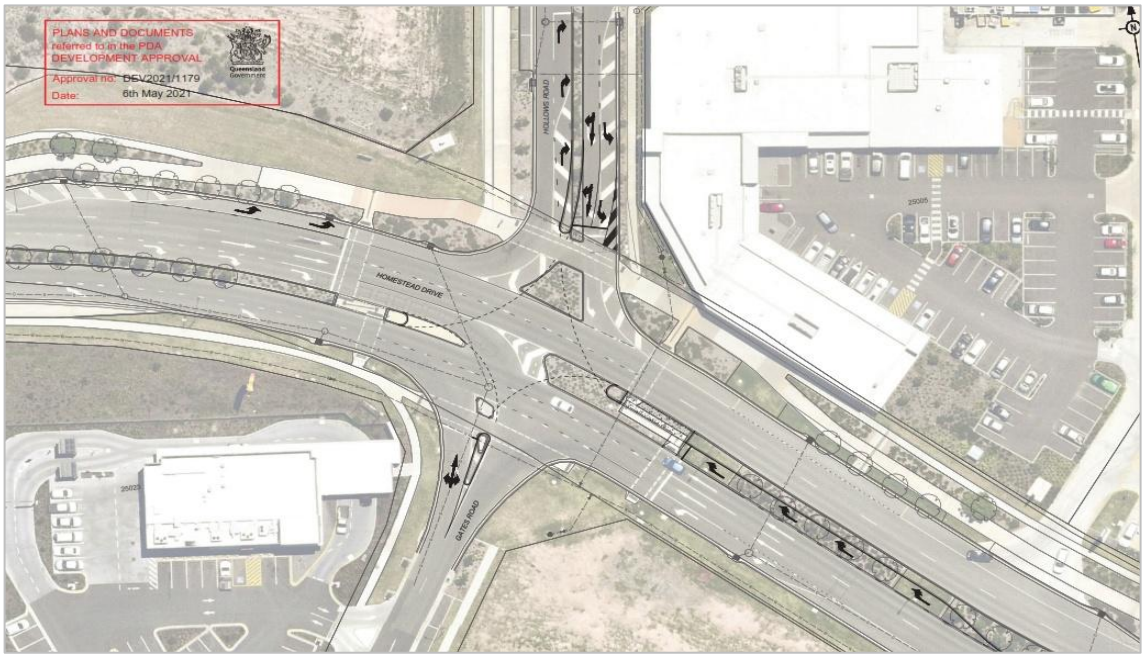

Figure 2.2f: Extract from Approved Plans (DEV2021/1179)

At this stage, the approved works (as shown in **Figure 2.2f** above) have not been completed, but it is assumed that they will be delivered prior to the development of the lots which are the subject of this application.

EDQ has advised that "The Homestead Drive/Hollows Road intersection modification has been approved and any creditable works are currently being reviewed and considered by EDQ. Any creditable works will be applied to the applicant that constructs this intersection."

2.3 Existing Road Network

The existing road network in proximity to the subject site is as shown in **Figure 2.3** below, and described as follows:

- **Homestead Drive** is designated as a sub-regional road in the Greater Flagstone UDA Development Scheme. It extends in a generally east-west direction to the south of the subject site. It connects from Flagstonian Drive (just west of the rail overpass) to Teviot Road at its eastern end. Homestead Drive is expected to accommodate approximately 30,000 vehicles per day.

  Currently, Homestead Drive has a generally two-way, two-lane cross-section with auxiliary lanes provided at key intersections. It is understood that there is long-term planning for the duplication of Homestead Drive in proximity to the site, however EDQ has confirmed that there is no land take required from the subject site.

- **Hollows Road** extends in a north-south direction from Homestead Drive to its termination at the southern boundary of the subject site. The current ROL approval (as discussed in the previous section) makes provision via road reserve through the subject site for Hollows Road to be connected to the north, forming the southern approach to the New Beith Road / Parkside Drive roundabout.

- **New Beith Road** extends along the north-eastern boundary of the subject site, connecting from Wild Mint Drive at the Timberline Way intersection to the Parkside Drive roundabout. The road reserve extends however to the north-west from the Parkside Drive roundabout, and the extension of this road from the Parkside Drive roundabout to the north-west is anticipated in the future.

- **Allis Street** extends in an east-west direction, connecting from Wild Mint Drive at its eastern end to Hollows Road at its western end. Allis Street is a local access road which provides access to Flagstone Early Learning Centre at the north-western corner of the Wild Mint Drive intersection, as well as the retail/commercial development on the southern side of the road.

- **Wild Mint Drive** extends in a north-south direction, connecting from Homestead Drive at its southern end (at a four-leg roundabout) to New Beith Road at the Timberline Way intersection.

Figure 2.3: Existing Road Network **Source: Queensland Globe**

2.4 Future Transport Projects

The subject site is bound to the west by rail corridor, which has been earmarked for future upgrades to deliver the Salisbury to Beaudesert future railway corridor, with a future rail station adjacent to the subject site as identified in the Endorsed Context Plan provided as **Figure 2.2a**.

In 2017, Infrastructure Australia identified corridor preservation for the Salisbury to Beaudesert rail corridor as a priority initiative. The Salisbury to Beaudesert rail corridor has since been identified in various Queensland Government planning publications, including ShapingSEQ: South East Queensland Regional Plan 2023, the South East Queensland Regional Transport Plans 2021 and SEQ Rail Connect.

It is understood that the Salisbury to Beaudesert future railway corridor is currently Category B Planning, i.e. planning in progress, or planning which is available to the public however has not yet identified a confirmed land requirement. It is noted that the Queensland Government Development Assessment Mapping System (DAMS) does not identity any planned upgrades to the rail line, or future public passenger transport facilities, in proximity to the subject site (as shown in **Figure 2.4** below).

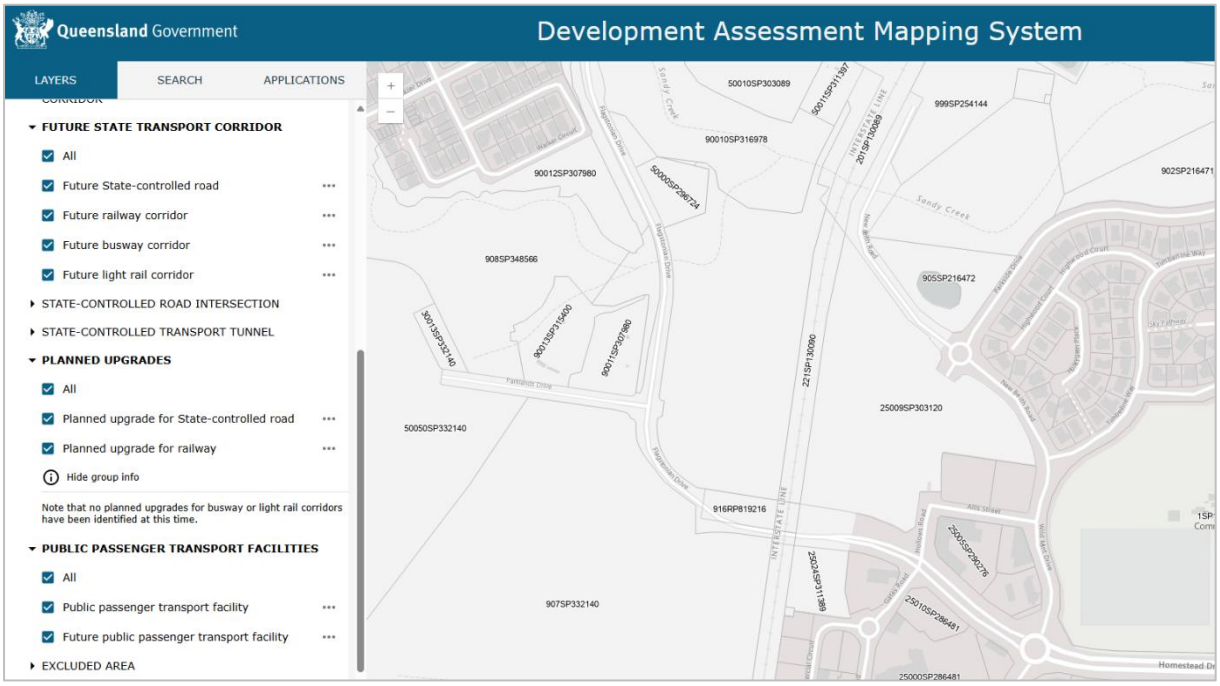

Figure 2.4: Extract from Queensland Government DAMS Mapping

EDQ has provided the following information from TMR, in relation to the Salisbury to Beaudesert future railway corridor:

- *"TMR's PRISM mapping identifies the subject site as being impacted by Category B planning for the widening of the Salisbury to Beaudesert Rail Corridor & future Flagstone Central Railway Station.*
- *The proposed future railway station, as indicated on TMR's mapping, is situated on the opposite side of the existing railway tracks from the subject site.*
- *TMR's Rail Planning team has reviewed the submitted information and advised: The Salisbury to Beaudesert (S2B) passenger rail project remains part of the Department of Transport and Main Roads' (TMR) long-term vision for the South East Queensland (SEQ) region. The S2B project is part of TMR's blueprint for the rail network as outlined in SEQ Rail Connect, which identifies the project as part of longer term upgrades for future network expansion. A copy of SEQ Rail Connect is available at www.tmr.qld.gov.au/aboutus/corporateinformation/publications/seq-railconnect. TMR recently published a Summary Report outlining the key findings of investigations to date and proposed next steps for the S2B project. The Summary Report is available at www.tmr.qld.gov.au/projects/salisburyto-beaudesert-passenger-rail.*

Funding for the construction of the S2B project is not currently committed, and is subject to further planning, funding availability and statewide investment prioritisation.

- *Given the planning is currently considered to be Category B, an advice statement should be provided to ensure compliance with PO25"*

It is assumed that PO25 referred to above by TMR/EDQ refers to the performance outcome in TMR State code 6: Protection of state transport networks, which reads as follows:

PO25 Development does not adversely impact the structural integrity or physical condition of public passenger transport infrastructure and active transport infrastructure.

Given the Salisbury to Beaudesert future railway corridor is currently Category B Planning, i.e. planning in progress, and it is understood no design has been completed, PO25 above is not considered to be applicable to the proposal, i.e. the applicant is unable to demonstrate that the development does not adversely impact the structural integrity or physical condition of this infrastructure given that it does not yet exist, and furthermore, has not yet been designed.

Importantly, and as noted above and shown in **Figure 2.4**, the Queensland Government Development Assessment Mapping System (DAMS) does not identity any planned upgrades to the rail line, or future public passenger transport facilities, which would have a direct impact upon the subject site.

3.0 Proposal

The scheme which is the subject of this application is shown in the plan included as **Appendix A**, and the extract provided as **Figure 3** below. As shown in these plans, the proposed development comprises the following land uses and approximate building areas:

- Showroom (four (4) tenancies): 13,768m² GFA
- Food and Drink (four (4) tenancies): 893m² GFA (excluding refuse areas)
- Carwash (one (1) tenancy): 64m² GFA (excluding unenclosed wash bays)
- Workshop (one (1) tenancy): 309m² GFA
- Self storage (one (1) tenancy): 7,900m² NLA

The traffic elements of the development scheme are discussed in further detail in the following sections of this report, taking into consideration the requirements of Council's planning scheme and the relevant Australian Standards, as well as the planning controls pertinent to the subject site.

The traffic-related sections of the following relevant SDAP (State Development Assessment Provisions) codes have been completed, and are included in **Appendix B**:

- State Code 2: Development in a Railway Environment
- State Code 6: Protection of State Transport Networks

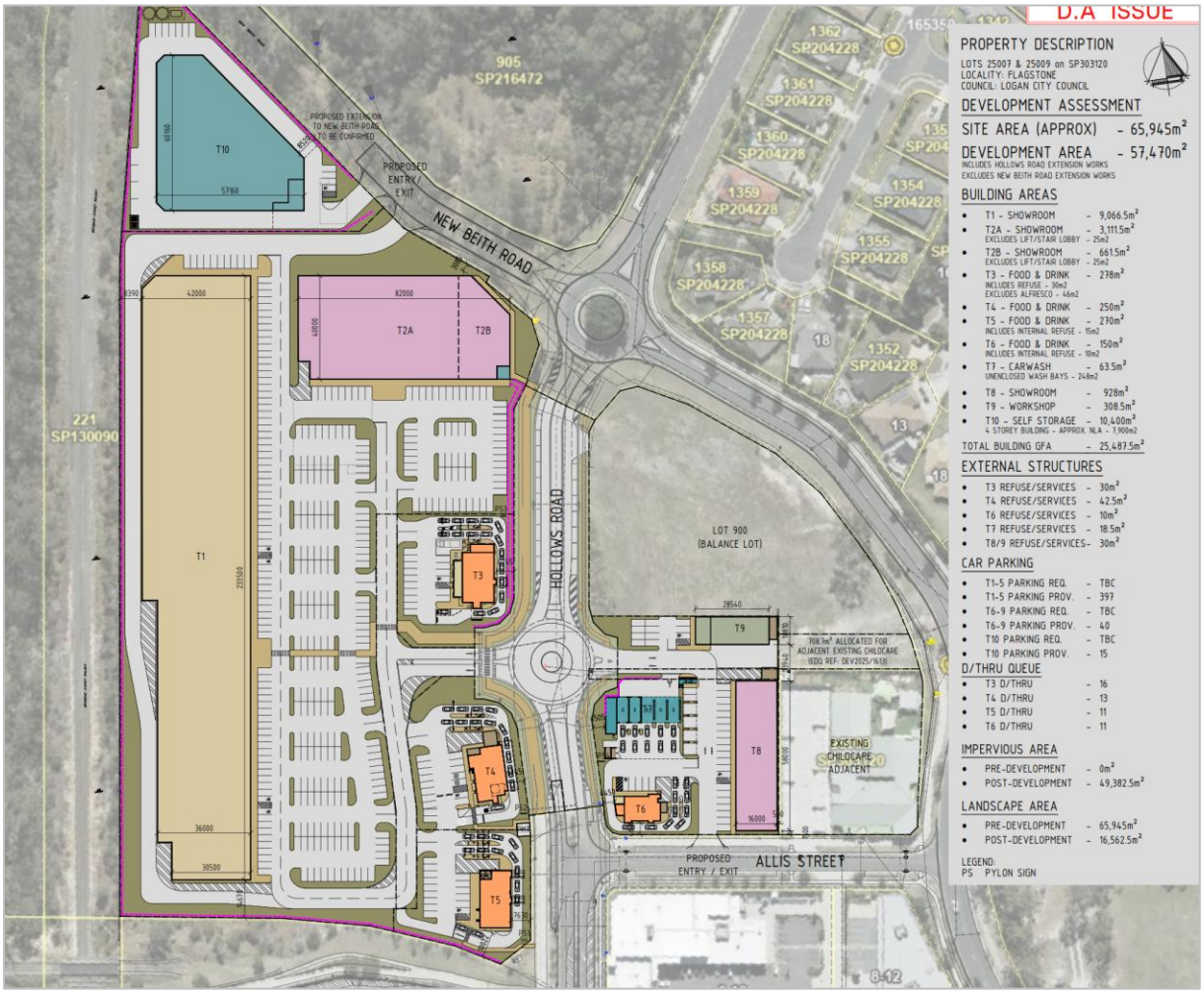

Figure 3: Extract from Site Plan

3.1 Proposed Road Network

3.1.1 Hollows Road

As shown in the plan included as **Appendix A** and **Figure 3** above, it is proposed that Hollows Road (which currently terminates just north of Allis Street) be extended to the north through the site, to connect to the New Beith Road / Parkside Drive roundabout, as the southern approach to the roundabout. This is consistent with the intent of the ROL approval (DEV2014/637/23) as shown in the extract from Approved Plans provided as **Figure 2.2b**.

As shown in the civil engineering plans included as **Appendix C**, the proposed new section of Hollows Road has a cross-section involving a 29m wide road reserve and a two-way, two-lane divided cross-section, consistent with the Road Typical Cross Sections for a Collector Road (2 lanes) as included in the Approval Package for ROL approval DEV2014/637/23.

As shown in **Figure 3.1.1a** over page, a roundabout is proposed along the new section of Hollows Road. This is a single circulating lane roundabout, which will limit through traffic speeds on this section of Hollows Road, and safely cater for through and turning movements. The roundabout has a 33m outside diameter, with a 7m wide circulating lane and an 8m diameter raised centre island within a 16m diameter mountable centre island. Vehicle tracking diagrams demonstrating a heavy rigid vehicle (HRV) traversing this roundabout are included as **Appendix D**.

The proposed Hollows Road cross-section can be described as follows:

South of Proposed Roundabout:

- A 29m wide road reserve in accordance with the Road Typical Cross Sections for a Collector Road (2 lanes) as included in the Approval Package for ROL approval DEV2014/637/23
- A two-way, two-lane divided cross-section
- A 5m wide centre median
- 3.5m wide through lanes
- A 3m wide off-road cycleway and adjacent 1.5m wide footpath along the western side of the road
- A 1.5m wide footpath along the eastern side of the road

North of Proposed Roundabout:

- A 29m wide road reserve in accordance with the Road Typical Cross Sections for a Collector Road (2 lanes) as included in the Approval Package for ROL approval DEV2014/637/23
- A two-way, two-lane divided cross-section
- A 5m wide centre median
- 3.5m wide through lanes
- 2.5m wide kerbside parking lanes (with parking prohibited in close proximity to roundabout, for safety reasons)
- A 3m wide off-road cycleway and adjacent 1.5m wide footpath along the western side of the road
- A 1.5m wide footpath along the eastern side of the road

No direct vehicular accesses are proposed onto Hollows Road, to maintain the efficiency of this road which is expected to carry reasonable volumes of through traffic between the existing retail/commercial centre to the south and the existing residential catchment to the north i.e. traffic which is not associated with the proposed development.

A raised crossing is proposed on the western approach of the new roundabout to facilitate the safe crossing of pedestrians and cyclists. This has been set back one (1) car length from the roundabout stop line, to provide appropriate separation between circulating traffic on the roundabout and crossing pedestrians/cyclists.

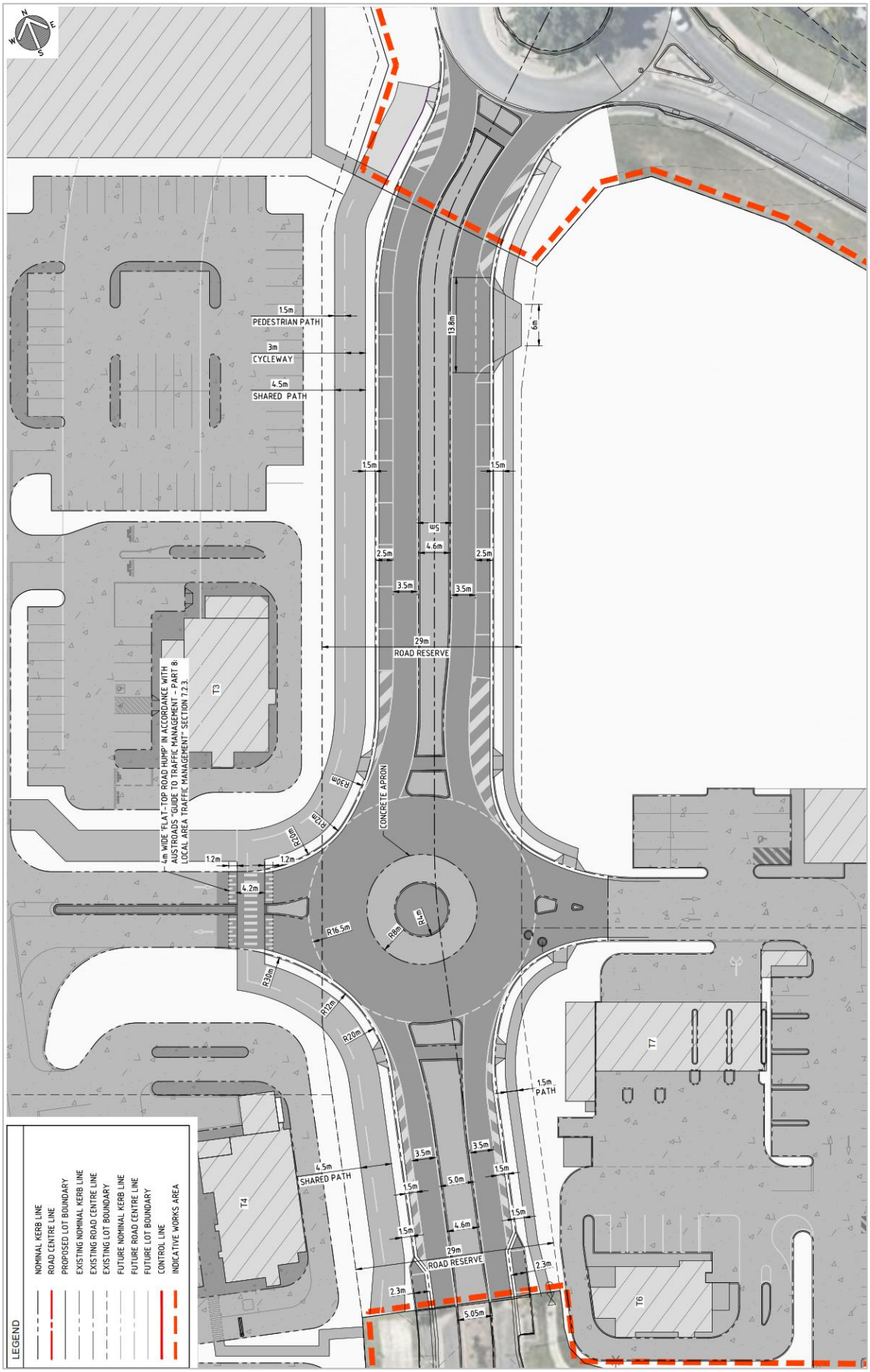

Figure 3.1.1a: Extract from Civil Engineering Plans (Hollows Road Layout)

The proposed configuration of Hollows Road achieves the general intent of the Road Typical Cross Sections for a Collector Road (2 lanes) as included in the Approval Package for ROL approval DEV2014/637/23, with modifications made to improve safety and efficiency (e.g. the restriction of kerbside parking in close proximity to the proposed new roundabout, and the existing New Beith Road roundabout).

In summary, the proposed design of Hollows Road is considered to achieve the intent of the Road Typical Cross Sections for a Collector Road (2 lanes) as included in the Approval Package for ROL approval DEV2014/637/23, with improvements made to maximise the safety and efficiency of this road, noting that it is expected to carry reasonable volumes of through traffic between the future Flagstone City area (as shown in **Figure 3.1.1b** below) and the existing and future residential catchment to the north i.e. traffic which is not associated with the proposed development.

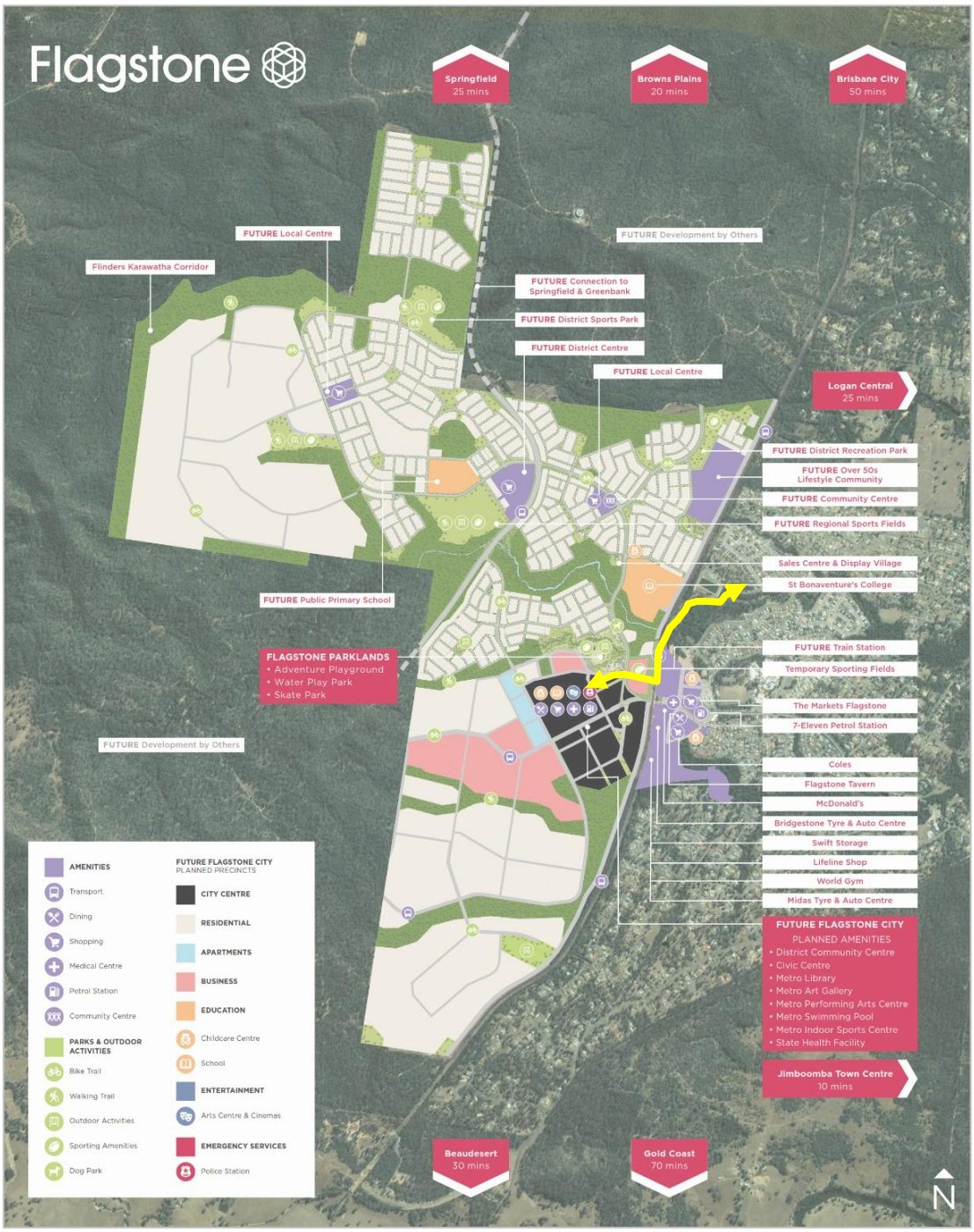

Figure 3.1.1b: Future Flagstone City – Planned Precincts

3.1.1.1 Funding of Hollows Road

As previously noted, it is proposed that Hollows Road (which currently terminates just north of Allis Street) be extended to the north through the site, to connect to the New Beith Road / Parkside Drive roundabout, as the southern approach to the roundabout.

It is considered appropriate that the cost of the delivery of this road be creditable works (i.e. offset against the infrastructure contributions payable as part of the development of the site) on the following grounds:

- The delivery of this road will complete a missing connection between the existing retail/commercial centre to the south and the future Flagstone City area to the south-west (as shown in **Figure 3.1.1b**), and the existing/future residential catchment to the north. As a result, Hollows Road will carry a reasonable proportion of traffic which is not associated with the proposed development.

  Figure 3.1.1.1 over page identifies conceptually the approximate residential catchments (existing and future) that would use the new Hollows Road connection to access the future Flagstone City area. It is estimated that these catchments will include a total of approximately 1700 dwellings. Assuming each dwelling generates 8.12 trips per day (based upon the rate in the NSW Government Guide to Transport Impact Assessment | TS 00085 | Version 1.1), the total daily traffic generation of these dwellings would be approximately 13,800vpd. Assuming that 60% of these trips are to/from the Flagstone City area and surrounds, suggests that Hollows Road will carry 8,000vpd or more when development in the area identified in **Figure 3.1.1.1** over page proceeds. This is in addition to the traffic forecast to be generated by the proposed development.

  It is therefore anticipated that Hollows Road will carry well in excess of the 7,500vpd threshold for it to be considered trunk infrastructure.

- Hollows Road has previously been designated as a trunk collector road in the road hierarchy, recognising the importance of this missing link.

- In its simplest form, 'trunk' infrastructure is that which services the broader area (i.e. not just the local area of development site), therefore irrespective of the formal classification of Hollows Road, it is considered to be trunk infrastructure from a practical perspective.

- The road proposed to be delivered includes high standard active transport facilities, including a dedicated off-road cycle path and pedestrian footpaths on both side of the road. These facilities would mostly benefit (and therefore be used by) pedestrians and cyclists travelling between the existing retail/commercial centre to the south and the future Flagstone City area to the south-west (as shown in **Figure 3.1.1b**), and the existing/future residential catchment to the north, and therefore serve a more regional benefit.

- The complete connection between Homestead Drive and New Beith Road is clearly not required for access to/from the development. That is, the development does not rely upon the provision of this connection. The applicant could feasibly propose a development scheme which accesses the existing public road network via a southern connection only, and effectively turns its back on New Beith Road. However in the interests of improving convenience and access for residents and visitors of the surrounding area, the applicant has made provision for this high-standard connection which will benefit these users.

- No direct vehicular accesses are proposed onto Hollows Road, to maintain the efficiency of this road which is expected to carry reasonable volumes of through traffic (i.e. traffic not associated with the proposed development).

- EDQ has indicated that approved works to the Homestead Drive / Hollows Road intersection (which will reduce the current turn restrictions / bans and improve access to the surrounding lots and traffic permeability) will be 'creditable works'. This appears to recognise the broader importance of both Homestead Drive and Hollows Road.

- Importantly, the proposed connection will distribute traffic between New Beith Road / Wild Mint Drive, and the proposed new Hollows Road connection. This will distribute traffic between the Homestead Drive / Hollows

Road / Gates Road signalised intersection and the Homestead Drive / Wild Mint Drive roundabout to the east, thereby reducing demand at the Homestead Drive / Wild Mint Drive roundabout.

Noting that the results of the analyses undertaken by Bitzios Consulting reveal that this existing roundabout is expected to be approaching the limits of acceptable operation within the next 5 – 10 years, it could be concluded that the Hollows Road connection is required to avoid or significantly delay the need for capacity upgrades at this roundabout. That is, this road provides a substantial benefit in terms of traffic distribution and impact in the surrounding area.

In light of the above, it is considered appropriate that the cost of the delivery of Hollows Road be creditable works i.e. offset against the infrastructure contributions payable as part of the development of the site.

Figure 3.1.1.1: Residential Catchments (existing and future) expected to use Hollows Road to access Future Flagstone City

3.1.2 New Beith Road Extension

As shown in the plan included as **Appendix A** and **Figure 3.1.2** below, it is proposed that New Beith Road (which currently terminates at the Parkside Drive roundabout) be extended to the north-west, along the existing road corridor. This will facilitate access to/from the north-western corner of the development site, as discussed in the following section.

Figure 3.1.2: Proposed New Beith Road Extension

3.2 Vehicular Access

Vehicular accesses to the proposed buildings within the development are proposed as follows, and as shown in **Figure 3.2** below:

<u>Western Precinct</u>

- Primary access from the proposed new roundabout on Hollows Road (as the western roundabout approach)
- Secondary access onto the New Beith Road extension (with two (2) driveways proposed, as shown in **Figure 3.2** below).

Eastern Precinct

- Access from the proposed new roundabout on Hollows Road (as the eastern roundabout approach)
- Access onto Allis Street (with one (1) driveway proposed, as shown in **Figure 3.2** below).

Provision has also been made for access to/from the future development parcel, as shown in **Figure 3.2** below.

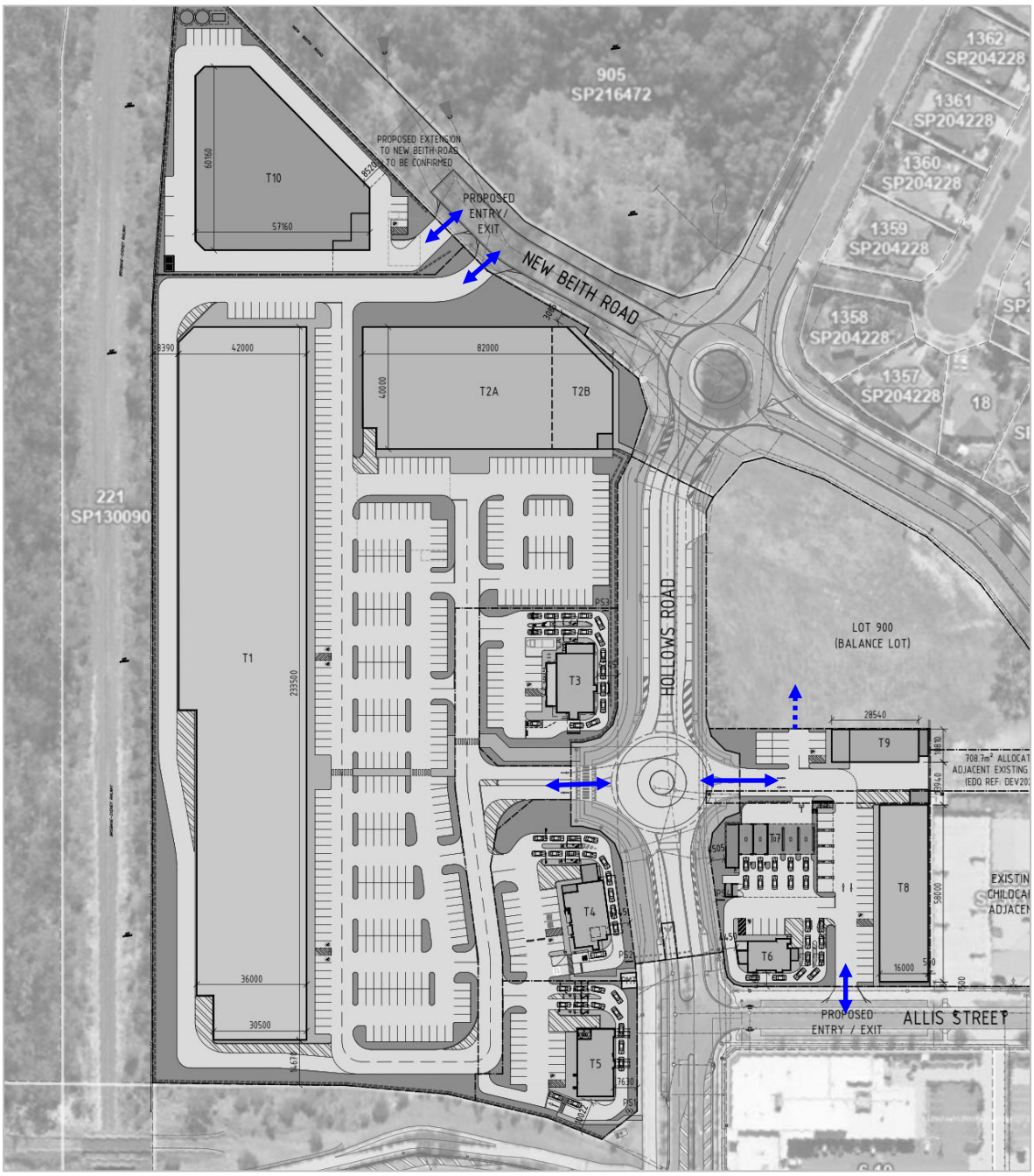

Figure 3.2: Proposed Vehicular Accesses

Vehicular tracking analyses of the proposed access driveways have been undertaken assuming the following design vehicles:

- Western precinct: up to a 20m Articulated Vehicle (AV) for access to the large showroom tenancy;
- Eastern precinct: up to a 12.5m long Heavy Rigid Vehicle (HRV); and
- Self storage facility: up to a 12.5m long Heavy Rigid Vehicle (HRV).

The results of these analyses are included in **Appendix D** and **Appendix E**.

The detail of the vehicle crossovers and splays would be refined at detailed design stage to ensure compliance with IPWEA standard drawing RSD-102 – Vehicle Crossings. This requirement could reasonably be included as a condition of the approval.

In summary, the proposed vehicular access arrangements are considered to be acceptable and supportable from a traffic engineering perspective.

3.3 Car Parking Provision

The Greater Flagstone Urban Development Area Development Scheme requires that "Parking is provided in accordance with the rates and standards set out in the planning scheme". Whilst the scheme references the Beaudesert Shire Planning Scheme 2007 (which was the planning scheme in force when the scheme was prepared), the current planning scheme is the Logan Planning Scheme 2015. EDQ has confirmed that the car parking rates within the Servicing, Access and Parking Code from the Logan Planning Scheme 2015 should be adopted for the purpose of this application.

The following table summarises the car parking requirements for the development based upon the parking rates in the Servicing, Access and Parking Code from the Logan Planning Scheme 2015 (for developments within the Centre zone where a principal centre or major centre, where applicable).

Table 3.3: Car Parking Requirements and Provisions

	Use	Area (Yield)	Minimum Car Parking Rate	Minimum Car Parking Requirement		Proposed Car Parking Provision
T1	Showroom	9,067m²	1 space per 35m² of GFA#	259	376	397
T2A	Showroom	3,112m²	1 space per 35m² of GFA#	89		
T2B	Showroom	662m²	1 space per 35m² of GFA#	19		
T3	Food and Drink	248m²	1 space per 100m² of GFA	3		
T4	Food and Drink	250m²	1 space per 100m² of GFA	3		
T5	Food and Drink	255m²	1 space per 100m² of GFA	3		
T6	Food and Drink	140m²	1 space per 100m² of GFA	2	34	40
T7	Carwash (Service Industry)	64m²	1 space per 100m² of GFA	1		
T8	Showroom	928m²	1 space per 35m² of GFA#	27		
T9	Workshop (Service Industry)	309m²	1 space per 100m² of GFA	4		
T10	Self Storage	Assume 100 storage units and 3 staff	1 space per 100 storage units; plus 1 space per employee#	4	4	15
TOTAL					**414**	**452**

car parking rate for developments not within a principal centre or major centre, as no parking rate for these land uses within a principal centre or major centre provided in the Logan Planning Scheme 2015

As shown in the table above, the proposed car parking provisions within all areas of the development exceed the minimum requirements in the planning scheme. Accordingly, the proposed level of on-site car parking is expected to be adequate to cater for the demand generated by the development.

3.4 Parking Layout and Internal Configuration

The car parking areas have been designed generally in accordance with the requirements of the relevant Australian Standards (as called up in the Logan Planning Scheme 2015), as outlined following:

- The main accesses to the development (i.e. the eastern and western approaches to the proposed new roundabout) provide 4.5m wide travel lanes, with a centre median on the western approach. These circulation roadway widths

exceed the minimum requirements under the provisions of the Australian Standards and would be adequate to accommodate the design vehicles, as discussed in the following section (which addresses service vehicle access and circulation);

- The main circulation roadway within the western portion of the development is 8m wide, which exceeds the minimum requirement under the provisions of the Australian Standards and would be adequate to accommodate the design vehicles, as discussed in the following section (which addresses service vehicle access and circulation);
- Standard parking spaces are typically 2.6m wide and 5.4m long minimum, meeting the requirements stipulated in AS2890.1 for short-term parking;
- The parking aisles generally measure 6.6m in width or greater, which meets the minimum requirement in AS2890.1 for short-term (User Class 3A) car parking;
- Accessible parking spaces are 2.4m wide and 5.4m long with adjacent shared areas for access to/from a vehicle which is 2.4m wide and 5.4m long, meeting the dimensional requirements stipulated in AS2890.6;
- As required under Table 9.4.7.3.6 of the Servicing, Access and Parking Code from the Logan Planning Scheme 2015, all food and beverage tenancies have a drive through facility which would accommodate at least 10 queued vehicles;
- Passenger vehicle tracking through the drive through facilities has been assessed, with the results (included as **Appendix F**) demonstrating satisfactory manoeuvring for a B99 large passenger car; and
- Provision is made for pedestrian connectivity Hollows Road and the various components of the development, as well as between the various components of the development, by way of dedicated pedestrian footpaths and crossings (including zebra crossings and raised zebra crossings).

In summary, the proposed car parking and internal traffic arrangements are considered to be efficient and legible, and in accordance with the requirements of the relevant Australian Standards, subject to refinement at detailed design stage.

3.5 Servicing Arrangements

As shown in the plan included as **Appendix A**, there are a number of dedicated service vehicle loading bays throughout the development which will service the various tenancies for both loading/unloading of goods, and refuse collection.

The proposed vehicle servicing arrangements can be summarised as follows:

- T1 (Showroom): Access by up to a 20m articulated vehicle, with entry via the proposed access onto the New Beith Road extension and exit via the new roundabout onto Hollows Road (i.e. one-way (anti-clockwise) circulation, using the service aisle to the rear of the building). Refuse Collection Vehicles (up to 12.5m long Heavy Rigid Vehicles) would also use service aisle (which is 6m wide) for collection of bins.
- T2 (Showroom): Access by up to a Heavy Rigid Vehicle / Refuse Collection Vehicle, with reverse entry to the dedicated loading bay.
- T3 – T6 (Food and Drink): Access by up to a 10.24m long Refuse Collection Vehicle, with reverse entry to the dedicated loading bays.
- T7 (Carwash): Access by up to a 10.24m long Refuse Collection Vehicle.
- T8 (Showroom): Access by up to a Heavy Rigid Vehicle / Refuse Collection Vehicle, with reverse entry to the dedicated loading bay.
- T9 (Workshop): Access by up to a Heavy Rigid Vehicle / Refuse Collection Vehicle, with reverse entry to the hardstand (loading) area.
- T10 (Self Storage): Access and circulation by up to a Heavy Rigid Vehicle / Refuse Collection Vehicle.

The vehicle tracking diagrams included as **Appendix G** demonstrate satisfactory manoeuvring for the above design vehicles to/from and within the various components of the development, with some minor refinements to kerblines / car parking in a few isolated locations (the detail of which would be refined at detailed design stage).

Overall, the servicing arrangements are considered to be appropriate given the scale and nature of the proposed development, and generally in accordance with Council's requirements, subject to refinement at detailed design stage.

4.0 Traffic Impact Assessment

4.1 Homestead Drive Intersections

As previously noted, the traffic report which accompanied this Operational Works application (prepared by Bitzios Consulting) assessed the impact of development on the subject site and surrounding land upon the (modified) Homestead Drive / Hollows Road / Gates Road signalised intersection, as well as the Homestead Drive / Wild Mint Drive roundabout to the east. The results of the assessments revealed that both of these intersections are expected to be operating generally within acceptable performance limits at the interim (2031) and ultimate (2066) model years, with the proposed all-movements intersection at Homestead Drive / Hollows Road / Gates Road, and subsequent redistribution of traffic.

The modelling did however reveal that the Homestead Drive / Wild Mint Drive roundabout is expected to be approaching the limits of acceptable operation during the critical AM peak period, at 79% degree of saturation under the interim design scenario and 87% degree of saturation under the ultimate design scenario (noting that 85% generally represents the desirable limit of acceptable operation for a roundabout).

Further analyses were undertaken by Bitzios Consulting, which assumed the following land uses and traffic generation during the AM and PM peak hours:

- Homemaker centre / bulk goods retail (17,480m² GFA): 428 trips
- Fast food (500m²): 168 trips
- Tyre and auto (4,370m²): 44 trips
- **TOTAL: 640 trips**

It is understood that the results of these analyses also revealed that both of the intersections assessed are expected to be operating generally within acceptable performance limits at the interim (2031) and ultimate (2066) model years.

Given the land uses and areas now proposed are different to those assumed in the analyses undertaken by Bitzios Consulting, an assessment has been undertaken of the forecast traffic generation of development now proposed, for the purpose of comparison with the total volumes assumed in the analyses undertaken by Bitzios Consulting.

In order to forecast the traffic volumes generated by the proposed development, reference has been made to the following data sources:

- data published by the Department of Transport and Main Roads in the Queensland Government Open Data Portal (Traffic Generation Data—2006–2021), with the average peak hour trip generation rate adopted for the relevant uses;
- the 2022/2023 Parking and Traffic Study undertaken by Stantec for the Self Storage Association of Australia;
- The RTA Guide to Traffic Generating Developments;
- A first principles approach (for the car wash use).

The adopted trip generation rates and resulting forecast peak hour traffic volumes are summarised in the table below.

Table 4: Forecast Development Traffic Volumes

Component / Use	Adopted Weekday Peak Traffic Generation Rate	Total Area / Number	Forecast Peak Hour Trip Generation (vph)
Retail Showroom	2.81 trips / 100m² GLFA	11,014m² GLFA#	310
Fast Food x 4	38.51 trips / 100m² GLFA	893m² GFA (excluding refuse areas)	344
Car Wash	6 trips per car wash bay	5 car wash bays	30
Workshop	1.1 trips / 100m² GLFA	309m² GLFA	3
Self Storage	12 trips	7,900m² NLA	12
SUB TOTAL			**699 trips**

assumes GLFA = 80% of GFA

As outlined in the table above, the sum of the overall forecast peak hour traffic generation of the various uses proposed is 699 trips. However conservatively assuming a reduction factor of 10% to allow for multi-purpose trips, the overall forecast peak hour traffic generation of the proposed development is approximately **630 vehicle trips in the weekday peak hours**. This is considered to represent a conservatively high estimate of the overall peak period traffic generation given the various tenancies are likely to demonstrate non-coincident peak periods. Notwithstanding this, the forecast traffic generation is generally consistent with that assumed in the analyses undertaken by Bitzios Consulting (i.e. 640 vehicle trips in the weekday peak hours), therefore the results of the previous analyses would still hold i.e. both the (modified) Homestead Drive / Hollows Road / Gates Road signalised intersection and the Homestead Drive / Wild Mint Drive roundabout to the east are expected to be operating generally within acceptable performance limits at the interim (2031) and ultimate (2066) model years.

Importantly, the Hollows Road connection (to be delivered as part of the subject development) will relieve pressure on the Homestead Drive / Wild Mint Drive roundabout, which is expected to be approaching the limits of acceptable operation under the ultimate design scenario.

4.2 Hollows Road Roundabout

The proposed roundabout on Hollows Road (to be delivered as part of the subject development) is a single circulating lane roundabout, which will limit through traffic speeds on this section of Hollows Road, and safely cater for through and turning movements. The proposed roundabout has a 33m outside diameter, with an 8m diameter raised centre island within a 16m diameter mountable centre island.

Detailed intersection modelling of the roundabout has been completed to confirm that it will be adequate to cater for projected traffic volumes, from a capacity perspective.

In order to forecast turning movement volumes at this roundabout, the following inputs / assumptions have been applied:

Development Traffic

- The forecast traffic generation of the proposed development is in accordance with the trip generation rates as outlined in the previous section;
- It has been conservatively estimated that the future development lot to the north of proposed T9 (i.e. Stage 7Di under approval DEV2014/637/23) will generate 200vph in the peak hours;
- In order to maintain a conservative approach, no reduction factor has been applied to reflect the impact of multi-purpose trips (i.e. trips to more than one tenancy within the development);
- The following arrival / departure distributions have been assumed:
    - AM Peak Hour: 60% arrivals, 40% departures
    - PM Peak Hour: 50% arrivals, 50% departures
- The following origin/destination distributions have been assumed:
    - 70% to/from the south via Hollows Road
    - 30% to/from the north via Hollows Road
- A conservatively high traffic volume estimate of 20vph has been assumed in each direction between the eastern and western components of the proposed development (i.e. eastbound and westbound through the roundabout).

Through Traffic on Hollows Road

As outlined in Section 2.2, significant growth and development is planned in the area surrounding the site, which is within the Greater Flagstone Urban Development Area (UDA).

Figure 3.1.1.1 identifies conceptually the approximate residential catchments (existing and future) that would use the new Hollows Road connection to access the future Flagstone City area. As outlined in Section 3.1.1.1, it is estimated that these catchments will include a total of approximately 1700 dwellings. Assuming each dwelling generates 8.12 trips per day (based upon the rate in the NSW Government Guide to Transport Impact Assessment | TS 00085 | Version 1.1), the total daily traffic generation of these dwellings would be approximately 13,800vpd. Assuming that 60% of these trips are to/from the Flagstone City area and surrounds, suggests that Hollows Road will carry 8,000vpd or more when development in the area identified in Figure 3.1.1.1 proceeds. This is in addition to the traffic forecast to be generated by the proposed development.

For the purpose of this assessment, it has been therefore been assumed that Hollows Road would carry 8,000vpd (through volumes) or 800vph in the peak hours (two-way volume). That it, it has been estimated that Hollows Road could carry 400vph (northbound) and 400vph (southbound) in the peak hours, in addition to the traffic generated by the proposed development.

An additional sensitivity test has been undertaken assuming 600vph (northbound) and 600vph (southbound) in the peak hours, i.e. the equivalent of approximately 12,000vpd AADT, in addition to the traffic generated by the proposed development.

The forecast turning movement volumes at the roundabout are shown in the figures included as **Appendix H**.

The detailed results of the SIDRA modelling of the roundabout are included as **Appendix I**, and summarised in the table below.

Table 4.2: Summary of Results of Capacity Analyses, Hollows Road / Site Access Roundabout

	Intersection DOS	Average Delay (secs)	Level of Service	Maximum 95th Percentile Queue (m)
TEST 1 (8,000vpd)				
AM Peak Hour	0.601	7.1	LOS A	33.6
PM Peak Hour	0.550	7.3	LOS A	28.3
TEST 2 (12,000vpd)				
AM Peak Hour	0.751	8.0	LOS A	57.5
PM Peak Hour	0.699	8.2	LOS A	48.8

As shown in the detailed results of the SIDRA modelling of the roundabout included as **Appendix I** and the summary of the results in the table above, even assuming Hollows Road carries 12,000vpd AADT through traffic volume (in addition to the traffic generated by the proposed development), the Hollows Road / Site Access Roundabout is expected to operate comfortably at under 80% degree of saturation, and Level of Service A (i.e. very limited delays).

Accordingly, it is concluded that the proposed roundabout will comfortably accommodate projected traffic volumes based upon the ultimate scenario.

5.0 Recommendation

In light of the information contained within this report, we consider that the proposal is satisfactory from a traffic operations perspective and recommend that the development application be approved.

5.1 Qualifications

This report has been approved by Richard Quinn | Director | RPEQ 08565

APPENDIX A

Architectural Plan of Development

D.A ISSUE

PROPERTY DESCRIPTION

LOTS 25007 & 25009 on SP303120
LOCALITY: FLAGSTONE
COUNCIL: LOGAN CITY COUNCIL

DEVELOPMENT ASSESSMENT

SITE AREA (APPROX) - 65,945m²

DEVELOPMENT AREA - 57,470m²
INCLUDES HOLLOWS ROAD EXTENSION WORKS
EXCLUDES NEW BEITH ROAD EXTENSION WORKS

BUILDING AREAS

- T1 - SHOWROOM - 9,066.5m²
- T2A - SHOWROOM - 3,111.5m²
  EXCLUDES LIFT/STAIR LOBBY - 25m2
- T2B - SHOWROOM - 661.5m²
  EXCLUDES LIFT/STAIR LOBBY - 25m2
- T3 - FOOD & DRINK - 278m²
  INCLUDES REFUSE - 30m2
  EXCLUDES ALFRESCO - 46m2
- T4 - FOOD & DRINK - 250m²
- T5 - FOOD & DRINK - 270m²
  INCLUDES INTERNAL REFUSE - 15m2
- T6 - FOOD & DRINK - 150m²
  INCLUDES INTERNAL REFUSE - 10m2
- T7 - CARWASH - 63.5m²
  UNENCLOSED WASH BAYS - 248m2
- T8 - SHOWROOM - 928m²
- T9 - WORKSHOP - 308.5m²
- T10 - SELF STORAGE - 10,400m²
  4 STOREY BUILDING - APPROX. NLA - 7,900m2

TOTAL BUILDING GFA - 25,487.5m²

EXTERNAL STRUCTURES

- T3 REFUSE/SERVICES - 30m²
- T4 REFUSE/SERVICES - 42.5m²
- T6 REFUSE/SERVICES - 10m²
- T7 REFUSE/SERVICES - 18.5m²
- T8/9 REFUSE/SERVICES - 30m²

CAR PARKING

- T1-5 PARKING REQ. - TBC
- T1-5 PARKING PROV. - 397
- T6-9 PARKING REQ. - TBC
- T6-9 PARKING PROV. - 40
- T10 PARKING REQ. - TBC
- T10 PARKING PROV. - 15

D/THRU QUEUE

- T3 D/THRU - 16
- T4 D/THRU - 13
- T5 D/THRU - 11
- T6 D/THRU - 11

IMPERVIOUS AREA

- PRE-DEVELOPMENT - 0m²
- POST-DEVELOPMENT - 49,382.5m²

LANDSCAPE AREA

- PRE-DEVELOPMENT - 65,945m²
- POST-DEVELOPMENT - 16,562.5m²

LEGEND:
PS PYLON SIGN

Consulting Engineer

VERVE DESIGN GROUP
BUILDING DESIGNERS LICENCE No. 1002212 PH. 07 3857 0942
OFFICE 2, LEVEL 1, 488 LUTWYCHE ROAD, LUTWYCHE QLD 4030 E. info@vervedesigngroup.com.au
imagine □ create □ deliver

□ commercial / industrial / retail
□ fast food restaurant design
□ travel centre / service stations
□ project concept to completion

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Revision and approvals

Code	Date	Drn	Description	Dwn
A	23.06.2025	SS	DA ISSUE	
PS	12.06.2025	SS	PRELIMINARY ISSUE FOR COMMENT	
B	13.10.2025	SS	DA ISSUE - RESPONSE TO COUNCIL I.R.	

Project Description
PROPOSED MIXED USE DEVELOPMENT
HOLLOWS ROAD, FLAGSTONE

Drawing Title
PROPOSED SITE PLAN

Scale 1:750 @ A1 / 1:1500 @A3
Approved
Drawn SS
Issued
Drawing Number 24072-DA01
Revision B

APPENDIX B

Completed SDAP Codes (Traffic-related Sections)

State code 2: Development in a railway environment

Guide to Development in a Transport Environment: Rail which provides direction on how to address this code.

Table 2.1 Development in general

Performance outcomes	Acceptable outcomes	Response
Public passenger transport and active transport		
PO21 Development does not compromise the safety of **public passenger transport infrastructure** and **active transport infrastructure**.	No acceptable outcome is prescribed.	**Complies**
PO22 Development maintains pedestrian and cycle access to a **railway** station or other **public passenger transport infrastructure** and **active transport infrastructure** associated with the **railway**.	No acceptable outcome is prescribed.	**Complies**
PO23 Development does not adversely impact the **structural integrity** or physical condition of **public passenger transport infrastructure** and **active transport infrastructure**.	No acceptable outcome is prescribed.	Not a traffic issue – to be addressed by others.
PO24 Development does not adversely impact the operating performance of **public passenger transport infrastructure, public passenger services** and **active transport infrastructure**.	No acceptable outcome is prescribed.	**Complies**
Planned upgrades		
PO25 Development does not impede delivery of **planned upgrades** of **rail transport infrastructure**.	No acceptable outcome is prescribed.	**Complies.** There are no planned upgrades of rail transport infrastructure in proximity to the development site in the Queensland Government Development Assessment Mapping System.

Table 2.3 Railway crossings

Performance outcomes	Acceptable outcomes	Response
PO35 Development does not require a new level **railway crossing**.	No acceptable outcome is prescribed.	**Complies**
PO36 Development does not adversely impact on the operating performance of an existing **railway crossing**.	No acceptable outcome is prescribed.	**Complies**
PO37 Development does not adversely impact on the safety of an existing **railway crossing**.	No acceptable outcome is prescribed.	**Complies**
PO38 Development is designed and constructed to allow for on-site circulation to ensure vehicles do not queue in a **railway crossing**.	No acceptable outcome is prescribed.	**Complies**

Table 2.5 Development in a future railway corridor

Performance outcomes	Acceptable outcomes	Response
PO54 Development does not impede the planning, design and delivery of **rail transport infrastructure** in a **future railway corridor**.	**AO54.1** Development is not located in a **future railway corridor**. OR both of the following acceptable outcomes apply: **AO54.2** The intensification of lots does not occur within a **future railway corridor**. AND **AO54.3** Development does not result in the landlocking of parcels once a **future railway corridor** is delivered.	**Complies**

State code 6: Protection of state transport networks

Table 6.2 Development in general

Performance outcomes	Acceptable outcomes	Response
Network impacts		
PO1 Development does not compromise the safety of users of the **state-controlled road** network.	No acceptable outcome is prescribed.	**Complies.** The closest State-controlled road is the Mount Lindesay Highway, which is over 7km from the subject site.
PO2 Development does not adversely impact the structural integrity or physical condition of a **state-controlled road** or **road transport infrastructure**.	No acceptable outcome is prescribed.	Not a traffic issue – to be addressed by others.
PO3 Development ensures **no net worsening** of the operating performance the **state-controlled road** network.	No acceptable outcome is prescribed.	**Complies.** The closest State-controlled road is the Mount Lindesay Highway, which is over 7km from the subject site.
PO4 Traffic movements are not directed onto a **state-controlled road** where they can be accommodated on the **local road** network.	No acceptable outcome is prescribed.	
PO5 Development involving haulage exceeding 10,000 tonnes per year does not damage the pavement of a **state-controlled road**.	No acceptable outcome is prescribed.	NA – development does not involve haulage.
PO6 Development does not require a new **railway** level crossing.	No acceptable outcome is prescribed.	**Complies.**
PO7 Development does not adversely impact the operating performance of an existing **railway crossing**.	No acceptable outcome is prescribed.	**Complies.**
PO8 Development does not adversely impact on the safety of an existing **railway crossing**.	No acceptable outcome is prescribed.	**Complies.**
PO9 Development is designed and constructed to allow for on-site circulation to ensure vehicles do not queue in a **railway crossing**.	No acceptable outcome is prescribed.	**Complies.**
PO10 Development does not create a safety hazard within the **railway corridor**.	No acceptable outcome is prescribed.	**Complies.**
PO11 Development does not adversely impact the operating performance of the **railway corridor**.	No acceptable outcome is prescribed.	**Complies.**

Performance outcomes	Acceptable outcomes	Response
PO12 Development does not interfere with or obstruct the **railway transport infrastructure** or **other rail infrastructure**.	No acceptable outcome is prescribed.	**Complies.**
PO13 Development does not adversely impact the structural integrity or physical condition of a **railway corridor** or **rail transport infrastructure**.	No acceptable outcome is prescribed.	Not a traffic issue – to be addressed by others.
Planned upgrades		
PO21 Development does not impede delivery of **planned upgrades** of **state transport infrastructure**.	No acceptable outcome is prescribed.	**Complies.** There are no planned upgrades of state transport infrastructure in proximity to the development site in the Queensland Government Development Assessment Mapping System.

Table 6.3 Public passenger transport infrastructure and active transport

Performance outcomes	Acceptable outcomes	Response
PO22 Development does not damage or interfere with **public passenger transport infrastructure**, **active transport infrastructure** or **public passenger services**.	No acceptable outcome is prescribed.	**Complies.**
PO23 Development does not compromise the safety of **public passenger transport infrastructure**, **public passenger services** and **active transport infrastructure**.	No acceptable outcome is prescribed.	**Complies.**
PO24 Development does not adversely impact the operating performance of **public passenger transport infrastructure, public passenger services** and **active transport infrastructure**.	No acceptable outcome is prescribed.	**Complies.**
PO25 Development does not adversely impact the structural integrity or physical condition of **public passenger transport infrastructure** and **active transport infrastructure**.	No acceptable outcome is prescribed.	Not a traffic issue – to be addressed by others.
PO26 Upgraded or new **public passenger transport infrastructure** and **active transport infrastructure** is provided to accommodate the demand for **public passenger transport** and **active transport** generated by the development.	No acceptable outcome is prescribed.	**Complies.** The Hollows Road connection which is proposed to be delivered includes high standard active transport facilities, including a dedicated off-road cycle path and pedestrian footpaths on both side of the road. These facilities would mostly benefit (and therefore be used by) pedestrians and cyclists travelling

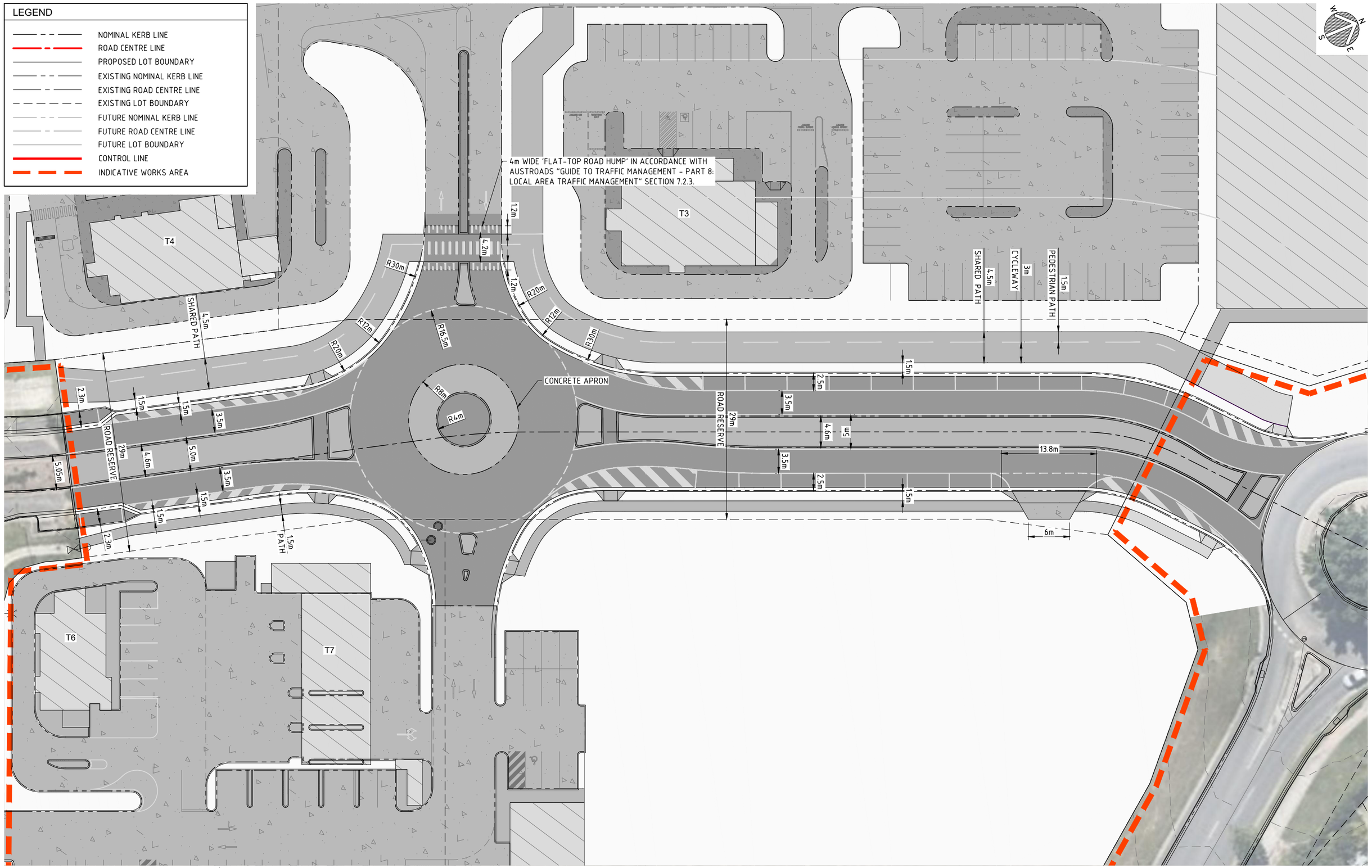
Performance outcomes	Acceptable outcomes	Response
		between the existing retail/commercial centre to the south and the existing residential catchment to the north, and therefore serve a more regional benefit.
PO27 Development is designed to ensure the location of **public passenger transport infrastructure** prioritises and enables efficient **public passenger services**.	No acceptable outcome is prescribed.	**Complies.**
PO28 Development enables the provision or extension of **public passenger services**, **public passenger transport infrastructure** and **active transport infrastructure** to the development and avoids creating indirect or inefficient routes for **public passenger services**.	No acceptable outcome is prescribed.	**Complies.**
PO29 New or modified road networks are designed to enable development to be serviced by **public passenger services**.	**AO29.1** Roads catering for buses are arterial or **sub-arterial roads**, collector or their equivalent. AND **AO29.2** Roads intended to accommodate buses are designed and constructed in accordance with: 1. Road Planning and Design Manual, 2nd Edition, Volume 3 – Guide to Road Design; Department of Transport and Main Roads; 2. Supplement to Austroads Guide to Road Design (Parts 3, 4-4C and 6), Department of Transport and Main Roads; 3. Austroads Guide to Road Design (Parts 3, 4-4C and 6); 4. Austroads Design Vehicles and Turning Path Templates; 5. Queensland Manual of Uniform Traffic Control Devices, Part 13: Local Area Traffic Management and AS 1742.13-2009 Manual of Uniform Traffic Control Devices – Local Area Traffic Management; AND	The new Hollows Road connection proposed to be delivered would accommodated buses, should such services be warranted in future.

Performance outcomes	Acceptable outcomes	Response
	AO29.3 Traffic calming devices are not installed on roads used for buses in accordance with section 2.3.2 Bus Route Infrastructure, Public Transport Infrastructure Manual, Department of Transport and Main Roads, 2015.	
PO30 Development provides safe, direct and convenient access to existing and future **public passenger transport infrastructure** and **active transport infrastructure**.	No acceptable outcome is prescribed.	**Complies.**
PO31 On-site vehicular circulation ensures the safety of both **public passenger transport services** and pedestrians.	No acceptable outcome is prescribed.	**Complies.**
PO32 Taxi facilities are provided to accommodate the demand generated by the development.	No acceptable outcome is prescribed.	Dedicated taxi facilities are not considered to be required given the nature of the proposed development and the intended tenancies.
PO33 Facilities are provided to accommodate the demand generated by the development for community transport services, courtesy transport services, and **booked hire services** other than taxis.	No acceptable outcome is prescribed.	
PO34 Taxi facilities are located and designed to provide convenient, safe and equitable access for passengers.	**AO34.1** A **taxi facility** is provided parallel to the kerb and adjacent to the main entrance. AND **AO34.2 Taxi facilities** are designed in accordance with: 1. AS2890.5–1993 Parking facilities – on-street parking and AS1428.1–2009 Design for access and mobility – general requirements for access – new building work; 2. AS1742.11–1999 Parking controls – manual of uniform traffic control devices 3. AS/NZS 2890.6–2009 Parking facilities –off street parking for people with disabilities; 4. Disability standards for accessible public	

Performance outcomes	Acceptable outcomes	Response
	5. transport 2002 made under section 31(1) of the Disability Discrimination Act 1992; 6. AS/NZS 1158.3.1 – Lighting for roads and public spaces, Part 3.1: Pedestrian area (category P) lighting – Performance and design requirements; 7. Chapter 7 Taxi Facilities, Public Transport Infrastructure Manual, Department of Transport and Main Roads, 2015.	
PO35 Educational establishments are designed to ensure the safe and efficient operation of **public passenger services**, pedestrian and cyclist access and **active transport infrastructure**.	**AO35.1** Educational establishments are designed in accordance with the provisions of the Planning for Safe Transport Infrastructure at Schools, Department of Transport and Main Roads, 2011.	NA – development not an educational establishment

APPENDIX C

Civil Engineering Plans of Development



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REV	DESCRIPTION	DRAWN	DATE
B	ROUNDABOUT REVISED	M.G.	19.02.2025
C	LAYOUT REVISED	H.W.	27.02.2025
D	LAYOUT REVISED	H.W.	16.04.2025
E	LAYOUT REVISED	J.W.	26.05.2025
F	LAYOUT REVISED	J.W.	13.06.2025
G	LAYOUT REVISED	H.W.	28.08.2025
H	LAYOUT REVISED	H.W.	01.09.2025

TASK	BY	INITIAL	DATE
REVIEW	B. POPA		16.04.2025
DESIGN	H. WEBBER		16.04.2025
DRAWN	H. WEBBER		16.04.2025

SCALE
SCALE 5 0 5 10 1:250
(SCALE ABOVE DENOTES ORIGINAL SHEET SIZE - A1)

CLIENT
BLUEPOINT FLAGSTONE PTY LTD

PROJECT
PROPOSED COMMERCIAL DEVELOPMENT 'FLAGSTONE' - PRECINCT 1 (LOT 25007 & 25009 ON SP303120)

DRAWING TITLE
HOLLOWS ROAD LAYOUT

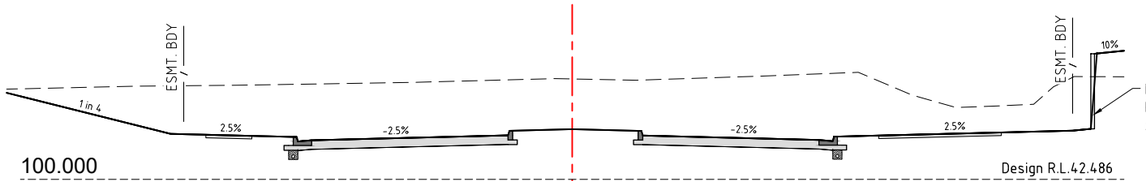
STATUS
PRELIMINARY
(NOT TO BE USED FOR CONSTRUCTION)

APPROVED
RPEQ No

DRAWING NUMBER
PEG0810-DA-SK13

REVISION
H

PEG0810\DA-SK13 HOLLOWS ROAD layout.dwg 01.09.2025 A1 plot 18.50 x 11.00 Xrefs: None Harry Tian



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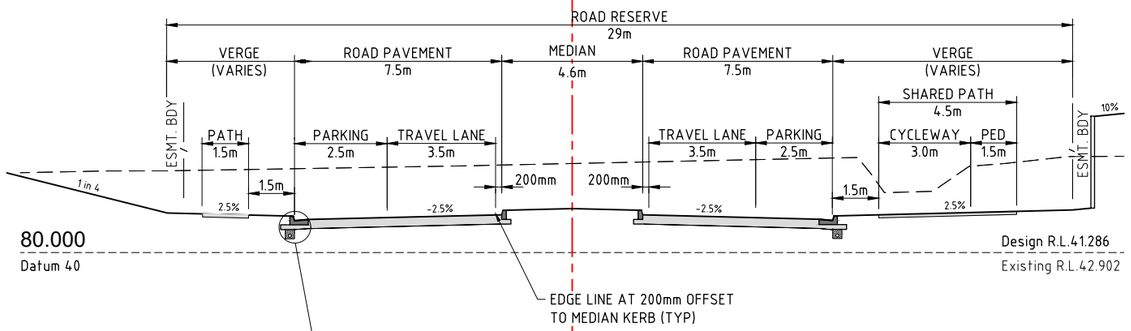
Design R.L.42.486
Existing R.L.44.274



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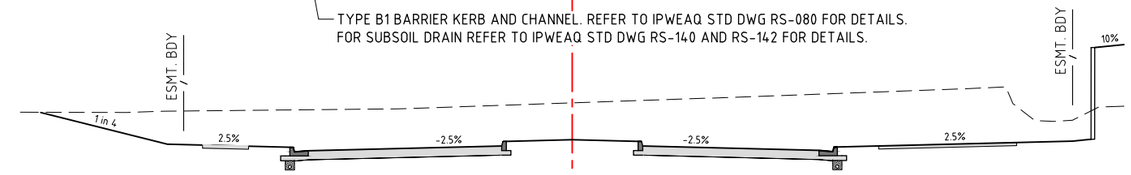

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Design R.L.40.086
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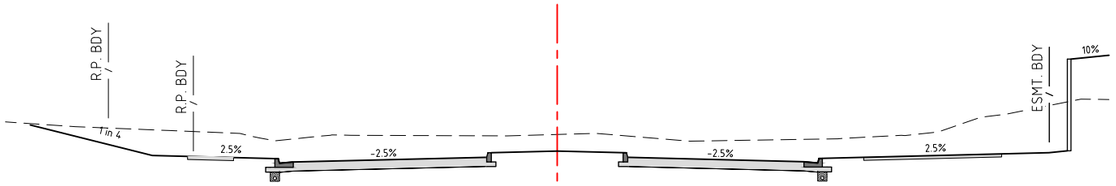

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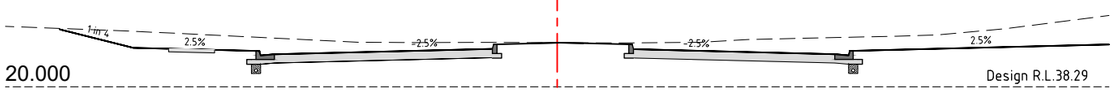

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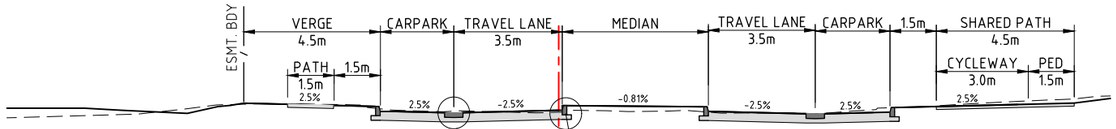
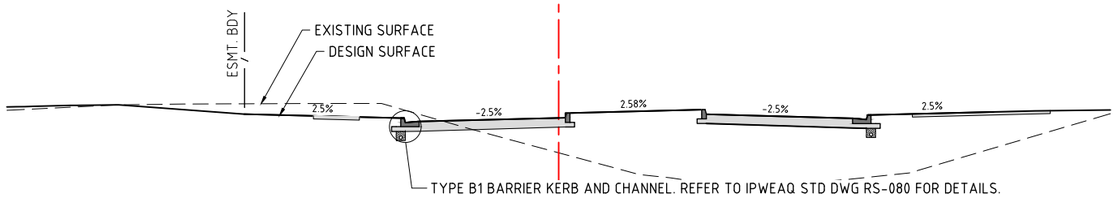


194.000
Datum 46
Design R.L.47.731
Existing R.L.47.671

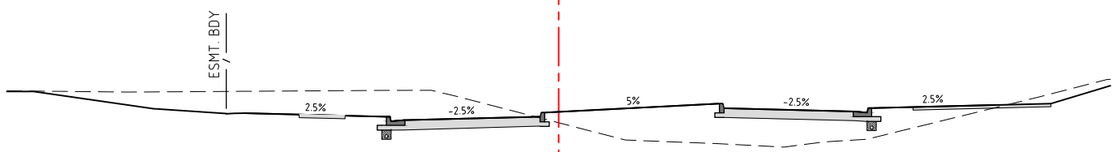
TYPE B4 BARRIER KERB. REFER TO IPWEAQ STD DWG RS-080 FOR DETAILS. FOR SUBSOIL DRAIN REFER TO IPWEAQ STD DWG RS-140 AND RS-142 FOR DETAILS.

600mm CHANNEL. REFER TO IPWEAQ STD DWG RS-080 FOR DETAILS. FOR SUBSOIL DRAIN REFER TO IPWEAQ STD DWG RS-140 AND RS-142 FOR DETAILS.



TYPE B1 BARRIER KERB AND CHANNEL. REFER TO IPWEAQ STD DWG RS-080 FOR DETAILS. FOR SUBSOIL DRAIN REFER TO IPWEAQ STD DWG RS-140 AND RS-142 FOR DETAILS.

180.000
Datum 43
Design R.L.46.891
Existing R.L.45.755



160.000
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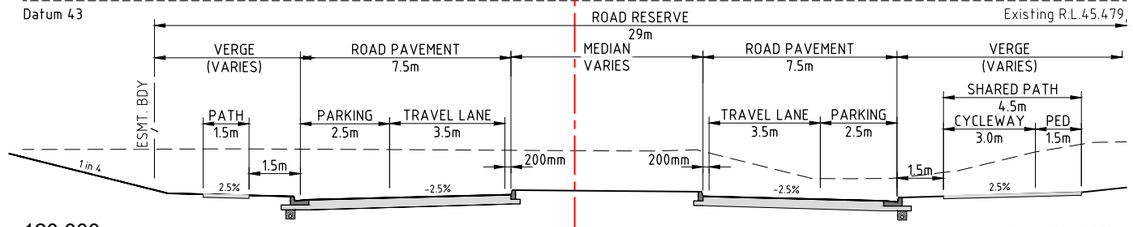
Design R.L.45.691
Existing R.L.45.479



120.000
Datum 42
Design R.L.43.686
Existing R.L.45.071

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PINNACLE ENGINEERING GROUP
LEVEL 1 19 SHORT STREET, SOUTHPORT QLD 4215
(PO BOX 517, PARADISE POINT QLD 4216)
WWW.PINNACLEENG.COM.AU

REV	DESCRIPTION	DRAWN	DATE
A	ORIGINAL ISSUE FOR COMMENT	J.H.	26.11.2021
B	REVISED LAYOUT	H.W.	16.04.2025
C	REVISED LAYOUT	J.W.	26.05.2025
D	REVISED LAYOUT	H.W.	01.09.2025

TASK	BY	INITIAL	DATE
REVIEW	B. POPA		16.04.2025
DESIGN	H. WEBBER		16.04.2025
DRAWN	H. WEBBER		16.04.2025

SCALE
SCALE 2 1 0 2 4 6 8 10 1:200
(SCALE ABOVE DENOTES ORIGINAL SHEET SIZE - A1)

CLIENT
BLUEPOINT FLAGSTONE PTY LTD

PROJECT
PROPOSED COMMERCIAL DEVELOPMENT 'FLAGSTONE' - PRECINCT 1 (LOT 25007 & 25009 ON SP303120)

DRAWING TITLE
HOLLOWS ROAD CROSS SECTIONS

STATUS
PRELIMINARY
(NOT TO BE USED FOR CONSTRUCTION)

APPROVED
RPEQ No

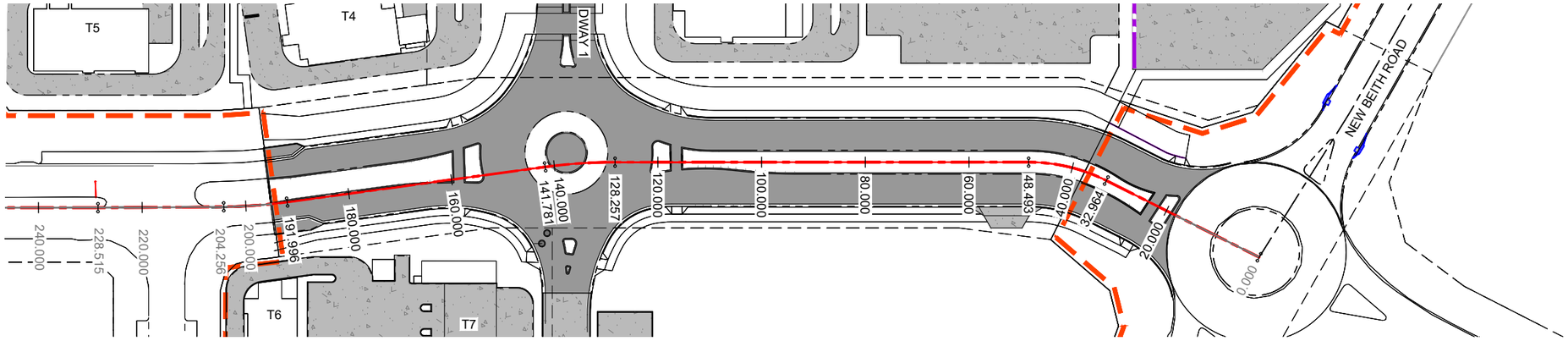
DRAWING NUMBER
PEG0810-DA-SK12

REVISION
D

PEG0810-DA-SK12 HOLLOWS ROAD CROSS SECTIONS.dwg 01.09.2025 Letter (8.50 x 11.00 Inches) Irene Henry Ban

LEGEND

- NOMINAL KERB LINE
- ROAD CENTRE LINE
- PROPOSED LOT BOUNDARY
- EXISTING NOMINAL KERB LINE
- EXISTING ROAD CENTRE LINE
- EXISTING LOT BOUNDARY
- FUTURE NOMINAL KERB LINE
- FUTURE ROAD CENTRE LINE
- FUTURE LOT BOUNDARY
- CONTROL LINE
- INDICATIVE WORKS AREA



HOLLOWS ROAD ALIGNMENT LAYOUT

SCALE 10 0 10 20 1:500

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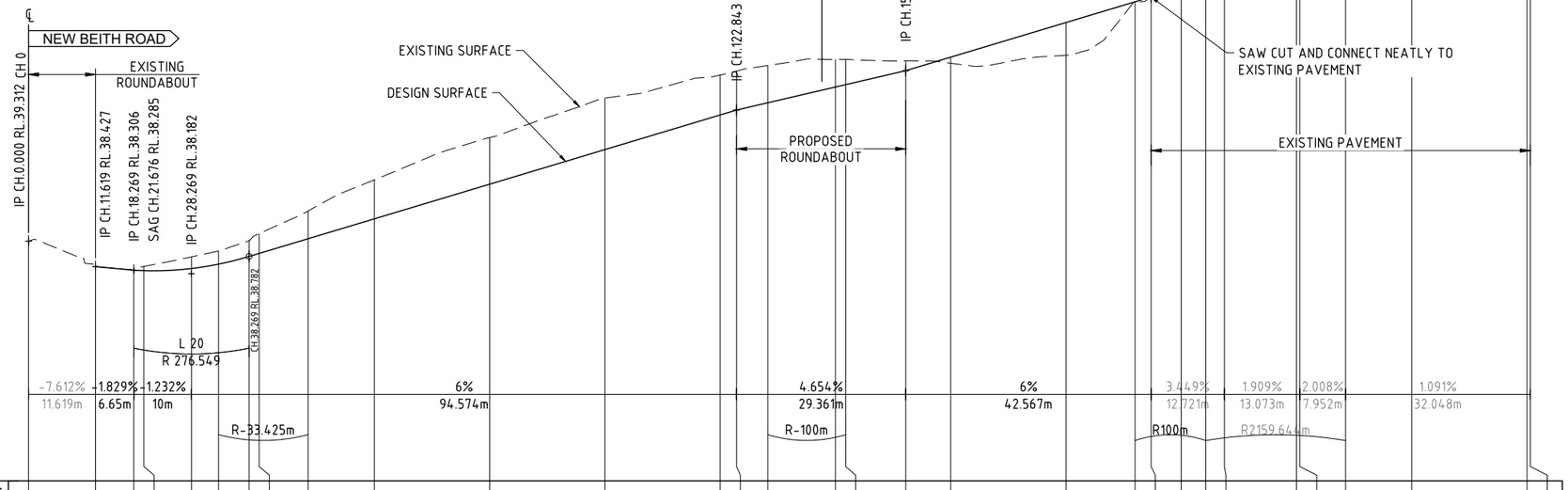
The Essential First Step.

UNDERGROUND PUBLIC UTILITY PLANT EXISTS IN THIS VICINITY. THE CONTRACTOR IS ADVISED TO CONTACT THE RELEVANT AUTHORITIES TO CONFIRM THE EXACT LOCATION OF PUBLIC UTILITY PLANT ON SITE PRIOR TO THE COMMENCEMENT OF ANY EXCAVATION OR CONSTRUCTION WORKS.



DATUM R.L.30.000

EXISTING SURFACE LEVELS	39.312	38.427	38.306	38.435	38.766	38.975	39.329	39.573	40.359	41.435	42.902	44.274	45.071	45.207	45.401	45.611	45.615	45.562	45.479	45.755	47.612	47.777	48.074	48.256	48.216	48.454	48.466	48.625	48.768	48.967	48.975
CUT / FILL DEPTH	0.000	0.000	-0.000	0.146	0.403	0.460	0.547	0.687	0.963	1.349	1.616	1.788	1.384	1.351	1.292	0.956	0.877	0.339	-0.212	-1.136	0.001	-0.000									
DESIGN SURFACE LEVELS	39.312	38.427	38.306	38.290	38.363	38.515	38.782	38.886	39.396	40.086	41.286	42.486	43.686	43.857	44.109	44.655	44.738	45.223	45.691	46.891	47.611	47.777									
CHAINAGES ON ROAD CENTERLINE	0.000	11.619	18.269	20.000	28.269	32.964	38.269	40.000	48.493	60.000	80.000	100.000	120.000	122.843	128.257	140.000	141.781	152.204	160.000	180.000	191.996	194.770	200.000	204.256	207.491	220.000	220.564	228.515	240.000	260.000	260.563

HOLLOWS ROAD LONGITUDINAL SECTION

HORZ 10 0 10 20 1:500

VERT 1 0 1 2 3 4 5 1:100

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D	REVISED LAYOUT	J.W.	13.06.2025
E	REVISED LAYOUT	H.W.	01.09.2025

TASK	BY	INITIAL	DATE
REVIEW	B. POPA		16.04.2025
DESIGN	H. WEBBER		16.04.2025
DRAWN	H. WEBBER		16.04.2025

SCALE

AS SHOWN

(SCALE ABOVE DENOTES ORIGINAL SHEET SIZE - A1)

CLIENT

BLUEPOINT FLAGSTONE PTY LTD

PROJECT

PROPOSED COMMERCIAL DEVELOPMENT 'FLAGSTONE' - PRECINCT 1 (LOT 25007 & 25009 ON SP303120)

DRAWING TITLE

HOLLOWS ROAD LONGITUDINAL SECTION

STATUS

PRELIMINARY

(NOT TO BE USED FOR CONSTRUCTION)

APPROVED

RPEQ No

DRAWING NUMBER

PEG0810-DA-SK11

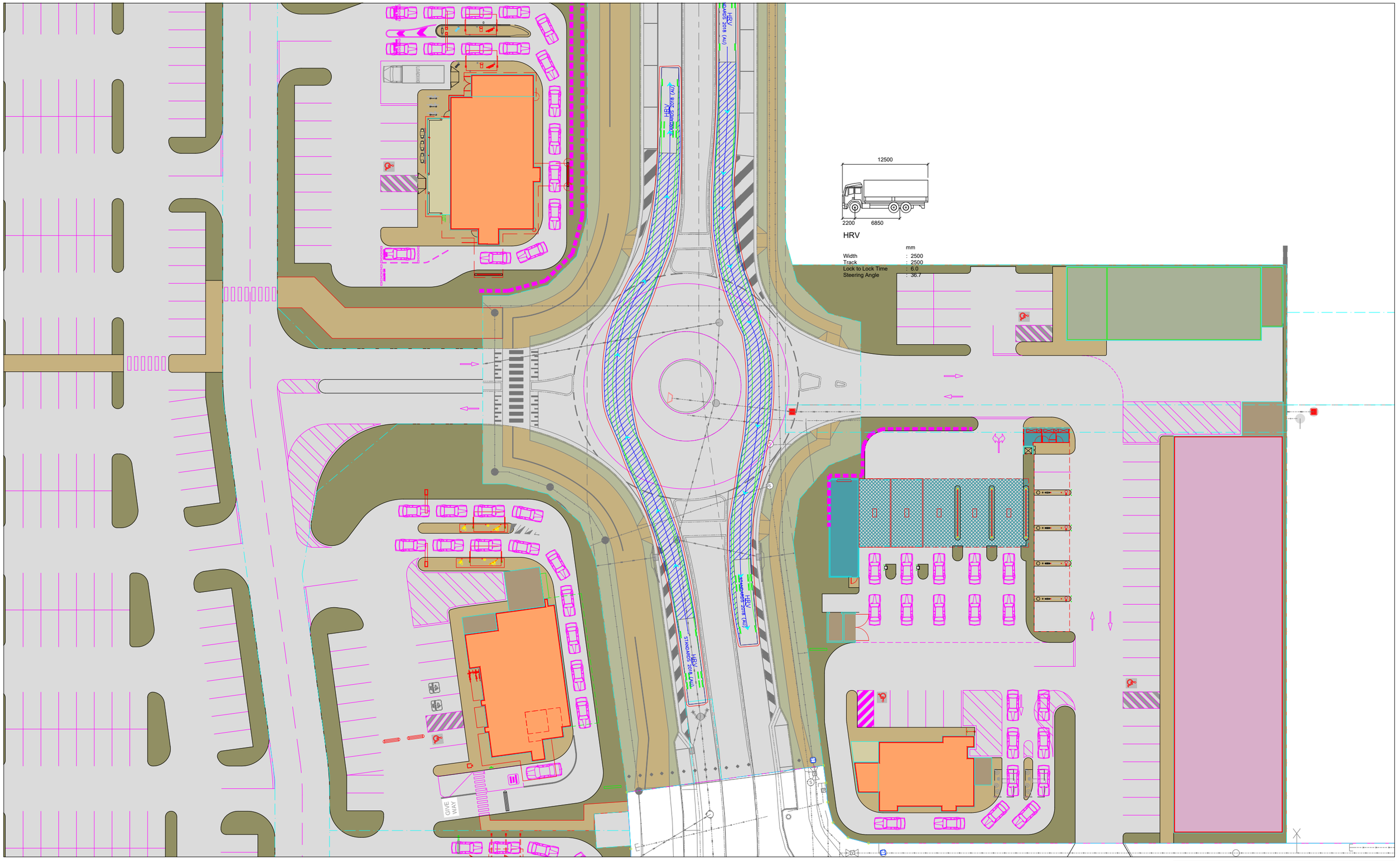
REVISION

E

PEG0810-DA-SK11 HOLLOWS ROAD LONGITUDINAL SECTION.dwg 01/09/2025 Plotted by: Henry Tan

APPENDIX D

Vehicle Tracking Diagrams – Proposed Hollows Road Roundabout



I, Richard Quinn (RPEQ 08565), certify that the swept paths have been carried out in accordance with AS2890.1 and/or AS2890.2

LEGEND

- Vehicle Wheelpath
- Body of Vehicle
- 300mm Clearance Envelope from Body of Vehicle

drawing title

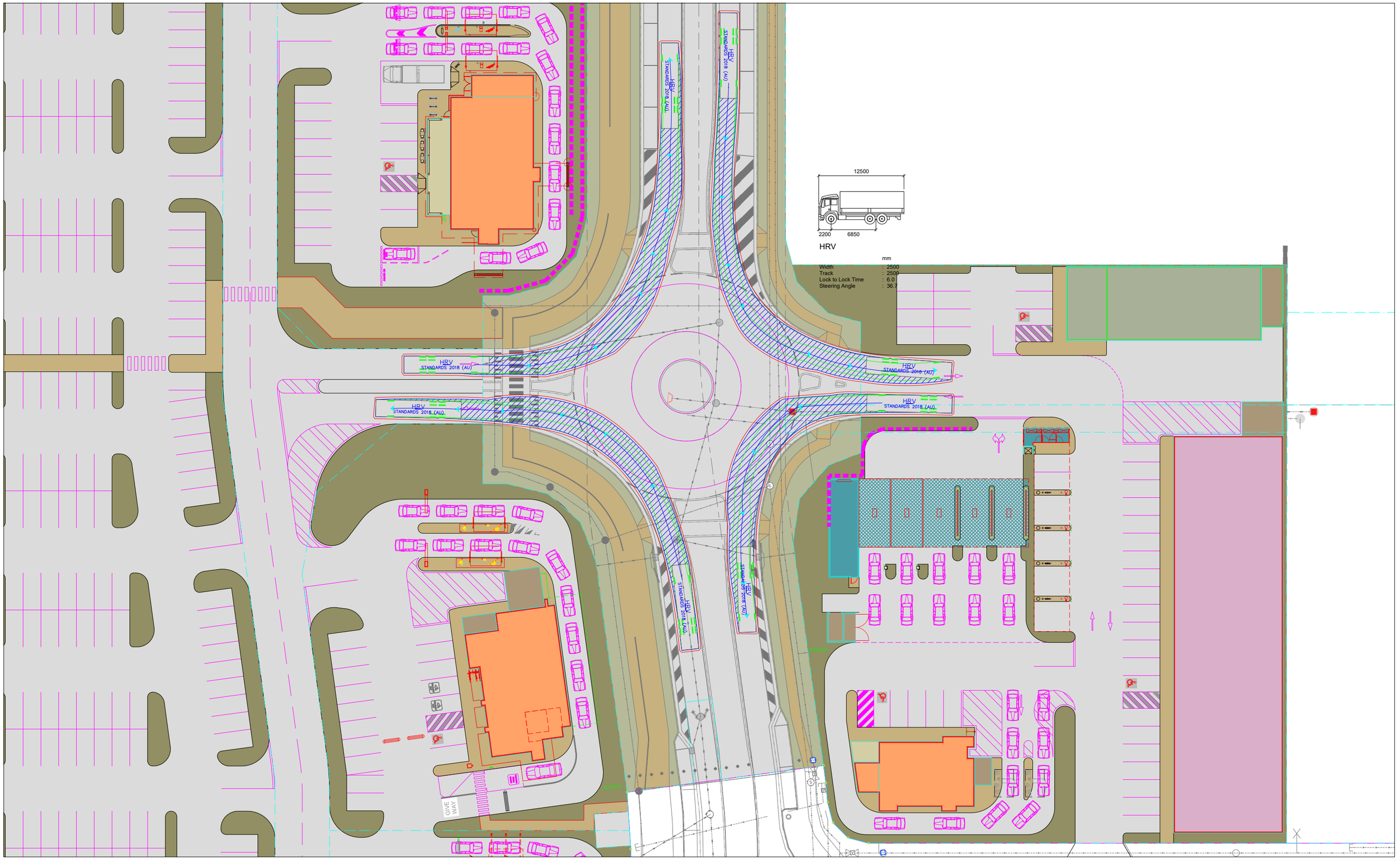
QTraffic Engineering Consultants

Homestead Drive, Flagstone
Vehicle Tracking Analyses

drawn: RQ Scale: 1:500 @ A3 date: 13/10/2025

The base drawing is provided to Q Traffic by others. This drawing is draft for discussion purposes only

1548_BLU10	SK.01	D
project no.	drawing no.	rev



I, Richard Quinn (RPEQ 08565), certify that the swept paths have been carried out in accordance with AS2890.1 and/or AS2890.2

LEGEND

- Vehicle Wheelpath
- Body of Vehicle
- 300mm Clearance Envelope from Body of Vehicle

drawing title

QTraffic Engineering Consultants

Homestead Drive, Flagstone
Vehicle Tracking Analyses

drawn:	Scale:	date:
RQ	1:500 @ A3	13/10/2025

The base drawing is provided to Q Traffic by others. This drawing is draft for discussion purposes only

project no.	drawing no.	rev
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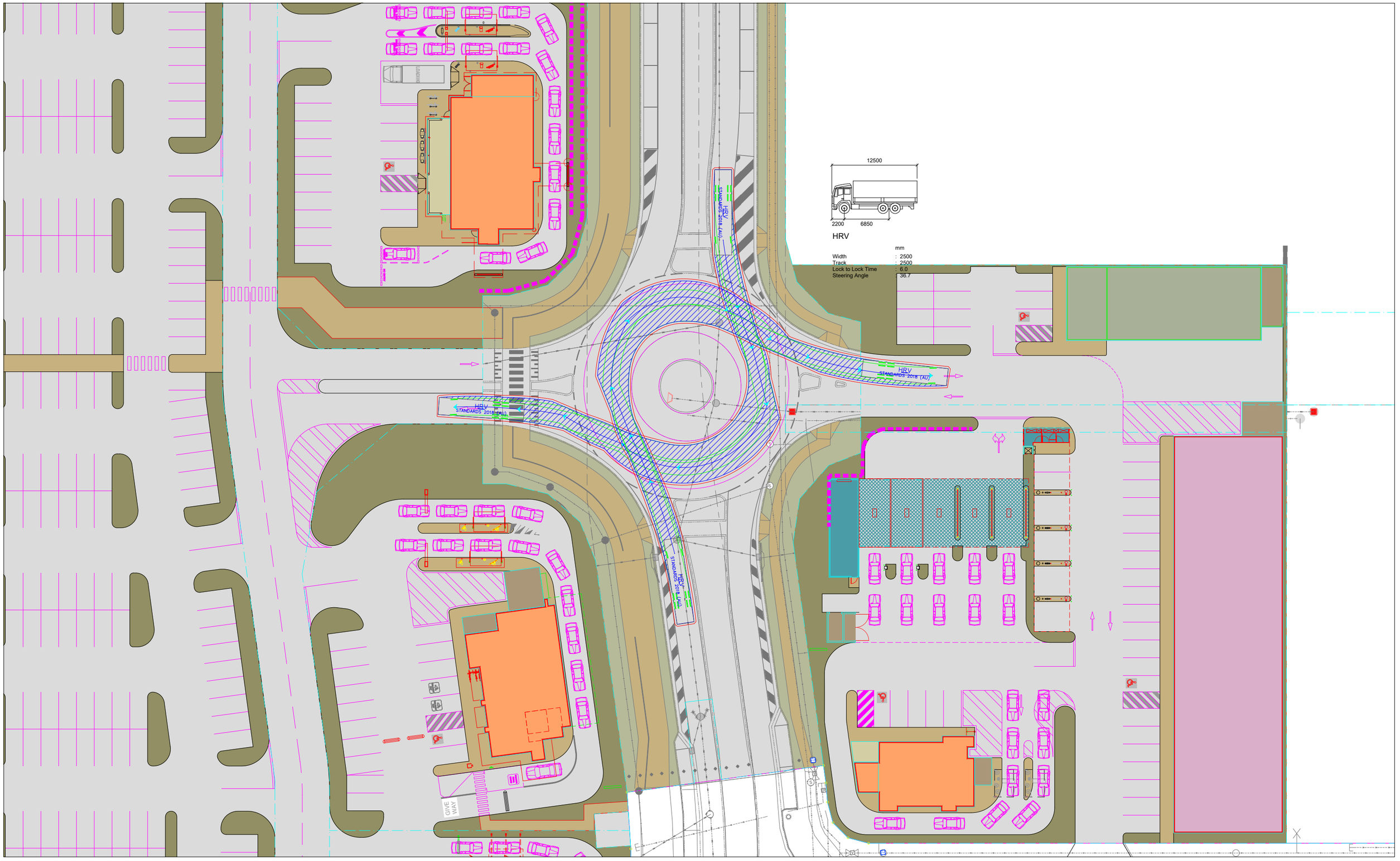


I, Richard Quinn (RPEQ 08565), certify that the swept paths have been carried out in accordance with AS2890.1 and/or AS2890.2

LEGEND

- Vehicle Wheelpath
- Body of Vehicle
- 300mm Clearance Envelope from Body of Vehicle

drawing title

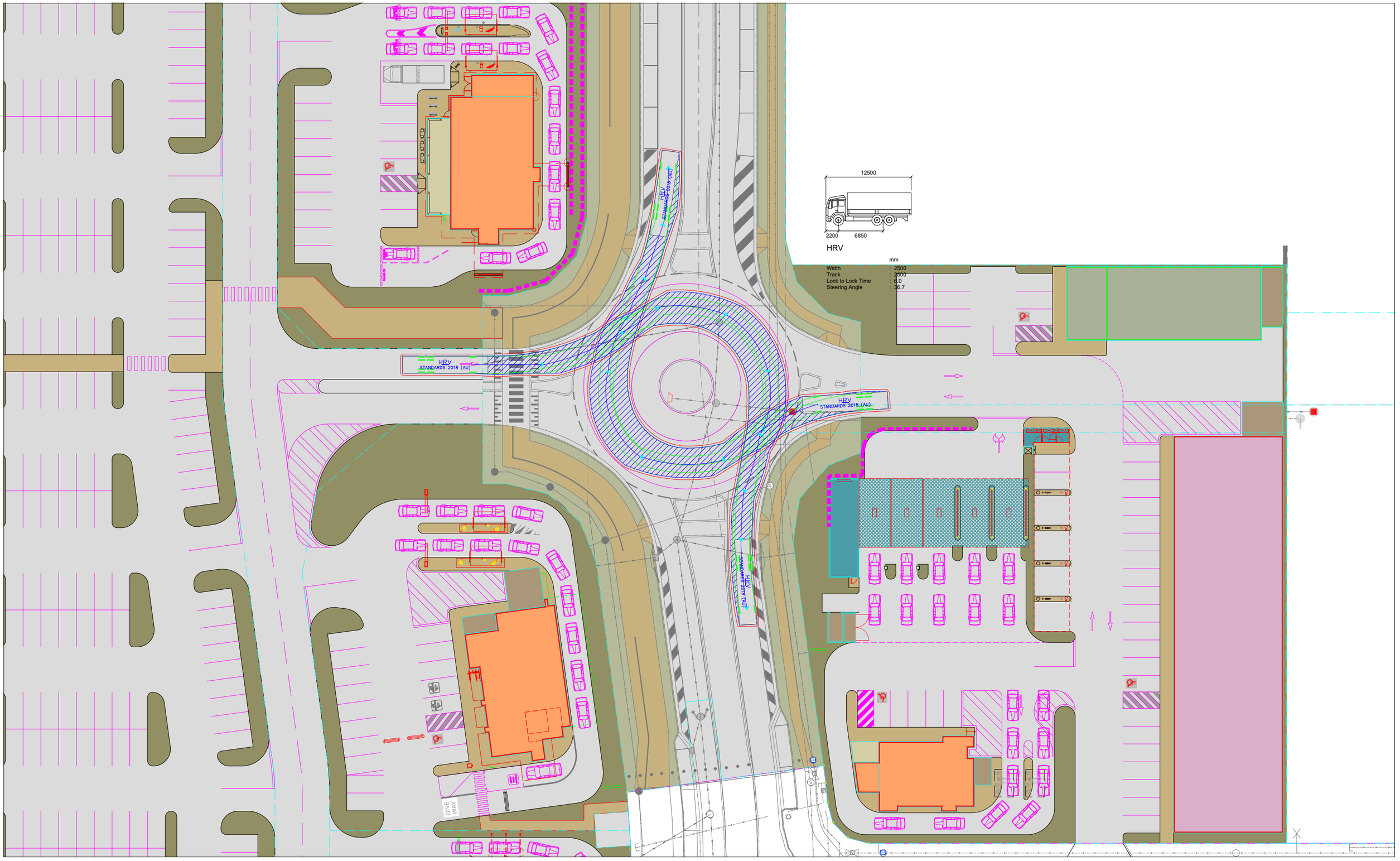
QTraffic Engineering Consultants

Homestead Drive, Flagstone
Vehicle Tracking Analyses

drawn: RQ Scale: 1:500 @ A3 date: 13/10/2025

The base drawing is provided to Q Traffic by others. This drawing is draft for discussion purposes only

1548_BLU10	SK.03	D
project no.	drawing no.	rev



I, Richard Quinn (RPEQ 08565), certify that the swept paths have been carried out in accordance with AS2890.1 and/or AS2890.2

LEGEND

- Vehicle Wheelpath
- Body of Vehicle
- 300mm Clearance Envelope from Body of Vehicle

drawing title

QTraffic Engineering Consultants

Homestead Drive, Flagstone
Vehicle Tracking Analyses

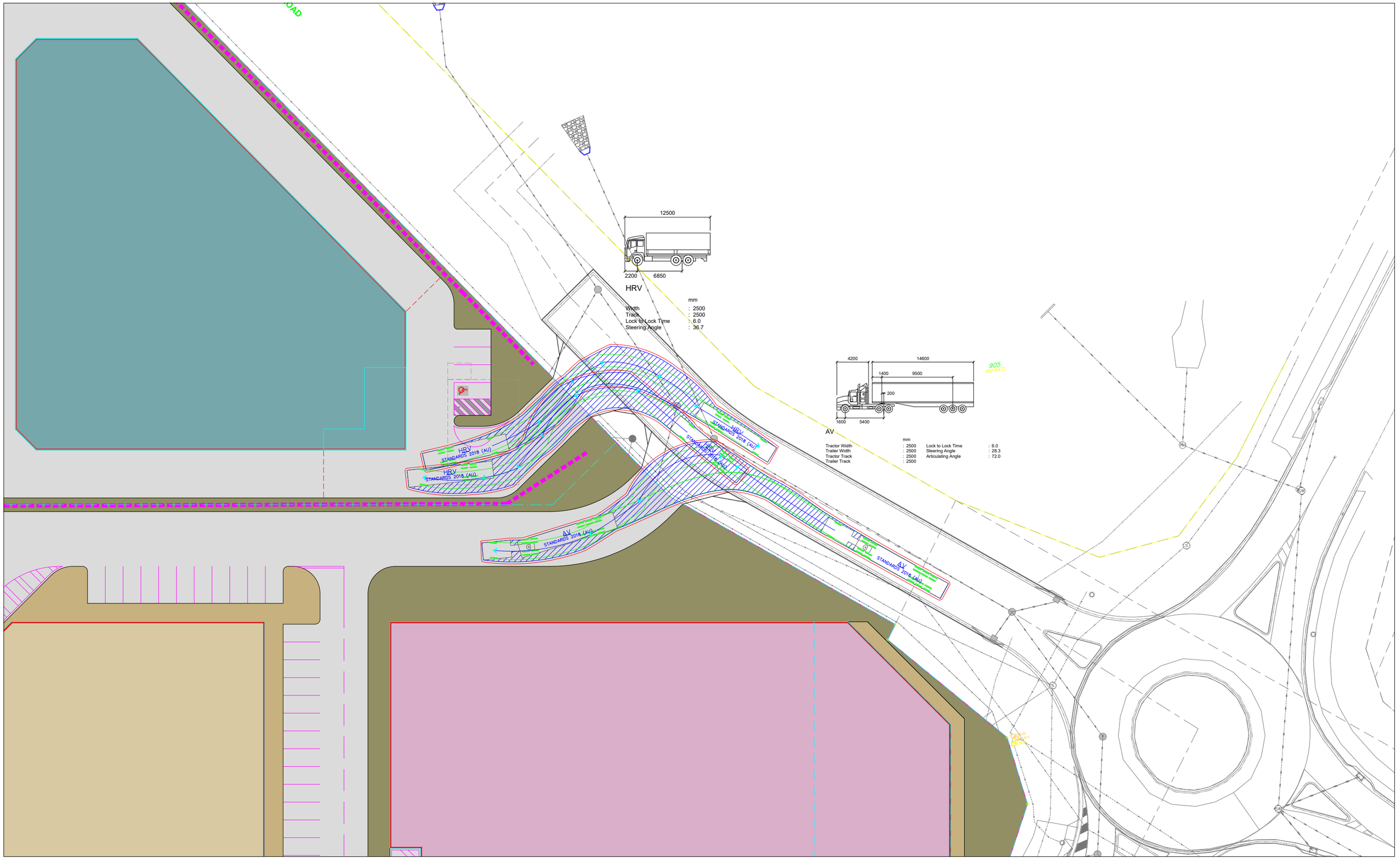
drawn: RQ Scale: 1:500 @ A3 date: 13/10/2025

The base drawing is provided to Q Traffic by others. This drawing is draft for discussion purposes only

1548_BLU10	SK.04	D
project no.	drawing no.	rev

APPENDIX E

Vehicle Tracking Diagrams – Site Accesses



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LEGEND

- Vehicle Wheelpath
- Body of Vehicle
- 300mm Clearance Envelope from Body of Vehicle

drawing title

Q Traffic Engineering Consultants

Homestead Drive, Flagstone
Vehicle Tracking Analyses

drawn: RQ Scale: 1:500 @ A3 date: 13/10/2025

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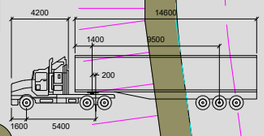
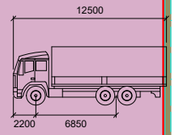
1548_BLU10	SK.05	D
project no.	drawing no.	rev



AV

mm

Tractor Width	: 2500	Lock to Lock Time	: 6.0
Trailer Width	: 2500	Steering Angle	: 28.3
Tractor Track	: 2500	Articulating Angle	: 72.0
Trailer Track	: 2500		



HRV

mm

Width	: 2500
Track	: 2500
Lock to Lock Time	: 6.0
Steering Angle	: 36.7

I, Richard Quinn (RPEQ 08565), certify that the swept paths have been carried out in accordance with AS2890.1 and/or AS2890.2

LEGEND

- Vehicle Wheelpath
- Body of Vehicle
- 300mm Clearance Envelope from Body of Vehicle

drawing title

Homestead Drive, Flagstone
Vehicle Tracking Analyses

drawn: RQ Scale: 1:500 @ A3 date: 13/10/2025

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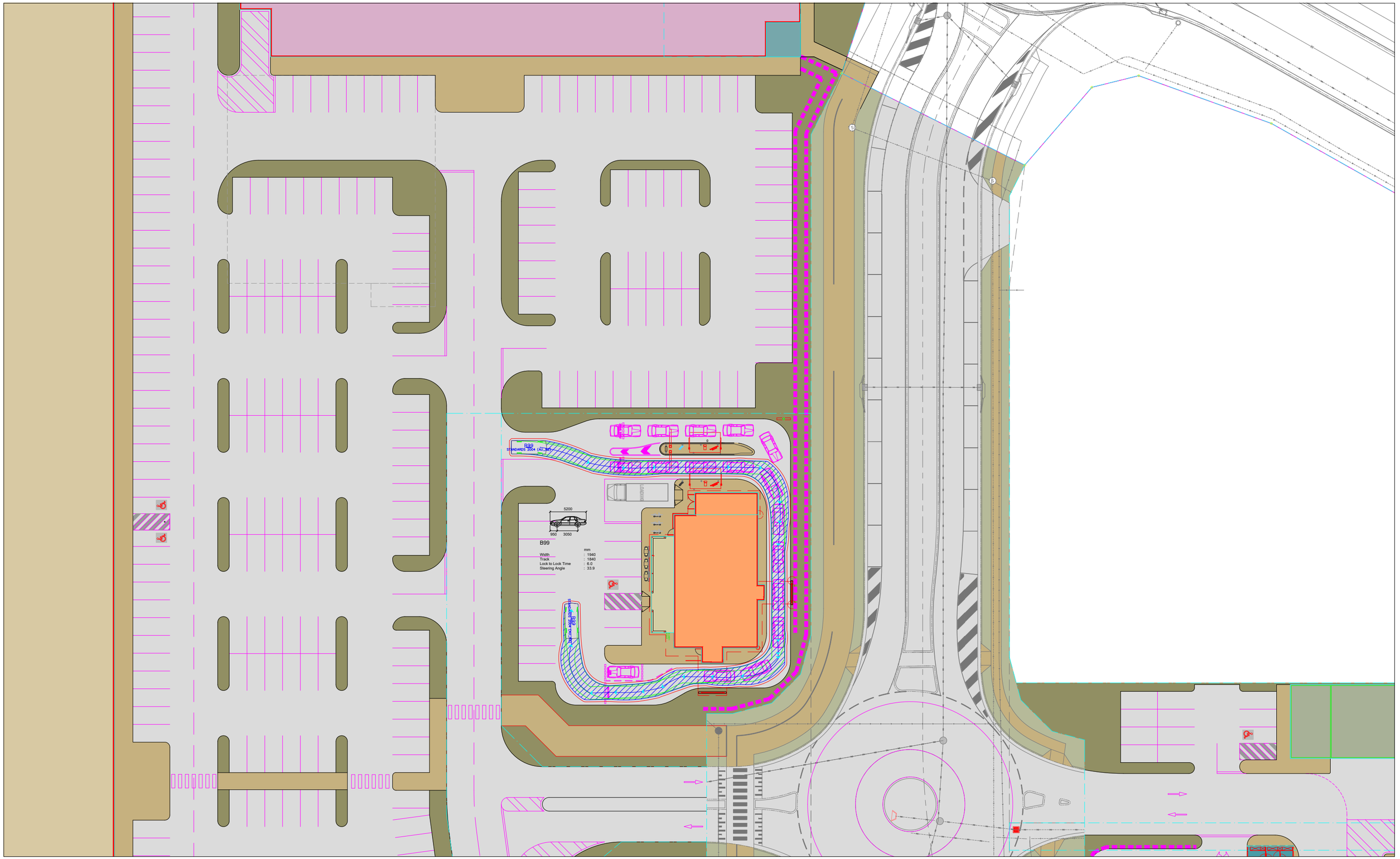
project no.	drawing no.	rev
1548_BLU10	SK.06	D

APPENDIX F

Vehicle Tracking Diagrams – Drive Through Facilities



I, Richard Quinn (RPEQ 08565), certify that the swept paths have been carried out in accordance with AS2890.1 and/or AS2890.2

LEGEND

- Vehicle Wheelpath
- Body of Vehicle
- 300mm Clearance Envelope from Body of Vehicle

drawing title

Q Traffic Engineering Consultants

Homestead Drive, Flagstone
Vehicle Tracking Analyses

drawn: RQ | Scale: 1:500 @ A3 | date: 13/10/2025

The base drawing is provided to Q Traffic by others. This drawing is draft for discussion purposes only

project no.	drawing no.	rev
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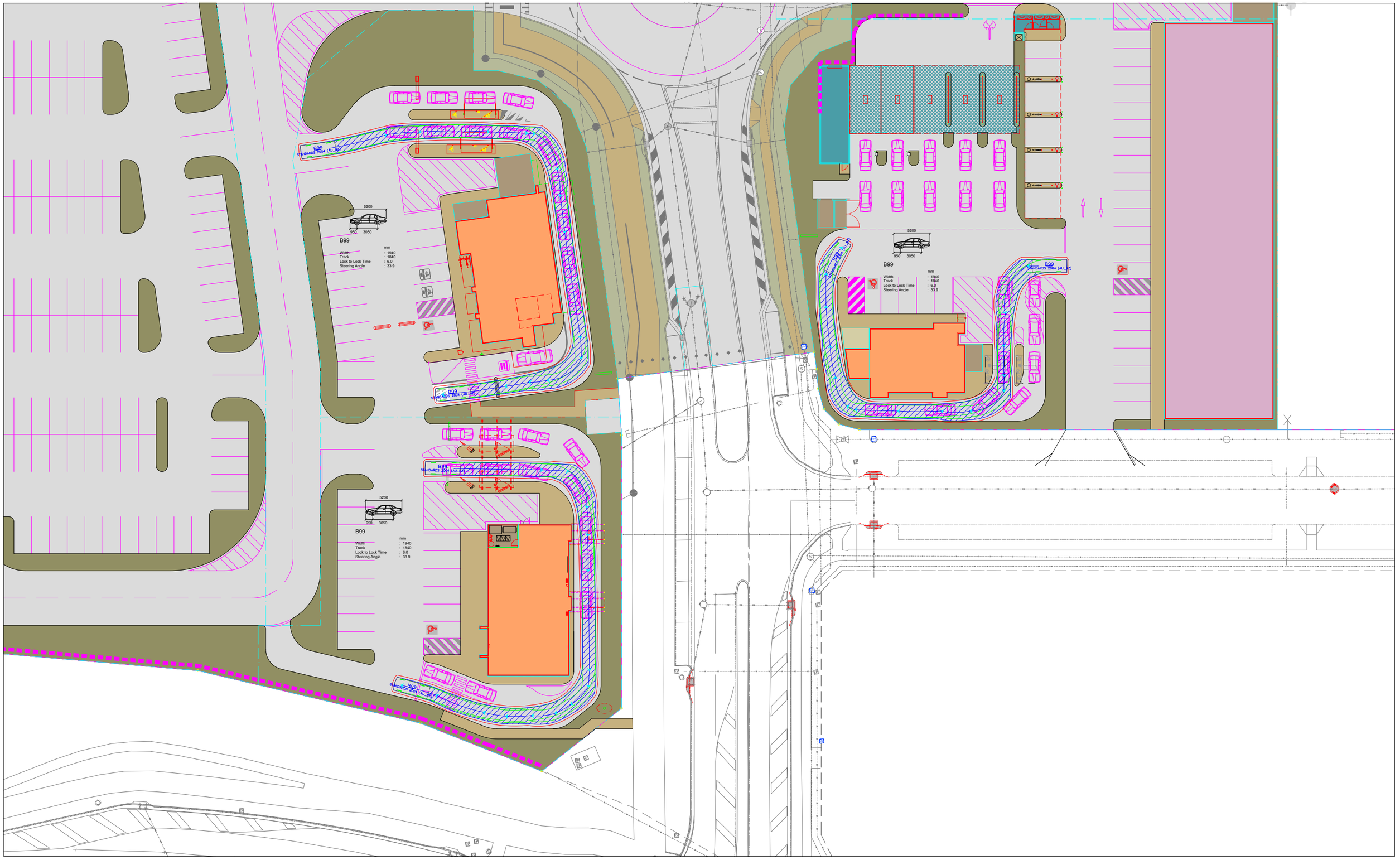


I, Richard Quinn (RPEQ 08565), certify that the swept paths have been carried out in accordance with AS2890.1 and/or AS2890.2

LEGEND

- Vehicle Wheelpath
- Body of Vehicle
- 300mm Clearance Envelope from Body of Vehicle

drawing title

Homestead Drive, Flagstone
Vehicle Tracking Analyses

QTraffic Engineering Consultants

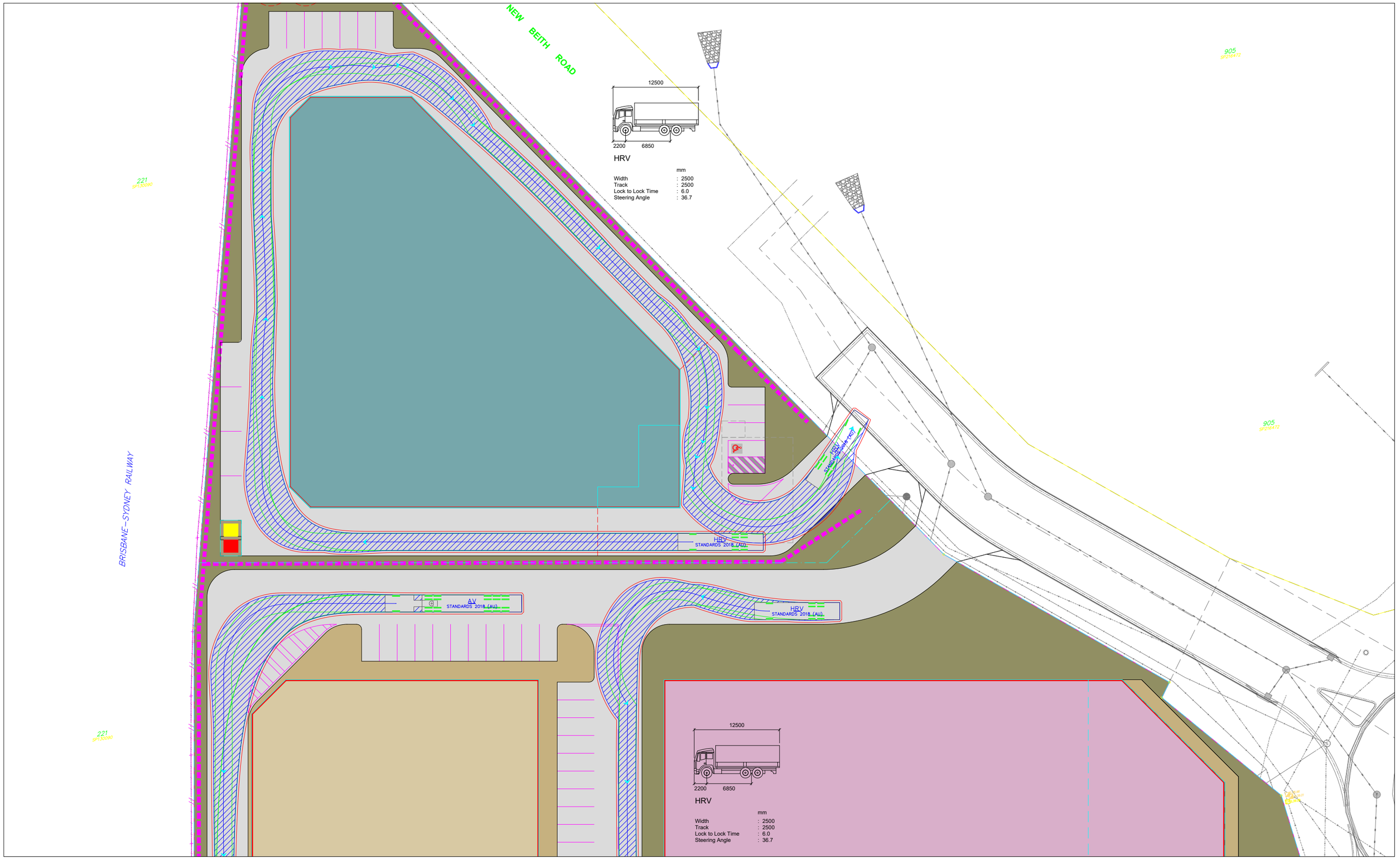
drawn: RQ Scale: 1:500 @ A3 date: 13/10/2025

The base drawing is provided to Q Traffic by others. This drawing is draft for discussion purposes only

1548_BLU10	SK.08	D
project no.	drawing no.	rev

APPENDIX G

Vehicle Tracking Diagrams – Service Vehicle Circulation and Manoeuvring



I, Richard Quinn (RPEQ 08565), certify that the swept paths have been carried out in accordance with AS2890.1 and/or AS2890.2

LEGEND

- Vehicle Wheelpath
- Body of Vehicle
- 300mm Clearance Envelope from Body of Vehicle

drawing title

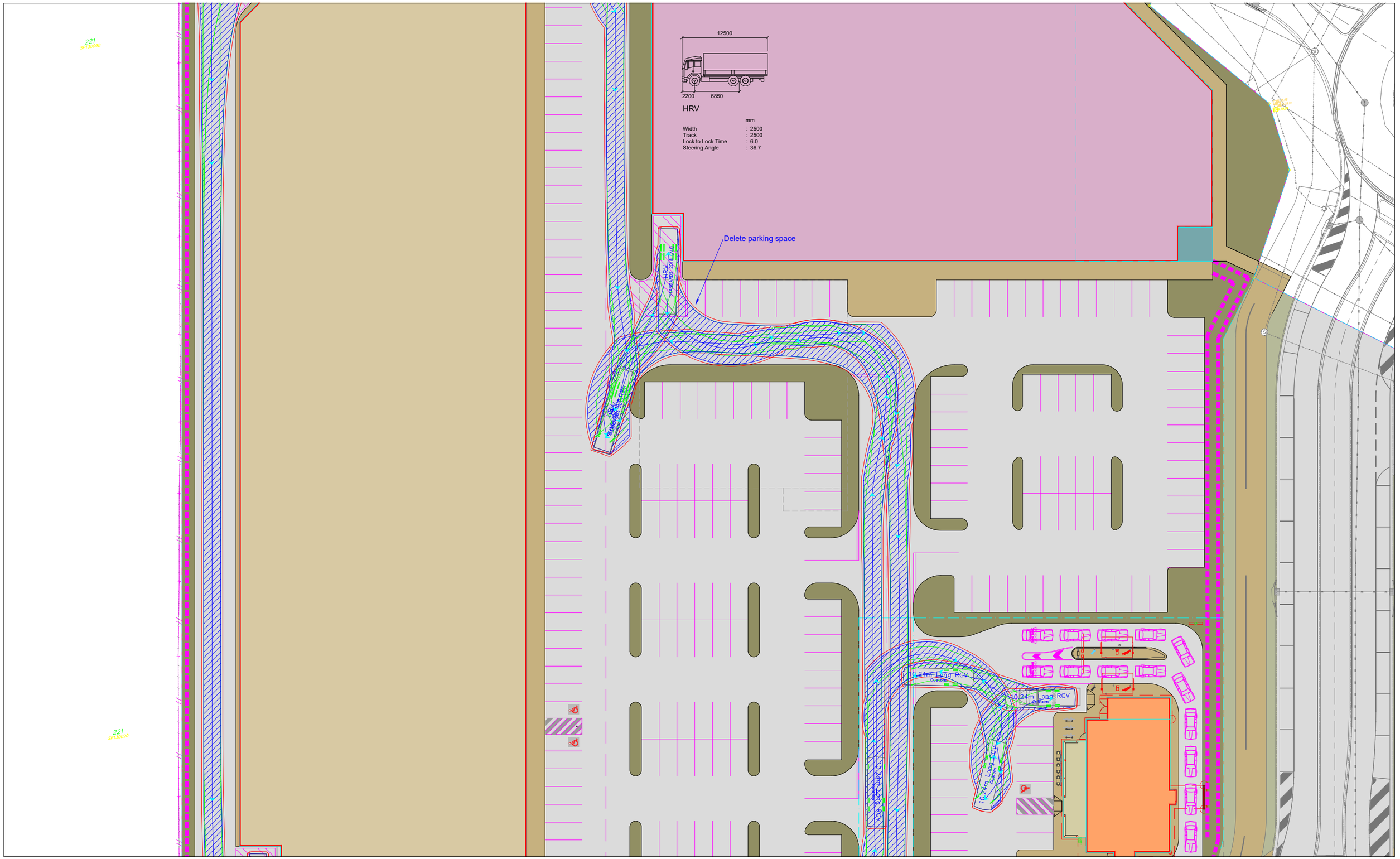
Q Traffic Engineering Consultants

Homestead Drive, Flagstone
Vehicle Tracking Analyses

drawn: RQ Scale: 1:500 @ A3 date: 13/10/2025

The base drawing is provided to Q Traffic by others. This drawing is draft for discussion purposes only

1548_BLU10	SK.09	D
project no.	drawing no.	rev



I, Richard Quinn (RPEQ 08565), certify that the swept paths have been carried out in accordance with AS2890.1 and/or AS2890.2

LEGEND

- Vehicle Wheelpath
- Body of Vehicle
- 300mm Clearance Envelope from Body of Vehicle

drawing title

QTraffic Engineering Consultants

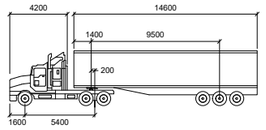
Homestead Drive, Flagstone
Vehicle Tracking Analyses

drawn: RQ Scale: 1:500 @ A3 date: 13/10/2025

The base drawing is provided to Q Traffic by others. This drawing is draft for discussion purposes only

project no.	drawing no.	rev
1548_BLU10	SK.10	D

BRISBANE – SYDNEY RAILWAY



AV

	mm		
Tractor Width	: 2500	Lock to Lock Time	: 6.0
Trailer Width	: 2500	Steering Angle	: 28.3
Tractor Track	: 2500	Articulating Angle	: 72.0
Trailer Track	: 2500		

221 steps

AV STANDARDS 2018 (AU)

HRV STANDARDS 2018 (AU)

10.24m Long RCV Custom

I, Richard Quinn (RPEQ 08565), certify that the swept paths have been carried out in accordance with AS2890.1 and/or AS2890.2

LEGEND

- Vehicle Wheelpath
- Body of Vehicle
- 300mm Clearance Envelope from Body of Vehicle

drawing title

Homestead Drive, Flagstone
Vehicle Tracking Analyses

QTraffic Engineering Consultants

drawn: RQ | Scale: 1:500 @ A3 | date: 13/10/2025

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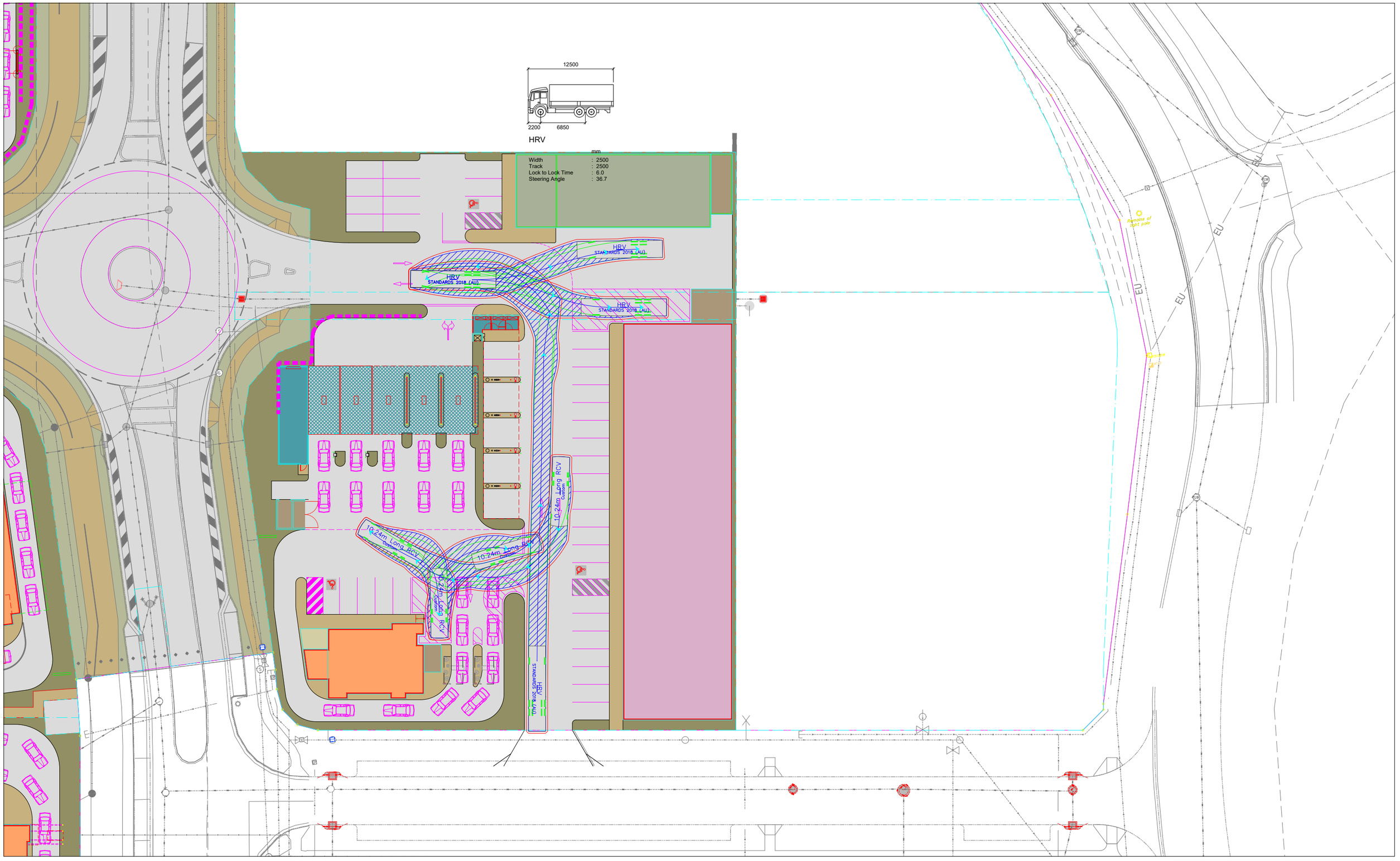
project no.	drawing no.	rev
1548_BLU10	SK.11	D



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LEGEND

- Vehicle Wheelpath
- Body of Vehicle
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drawing title

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Vehicle Tracking Analyses

drawn: RQ Scale: 1:500 @ A3 date: 13/10/2025

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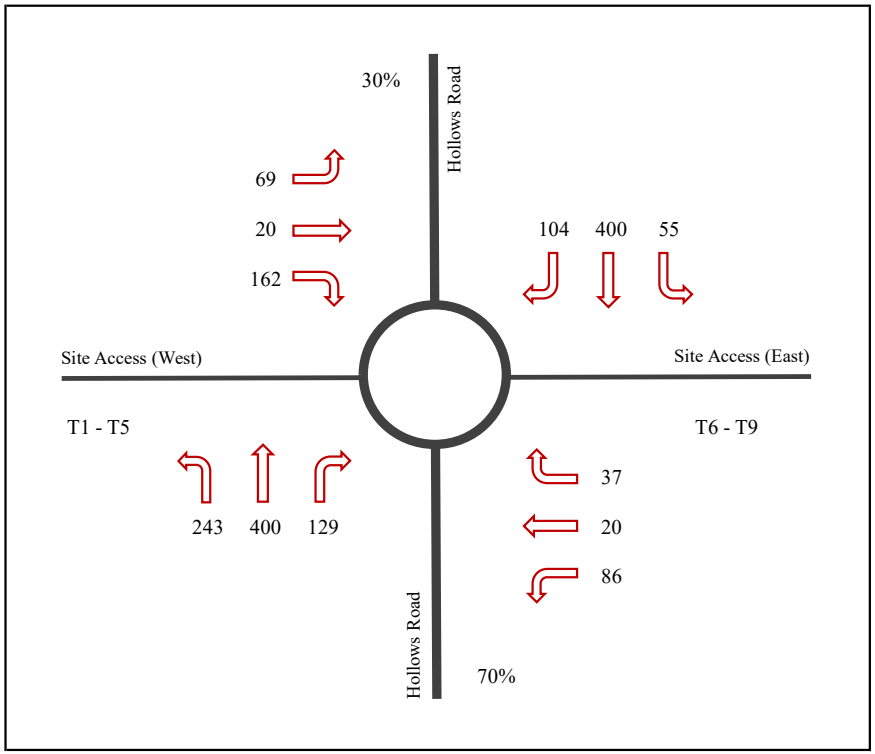
1548_BLU10	SK.12	D
project no.	drawing no.	rev

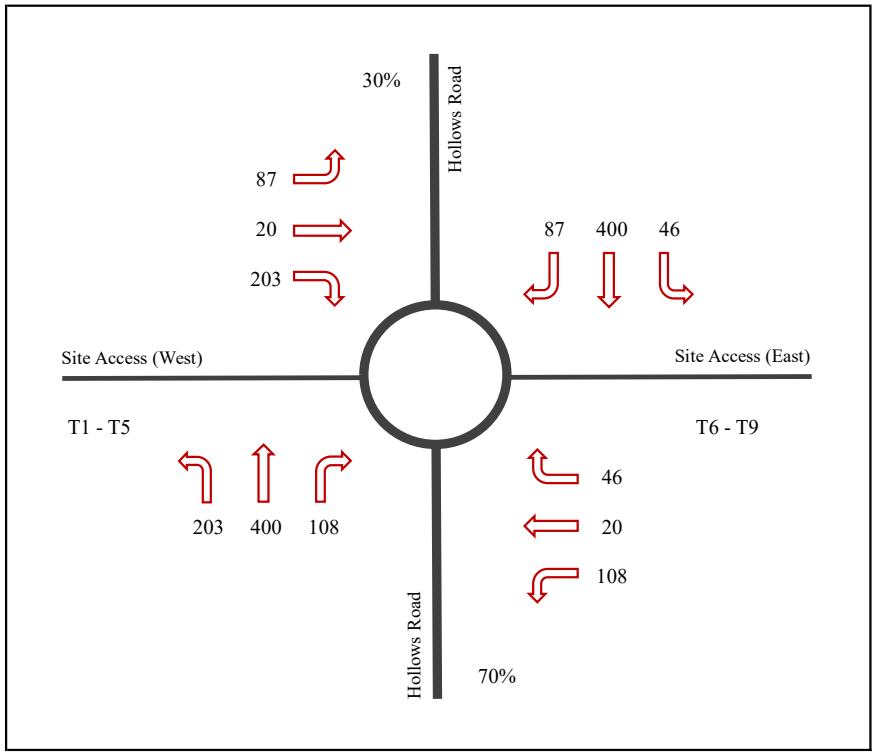
APPENDIX H

Forecast Turning Movement Volumes – Hollows Road Roundabout

Test 1 (8,000vpd through traffic on Hollows Road)

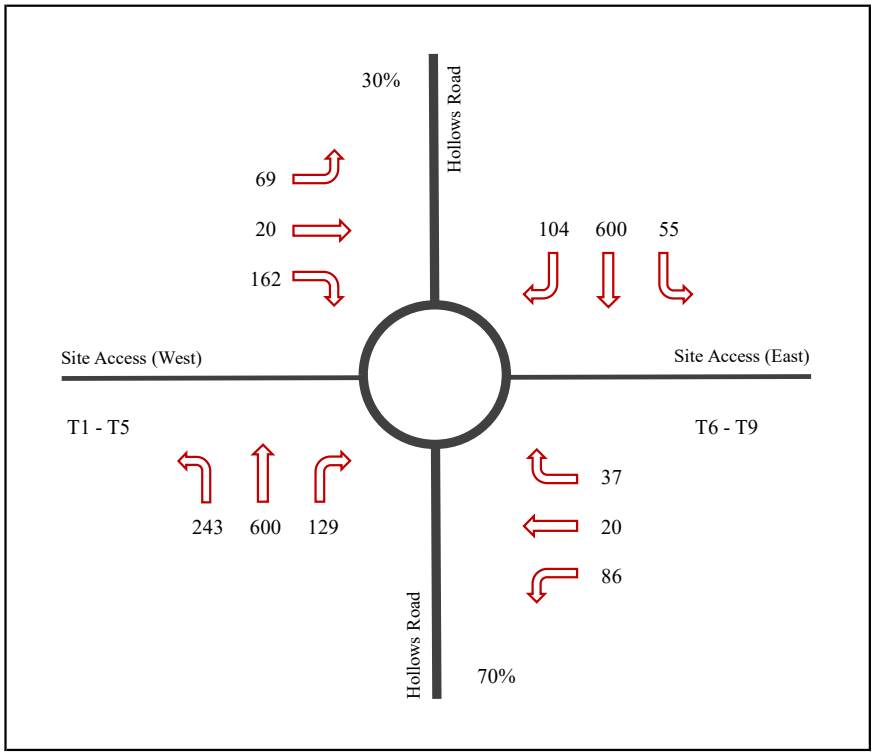


AM Peak Hour

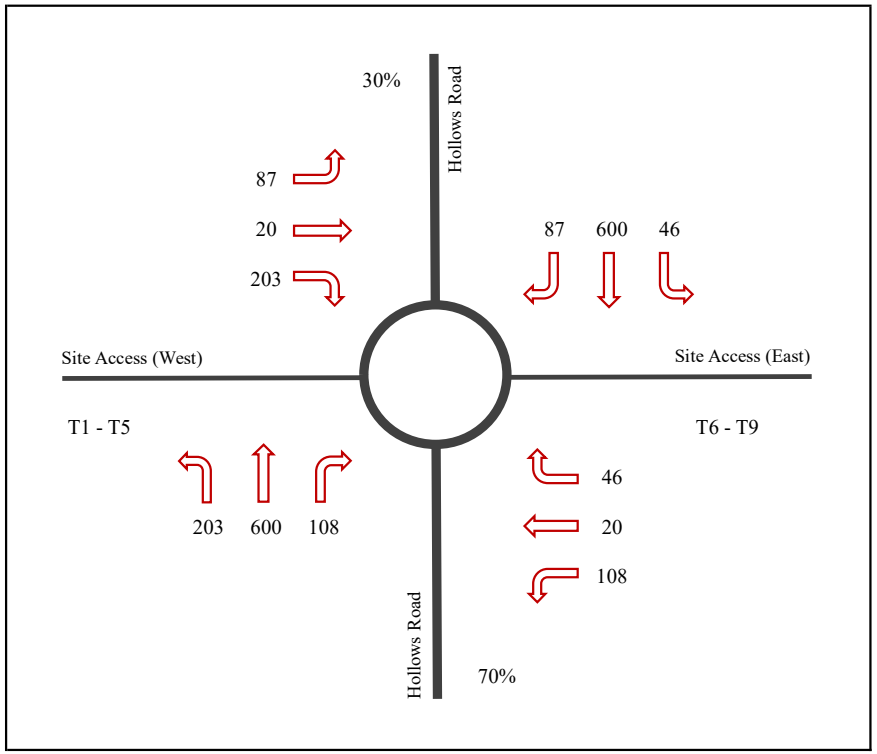


PM Peak Hour

Test 2 (12,000vpd through traffic on Hollows Road)



AM Peak Hour



PM Peak Hour

APPENDIX I

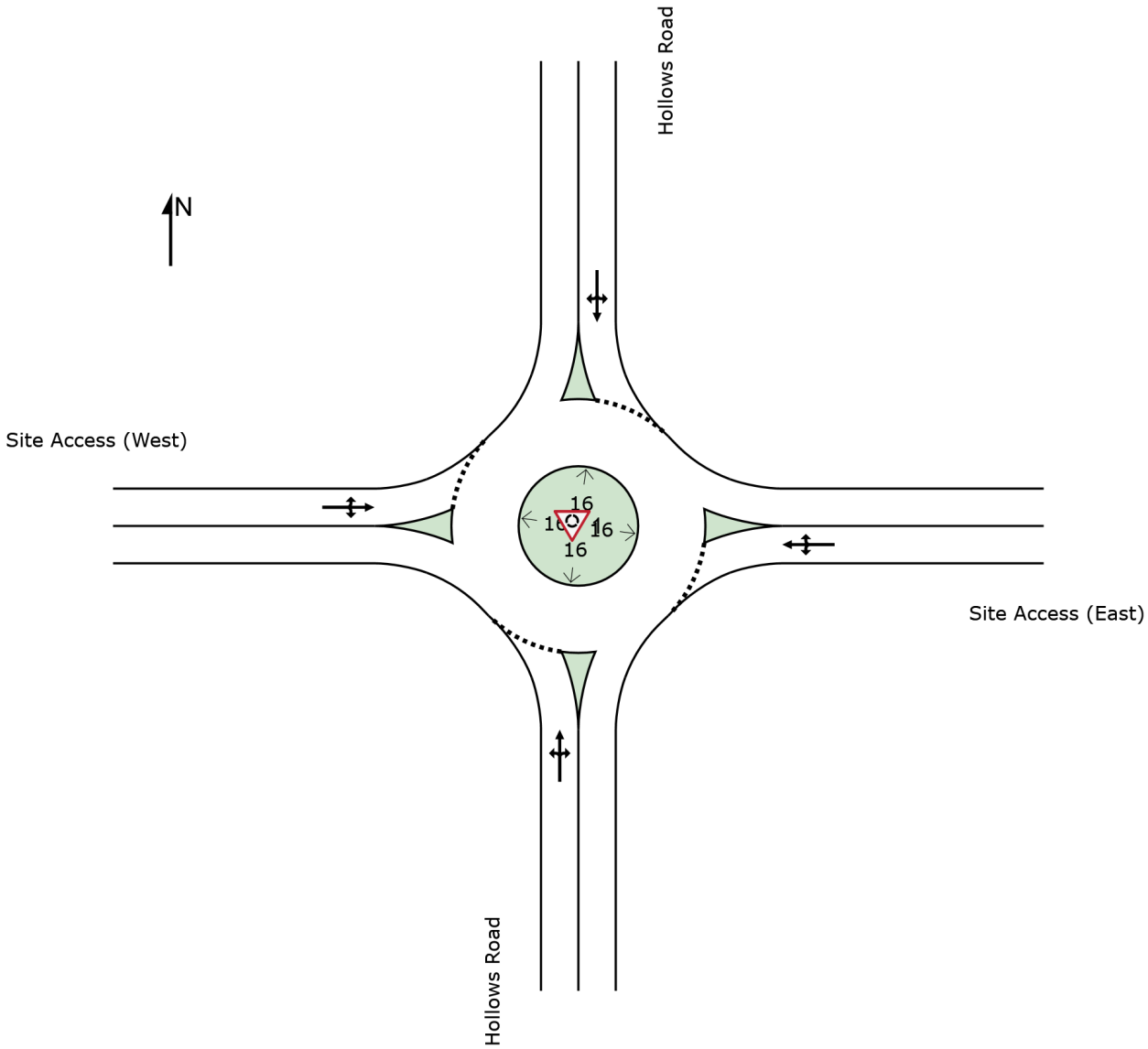
Results of SIDRA Modelling – Hollows Road Roundabout

SITE LAYOUT

Site: [1] AM Peak Hour (TEST 1 - 800vph Through)

Hollows Road / Site Access Roundabout
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: [1] AM Peak Hour (TEST 1 - 800vph Through)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Hollows Road / Site Access Roundabout
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Hollows Road															
1	L2	All MCs	243	5.0	243	5.0	0.601	5.3	LOS A	4.6	33.6	0.48	0.54	0.48	52.0
2	T1	All MCs	400	5.0	400	5.0	0.601	5.5	LOS A	4.6	33.6	0.48	0.54	0.48	52.4
3	R2	All MCs	129	5.0	129	5.0	0.601	9.6	LOS A	4.6	33.6	0.48	0.54	0.48	51.6
Approach			772	5.0	772	5.0	0.601	6.1	LOS A	4.6	33.6	0.48	0.54	0.48	52.2
East: Site Access (East)															
4	L2	All MCs	86	5.0	86	5.0	0.176	7.5	LOS A	1.0	7.1	0.65	0.70	0.65	51.0
5	T1	All MCs	20	5.0	20	5.0	0.176	7.7	LOS A	1.0	7.1	0.65	0.70	0.65	51.4
6	R2	All MCs	37	5.0	37	5.0	0.176	11.8	LOS A	1.0	7.1	0.65	0.70	0.65	50.6
Approach			143	5.0	143	5.0	0.176	8.6	LOS A	1.0	7.1	0.65	0.70	0.65	50.9
North: Hollows Road															
7	L2	All MCs	55	5.0	55	5.0	0.509	6.0	LOS A	3.3	23.9	0.57	0.60	0.57	51.5
8	T1	All MCs	400	5.0	400	5.0	0.509	6.2	LOS A	3.3	23.9	0.57	0.60	0.57	51.9
9	R2	All MCs	104	5.0	104	5.0	0.509	10.4	LOS A	3.3	23.9	0.57	0.60	0.57	51.1
Approach			559	5.0	559	5.0	0.509	7.0	LOS A	3.3	23.9	0.57	0.60	0.57	51.7
West: Site Access (West)															
10	L2	All MCs	69	5.0	69	5.0	0.285	7.1	LOS A	1.6	11.7	0.64	0.71	0.64	50.2
11	T1	All MCs	20	5.0	20	5.0	0.285	7.3	LOS A	1.6	11.7	0.64	0.71	0.64	50.6
12	R2	All MCs	162	5.0	162	5.0	0.285	11.4	LOS A	1.6	11.7	0.64	0.71	0.64	49.8
Approach			251	5.0	251	5.0	0.285	9.9	LOS A	1.6	11.7	0.64	0.71	0.64	50.0
All Vehicles			1725	5.0	1725	5.0	0.601	7.1	LOS A	4.6	33.6	0.55	0.59	0.55	51.6

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: [1 (2)] PM Peak Hour (TEST 1 - 800vph Through)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Hollows Road / Site Access Roundabout
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Hollows Road															
1	L2	All MCs	203	5.0	203	5.0	0.550	5.1	LOS A	3.9	28.3	0.43	0.52	0.43	52.2
2	T1	All MCs	400	5.0	400	5.0	0.550	5.3	LOS A	3.9	28.3	0.43	0.52	0.43	52.6
3	R2	All MCs	108	5.0	108	5.0	0.550	9.5	LOS A	3.9	28.3	0.43	0.52	0.43	51.8
Approach			711	5.0	711	5.0	0.550	5.9	LOS A	3.9	28.3	0.43	0.52	0.43	52.4
East: Site Access (East)															
4	L2	All MCs	108	5.0	108	5.0	0.218	7.8	LOS A	1.2	9.0	0.68	0.71	0.68	50.8
5	T1	All MCs	20	5.0	20	5.0	0.218	8.0	LOS A	1.2	9.0	0.68	0.71	0.68	51.2
6	R2	All MCs	46	5.0	46	5.0	0.218	12.1	LOS A	1.2	9.0	0.68	0.71	0.68	50.4
Approach			174	5.0	174	5.0	0.218	9.0	LOS A	1.2	9.0	0.68	0.71	0.68	50.7
North: Hollows Road															
7	L2	All MCs	46	5.0	46	5.0	0.498	6.1	LOS A	3.2	23.4	0.59	0.61	0.59	51.5
8	T1	All MCs	400	5.0	400	5.0	0.498	6.3	LOS A	3.2	23.4	0.59	0.61	0.59	51.9
9	R2	All MCs	87	5.0	87	5.0	0.498	10.5	LOS A	3.2	23.4	0.59	0.61	0.59	51.1
Approach			533	5.0	533	5.0	0.498	7.0	LOS A	3.2	23.4	0.59	0.61	0.59	51.7
West: Site Access (West)															
10	L2	All MCs	87	5.0	87	5.0	0.345	7.1	LOS A	2.0	14.5	0.65	0.71	0.65	50.2
11	T1	All MCs	20	5.0	20	5.0	0.345	7.3	LOS A	2.0	14.5	0.65	0.71	0.65	50.5
12	R2	All MCs	203	5.0	203	5.0	0.345	11.5	LOS A	2.0	14.5	0.65	0.71	0.65	49.8
Approach			310	5.0	310	5.0	0.345	10.0	LOS A	2.0	14.5	0.65	0.71	0.65	49.9
All Vehicles			1728	5.0	1728	5.0	0.550	7.3	LOS A	3.9	28.3	0.54	0.60	0.54	51.5

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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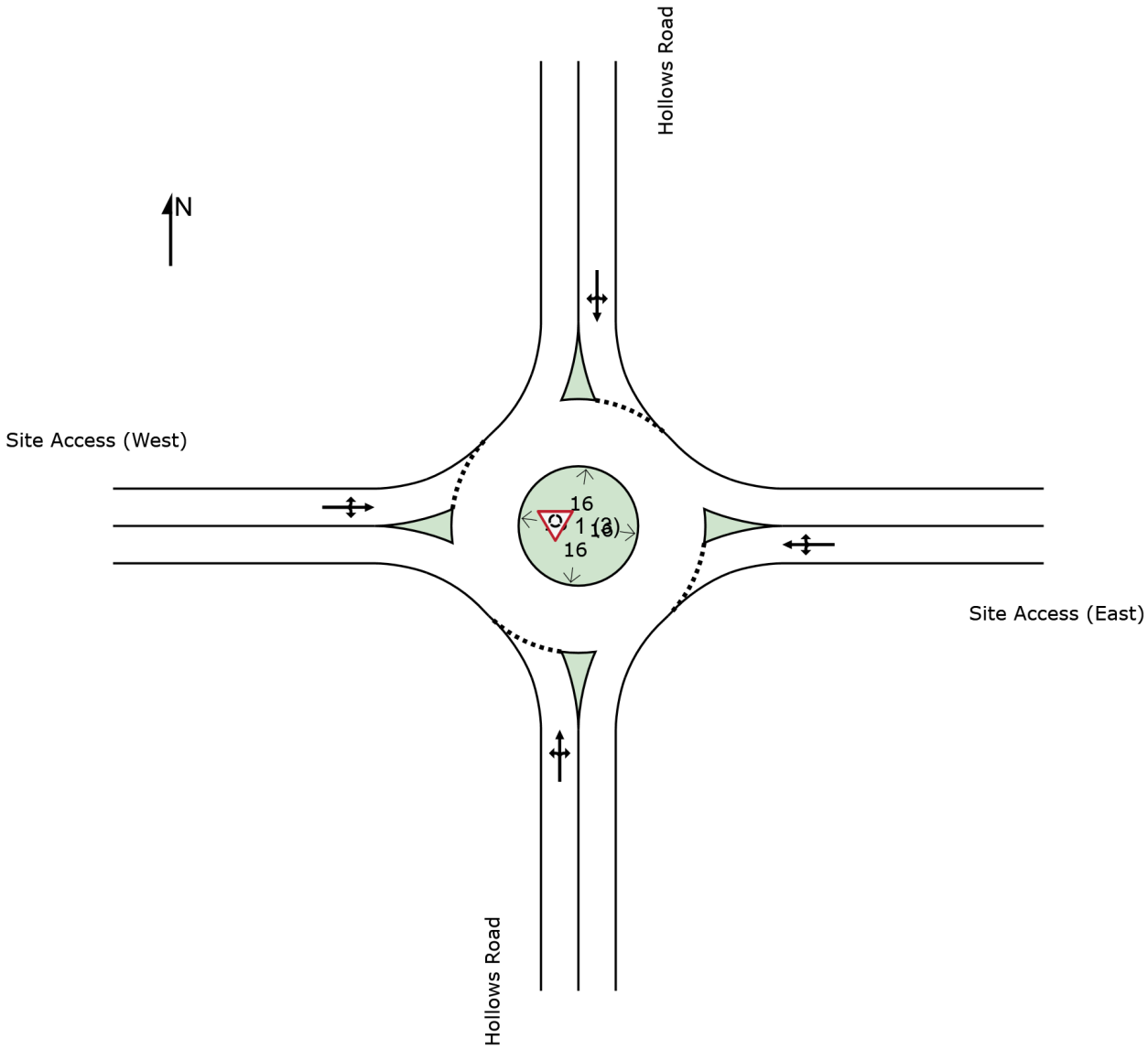
SITE LAYOUT

Site: [1 (3)] AM Peak Hour (TEST 2 - 1200vph Through)

Hollows Road / Site Access Roundabout
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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Organisation: Q TRAFFIC | Licence: NETWORK / 1PC | Created: Wednesday, 17 September 2025 11:17:24 AM
Project: E:\Q Traffic\Homestead Dr Flagstone\2. Further Issues\Roundabout.sipx

MOVEMENT SUMMARY

Site: [1 (3)] AM Peak Hour (TEST 2 - 1200vph Through)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Hollows Road / Site Access Roundabout
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Hollows Road															
1	L2	All MCs	243	5.0	243	5.0	0.751	5.7	LOS A	7.9	57.5	0.64	0.56	0.64	51.4
2	T1	All MCs	600	5.0	600	5.0	0.751	5.9	LOS A	7.9	57.5	0.64	0.56	0.64	51.9
3	R2	All MCs	129	5.0	129	5.0	0.751	10.1	LOS A	7.9	57.5	0.64	0.56	0.64	51.0
Approach			972	5.0	972	5.0	0.751	6.4	LOS A	7.9	57.5	0.64	0.56	0.64	51.6
East: Site Access (East)															
4	L2	All MCs	86	5.0	86	5.0	0.228	9.5	LOS A	1.4	10.5	0.81	0.76	0.81	49.7
5	T1	All MCs	20	5.0	20	5.0	0.228	9.7	LOS A	1.4	10.5	0.81	0.76	0.81	50.1
6	R2	All MCs	37	5.0	37	5.0	0.228	13.8	LOS A	1.4	10.5	0.81	0.76	0.81	49.3
Approach			143	5.0	143	5.0	0.228	10.6	LOS A	1.4	10.5	0.81	0.76	0.81	49.6
North: Hollows Road															
7	L2	All MCs	55	5.0	55	5.0	0.686	7.5	LOS A	6.7	49.1	0.71	0.68	0.80	50.3
8	T1	All MCs	600	5.0	600	5.0	0.686	7.7	LOS A	6.7	49.1	0.71	0.68	0.80	50.7
9	R2	All MCs	104	5.0	104	5.0	0.686	11.9	LOS A	6.7	49.1	0.71	0.68	0.80	49.9
Approach			759	5.0	759	5.0	0.686	8.3	LOS A	6.7	49.1	0.71	0.68	0.80	50.6
West: Site Access (West)															
10	L2	All MCs	69	5.0	69	5.0	0.360	8.8	LOS A	2.3	17.1	0.81	0.77	0.81	49.1
11	T1	All MCs	20	5.0	20	5.0	0.360	9.0	LOS A	2.3	17.1	0.81	0.77	0.81	49.5
12	R2	All MCs	162	5.0	162	5.0	0.360	13.2	LOS A	2.3	17.1	0.81	0.77	0.81	48.7
Approach			251	5.0	251	5.0	0.360	11.6	LOS A	2.3	17.1	0.81	0.77	0.81	48.9
All Vehicles			2125	5.0	2125	5.0	0.751	8.0	LOS A	7.9	57.5	0.70	0.64	0.73	50.8

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: [1 (4)] PM Peak Hour (TEST 2 - 1200vph Through)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Hollows Road / Site Access Roundabout
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Hollows Road															
1	L2	All MCs	203	5.0	203	5.0	0.699	5.4	LOS A	6.5	47.2	0.56	0.54	0.56	51.8
2	T1	All MCs	600	5.0	600	5.0	0.699	5.6	LOS A	6.5	47.2	0.56	0.54	0.56	52.2
3	R2	All MCs	108	5.0	108	5.0	0.699	9.8	LOS A	6.5	47.2	0.56	0.54	0.56	51.3
Approach			911	5.0	911	5.0	0.699	6.1	LOS A	6.5	47.2	0.56	0.54	0.56	52.0
East: Site Access (East)															
4	L2	All MCs	108	5.0	108	5.0	0.284	9.9	LOS A	1.8	13.5	0.83	0.77	0.83	49.4
5	T1	All MCs	20	5.0	20	5.0	0.284	10.1	LOS A	1.8	13.5	0.83	0.77	0.83	49.7
6	R2	All MCs	46	5.0	46	5.0	0.284	14.3	LOS A	1.8	13.5	0.83	0.77	0.83	49.0
Approach			174	5.0	174	5.0	0.284	11.1	LOS A	1.8	13.5	0.83	0.77	0.83	49.3
North: Hollows Road															
7	L2	All MCs	46	5.0	46	5.0	0.680	7.7	LOS A	6.7	48.8	0.73	0.70	0.83	50.2
8	T1	All MCs	600	5.0	600	5.0	0.680	7.9	LOS A	6.7	48.8	0.73	0.70	0.83	50.6
9	R2	All MCs	87	5.0	87	5.0	0.680	12.1	LOS A	6.7	48.8	0.73	0.70	0.83	49.8
Approach			733	5.0	733	5.0	0.680	8.4	LOS A	6.7	48.8	0.73	0.70	0.83	50.5
West: Site Access (West)															
10	L2	All MCs	87	5.0	87	5.0	0.428	9.4	LOS A	3.0	21.7	0.81	0.80	0.87	48.7
11	T1	All MCs	20	5.0	20	5.0	0.428	9.6	LOS A	3.0	21.7	0.81	0.80	0.87	49.1
12	R2	All MCs	203	5.0	203	5.0	0.428	13.8	LOS A	3.0	21.7	0.81	0.80	0.87	48.3
Approach			310	5.0	310	5.0	0.428	12.3	LOS A	3.0	21.7	0.81	0.80	0.87	48.5
All Vehicles			2128	5.0	2128	5.0	0.699	8.2	LOS A	6.7	48.8	0.68	0.65	0.72	50.7

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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