



Proposed Mixed-Use
Residential Development
68-80 O'Connell Street, Caddens

Traffic & Parking Assessment



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1.0 Executive Summary

This Transport and Accessibility Impact Assessment Report has been prepared by TTPA for Caddens Estate Pty Ltd to accompany a State Significant Development Application (SSDA) for a mixed-use development (including in-fill affordable housing) at 68-80 O'Connell Street, Caddens, within the Penrith Local Government Area (LGA).

This report has been prepared to address the Secretary's Environmental Assessment Requirements (SEARs) issued for the project (SSD-80875966) on 14 March 2025.

2.0 Introduction

This Transport and Accessibility Impact Assessment Report is submitted to the Department of Planning, Housing and Infrastructure (DPHI) in support of a State Significant Development Application (SSDA) for a proposed mixed-use development at 68 - 80 O’Connell Street, Caddens (Figure 1).

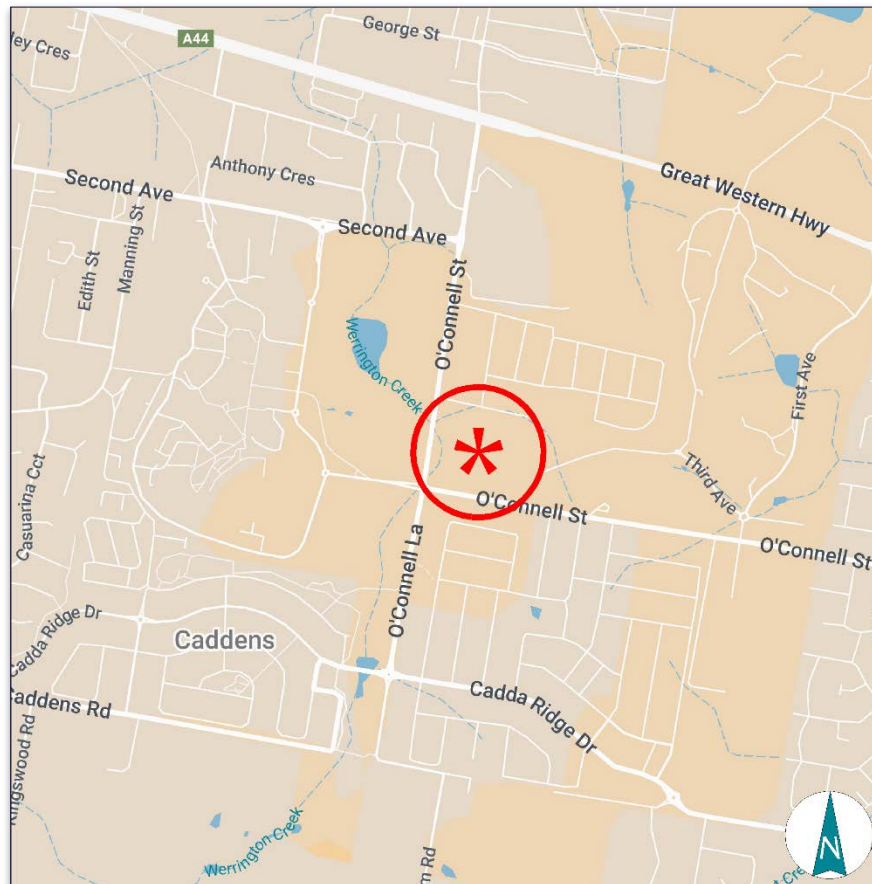


Figure 1 - Site Location

The Caddens area is a large new urban precinct which benefits from ready access to the arterial road system and the major regional facilities available nearby in Penrith CBD. The development site is located in the central part of the Precinct on the corner of O’Connell Street and O’Connell Lane being adjacent to the Western Sydney University (WSU), Kingswood Campus and the existing “Caddens Corner” retail complex.

The SSDA seeks development consent for a mixed-use development (including in-fill affordable housing) comprising a combination of shop-top housing, residential flat buildings and a commercial premises (shop) at 68-80 O'Connell Street, Caddens. The proposed works include site preparation works, excavation, infrastructure, construction of the buildings and associated landscaping works.

Specifically, the SSDA seeks development consent for:

- Demolition of an existing at grade car park and structures
- Construction of 4 x 4 - 7 storey shop top housing buildings on the E1 Local Centre zoned land (68 O'Connell Street), comprising:
 - 177 residential dwellings
 - ground floor commercial, retail, medical centre and recreation facility (indoor). Fit out and operation of tenancies will be subject to future planning approval.
- Construction of a single storey commercial premises (shop) located at the south western corner of the E1 Local Centre zoned land (68 O'Connell Street), comprising two tenancies (which will be subject to future planning approval)
- Construction of basement carparking to service the shop top housing, ground floor commercial and commercial premises located on the E1 Local Centre zoned land (68 O'Connell Street)
- Construction of 11 x 4 - 7 storey residential flat buildings on the R4 High Density Residential zoned land (80 O'Connell Street), including
 - 305 residential dwellings
 - Basement carparking to service the proposed residential flat buildings
- Internal roads
- Associated infrastructure and services
- retention of Threatened Ecological Community (TEC) area in the north-eastern part of the site
- landscaping and communal open spaces including community park in the north-east, communal open spaces throughout and through site links.
- construction of public plaza used for events, markets and community gatherings

The proposal also incorporates 15% affordable housing and seeks to utilise the incentive controls under Chapter 2, Part 2, Division 1, Section 18 of the Housing SEPP to achieve 30% additional building height.

A Clause 4.6 request is submitted as part of this SSDA which addresses the variation from the development standard in regard to building height.

This SSDA also seeks to modify the existing development consent at the site (DA17/0995) pursuant to Section 4.17(5) and Section 4.24(4) of the EP&A Act.

This report has been prepared in response to the requirements contained within the Secretary's Environmental Assessment Requirements (SEARs) dated 14 March 2025 (SSD-80875966). Specifically, this report has been prepared to respond to the SEARs requirement issued below.

Item	Description of requirement	Section reference (this report)
9. Transport	<i>Provide a Transport Impact Assessment (TIA) in accordance with the processes and methodology recommended in the Guide to Transport Impact Assessment (GITA) published by TfNSW.</i> <i>If the construction of the development would cause interruptions to regular pedestrian and transport routes (including public transport, active transport or general traffic), a preliminary Construction Traffic (or Transport) Management Plan (CTMP) should be prepared as part of the TIA to mitigate any such impacts.</i>	Sections 3-9 Section 10

The purpose of this report is to:

- Describe the site, its context and the envisaged development scheme
- Describe the road network serving the site and the prevailing traffic conditions on that network
- Assess the potential traffic implications of the envisaged development
- Assess the adequacy and appropriateness of the envisaged parking provision
- Assess the envisaged vehicle access, internal circulation and servicing arrangements

3.0 Proposed Development

3.1 Site, Context & Existing Circumstances

The site (Figure 2) is located at 68-80 O’Connell Street, Caddens, within the Penrith LGA. It is legally described as Lot 1 and 2 in DP 1268507. The site has an area of 53, 941m² and is generally rectangular in shape.



Figure 2 - Site Boundary

The western portion of the site (68 O’Connell Street) currently comprises an approved commercial shopping centre development and associated carpark, commonly known as ‘Caddens Corner’. It is zoned E1 Local Centre pursuant to the Penrith Local Environmental Plan 2010 (PLEP 2010). This portion of the site is subject to a Concept DA (DA17/0995). A portion of 68 O’Connell Street, that is currently used for at-grade carparking, is subject to this SSDA.

The eastern portion of the site (80 O'Connell Street) is a cleared vacant lot, historically occupied by rural residential land uses. It is zoned R4 High Density Residential pursuant to the PLEP 2010. The site itself is not identified as a heritage item; however, it is located to the east of the 'Teacher's residence (former)' (Item 670), a local heritage item which is identified under Schedule 5 of the PLEP 2010.

Surrounding Context:

The site is located within the Caddens Release Area within the Penrith Development Control Plan 2014 (PDCP 2014), and, under the Caddens Release Area Structure Plan, is strategically identified as the precinct centre with adjoining residential areas.

The site is approximately 2.2 kilometres (km) from Werrington Station and 1.8km from Kingswood Station. It is also well serviced by local buses with stops in proximity to the site along O'Connell Street in both directions.

The site is surrounded by established and newly developed low density residential areas of Caddens, Claremont Meadows, Werrington and Kingswood, as envisioned by the Caddens Release Area plan within the PDCP 2014.

A staged residential subdivision for 119 residential lots is located immediately to the north of the site at 46-66 O'Connell Street.

The area is interspersed with a variety of uses, including Western Sydney University (WSU), TAFE NSW and sporting fields.

The site is located 5.5km east of Penrith City Centre and 30km west from Parramatta CBD.

3.2 Precinct Planning

The site and surrounding lands are located within the Werrington Enterprise, Living and Learning (WELL) Precinct, which is generally bounded by the Railway Line to the north, Caddens Road to the south, Gipps Street to the east and the South Kingswood residential area to the west. The Precinct, which comprises a number of sub-precincts including Caddens Release Area, South Werrington Urban Village, Claremont Meadows Stage 2 and Werrington Mixed Use Area, is planned to:

- Be a "Village" within the Penrith Centres Hierarchy.
- Create a residential neighbourhood with 3,000 dwellings (including 100 dwellings for student accommodation) to accommodate some 8,400 people

- Provide a mix of housing types with sustainable attributes
- Accommodate some 7,800 jobs, including up to 6,000 jobs in the WELL Technology Park and some 350 jobs in the Precinct Centre.
- reduce environmental impact and facilitate greater social interaction
- provide open space amenities with landscaping retaining/protecting areas with high conservation value
- provide bus services as well as cyclist and pedestrian networks

Details of the Precinct along with the Structure Plan and Indicative Dwelling Type for the Caddens area are shown in the following Figures 3-5.

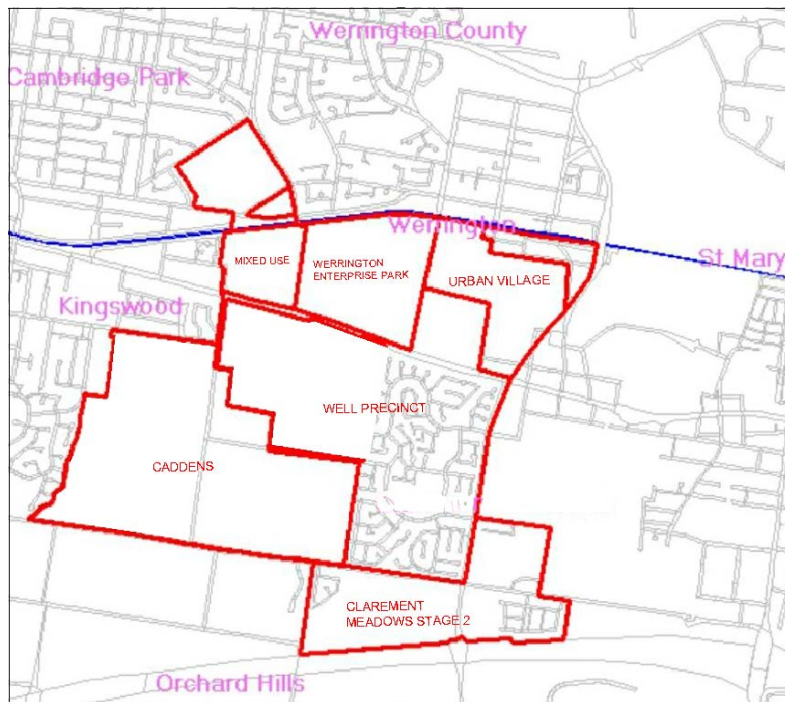


Figure 3 - Precinct Classification

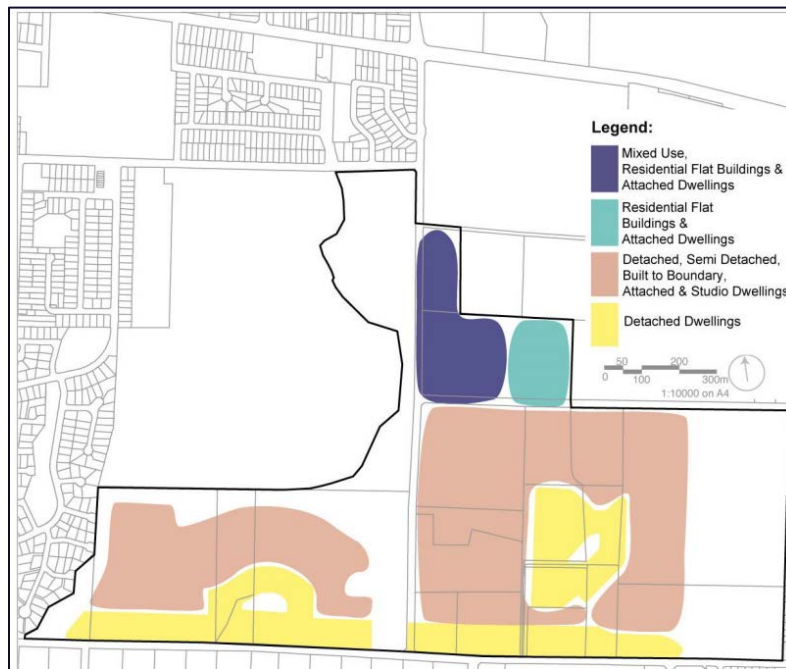


Figure 4 - Indicative Dwelling Type Location

3.3 Proposed Development

It is proposed to clear the site apart from the Cumberland Plan Woodland area and excavate parts to provide for:

- basement parking
- level building platforms
- new access roads
- services

The proposed development will involve 6 stages and comprise a total of 16 buildings with 482 units. The indicative apartment mix at this stage is:

- 86 x 1-bedroom
- 317 x 2-bedroom
- 79 x 3-bedroom

The proposed residential car parking will comprise:

- **Basement 1 (Buildings B-J):** 251 spaces

- **Basement 2 (Buildings K-N):** 179 spaces
- **Basement 3 (Buildings P-U):** 357 spaces

The proposed retail car parking will comprise:

Stage 4 750 spaces

The new access road system will comprise an extension of Corr Road to connect with O'Connell Street and a new 'circuit' connecting to the new section of Corr Road.

Details of the proposed development scheme are provided on the plans prepared by Group GSA, which accompany the State Significant Development Application (SSDA) and are reproduced in part in Appendix A.

3.4 Other Developments

The elements of other proposed developments in the immediate area comprise:

- Completion of the approved Caddens Corner Retail Centre. (8,679m² approved – 6,342m² constructed).
- Residential Subdivision – 44 to 66 O'Connell Street (185 dwellings).
- Residential Subdivision – 89 to 115 O'Connell Street (159 dwellings).

The other new residential elements of Caddens, WELL Precinct and Claremont Meadows Stage 2 are essentially completed and the respective traffic generations as well as that of the completed part of the Caddens Corner Centre are incorporated in the existing traffic movements on the road network.

4.0 Existing Road Network and Traffic Conditions

4.1 Road Network

The existing road network serving the Caddens area (Figure 6) comprises:

- *M4 Western Motorway* – a principal arterial route linking the Sydney CBD and the Blue Mountains crossing
- *Great Western Highway* – a State Road and arterial route which provides the secondary connection between the City and Penrith
- *The Northern Road/Parker Street* – a State Road and a sub-arterial route which provides a connection between Campbelltown and Windsor
- *Gipps Street/Kent Road* – a major collector road connecting south from the Great Western Highway across the M4 motorway
- *O’Connell Street* – a collector route which provides a connection between Great Western Highway and Caddens Road
- *O’Connell Lane* – a collector route which provides a connection between O’Connell Street and Caddens Road
- *Caddens Road* – a collector route connecting between Kingswood and Caddens
- *Derby Street/Second Avenue* – a collector route connecting between the WSU Campus and Penrith
- *Corr Road* – a local access road connecting O’Connell Street and providing access to the Caddens Corner retail centre.

O’Connell Street, O’Connell Lane and Corr Road have 11.8m-wide sealed pavements which are relatively straight and level.

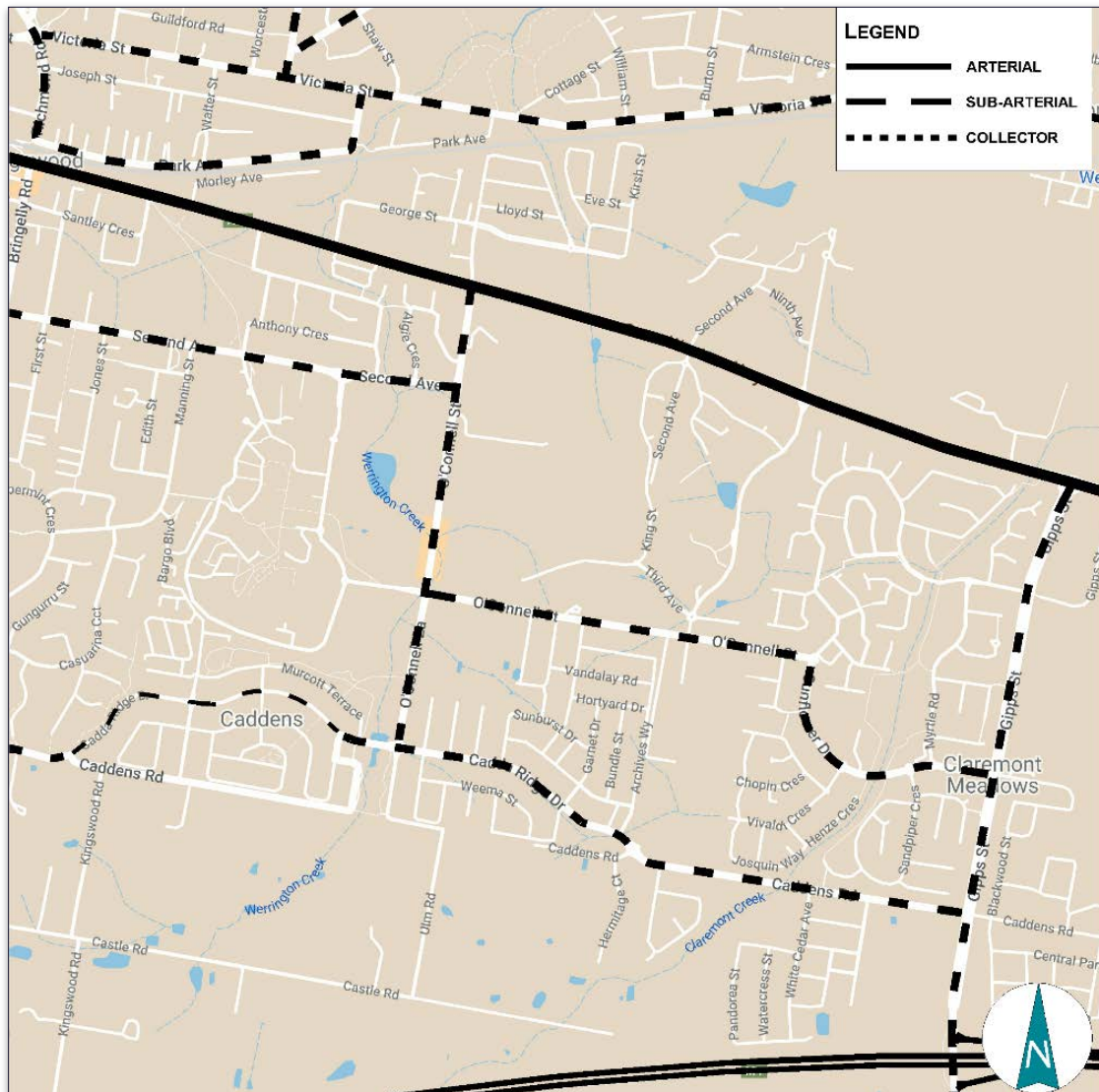


Figure 5 - Road Network

4.2 Traffic Controls

The existing traffic controls which have been applied to the road system in the vicinity of the site (Figure 7) include:

- The 50 kmph speed restriction on the local and collector road system with some 40 kmph school restrictions (e.g., Sunflower Drive, Manning Street and Second Avenue)
- The roundabouts along:

- o O'Connell Street at the Sunflower Drive, O'Connell Lane/WSU access and Second Avenue intersections
- o Second Avenue at the Dunstan Avenue, Bringelly Road/Derby Street intersections
- o Cadda Ridge Drive at the Oconnell Lane Cadden Road intersection
- The traffic control signals along:
 - o Great Western Highway at the Gipps Street, WSU Werrington access, O'Connell Street/French Street and Bringelly Road intersections
 - o Gipps Street at the Sunflower Drive/Fowler Street, Caddens Road and M4 On/Off Ramp intersections

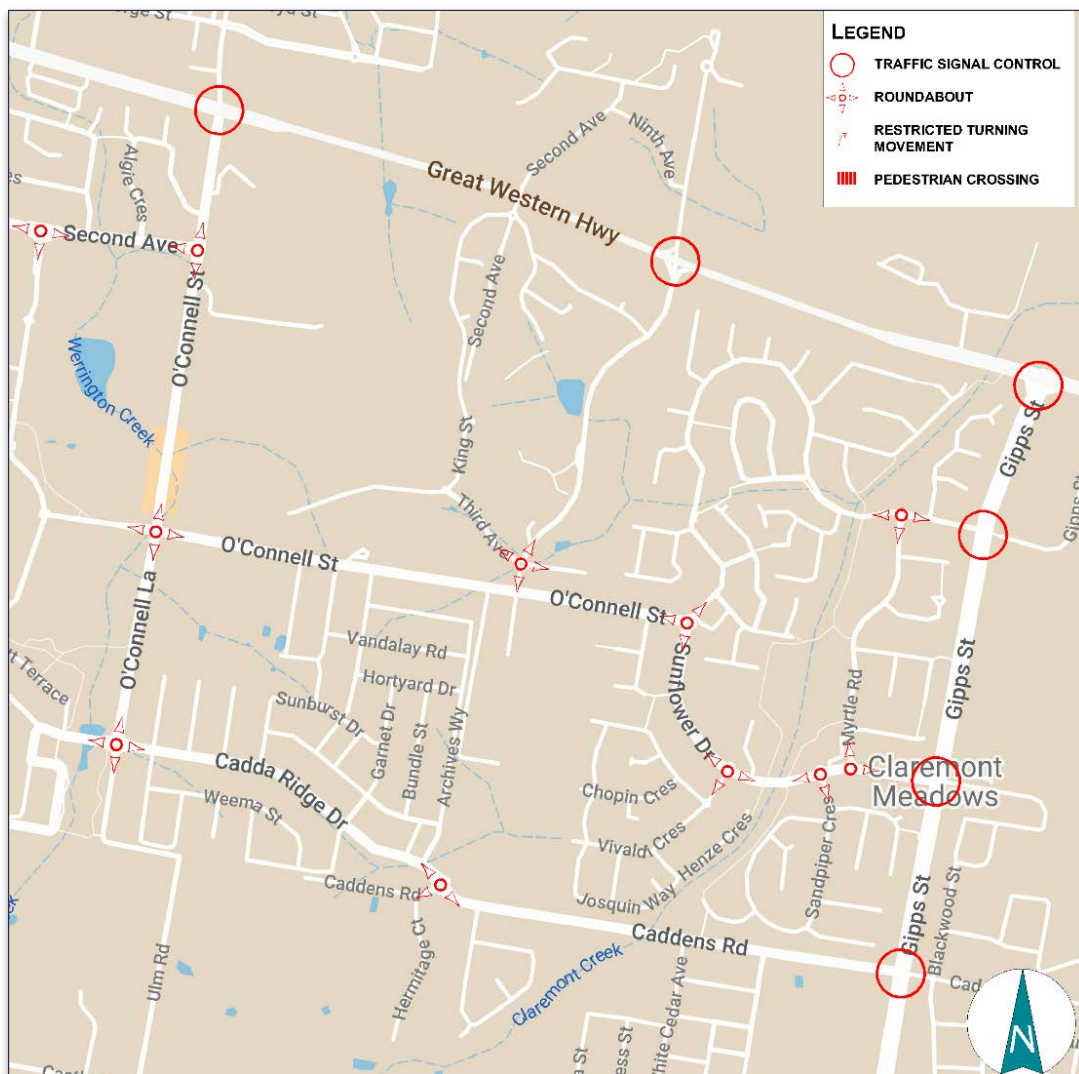


Figure 6 - Traffic Controls

4.3 Traffic Conditions

Traffic surveys were undertaken at the relevant intersections in the area during the AM and PM peak periods and the traffic movements of these surveys are summarised and provided in Appendix D.

The operational performance of these intersections has been assessed using SIDRA, and the results are provided in Appendix E and summarised in the following while the criteria for assessing SIDRA results are reproduced overleaf:

	AM		PM	
	LOS	AVD	LOS	AVD
GWH/ O'Connell Street	B	28.3	C	25.5
GWH/Gipps Street	C	32.4	C	31.7
O'Connell Street/ O'Connell Lane	A	8.7	A	9.8
O'Connell Street/ Corr Road	A	9.1	A	9.0
O'Connell Lane/ Cadda Ridge Road	A	7.2	A	7.3
O'Connell Street/ Starline Drive	A	7.0	A	6.7
Gipps Street/ Sunflower Drive	B	19.2	B	20.0
Gipps Street/ Caddens Road	C	32.6	B	20.0

The results of the SIDRA assessments indicate that these intersections operate satisfactorily during the peak periods at the present time.

4.4 Transport Services

The excellent transport services available at the site comprise:

4.4.1 Bus Services

The route 770 is accessible via O'Connell Street on the site's western frontage. This route operates between Penrith and Mount Druitt via St Marys Train Station and operates every 20-30 minutes during peak hour.

4.4.2 Train Services

St Marys Train Station is located some 3.7km (10-minute drive) from the site and is accessible via the 770 bus route and Werrington Train Station is located some 2.3km (9-minute drive) from the site. These stations service the following routes:

- T1 – North Shore & Western Line
- T5 – Cumberland Line

Details of the available transport services are provided in Appendix B.

4.5 Bicycles and Pedestrians

Off-road shared paths are provided on the northern side of the Great Western Highway between Parker Street and Bringelly Road, crossing at the intersection of the Great Western Highway /Bringelly Road and continuing to the southern side of the Great Western Highway towards Pages Road. A range of on-road bicycle facilities are also provided along Parker Street, Richmond Road, College Street, Bringelly Road, Derby Street, Second Avenue, Jamison Road, and O'Connell Street within the vicinity of the site.

WSU Penrith also provides an internal network of shared pathways that link to the regional network. The Kingswood Campus connects to the cycleway running along Second Avenue and extracts from the RMS Cycleway Finder illustrating the cycleways in the vicinity of the site are shown below (Figure 8).

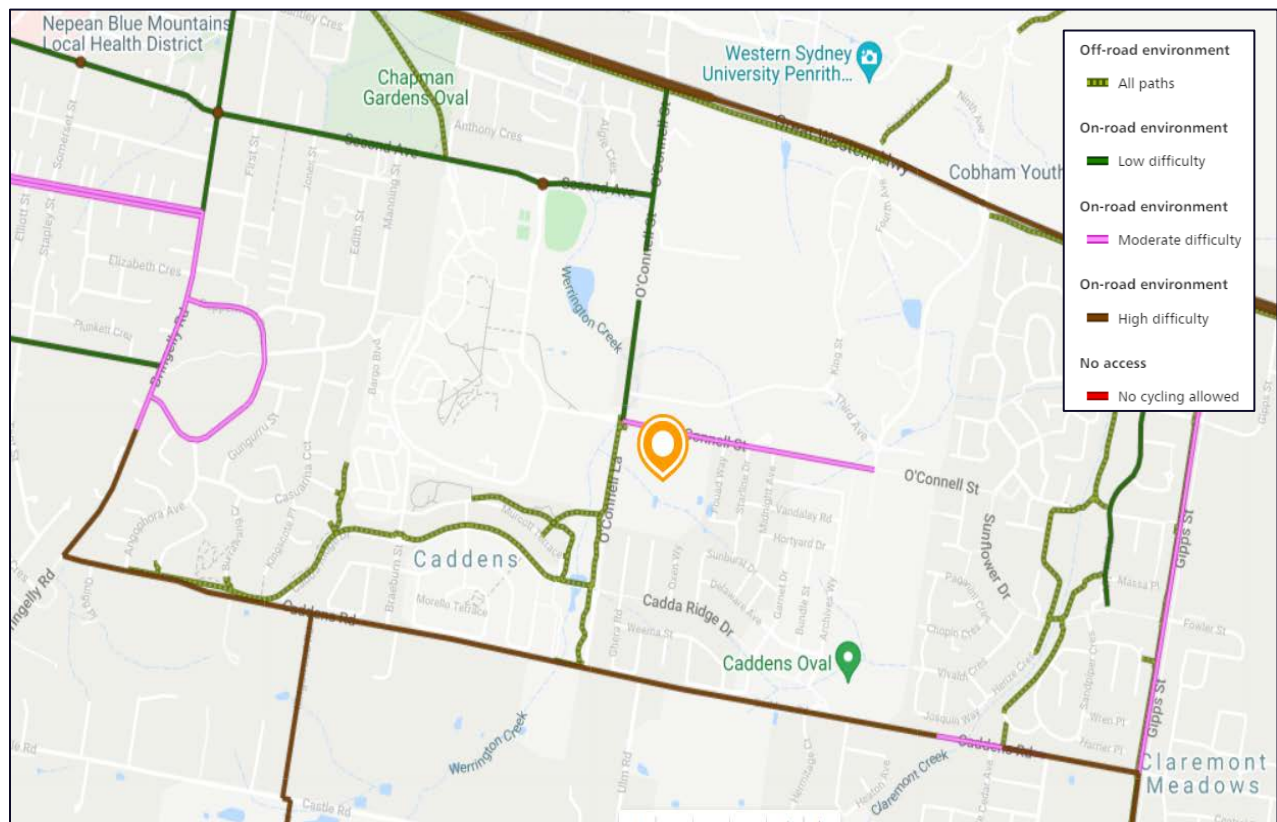


Figure 7 - Existing Bicycle Routes

Source: https://www.rms.nsw.gov.au/maps/cycleway_finder

Dedicated shared paths are provided for pedestrians on both sides of O'Connell Lane, the southern and eastern side of O'Connell Street, connecting with pedestrian footpaths provided within the WSU campus. These paths provide good connectivity between the site and the Kingswood Centre, Railway Station and surrounding facilities.

The following pedestrian crossing facilities are provided in the vicinity of the site:

- Shared bicycle/pedestrian refuges on all legs of the O'Connell Lane/O'Connell Street and Cadda Ridge Drive/O'Connell Lane roundabout intersections.
- Pedestrian refuges on the southern and western legs of the Second Avenue/O'Connell Street roundabout intersection

4.6 Future Road Circumstances

The construction process has commenced on the Dunheved Road upgrade scheme which is expected to be completed in late 2026 and involves the heavily congested 4 km section between Richmond Road and the Christie Street/Werrington Road. Some details of this upgrade include:

- New signalised intersection at John Batman Avenue and Lavin Crescent
- Upgraded signalised intersection at Richmond Road, Greenbank Drive and Henry Lawson Avenue
- New median separated four-lane carriageway and shared user path along Richmond Road and Werrington Road/Christie Street roundabout
- Upgraded intersection at Trinity Drive
- New four lane carriageway integration into existing roundabout at Werrington Road/Christie Street

4.7 Existing Green Travel Infrastructure

The Penrith Accessible Trails Hierarchy Study (PATHS) Implementation Plan 2022-2032 intends to support the long-term goals of providing a planned and cohesive walking and cycling network. To uphold these initiatives, it adopts a range of objectives which include, but are not limited to, the following:

- Make walking and bike riding the most desirable option for short trips around local centres and local areas, supported by a safe road environment and suitable pathways
- Increase the separation of people on bicycles from motor vehicles, on separate bicycle paths or on protected bicycle lanes, in high speed and high movement traffic corridors and ensure connection to major public transport, shopping and employment centres, schools and universities
- Identify and outline a prioritised hierarchy or projects (local and priority routes) of walking and bike riding paths within the Penrith region for people of all ages and abilities, in order to enhance opportunities for safe, healthy and effective personal mobility
- Provide project descriptions, project prioritisation and cost estimates for Council to deliver over the next ten years.

4.7.1 Pedestrian/Cycle Infrastructure

The Penrith Accessible Trails Hierarchy Study (PATHS) has indicated some of the current shared pathways within the LGA. Key shared pathways include:

- Mulgoa Rd, between Batt St Jamisontown and Glenmore Parkway, Glenmore Park incl bridge (4km)
- Great River Walk, River Rd, Emu Plains and missing links (Greenspace Program etc.) (2.4km)
- GWH, between River Rd and Russell St, Emu Plains (2.5km)
- Jamison Rd, between Jamison Park and Tench Reserve incl bridge, Jamisontown (2km)
- Cranebrook to Thornton via Coombes Drive – construction of 3rd stage of the shared-use path along Andrews Road Southern side (1km)
- The Northern Road, between Jamison Road and Glenmore Parkway (4km)
- Great Western Highway, Emu Plains northern side between Russell Street to Mitchells Pass Knapsack Viaduct (1.5km)

5.0 Future Road Network, Traffic & Transport

5.1 Road Network

The planned road hierarchy for the road network serving the area which is already largely completed is shown on the extract from the Penrith DCP in Figure 9.

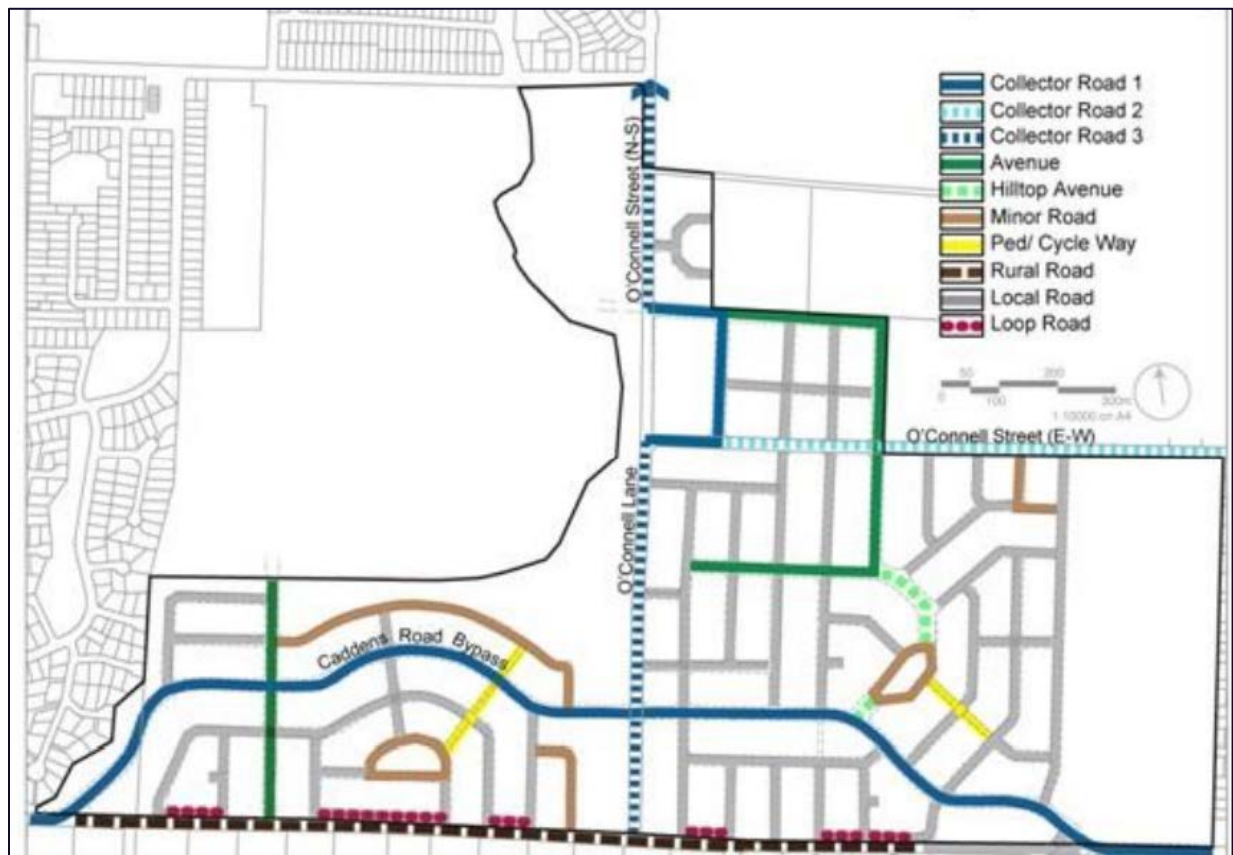


Figure 8 - Caddens Road Hierarchy

A feature of the DCP principles relevant to the development of the site is the nominated primary vehicle accesses via the intersections along O'Connell Street.

5.2 Bicycles and Pedestrians

Details of the planned bicycle and pedestrian network are provided in the Figure 10.



Figure 9 - Pedestrian & Bicycle Network

There will be a dedicated shared path along the eastern and southern side of O'Connell Street and the western side of O'Connell Lane, as well as through Caddens Corner. All local and collector roads will have paved footways.

The above measures provide opportunities for the development of the site to link to the broader networks and facilitate improved connectivity through the site and beyond.

5.3 Transport Services

5.3.1 Rail Services

The corridor for the envisaged new North-South Rail Line linking the Main Western Line to the new Airport and beyond to Oran Park and potentially Campbelltown passes through the eastern edge of Caddens. While TfNSW has only confirmed the location of the principal envisaged railway stations they have also confirmed that there will be intermediate stations spaced at 2.5 to 4.0 kms servicing local centres. Given the transport demands of

the tertiary campuses in the area it is inevitable that a railway station will be provided in the vicinity of Caddens. Resolution of the station locations will depend on the outcome of engineering/design studies and the Business Case.

5.3.2 Bus Services

The following figure provides an indicative concept for bus services and stops.



Figure 10 - Indicative Layout of Bus Routes and Stops

The proposed bus stops on O'Connell Street will ensure that residents living on the site are located within the 400m catchment of the bus stops.

6.0 Proposed Subdivision Road System

The proposed new access road system will comprise:

- An extension of Corr Road to connect with O'Connell Street slightly offset to Starline Drive
- A "circuit" one-way connecting to the new section of Corr Road
- A 1.5m footpath provided on the northern side of O'Connell Street and along the internal road system

An independent site audit has been undertaken by Positive Traffic on the 23rd of August 2025 which has proposed the following for the internal road system:

- 'Left Turn Only' signage has been added to provide directional guidance at retail vehicles exit
- Pedestrian crossing signage has been added, and parking lanes updated with 'No Stopping' signs near each crossing to comply with requirements and improve safety. All crossings are now raised and include kerb buildouts
- A pedestrian pathway link has been proposed, including pram ramps to provide a link from the existing path to the existing eastbound bus stop located east of Starline Drive
- 'Left Turn Only' signage has been added to provide directional guidance at the residential building exits
- Directional arrows on the road have been added to the signage and linemarking plan consistent with the architectural plans
- The pedestrian sign has been removed, and one-way signs were added within the side road, facing both directions of approaching traffic to enhance clarity
- Proposed tree plantings have been located with consideration to driveway sightlines, crossings, and general services elements such as hydrant / booster assemblies, substation, parking bays etc
- Two 'No Entry' signs have been added, each facing a direction of approaching traffic from Corr Road to enhance visibility and driver safety

Details of the proposed roads are provided on the plans overleaf. Details of the results of the site audit have been included in Appendix K.

7.0 Parking

7.1 Existing Parking

The existing Cadden's Corner shopping centre will be used to determine the parking requirements for the proposed mixed-use development. The Penrith City Council DCP specifies a minimum car parking provision in relation to the existing retail development as follows:

Retail Premises Shop	Supermarkets – 1 space per 10m ² of floor area that is to be used for retailing activities Other neighbourhood and specialty shops – 1 space per 30m ² GFA
Fitness Centre including Gym	7 spaces per 100m ² GFA
Child Care Centres	1 space per 10 children plus 1 per employee plus provision for any dwelling

Application of this criteria would indicate the following:

Supermarket (2,700m ²)	270 spaces
Retail Tenancies (4,860m ²)	162 spaces
Gym (398m ²)	28 spaces
Childcare (97 children & 18 staff)	28 spaces
Total	488 spaces

The Caddens Corner shopping centre provides a total of 506 parking spaces, which was approved and constructed under a previous DA.

Furthermore, the Guide to Transport Impact Assessment 2024 specifies a parking rate for shopping centres as: 6.1 spaces per 100m² GLFA (0-10,000m² GLFA).

Application of this criteria would see a parking demand for the 8,716m² GFA of retail area as 532 car parking spaces.

It can be seen from observation that the parking structure for the Cadden's Corner shopping centre doesn't exceed capacity and therefore it can be assumed that the existing parking provision of 506 spaces will be more than adequate for the existing retail premises.

7.2 Proposed Car Parking

The Penrith City Council DCP specifies a minimum car parking provision in relation to the proposed multi-dwelling development as follows:

Residential Flat Buildings	1 space per 1 or 2 bedrooms
	2 spaces per 3 or more bedrooms
	1 space per 40 units for service vehicles
	1 visitor space per every 5 dwellings
	1 space for car washing for every 50 units, up to a maximum of 4 spaces per building
Retail Premises Shop	Supermarkets – 1 space per 10m ² of floor area that is to be used for retailing activities
	Other neighbourhood and specialty shops – 1 space per 30m ² GFA

The State Environmental Planning Policy (Housing) 2021 document specifies a car parking provision for affordable housing within land that is not in an accessible area as follows:

- for each dwelling containing 1 bedroom—at least 0.5 parking spaces,
- for each dwelling containing 2 bedrooms—at least 1 parking space,
- for each dwelling containing at least 3 bedrooms—at least 1.5 parking spaces

The State Environmental Planning Policy (Housing) 2021 document also specifies a car parking provision for dwellings not used for affordable housing as follows:

- for each dwelling containing 1 bedroom—at least 0.5 parking spaces,
- for each dwelling containing 2 bedrooms—at least 1 parking space,
- for each dwelling containing at least 3 bedrooms—at least 1.5 parking spaces

Application of this criteria would indicate the following:

1 or 2 bedroom (346) (Not affordable)	346 spaces
3 or more bedrooms (64) (Not affordable)	128 spaces
1 Bedroom (16) (Affordable)	8 spaces
2 Bedroom (41) (Affordable)	41 spaces
3 Bedroom (15) (Affordable)	22.5 spaces
Service vehicles (482 units)	12.05 spaces
Visitors (482 units)	96.4 spaces
Proposed Retail (3,461m ²)	346.1 spaces
Total	1,000 spaces

Furthermore, the Guide to Transport Impact Assessment 2024 specifies a parking rate for high-density residential dwellings, shopping centres, childcare facilities and gyms as follows:

Residential	0.6 space per 1 bedroom
	0.9 spaces per 2 bedrooms
	1.4 spaces per 3 or more bedrooms
	1 visitor space per 5 dwellings
Shopping Centres	6.1 spaces per 100m ² GLFA (0-10,000m ² GLFA)

Application of this criteria would see a parking demand for the proposed as follows:

1 bedroom (86)	51.6 spaces
2 bedrooms (317)	285.3 spaces

3 or more bedrooms (79)	110.6 spaces
Visitors (482 dwellings)	96.4 spaces
Proposed Retail (3,461 m ²)	90 spaces
Total	634 spaces

It is proposed to provide a total of 1,537 parking spaces including the 506 existing car parking spaces and 101 visitor spaces which complies with the Guide to Transport Impact Assessment requirements.

7.3 Proposed Bicycle Parking

According to Part C10 of the Penrith Development Control Plan 2014, the required bicycle parking provisions are based on the "Planning Guidelines for Walking and Cycling (NSW, 2004)", and are as follows:

Residential	20-30% of the number of units
Residential Visitor	5–10% of the number of units
Retail Shops	3-5% of the number of Staff
Retail Visitor	5-10% of the number of Staff
Child Care Centre	3-5% of the number of Staff
Child Care Visitor	5-10% of the number of Staff
Gym	3-5% of the number of Staff
Gym Visitor	5-10% of the number of Staff

It is proposed to provide 53 bicycle parking spaces. According to the Planning Guidelines for Walking and Cycling bicycle parking rates, 482 residential units would typically require between 96 and 145 bicycle spaces. However, the DCP guidelines does not specify a motorcycle parking demand. It is proposed that some of this bicycle parking is supplemented as motorcycle parking that will in total exceed the requirements outlined in the Penrith City Council DCP and the Guide to Transport Impact Assessment thus ensuring that the provision of 53 bicycle parking spaces will be sufficient in supporting the developments requirements.

7.4 Proposed Motorcycle Parking

Furthermore, the Guide to Transport Impact Assessment 2024 specifies that *“Depending on land use type, parking for bicycles, motorcycles and delivery and servicing vehicles, should also be provided.”* In line with this guidance and reflecting the site's scale and mixed-use nature, provision for 136 motorcycle spaces will be sufficient.

8.0 Traffic

8.1 Background

Assessment of the traffic implications the proposed development for the WELLS Precinct etc is provided in the study undertaken by TTPP¹ which incorporated previous assessments comprising:

- WELL Precinct TMAP (Mausell/AECOM 2007)
- Caddens Release Area TMAP (MWT 2008)
- Caddens Knoll DA assessment (Halcrow 2010)

The TTPP assessment was based on:

- 2016 traffic surveys (Existing Base Case)
- Future Base Case (Existing + WELL precinct and Caddens but without CWG site)
- Future with CWG Site (390 townhouses and 400 apartments)

It is noted that the TTPP Future Base Case incorporated the generation of existing new occupied dwellings by virtue the 2013 surveys and a projection for the development of future dwellings without providing specific details (N°S) where as the 2021 survey includes the generation of all completed dwellings at that time.

The TTPP assessment was very “localised”, and the traffic projection did not extend to the Great Western Highway intersections or the Gipps Street and Cadda Ridge Drive/ Caddens Road intersection. Details of the TTPP traffic scenario for the AM and PM peaks are reproduced in Appendix G. A subsequent Traffic assessment for the development of the 46-66 O’Connell Street site for 185 residential lots (excluding the separate western residences) was criticised by TfNSW in relation to:

- The absence of assessment of the potential traffic impact on intersection on the State Road Network

¹ Concept Plan DA

46-66 O’Connell Street, Caddens

Traffic Impact Assessment

TTPP January 2017

- The adoption of a peak generation rate of 0.65 vtpd per dwelling (despite the fact that this had been established for the TTPP concept plan assessment)

The TTPA report was revised in response to the TfNSW criticism and in order to be able to address the State Road intersection issue the assessment “drew upon” the TfNSW STFM traffic projections for 2021 and 2031. The revised assessment also adopted peak generation rates of 0.95vtpd (AM) and 0.99vtpd (PM) per residential lot with reference to the RTA study for “Low Density Residential”.

The STFM model has 2 generation nodes relative to Caddens namely:

Node	2021				2031			
	Total IN		Total OUT		Total IN		Total OUT	
	AM	PM	AM	PM	AM	PM	AM	PM
4955	1166	430	301	947	1411(+245)	781(+351)	625 (+324)	1231 (+284)
4957	232	548	709	513	284 (+52)	736 (+188)	842 (+133)	634 (+121)

Total Additional

AM 754 vtpd

PM 944 vtpd

These are very significant additional vehicle movements which reflect the planned/envisaged development in the precinct.

Comparison of the TTPA assessed development outcome volumes (with background volumes) has revealed relatively similar volumes to that in the STFM model (i.e. for the localised intersections in the TTPP assessment).

8.2 Traffic Generation Rate

There are a range of published traffic generation rates for residential development as follows:

- RTA Development Guidelines (2002)

- o Single Residential Dwelling in outer Sydney Metropolitan Area – 0.85 vtp, there is no study assessment supporting this criterion
- o Medium Density Dwelling
 - 2 bed – 0.4-0.5 vtp
 - 3 bed – 0.5-0.65 vtp
- o High Density Dwellings – 0.29vtp
- RTA/RMS Update Studies
 - o Single Residential Dwelling (TDT 2013) AM 0.99 vtp and PM 0.99 vtp, this data is flawed (refer to Appendix H details)
 - o Medium Density Dwellings (RMS 2013 study) see details overleaf for network peak
 - AM- say 0.30 vtp
 - PM- say 0.45 vtp
 - o High Density Dwelling (TDT 2013)
 - AM- say 0.19 vtp
 - PM- say 0.15 vtp

Note: the great majority of surveyed sites had rail access

- TfNSW Guide to Transport Impact Assessments
 - o High Density Residential Dwellings with Low Public Transport accessibility in Category 2
 - AM – 0.19P + 1.79
 - PM – Not Available

Note: (P) is the number of off-street parking spaces

- DPIE Planning for Metropolitan Growth Centres Single Dwelling – 0.57 vtp (refer to Appendix I details)
- TTPA Study for Glenmore Park Stage 2 Single Dwelling – 0.65 vtp (refer to Appendix J details)

Factors relevant to the potential traffic generation of the proposed residential apartment development are:

- The significant adjacent retail centre which also contains services and eating /entertainment facilities as well as providing employment.
- The proposed upgrading of bus services under the TMAP and developer contribution provision
- The future provision of a nearby railway station when the new rail line is constructed.

8.3 Development Traffic

It is apparent, based on this data and circumstances that an “external” peak traffic generation rate for the proposed apartments of 0.40 vtpd would be a robust projection. It is also apparent that the assessed generation rate adopted for the proposed subdivision at 44-66 O’Connell Street was a significant overestimation of up to +50%. Furthermore, that assessment overlaid the projected generation onto the STFM volumes for 2031 which already included a significant provision for development at Caddens.

It is also apparent that:

- There would be an element of “double count” if the TTPP “background volumes” were added to the 2021 surveyed intersection volumes because the background volumes would include dwellings since constructed and included in the 2021 volumes.
- The previous assessments for development of the subject Caddens site applied a single dwelling generation rate rather than medium dwelling generation rate.

However, notwithstanding these factors and the “over estimation” implications, it would be very difficult to unravel the details. Accordingly, the proposed assessment process is to:

- Document the existing circumstances (e.g. the 2021 traffic survey results)
- Document the STFM projections for 2031 with some assumptions for movements not specifically in the STFM details
- Add the assessed traffic generation for the additional dwelling yield (i.e. above the planning yield) being 193.2 as follows:

AM		PM	
IN	OUT	IN	OUT
48	145	145	48

- Add the generation of the additional dwellings and retail to the STFM numbers

The traffic generation associated with the increased retail floorspace (3,305m² for the subject development) has regard for:

- the 20% discount as specified in the RTA Guidelines for extension of an existing centre
- the surrounding new residential development which constrains the “external retail trips”
- the “convenience” nature of the F&B elements.

The assessed generation for the AM and PM peak periods is as follows:

AM 2vtph per 100m ²	- 66 vtph
PM 5vtph per 100m ²	- 165 vtph

Thus, the total traffic generation of the proposed development (and the increased floor areas in the Caddens Corner Centre) is as follows:

	AM		PM	
	IN	OUT	IN	OUT
Residential	48	145	145	48
Retail	36	30	74	91
Total	84	298	219	139

The distribution of this traffic is demonstrated in Figure 12 below.

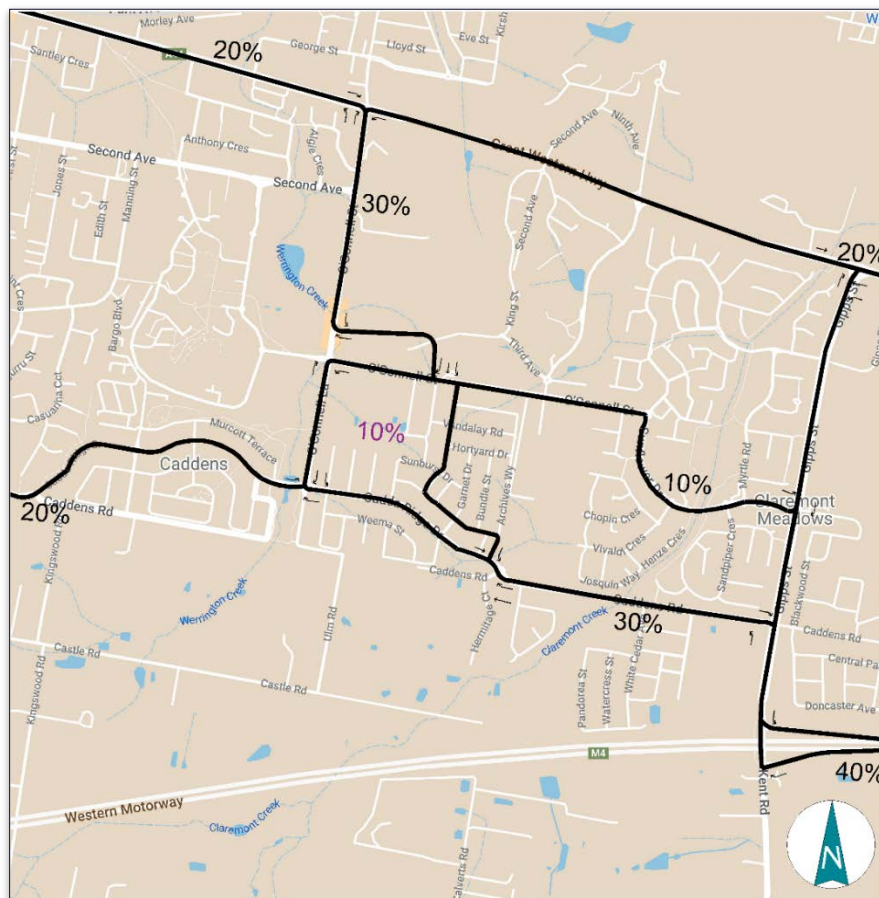


Figure 11 - Development Traffic Distribution

The above distribution, has taken into consideration TfNSW's comments and advice in regards to

- Employment centres to the south with the Aerotropolis precinct
- Sunflower Drive's traffic characteristics, such as school zones, mid-block pedestrian signals and LATM devices
- The quickest possible accesses to the M4 and the Great Western Highway

8.4 SIDRA Modelling

Surveys have been undertaken for the existing traffic circumstances in both the morning and afternoon peak times, as mentioned in Section 3.3, with the surveys attached in Appendix D. The operational performance of these intersections has been assessed using SIDRA, and the results are provided in Appendix E and summarised in the following:

<u>Existing</u>	AM		PM	
	LOS	AVD	LOS	AVD
GWH/ O'Connell Street	C	35.8	C	32.4
GWH/ Gipps Street	C	32.4	C	33.1
O'Connell Street/ Corr Road	A	9.2	A	9.0
O'Connell Street/ O'Connell Lane	A	8.7	A	9.9
O'Connell Lane/ Cadda Ridge Road	A	7.2	A	7.3
O'Connell Street/ Starline Drive	A	7.1	A	6.7
Gipps Street/ Sunflower Drive	B	19.8	B	20.3
Gipps Street/ Caddens Road	C	37.8	C	28.9

Existing case scenarios show acceptable levels of service with limited delays. We have undertaken a further assessment of the development impacts with the existing base case and development added. The results of that assessment are provided in Appendix E and summarised in the following:

<u>Existing + Development</u>	AM		PM	
	LOS	AVD	LOS	AVD
GWH/ O'Connell Street	C	40.4	C	35.4
GWH/ Gipps Street	C	32.7	C	34.0
O'Connell Street/ Corr Road	A	10.9	A	10.4
O'Connell Street/ O'Connell Lane	A	8.9	A	9.1
O'Connell Lane/ Cadda Ridge Road	A	7.9	A	7.7
O'Connell Street/ Starline Drive	A	9.5	A	9.1
O'Connell Street/ Starline Drive (Roundabout)	A	7.9	A	8.6
Gipps Street/ Sunflower Drive	B	20.3	B	21.8
Gipps Street/ Caddens Road	C	44.3	C	31.8

From inspection of the results, the additional development traffic will not cause any unsatisfactory movements and therefore the traffic generation of the proposed development will be quite imperceptible. The worst case of additional delay is the 6.5 seconds of additional delay at the Gipps Street/ Caddens Road intersection in the AM peak.

SIDRA modelling has been undertaken for the 2031 circumstances as discussed previously. The results of that assessment are provided in Appendix E and summarised in the following:

2031 STFM Case

	AM		PM	
	LOS	AVD	LOS	AVD
GWH/ O'Connell Street	F	351.8	F	429.5
GWH/ Gipps Street	F	283.0	F	440.8
O'Connell Street/ Corr Road	A	16.0	A	9.3
O'Connell Street/ O'Connell Lane	A	10.7	A	10.8
O'Connell Lane/ Cadda Ridge Road	B	16.9	A	8.8
O'Connell Street/ Starline Drive	A	8.7	A	9.0
Gipps Street/ Sunflower Drive	B	28.3	C	35.6
Gipps Street/ Caddens Road	C	38.3	C	28.8

The below table demonstrates the SIDRA results in regard to the intersections' performances in the future, with the development taking place. It is pretty evident, that the additional traffic movements that the development will impose on the surrounding network will not have a significant negative impact.

2031 STFM Case + Development

	AM		PM	
	LOS	AVD	LOS	AVD
GWH/ O'Connell Street	F	370.6	F	456.7
GWH/ Gipps Street	F	288.3	F	446.1
O'Connell Street/ Corr Road	D	43.6	F	163.2
O'Connell Street/ O'Connell Lane	A	10.9	A	11.3
O'Connell Lane/ Cadda Ridge Road	B	15.3	A	9.8
O'Connell Street/ Starline Drive	B	14.7	B	15.8
O'Connell Street/ Starline Drive (Roundabout)	A	9.6	A	10.6
Gipps Street/ Sunflower Drive	C	29.2	C	37.0
Gipps Street/ Caddens Road	D	45.2	C	32.1

According to the above results we can clearly see that the Great Western Highway intersections will fail dramatically regardless of the development. There is only a small increase of delay due to the development of around 20 seconds which is insignificant if the intersection is performing well.

The intersection of O'Connell Street and Corr Road fails during the afternoon peak hour due to an overestimation of vehicles exiting the development. Vehicles can exit only from this intersection or the Starline Drive Intersection under the current modelling. A new subdivision north of the site is under construction, which will introduce a north-south connection to Corr Road, directing some traffic north along Isura Street to Serrata Road. Nevertheless, Corr Road will likely need to be upgraded to a roundabout in the future, due to the high level of saturation that the additional sub-division will add onto the intersection.

It is therefore concluded that the proposed development will not result in the failure of surrounding intersections. While upgrades to the local road network are planned, it should be noted that these improvements are not attributable to the proposed development, as the identified performance issues are not caused by it.

TfNSW also commented on the Gipps St/ Sunflower Drive intersection in regard to the queue length of the right turn lane on Sunflower Drive. The SIDRA results, indicate that, indeed, the, already exceeding the limit, lengths will be increased by 2031, but as it can be seen in the table below, that will happen regardless of the development.

	Existing		Future W/O Dev		Future W Dev	
	AM	PM	AM	PM	AM	PM
Queue length	43.5	40.1	67.6	92.9	68.2	95.4

9.0 Access, Internal Circulation & Servicing

9.1 Access

The design of the proposed vehicle access driveways complies with the requirements of AS2890.1&2 (as applicable) and there will be satisfactory sight distances available, and positions of the driveways will comply with the standards.

Details of the turning path assessment for the access movements are provided in Appendix C.

9.2 Internal Circulation

The design of the internal circulation and parking arrangements including grades, widths, headroom, parking bays and manoeuvring provision etc comply with the requirements of AS2890.1,2&6. Details of representative turning circumstances are provided in Appendix C.

9.3 Servicing

Refuse will be collected and loading provision made as follows:

- Buildings B to J: Loading dock in Building C (elec.tug transfer)
- Buildings K to N: Loading dock in Building M (elec.tug transfer)
- Buildings P to U plus retail: Loading dock in Building U (elec.tug transfer)

Details of the turning path assessments are provided in Appendix C.

10.0 Construction Traffic Management Plan

A Consent Condition will inevitably require a detailed CTMP along with a Traffic Guidance Scheme to be submitted prior to the construction certification, and this will enable an engaged builder to provide a higher level of detail and confirmation in relation to the construction process. Nevertheless, the indicative CTMP has been provided as in the following section to provide a guide to the possible construction methodology from a traffic perspective understanding that the Caddens Corner retail facility will remain operational during the build.

10.1 Construction Program

The likely process to build the retail and residential extension onto the Caddens Corner for the completion of the various work will include the following phases:

- Demolition
- Excavation
- Construction & Fitout

10.2 Construction Process

10.2.1 Demolition

This activity will involve the demolition of the existing at grade car park at the Caddens Corner. These processes are anticipated to be completed using up to an 18.1m Truck & Dog type vehicle with truck activity associated with this process entering and departing the site under traffic controller supervision via the O'Connell Street and Corr Road frontages.

There will be limited on-site parking provided for construction workers. All workers will be encouraged to use public transport to access the site or to carpool wherever possible.

A tool drop-off and storage facility will be provided on-site. This would allow tradespeople to drop off and store their tools and machinery, enabling them to use public transport to travel to/ from the site on a daily basis. Workers will also be informed of the appropriate tool/ equipment drop-off and storage arrangement within site sheds and amenities. Bus schedules will be provided to all workers during the site induction to promote alternative modes of transport.

10.2.2 Excavation

This activity will involve the excavation of the site to provide for the basement car parking levels. This process is anticipated to continue to be completed with the 18.1m Truck & Dog type vehicles with access and departure remaining via the O'Connell Street and Corr Road frontages.

There will remain to be limited on-site parking provided for construction workers. All workers will be encouraged to use public transport to access the site or to carpool wherever possible.

10.2.3 Construction and Fitout

The construction and fitout phase will likely have the greatest duration and a peak activity involve the most number of people on the site at any one time.

Whilst the activity on the site will be more intense during this period, the movement of heavy vehicles will likely be less than the demolition and excavation works with the exception of concrete pours. Trucks during these works will be restricted to a 12.5m Heavy Rigid Vehicle for the majority of the time with the 20m Semi-Trailer required for large structural members. Workers will continue to be encouraged at all times to utilise the public transport system which exists in the vicinity of the site and alternatively to carpool wherever possible.

The provision for loading/unloading for this process will involve trucks standing on the loading area, with all materials being unloaded and stored within the site. Pedestrians walking past the development will continue to be protected by an A-Class Fence and under the supervision of TfNSW-certified traffic controllers.

10.3 Construction Vehicle Routes

Truck movements associated with the excavation process will approach and depart the site via the O'Connell Street frontage.

All trucks involved with the works will access the site using the classified State, Regional and Local Road network. It is unlikely that works of this minor scale will result in concurrent truck arrivals/departures. Nevertheless, it is noted that any truck queuing or marshalling of construction vehicles will not be permitted on the road network, and call-up procedures will be in place to manage arrivals, if necessary, by the nominated contractor.

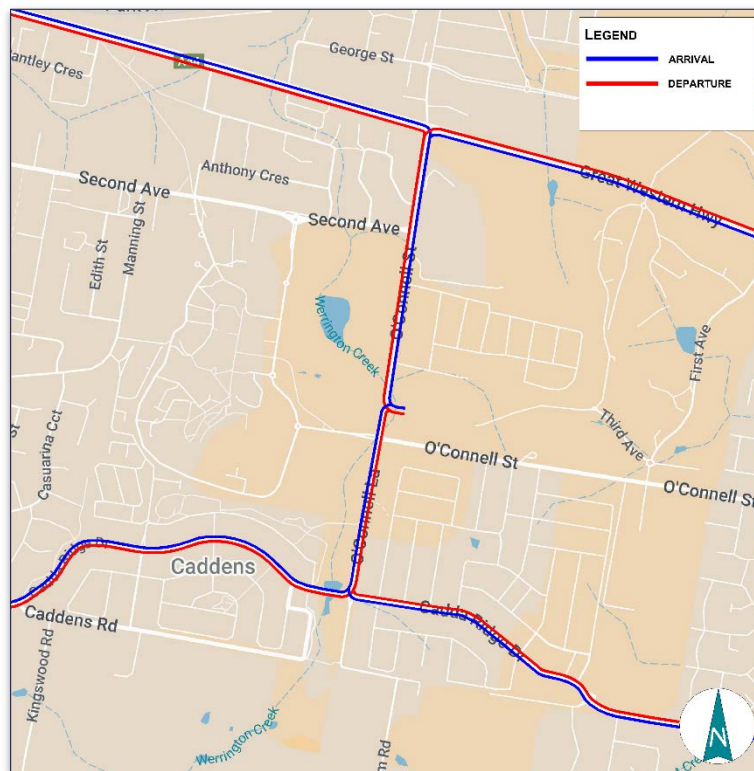


Figure 12 - Truck Routes

10.4 Truck Manoeuvres & Movements

It is anticipated that the construction works will generally involve the following heavy vehicle types:

Vehicle Type	Length
Semi-Trailer	20m
Truck & Dog	18.1m
Heavy Rigid Vehicles (HRV)	12.5m
Medium rigid vehicles (MRV)	8.8m
Small rigid vehicles (SRV)	6.4m
Mobile cranes	9.8m - 13.5m
Concrete trucks	8.8m
Concrete pump	8.8m
Excavator, Bobcat, Forklift, Manitou	< 8.8m
Utility vehicle/Van	5.2m (B99)

The largest truck generally requiring access to the site during the works per stage subject to the confirmation of the builder is as follows:

Demolition	18.1m Truck & Dog
Excavation	18.1m Truck & Dog
Construction	20m Semi Trailer for larger structural members (Infrequent) 12.5m Heavy Rigid Vehicle for general deliveries (Frequent)
Fitout	12.5m Heavy Rigid Vehicle

The turning path assessment details are provided in Appendix C, indicating satisfactory truck manoeuvring in and out of the site.

Suppose a required truck length exceeds the specified maximum during the phase of work. In that case, a separate application will be submitted to the Council identifying the dates of access and the proposed length of the required truck.

10.5 Construction Hours

The principal contractor shall ensure that all sub-contractors are aware of the permitted hours of operation and shall ensure that all vehicle activity occurs strictly within the hours stipulated by the Conditions of Consent. Should any work be required to take place within public roads (in the vicinity of the site) outside these hours, this would be subject to prior approval from the Council.

Noise from construction activities shall comply with the Protection of the Environmental Operations (Noise Control Regulation 2017.

10.6 Proposed Works Zone

It is not anticipated that a Works Zone is necessary for the works as there is adequate space within the site for materials storage and truck manoeuvring. If a Works Zone is required at some stage in the future, a separate application must be lodged with the Council to establish the arrangement.

10.7 Site Induction

All workers and visitors employed on the site by the appointed contractor (including sub-contractors) will be required to undergo a formal 'site induction' process, and all the inductions will be performed specifically to each trade according to Workcover OH & S requirements.

The induction will include details of approved access routes to and from the construction site for site staff and delivery vehicles, parking arrangements, as well as standard environmental, WHS, driver protocols and emergency procedures. The agreed work hours must be included as part of this induction.

10.8 Pedestrian Management

Pedestrians walking along the site frontage will be protected by temporary construction fencing. A TfNSW accredited traffic controller shall always supervise all vehicle movements into and out of the site and materials movements to and from the site ensuring pedestrians have the right of way at all times.

10.9 Impact on Emergency Vehicle Access

The proposed works would not affect access to the site and neighbouring sites by emergency vehicles. Emergency protocols on the site would indicate a requirement for a traffic controller to assist with emergency access on the site. All truck movements to the site and the incident point would be suspended and cleared. Consequently, any potential impacts on emergency access would be effectively managed throughout the works.

The liaison would be maintained with the ambulance, fire services, police, and other emergency services agencies throughout the construction period, and a 24-hour contact would be made available for 'out-of-hours' emergencies and access.

As such, there would be no impacts on the provision of existing emergency vehicle access to the site or other neighbouring properties as a result of the proposed construction activities.

10.10 Road Serviceability

The contractor will ensure that the roads in the vicinity of the site remain in clean and serviceable states during the construction. Any damage to kerbs, signage, trees, footpaths etc., will be repaired or replaced to the satisfaction of the Council.

10.11 Parking

There is limited on-street and within-the-site parking available for workers. As such, workers will be informed of the appropriate tool/equipment drop-off and storage arrangement within site sheds and amenities and encouraged to use the highly accessible public transport system in the vicinity.

There will be no reservation of on-street parking spaces, including the use of barricades, bollards, witches' hats etc. prior to a separate council approval. All on-street parking will remain available for general public use during the approved work hours unless Council signage is installed to the contrary.

Findings of a site audit have resulted in 'No Stopping' signs being added to restrict parking between the new intersection and the eastbound bus stop. This has been done due to the Potential sight distance issues for vehicles exiting new road connection to O'Connell Street.

10.12 Materials Handling

All materials are to be stored within the site boundary at all times. Loading/unloading of materials will occur from the Loading Area by crane or with the assistance of trolleys/forklifts. No materials shall be placed dumped or left on any council road or footpath area at any time.

10.13 Public Notification and Consultation

Under the approval of the Council, the contractor would prepare notification letters that would be emailed to adjoining property owners to advise of the timeframes for completion of each phase of the development/construction process. The notification will be provided a minimum of 7 days prior to the implementation of any temporary traffic control measure.

Consultation with the relevant authorities, including TfNSW and Council, will be required prior to and throughout the works.

10.14 Driver Code of Conduct

10.14.1 Objectives of the Drivers Code of Conduct

- To minimise the impact of earthworks on the local and regional road network
- To minimise conflict with other road users
- To minimise road traffic noise; and
- To ensure truck drivers use specified heavy vehicle routes between the site and the sub-regional road network.

10.14.2 Code of Conduct

All vehicle operators accessing the site must:

- Take reasonable care of his or her health and safety
- Not adversely, by way of actions or otherwise, impact on the health and safety of other persons
- Notify their employer if they are not fit for duty prior to commencing their shift
- Obey all applicable road rules and laws at all times
- In the event, that an emergency vehicle is behind your vehicle, pull over to allow the emergency vehicle to pass immediately.
- Obey the applicable driving hours in accordance with legislation and take all reasonable steps to manage their fatigue and not drive with high levels of drowsiness.
- Obey all on-site signposted speed limits and comply with directions of traffic control supervisors in relation to movements in and around temporary or fixed work areas.
- Ensure all loads are safely contained/restrained, as necessary.
- Drive over devices – located at the site's access – to vibrate off and wash off any loose material attached to heavy vehicles.
- Operate their vehicles safely and professionally, with consideration for all other road users.
- Hold a current Australian State or Territory driver's licence.
- Notify their employer or operator immediately should the status or conditions of their driver's licence change in any way.

- Comply with other applicable workplace policies, including a zero tolerance of driving while under the influence of alcohol and/or illicit drugs.
- Do not use mobile phones when driving a vehicle or operating equipment. If the use of a mobile device is required, the driver shall pull over in a safe and legal location prior to the use of any mobile device.
- Advise management of any situations which you know, or think, may present a threat to workplace health and safety.
- Drive according to prevailing conditions (such as during inclement weather) and reduce speed, if necessary, and
- Have necessary identification documentation at hand and ready to present to security staff on entry and departure from the site, as necessary, to avoid unnecessary delays to other vehicles.

10.14.3 Crash or Incident Procedure

- Stop your vehicle as close as possible to the scene, making sure you are not hindering traffic. Ensure your own safety first, then help any injured people and seek assistance immediately if required.
- Ensure the following information is noted:
 - Details of the other vehicles and registration numbers
 - Names and addresses of the other vehicle drivers
 - Names and addresses of witnesses, and
 - Insurers details
- Give the following information to the involved parties:
 - Name
 - Address, and
 - Company details
- If the damaged vehicle is not occupied, provide a note with your contact details for the owner to contact the company.
- Ensure that the police are contacted should the following circumstances occur:
 - If there is a disagreement over the cause of the crash
 - If there are injuries; and/or
 - If you damage property other than your own
- As soon as reasonably practical, report all incident details to your manager.

11.0 Green Travel Plan

11.1 Objectives

Transport is a necessary part of life which has effects that can be managed. There is a current major focus on improving transport services, cycling facilities, and provisions for pedestrians in the area. As well as delivering better environmental outcomes, providing a range of travel choices with a focus on walking, cycling, and public transport will have major public health benefits and will ensure a strong and prosperous development.

The proposed infrastructure forms a major part of the initiatives to encourage the reduction of vehicle transport use. However, a Green Travel Plan (GTP) will ensure that the transport infrastructure and services are utilised to the fullest extent to achieve a sustainable outcome.

A Green Travel Plan is a package of measures to promote and encourage sustainable travel and reduce reliance on private cars. It will make apparent, encourage, and support residents/visitors to travel more sustainably. GTPs can provide both:

- Measures that encourage reduced car use
- Measures which encourage or support sustainable travel, reduce the need to travel or make travelling more efficient.

"Active transport" includes travel by foot, bicycle, and other non-motorised vehicles. Use of public transport is also included in the definition as it often involves some walking or cycling to pick up to and from drop-off points.

The GTP aims to bring about better transport arrangements for the residents and visitors for the life of the development. The key objectives of the GTP are to:

- Reduce the proportion of single-occupant car travel by residents and visitors to and from the site.
- Increase the mode share of public transport, walking and cycling (active transport).
- Where a private vehicle is to be used, encourage more efficient use. Such smarter travel use can include not travelling by single-occupancy cars in peak hours and not using cars for short-distance trips when alternative public transport is available.

The introduction of this GTP will:

- Advise the wider travel choices.
- Help identify transport means that will result in them being healthier, fitter and more productive.
- Provide equal opportunities by supporting those without access to a car.
- Aim to reduce congestion and provide easily identifiable transport means, improving relations with neighbours and enabling deliveries and essential journeys to move more freely.

It is the objective of this GTP to encourage sustainable transport means, which could result in the following benefits:

- Higher mode share targets.
- Greenhouse gas emission reductions and carbon footprint minimisation.
- Healthy living (those studying, working, and visiting the Site).
- Social equity and reduction in social exclusion.
- Improve knowledge and contribute to learning.

11.2 Modal Shift

11.2.1 Introduction

The location of the site, in terms of its proximity to sustainable transport, is a key attribute of the development. The proposed development will capitalise upon and will enhance these links. The travel plan will then put in place measures to further influence the travel patterns of those visiting or residing on the site to encourage a modal shift away from cars. The measures provided in this GTP and their success can inform the travel plans for subsequent developments within the Precinct.

11.2.2 Approach to Travel Planning

A multitude of research and past experiences have consistently confirmed the 3 fundamental aspects that are key to travel mode behavioural change:

- Cost
- Comfort
- Convenience

Consideration should be given to the following initiatives, which are intended to equip the building complexes with improved green travel options to achieve the objectives of the GTP.

11.2.3 Sustainable Travel Initiatives

11.2.3.1 *Provision for End-of-Trip Facilities*

In line with the provision of bicycle spaces for residents and visitors is the provision of appropriately equipped End of Trip (EoT) facilities. The development proposes the following bicycle facilities:

Bicycle spaces	53
Shower/change rooms	2

11.2.3.2 *Provide Incentives for Carpooling*

It is recommended that a proportion of the on-site car parking spaces nearest to the main entry be allocated towards residents participating in the carpooling scheme.

A carpooling scheme is most effective when promoted and implemented in conjunction with the realisation of cost savings for participants. This is typically delivered in the form of financial reimbursement subject to satisfying a minimum participation rate (i.e., 3 out of 5 working days) over a pre-defined period (i.e., 6 months).

Based on such measures, the initiative will cultivate a habit amongst participants and aid the longevity of the scheme.

A common downfall of a carpool initiative is the lack of confidence in the availability of a ride home. Thus, the effectiveness of a scheme of this nature, when not actively managed, diminishes rapidly.

Common strategies to overcome this involve capitalising on advanced data mining capabilities, which make possible supplementary initiatives such as the following to reinforce the effectiveness and longevity of carpooling:

- Setup of an online database
- Guaranteed ride-home or paid taxi/rideshare fare home

The effective implementation of carpool schemes will be reliant on adequate enforcement and monitoring by the Coordinator via CCTV and in-person audit.

11.2.3.3 Provide Public Transport Incentives

The site currently has convenient access to the 770 bus route which is a direct link to St Marys Train Station.

The Transport Access Guide (TAG) (as provided in Appendix F) provides useful schematic information on the best way to commute to/from the site. The TAG should be published on the organisation's website and made available to the public to raise awareness of alternative transport modes.

It is recommended that the organisation periodically update the website to ensure that information remains current.

A digital notice board with maps can be provided in common areas to inform users of public transport routes, departure times, EoT facilities, estimated walking times to the closest bus stops/metro stations, and weather conditions.

11.2.3.4 Increase Walking and Cycling

Cyclists will be provided with bicycle lockers and bays to encourage cycling among residents and visitors. Whilst there are relevant infrastructures in the vicinity of the site, common and effective measures can raise awareness amongst employees. Likewise, initiatives such as a pedometer-based walking program coupled with the Walk/Bicycle Buddy Scheme prove to be highly effective amongst people. The initiatives suggested above help promote an intangible social benefit of forming a neighbourhood network amongst residents.

11.2.3.5 Convenience of Information

New pamphlets and leaflets detailing the above green travel initiatives incorporating the TAG can be distributed to residents/visitors via email on a quarterly basis to capture any updates to the available facilities or services. All residents/visitors should be provided with an induction package incorporating the TAG, while ongoing initiatives may be circulated in email newsletters.

11.2.3.6 Events and Challenges

The implementation of events and challenges throughout the year incentivises sustainable travel practices in a fun and engaging way. These events and challenges may include car-free days, step challenges and points challenges. Such events and challenges foster a sense of community founded on a sustainable transport culture.

11.3 Implementation Plan

This section sets out the actions and associated timeframes to support the initiatives detailed in Section 5.3.

11.3.1 General & Communication Actions

Action	Timeline	Responsibility
Promotion including: - Display boards in prominent locations to show public transport maps - An events calendar – 3-4 events per year. Best in conjunction with state-wide events such as Ride to Work/ Day, World Environment Day, National Walk to Work Day, etc.	Prior to occupation	The Operator
A quarterly newsletter including; - News, events and articles on the environment, health, and fitness - Outline new initiatives and how to access them or get involved - Residents' profiles – who is getting involved and reaping the rewards - Facts and figures from around Australia and overseas - Information regarding up-and-coming events - Information about the numerous health and financial benefits of participating in more sustainable transport options.	4 times a year	The Operator

11.3.2 Walking

Action	Timeline	Responsibility
Produce a map for residents showing safe walking routes to and from the site with times and distances to surrounding local facilities (i.e., shops, bus stops and metro stations)	Prior to occupation, quarterly on the newsletter	The Operator
Have some Walk to Work days encouraging residents to travel to work via active means	Quarterly	The Operator

11.3.3 Cycling

Action	Timeline	Responsibility
Provide 53 new bicycle parking spaces in an easily accessible, undercover, well-lit, and secure.	Prior to Occupation	The Operator
Ensure bike parking is clearly visible or provide signage to direct people to bike parking spaces.	Prior to Occupation	The Operator
Supply a workplace toolkit - this can consist of puncture repair equipment, a bike pump, a spare lock, and lights.	Prior to Occupation	The Operator
Participate in annual events such as 'Ride to Work Day.'	Annually	The Operator
Provide panniers/backpacks to residents committed to riding to work.	Prior to Occupation	The Operator

11.3.4 End of Trip Facilities

Action	Timeline	Responsibility
Provide 2 showers for visitors	Prior to occupation	The Operator
Provide 4 changing rooms for change of clothes	Prior to occupation	The Operator

11.3.5 Public Transport

Action	Timeline	Responsibility
Develop a map showing nearby public transport routes and how to access them.	Circulated to residents prior to occupation	TTPA
Put up a noticeboard with information and maps showing the main public transport routes to and from the Site.	Prior to occupation	The Operator

11.3.6 Car Pooling and Carshare

Action	Timeline	Responsibility
Allocate priority parking spaces for car-poolers and car share. These spaces will be line-marked to differentiate from general parking and will be monitored by onsite security.	Prior to occupation	The Operator
Provide 8 priority Car Share spaces for residents	Prior to occupation	The Operator

11.3.7 Incentive

Action	Timeline	Responsibility
- Introduce charges for car parking and use money raised for public transport initiatives. - Provide sustainable transport allowances for residents who surrender car parking permits. - Offer cash incentives for residents willing to give up car parking spaces	To be reviewed when the car parking is fully occupied	The Operator

11.3.8 Events and Challenges

Action	Timeline	Responsibility
Implementation of events and challenges throughout the year such as Ride to Work Day, World Environment Day, National Walk to Work Day, car-free days, step challenges and points challenges, etc.	Throughout the year	The Operator

11.4 Other Site-Specific Measures

The Operator is committed to encouraging more sustainable travel use via the following initiatives:

- Appoint a Travel Plan Coordinator (TPC) for the life of the development to ensure the successful implementation and monitoring of the GTP. It is proposed that:
 - o Both the TPC and GTP are well supported by the building owners/management
 - o A steering group/committee is created with relevant external and internal stakeholders, such as residents and visitors, to inform future targets with the ongoing monitoring and revision of the GTP five years post-occupancy.
 - o Implement a strategy for the handover from interim TPC to final TPC, ensuring that sustainable mode share targets are met during the lifecycle of the development.
- Create a site-specific GTP website and an introduction to the GTP, setting out its purpose and objectives.
- Encouragement of the use of car share scheme and carpooling.
- Provision of fully serviced end-of-trip facilities.
- Provision of workplace toolkits, including puncture repair equipment, bicycle pumps and a bicycle repair station.
- Provision of good quality, accurate and useful directional signages to promote walking and cycling is essential. It is proposed that this be provided by stating times to destination in minutes taken as well as distances in half kilometres. In addition, the signage will promote links to local services.
- Provide an access pack to all residents and visitors, including the transport access guide and information on sustainable travel facilities and initiatives. Every visitor/resident's welcome package will not only include the

TAG and tickets, which will give detailed information about how to travel to and from the site by means other than the car, but also an information sheet explaining how to use the facilities/incentives provided.

- The TAG is based on facilities currently available at the site and will need to be updated as the proposed infrastructure changes occur.
- Provide a walking and cycling map, including estimates of time taken to local destinations.
- Provision of newsletter or email with links to public transport travel information, Live NSW traffic and public transport conditions to ensure that travel information is always up to date
- Provide interactive timetables on-site to promote public transport usage
- Allow for access to umbrellas and ponchos in case of wet weather
- Provide public transport information boards to make residents/visitors more aware of the alternative transport options available. The format of such information boards would be based upon the travel access guide, although further investigations into the provision of real-time information systems will also be explored
- Provide reduced parking costs for residents who carpool
- A half-yearly newsletter will also be provided to every resident for up to two years after occupation, bringing the latest news on sustainable travel initiatives in the area.

These measures would form the framework of the GTP, and with this framework in place, the plan is to be managed as described in Section 8.6.

11.5 Working from Home Policy

There are opportunities to reduce congestion during peak travel times with the implementation of the working-from-home policy.

Resources in relation to Work from Home and Flexible Work Arrangements are provided in the following links:

- *Flexible Working arrangements*
- *Fair Work Ombudsman — Coronavirus and Australian workplace laws*
- *Safe Work Australia — Work-related psychological health and safety: A systematic approach to meeting your duties*
- *Safe Work Australia — Infographic: Four steps to preventing psychological injury at work*
- *SafeWork NSW — Remote or isolated work (includes those who work from home)*
- *SafeWork NSW — Design and layout of the work environment*

Australian Government's Comcare — Coronavirus (COVID-19)

11.6 Management of the Plan

It is proposed that the GTP be subject to ongoing monitoring to ensure that it achieves the desired benefits or modify it if required. It is not possible at this stage to state what additional modifications might be made as this will be dependent upon the particular circumstances arising from time to time.

11.6.1 Monitoring Milestones

Monitoring the plan will be an essential process in consolidating the travel patterns and publicising the positive outcomes of the plan.

It is therefore proposed that within 3 months of occupation of the new facilities, a travel survey will be conducted. The results of the travel survey will indicate the desirable travel mode outcome. In this way, the coordinator will be able to examine the success of the GTP and make appropriate recommendations.

11.6.2 Monitoring

It will be important to monitor the GTP to ensure that travel mode targets are met and the maximum benefits are gained.

The GTP Coordinator will be from the operator:

Name:	To Be Confirmed
Location:	To Be Confirmed
Phone:	To Be Confirmed

A final GTP Coordinator for the development will be nominated by the management of the operator when occupation commences. This Coordinator will have responsibility for implementing the Travel Plan and its ongoing monitoring and review, including the delivery of actions and associated mode share targets.

Travel surveys will be undertaken, and the main focus of the surveys will be to establish the travel patterns, including the mode share of trips to and from the Site. Travel surveys would be conducted annually and when

future transport upgrades have taken place. This information will also help inform GTPs of subsequent changes and upgrades.

The Transport for NSW Open Data hub combined with traffic volume counts within the road network on-site can be utilised to help monitor and measure increases in residents switching from private vehicles to public transport and reductions in traffic volumes during peak hours.

It will be important to understand people's reasons for travelling the way they do, any barriers to changing their behaviour, and their propensity to change. This will enable the most effective initiatives to be identified, and conversely, less effective initiatives can be modified or replaced to ensure the best outcomes are achieved.

It will also be necessary to provide feedback to visitors/residents to ensure that they can see the benefits of sustainable transport.

There are several key elements to the development and implementation of a successful GTP. These include:

- **Communications** – Good communications are an essential part of the GTP. It will be necessary to explain the reason for adopting the plan, promote the benefits available and provide information about the alternatives to reliance on private car travel.
- **Commitment** – GTPs involve changing established habits and providing the impetus for people in new developments to choose a travel mode other than private car use. To achieve cooperation, it is essential to promote positively the wider objectives and benefits of the plan. This commitment includes the provision of the necessary resources to implement the plan, beginning with the introduction of encouragement for changing travel modes upon occupation.
- **Consensus** – It will be necessary to obtain broad support for the introduction of the plan.

Once the plan has been adopted, it will be essential to maintain interest in the scheme and any new initiative in the plan will need to be publicised and marketed. Accordingly, it is proposed to produce a half-yearly leaflet for visitors/residents to inform the public of sustainable travel initiatives.

11.6.3 Existing Travel Circumstances

Assessment of the ABS zone data indicates the following current travel mode share (2021) for the Caddens area:

837

Car, as driver	86.9%
Car, as passenger	6.3%
Train	4.5%
Truck	1.0%
Walked only	1.3%

It must be noted that the data was taken in 2021 during the Covid-19 pandemic which resulted in some 40% of employees stating they worked from home/did not go to work. A more accurate reflection of the mode share would have the working-from-home numbers removed, resulting in the following percentages:

Car, as driver	75.0%
Car, as passenger	10%
Train	10%
Truck	2%
Walked only	3%

Based on the above, it is evident that people who work in the area have heavy reliance on private vehicles to travel to/from their place of employment due to the accessibility of public transport services.

11.6.4 Modal Share Targets

Assessment of the transport circumstances for the premises indicates the following desirable mode share targets.

Car, as driver	65.0%
Car, as passenger	5.0%
Bus	10.0%

Train	10.0%
Walked only	5.0%
Other	10.0%

A range of measures and actions have been recommended for implementation in the travel plan to ensure the mode share targets are both aspirational and achievable. Whilst it may not be possible to guarantee that the modal split targets for sustainable travel modes will be achieved, the travel coordinator will not revise the mode share targets in favour of car driver or car passenger use.

Surveys undertaken within 3 months of occupation will be able to assess whether these targets have been met.

The purchaser will take up the measures proposed as a matter of free choice and this modal choice is beyond the management of The Operator. The survey results will, however, give an indication of the more popular measures, which can then be concentrated upon in GTPs.

11.6.5 Evaluation of Targets

It is therefore proposed that within 3 months of substantial occupation, a travel survey will be conducted. Travel questionnaires can be conducted for the public through online self-completion methods.

The first study provides a baseline for travel planning, while subsequent travel surveys would be reported annually to SINSW to inform of any weakness or strength in the current travel plan. The travel plan would be refined based on the review to reflect changing circumstances

12.0 Conclusion

The proposed mixed use residential complex at 68-80 O'Connell Street, Caddens has been assessed in relation to the potential vehicle access, parking, traffic and transport implications. This assessment has concluded that:

- there will not be any adverse or unsatisfactory traffic implications
- the proposed parking provision will be adequate and appropriate
- the proposed vehicle access, internal circulation and servicing provisions will be quite satisfactory
- there is a suitable method to construct the development while the Caddens Corner remains in operation
- the site will have ready access to bus services as well as the shared path network which will act to provide a sustainable transport outcome.

Appendix A

Development Plans

68-80 O'CONNELL ST, CADDENS
SSDA ARCHITECTURAL DOCUMENTATION

DEVELOPMENT SUMMARY:

RESIDENTIAL DEVELOPMENT															
	APARTMENTS				GFA (m ²)			ADG					DDA		
	1 BED	2 BED	3 BED	TOTAL	COMMUNAL INTERNAL AREA	RESIDENTIAL	AFFORDABLE HOUSING	SOLAR	0-hrs SUN	% SOLAR	%0-hrs SUN	C-VENT	% C-VENT	ADAPTA BLE	LHA
BUILDING B	8	19	4	31	0.0	2912.6		27	2	87.1%	6.5%	21	67.7%	3	12
BUILDING C	4	10	8	22	0.0	2365.0		16	0	72.7%	0.0%	18	81.8%	1	3
BUILDING E	1	16	6	23	0.0	2641.7		22	1	95.7%	4.3%	18	78.3%	2	6
BUILDING F	5	20	3	28	0.0	2627.7		25	0	89.3%	0.0%	19	67.9%	3	4
BUILDING G	5	15	0	20	49.5	1955.8		18	0	90.0%	0.0%	19	95.0%	4	5
BUILDING H	2	10	7	19	0.0	2062.8		14	0	73.7%	0.0%	19	100.0%	0	4
BUILDING J	11	23	1	35	0.0	3387.4	3387.4	28	4	80.0%	11.4%	21	60.0%	5	13
BUILDING K	3	14	6	23	0.0	2572.7		21	1	91.3%	4.3%	15	65.2%	4	5
BUILDING L	3	20	9	32	0.0	3709.5		30	1	93.8%	3.1%	22	68.8%	3	5
BUILDING M	7	25	6	38	0.0	4045.3	4045.3	34	1	89.5%	2.6%	26	68.4%	4	7
BUILDING N	9	16	9	34	0.0	3313.6		28	1	82.4%	2.9%	21	61.8%	4	7
BUILDING P+R1+R2	9	58	4	71	452.5	6610.6		59	1	83.1%	1.4%	43	60.6%	4	24
BUILDING S	4	24	6	34	0.0	3662.9		24	0	70.6%	0.0%	26	76.5%	8	12
BUILDING T	14	24	10	48	0.0	4790.2		34	4	70.8%	8.3%	31	64.6%	0	0
BUILDING U	1	23	0	24	0.0	2426.6		18	0	75.0%	0.0%	16	66.7%	3	3
BOH P-U						416.7									
TOTAL	86	317	79	482	502.0	49500.9	7432.7	398	16	82.6%	3.3%	335	69.5%	48	110
%	17.8	65.8	16.4				15.0%							10%	23%

PROPOSED RETAIL (m ²)	3461
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TOTAL PROPOSED GFA (m²)	53463.9
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LOCATION PLAN

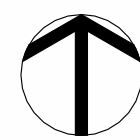
Amendments			LEGEND AND NOTES	TRAFFIC
Issue	Description	Date		
A	ISSUED FOR SSDA	01.08.2025		TTPA LACHLAN ELLSON WASTE ELEPHANTS FOOT EMMA MCNEILLY PLANNING KEYLAN CONSULTING LAUREN DONOHOE



68-80 O'CONNELL ST, CADDENS - SSDA DRAWING LIST		
SHEET NUMBER	SHEET NAME	CURRENT REVISION
0000 - 1199 SITE PLANS		
SSDA 0000	COVER SHEET	A
SSDA 0010	BASIX COMMITMENTS - SHEET 01	A
SSDA 0011	BASIX COMMITMENTS - SHEET 02	A
SSDA 0012	BASIX COMMITMENTS - SHEET 03	A
SSDA 0013	BASIX COMMITMENTS - SHEET 04	A
SSDA 0014	BASIX COMMITMENTS - SHEET 05	A
SSDA 0015	BASIX COMMITMENTS - SHEET 06	A
SSDA 0016	BASIX COMMITMENTS - SHEET 07	A
SSDA 0017	BASIX COMMITMENTS - SHEET 08	A
SSDA 1000	ZONING	A
SSDA 1100	EXISTING PLAN	A
SSDA 1150	SITE ANALYSIS	A
SSDA 1200	DEMOLITION PLAN	A
SSDA 1300	SITE PLAN	A
SSDA 1400	STAGING DIAGRAMS	A
2000 - 2199 - FLOOR PLANS		
SSDA 2000	GA PLAN OVERALL - RL 40.10	A
SSDA 2001	GA PLAN OVERALL - RL 43.30	A
SSDA 2002	GA PLAN OVERALL - RL 46.50	A
SSDA 2003	GA PLAN OVERALL - RL 50.70	A
SSDA 2004	GA PLAN OVERALL - RL 54.70	A
SSDA 2005	GA PLAN OVERALL - RL 57.20	A
SSDA 2006	GA PLAN OVERALL - RL 60.20	A
SSDA 2007	GA PLAN OVERALL - RL 63.40	A
SSDA 2008	GA PLAN OVERALL - RL 66.60	A
SSDA 2009	GA PLAN OVERALL - RL 69.80	A
SSDA 2010	GA PLAN OVERALL - RL 73.00	A
SSDA 2011	GA PLAN OVERALL - RL 76.20	A
SSDA 2012	GA PLAN OVERALL - ROOF	A
SSDA 2050	B - J BASEMENT - 02	A
SSDA 2051	B - J BASEMENT - 01	A
SSDA 2060	K - N BASEMENT - 03	A
SSDA 2061	K - N BASEMENT - 02	A
SSDA 2062	K - N BASEMENT - 01	A
SSDA 2070	P - U BASEMENT - 03	A
SSDA 2071	P - U BASEMENT - 02	A
SSDA 2072	P - U BASEMENT - 01	A
SSDA 2073	P - U BASEMENT - RETAIL LEVEL	A
SSDA 2100	BUILDING PLANS - BUILDING B	A
SSDA 2101	BUILDING PLANS - BUILDING C	A
SSDA 2102	BUILDING PLANS - BUILDING E	A
SSDA 2103	BUILDING PLANS - BUILDING F	A
SSDA 2104	BUILDING PLANS - BUILDING G	A
SSDA 2105	BUILDING PLANS - BUILDING H	A
SSDA 2106	BUILDING PLANS - BUILDING J	A
SSDA 2107	BUILDING PLANS - BUILDING K	A
SSDA 2109	BUILDING PLANS - BUILDING L, SHEET 1	A
SSDA 2110	BUILDING PLANS - BUILDING L, SHEET 2	A
SSDA 2111	BUILDING PLANS - BUILDING M, SHEET 1	A
SSDA 2112	BUILDING PLANS - BUILDING M, SHEET 2	A
SSDA 2113	BUILDING PLANS - BUILDING N, SHEET 1	A
SSDA 2114	BUILDING PLANS - BUILDING N, SHEET 2	A

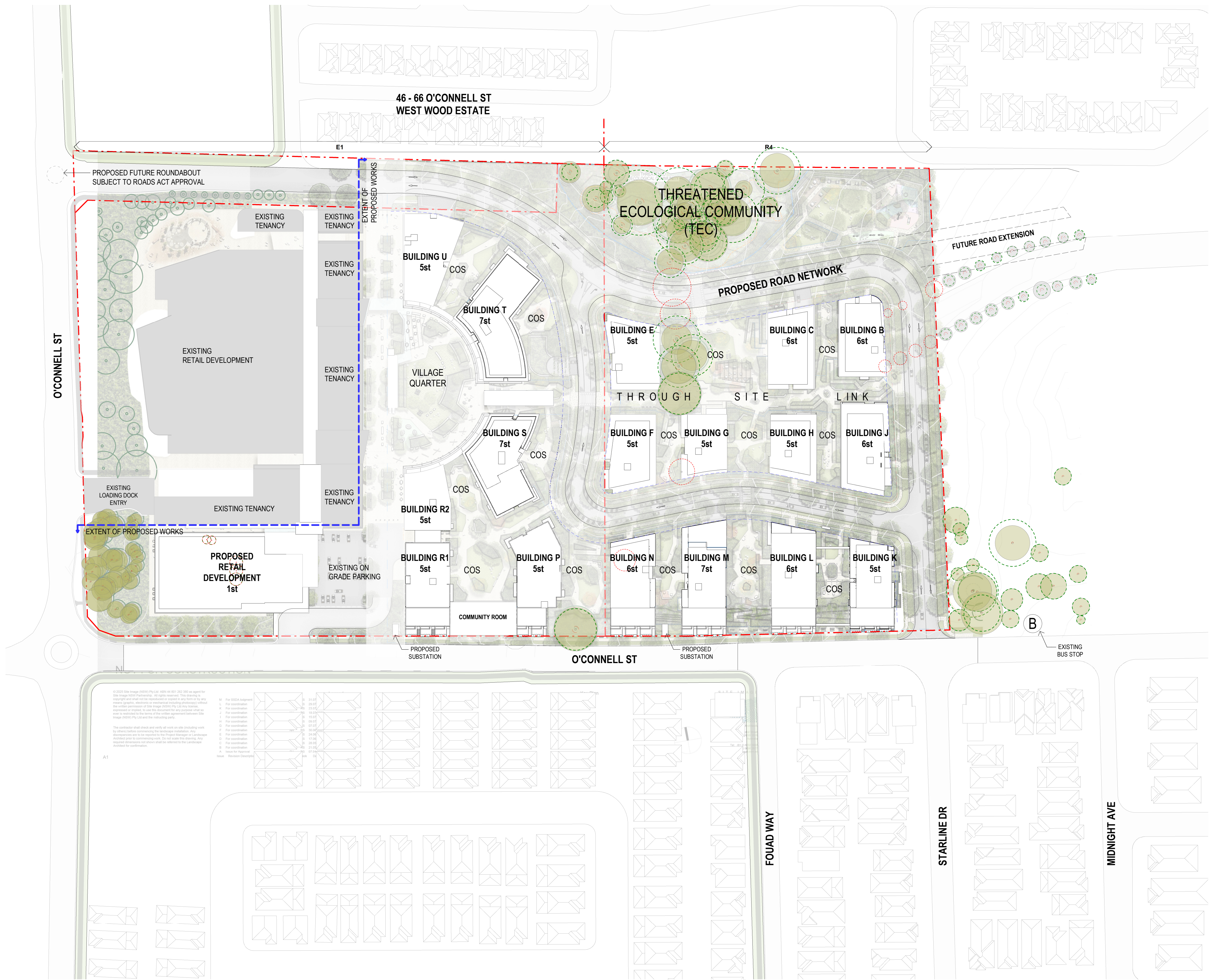
68-80 O'CONNELL ST, CADDENS - SSDA DRAWING LIST		
SHEET NUMBER	SHEET NAME	CURRENT REVISION
SSDA 2115	BUILDING PLANS - BUILDING P, SHEET 1	A
SSDA 2116	BUILDING PLANS - BUILDING P, SHEET 2 A	
SSDA 2117	BUILDING PLANS - BUILDING R	A
SSDA 2118	BUILDING PLANS - BUILDING S, SHEET 1 A	
SSDA 2119	BUILDING PLANS - BUILDING S, SHEET 2 A	
SSDA 2120	BUILDING PLANS - BUILDING T, SHEET 1 A	
SSDA 2121	BUILDING PLANS - BUILDING T, SHEET 2 A	
SSDA 2122	BUILDING PLANS - BUILDING U	A
3000 - 3099 - ELEVATIONS		
SSDA 3000	OVERALL ELEVATIONS	A
SSDA 3001	OVERALL ELEVATIONS	A
SSDA 3010	BUILDING ELEVATIONS - BUILDING B	A
SSDA 3011	BUILDING ELEVATIONS - BUILDING C	A
SSDA 3012	BUILDING ELEVATIONS - BUILDING E	A
SSDA 3013	BUILDING ELEVATIONS - BUILDING F	A
SSDA 3014	BUILDING ELEVATIONS - BUILDING G	A
SSDA 3015	BUILDING ELEVATIONS - BUILDING H	A
SSDA 3016	BUILDING ELEVATIONS - BUILDING J	A
SSDA 3017	BUILDING ELEVATIONS - BUILDING K	A
SSDA 3018	BUILDING ELEVATIONS - BUILDING L	A
SSDA 3019	BUILDING ELEVATIONS - BUILDING M	A
SSDA 3020	BUILDING ELEVATIONS - BUILDING N	A
SSDA 3021	BUILDING ELEVATIONS - BUILDING P	A
SSDA 3022	BUILDING ELEVATIONS - BUILDING R	A
SSDA 3023	BUILDING ELEVATIONS - BUILDING S	A
SSDA 3024	BUILDING ELEVATIONS - BUILDING T	A
SSDA 3025	BUILDING ELEVATIONS - BUILDING U	A
SSDA 3026	RETAIL BOX ELEVATIONS	A
3100 - 3199 - SECTIONS		
SSDA 3101	SITE SECTIONS - SHEET 1	A
SSDA 3102	SITE SECTIONS - SHEET 2	A
4000 - 4099 - FACADE SECTIONS		
SSDA 4000	FACADE SECTIONS - SHEET 1	A
SSDA 4001	FACADE SECTIONS - SHEET 2	A
SSDA 4002	FACADE SECTIONS - SHEET 3	A
5100 - 5199 - RENDERERS AND MATERIALS & FINISHES		
SSDA 5100	RENDER 01 - VILLAGE QUARTER	A
SSDA 5101	RENDER 02 - COMMUNITY FOREST	A
SSDA 5102	RENDER 03 - O'CONNELL STREET	A
SSDA 5103	RENDER 04 - RETAIL BOX	A
SSDA 5104	RENDER 05 - AVENUE ROAD	A
SSDA 5200	MATERIALS AND FINISHES	A
9100 - 9199 - COMPLIANCE		
SSDA 9100	GFA DIAGRAMS - 01	A
SSDA 9101	GFA DIAGRAMS - 02	A
SSDA 9102	GFA DIAGRAMS - 03	A
SSDA 9110	DEEP SOIL	A
SSDA 9120	COMMUNAL OPEN SPACE	A
SSDA 9121	PROPOSED COS - SOLAR ANALYSIS (21ST JUNE)	A
SSDA 9130	CROSS VENTILATION COMPLIANCE - 01	A
SSDA 9131	CROSS VENTILATION COMPLIANCE - 02	A
SSDA 9140	SUN EYE VIEWS - 3D VIEWS - SHEET 1	A
SSDA 9141	SUN EYE VIEWS - 3D VIEWS - SHEET 2	A

68-80 O'CONNELL ST, CADDENS - SSDA DRAWING LIST		
SHEET NUMBER	SHEET NAME	CURRENT REVISION
SSDA 9142	SOLAR COMPLIANCE - 01	A
SSDA 9143	SOLAR COMPLIANCE - 02	A
SSDA 9150	BUILDING SEPARATION DIAGRAMS	A
SSDA 9160	STORAGE SCHEDULE	A
SSDA 9161	STORAGE DIAGRAM - 01	A
SSDA 9162	STORAGE DIAGRAM - 02	A
SSDA 9163	STORAGE DIAGRAM - 03	A
SSDA 9164	STORAGE DIAGRAM - 04	A
SSDA 9165	STORAGE DIAGRAM - 05	A
SSDA 9170	HEIGHT PLANE COMPLIANCE - 01	A
SSDA 9171	HEIGHT PLANE COMPLIANCE - 02	A
SSDA 9200	P - U RAMP DETAIL_RAMP 1, RAMP 2, RAMP 4	A
SSDA 9201	P - U RAMP DETAIL_RAMP 3	A
SSDA 9202	B - J RAMP DETAIL_RAMP 1, RAMP 2	A
SSDA 9203	K - N RAMP DETAIL_RAMP 1, RAMP 2	A
SSDA 9300	TYPE B.L.G.01 ADAPTABLE APARTMENT	A
SSDA 9301	TYPE B.L.G.03 ADAPTABLE APARTMENT	A
SSDA 9302	TYPE B.G.G.04 ADAPTABLE APARTMENT	A
SSDA 9303	TYPE C.L.G.01 ADAPTABLE APARTMENT	A
SSDA 9304	TYPE E.G.03 ADAPTABLE APARTMENT	A
SSDA 9305	TYPE E.G.05 ADAPTABLE APARTMENT	A
SSDA 9306	TYPE F.1.05 ADAPTABLE APARTMENT	A
SSDA 9307	TYPE G.G.01 ADAPTABLE APARTMENT	A
SSDA 9308	TYPE G.G.1.01 ADAPTABLE APARTMENT	A
SSDA 9309	TYPE J.L.G.03 ADAPTABLE APARTMENT	A
SSDA 9310	TYPE J.G.05 ADAPTABLE APARTMENT	A
SSDA 9311	TYPE K.G.01 ADAPTABLE APARTMENT	A
SSDA 9312	TYPE L.1.01 ADAPTABLE APARTMENT	A
SSDA 9313	TYPE M.1.02 ADAPTABLE APARTMENT	A
SSDA 9314	TYPE N.L.G.01 ADAPTABLE APARTMENT	A
SSDA 9315	TYPE N.L.G.03 ADAPTABLE APARTMENT	A
SSDA 9316	TYPE N.G.04 ADAPTABLE APARTMENT	A
SSDA 9317	TYPE R2.1.01 ADAPTABLE APARTMENT	A
SSDA 9318	TYPE S.1.02 ADAPTABLE APARTMENT	A
SSDA 9319	TYPE S.1.07 ADAPTABLE APARTMENT	A
SSDA 9320	TYPE U.2.04 ADAPTABLE APARTMENT	A
SSDA 9500	PROPOSED SHADOW DIAGRAMS - WS (21ST JUNE)	A
SSDA 9501	PROPOSED SHADOW DIAGRAMS - WS (21ST JUNE)	A
SSDA 9900	APPROVED DA - BASEMENT PLAN	P1
SSDA 9901	APPROVED DA - SITE PLAN	P1
SSDA 9902	APPROVED DA - ELEVATIONS	P1
SSDA 9903	APPROVED DA - COLOURED ELEVATION & SIGNAGE	A
SSDA 9904	APPROVED DA - COLOURED ELEVATION & SIGNAGE	A



SSDA SUBMISSION

Plotted and checked by		GroupGSA	
Verified	RS	Approved	LMC
Drawing Created (date)		Drawing Created (by)	
01.08.2025		RS	
Scale	Project No	Drawing No	Issue
1 : 1	@ A1	A252106	SSDA 0000
			A



Amendments		
Issue	Description	Date
A	ISSUED FOR SSDA	01.08.2025

LEGEND AND NOTES	
	1 BED APARTMENT
	2 BED APARTMENT
	3 BED APARTMENT
	RETAIL
	3M SETBACK LINE

LANDSCAPE UNDERLAY SHOWN IS INDICATIVE.
REFER TO LANDSCAPE DRAWINGS PREPARED
BY SITE IMAGE LANDSCAPE ARCHITECTS FOR
FURTHER INFORMATION

TRAFFIC	
TTPA	LACHLAN ELLSON
WASTE	
ELEPHANTS FOOT	EMMA MCNEILLY
PLANNING	
KEYLAN CONSULTING	LAUREN DONOHOE

Client	
HOLDMARK PROPERTY GROUP	ELIYAH EL KHOURY



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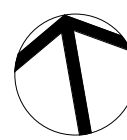
architecture interior design urban design landscape
nom architect Lisa-Maree Carrigan 7568

Project Title	
68-80 O'CONNELL ST, CADDENS	

Drawing Title

SITE PLAN

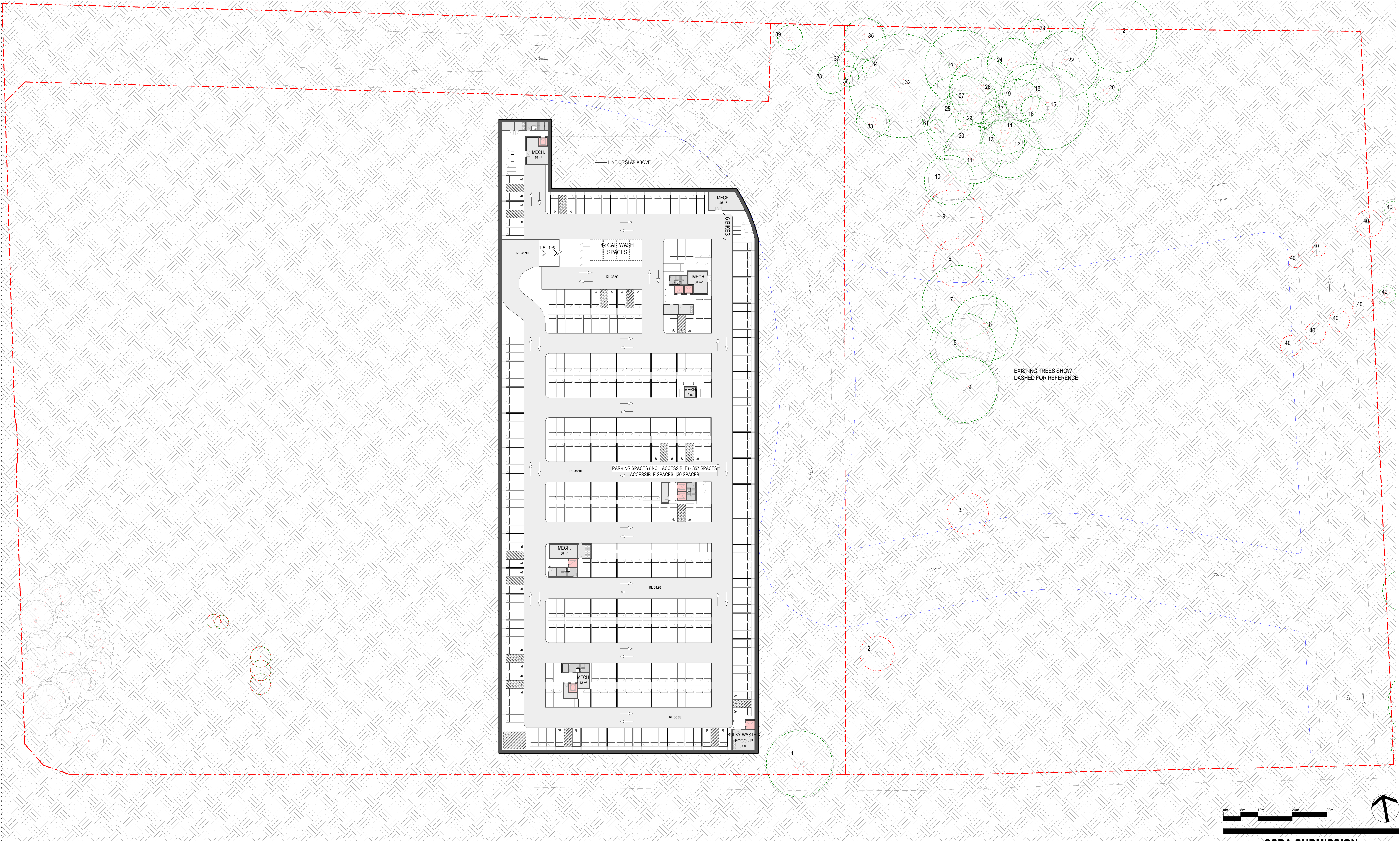
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Verified	RS	Approved	LMC
Drawing Created (date)		Drawing Created (by)	RS
01.08.2025			
Scale	Project No	Drawing No	Issue
As indicated	@ A1	A252106	SSDA 1300
			A

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Amendments		
Issue	Description	Date
A	ISSUED FOR SSDA	01.08.2025

LEGEND AND NOTES	
	1 BED APARTMENT
	2 BED APARTMENT
	3 BED APARTMENT
	RETAIL
	3M SETBACK LINE

TRAFFIC	
TTPA	LACHLAN ELLSON
WASTE	
ELEPHANTS FOOT	EMMA MCNEILLY
PLANNING	
KEYLAN CONSULTING	LAUREN DONOHOE

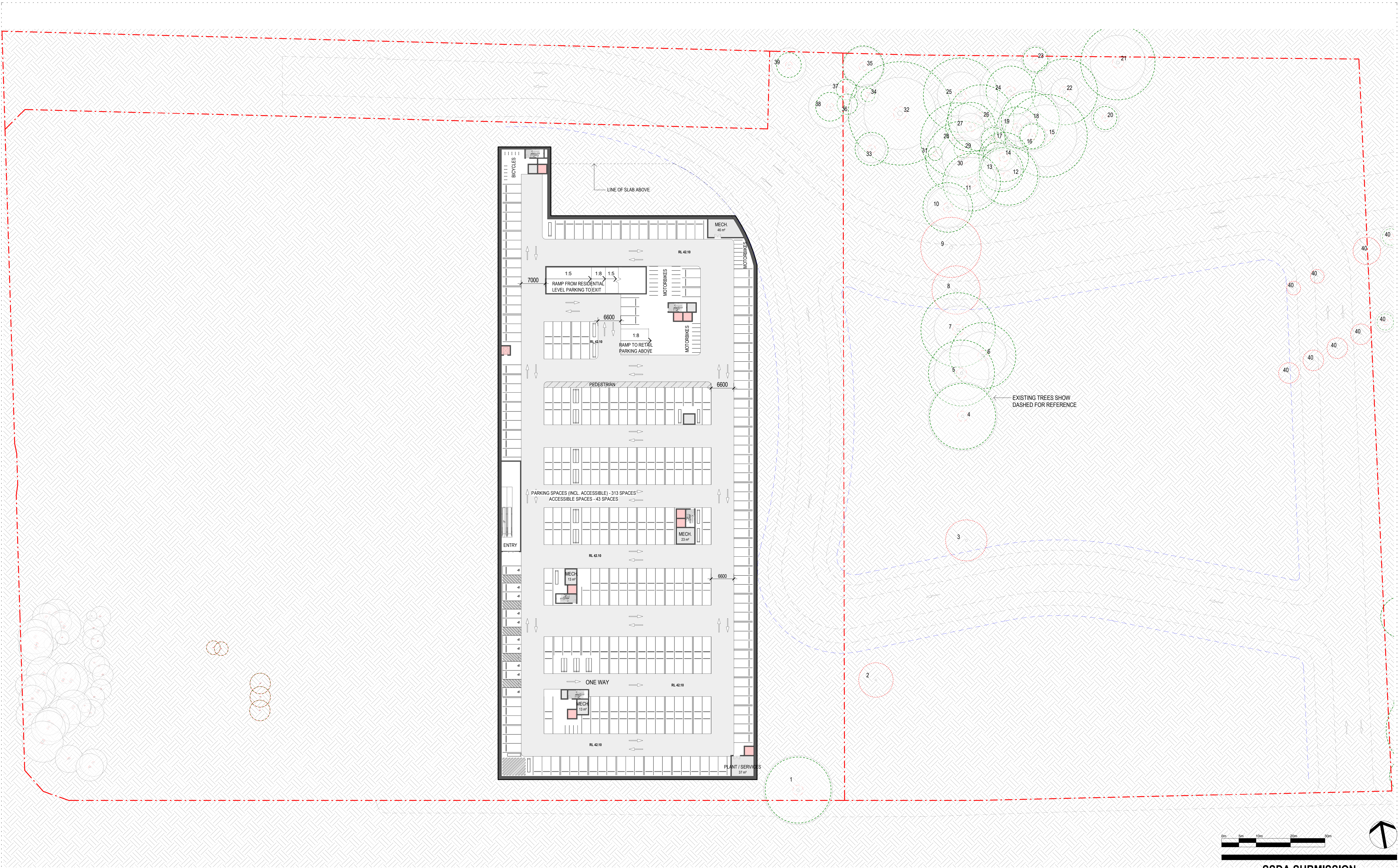
Client	
HOLDMARK PROPERTY GROUP	ELIYAH EL KHOURY

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nom architect Lisa-Maree Carrigan 7568

Project Title			
68-80 O'CONNELL ST, CADDENS			
Drawing Title			
GA PLAN OVERALL - RL 40.10			
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Plotted and checked by		GroupGSA	
Verified	RS	Approved	LMC
Drawing Created (date)		Drawing Created (by)	
01.08.2025		RS	
Scale	Project No	Drawing No	Issue
1 : 500 @ A1	A252106	SSDA 2000	A

8/11/2025 1:34:10 PM



Amendments		
Issue	Description	Date
A	ISSUED FOR SSDA	01.08.2025

LEGEND AND NOTES	
	1 BED APARTMENT
	2 BED APARTMENT
	3 BED APARTMENT
	RETAIL
	3M SETBACK LINE

TRAFFIC	
TTPA	LACHLAN ELLSON
WASTE	
ELEPHANTS FOOT	EMMA MCNEILLY
PLANNING	
KEYLAN CONSULTING	LAUREN DONOHUE

Client	
HOLDMARK PROPERTY GROUP	ELIYAH EL KHOURY

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nom architect Lisa-Maree Carrigan 7568

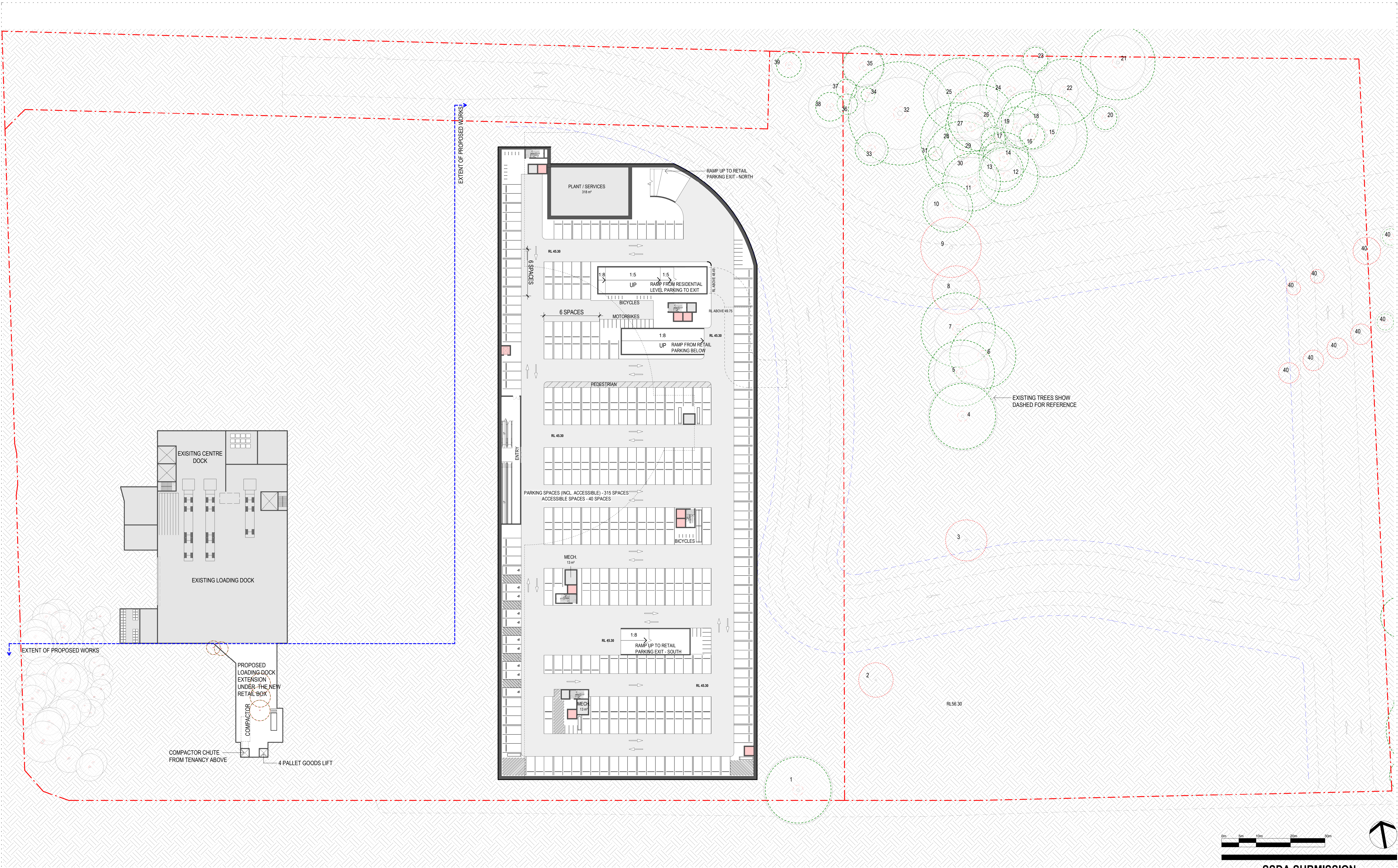
Project Title			
68-80 O'CONNELL ST, CADDENS			
Drawing Title			
GA PLAN OVERALL - RL 43.30			
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Drawing Created (date)		Drawing Created (by)	
01.08.2025		RS	
Scale	Project No	Drawing No	Issue
1 : 500 @ A1	A252106	SSDA 2001	A

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Amendments		
Issue	Description	Date
A	ISSUED FOR SSDA	01.08.2025

LEGEND AND NOTES	
	1 BED APARTMENT
	2 BED APARTMENT
	3 BED APARTMENT
	RETAIL
	3M SETBACK LINE

TRAFFIC
TTPA
LACHLAN ELLSON
WASTE
ELEPHANTS FOOT
EMMA MCNEILLY
PLANNING
KEYLAN CONSULTING
LAUREN DONOHOE

Client
HOLDMARK PROPERTY GROUP
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Project Title
68-80 O'CONNELL ST, CADDENS

Drawing Title
GA PLAN OVERALL - RL 46.50

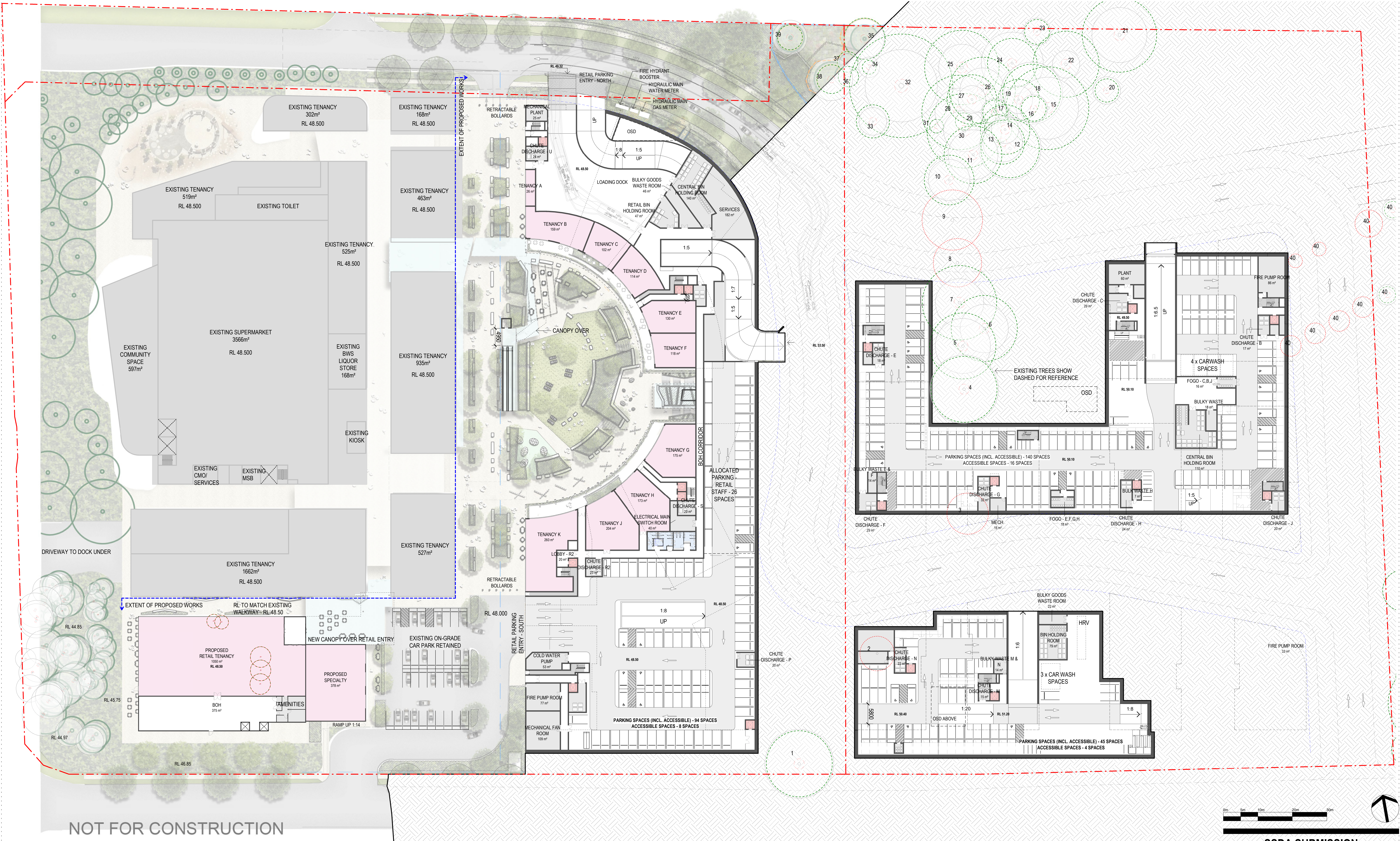
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Drawing Created (date)		Drawing Created (by)	
01.08.2025		RS	
Scale	Project No	Drawing No	Issue
1 : 500 @ A1	A252106	SSDA 2002	A

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Amendments		
Issue	Description	Date
A	ISSUED FOR SSDA	01.08.2025

LEGEND AND NOTES	
	1 BED APARTMENT
	2 BED APARTMENT
	3 BED APARTMENT
	RETAIL
	3M SETBACK LINE

TRAFFIC
TTPA
LACHLAN ELLSON
WASTE
ELEPHANTS FOOT
EMMA MCNEILLY
PLANNING
KEYLAN CONSULTING
LAUREN DONOHOE

Client
HOLDMARK PROPERTY GROUP
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nom architect Lisa-Maree Carrigan 7568

Project Title
68-80 O'CONNELL ST, CADDENS
Drawing Title
GA PLAN OVERALL - RL 50.70

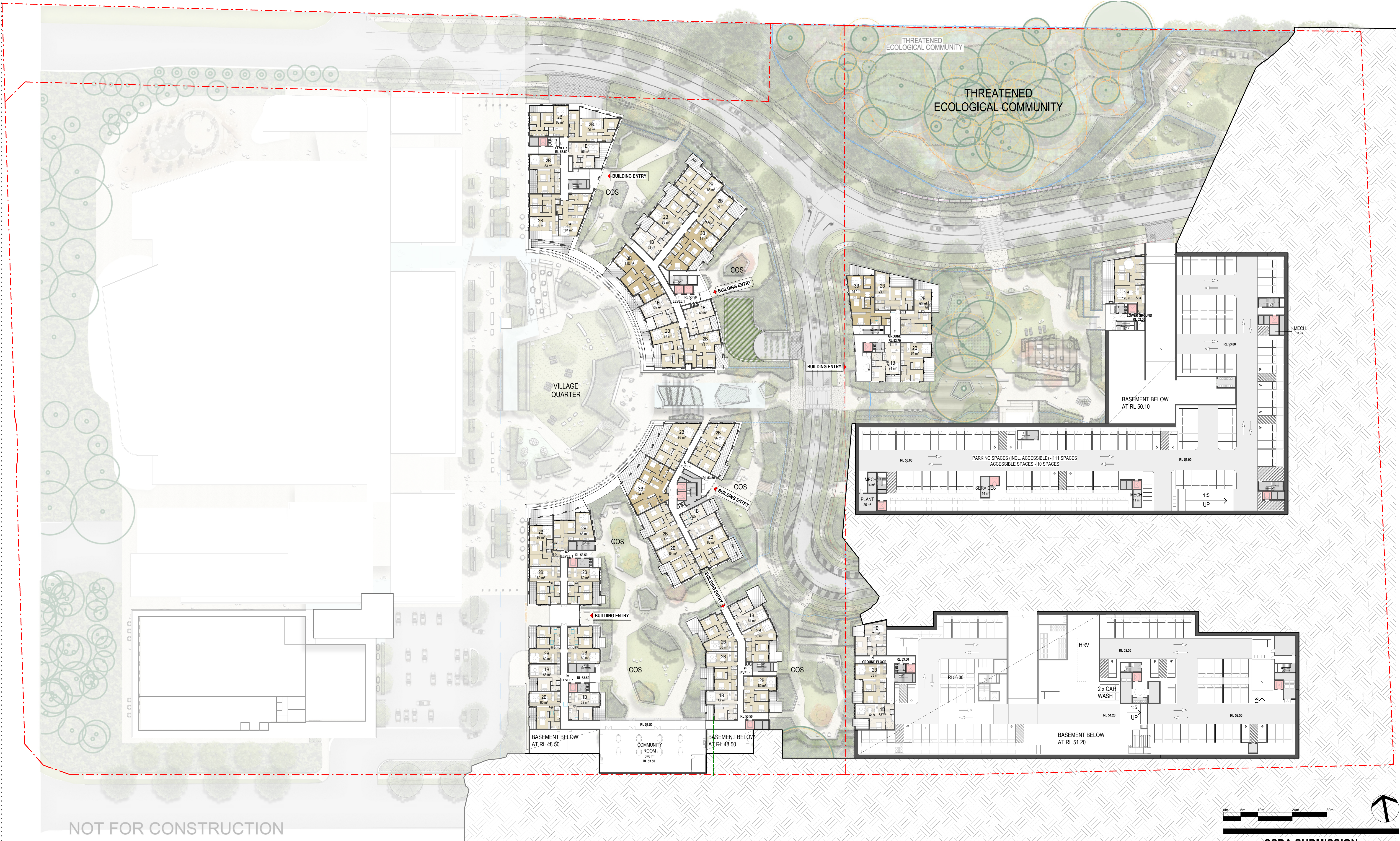
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01.08.2025		RS	
Scale	Project No	Drawing No	Issue
1 : 500 @ A1	A252106	SSDA 2003	A

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NOT FOR CONSTRUCTION

Amendments		
Issue	Description	Date
A	ISSUED FOR SSDA	01.08.2025

- LEGEND AND NOTES
- 1 BED APARTMENT
 - 2 BED APARTMENT
 - 3 BED APARTMENT
 - RETAIL
 - 3M SETBACK LINE

TRAFFIC
TTPA
LACHLAN ELLSON

WASTE
ELEPHANTS FOOT
EMMA MCNEILLY

PLANNING
KEYLAN CONSULTING
LAUREN DONOHOE

Client
HOLDMARK PROPERTY GROUP
ELIJAH EL KHOURY



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norm architect Lisa-Maree Carrigan 7568

ROAD RLs PROVIDED ARE INDICATIVE AND ARE YET
TO BE FINALIZED SUBJECT TO CIVIL INPUT

Project Title
68-80 O'CONNELL ST, CADDENS

Drawing Title
GA PLAN OVERALL - RL 54.70

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Drawing Created (date)		Drawing Created (by)	
01.08.2025		RS	
Scale	Project No	Drawing No	Issue
1 : 500 @ A1	A252106	SSDA 2004	A

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BUILDINGS B-J PARKING:

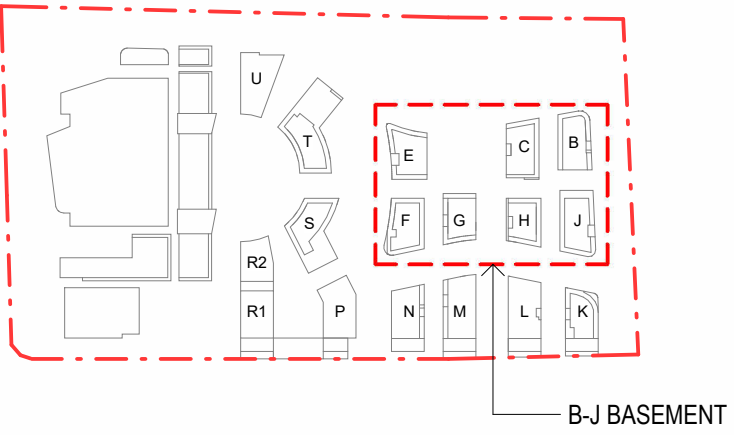
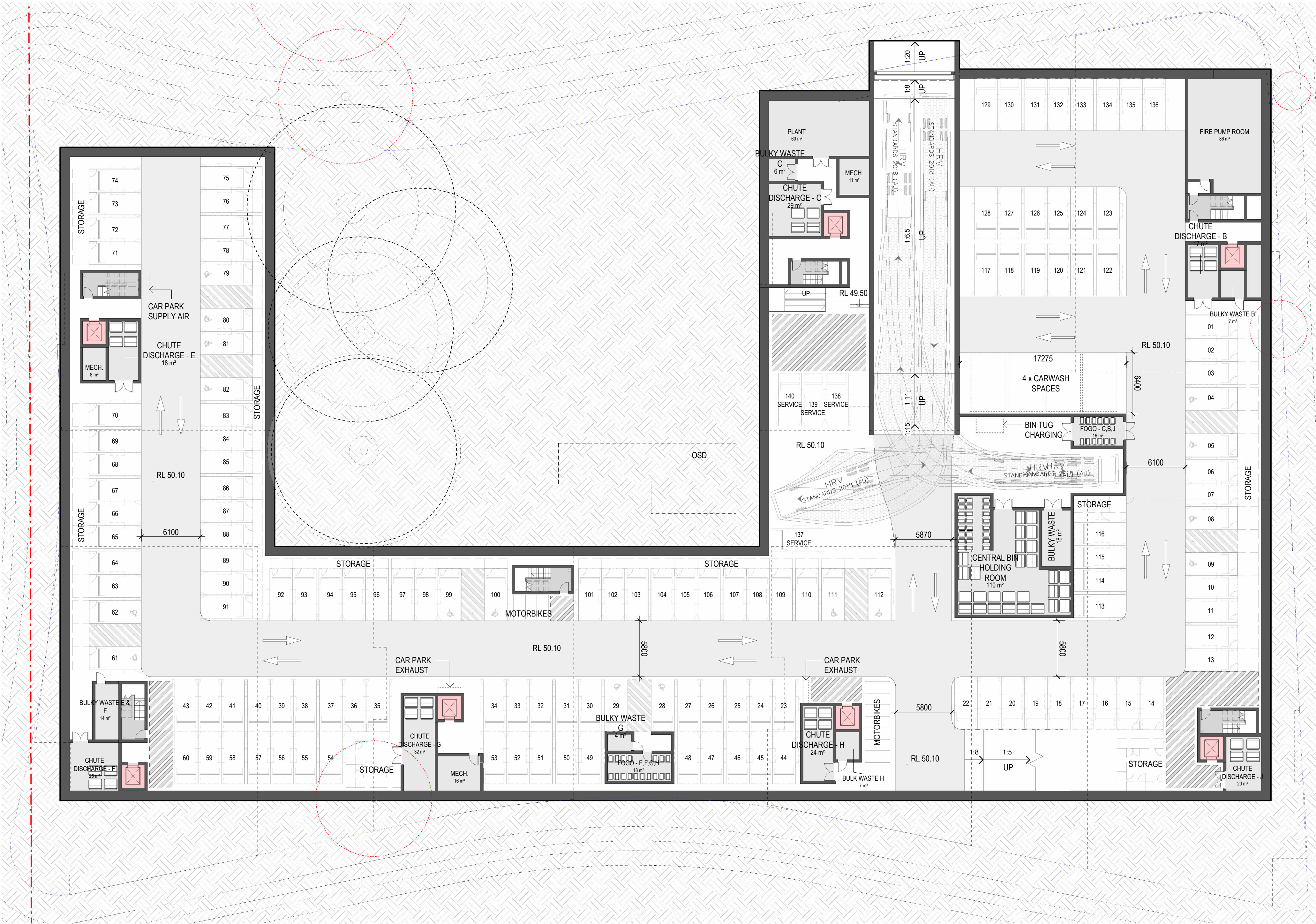
REQUIRED - 247 SPACES

APARTMENTS: 207
VISITORS: 36
SERVICE: 4

PROPOSED - 251 SPACES

APARTMENTS: 221
VISITORS: 26
SERVICE: 4

MOTORBIKES: 20
BICYCLES: 5
ACC. SPACES: 22
CAR WASH: 4 (REQD 4)



0m2.5m5m10m12.5m

SSDA SUBMISSION

Plotted and checked by GroupGSA

Verified RS Approved LMC

Drawing Created (date) Drawing Created (by) RS

01.08.2025

Scale Project No Drawing No Issue

1:250 @ A1 A252106 SSDA 2050 A

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Amendments		
Issue	Description	Date
A	ISSUED FOR SSDA	01.08.2025

LEGEND AND NOTES

TRAFFIC
TTPA
LACHLAN ELLSON
WASTE
ELEPHANTS FOOT
EMMA MCNEILLY
PLANNING
KEYLAN CONSULTING
LAUREN DONOHUE

Client
HOLDMARK PROPERTY GROUP
ELIYAH EL KHOURY



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nom architect Lisa-Maree Carrigan 7568

Project Title
68-80 O'CONNELL ST, CADDENS

Drawing Title
B - J BASEMENT - 02

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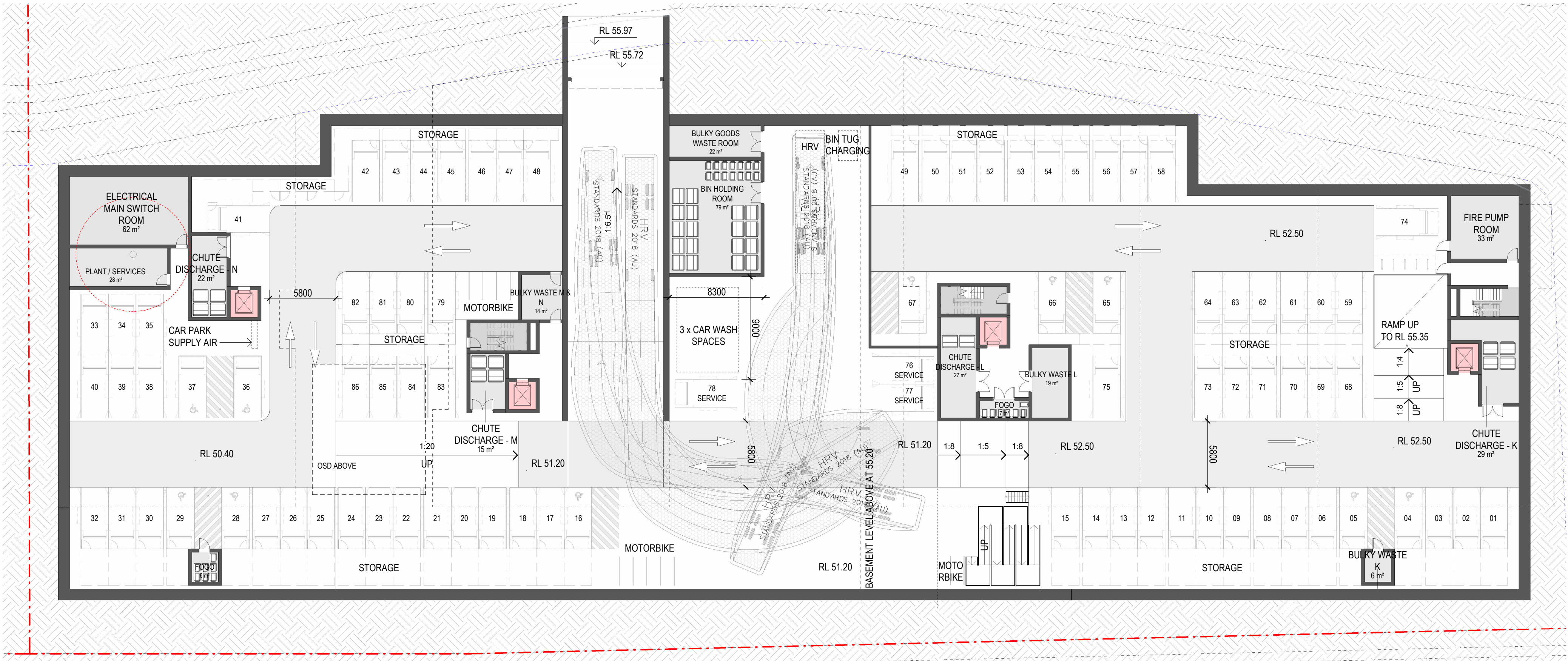
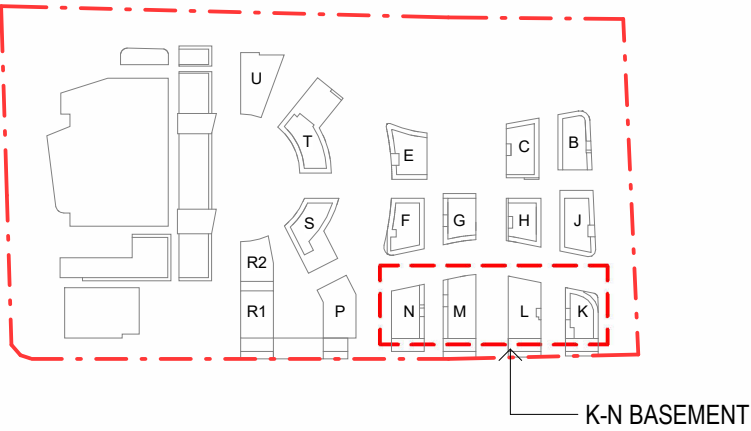
BUILDINGS K-N PARKING:

REQUIRED - 179 SPACES

APARTMENTS: 152
VISITORS: 24
SERVICE: 3

PROPOSED - 179 SPACES

APARTMENTS: 152
VISITORS: 24
SERVICE: 3
MOTORBIKES: 12
BICYCLES: 10
ACC. SPACES: 14
CAR WASH: 3 (REQD 3)



Amendments	Issue	Description	Date
A	ISSUED FOR SSDA		01.08.2025

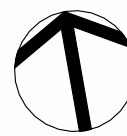
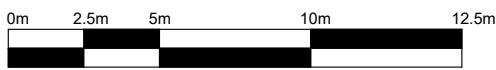
LEGEND AND NOTES
TRAFFIC
TTPA
LACHLAN ELLSON
WASTE
ELEPHANTS FOOT
EMMA MCNEILLY
PLANNING
KEYLAN CONSULTING
LAUREN DONOHUE

Client
HOLDMARK PROPERTY GROUP
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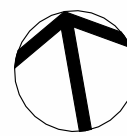
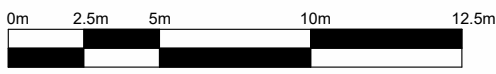
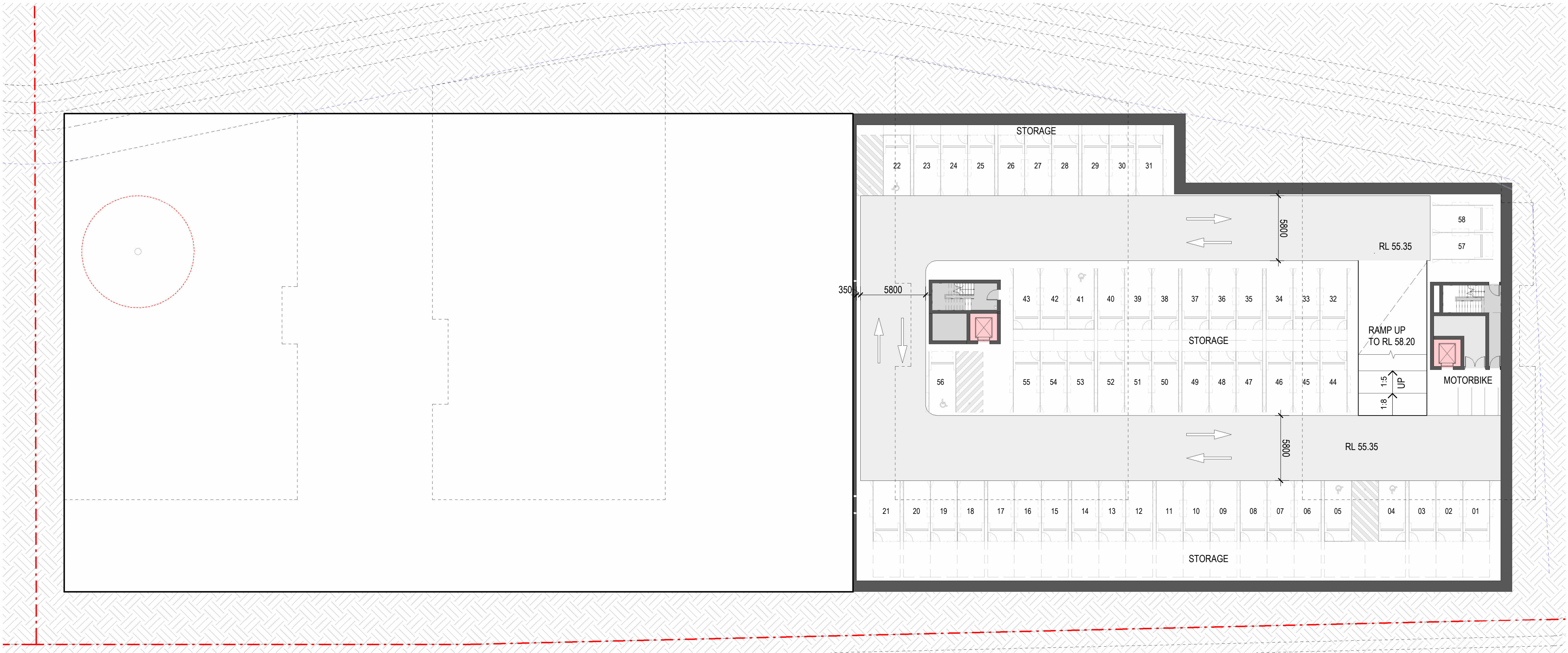
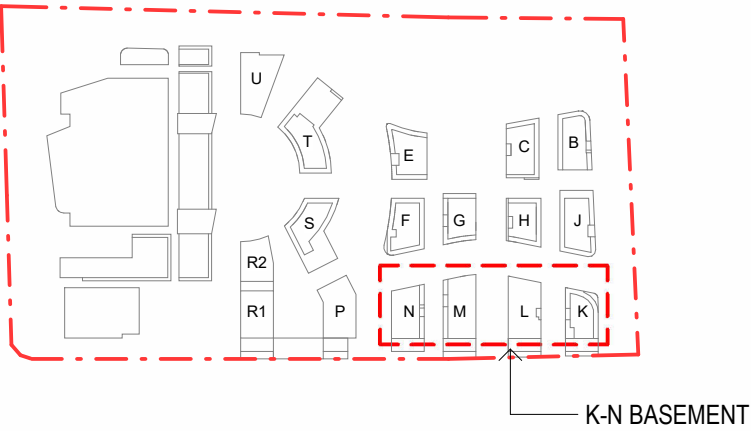
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nom architect Lisa-Maree Carrigan 7568

Project Title
68-80 O'CONNELL ST, CADDENS
Drawing Title
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Scale	Project No		Drawing No		Issue
1 : 250 @ A1	A252106		SSDA 2060		A



SSDA SUBMISSION

Amendments		
Issue	Description	Date
A	ISSUED FOR SSDA	01.08.2025

LEGEND AND NOTES

TRAFFIC
TTPA
LACHLAN ELLSON
WASTE
ELEPHANTS FOOT
EMMA MCNEILLY
PLANNING
KEYLAN CONSULTING
LAUREN DONOHUE

Client
HOLDMARK PROPERTY GROUP
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nom architect Lisa-Maree Carrigan 7568

Project Title
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Drawing Title
K - N BASEMENT - 02

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Verified
RS

Approved
LMC

Drawing Created (date)
01.08.2025

Drawing Created (by)
RS

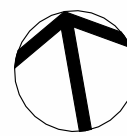
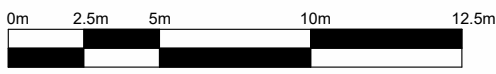
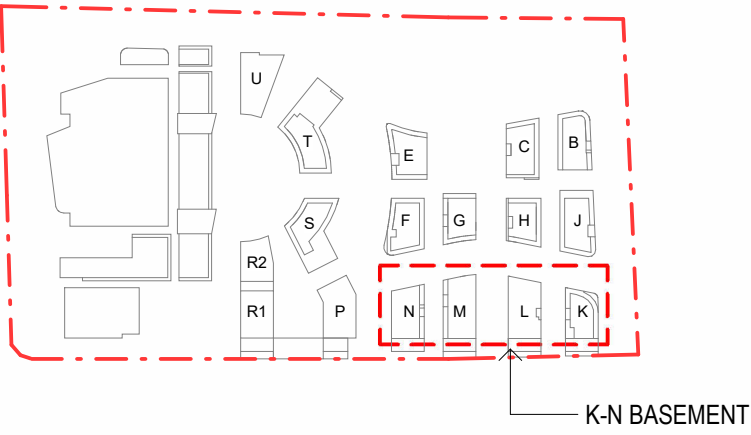
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Project No
A252106

Drawing No
SSDA 2061

Issue
A

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SSDA SUBMISSION

Amendments		
Issue	Description	Date
A	ISSUED FOR SSDA	01.08.2025

LEGEND AND NOTES	
TRAFFIC	TTPA LACHLAN ELLSON
WASTE	ELEPHANTS FOOT EMMA MCNEILLY
PLANNING	KEYLAN CONSULTING LAUREN DONOHUE

Client	HOLDMARK PROPERTY GROUP ELIYAH EL KHOURY
	



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architecture interior design urban design landscape
nom architect Lisa-Maree Carrigan 7568

Project Title	68-80 O'CONNELL ST, CADDENS		
Drawing Title	K - N BASEMENT - 01		
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Drawing Created (date)		Drawing Created (by)	RS
01.08.2025			
Scale	Project No	Drawing No	Issue
1 : 250 @ A1	A252106	SSDA 2062	A

15/08/2025 8:47:29 AM

BUILDINGS P-U PARKING (RESI):

REQUIRED - 243 SPACES

APARTMENTS: 202
VISITORS: 36
SERVICE: 5

PROPOSED - 357 SPACES

APARTMENTS: 317
VISITORS: 36
SERVICE: 4

MOTORBIKES: 24
BICYCLES: 10
ACC. SPACES: 30
CAR WASH: 4 (REQD 4)

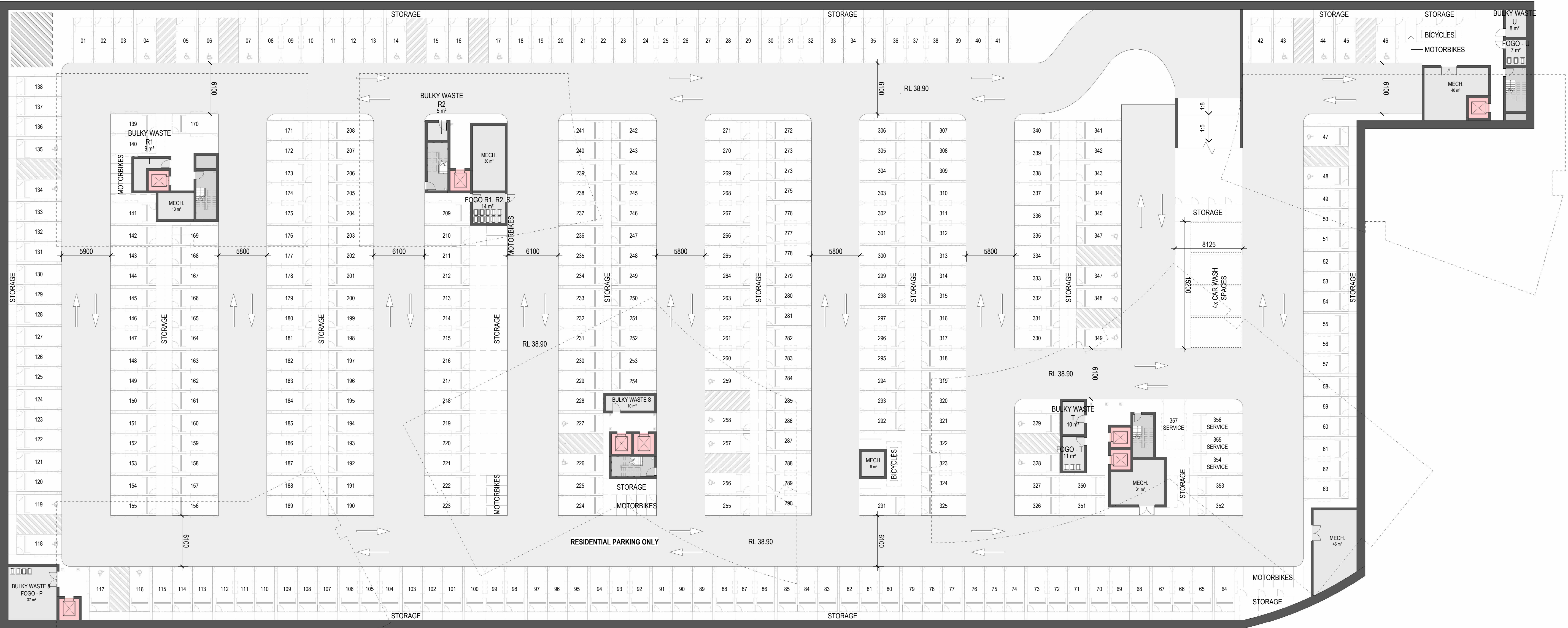
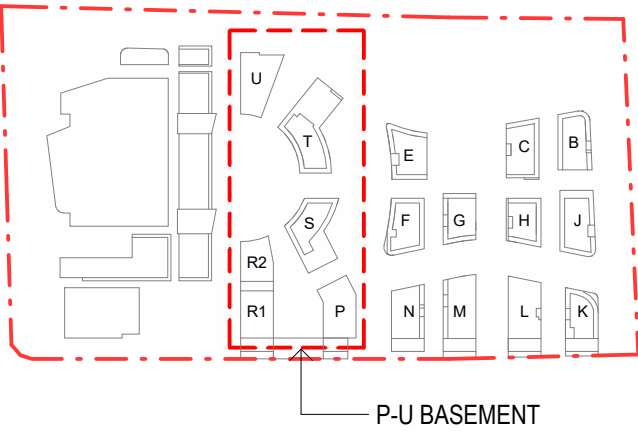
BUILDINGS P-U PARKING (RETAIL):

REQUIRED - 697 SPACES

PROPOSED - 750 SPACES

RETAIL: 696
ACCESSIBLE: 28
ALLOCATED: 26

MOTORBIKES: 63
BICYCLES: 35



Amendments	Issue	Description	Date
A	ISSUED FOR SSDA		01.08.2025

LEGEND AND NOTES

TRAFFIC
TTPA
LACHLAN ELLSON
WASTE
ELEPHANTS FOOT
EMMA MCNEILLY
PLANNING
KEYLAN CONSULTING
LAUREN DONOHUE

Client
HOLDMARK PROPERTY GROUP
ELIYAH EL KHOURY



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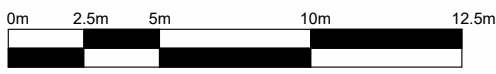
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architecture interior design urban design landscape
nom architect Lisa-Maree Carrigan 7568

Project Title
68-80 O'CONNELL ST, CADDENS

Drawing Title
P - U BASEMENT - 03

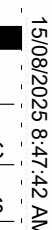
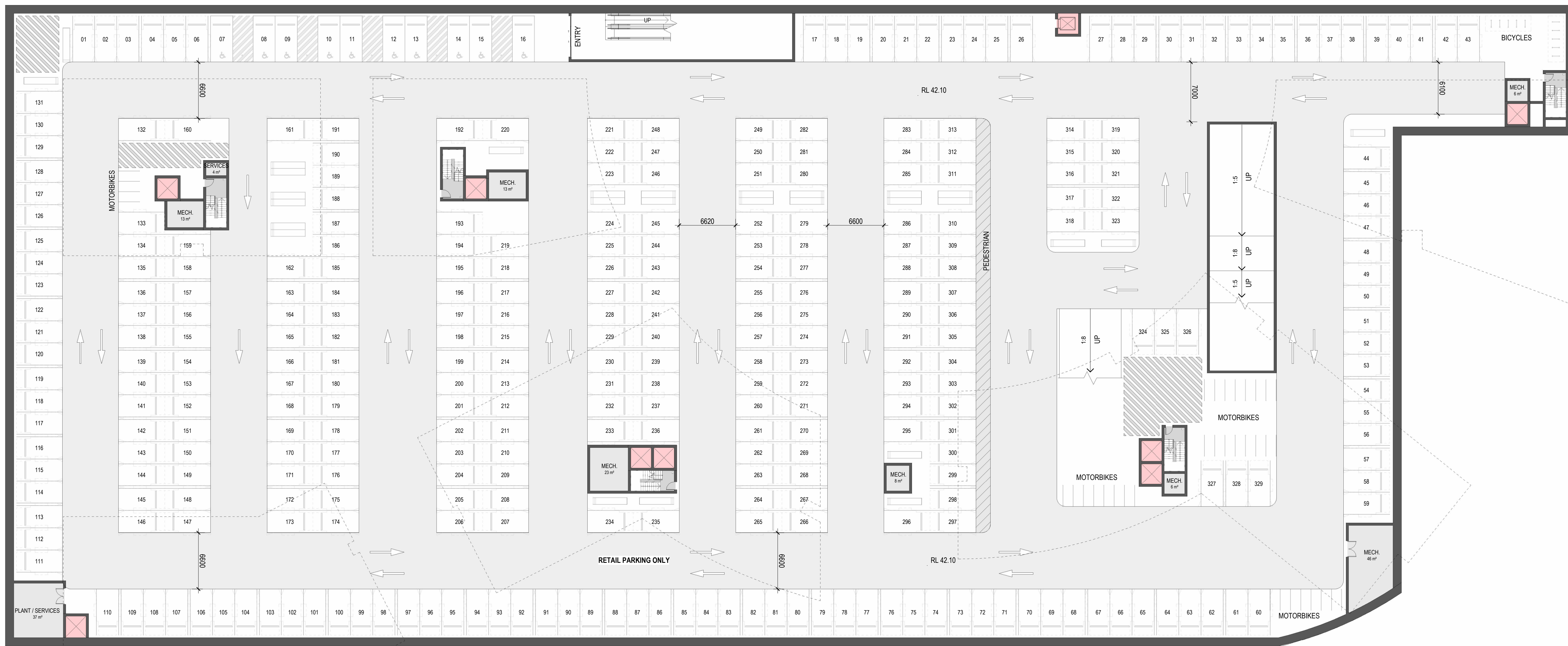
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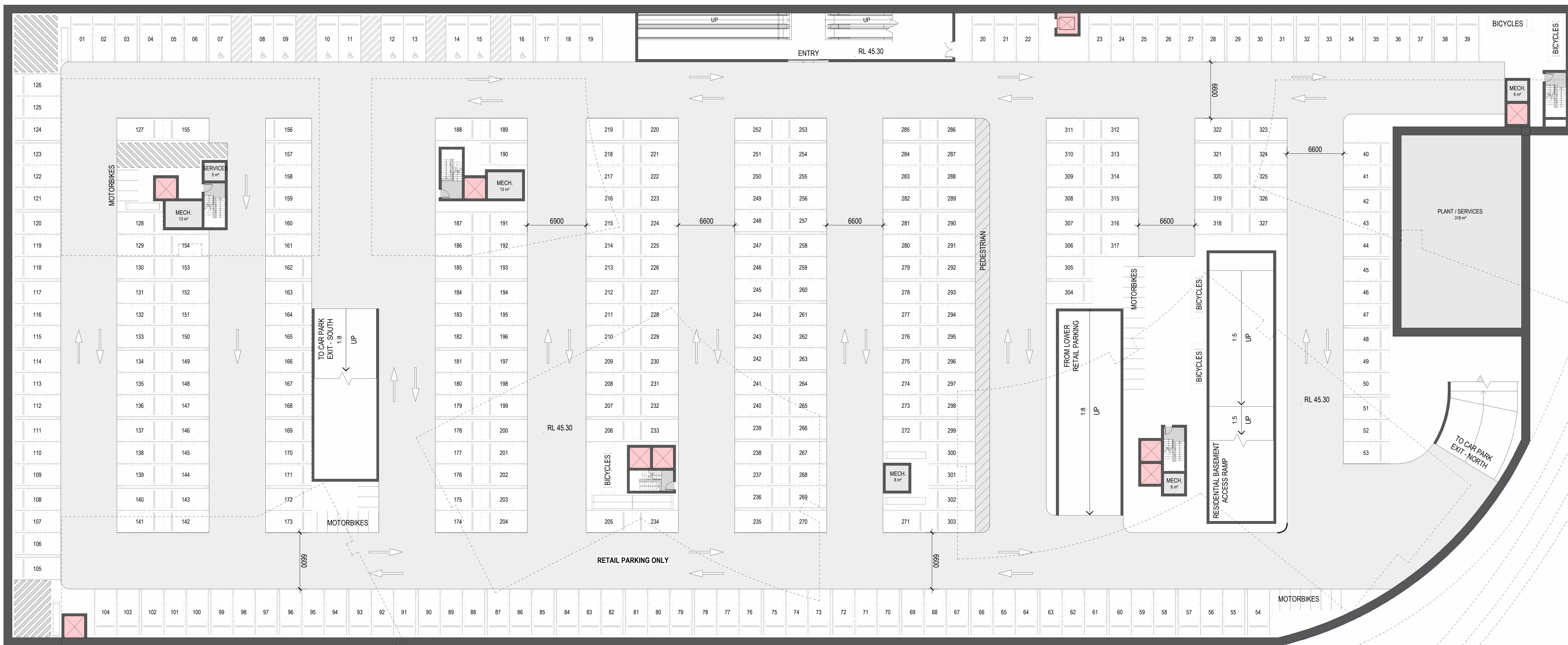
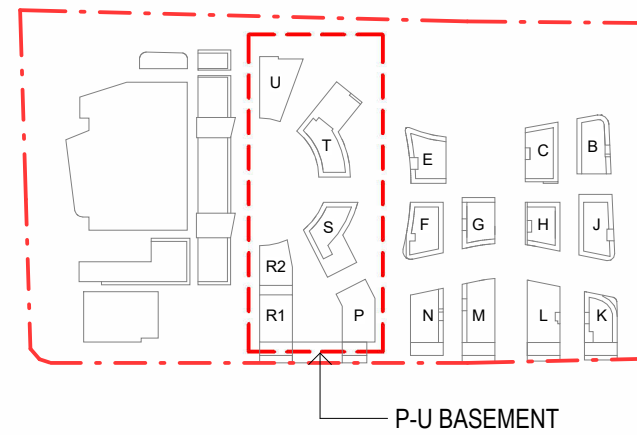


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Verified	RS	Approved	LMC
Drawing Created (date)		Drawing Created (by)	
01.08.2025		RS	
Scale	Project No	Drawing No	Issue
1 : 250 @ A1	A252106	SSDA 2070	A

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SSDA SUBMISSION

Issue	Description	Date
A	ISSUED FOR SSDA	01.08.2025

LEGEND AND NOTES

TRAFFIC
TTPA
LACHLAN ELLSON
WASTE
ELEPHANTS FOOT
EMMA MCNEILLY
PLANNING
KEYLAN CONSULTING
LAUREN DONOHUE

Client
HOLDMARK PROPERTY GROUP
ELIYAH EL KHOURY



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nom architect Lisa-Maree Carrigan 7568

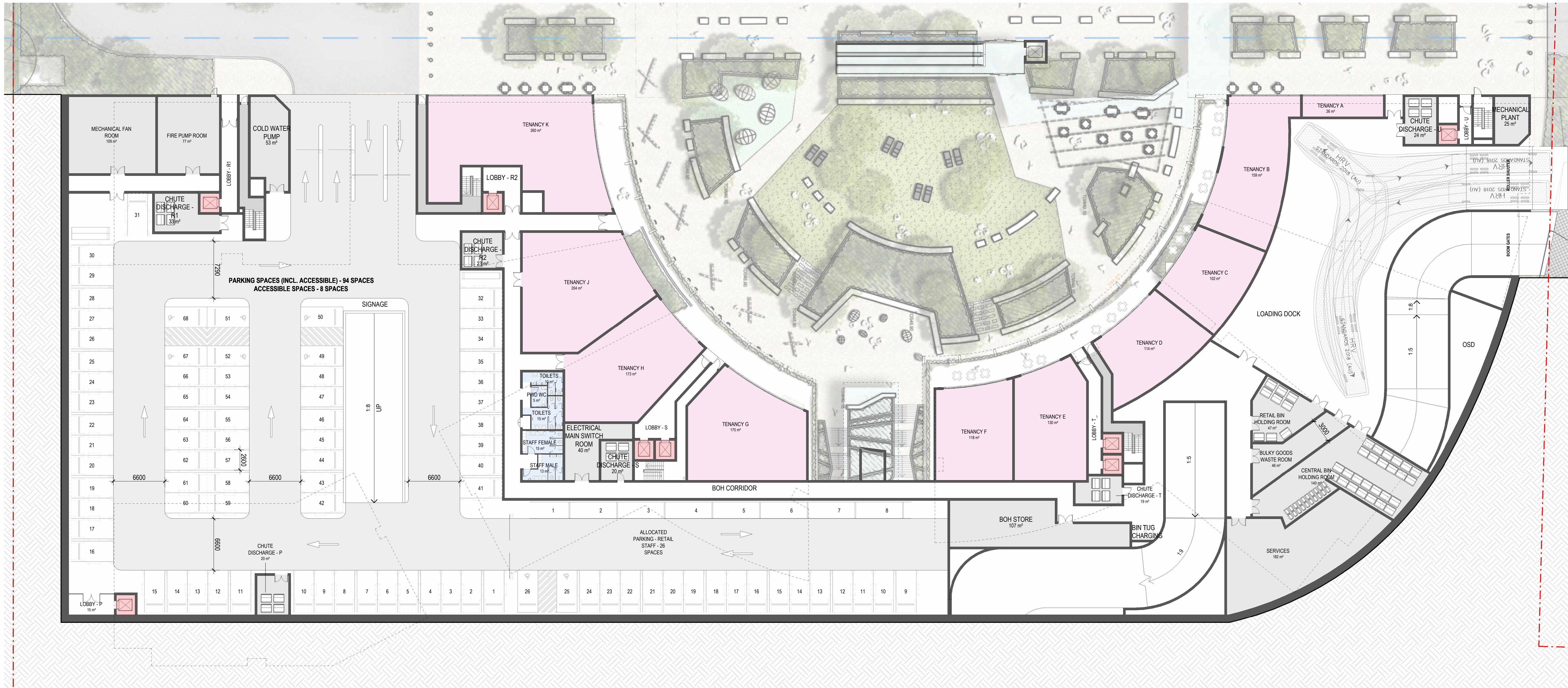
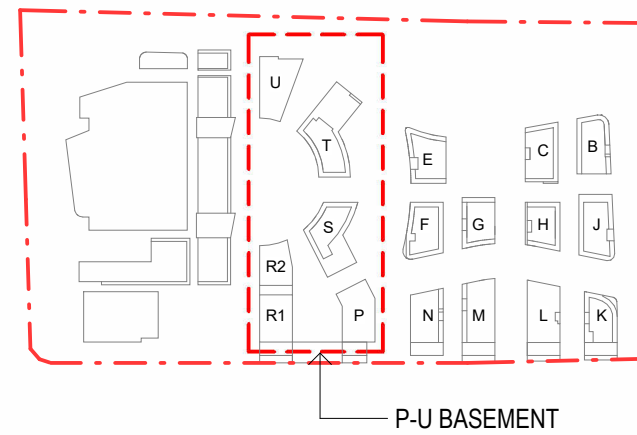
Project Title
68-80 O'CONNELL ST, CADDENS

Drawing Title
P - U BASEMENT - 01

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Verified	RS	Approved	LMC
Drawing Created (date)		Drawing Created (by)	RS
01.08.2025			
Scale	Project No	Drawing No	Issue
1 : 250 @ A1	A252106	SSDA 2072	A

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Amendments		
Issue	Description	Date
A	ISSUED FOR SSDA	01.08.2025

LEGEND AND NOTES

TRAFFIC
TTPA
LACHLAN ELLSON
WASTE
ELEPHANTS FOOT
EMMA MCNEILLY
PLANNING
KEYLAN CONSULTING
LAUREN DONOHUE

Client
HOLDMARK PROPERTY GROUP
ELIYAH EL KHOURY



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Level 7, 80 William St East Sydney NSW
Australia 2011
www.groupgsa.com

T +612 9361 4144 F +612 9332 3458

architecture interior design urban design landscape
nom architect Lisa-Maree Carrigan 7568

Project Title
68-80 O'CONNELL ST, CADDENS

Drawing Title
P - U BASEMENT - RETAIL LEVEL

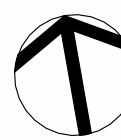
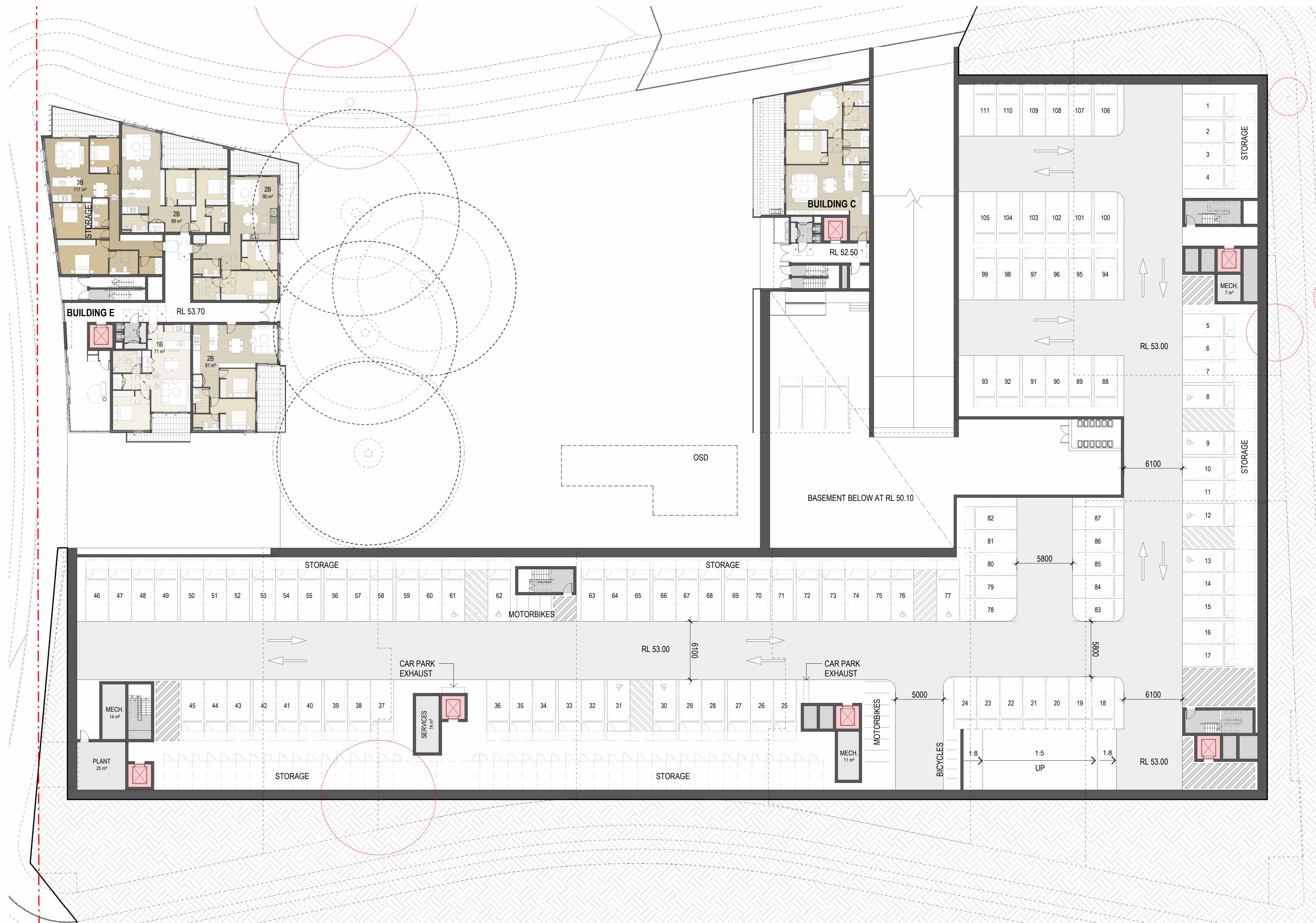
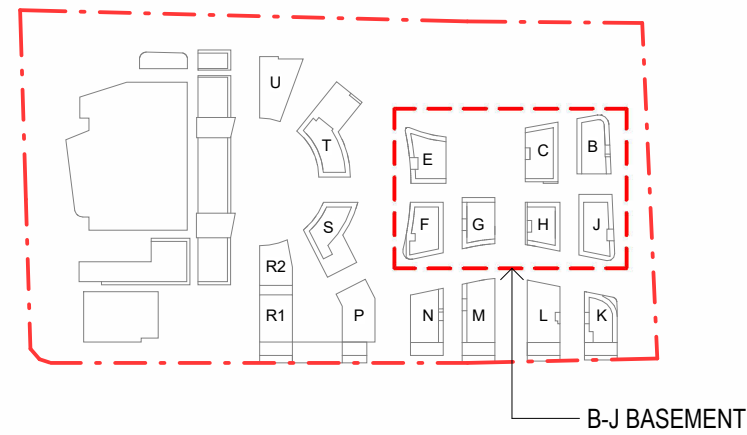
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Do not scale drawings. Use figured Dimensions.



SSDA SUBMISSION

Plotted and checked by		GroupGSA	
Verified	RS	Approved	LMC
Drawing Created (date)		Drawing Created (by)	RS
01.08.2025			
Scale	Project No	Drawing No	Issue
1 : 250 @ A1	A252106	SSDA 2073	A

15/08/2025 8:47:59 AM



SSDA SUBMISSION

Amendments	Issue	Description	Date
A	ISSUED FOR SSDA		01.08.2025

LEGEND AND NOTES

TRAFFIC
TTPA
LACHLAN ELLSON

WASTE
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EMMA MCNEILLY

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architecture interior design urban design landscape
nom architect Lisa-Maree Carrigan 7568

Project Title
68-80 O'CONNELL ST, CADDENS

Drawing Title
B - J BASEMENT - 01

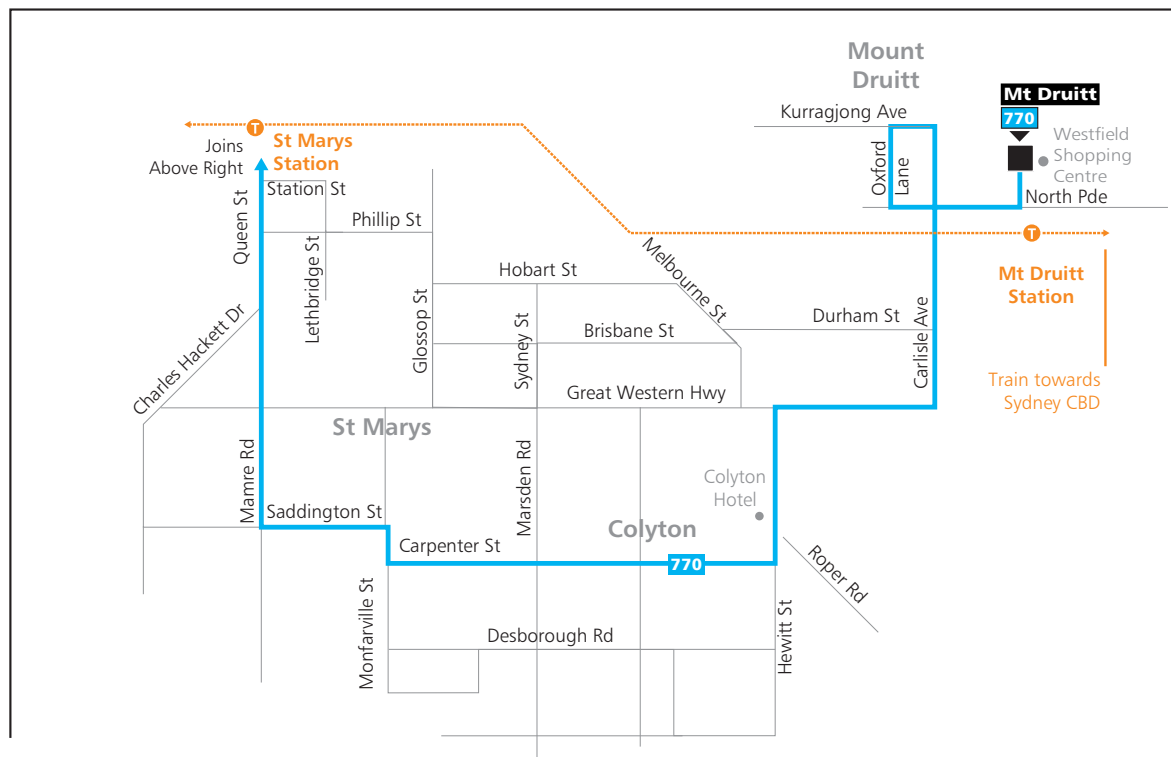
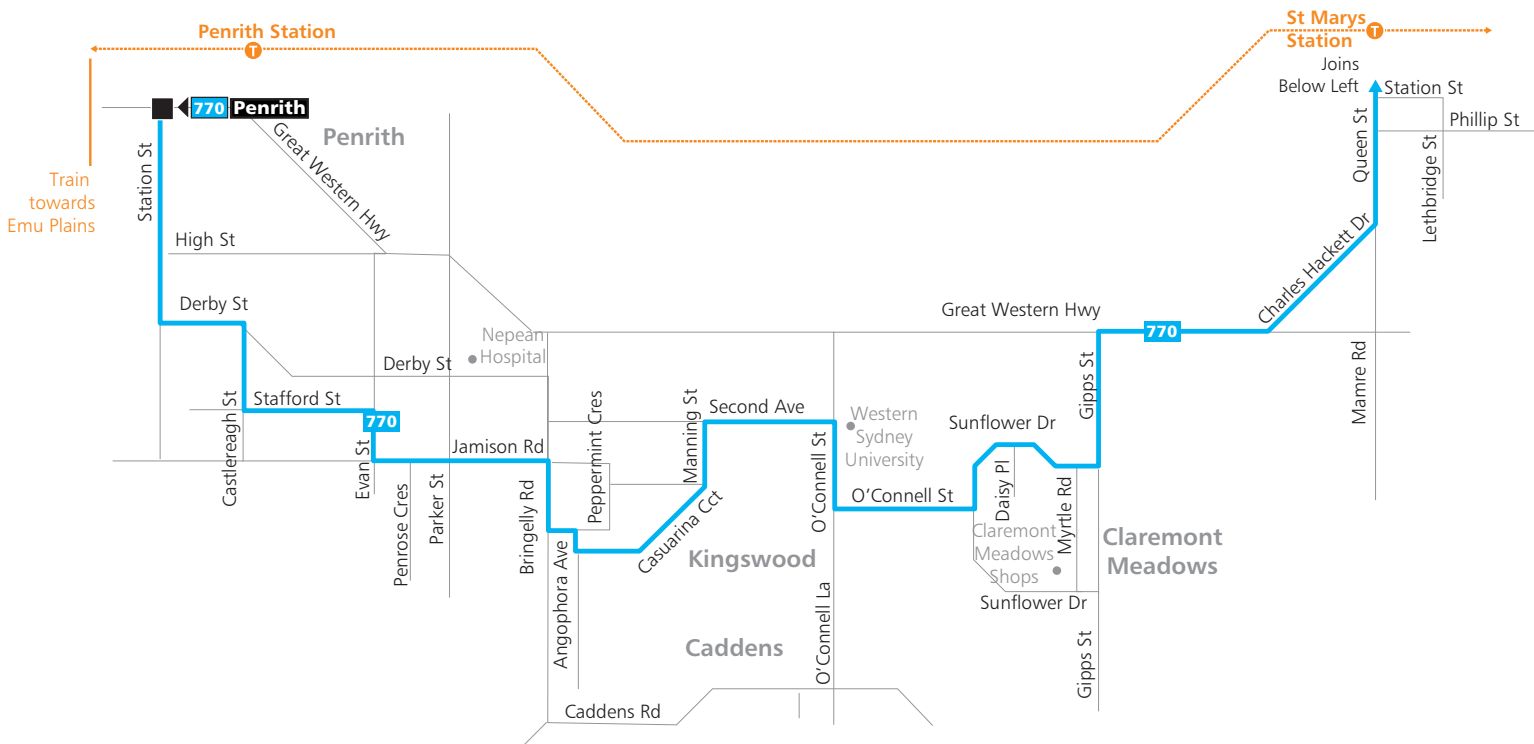
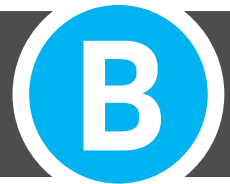
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Plotted and checked by	GroupGSA	Verified	RS	Approved	LMC
Drawing Created (date)	01.08.2025	Drawing Created (by)	RS	Scale	Project No
Drawing Created (by)	RS	Drawing No	SSDA 2051	Issue	A
Scale	1 : 250 @ A1	Project No	A252106	Drawing No	SSDA 2051

Appendix B

Transport Services

Route 770



Legend

- Bus route
- Bus route number
- Bus route start/finish
- Train line/station

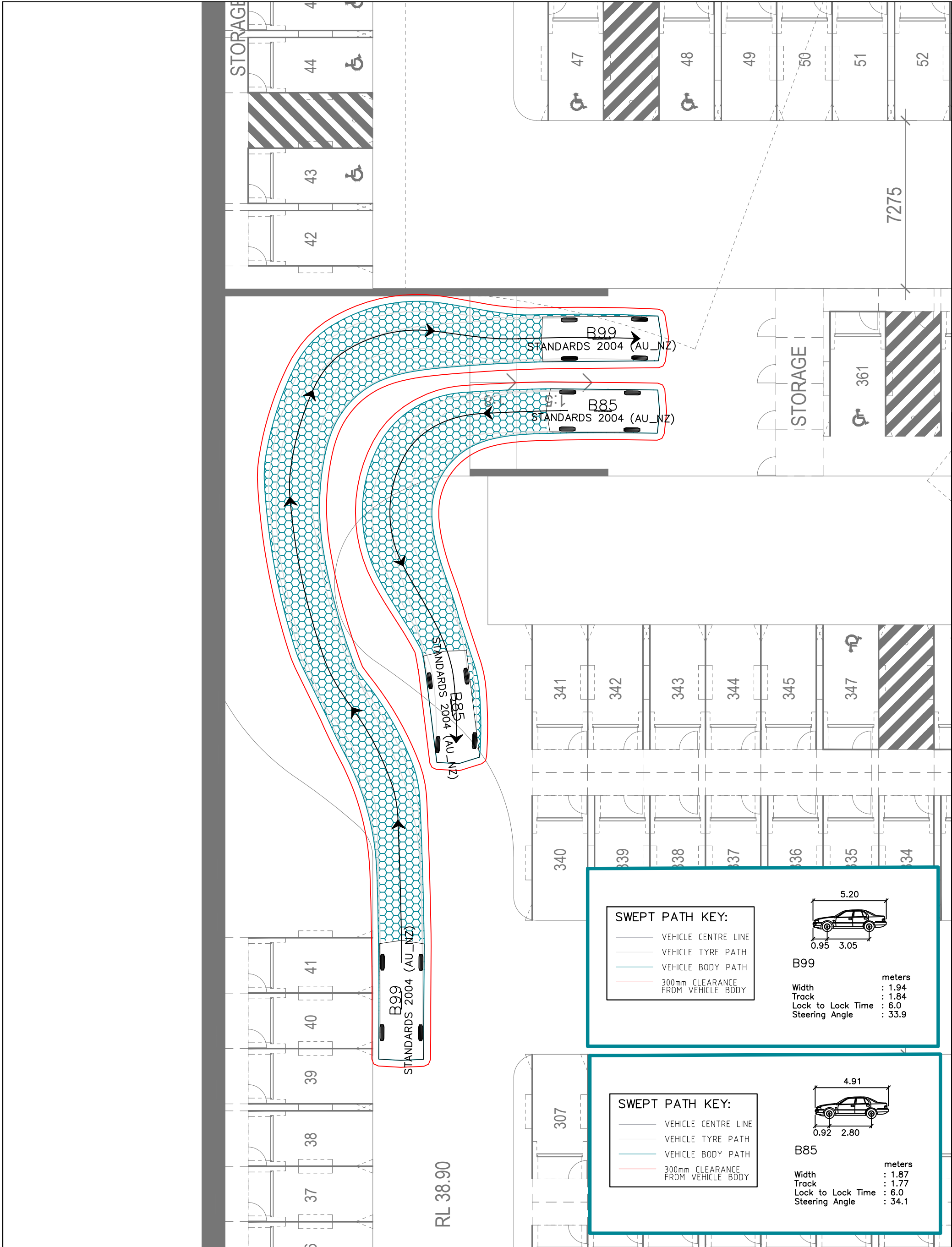
Diagrammatic Map
Not to Scale

APXP_SRM_WCAG_20231212

Appendix C

Swept Path Assessment

T:\WORK\22078 - O'CONNELL STREET, CADDENS\DRAWING\22078-V3.1-SP.dwg
Plotted by Grace



O'CONNELL STREET, CADDENS
PASSING MOVEMENT OF AN 85TH AND 99TH PERCENTILE VEHICLES
SWEPT PATH ASSESSMENT

DRAWING REF NO. 22078-V3.1-SP SHEET NO. 01 OF 30 ISSUE DATE 15 August 2025

DESIGNED BY G.HEYMAN

DISCLAIMER

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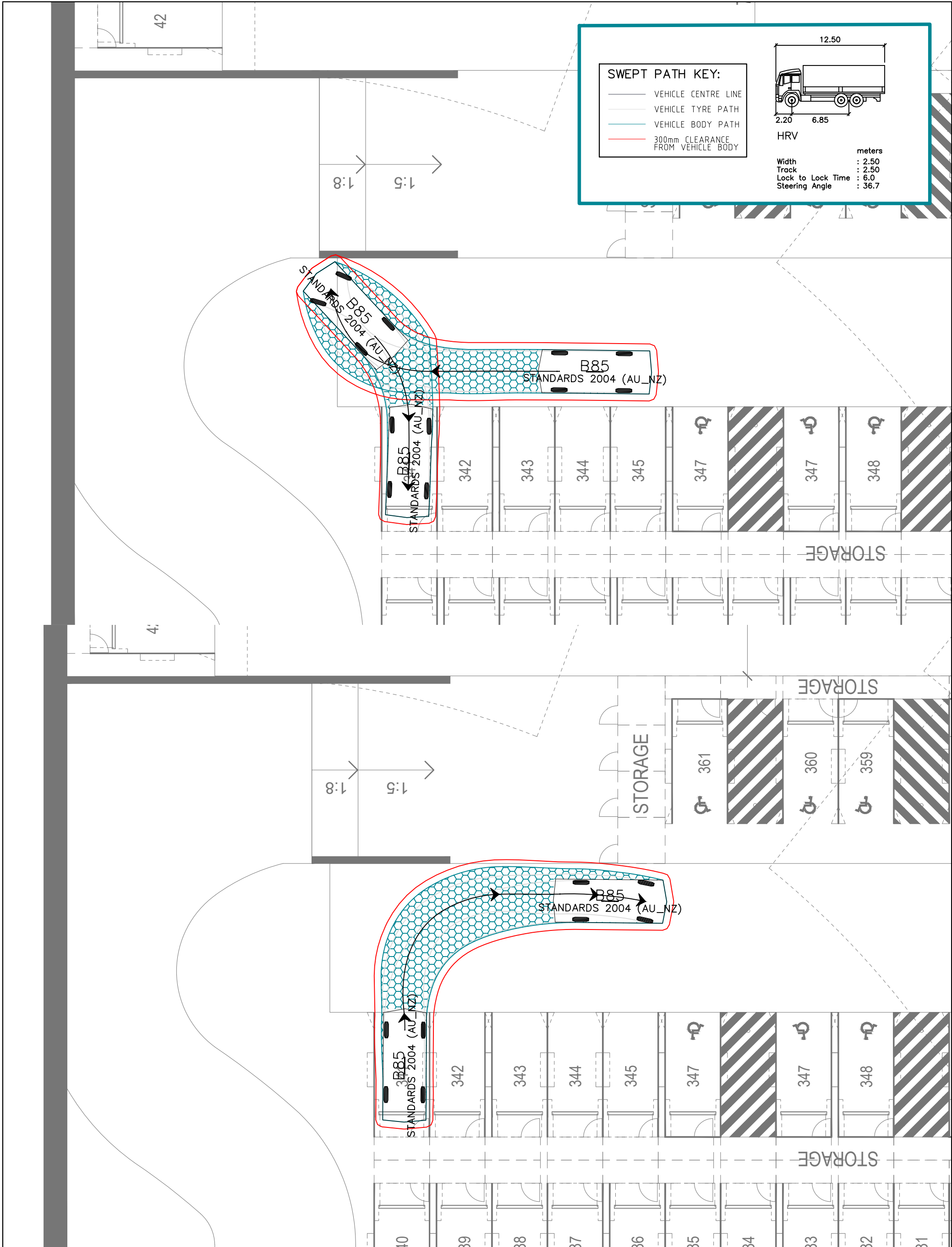
SCALE
A3
0 1.5 3.0
1:150



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T:\WORK\22078 - O'CONNELL STREET, CADDENS\DRAWING\22078-V3.1-SP.dwg
Plotted by Grace



O'CONNELL STREET, CADDENS
INGRESS AND EGRESS OF AN 85TH PERCENTILE VEHICLE
SWEPT PATH ASSESSMENT

DRAWING REF NO. 22078-V3.1-SP SHEET NO. 02 OF 30 ISSUE DATE 15 August 2025

DESIGNED BY G.HEYMAN

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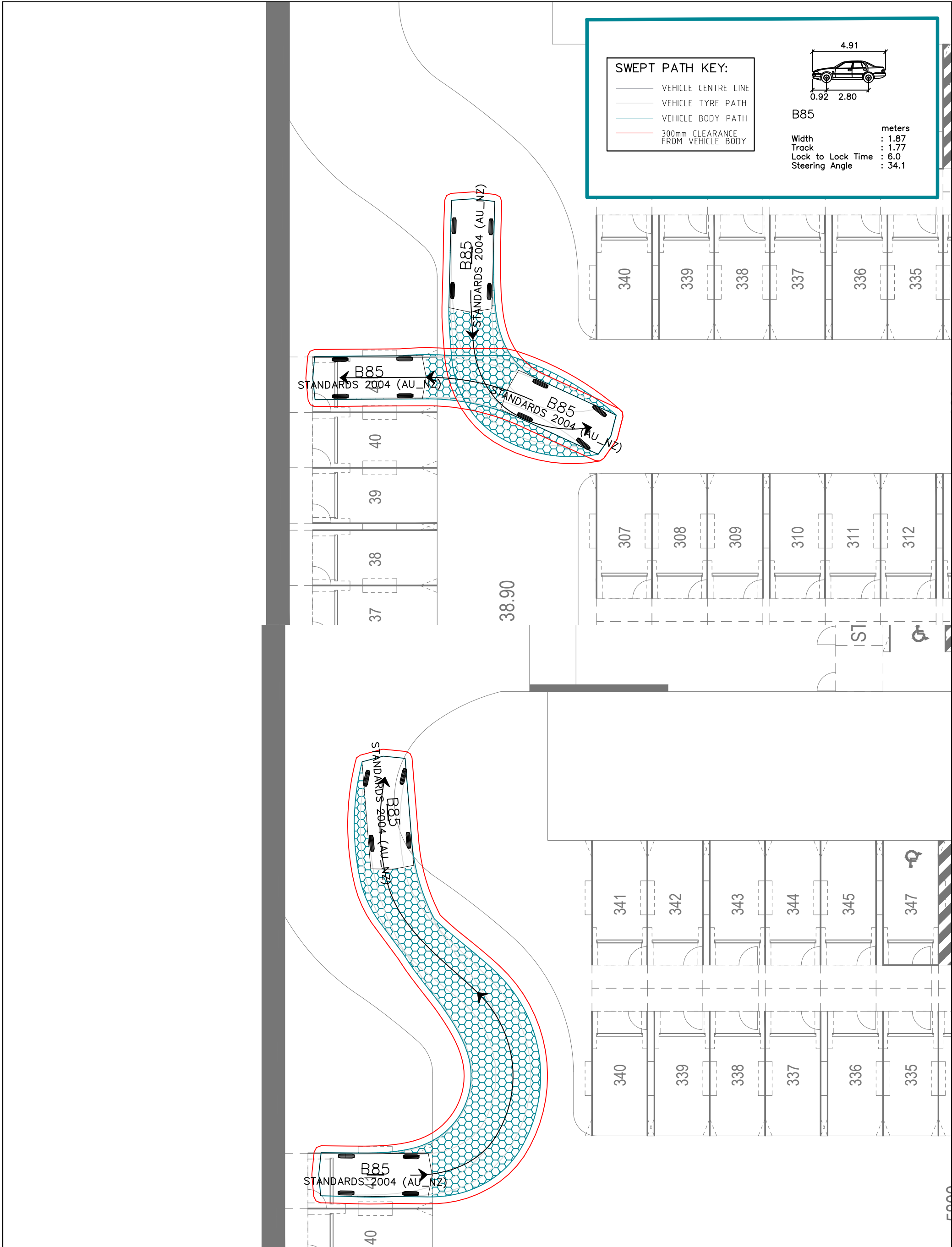
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1:150



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T:\WORK\22078 - O'CONNELL STREET, CADDENS\DRAWING\22078-V3.1-SP.dwg
Plotted by Grace



O'CONNELL STREET, CADDENS
MANEUVERABILITY OF A 12.5m HRV FOR K-N BASEMENT
SWEPT PATH ASSESSMENT

DRAWING REF NO. 22078-V3.1-SP SHEET NO. 03 OF 30 ISSUE DATE 15 August 2025

DESIGNED BY G.HEYMAN

DISCLAIMER

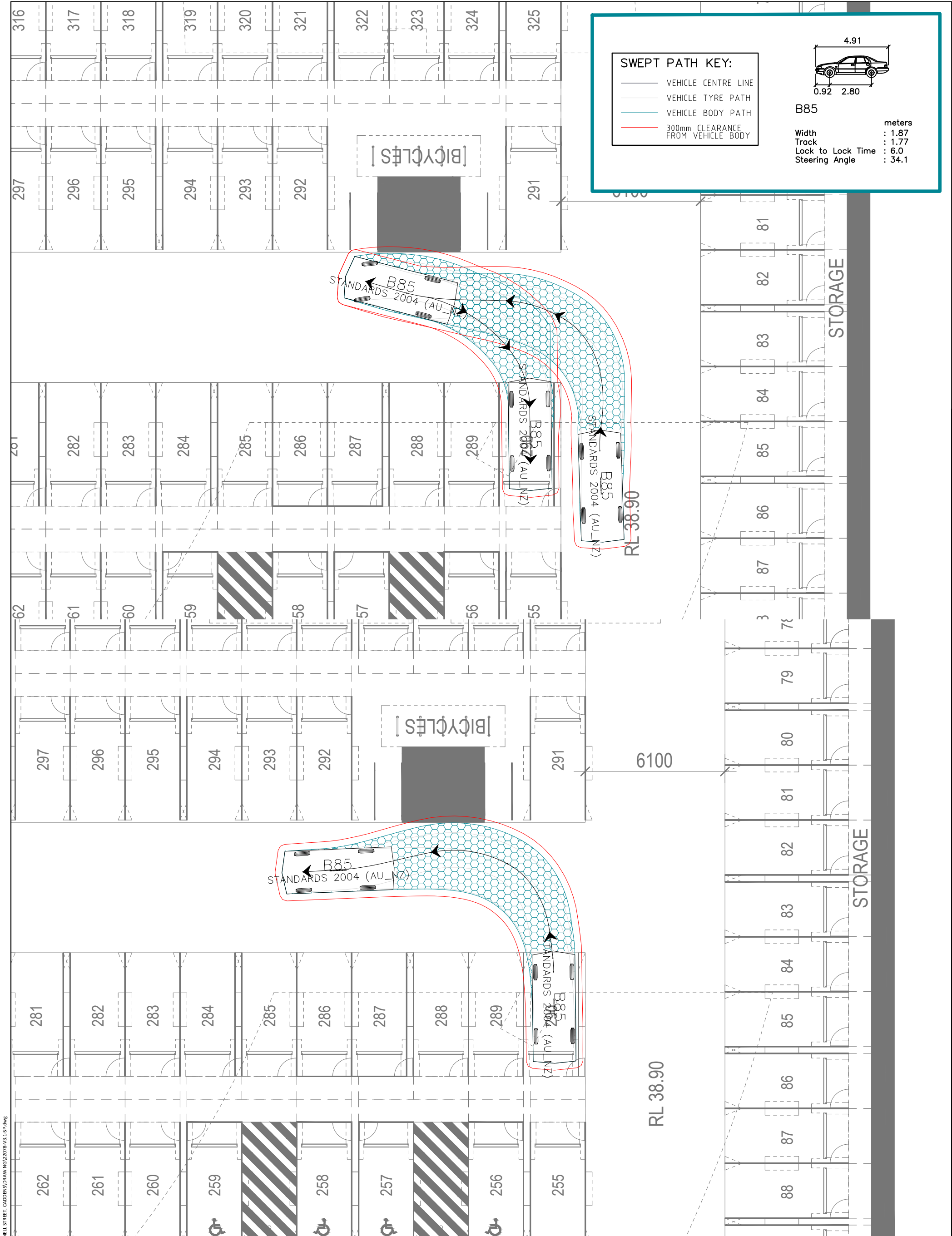
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SCALE
A3
0 1.5 3.0
1:150



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T:\WORK\22078 - O'CONNELL STREET, CADDENS\DRAWING\22078-V3.1-SP.dwg

Plotted by Grace

O'CONNELL STREET, CADDENS
MANEUVERABILITY OF A 12.5m HRV FOR K-N BASEMENT
SWEPT PATH ASSESSMENT

DRAWING REF NO. 22078-V3.1-SP

SHEET NO. 04 OF 30

ISSUE DATE 15 August 2025

DESIGNED BY G.HEYMAN

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SCALE
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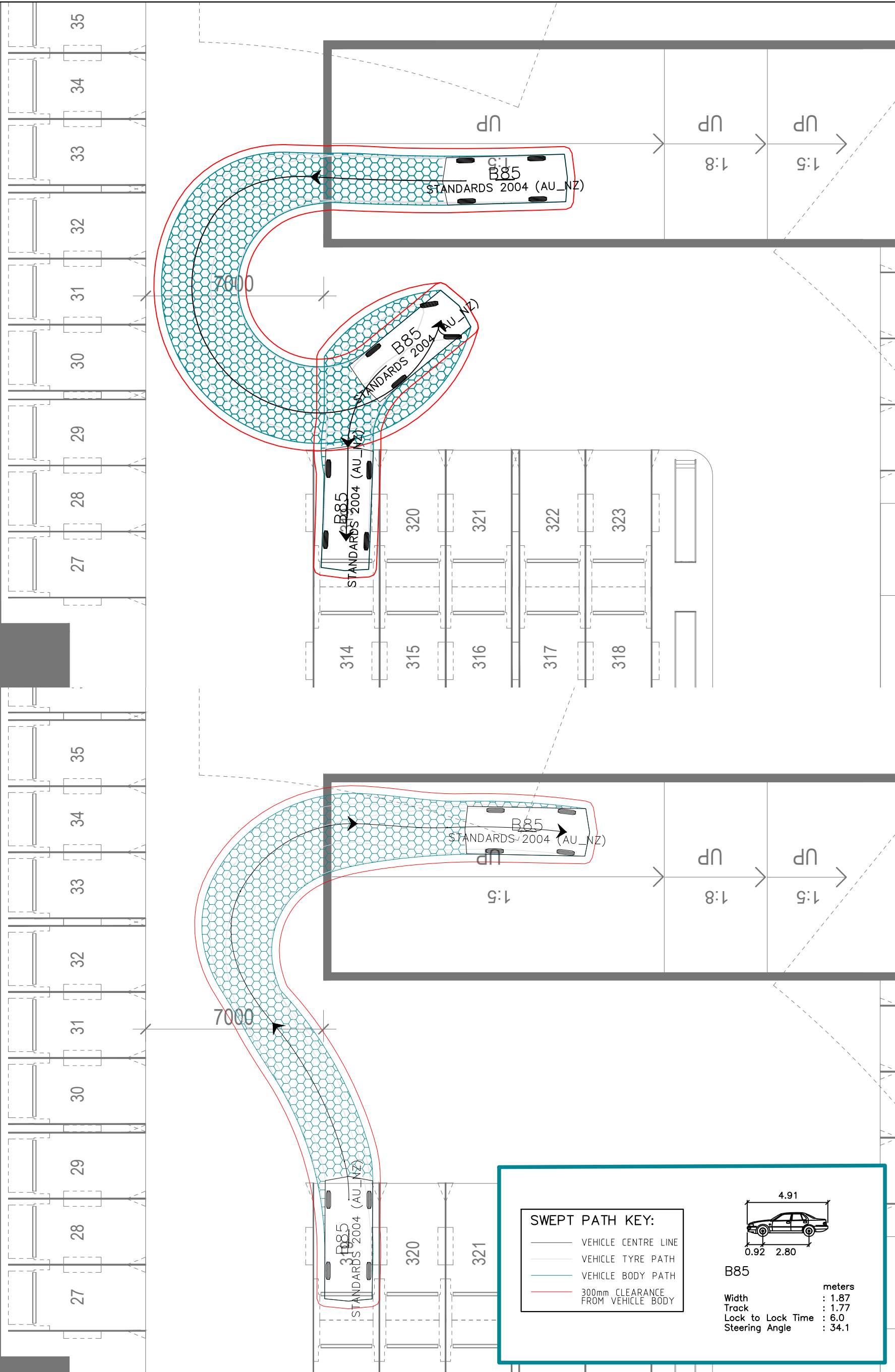


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T:\WORK\22078 - O'CONNELL STREET, CADDENS\DRAWING\22078-V3.1-SP.dwg

Plotted by Grace



O'CONNELL STREET, CADDENS
INGRESS AND EGRESS OF AN 85TH PERCENTILE VEHICLE
SWEPT PATH ASSESSMENT

DRAWING REF NO. 22078-V3.1-SP SHEET NO. 07 OF 30 ISSUE DATE 15 August 2025

DESIGNED BY G.HEYMAN

DISCLAIMER

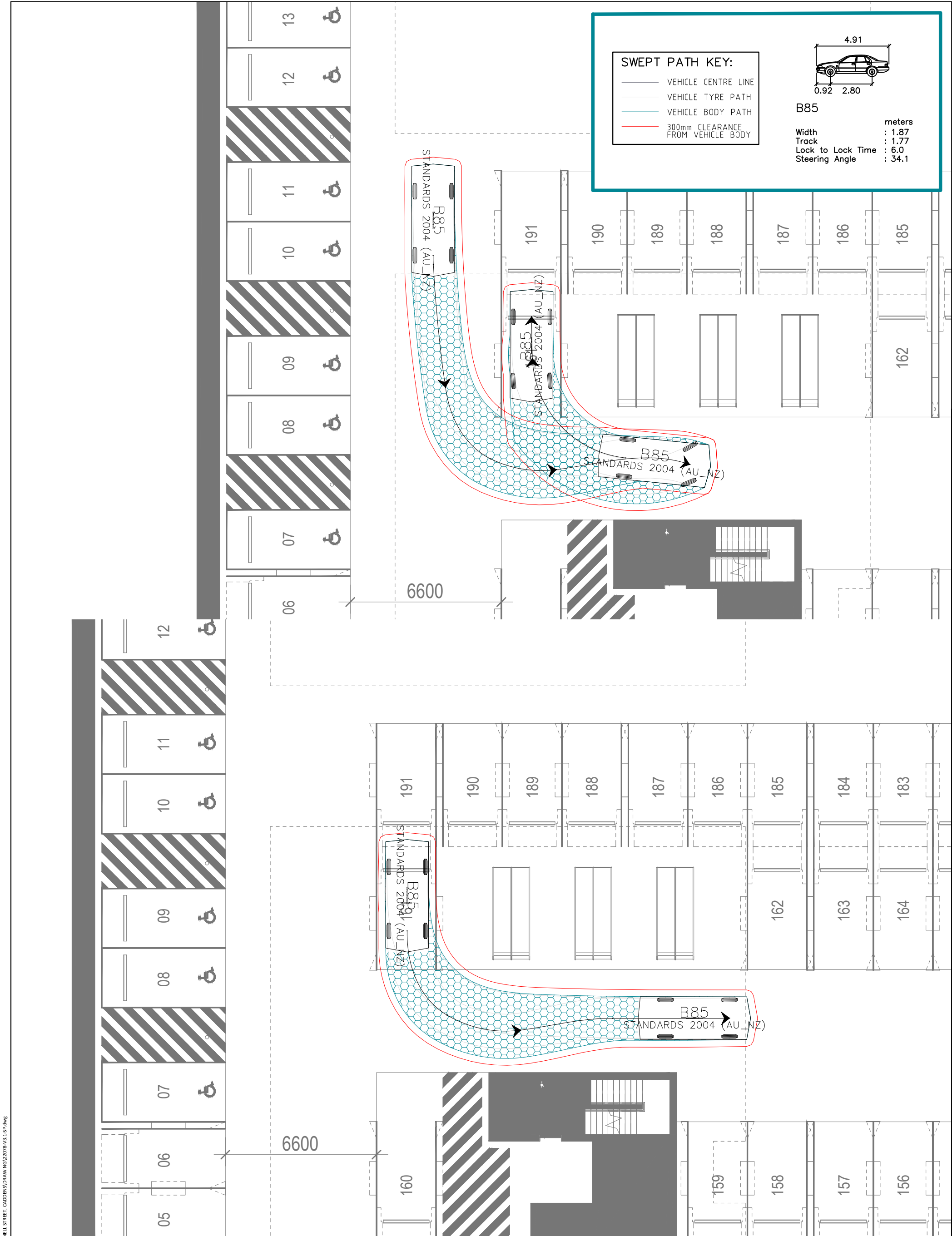
This drawing has been prepared using vehicle modelling computer software AutoTurn Pro V12.0 in conjunction with AutoCAD 2023. The vehicle used is based upon vehicle data provided by Austroads and incorporates a reasonable degree of tolerance. However, it is not possible to account for all vehicle types/characteristics and/or driver ability.

SCALE
A3
0 1.5 3.0
1:150



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O'CONNELL STREET, CADDENS
INGRESS AND EGRESS OF AN 85TH PERCENTILE VEHICLE
SWEPT PATH ASSESSMENT

DRAWING REF NO. 22078-V3.1-SP SHEET NO. 09 OF 30 ISSUE DATE 15 August 2025

DESIGNED BY G.HEYMAN

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SCALE
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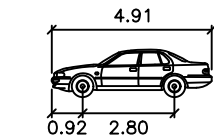
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T:\WORK\22\2078 - O'CONNELL STREET, CADDENS\DRAWING\22078-V3.1-SP.dwg
Plotted by Grace



SWEPT PATH KEY:

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



B85

Width : 1.87 meters
Track : 1.77
Lock to Lock Time : 6.0
Steering Angle : 34.1

O'CONNELL STREET, CADDENS
INGRESS AND EGRESS OF AN 85TH PERCENTILE VEHICLE
SWEPT PATH ASSESSMENT

DRAWING REF NO. 22078-V3.1-SP

SHEET NO. 10 OF 30

ISSUE DATE 15 August 2025

DESIGNED BY G.HEYMAN

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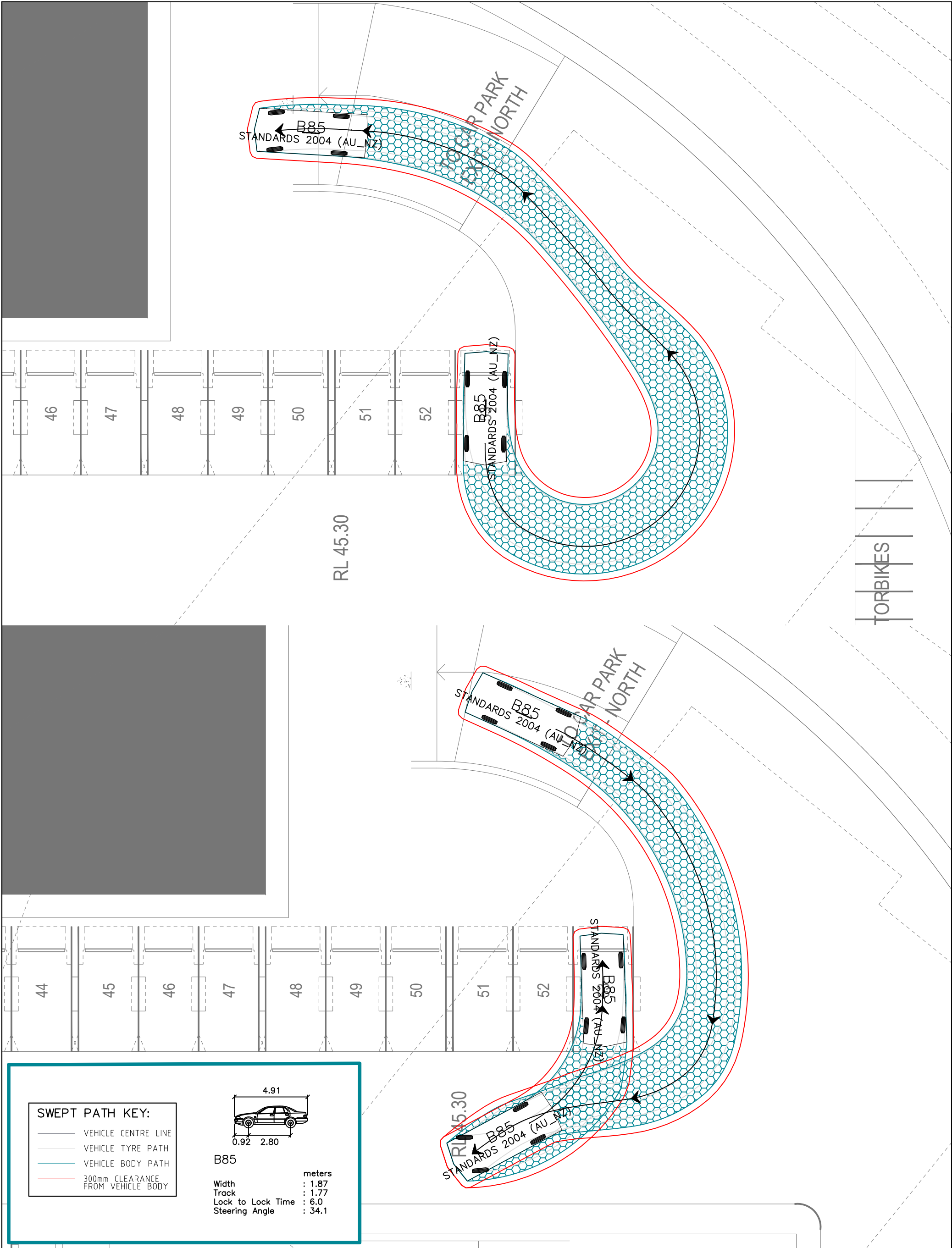
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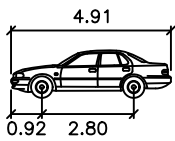
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SWEPT PATH KEY:

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



B85

Width : 1.87
Track : 1.77
Lock to Lock Time : 6.0
Steering Angle : 34.1

meters

O'CONNELL STREET, CADDENS
INGRESS AND EGRESS OF AN 85TH PERCENTILE VEHICLE
SWEPT PATH ASSESSMENT

DRAWING REF NO. 22078-V3.1-SP

SHEET NO. 11 OF 30

ISSUE DATE 15 August 2025

DESIGNED BY G.HEYMAN

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SCALE
A3
0 1.5 3.0
1:150



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Plotted by Grace

O'CONNELL STREET, CADDENS
INGRESS AND EGRESS OF AN 85TH PERCENTILE VEHICLE
SWEEP PATH ASSESSMENT

DRAWING REF NO.22078-V3.1-SP

SHEET NO. 12 OF 30

ISSUE DATE 15 August 2025

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SCALE
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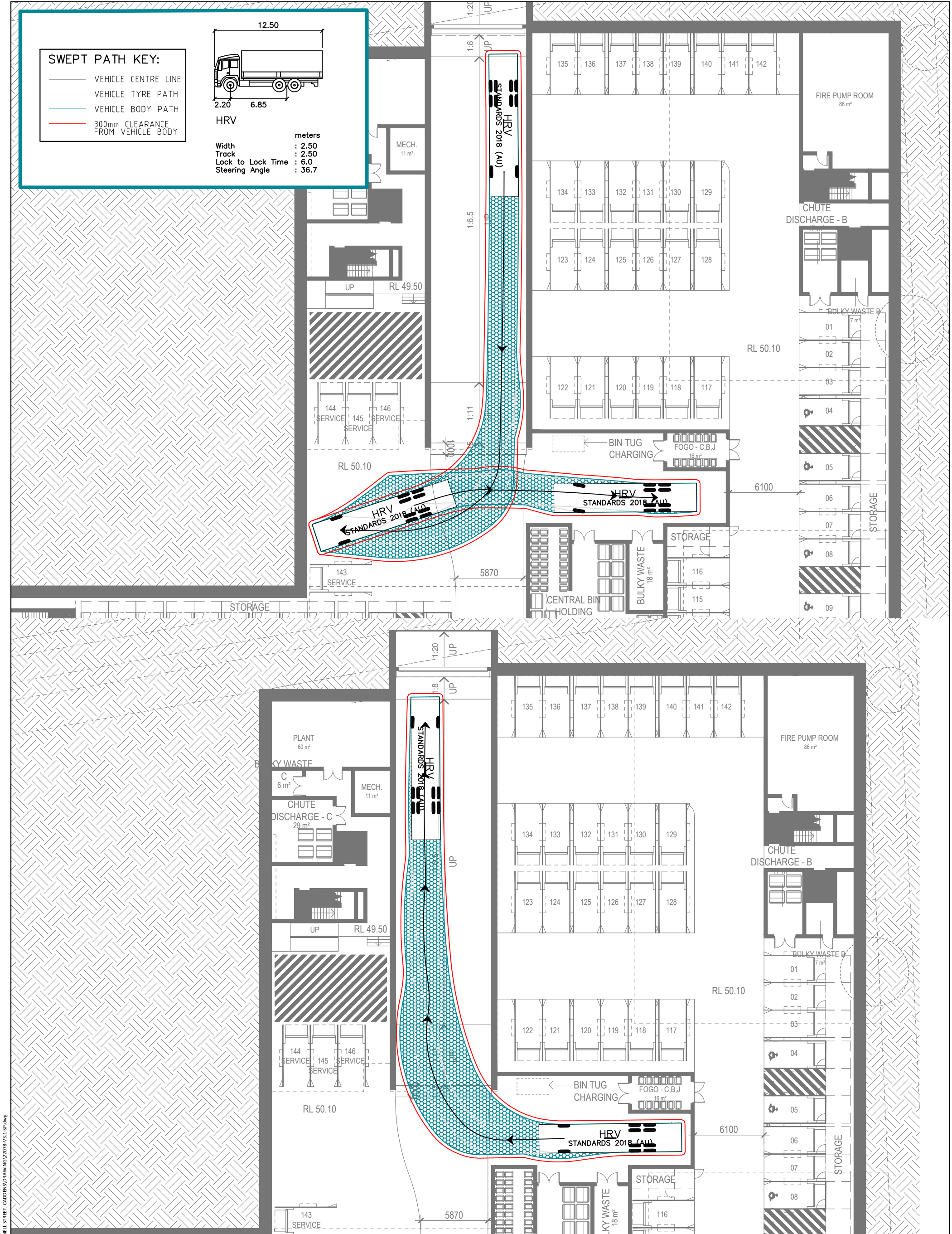


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Plotted by Grace

O'CONNELL STREET, CADDENS
INGRESS AND EGRESS OF A 12.5m HRV
SWEPT PATH ASSESSMENT

DRAWING REF NO. 22078-V3.1-SP SHEET NO. 14 OF 30 ISSUE DATE 15 August 2025

DESIGNED BY G. HEYMAN

DISCLAIMER

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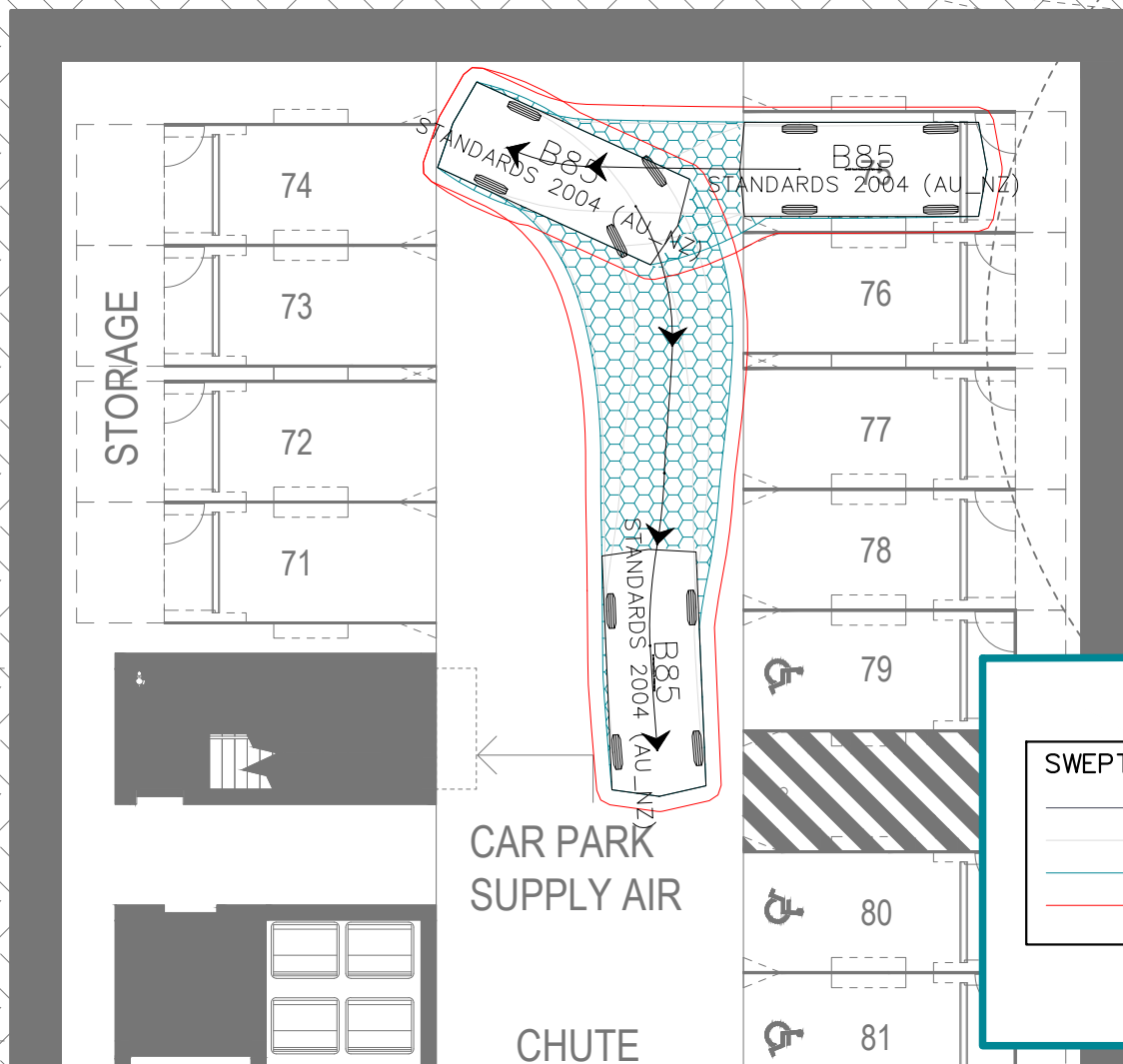
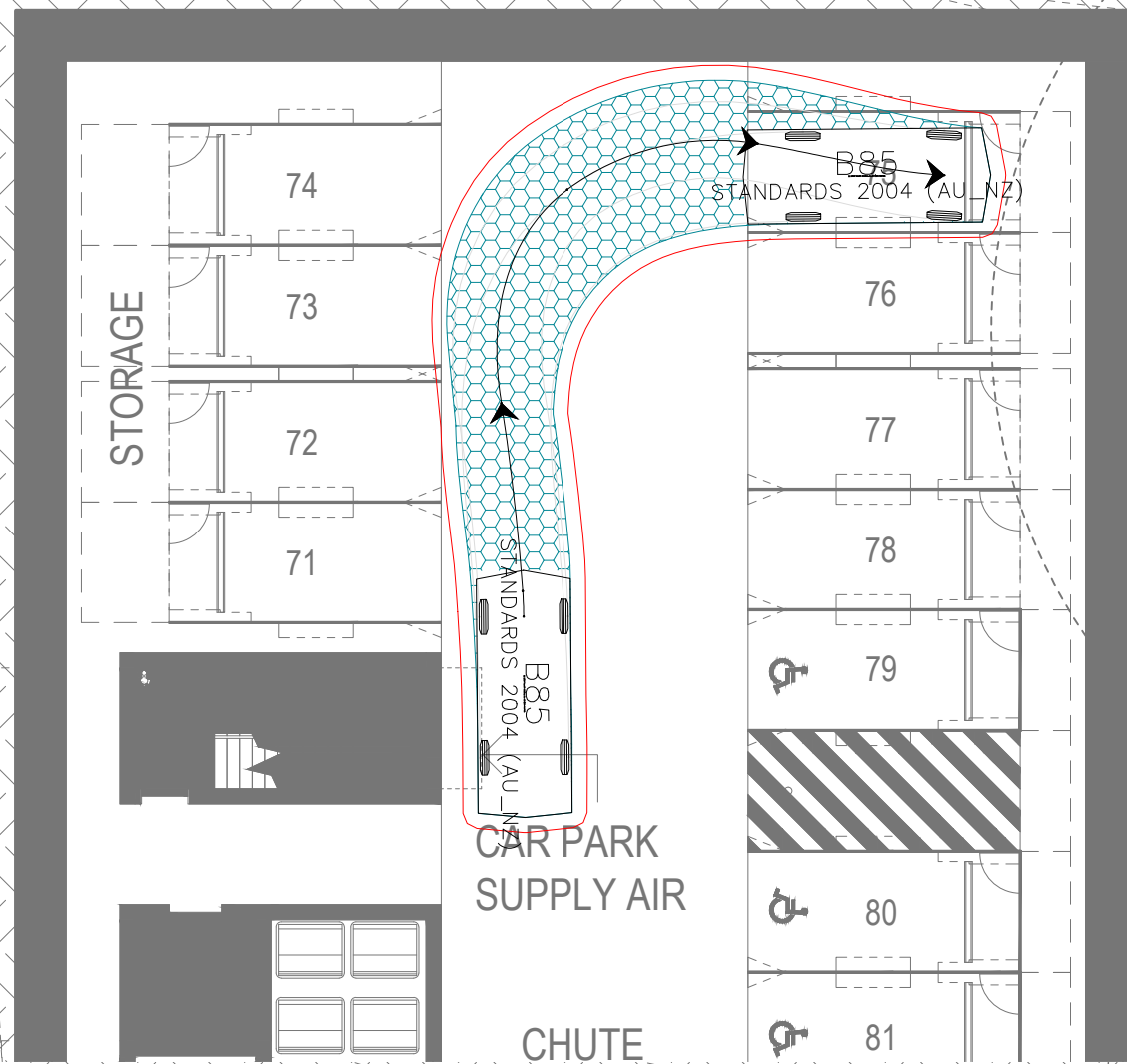


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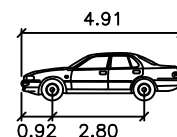
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Plotted by Grace



SWEPT PATH KEY:

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



B85

	parameters	values
Width	metres	: 1.87
Track		: 1.77
Lock to Lock Time		: 6.0
Steering Angle		: 34.1

O'CONNELL STREET, CADDENS
INGRESS AND EGRESS OF AN 85TH PERCENTILE VEHICLE
SWEPT PATH ASSESSMENT

DRAWING REF NO. 22078-V3.1-SP

SHEET NO. 15 OF 30

ISSUE DATE 15 August 2025

DESIGNED BY G.HEYMAN

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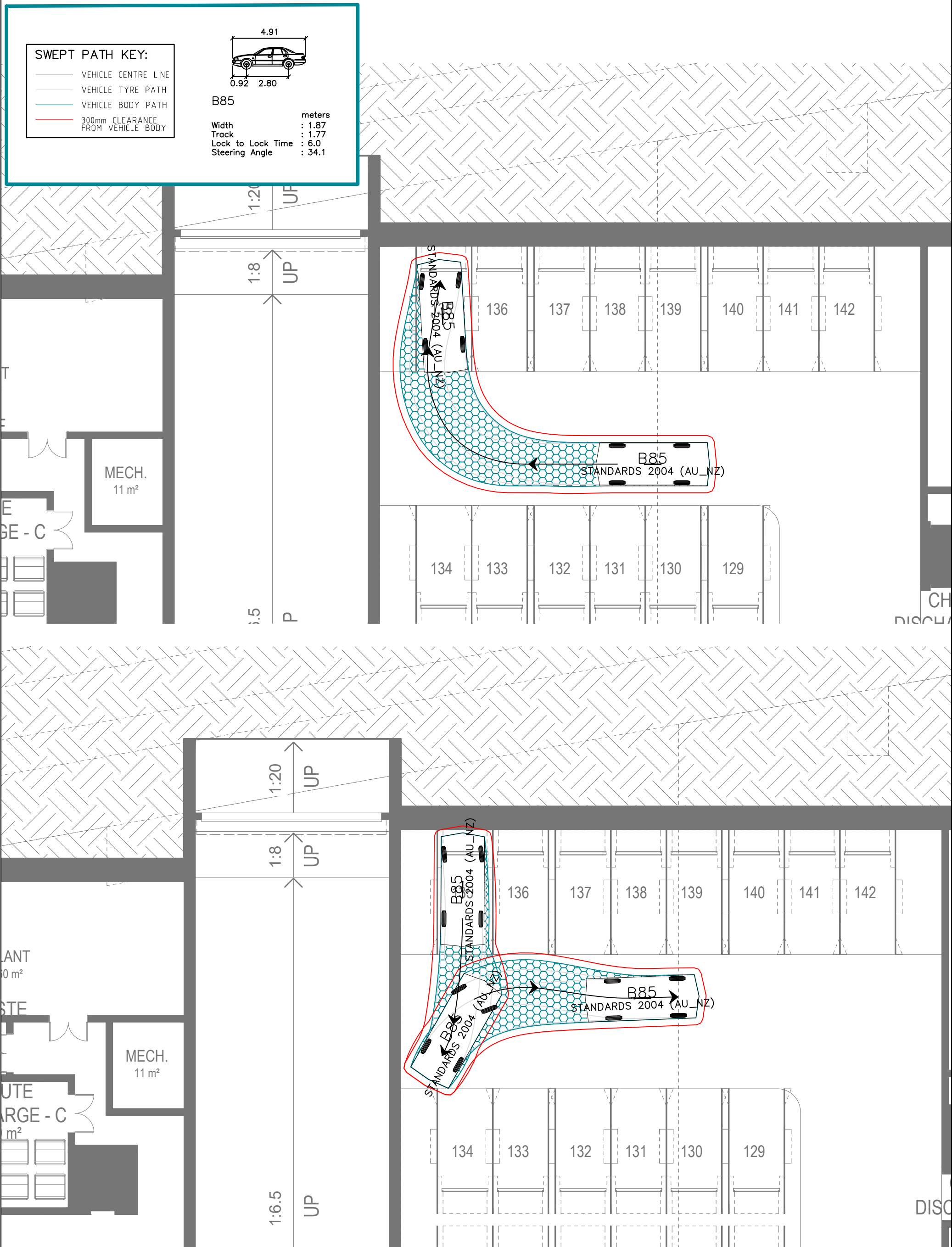
SCALE
A3
0 1.5 3.0
1:150



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O'CONNELL STREET, CADDENS
INGRESS AND EGRESS OF AN 85TH PERCENTILE VEHICLE
SWEPT PATH ASSESSMENT

DRAWING REF NO. 22078-V3.1-SP SHEET NO. 16 OF 30 ISSUE DATE 15 August 2025

DESIGNED BY G. HEYMAN

DISCLAIMER

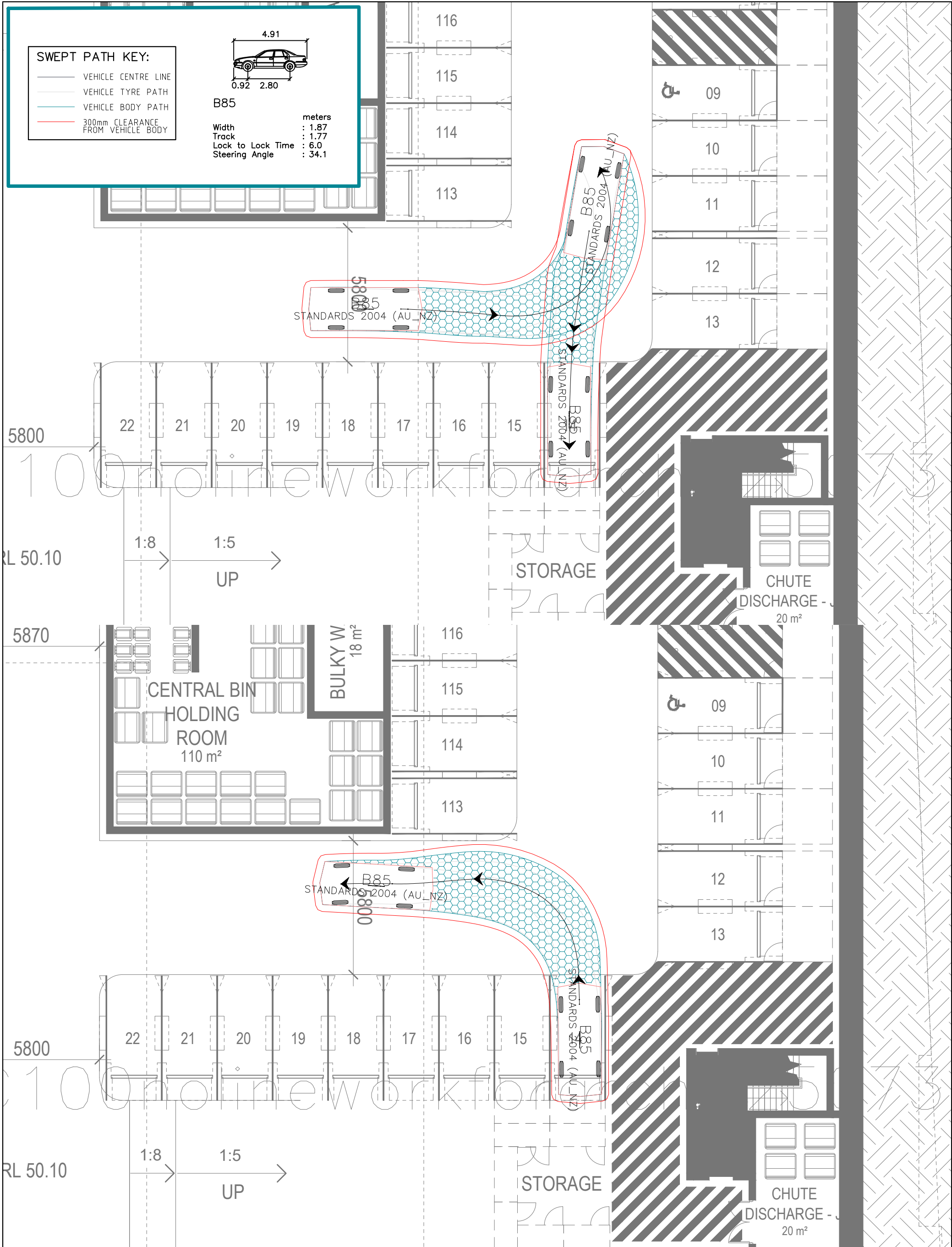
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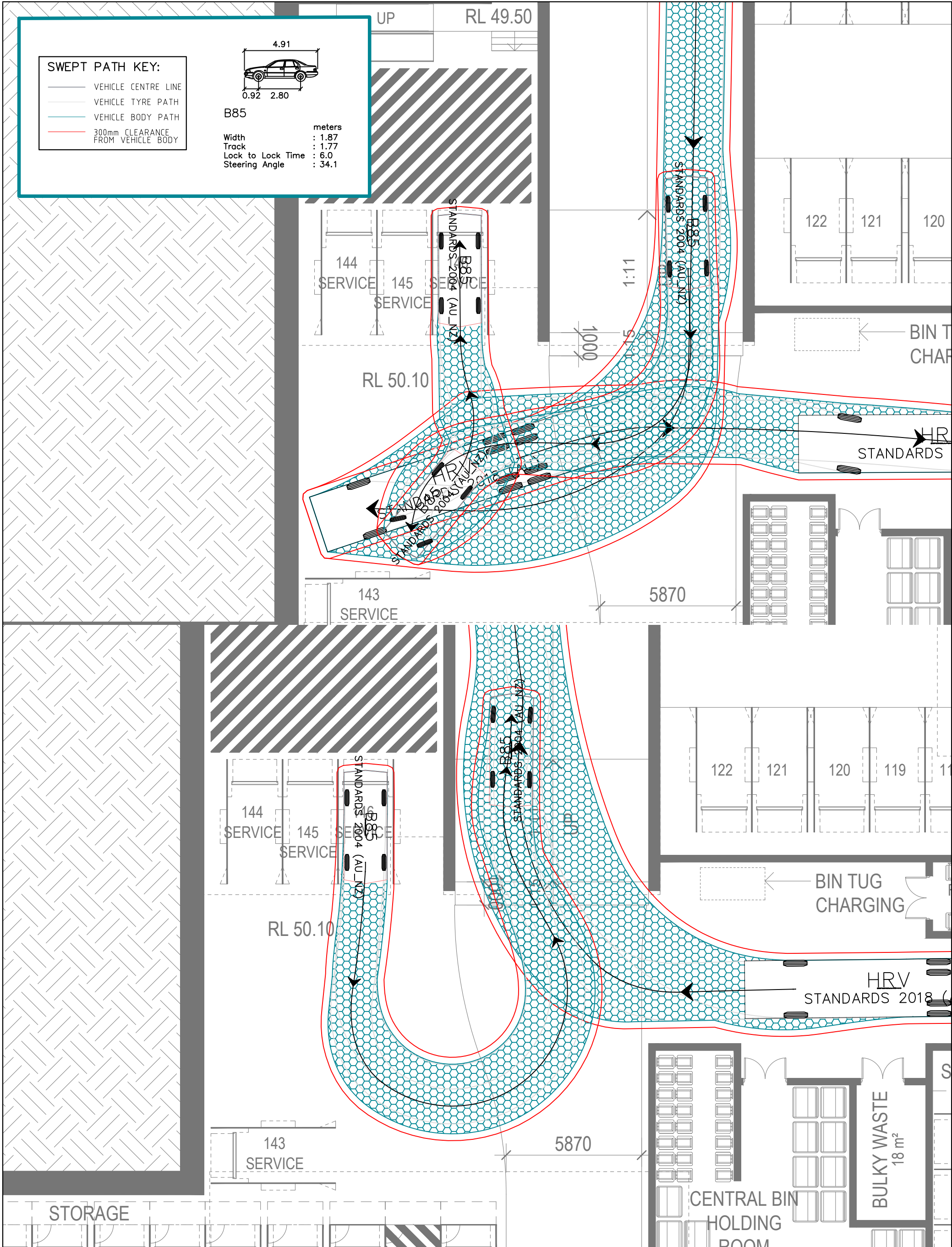
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O'CONNELL STREET, CADDENS
INGRESS AND EGRESS OF AN 85TH PERCENTILE VEHICLE
SWEPT PATH ASSESSMENT

DRAWING REF NO. 22078-V3.1-SP SHEET NO. 19 OF 30 ISSUE DATE 15 August 2025

DESIGNED BY G.HEYMAN

DISCLAIMER

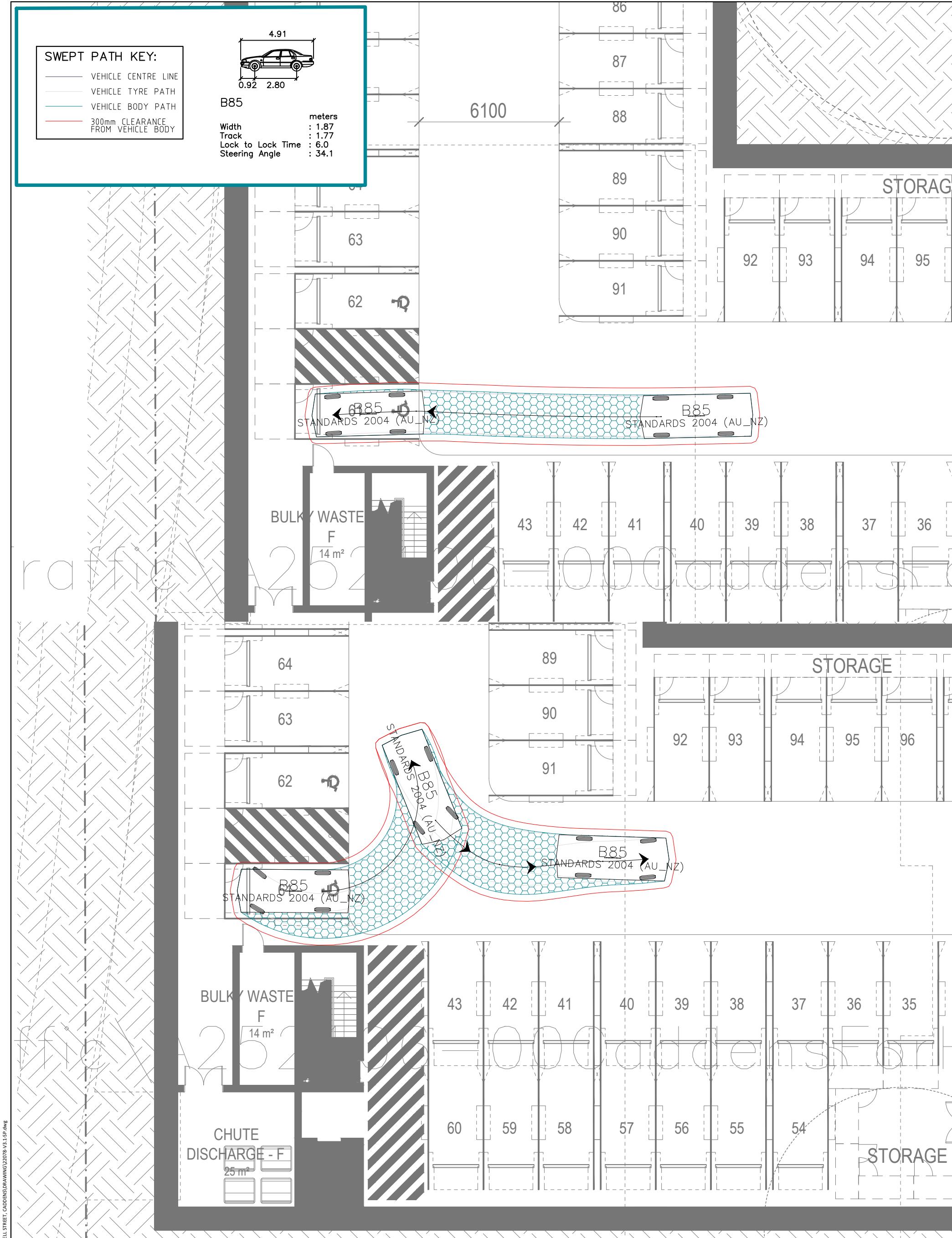
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SCALE 0 1.5 3.0 1:150



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SWEPT PATH KEY:

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

B85

Width : 1.87
Track : 1.77
Lock to Lock Time : 6.0
Steering Angle : 34.1

meters

O'CONNELL STREET, CADDENS
INGRESS AND EGRESS OF AN 85TH PERCENTILE VEHICLE
SWEPT PATH ASSESSMENT

DRAWING REF NO. 22078-V3.1-SP SHEET NO. 20 OF 30 ISSUE DATE 15 August 2025

DESIGNED BY G.HEYMAN

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SCALE 0 1.5 3.0 1:150



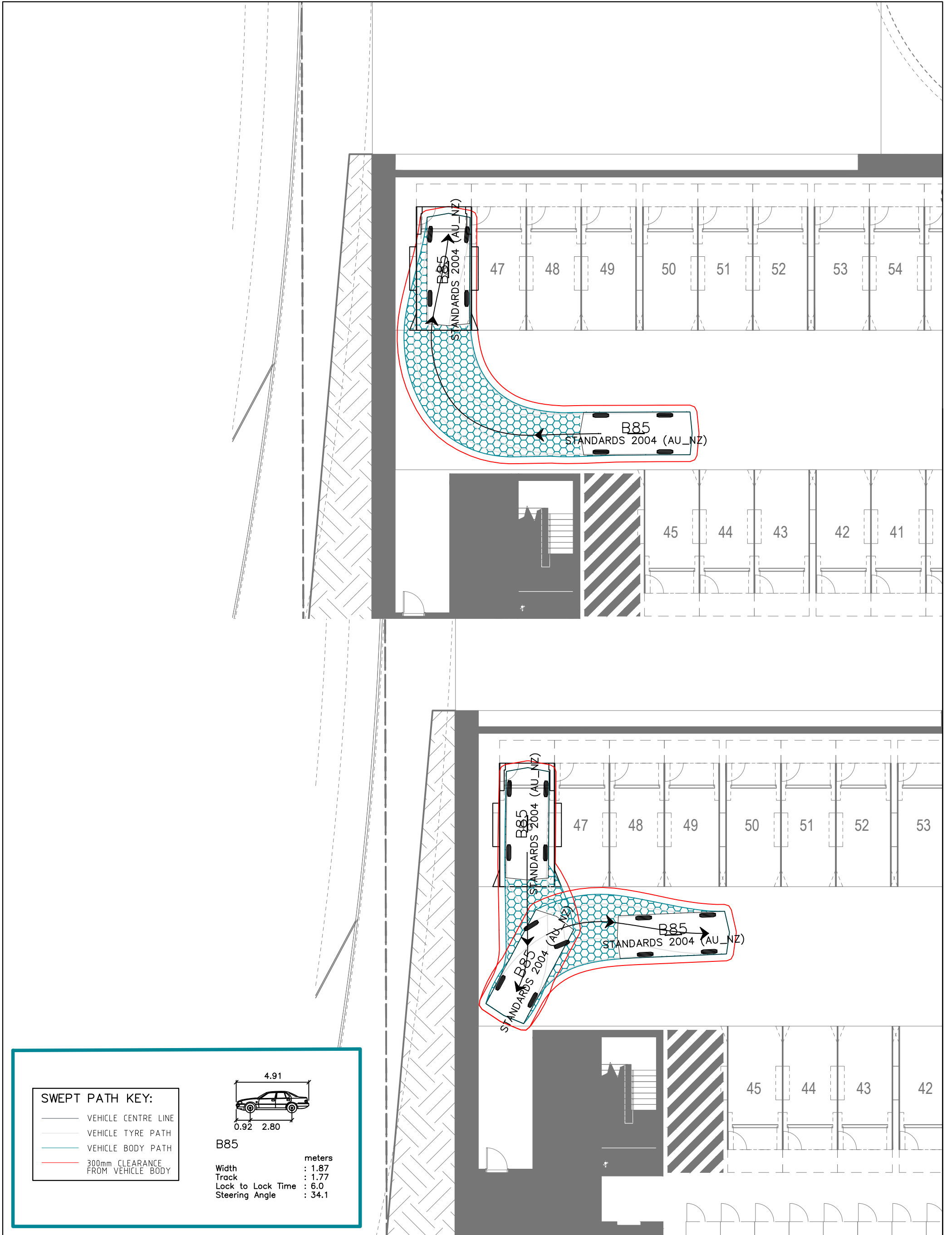
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T:\WORK\22078 - O'CONNELL STREET, CADDENS\DRAWING\22078-V3.1-SP.dwg

Plotted by Grace



O'CONNELL STREET, CADDENS
INGRESS AND EGRESS OF AN 85TH PERCENTILE VEHICLE
SWEPT PATH ASSESSMENT

DRAWING REF NO. 22078-V3.1-SP

SHEET NO. 23 OF 30

ISSUE DATE 15 August 2025

DESIGNED BY G.HEYMAN

DISCLAIMER

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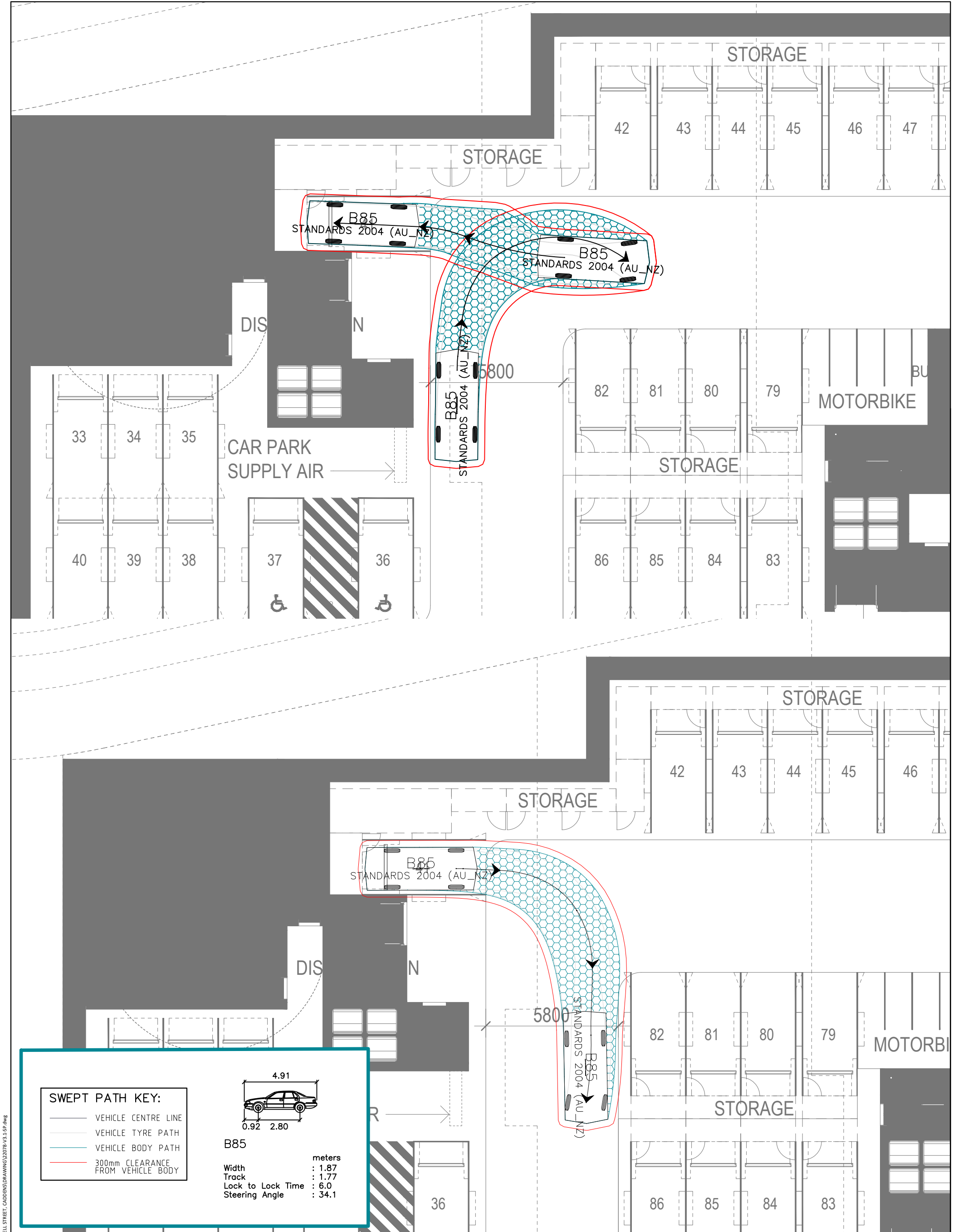
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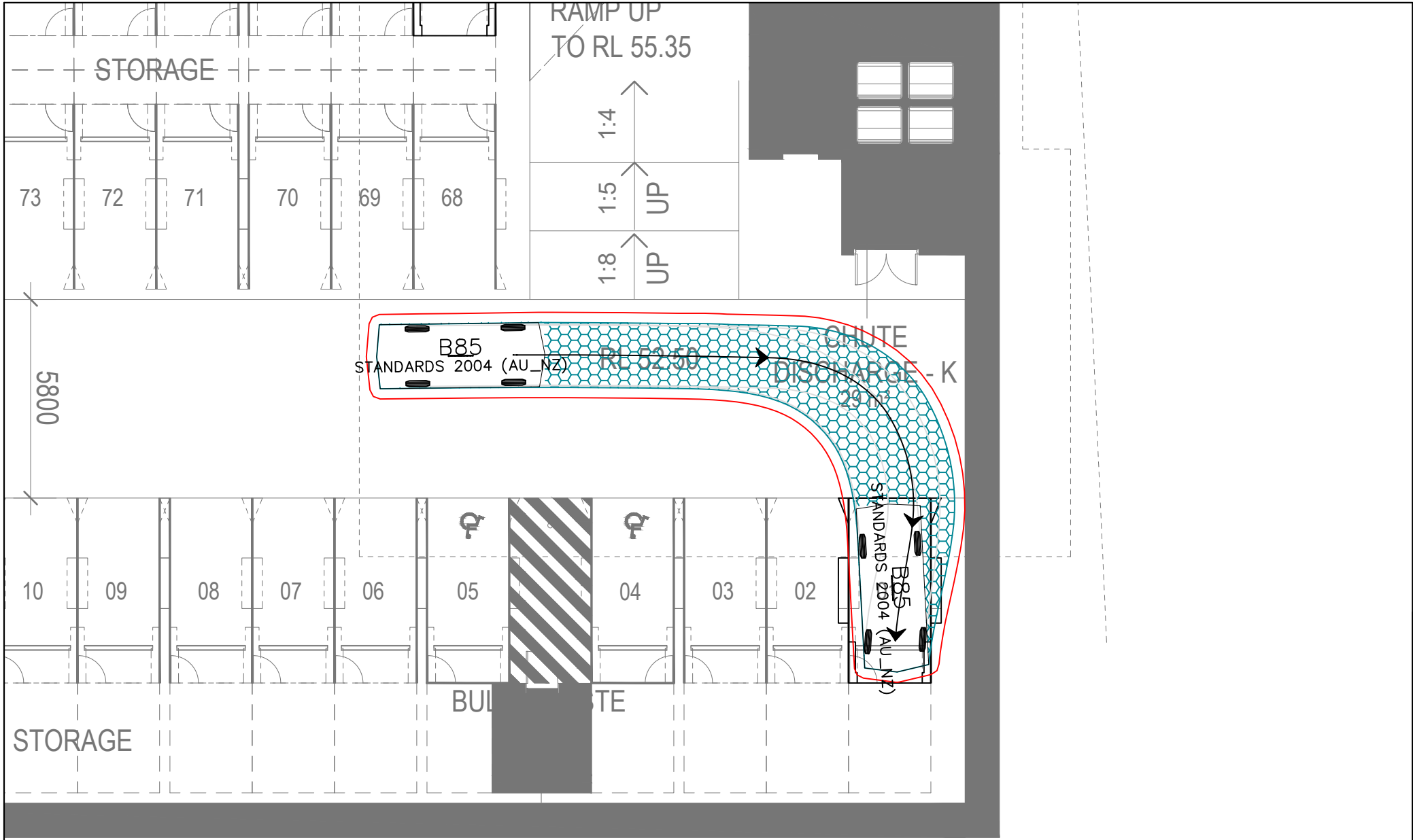


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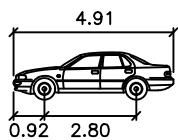
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SWEPT PATH KEY:

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



B85

Width : 1.87 meters
Track : 1.77
Lock to Lock Time : 6.0
Steering Angle : 34.1

O'CONNELL STREET, CADDENS
INGRESS AND EGRESS OF AN 85TH PERCENTILE VEHICLE
SWEPT PATH ASSESSMENT

DRAWING REF NO. 22078-V3.1-SP

SHEET NO. 25 OF 30

ISSUE DATE 15 August 2025

DESIGNED BY G.HEYMAN

DISCLAIMER

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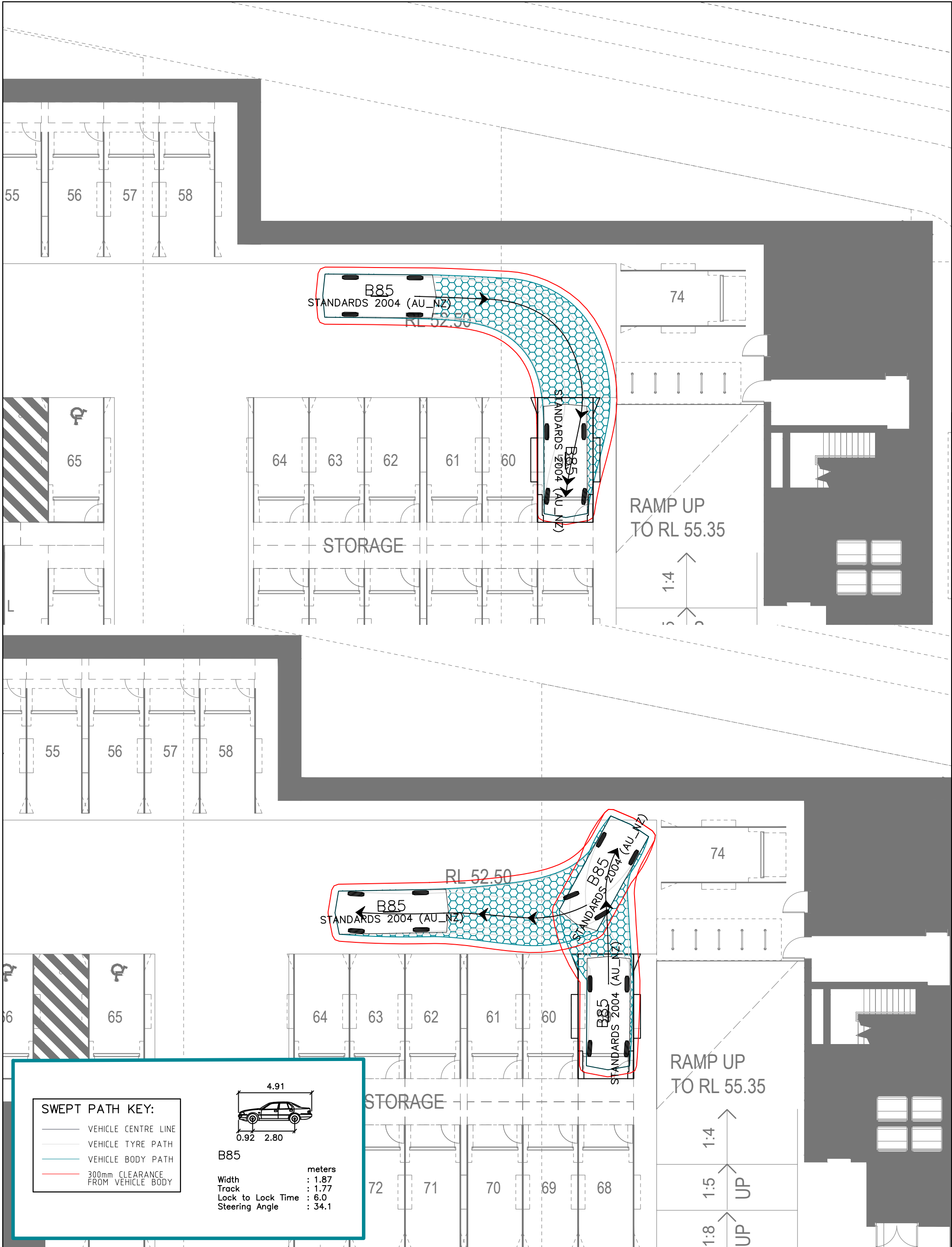
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O'CONNELL STREET, CADDENS
INGRESS AND EGRESS OF AN 85TH PERCENTILE VEHICLE
SWEPT PATH ASSESSMENT

DRAWING REF NO. 22078-V3.1-SP SHEET NO. 26 OF 30 ISSUE DATE 15 August 2025

DESIGNED BY G.HEYMAN

DISCLAIMER

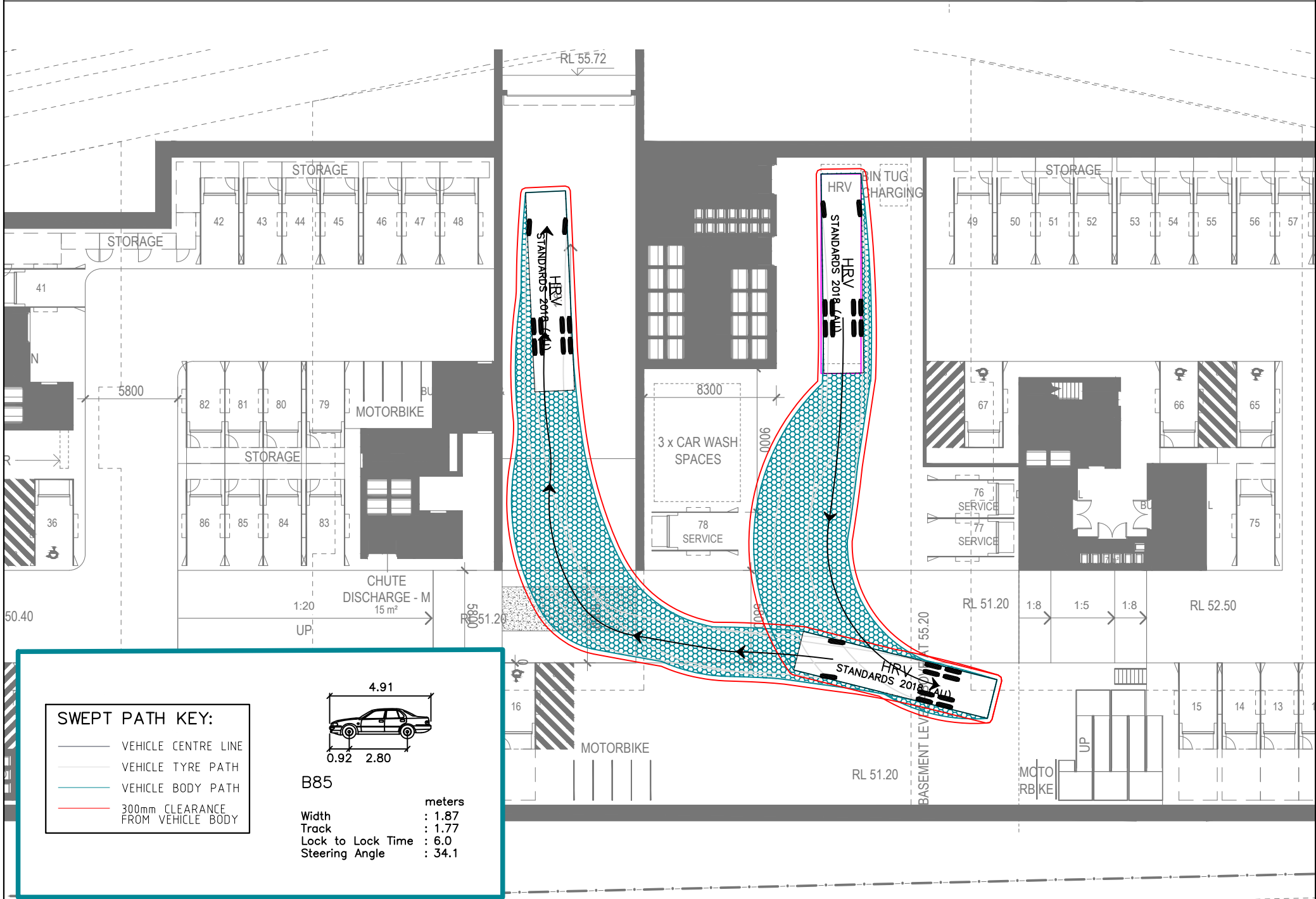
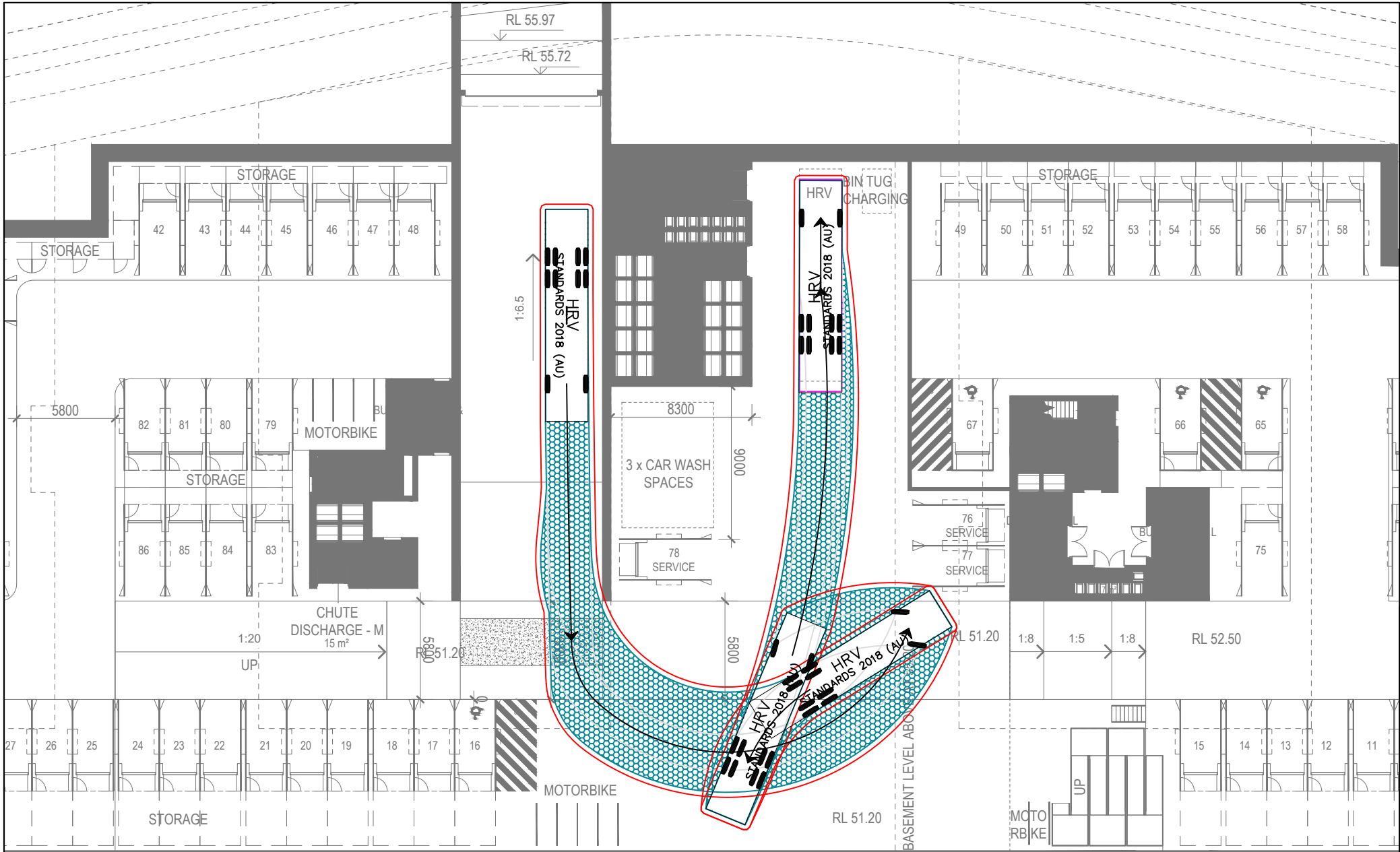
This drawing has been prepared using vehicle modelling computer software AutoTurn Pro V12.0 in conjunction with AutoCAD 2023. The vehicle used is based upon vehicle data provided by Austroads and incorporates a reasonable degree of tolerance. However, it is not possible to account for all vehicle types/characteristics and/or driver ability.

SCALE
A3
0 1.5 3.0
1:150



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O'CONNELL STREET, CADDENS
INGRESS AND EGRESS OF AN 85TH PERCENTILE VEHICLE
SWEPT PATH ASSESSMENT

DRAWING REF NO. 22078-V3.1-SP SHEET NO. 27 OF 30 ISSUE DATE 15 August 2025

DESIGNED BY G.HEYMAN

DISCLAIMER

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SCALE 0 3.0 6.0 1:300



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O'CONNELL STREET, CADDENS
INGRESS AND EGRESS OF AN 85TH PERCENTILE VEHICLE
SWEPT PATH ASSESSMENT

DRAWING REF NO. 22078-V3.1-SP SHEET NO. 28 OF 30 ISSUE DATE 15 August 2025

DESIGNED BY G.HEYMAN

DISCLAIMER

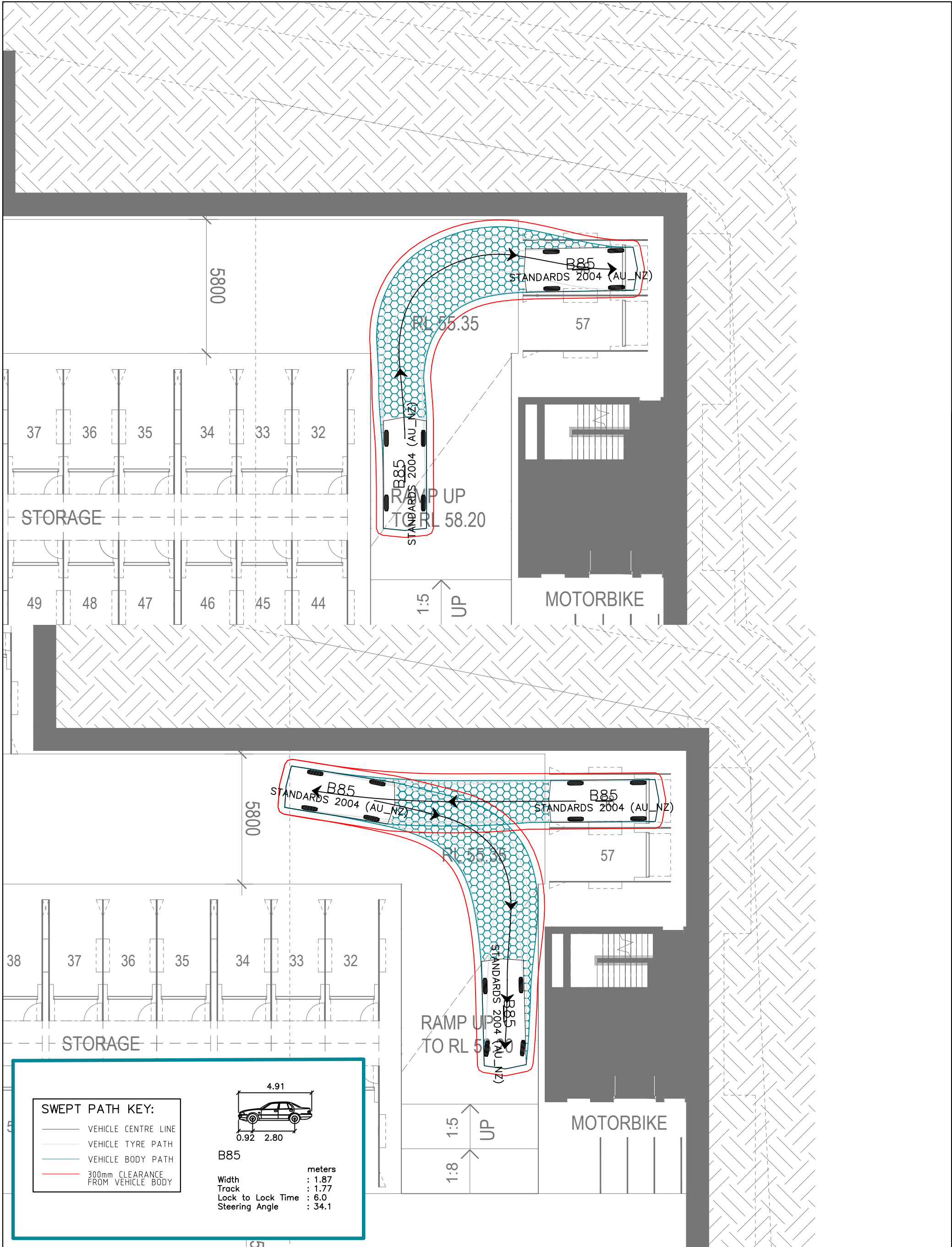
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SCALE A3 0 1.5 3.0 1:150



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O'CONNELL STREET, CADDENS
INGRESS AND EGRESS OF AN 85TH PERCENTILE VEHICLE
SWEPT PATH ASSESSMENT

DRAWING REF NO. 22078-V3.1-SP SHEET NO. 29 OF 30 ISSUE DATE 15 August 2025

DESIGNED BY G.HEYMAN

DISCLAIMER

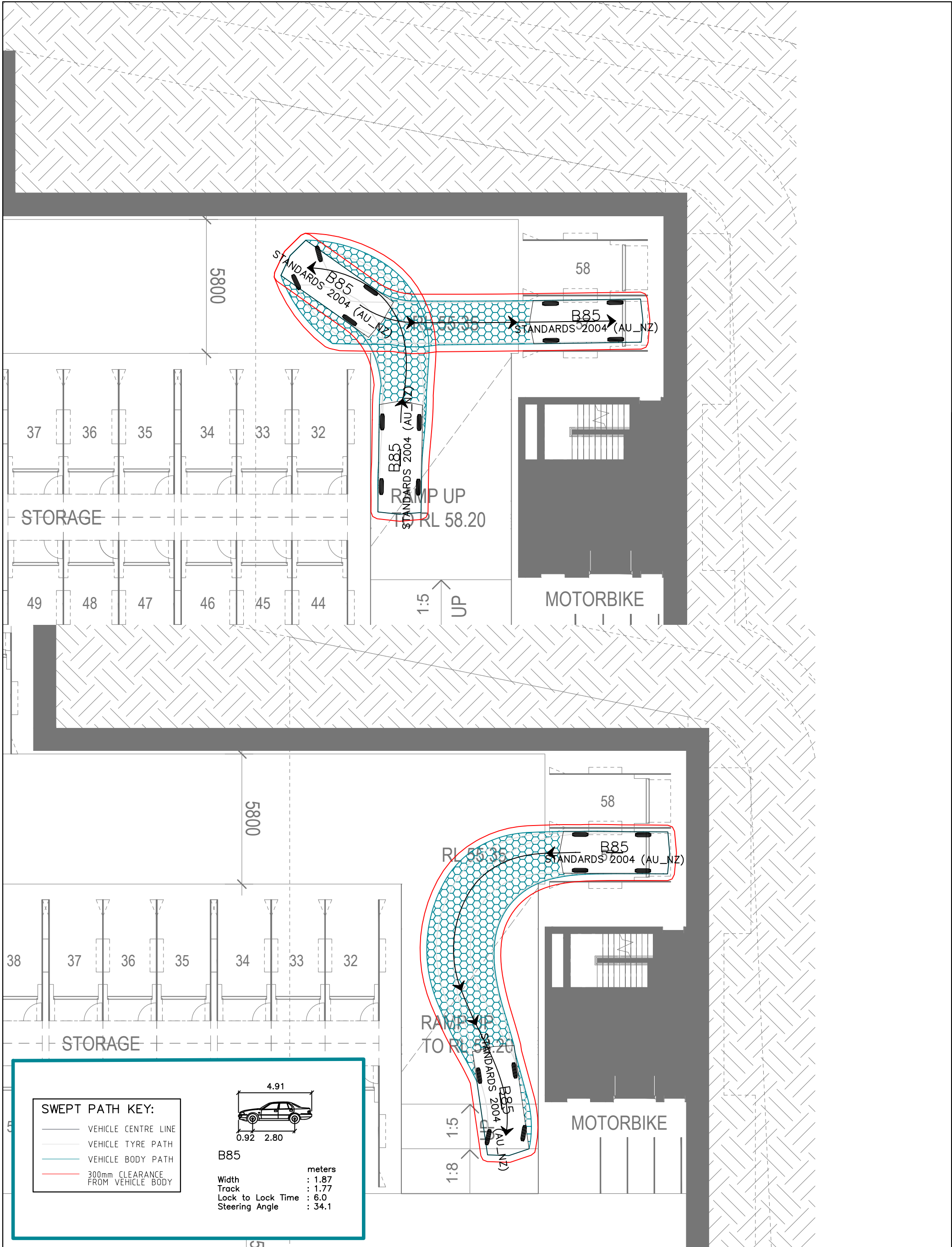
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SCALE 0 1.5 3.0 1:150



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O'CONNELL STREET, CADDENS
INGRESS AND EGRESS OF AN 85TH PERCENTILE VEHICLE
SWEPT PATH ASSESSMENT

DRAWING REF NO. 22078-V3.1-SP SHEET NO. 30 OF 30 ISSUE DATE 15 August 2025

DESIGNED BY G.HEYMAN

DISCLAIMER

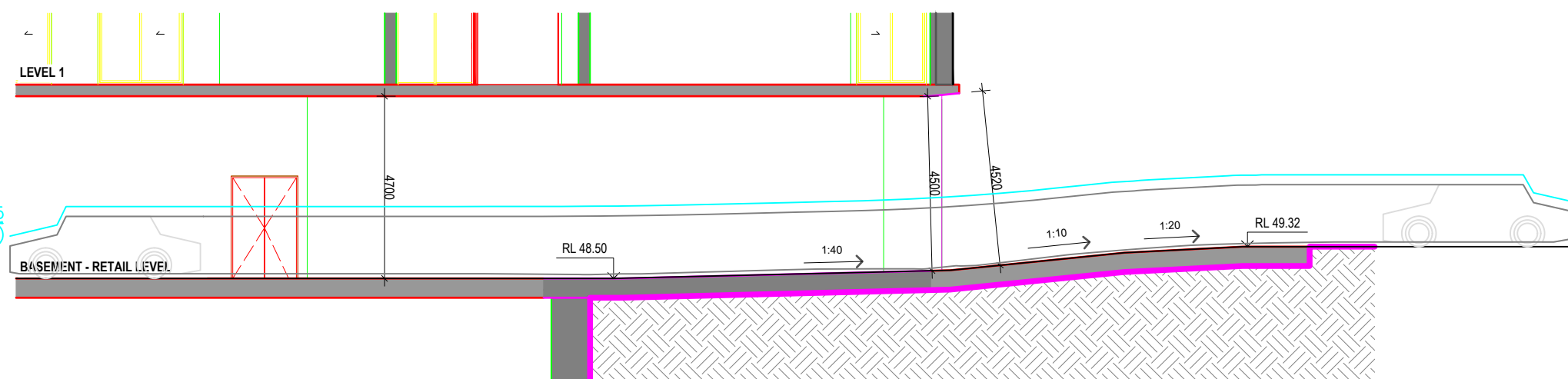
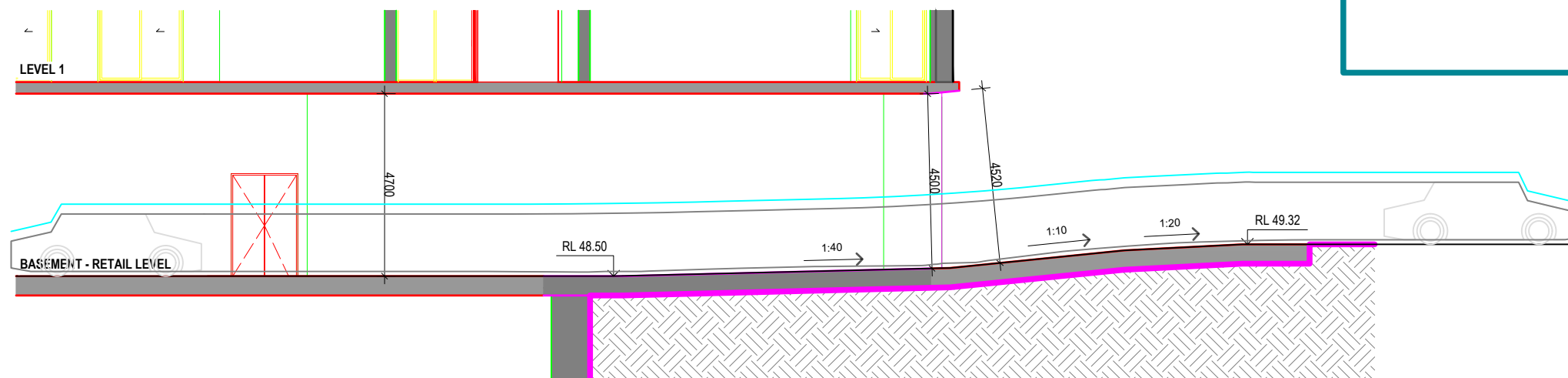
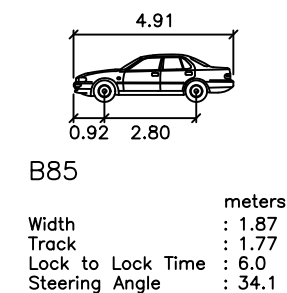
This drawing has been prepared using vehicle modelling computer software AutoTurn Pro V12.0 in conjunction with AutoCAD 2023. The vehicle used is based upon vehicle data provided by Austroads and incorporates a reasonable degree of tolerance. However, it is not possible to account for all vehicle types/characteristics and/or driver ability.

SCALE 0 1.5 3.0 1:150



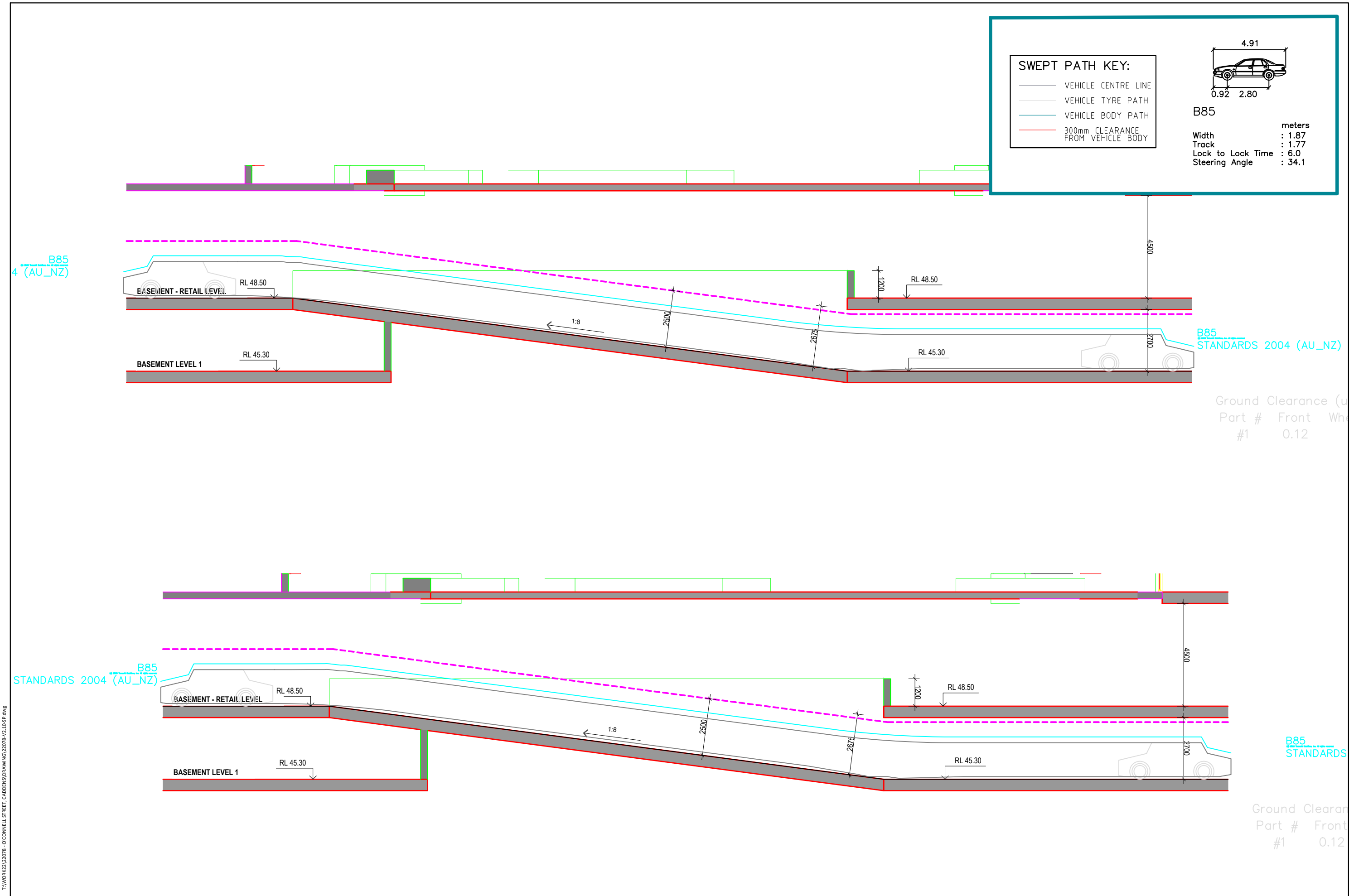
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SWEPT PATH KEY:

—

VEHICLE CENTRE LINE

—

VEHICLE TYRE PATH

—

VEHICLE BODY PATH

—

300mm CLEARANCE FROM VEHICLE BODY

4.91

0.92

2.80

B85

Width

: 1.87

Track

: 1.77

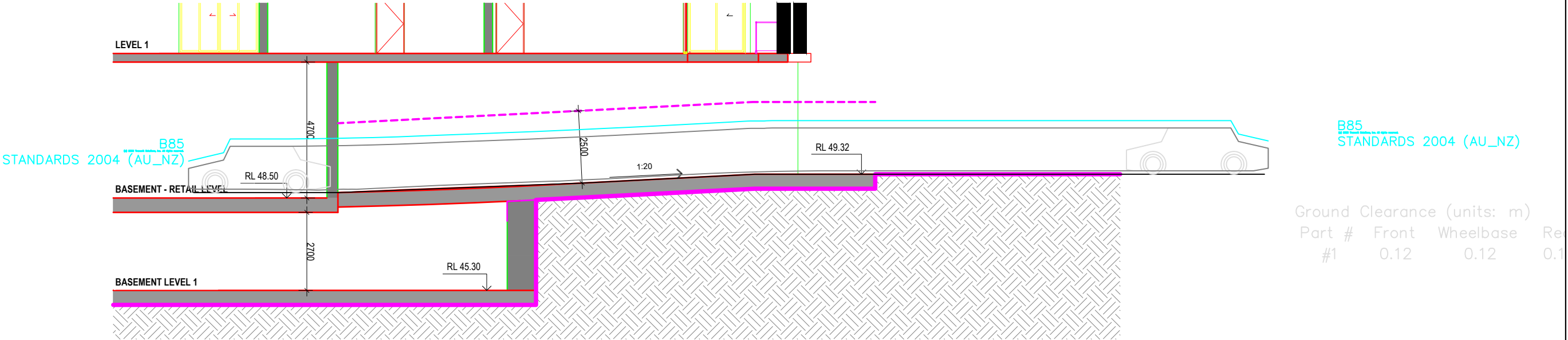
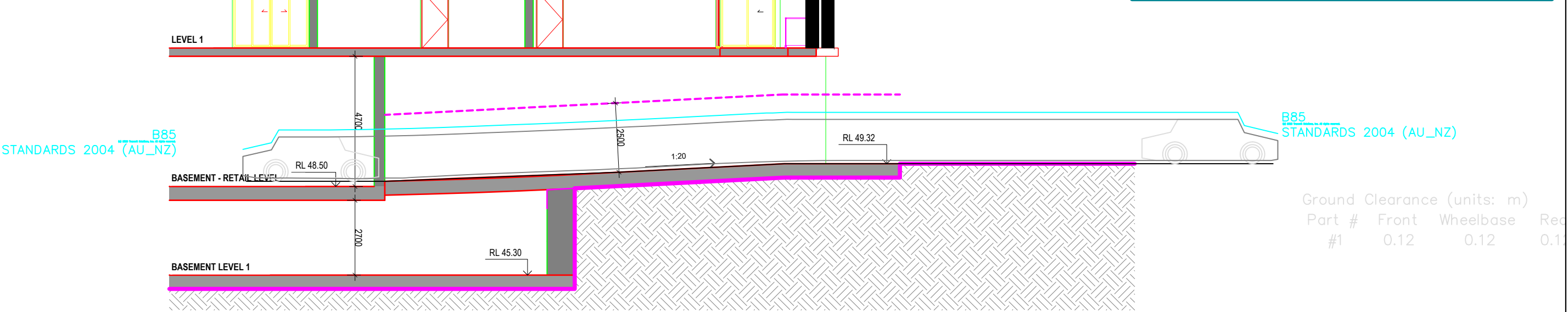
Lock to Lock Time

: 6.0

Steering Angle

: 34.1

meters



O'CONNELL STREET, CADDENS
VERTICAL SWEPT PATHS OF AN 85TH PERCENTILE VEHICLE
SWEPT PATH ASSESSMENT

DRAWING REF NO. 22078-V2.10-SP

SHEET NO. 03 OF 13

ISSUE DATE 14 August 2025

DESIGNED BY G.HEYMAN

SCALE A3 0 1.5 3.0 1:150



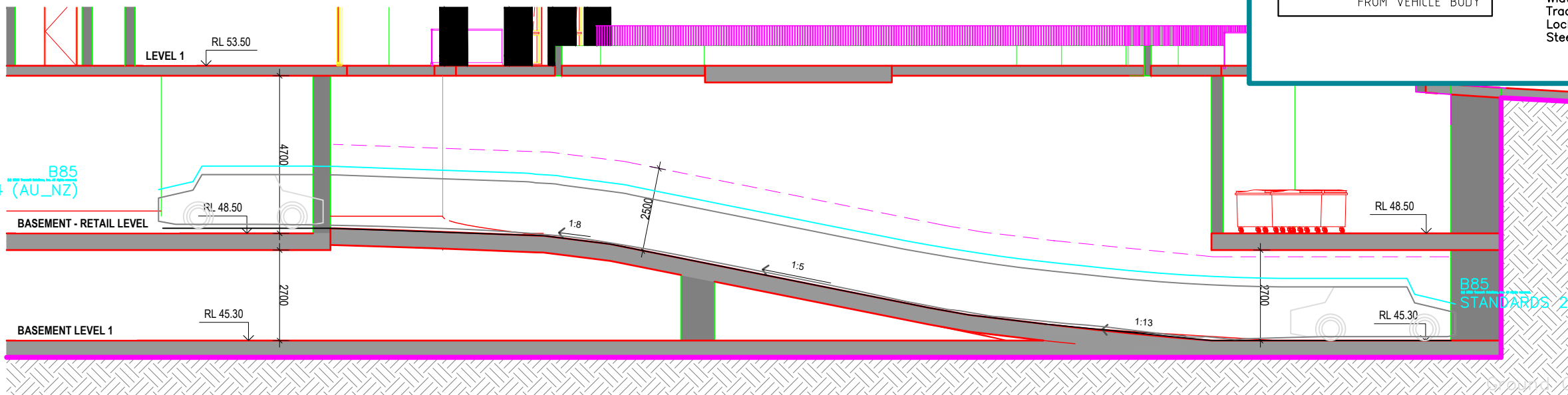
DISCLAIMER
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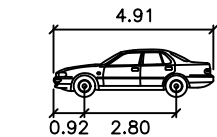
T:\WORK\22078 - O'CONNELL STREET, CADDENS\DRAWING\22078-V2.10-SP.dwg
Plotted by Grace

STANDARDS 2004 (AU_NZ)



SWEPT PATH KEY:

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



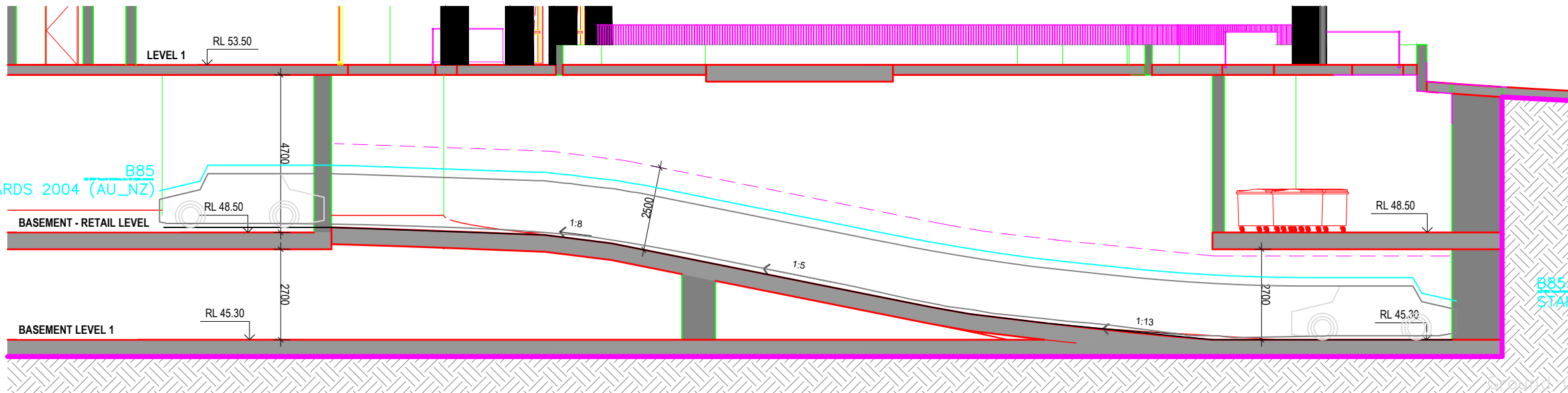
B85

Width : 1.87 meters
Track : 1.77
Lock to Lock Time : 6.0
Steering Angle : 34.1

Ground Clearance (units: m)

Part #	Front	Wheelbase
#1	0.12	0.12

STANDARDS 2004 (AU_NZ)



Ground Clearance (units: m)

Part #	Front	Wheelbase
#1	0.12	0.12

O'CONNELL STREET, CADDENS
VERTICAL SWEPT PATHS OF AN 85TH PERCENTILE VEHICLE
SWEPT PATH ASSESSMENT

DRAWING REF NO. 22078-V2.10-SP

SHEET NO. 04 OF 13

ISSUE DATE 14 August 2025

DESIGNED BY G.HEYMAN

SCALE A3 0 1.5 3.0 1:150

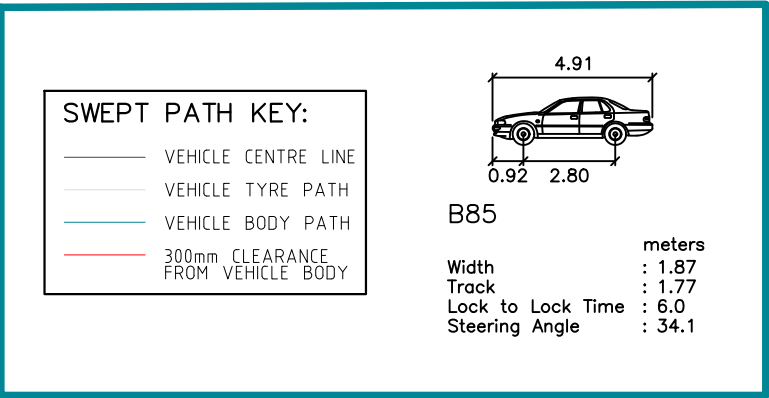
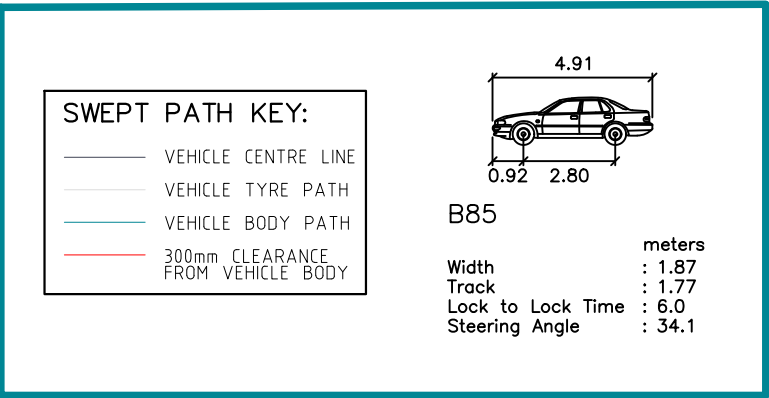


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SWEPT PATH KEY:

—

VEHICLE CENTRE LINE

—

VEHICLE TYRE PATH

—

VEHICLE BODY PATH

—

300mm CLEARANCE FROM VEHICLE BODY

4.91

0.92

2.80

B85

Width

: 1.87

Track

: 1.77

Lock to Lock Time

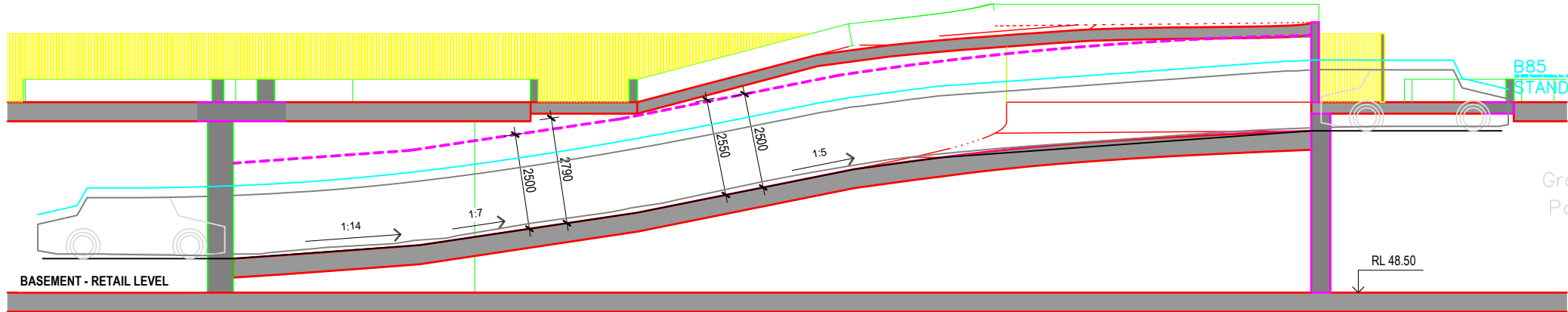
: 6.0

Steering Angle

: 34.1

meters

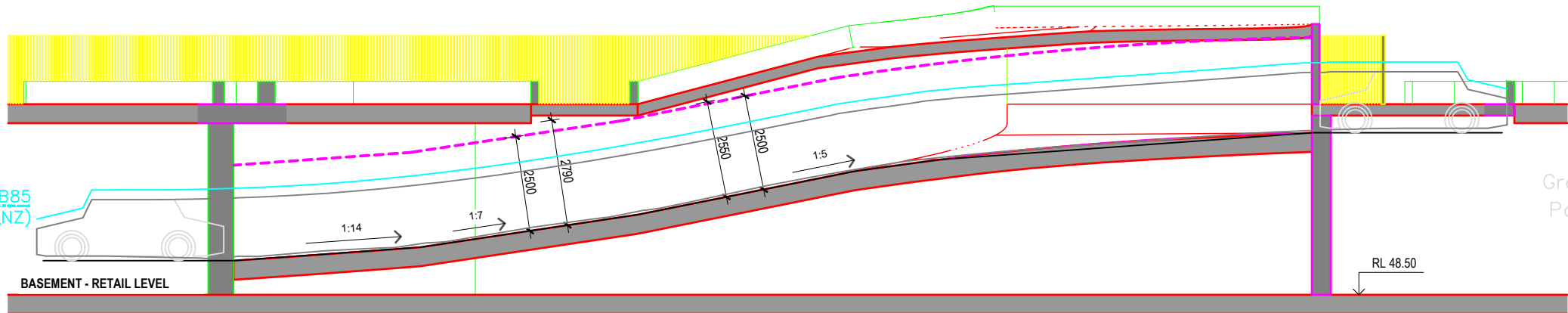
B85
STANDARDS 2004 (AU_NZ)



Ground Clearance (units: m)

Part #	Front	Wheelbase	Rear
#1	0.12	0.12	0.12

B85
STANDARDS 2004 (AU_NZ)



B85
STANDARDS 2004 (AU_NZ)

Ground Clearance (units: m)

Part #	Front	Wheelbase	Rear
#1	0.12	0.12	0.12

O'CONNELL STREET, CADDENS
VERTICAL SWEEP PATHS OF AN 85TH PERCENTILE VEHICLE
SWEEP PATH ASSESSMENT

DRAWING REF NO. 22078-V2.10-SP

SHEET NO. 06 OF 13

ISSUE DATE 14 August 2025

DESIGNED BY G.HEYMAN

SCALE
A3
0 1.5 3.0 1:150

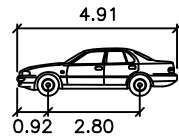


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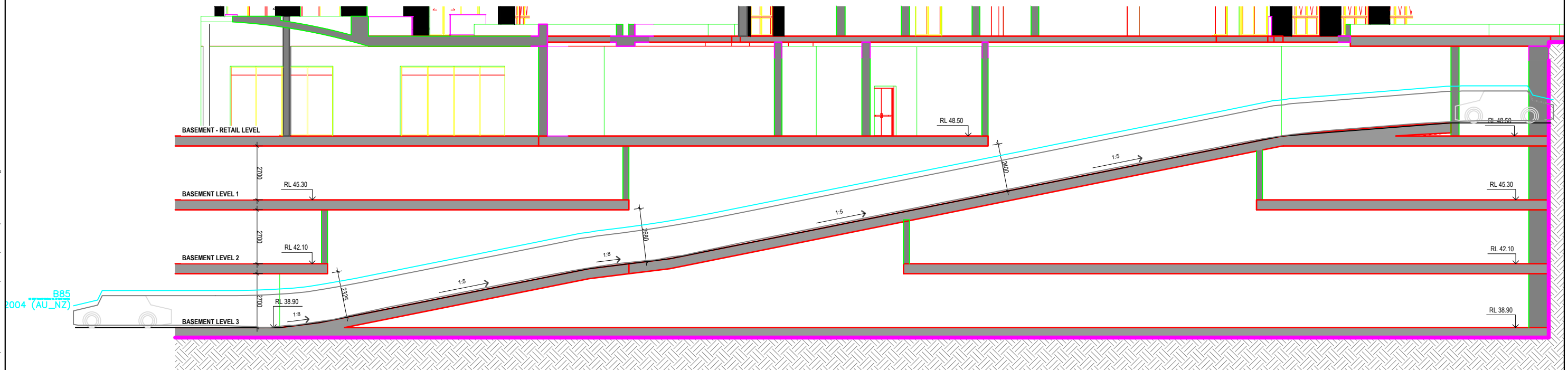
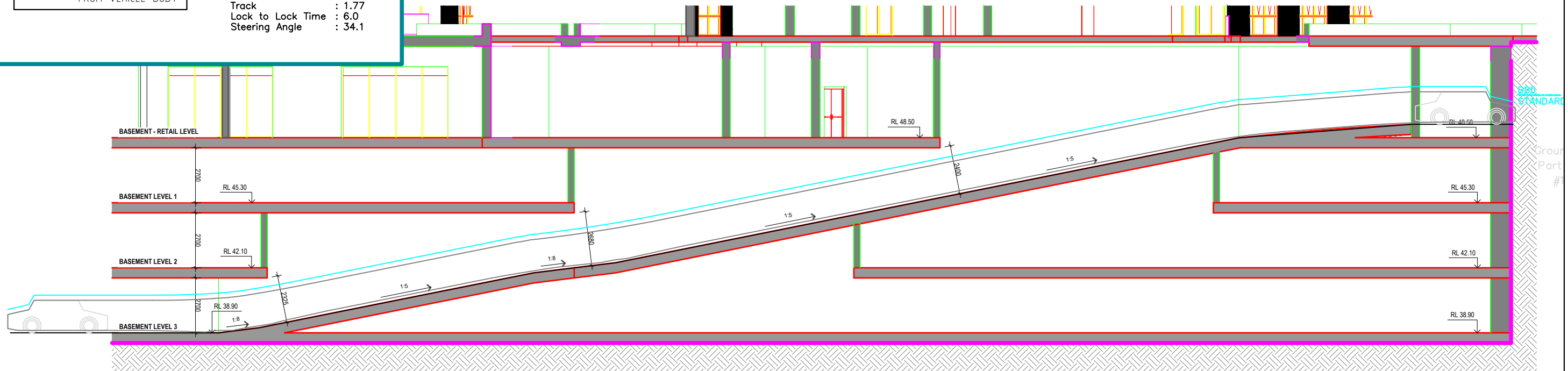
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- SWEPT PATH KEY:**
- VEHICLE CENTRE LINE
 - VEHICLE TYRE PATH
 - VEHICLE BODY PATH
 - 300mm CLEARANCE FROM VEHICLE BODY



B85

Width : 1.87 meters
Track : 1.77
Lock to Lock Time : 6.0
Steering Angle : 34.1



O'CONNELL STREET, CADDENS
VERTICAL SWEPT PATHS OF AN 85TH PERCENTILE VEHICLE
SWEPT PATH ASSESSMENT

DRAWING REF NO. 22078-V2.10-SP

SHEET NO. 07 OF 13

ISSUE DATE 14 August 2025

DESIGNED BY G.HEYMAN

SCALE A3 0 2.0 4.0 1:200



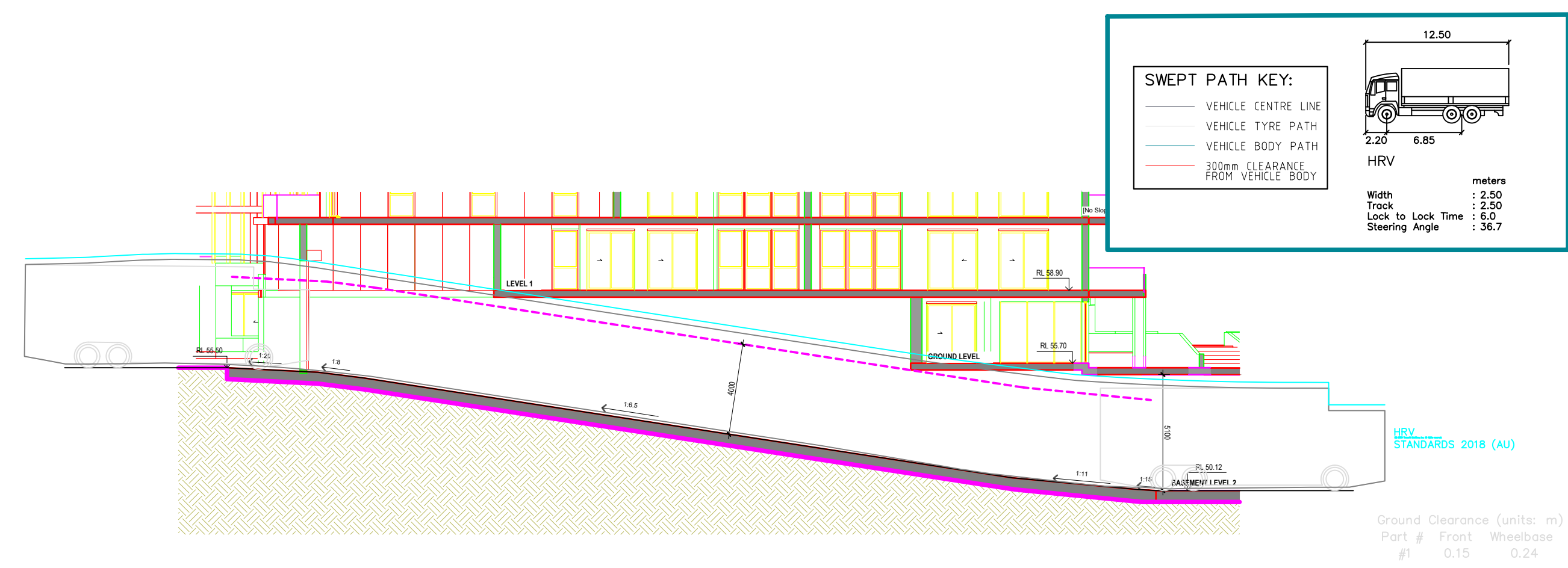
DISCLAIMER

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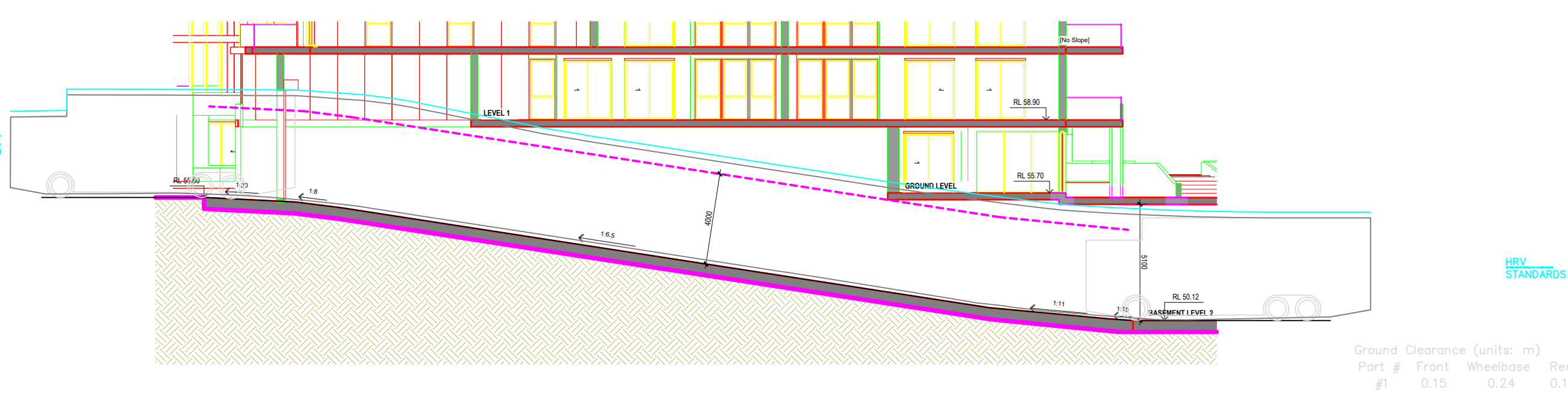
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HRV
ARDS 2018 (AU)



HRV
STANDARDS 2018 (AU)



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Printed by Grace

O'CONNELL STREET, CADDENS
VERTICAL SWEPT PATHS OF A 12.5m HRV
SWEPT PATH ASSESSMENT

DRAWING REF NO. 22078-V2.10-SP

SHEET NO. 08 OF 13

ISSUE DATE 14 August 2025

DESIGNED BY G.HEYMAN

SCALE
A3
0 2.0 4.0 1:200

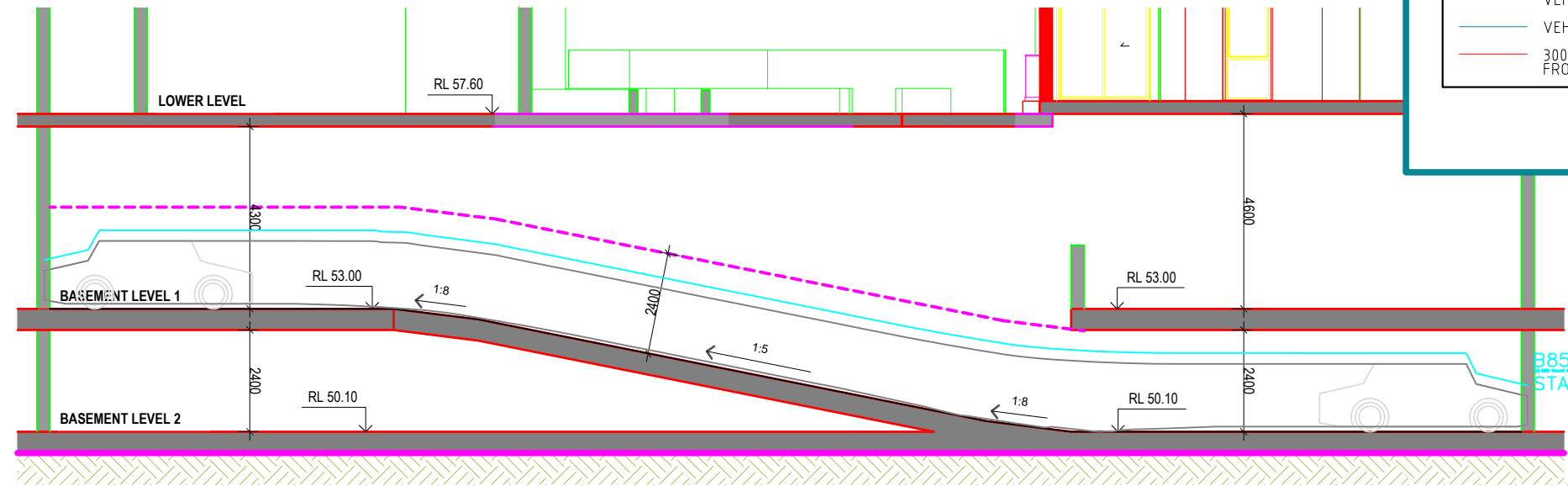


DISCLAIMER
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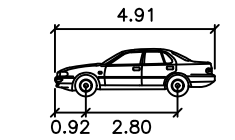
Address: Level 6, Suite 404, 10 Help Street, Chatswood NSW 2067
P: (02) 9411 5660 E: info@ttpa.com.au W: www.ttpa.com.au

B85
STANDARDS 2004 (AU_NZ)



SWEPT PATH KEY:

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



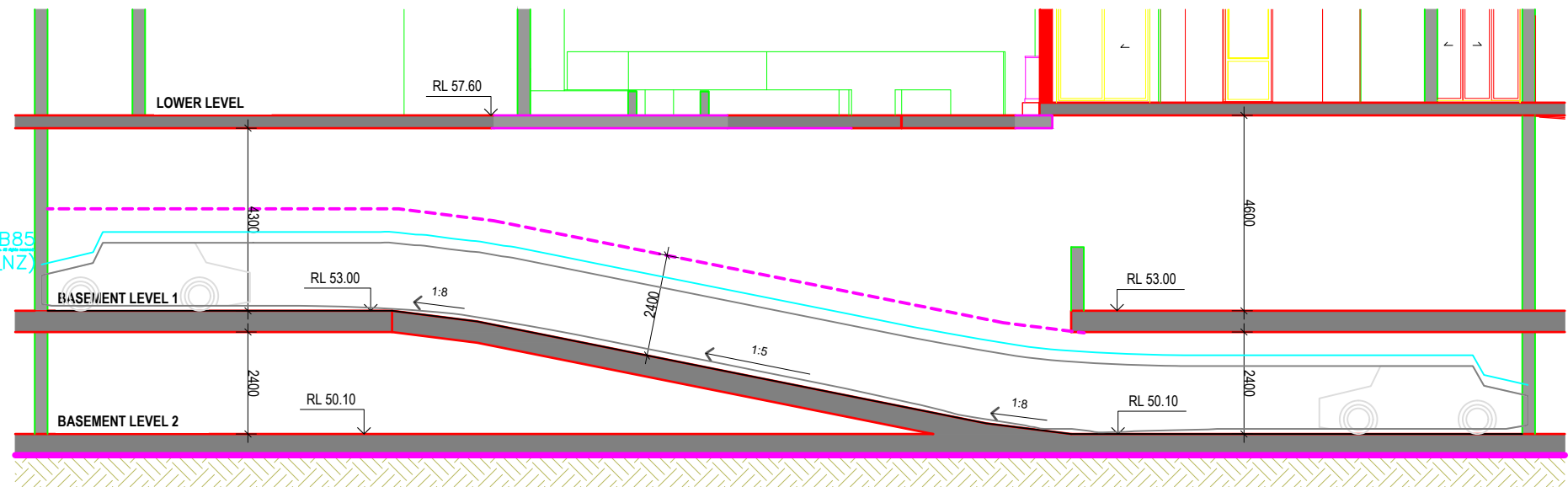
B85

Width	: 1.87	meters
Track	: 1.77	
Lock to Lock Time	: 6.0	
Steering Angle	: 34.1	

Ground Clearance (units: m)

Part #	Front	Wheelbase	Rear
#1	0.12	0.12	0.12

B85
STANDARDS 2004 (AU_NZ)



B85
STANDARDS 2004 (AU_NZ)

Ground Clearance (units: m)

Part #	Front	Wheelbase	Rear
#1	0.12	0.12	0.12

O'CONNELL STREET, CADDENS
VERTICAL SWEPT PATHS OF AN 85TH PERCENTILE VEHICLE
SWEPT PATH ASSESSMENT

DRAWING REF NO. 22078-V2.10-SP

SHEET NO. 09 OF 13

ISSUE DATE 14 August 2025

DESIGNED BY G.HEYMAN

SCALE A3 0 1.5 3.0 1:150

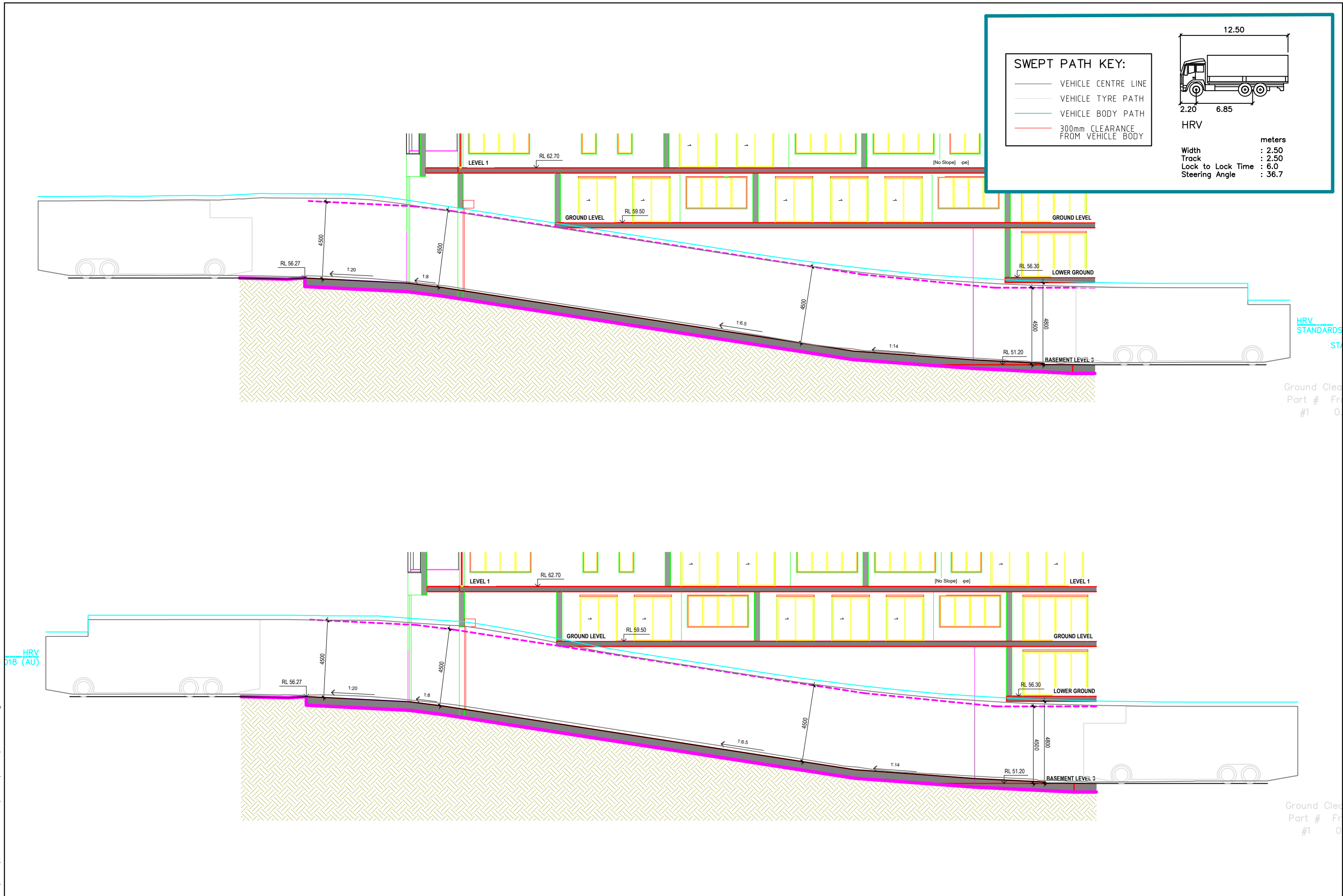


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Printed by Grace



O'CONNELL STREET, CADDENS
VERTICAL SWEPT PATHS OF A 12.5m HRV
SWEPT PATH ASSESSMENT

DRAWING REF NO. 22078-V2.10-SP

SHEET NO. 10 OF 13

ISSUE DATE 14 August 2025

DESIGNED BY G.HEYMAN

SCALE A3 0 2.0 4.0 1:200



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B85
(AU_NZ)

Rear
0.15

Standards 2018 (AU)
Standards 2004 (AU_NZ)

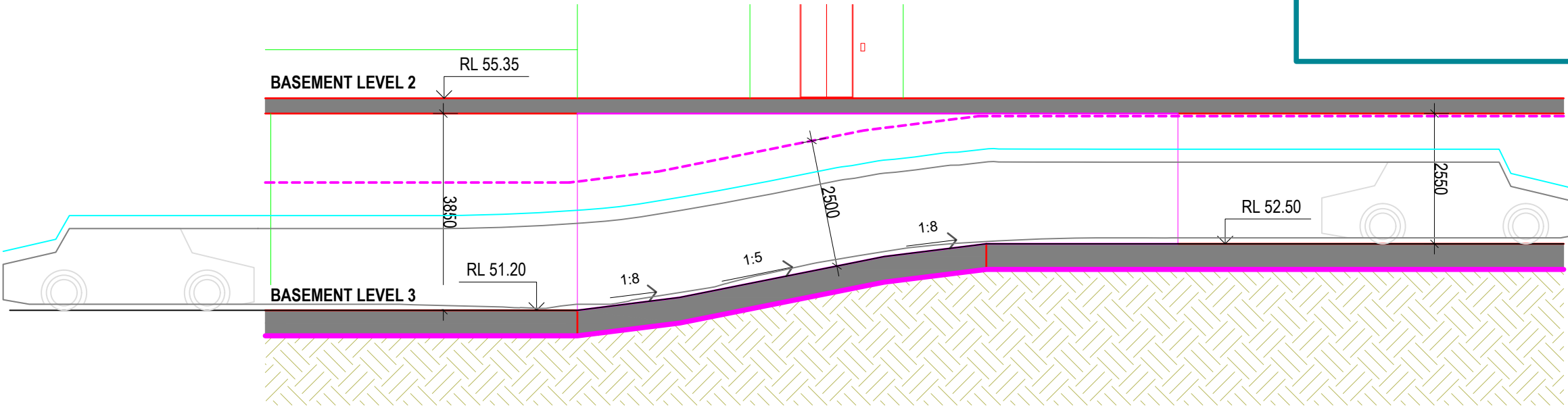
m)
Rear
0.15

SWEPT PATH KEY:

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

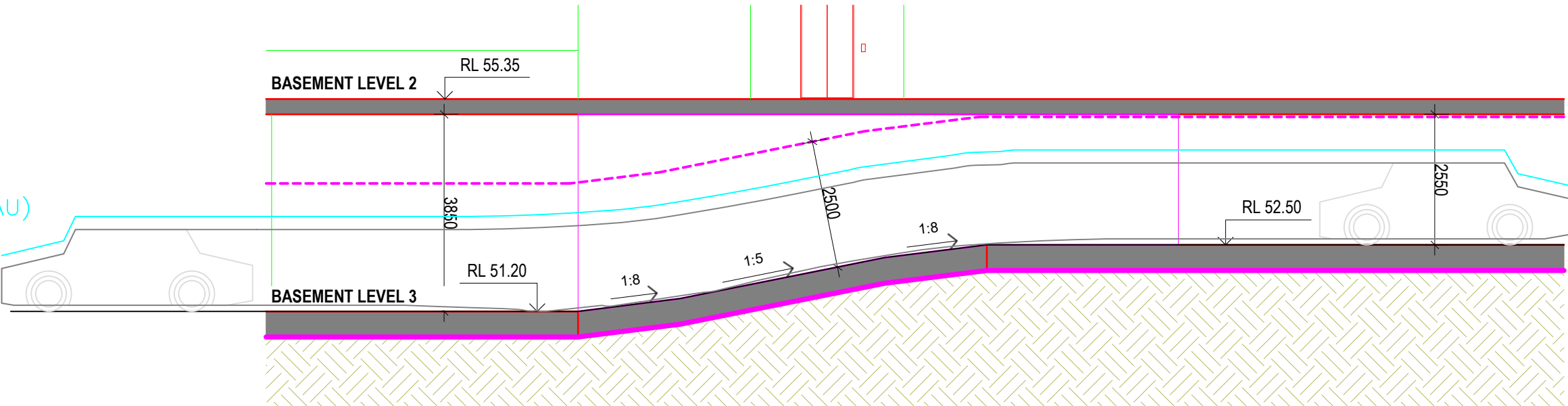
B85

Width	: 1.87	meters
Track	: 1.77	
Lock to Lock Time	: 6.0	
Steering Angle	: 34.1	



B85
STANDARDS 2004 (AU_NZ)

Ground Clearance
Part # Front
#1 0.12



B85
STANDARDS

Ground Clearance
Part # Front
#1 0.12

O'CONNELL STREET, CADDENS
VERTICAL SWEPT PATHS OF AN 85TH PERCENTILE VEHICLE
SWEPT PATH ASSESSMENT

DESIGNED BY G.HEYMAN

SCALE A3 0 10 20 1:100



DISCLAIMER
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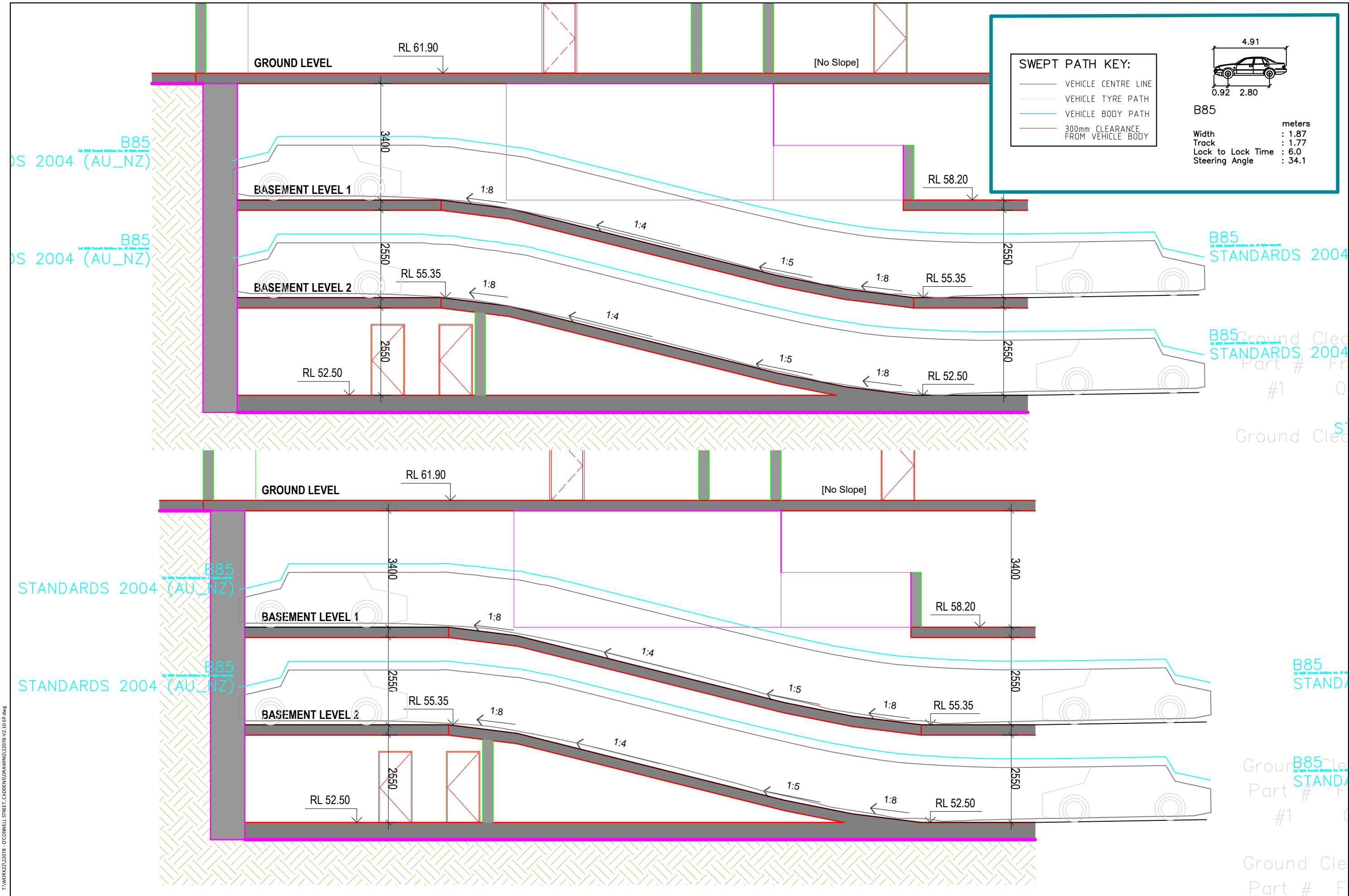
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DRAWING REF NO. 22078-V2.10-SP

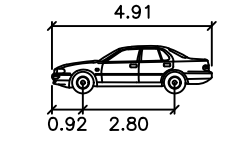
SHEET NO. 11 OF 13

ISSUE DATE 14 August 2025



SWEPT PATH KEY:

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



B85

Width	: 1.87
Track	: 1.77
Lock to Lock Time	: 6.0
Steering Angle	: 34.1

O'CONNELL STREET, CADDENS
VERTICAL SWEPT PATHS OF AN 85TH PERCENTILE VEHICLE
SWEPT PATH ASSESSMENT

DRAWING REF NO. 22078-V2.10-SP

SHEET NO. 12 OF 13

ISSUE DATE 14 August 2025

DESIGNED BY G.HEYMAN

SCALE
A3
0 10 20 1:100



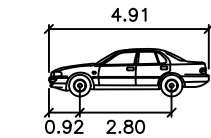
DISCLAIMER

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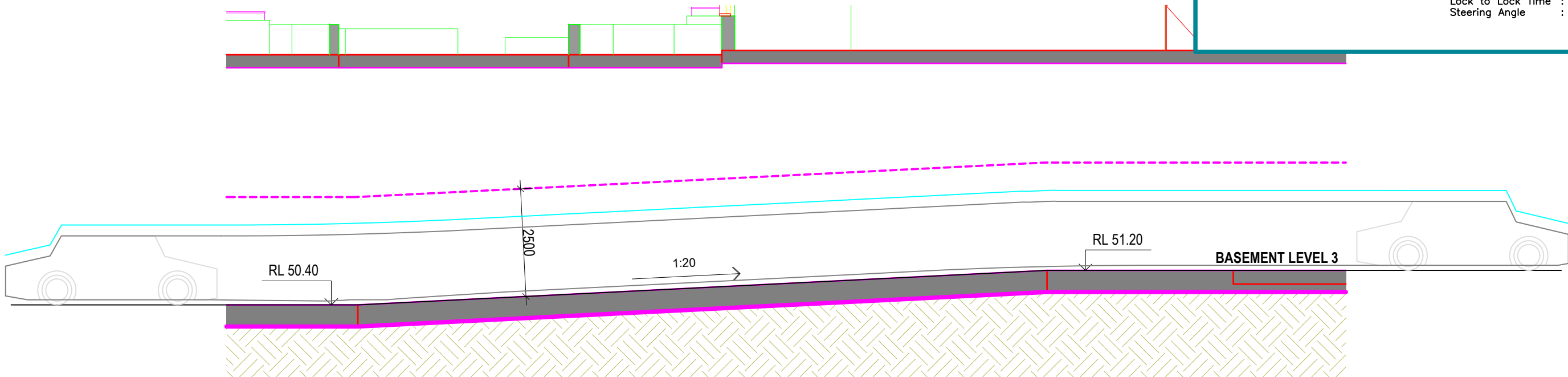
Address: Level 6, Suite 404, 10 Help Street, Chatswood NSW 2067
P: (02) 9411 5660 E: info@tppa.com.au W: www.tppa.com.au

- SWEPT PATH KEY:
- VEHICLE CENTRE LINE
 - VEHICLE TYRE PATH
 - VEHICLE BODY PATH
 - 300mm CLEARANCE FROM VEHICLE BODY



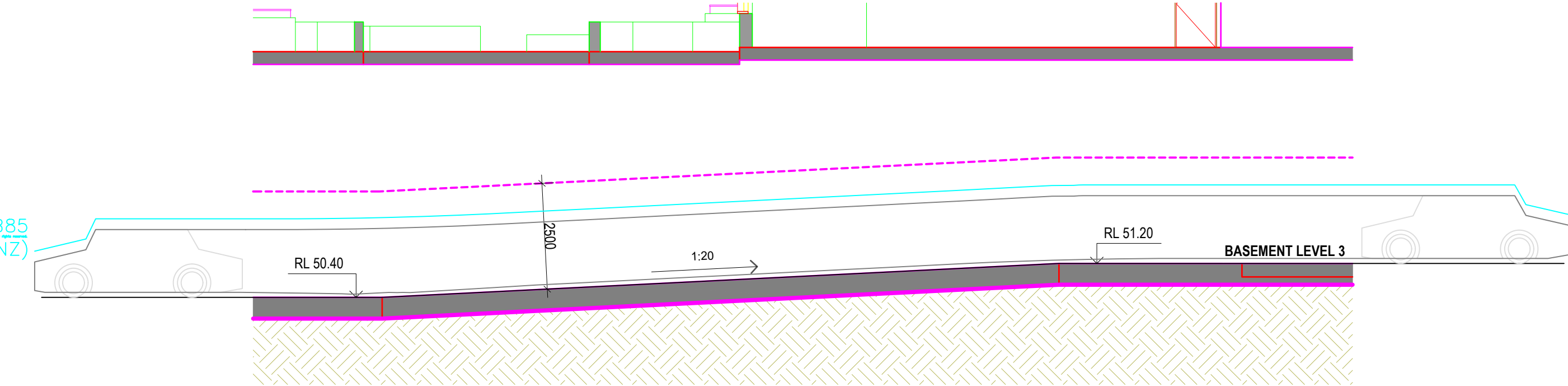
B85

	meters
Width	: 1.87
Track	: 1.77
Lock to Lock Time	: 6.0
Steering Angle	: 34.1



B85
STANDA

Gr
Pa



B85
(U_NZ)

O'CONNELL STREET, CADDENS
VERTICAL SWEPT PATHS OF AN 85TH PERCENTILE VEHICLE
SWEPT PATH ASSESSMENT

DRAWING REF NO. 22078-V2.10-SP

SHEET NO. 13 OF 13

ISSUE DATE 14 August 2025

DESIGNED BY G.HEYMAN

SCALE A3 0 10 20 1:100



DISCLAIMER
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Appendix D

Traffic Survey Results

TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY



trafficsurvey.com.au



Intersection of O'Connell St and O'Connell St, Caddens

GPS -33.770368, 150.733506

Date:	Wed 18/05/22
Weather:	Fine
Suburban:	Caddens
Customer:	TTPA

North:	O'Connell St
East:	O'Connell St
South:	O'Connell La
West:	John Flak Ave

Survey	AM:	7:00 AM-9:00 AM
Period	PM:	3:00 PM-6:00 PM
Traffic	AM:	8:00 AM-9:00 AM
Peak	PM:	3:00 PM-4:00 PM

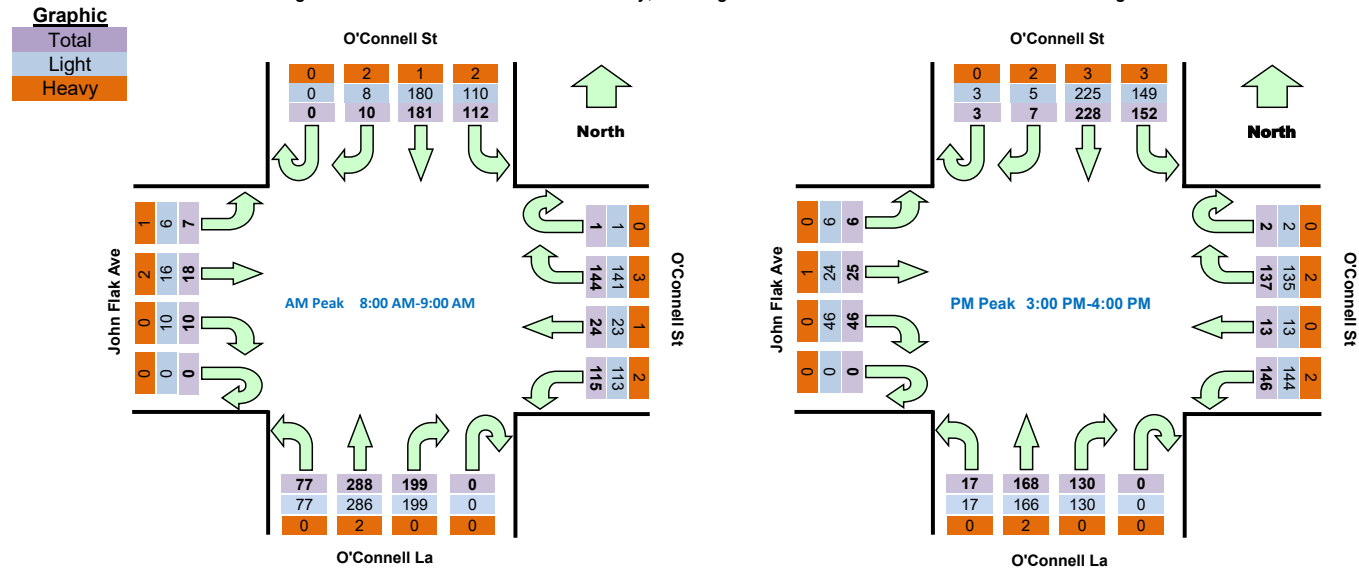
All Vehicles

Time		North Approach O'Connell St				East Approach O'Connell St				South Approach O'Connell La				West Approach John Flak Ave				Hourly Total	
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	Hour	Peak
7:00	7:15	2	0	15	4	0	11	3	11	0	18	26	4	0	0	2	1	553	
7:15	7:30	0	1	22	13	0	23	1	8	0	22	42	0	0	0	1	1	707	
7:30	7:45	0	0	18	16	0	25	1	18	0	20	37	4	0	0	2	1	837	
7:45	8:00	0	0	26	14	0	29	2	18	0	21	57	9	0	2	2	0	1035	
8:00	8:15	0	4	40	19	0	37	3	38	0	38	64	6	0	0	1	1	1186	Peak
8:15	8:30	0	1	34	21	0	25	5	28	0	55	70	15	0	4	4	2		
8:30	8:45	0	2	57	37	0	39	12	21	0	59	76	30	0	0	4	3		
8:45	9:00	0	3	50	35	1	43	4	28	0	47	78	26	0	6	9	1		
15:00	15:15	1	2	65	26	1	47	6	34	0	44	43	3	0	16	9	1	1080	Peak
15:15	15:30	1	3	53	42	0	38	2	33	0	45	46	3	0	10	7	1	1037	
15:30	15:45	1	1	58	48	0	29	1	40	0	14	46	4	0	10	7	3	1002	
15:45	16:00	0	1	52	36	1	23	4	39	0	27	33	7	0	10	2	1	1016	
16:00	16:15	1	0	54	32	0	34	3	34	1	19	45	1	0	23	3	5	1022	
16:15	16:30	1	2	72	44	0	24	1	28	1	23	33	2	0	13	1	4	1046	
16:30	16:45	0	1	58	49	0	25	4	39	0	32	43	3	0	16	5	1	1033	
16:45	17:00	0	2	64	35	1	27	2	34	0	26	27	1	0	16	5	2	1002	
17:00	17:15	0	1	89	37	0	28	4	37	0	26	31	1	0	16	5	4	997	
17:15	17:30	0	0	59	40	0	28	2	34	0	25	34	3	1	4	6	0		
17:30	17:45	1	2	54	28	0	30	0	43	0	31	43	5	0	3	4	1		
17:45	18:00	0	4	53	43	0	30	3	24	1	17	41	7	0	6	4	4		

Peak Time		North Approach O'Connell St				East Approach O'Connell St				South Approach O'Connell La				West Approach John Flak Ave				Peak total	
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L		
8:00	9:00	0	10	181	112	1	144	24	115	0	199	288	77	0	10	18	7	1186	

15:00	16:00	3	7	228	152	2	137	13	146	0	130	168	17	0	46	25	6	1080
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Note: Site sketch is for illustrating traffic flows. Direction is indicative only, drawing is not to scale and not an exact streets configuration.



Light Vehicles

Time		North Approach O'Connell St				East Approach O'Connell St				South Approach O'Connell La				West Approach John Flak Ave			
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L
7:00	7:15	2	0	15	3	0	10	3	11	0	17	24	4	0	0	2	1
7:15	7:30	0	1	21	12	0	23	1	8	0	22	41	0	0	0	1	1
7:30	7:45	0	0	17	16	0	23	1	18	0	18	36	4	0	0	2	1
7:45	8:00	0	0	25	13	0	28	2	18	0	21	57	9	0	2	2	0
8:00	8:15	0	3	40	19	0	35	3	38	0	38	64	6	0	0	1	0
8:15	8:30	0	1	34	21	0	25	4	28	0	55	69	15	0	4	4	2
8:30	8:45	0	1	57	35	0	38	12	21	0	59	76	30	0	0	4	3
8:45	9:00	0	3	49	35	1	43	4	26	0	47	77	26	0	6	7	1
15:00	15:15	1	0	65	26	1	46	6	34	0	44	43	3	0	16	9	1
15:15	15:30	1	3	52	41	0	38	2	32	0	45	46	3	0	10	7	1
15:30	15:45	1	1	56	47	0	28	1	40	0	14	45	4	0	10	6	3
15:45	16:00	0	1	52	35	1	23	4	38	0	27	32	7	0	10	2	1
16:00	16:15	1	0	51	31	0	34	3	34	1	19	44	1	0	23	3	5

16:15	16:30	1	2	71	43	0	23	1	28	1	22	32	2	0	13	1	4
16:30	16:45	0	1	58	49	0	25	4	39	0	32	43	3	0	16	5	1
16:45	17:00	0	2	63	34	1	27	2	34	0	26	26	1	0	16	5	2
17:00	17:15	0	1	87	36	0	26	4	37	0	26	30	1	0	16	5	4
17:15	17:30	0	0	57	39	0	28	2	34	0	25	33	3	1	4	6	0
17:30	17:45	1	2	53	28	0	28	0	42	0	30	43	5	0	3	4	1
17:45	18:00	0	4	53	41	0	30	3	24	1	17	41	7	0	6	4	4

Peak Time		North Approach O'Connell St				East Approach O'Connell St				South Approach O'Connell La				West Approach John Flak Ave				Peak total
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	
8:00	9:00	0	8	180	110	1	141	23	113	0	199	286	77	0	10	16	6	1170
15:00	16:00	3	5	225	149	2	135	13	144	0	130	166	17	0	46	24	6	1065

Heavy Vehicles

Time		North Approach O'Connell St				East Approach O'Connell St				South Approach O'Connell La				West Approach John Flak Ave			
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L
7:00	7:15	0	0	0	1	0	1	0	0	0	1	2	0	0	0	0	0
7:15	7:30	0	0	1	1	0	0	0	0	0	0	1	0	0	0	0	0
7:30	7:45	0	0	1	0	0	2	0	0	0	2	1	0	0	0	0	0
7:45	8:00	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0
8:00	8:15	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	1
8:15	8:30	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0
8:30	8:45	0	1	0	2	0	1	0	0	0	0	0	0	0	0	0	0
8:45	9:00	0	0	1	0	0	0	0	2	0	0	1	0	0	0	2	0
15:00	15:15	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0
15:15	15:30	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0
15:30	15:45	0	0	2	1	0	1	0	0	0	0	1	0	0	0	1	0
15:45	16:00	0	0	0	1	0	0	0	1	0	0	1	0	0	0	0	0
16:00	16:15	0	0	3	1	0	0	0	0	0	0	1	0	0	0	0	0
16:15	16:30	0	0	1	1	0	1	0	0	0	1	1	0	0	0	0	0
16:30	16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	17:00	0	0	1	1	0	0	0	0	0	0	1	0	0	0	0	0
17:00	17:15	0	0	2	1	0	2	0	0	0	0	1	0	0	0	0	0
17:15	17:30	0	0	2	1	0	0	0	0	0	0	1	0	0	0	0	0
17:30	17:45	0	0	1	0	0	2	0	1	0	1	0	0	0	0	0	0

17:45	18:00	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
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Peak Time		North Approach O'Connell St				East Approach O'Connell St				South Approach O'Connell La				West Approach John Flak Ave				Peak
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	total
8:00	9:00	0	2	1	2	0	3	1	2	0	0	2	0	0	0	2	1	16
15:00	16:00	0	2	3	3	0	2	0	2	0	0	2	0	0	0	1	0	15

Appendix E

SIDRA Results

SITE LAYOUT

▽ Site: [3 (2)] O'Connell Street/Corr Road - Seagull (Corr Road Upgrade)

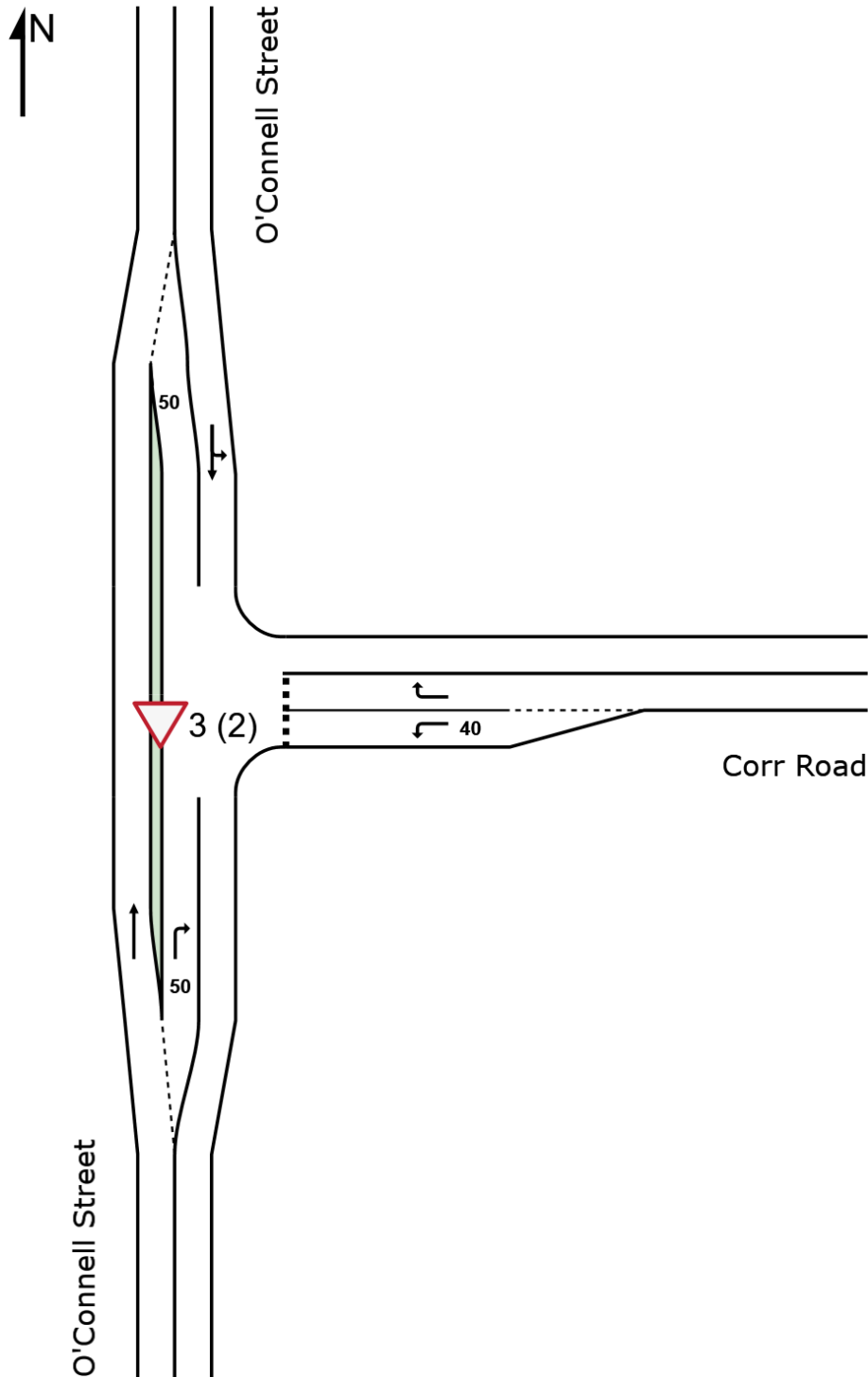
80 O'Connell St, Caddens NSW

Site Category: Existing Design

Give-Way (Two-Way)

Site Scenario: 7 | 31STFM + Dev AM

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



MOVEMENT SUMMARY

Site: [3 (2)] O'Connell Street/Corr Road - Seagull (Corr Road Upgrade)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

80 O'Connell St, Caddens NSW
Site Category: Existing Design
Give-Way (Two-Way)
Site Scenario: 7 | 31STFM + Dev AM

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop of Cycles	Number of Cycles	Aver. Speed
			[Total HV]		[Total HV]					[Veh.	Dist]		Rate to Depart		
			veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: O'Connell Street															
2	T1	All MCs	649	1.3	649	1.3	0.336	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
3	R2	All MCs	83	2.4	83	2.4	0.125	10.3	LOS A	0.5	3.4	0.65	0.85	0.65	35.3
Approach			733	1.4	733	1.4	0.336	1.2	NA	0.5	3.4	0.07	0.10	0.07	57.4
East: Corr Road															
4	L2	All MCs	107	0.0	107	0.0	0.142	7.0	LOS A	0.5	3.7	0.58	0.77	0.58	36.5
6	R2	All MCs	154	5.3	154	5.3	1.572	576.7	LOS F	38.2	279.6	1.00	4.16	10.51	7.5
Approach			261	3.1	261	3.1	1.572	342.4	LOS F	38.2	279.6	0.83	2.76	6.42	9.3
North: O'Connell Street															
7	L2	All MCs	98	5.9	98	5.9	0.417	5.8	LOS A	0.0	0.0	0.00	0.07	0.00	55.6
8	T1	All MCs	699	1.4	699	1.4	0.417	0.2	LOS A	0.0	0.0	0.00	0.07	0.00	59.0
Approach			797	2.0	797	2.0	0.417	0.9	NA	0.0	0.0	0.00	0.07	0.00	58.5
All Vehicles			1791	1.9	1791	1.9	1.572	50.8	NA	38.2	279.6	0.15	0.48	0.97	35.2

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.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control 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 (Akcelik 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.

MOVEMENT SUMMARY

Site: [3 (2)] O'Connell Street/Corr Road - Seagull (Corr Road Upgrade)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

80 O'Connell St, Caddens NSW
Site Category: Existing Design
Give-Way (Two-Way)
Site Scenario: 8 | 31STFM + Dev PM

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop of Cycles	Number of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh.]	[Dist]		Rate to Depart		km/h
South: O'Connell Street															
2	T1	All MCs	600	1.3	600	1.3	0.310	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
3	R2	All MCs	104	2.4	104	2.4	0.212	13.0	LOS A	0.8	5.7	0.76	0.91	0.80	33.3
Approach			704	1.4	704	1.4	0.310	2.0	NA	0.8	5.7	0.11	0.14	0.12	56.3
East: Corr Road															
4	L2	All MCs	137	0.0	137	0.0	0.180	7.1	LOS A	0.7	4.7	0.59	0.77	0.59	36.4
6	R2	All MCs	179	5.3	179	5.3	2.157	1101.9	LOS F	62.7	458.5	1.00	4.99	13.17	5.5
Approach			316	3.0	316	3.0	2.157	627.5	LOS F	62.7	458.5	0.82	3.16	7.72	7.2
North: O'Connell Street															
7	L2	All MCs	251	5.9	251	5.9	0.502	5.9	LOS A	0.0	0.0	0.00	0.16	0.00	54.8
8	T1	All MCs	698	1.4	698	1.4	0.502	0.3	LOS A	0.0	0.0	0.00	0.16	0.00	58.0
Approach			948	2.6	948	2.6	0.502	1.8	NA	0.0	0.0	0.00	0.16	0.00	57.1
All Vehicles			1968	2.3	1968	2.3	2.157	102.2	NA	62.7	458.5	0.17	0.63	1.28	29.3

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.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control 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 (Akcelik 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.

SITE LAYOUT

 **Site: [3 R] O'Connell Street/Corr Road - Roundabout (Corr Road Upgrade)**

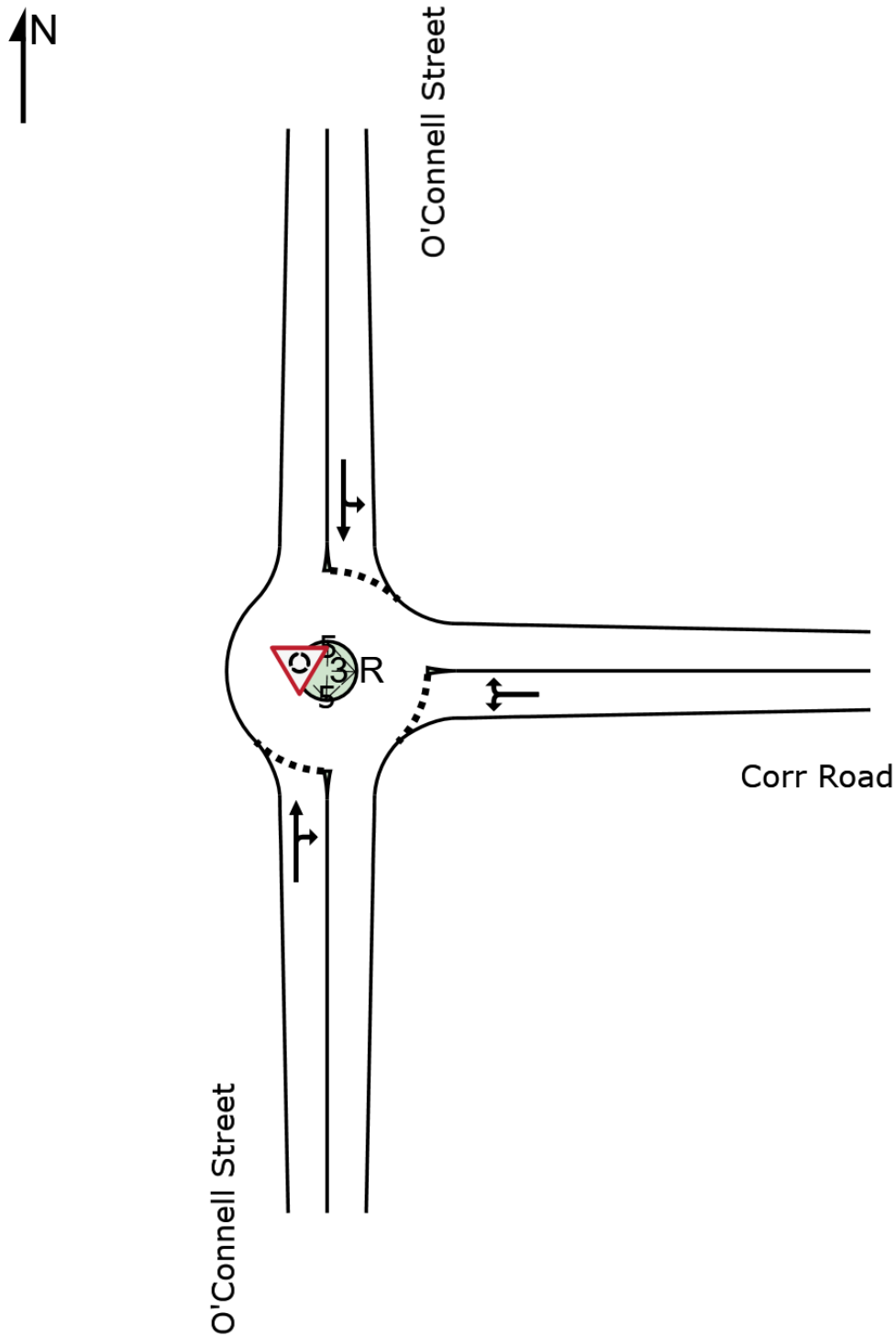
80 O'Connell St, Caddens NSW

Site Category: NA

Roundabout

Site Scenario: 7 | 31STFM + Dev AM

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



MOVEMENT SUMMARY

 **Site: [3 R] O'Connell Street/Corr Road - Roundabout (Corr Road Upgrade)**

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

80 O'Connell St, Caddens NSW
Site Category: NA
Roundabout
Site Scenario: 7 | 31STFM + Dev AM

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop of Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh.]	Dist]				km/h
South: O'Connell Street															
2	T1	All MCs	649	1.3	649	1.3	0.646	6.5	LOS A	6.8	48.5	0.67	0.56	0.67	50.2
3	R2	All MCs	83	2.4	83	2.4	0.646	9.1	LOS A	6.8	48.5	0.67	0.56	0.67	37.0
Approach			733	1.4	733	1.4	0.646	6.8	LOS A	6.8	48.5	0.67	0.56	0.67	49.2
East: Corr Road															
4	L2	All MCs	107	0.0	107	0.0	0.468	12.6	LOS A	3.5	25.4	0.88	0.87	1.03	31.3
6	R2	All MCs	154	5.3	154	5.3	0.468	14.5	LOS B	3.5	25.4	0.88	0.87	1.03	41.5
Approach			261	3.1	261	3.1	0.468	13.7	LOS A	3.5	25.4	0.88	0.87	1.03	38.3
North: O'Connell Street															
7	L2	All MCs	98	5.9	98	5.9	0.616	6.5	LOS A	6.7	47.4	0.48	0.50	0.48	46.9
8	T1	All MCs	699	1.4	699	1.4	0.616	5.7	LOS A	6.7	47.4	0.48	0.50	0.48	50.9
Approach			797	2.0	797	2.0	0.616	5.8	LOS A	6.7	47.4	0.48	0.50	0.48	50.3
All Vehicles			1791	1.9	1791	1.9	0.646	7.4	LOS A	6.8	48.5	0.62	0.58	0.64	48.0

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.

MOVEMENT SUMMARY

 **Site: [3 R] O'Connell Street/Corr Road - Roundabout (Corr Road Upgrade)**

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

80 O'Connell St, Caddens NSW
Site Category: NA
Roundabout
Site Scenario: 8 | 31STFM + Dev PM

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop of Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh.]	[Dist]				km/h
South: O'Connell Street															
2	T1	All MCs	600	1.3	600	1.3	0.652	6.8	LOS A	6.9	48.6	0.73	0.59	0.73	50.0
3	R2	All MCs	104	2.4	104	2.4	0.652	9.3	LOS A	6.9	48.6	0.73	0.59	0.73	36.7
Approach			704	1.4	704	1.4	0.652	7.2	LOS A	6.9	48.6	0.73	0.59	0.73	48.6
East: Corr Road															
4	L2	All MCs	137	0.0	137	0.0	0.684	21.5	LOS B	7.1	50.7	1.00	1.10	1.51	26.5
6	R2	All MCs	179	5.3	179	5.3	0.684	23.5	LOS B	7.1	50.7	1.00	1.10	1.51	37.2
Approach			316	3.0	316	3.0	0.684	22.7	LOS B	7.1	50.7	1.00	1.10	1.51	33.6
North: O'Connell Street															
7	L2	All MCs	251	5.9	251	5.9	0.757	7.1	LOS A	10.6	75.9	0.70	0.53	0.70	46.3
8	T1	All MCs	698	1.4	698	1.4	0.757	6.3	LOS A	10.6	75.9	0.70	0.53	0.70	50.1
Approach			948	2.6	948	2.6	0.757	6.5	LOS A	10.6	75.9	0.70	0.53	0.70	49.0
All Vehicles			1968	2.3	1968	2.3	0.757	9.3	LOS A	10.6	75.9	0.76	0.64	0.84	46.0

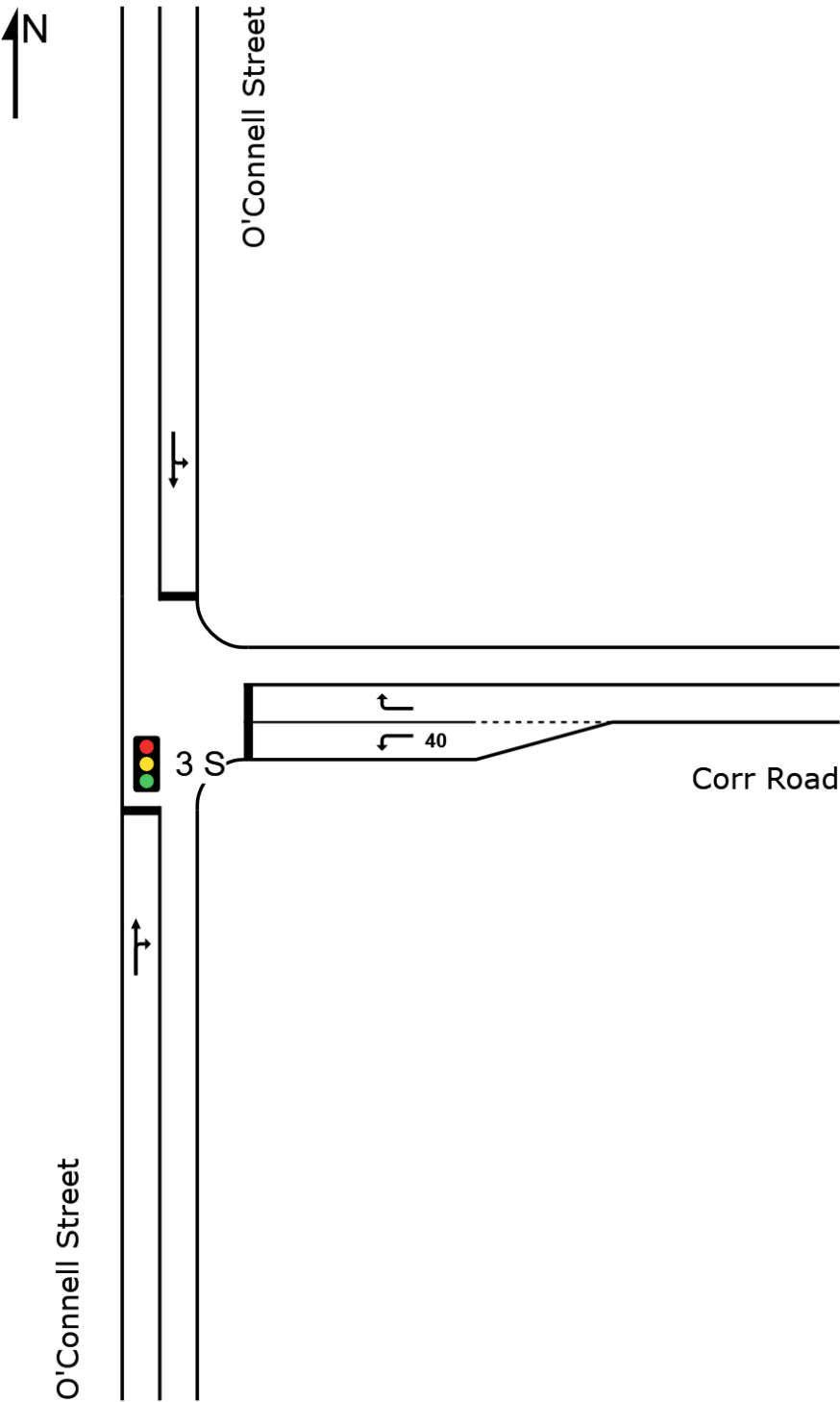
Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity 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.

SITE LAYOUT

 **Site: [3 S] O'Connell Street/Corr Road - Signalised Intersection** (Corr Road Upgrade)

80 O'Connell St, Caddens NSW
Site Category: Existing Design
Signals - EQUISAT (Fixed-Time/SCATS) Isolated
Site Scenario: 7 | 31STFM + Dev AM

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



MOVEMENT SUMMARY

 **Site: [3 S] O'Connell Street/Corr Road - Signalised Intersection** (Corr Road Upgrade)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

80 O'Connell St, Caddens NSW
Site Category: Existing Design
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 50.0 seconds (Site Practical Cycle Time)
Site Scenario: 7 | 31STFM + Dev AM

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop of Cycles	Number of Cycles to Depart	Aver. Speed
			[Total HV]	[Total HV]	[Total HV]	[Total HV]				[Veh.]	[Dist]				
			veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: O'Connell Street															
2	T1	All MCs	649	1.3	649	1.3	0.803	12.5	LOS A	17.3	122.6	0.87	0.89	1.02	46.7
3	R2	All MCs	83	2.4	83	2.4	* 0.803	34.1	LOS C	17.3	122.6	0.87	0.89	1.02	31.9
Approach			733	1.4	733	1.4	0.803	15.0	LOS B	17.3	122.6	0.87	0.89	1.02	45.5
East: Corr Road															
4	L2	All MCs	107	0.0	107	0.0	0.482	27.5	LOS B	2.7	18.6	0.98	0.77	0.98	24.7
6	R2	All MCs	154	5.3	154	5.3	* 0.715	29.9	LOS C	4.1	30.1	1.00	0.92	1.24	34.5
Approach			261	3.1	261	3.1	0.715	28.9	LOS C	4.1	30.1	0.99	0.86	1.13	31.3
North: O'Connell Street															
7	L2	All MCs	98	5.9	98	5.9	0.651	11.7	LOS A	12.1	86.4	0.67	0.63	0.67	47.3
8	T1	All MCs	699	1.4	699	1.4	0.651	6.0	LOS A	12.1	86.4	0.67	0.63	0.67	53.2
Approach			797	2.0	797	2.0	0.651	6.7	LOS A	12.1	86.4	0.67	0.63	0.67	52.4
All Vehicles			1791	1.9	1791	1.9	0.803	13.3	LOS A	17.3	122.6	0.80	0.77	0.88	45.8

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.
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 Green.
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.

* Critical Movement (Signal Timing)

MOVEMENT SUMMARY

 Site: [3 S] O'Connell Street/Corr Road - Signalised

Intersection (Corr Road Upgrade)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

80 O'Connell St, Caddens NSW
Site Category: Existing Design
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 70.0 seconds (Site Practical Cycle Time)
Site Scenario: 8 | 31STFM + Dev PM

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop of Cycles	Number of Cycles to Depart	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh.]	Dist]				
			veh/h		veh/h		v/c	sec		veh	m				km/h
South: O'Connell Street															
2	T1	All MCs	600	1.3	600	1.3	0.883	23.0	LOS B	27.8	197.0	0.94	1.05	1.20	39.0
3	R2	All MCs	104	2.4	104	2.4	* 0.883	59.7	LOS E	27.8	197.0	0.94	1.05	1.20	25.0
Approach			704	1.4	704	1.4	0.883	28.5	LOS B	27.8	197.0	0.94	1.05	1.20	37.3
East: Corr Road															
4	L2	All MCs	137	0.0	137	0.0	0.650	38.3	LOS C	4.9	34.1	1.00	0.85	1.10	21.1
6	R2	All MCs	179	5.3	179	5.3	* 0.882	46.5	LOS D	7.3	53.5	1.00	1.09	1.52	29.3
Approach			316	3.0	316	3.0	0.882	43.0	LOS D	7.3	53.5	1.00	0.99	1.34	26.5
North: O'Connell Street															
7	L2	All MCs	251	5.9	251	5.9	0.702	11.7	LOS A	18.5	132.1	0.62	0.63	0.62	46.8
8	T1	All MCs	698	1.4	698	1.4	0.702	6.1	LOS A	18.5	132.1	0.62	0.63	0.62	52.5
Approach			948	2.6	948	2.6	0.702	7.6	LOS A	18.5	132.1	0.62	0.63	0.62	50.8
All Vehicles			1968	2.3	1968	2.3	0.883	20.7	LOS B	27.8	197.0	0.80	0.84	0.94	40.6

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.
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 Green.
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.

* Critical Movement (Signal Timing)

Appendix F

Transport Access Guide



68-80 O'Connell Street, Kingswood



Travel Access Guide

Your Travel Choices

This Travel Access Guide outlines the many travel choices available for you to travel to and from work.



Plan ahead

Planning ahead is key. The [Trip Planner](#) on Transport info and public transport apps like [Opal Travel](#), [TripView](#) or [Citymapper](#) provide real-time service updates, detailed service information, walking and cycling distances and accessibility details.

Find a real-time [public transport app](#) that suits you.

Use the [Trip Planner](#) to plan your public transport journey.



Prioritise public transport

Bus stops with rail station connections are located within a very short walk.

Not only does public transport offer a comfortable alternative to driving, but it also allows you to focus on other activities.

Regularly catching public transport can contribute to your daily physical activity, helping you lead a healthier lifestyle.



Walk or ride your bike for all or some of your journey

Walking or riding your bike as part of your daily commute is a great way to improve and maintain your physical health and mental well-being. It keeps you active without needing a gym membership and gives you some me-time in your busy day.

Handy information about local bike routes and free resources including cycling maps are available on the [Cycleway Finder](#) or [Blacktown Bike Plan](#) website.



Consider working flexibly

Flexible working arrangements can improve work-life balance, health, and productivity. It includes any work arrangement that changes the traditional 9 to 5 schedule, such as working from home or working non-peak hours.

These arrangements are subject to business requirements and manager approval. Check our flexible working policies and procedures for more information.



Use flexible working to travel outside the peak

Travelling outside peak times can help you save time and reduce stress by avoiding rush hour traffic. It can also give you the opportunity to complete other tasks before or after work.

Save money on transportation by travelling before or after peak hours. It's also more comfortable and efficient.



Paying for your public transport fare is easier than ever

Use an Opal Card, contactless card or linked device to access Opal benefits. Remember to use the same card or linked device for all your trips to access benefits.

Visit the [Opal](#) website to find out more about fares for Opal and contactless payments.

Getting to 68-80 O'Connell Street, Kingswood

With the nearest bus stop located on the sites western boundary, 68-80 O'Connell Street has access to the local public transport network.



The 770 bus service operates along O'Connell Street. Further details of bus stop locations are provided on the last page.

Service routes and timetables for the available services are available on the Trip Planner at transportnsw.info/.



T1 & T5 Sydney Trains lines are easily accessible through a bus connection to Rooty Hill Train Station. Additional information about current train & bus routes is available on the Trip Planner at transportnsw.info/.



Calibre Building 3 provides easily accessible paths for pedestrians and cyclists via the abundance of shared paths and the bike lanes that runs along The M7 and Archer Street. If you cycle, run or walk, **Calibre Building 3** is equipped with extensive End of Trip (EoT) facilities.

For detailed information on travelling to and from **Calibre Building 3** use [Trip Planner](#).



Find a travel planning app that works for you



[Opal Travel](#)

Top up your Opal card and see your weekly travel reward information wherever you are. You can also plan a trip to and from anywhere in NSW with Opal fare estimates.



[Citymapper](#)

This app shows your best travel options by comparing driving, walking and cycling with real-time public transport information.



[Transport Info](#)

Visit Transport Info to plan your journey and find your nearest public transport connection.



Carpooling

By sharing rides with others, you not only reduce your personal commuting costs but also contribute to easing traffic congestion and lowering carbon emissions.

To arrange for carpooling, get in touch with the Travel Plan coordinator on Page 4 for contact information.

Building Facilities and Information



End of Trip (EoT) facilities

If you cycle, run or walk to Calibre Building 3, you can access shared EoT facilities. Facilities include:

- 24 Secure bicycle parking spaces
- 6 Change rooms / showers
- 74 Lockers

All showers and changing facilities are located with convenient access to the office space.



Travel Plan Coordinator (TPC)

Name:	TBC
Locations:	TBC
Office hours:	TBC
Contact:	 - TBC
	 - TBC
	 - TBC



Cycling Map and information on local cycling routes.

Detailed Cycling Map
[Blacktown Cycling Map](#)

Planning your bike trip

Transport's [Trip Planner](#) has new options to allow you to plan your bike riding route based on your skill level and preferences in three easy steps.

1. Enter your starting point.
2. Enter your destination.
3. Choose your preferred type of trip based on your skill level or preference.

Easier: Ideal for new cyclists, young riders or those who would prefer an easier route by avoiding hills and busy roads where possible.

Moderate: Best suited to intermediate cyclists who don't mind the occasional hill and are comfortable riding on some roads.

More direct: For experienced cyclists who want to minimise travel time, can handle steeper hills and navigate busy roads.



Planning a mixed mode trip

You can also use the trip planner to plan a mixed trip, using both your bike and public transport in combination. For example, if you want to cycle for the first part of your journey from your home to a train station, then by train to the office.

Visit [Trip Planner](#) now or read our guide for more information.



For more information visit:

Transport for NSW travel planning website
[Transportnsw info](#) or call 131500

Bike map

[Cycleway Finder](#)

[Bicycle NSW](#)

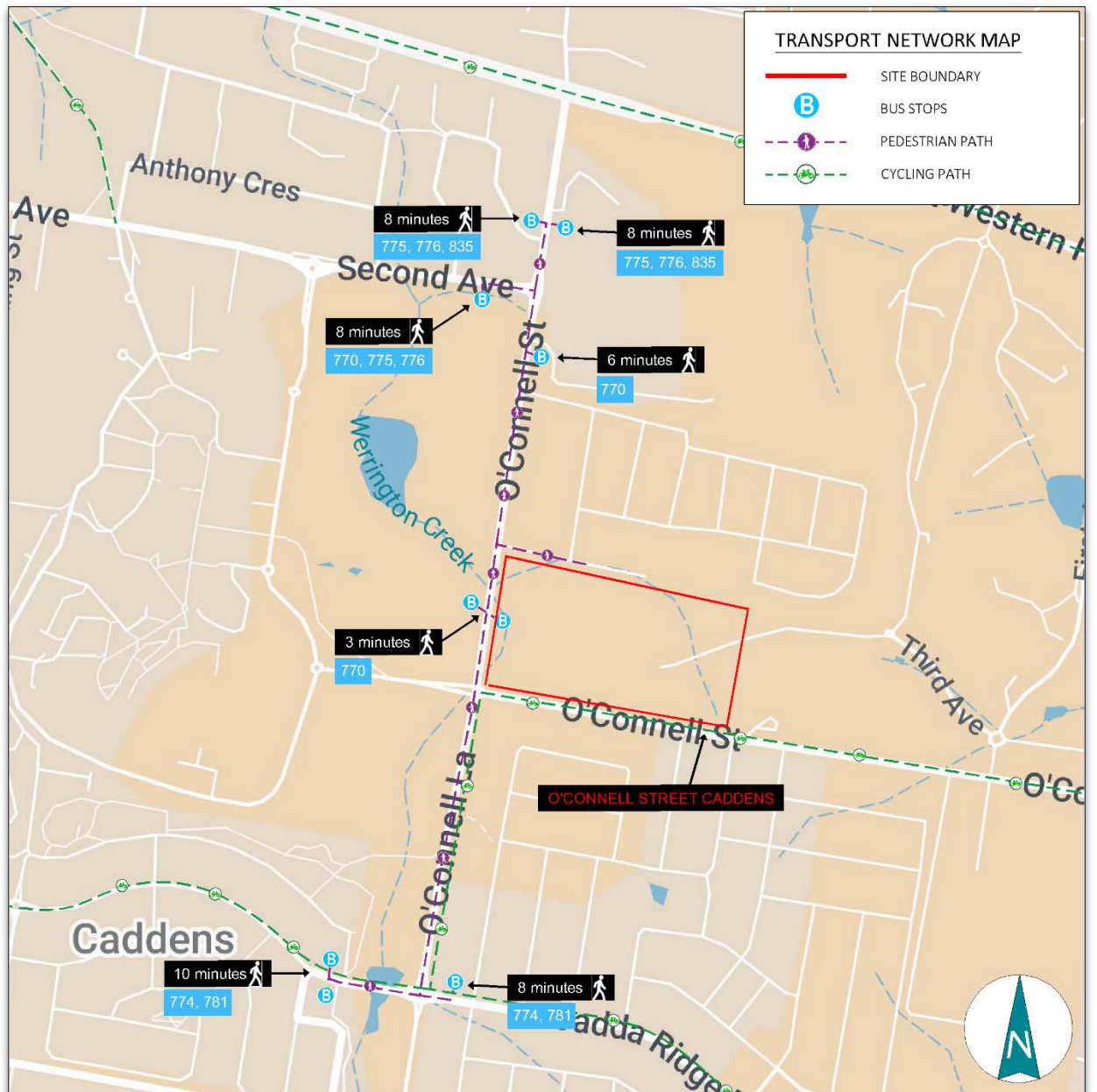
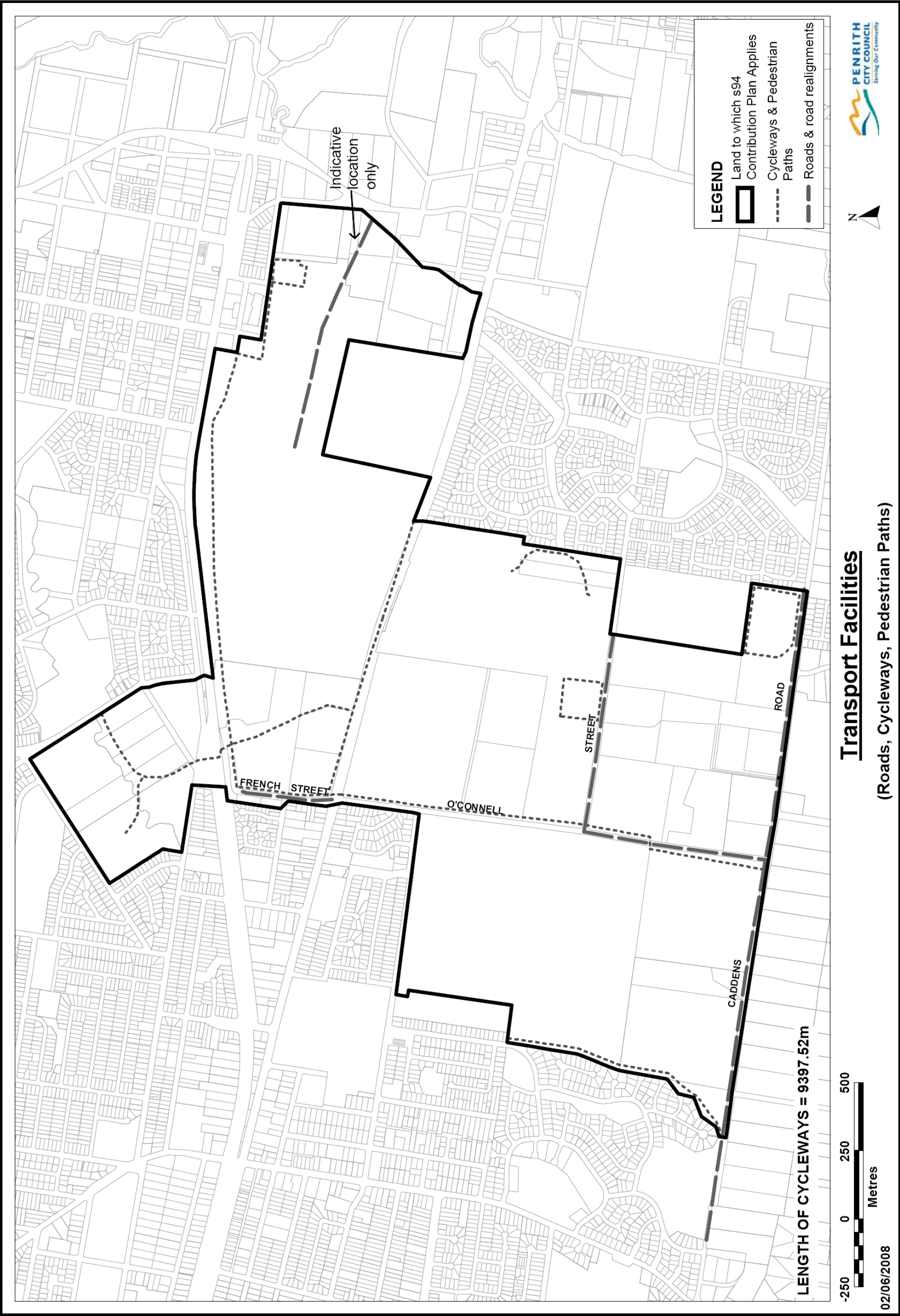


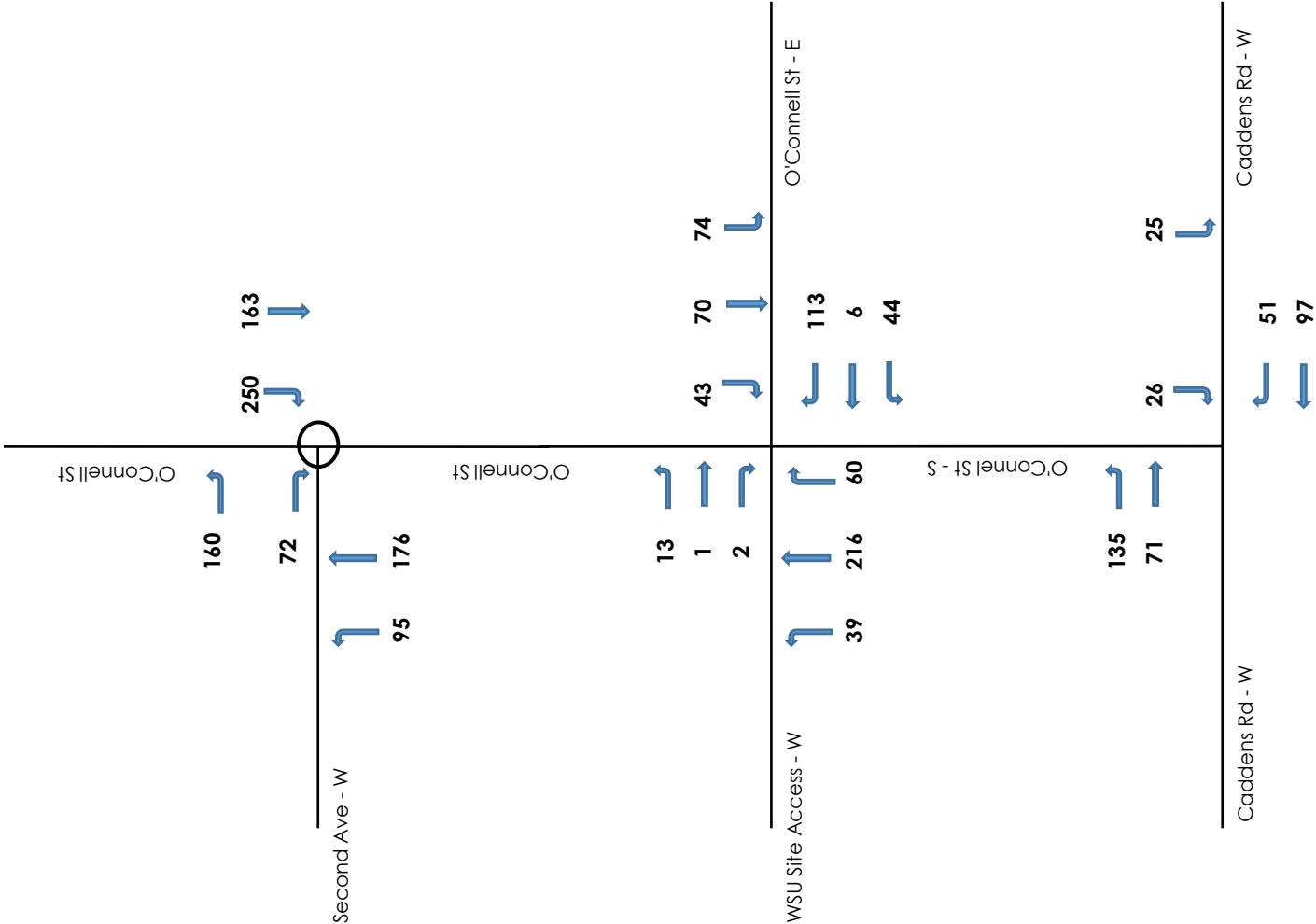
Figure 1 - Transport Access Guide

Appendix G

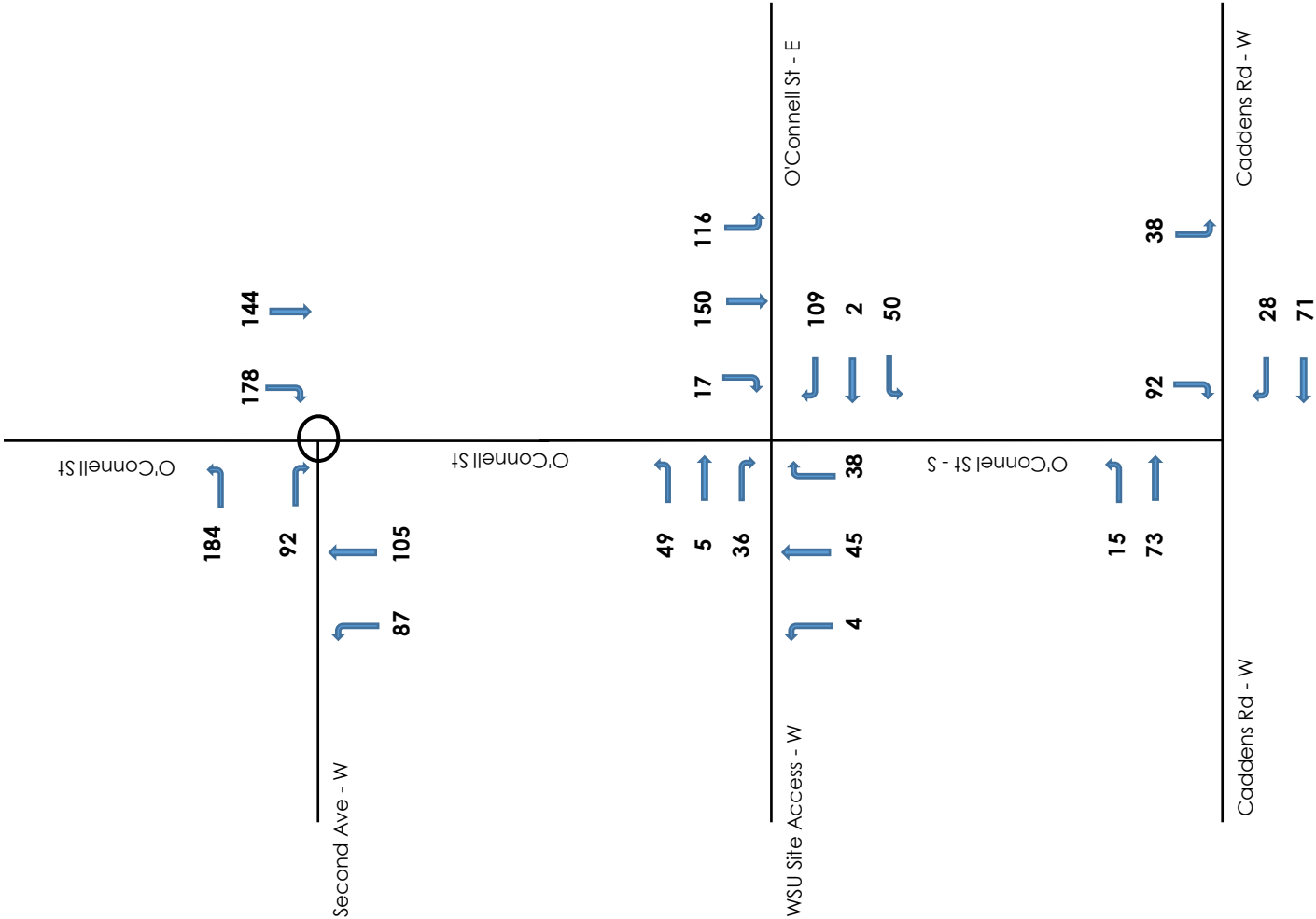
TTPP Traffic Distribution



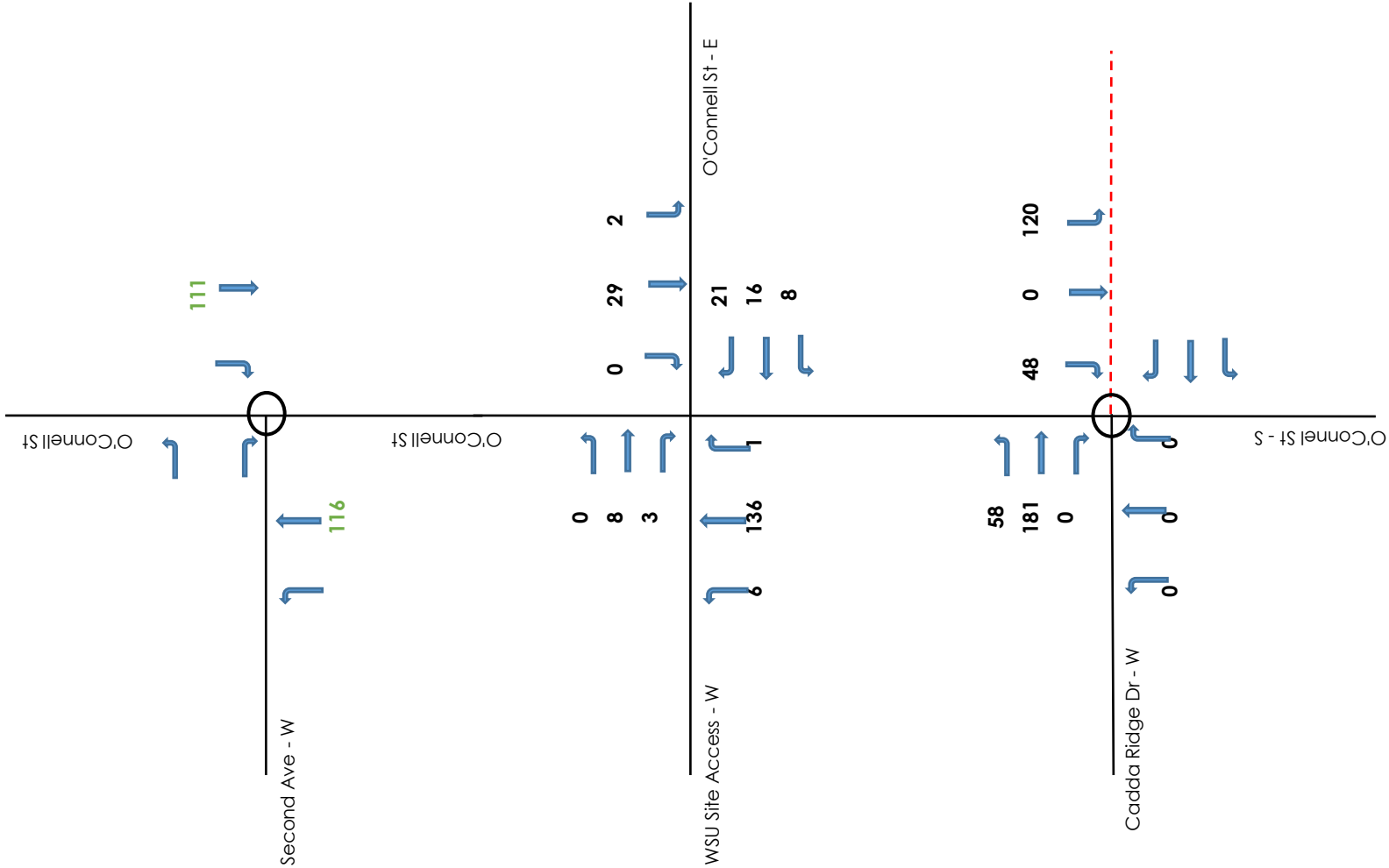
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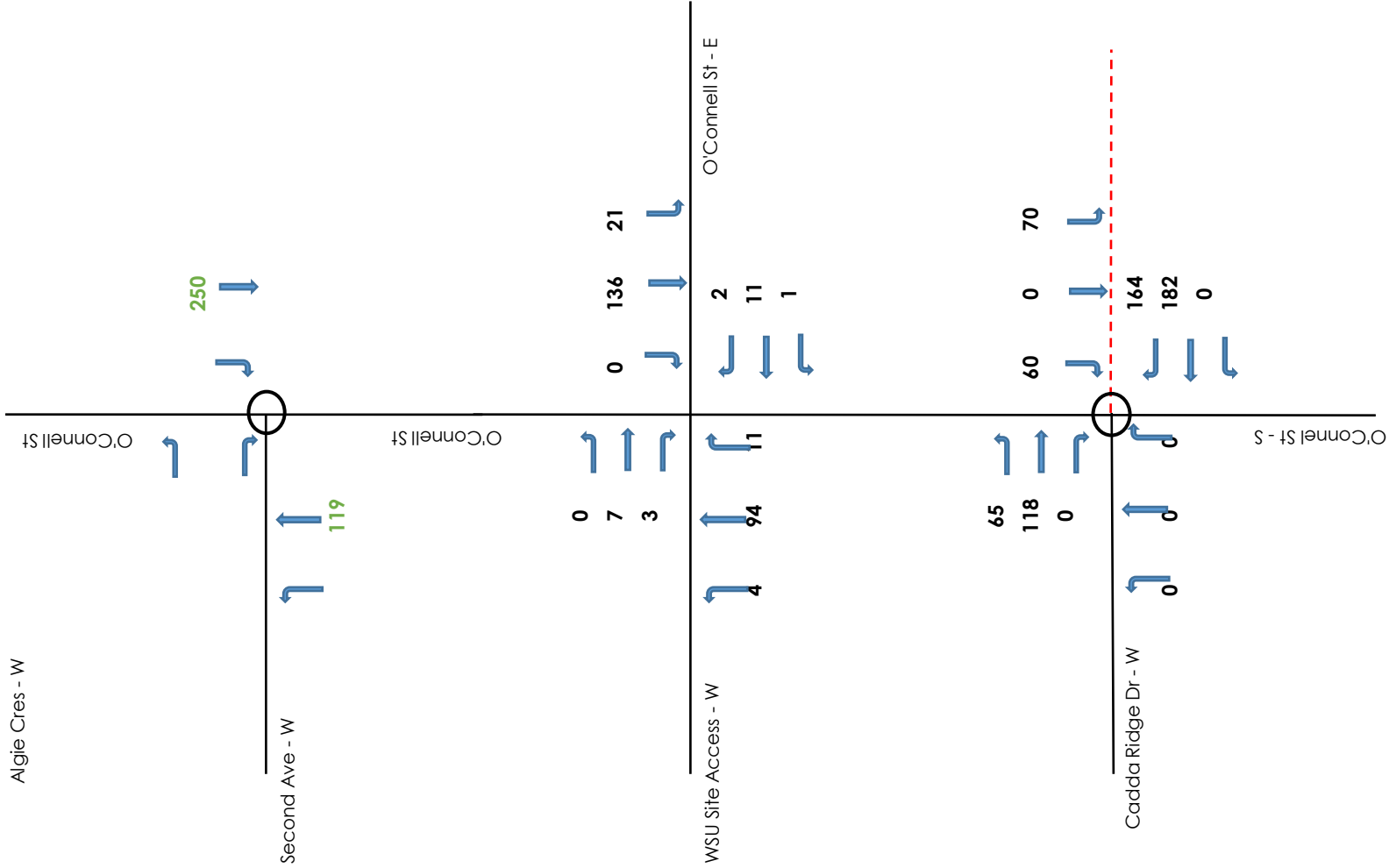
Weekday PM



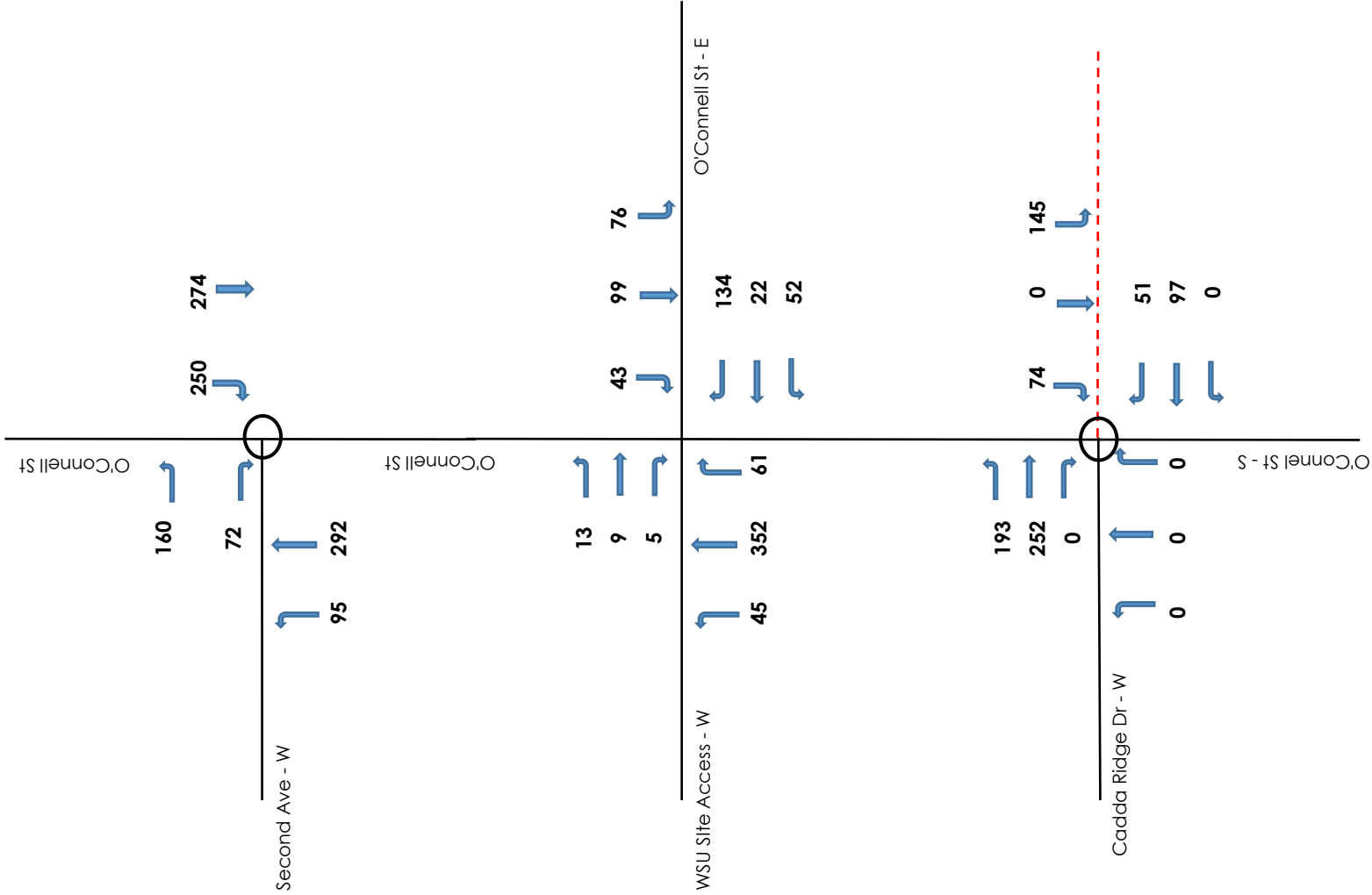
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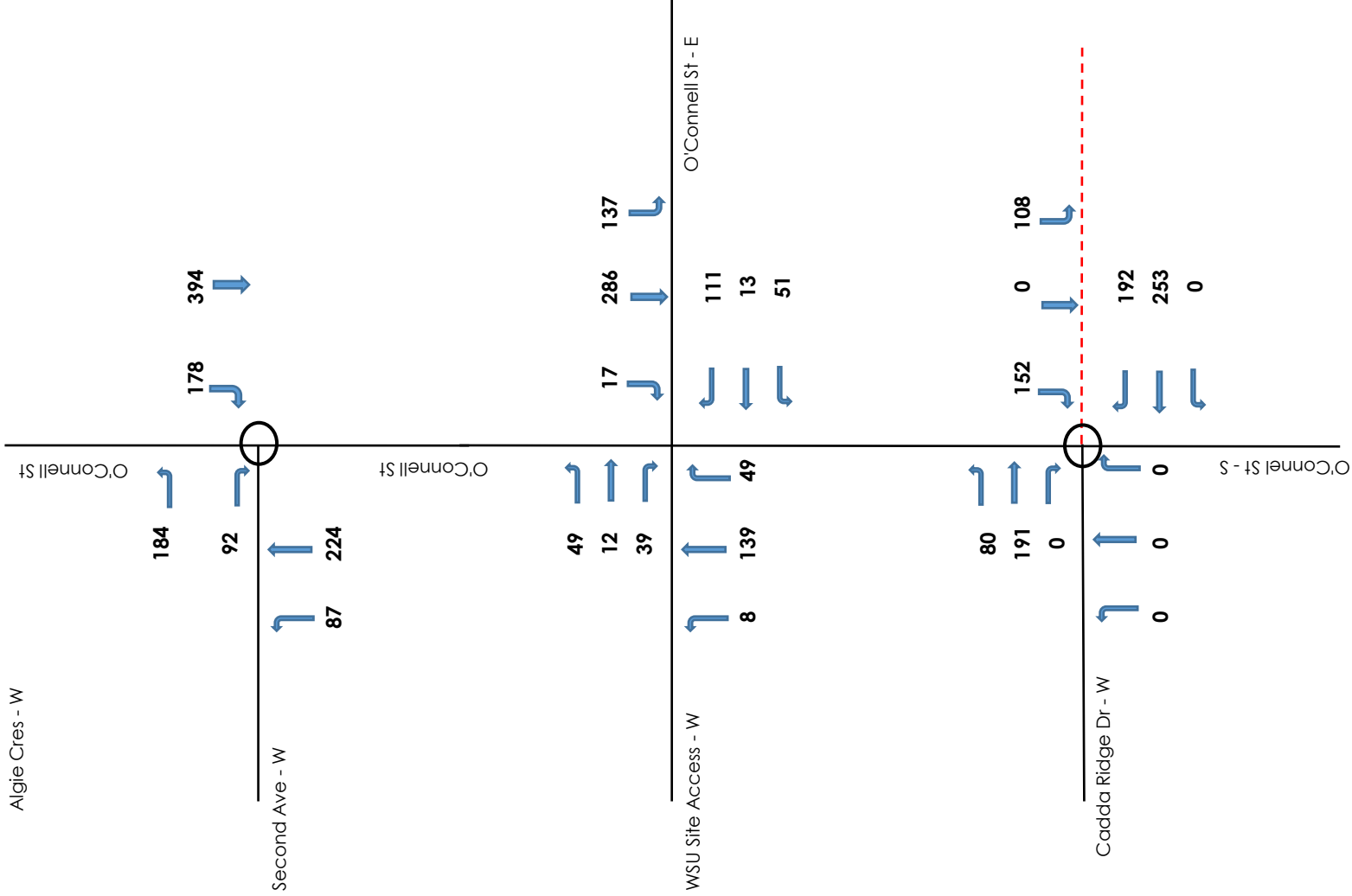
PM Background



Future AM



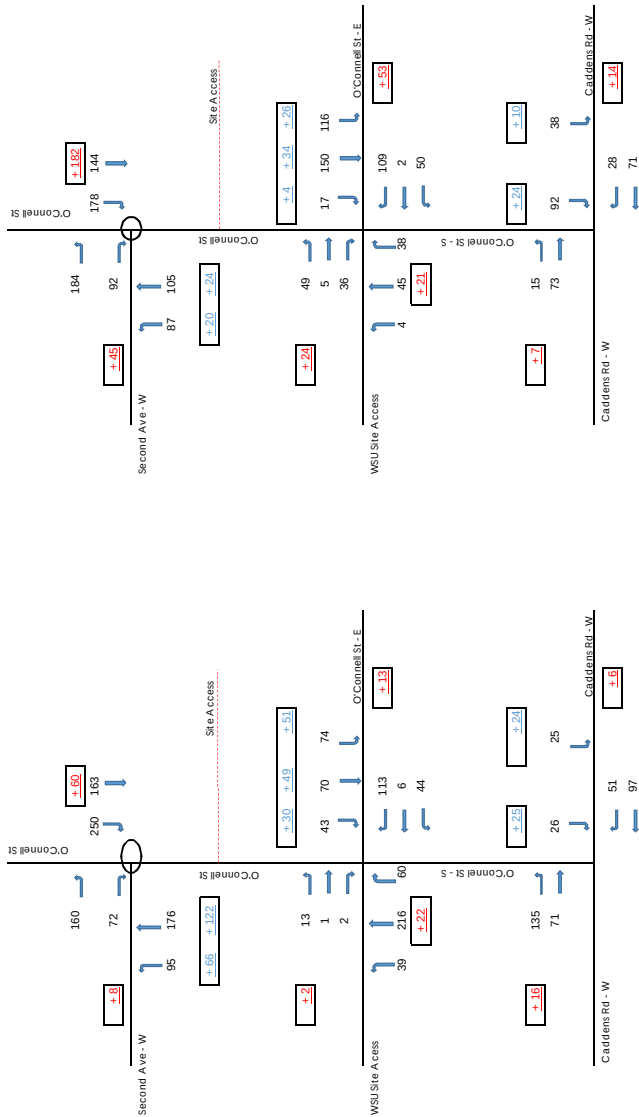
Future PM



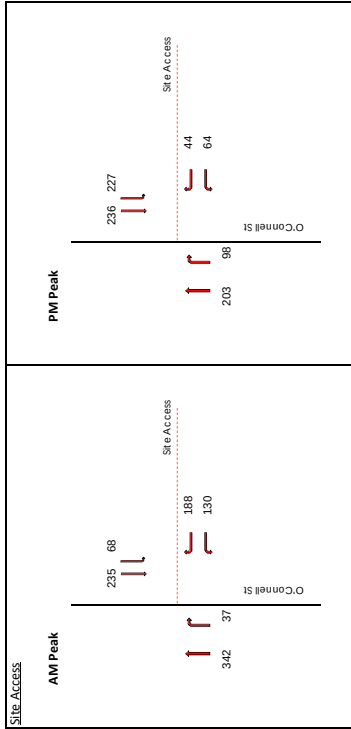
Post Development Traffic

Weekday AM

Weekday PM



XX Inbound Dev Traffic
XX Outbound Dev Traffic



Appendix H

TDT 2013

Technical Direction

For traffic, safety and transport practitioners

OPERATIONAL POLICY – GUIDELINES – ADVICE



Transport
Roads & Maritime
Services

Published August 2013

Supersedes/Amends TDT 2013/04

TDT 2013/

04a

Guide to Traffic Generating Developments

Updated traffic surveys

Introduction

The *Guide to Traffic Generating Developments* was first released in 1991. It was revised in 2001 and is in the process of being further revised. It provides guidance on a number of matters related to the traffic impacts of land use developments, most notably on matters relating to traffic generation and parking. Its audience extends beyond that of traffic authorities (RMS and Councils) and is widely used throughout Australia.

Over the past few years a number of surveys have been undertaken to update trip generation and parking information as part of the *Guide*. This Technical Direction provides a summary of the updated information. The information herein should be used to supplement the current Guide and replace those sections of the *Guide* indicated. The information is provided in two parts; (i) a very brief summary below and (ii) more extended summaries in Appendices A-H. More detailed information may be obtained by referral to the RMS Library where reports on each land use may be found.

Summaries of land use traffic generation

Low density residential dwellings

Eleven surveys were conducted in 2010, six within the Sydney urban area and five within regional NSW. The results of the surveys were as follows:

Rates

Daily vehicle trips = 10.7 per dwelling in Sydney, 7.4 per dwelling in regional areas

Weekday average evening peak hour vehicle trips = 0.99 per dwelling in Sydney (maximum 1.39), 0.78 per dwelling in regional areas (maximum 0.90).

Weekday average morning peak hour vehicle trips = 0.95 per dwelling in Sydney (maximum 1.32), 0.71 per dwelling in regional areas (maximum 0.85).

(The above rates do **not** include trips made internal to the subdivision, which may add up to an additional 25%).

Distribution List:

Director, Infrastructure Development; RMS Development Managers; RMS Land use/Planning Officers; Councils; Land & Environment Court Officers and Consultants.

For further enquiries

www.rms.nsw.gov.au | E technical.directions.publication@rms.nsw.gov.au

Amendment: Required Action (Pg 3) amended.

Approved: R O'Keefe, Mgr Traffic Policy, Guidelines & Legislation

RMS. 13.298

1 (22 pages)

UNCONTROLLED WHEN PRINTED

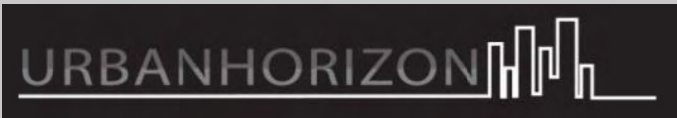
Appendix I

DPIE Planning for Metropolitan Growth Centres

North West Growth Centre Indicative Layout Plan Revision

Traffic and Transport Model Year 2036

Prepared in association with...

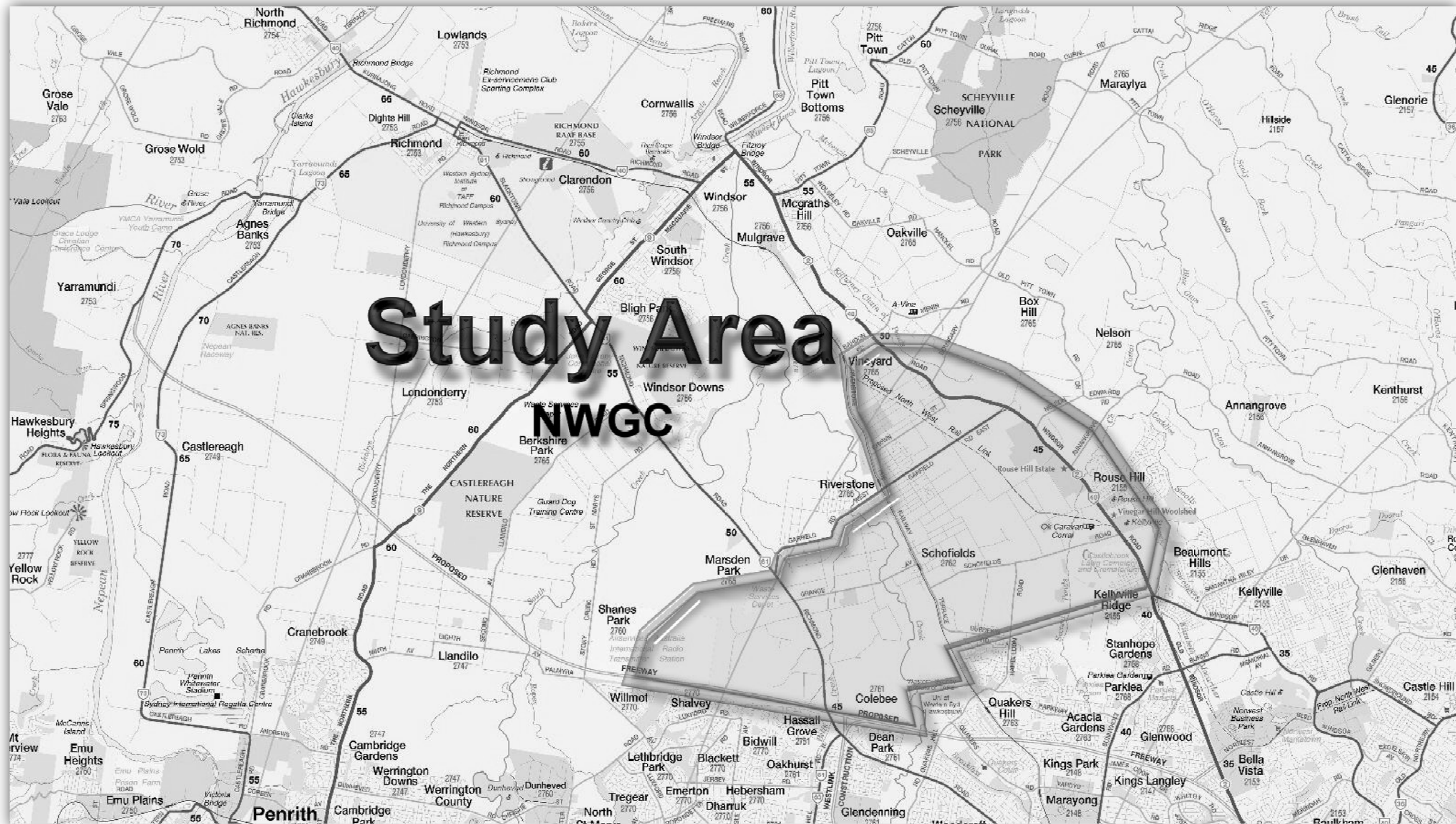


for



Reference: 20090056
July 2009
(This is an A3 document)
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The vehicle generation parameters applied to land use and growth levels throughout the Western Sydney region, have been adapted from recent studies undertaken by Road Delay Solutions and Sims Varley Traffic Systems. Typically...

- North West Growth Centre,
- South West Growth Centre,
- Eastern Creek Precinct,
- Huntingwood Stage1 and Stage 2,
- Erskine Park,
- Penrith LGA Arterial Road Study, and
- St Marys ADI Transport Study.

The vehicle generation parameters, adopted for this project, are presented in *Table 2*.

Table 1: Typical Trip Distribution Pattern for NWGC

Trip Destination	% Netanal Trip Distribution from...		
	Riverstone	Schofields	Marsden Park
Windsor / Richmond	5	3	1
Hornsby	1	2	1
Sydney CBD	2	1	1
Parramatta CBD	4	3	3
Blacktown CBD	5	3	13
Liverpool CBD	1	1	1
WSEH	16	8	8
Marsden Park	8	7	2
Penrith CBD	3	2	2

Table 2: Vehicle Generation Parameters by Land Use

	Year		Total
	CURRENT	2036	
Number of dwellings	10,274	64,605	74,879
Commercial Land (employees)	7,045	39,835	46,880
Area of retail land (hectare)	0	0	0
Area of industrial land (hectare)	0	0	0
Area of educational land (hectare)	0	0	0
Trip Generation Rates (Peak Hour)			
Residential			
- Vehicle Trips per Dwelling		0.57	
- Reduction in Vehicle Trips due to Transport Initiatives		0.0%	
- Percent Outbound in Morning Peak		80%	
- Percent Outbound in Evening Peak		20%	
Commercial			
- Calculated on...100m2 GLFA=2 or Employees=1		1	
- Trips , as above, per Morning Peak		0.79	
- Trips, as above, per Evening Peak		0.79	
- Reduction in Vehicle Trips due to Transport Initiatives		12.5%	
- Percent Outbound in Morning Peak		15%	
- Percent Outbound in Evening Peak		85%	
Retail			
- Employees per hectare		25	
- Trips per Employee in Morning Peak		0.83	
- Trips per Employee in Evening Peak		0.83	
- Percent Car Driver		50%	
- Reduction in Vehicle Trips due to Transport Initiatives		12.5%	
- Percent Outbound in Morning Peak		15%	
- Percent Outbound in Evening Peak		85%	
Industrial			
- Employees per hectare		20	
- Trips per Employee in Morning Peak		0.83	
- Trips per Employee in Evening Peak		0.83	
- Percent Car Driver		50%	
- Reduction in Vehicle Trips due to Transport Initiatives		12.5%	
- Percent Outbound in Morning Peak		15%	
- Percent Outbound in Evening Peak		85%	
Education			
- Employees per hectare		25	
- Trips per Employee in Morning Peak		0.7	
- Trips per Employee in Evening Peak		0.7	
- Percent Car Driver		50%	
- Reduction in Vehicle Trips due to Transport Initiatives		12.5%	
- Percent Outbound in Morning Peak		15%	
- Percent Outbound in Evening Peak		85%	
Trip Containment			
		20%	

Appendix J

TTPA Study for Glenmore Park

**PROPOSED
GLENMORE PARK STAGE 2**

***Transport Management
and Accessibility Plan***

October 2005

Reference 0338

TRANSPORT AND TRAFFIC PLANNING ASSOCIATES
Transportation, Traffic and Design Consultants
Suite 603, Level 6
282 Victoria Avenue
CHATSWOOD 2067
Telephone (02) 9411 5660
Facsimile (02) 9904 6622
Email: ttpa@ttpa.com.au

5.2 EXISTING GLENMORE PARK

The 2001 Census established that there were some 5,447 occupied dwellings in the existing Glenmore Park development at the time of the survey.

Access to and from the surrounding Arterial Road network (ie The Northern Road and Mulgoa Road) from the existing development is restricted to the Glenmore Parkway and Garswood Road intersection. This circumstance and the circuitous internal road layout provides the relatively unique situation where it is possible to establish the vehicle trip generation rate of the estate without the complication of non-related external through movements. An assessment of the AM and PM peak hour movements at the 3 'access' intersections from the 'June' survey indicate the following IN/OUT movements from the Glenmore Park Estate.

	Total Movements	IN	OUT
AM Peak	3283	915	2368
PM Peak	3706	2666	1040

(NB The earlier survey provided similar results to the June survey being within $\pm 2\%$ of the total movements)

On the conservative estimate that there were some 200 dwellings built and occupied between the undertaking of the 2001 Census (ie 5,647 dwellings), and the traffic surveys (and that a 6% vacancy rate), the traffic movements indicated above translate to the following external trip generation rates and peak period IN vs OUT ratios for the estate.

	Total (vtph)	IN (%)	OUT (%)
AM Peak	0.62	27	73
PM Peak	0.70	72	28

5.3 ORIOLE STREET CATCHMENT

The street layout within the existing Glenmore Park development provided an opportunity to undertake a 'sensitivity test' of the published RTA generation rate and the rates established in Section 5.2. To ascertain the traffic generation rate of residential only development, a survey was carried out of the vehicle movements in the AM (7.00 – 9.00am) and PM (4.00 - 6.30pm) peak period travelling to/from Oriole Street at its intersection with Woodlands Drive. This intersection is the only means of vehicular access to some 340 residences and is an area of the estate which was fully developed and at the time of the survey had no new residential construction activity taking place.

The results of the survey indicate the following movements to/from Oriole Street.

**LOCATION: ORIOLE STREET/WOODLANDS DRIVE
VEHICLE MOVEMENTS**

		AM Peak (7.45 – 8.45am)	PM Peak (5.15 – 6.15pm)
Oriole Street (OUT)	Left	38	11
	Right	128	51
Woodlands Drive (IN)	Left	8	35
	Right	34	132
Total		206	229

On the assumption that of the 340 residences within the surveyed area, approximately 6% (20 residences) were unoccupied, the traffic movements represent an AM and PM peak generation of 0.64 vehicle trips per hour per residence and 0.72 vehicle trips per hour per residence respectively.

5.4 ASSESSMENT

From the assessment it is apparent that the RTA published trip generation rate for residential development of 0.85 vtpd is not a true reflection of the circumstances which prevail at Glenmore Park. On the basis that the trip generation rate attained from the Oriole Street assessment also includes a component of 'internal' trips (say 6%), the data from this analysis and that of the 'whole' of Glenmore Park would suggest that an external trip generation rate of 0.65 vtpd per dwelling in the peak periods is more reflective of the existing traffic activity generated by the Glenmore Park Estate.

Application of this rate (0.65 vtpd) to the detached dwelling component and a 0.5 vtpd rate to the medium density element, indicates the following likely AM and PM peak vehicle movements for the various phases of construction activity:

Appendix K

Site Audit Results

5. Audit Findings & Recommendations

5.1 Deficiency Log

The identified deficiencies noted in the signage and line marking drawings for the proposed access arrangements are tabulated below.

Table 1 - Deficiency Log

No.	Item	Description	Risk	Audit Team Assessment/Comment
1.	Sight Distance O'Connell St Road Connection	Potential sight distance issues for vehicles exiting new road connection to O'Connell Street	High	Parking should be avoided at all times between the new intersection and exiting eastbound bus stop
Client Representative Comment 'No Stopping' sign has been added to restrict parking between the new intersection and existing eastbound bus stop.				
2.	Retail Exit Ramp Advisory Signage	Direction advisory signage not including in signage and linemarking plan	Medium	Retail ramp vehicles exiting to the one-way internal road would benefit from Left Turn Only or similar signage
Client Representative Comment 'Left Turn Only' signage has been added to provide directional guidance at retail vehicles exit.				
3.	Pedestrian Crossing No Stopping Zones	All three (3) new pedestrian crossings do not include approach / departure minimum No Stopping Zone signage to prevent parking close to crossings	High	All pedestrian crossings should include pedestrian crossing signage in accordance with the requirements of complying with Australian Standards (AS) 1742, 1743, and 1906. This would include changes to parking lane EI linemarking
Client Representative Comment Pedestrian crossing signage has been added, and parking lanes updated with 'No Stopping' signs near each crossing to comply with requirements and improve safety. All crossings are now raised and include kerb build-outs.				
4.	Pedestrian pathway link northern side of O'Connell St	Design plans do not include all weather pathway link from existing path to existing eastbound bus stop east of Starline Drive	Medium	Pedestrian safety would benefit from continuing existing all weather footpath on northern side of O'Connell Street east of retail ramp to existing eastbound bus stop east of new road connection
Client Representative Comment A pedestrian pathway link has been proposed, including pram ramps to provide a link from the existing path to the existing eastbound bus stop located east of Starline Drive.				

No.	Item	Description	Risk	Audit Team Assessment/Comment
5.	Residential Building Ramp Exits Within One Way Rd	No proposed directional advisory signage at residential building exits	Medium	Exiting drivers would benefit from directional turn only signage at residential building ramp connections to proposed one-way internal road
Client Representative Comment Left Turn Only' signage has been added to provide directional guidance at the residential building exits.				
6.	Drawing inconsistencies	One way arrow linemarking shown within one way road on architectural drawings not signage and linemarking drawing	Medium	Driver and pedestrian safety would benefit from spaced painted directional areas within the one way road as shown on the architectural drawings
Client Representative Comment Directional arrows on the road have been added to the signage and linemarking plan consistent with the architectural plans.				
7.	Incorrect Placement of Pedestrian Crossing Sign / One Way Sign	Pedestrian sign R3-1 shown at intersection of one-way road with Corr Road extension. One Way sign faces only one direction of traffic	Medium	This proposed sign appears to have no benefit to safety in its location. One way signs should be considered within the side road facing both directions of approaching traffic.
Client Representative Comment The pedestrian sign has been removed, and one-way signs were added within the side road, facing both directions of approaching traffic to enhance clarity.				
8.	Tree Provision within new roads	Impact of tree planting close to proposed vehicle ramps serving retail / residential developments	Medium	Any tree planting in close proximity to vehicle access driveways should consider sight distance requirements of AS2890.1.
Client Representative Comment Proposed tree plantings have been located with consideration to driveway sightlines, crossings, and general services elements such as hydrant / booster assemblies, substation, parking bays etc.				
9.	Sight Distance to Pedestrians at vehicle access driveways	Unclear whether sight line requirements of Figure 3.3 of AS2890.1 has been achieved below driver height of walls adjacent to new access driveways	High	Sight line requirements of Figure 3.3 of AS2890.1 should be achieved at all existing / proposed vehicle access ramp locations serving retail and residential developments

No.	Item	Description	Risk	Audit Team Assessment/Comment
Client Representative Comment				
Noted and amended				
10.	No Entry sign one way road connection at Corr Rd	Single No Entry sign within island may not be visible to approaching traffic from each direction with Corr Rd	Medium	Driver safety would benefit from provision of No Entry signs on poles either side of one way road intersection connection with Corr Rd
Client Representative Comment				
Two 'No Entry' signs have been added, each facing a direction of approaching traffic from Corr Road to enhance visibility and driver safety.				