

321 Lower Heidelberg Road & 1 Maltravers Road, Ivanhoe East

Transport Impact Assessment



ADVERTISED PLAN
Application No. P4/2024

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230648TIA001H-F.docx
15 April 2024

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DOCUMENT INFORMATION

Prepared for	Via Architects	Report Date	15 April 2024
File Name	230648TIA001H-F.docx	Reviewed by	JMS and JS
Prepared by	HTS		

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1 INTRODUCTION

onemilegrid has been requested by Via Architects to undertake a Transport Impact Assessment of the proposed mixed-use development at 321 Lower Heidelberg Road & 1 Maltravers Road, Ivanhoe East. The development contemplates child care, medical centre and other health and wellbeing facilities.

As part of this assessment the subject site has been inspected with due consideration of the development proposal, traffic and parking data has been sourced, and relevant background information has been reviewed.

This Transport Impact Assessment has been updated in response to the Request for Further Information (RFI) issued by Banyule City Council (dated: 16 February 2024). The RFI included the following Transport Impact Assessment requests:

1. *An updated Traffic and Parking Assessment which includes the following:*

- a) *The swimming pool rate applied to the parking calculations for the swimming pool area or justification provided as to why this can be included as ancillary to the gym and wellness centre.*
- b) *An empirical assessment to justify how the 0.6 spaces per patron has been adopted for the health club.*
- c) *Details as to how the patron cap will be enforced for the gym and wellness facility.*
- d) *Evidence to support the assumptions made in deriving the parking demand for other uses in Part 7.3 Parking Profile Demand.*

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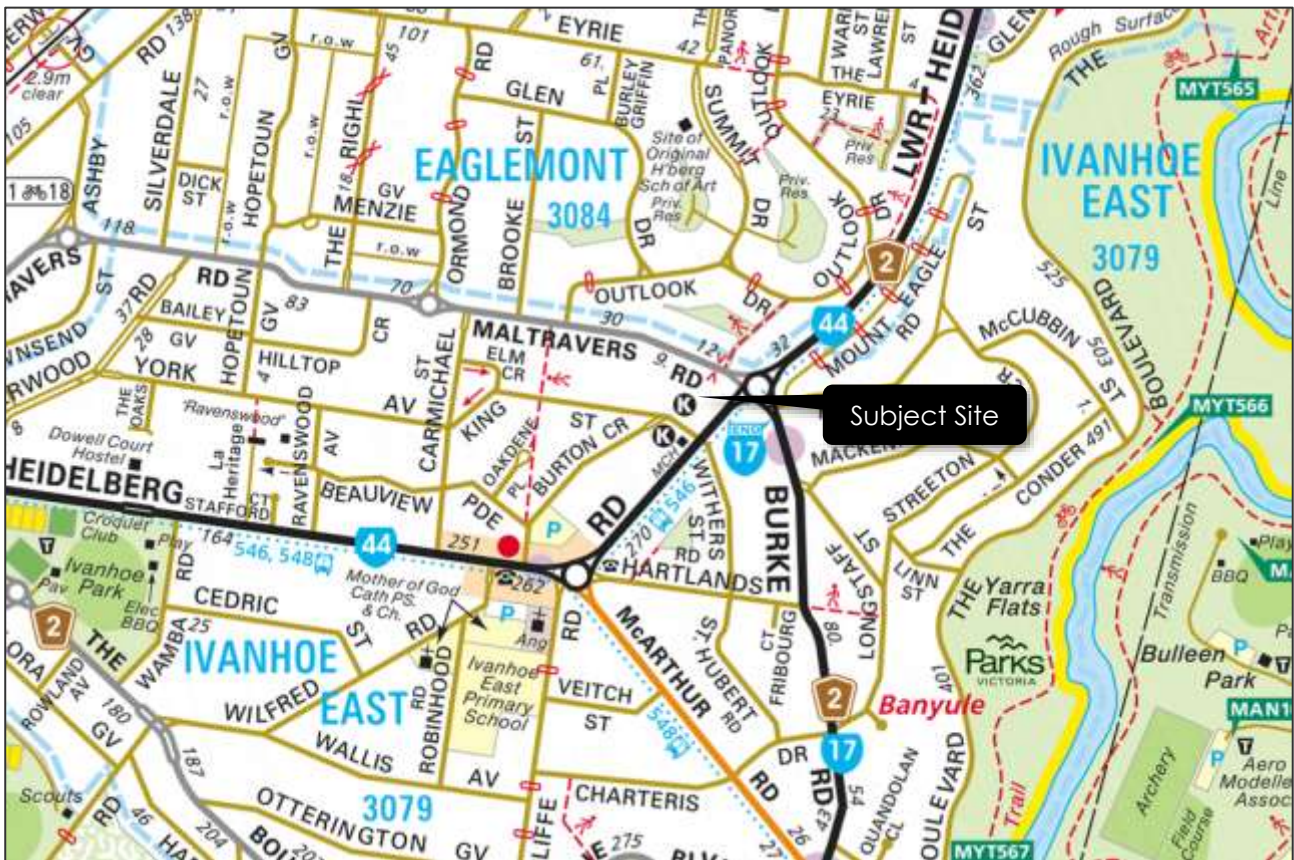
2 EXISTING CONDITIONS

2.1 Site Location

The [subject site](#) is located on the north-west corner of the intersection between Lower Heidelberg Road and Maltravers Road, as shown in Figure 1, and is addressed as 321 Lower Heidelberg Road, Ivanhoe East.

The site is irregular in shape with a frontage to Lower Heidelberg Road along the eastern boundary of approximately 90m, a frontage to King Street along the southern boundary of approximately 50m and a side abuttal to Maltravers Road along the northern boundary of approximately 70m, with a total site area of approximately 6,293m².

Figure 1 Site Location



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The subject site is a consolidation of two properties (321 Lower Heidelberg Road and 1 Maltravers Road), with 321 Lower Heidelberg Road currently comprising of two church buildings, a single storey dwelling, a brick building associated with the church, and some free-standing sheds, and 1 Maltravers Road currently containing a double-storey dwelling and garage. The church building on King Street is understood to have been established 1941 and has been identified as of historical significance. An at-grade car park currently occupies the northwestern corner of the site and a tennis court is situated on the southeastern corner of the site.

Existing vehicle access to 321 Lower Heidelberg Road is provided via 2 crossovers along King Street and Lower Heidelberg Road. A separate vehicle access to 1 Maltravers Road is also provided along Lower Heidelberg Road.

Land use in the immediate vicinity of the site is generally residential in nature, and includes commercial uses just 300m south-west of the site.

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An aerial view of the subject site is provided in Figure 2.

Figure 2 Site Context (3rd Sep 2023)



Copyright Nearmap

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2.3 Road Network

2.3.1 Lower Heidelberg Road

Lower Heidelberg Road is an arterial road generally aligned northeast-southwest in the vicinity of the site, running from Heidelberg Road in the west, bending to run approximately north-south until it becomes Rosanna Road north of the intersection with Burgundy Street in Heidelberg. Lower Heidelberg Road provides a single traffic lane and a bike lane in each direction adjacent to the site. Line marked right-turn lanes are provided along Lower Heidelberg Road at the sign-controlled intersection with King Street and Withers Street to provide dedicated access via Lower Heidelberg Road.

While no kerbside parking is provided along the site frontage, dedicated kerbside parking lanes are provided on both sides of Lower Heidelberg Road to the south of the site, comprising a mixture of 1-hour, 2-hour and unrestricted parking. Bus stops are located on both sides of Lower Heidelberg Road, at the frontage of the site.

A 60km/h speed limit applies to Lower Heidelberg Road in the vicinity of the site.

The cross-section of Lower Heidelberg Road is shown in Figure 5.

Figure 5 Lower Heidelberg Road cross section



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2.3.2 Maltravers Road

Maltravers Road is a local road generally aligned east-west, running between Marshall Street in the west and Lower Heidelberg in the east. In the vicinity of the site, Maltravers Road provides a single traffic lane and allows for unrestricted kerbside parking on both sides of the road.

Maltravers Road operates with a signed speed limit of 50km/h.

The cross-section of Maltravers Road at the frontage of the site is shown in Figure 6.

Figure 6 Maltravers Road cross section



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2.3.3 King Street

King Street is a local road generally aligned east-west, running between Lower Heidelberg Road in the east and Carmichael Street in the west. King Street provides a single traffic lane in each direction and allows for kerbside parking on both sides of the road with indented parallel bays provided at the eastern end of King Street. Kerbside parking is generally unrestricted along the entirety of King Street, excluding an indented parallel bay on the southern side of the road, which is permit restricted between 8:00am and 6:00pm, Monday to Friday.

Line marked right-turn lanes are provided along Lower Heidelberg Road at the sign-controlled intersection with King Street and Withers Street to provide dedicated access to King Street. Vehicular access is not permitted to King Street from Carmichael Street at the west, with vehicles required to access the street via Elm Crescent.

The default 50km/h speed limit applies to King Street in the vicinity of the site.

The cross-section of King Street at the frontage of the site is shown in Figure 7.

Figure 7 King Street cross section



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2.4 Traffic Volumes

2.4.1 Turning Movement Count Survey

In order to ascertain the existing traffic volumes in the vicinity of the site, **onemilegrid** commissioned Trans Traffic Survey to undertake traffic movement counts at the following intersections:

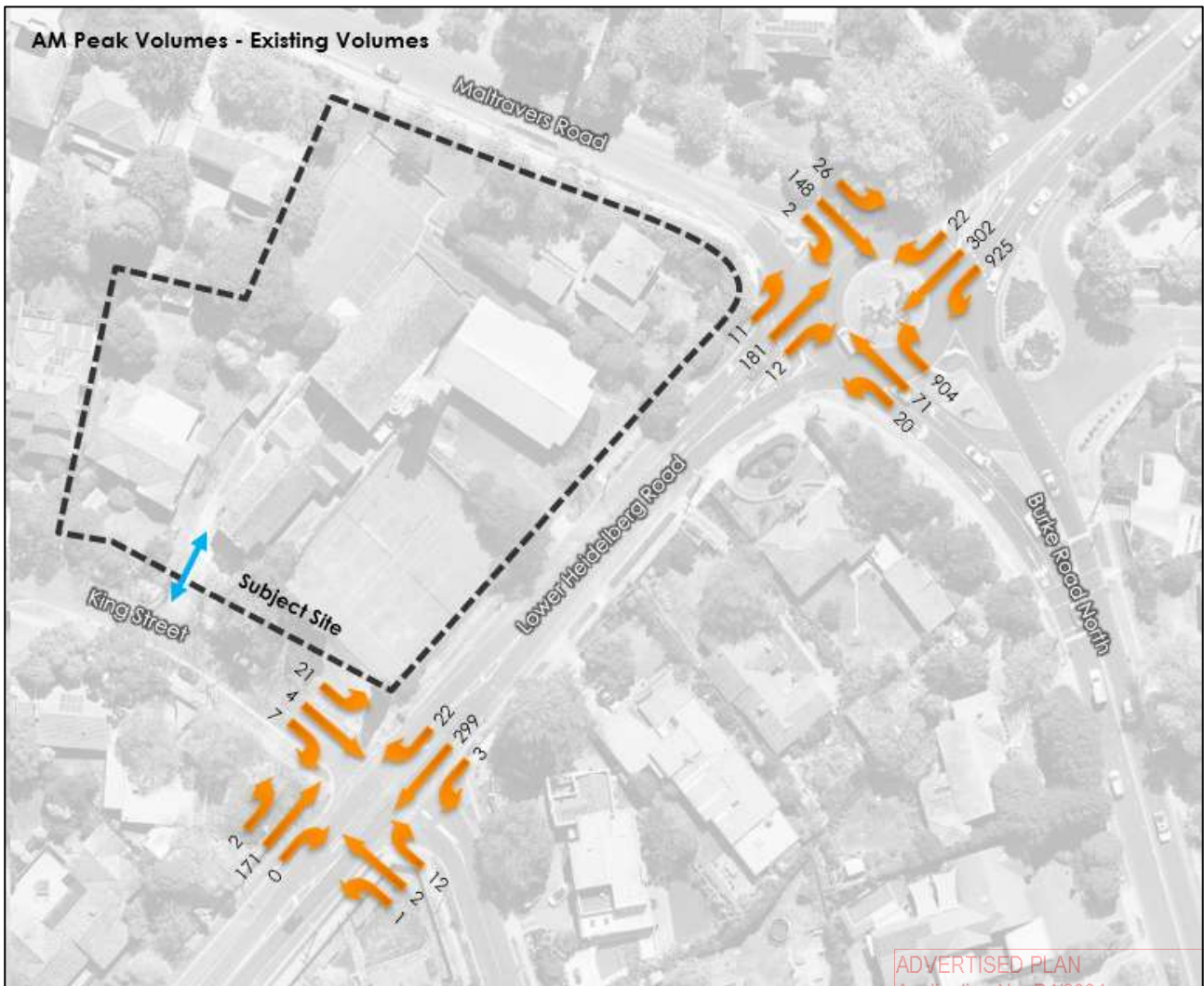
- Lower Heidelberg Road / Burke Road North / Maltravers Road; and
- Lower Heidelberg Road / Withers Street / King Street.

The counts were recorded in 15-minute intervals and undertaken on Wednesday 13th September 2023 between 6:30am and 9:30am, and between 2:30pm and 7:30pm.

A summary of the peak hour counts at the identified intersections during the morning and evening peak periods is shown in Figure 8 below.

The peak hour results of the surveys are shown in Figure 8 and Figure 9.

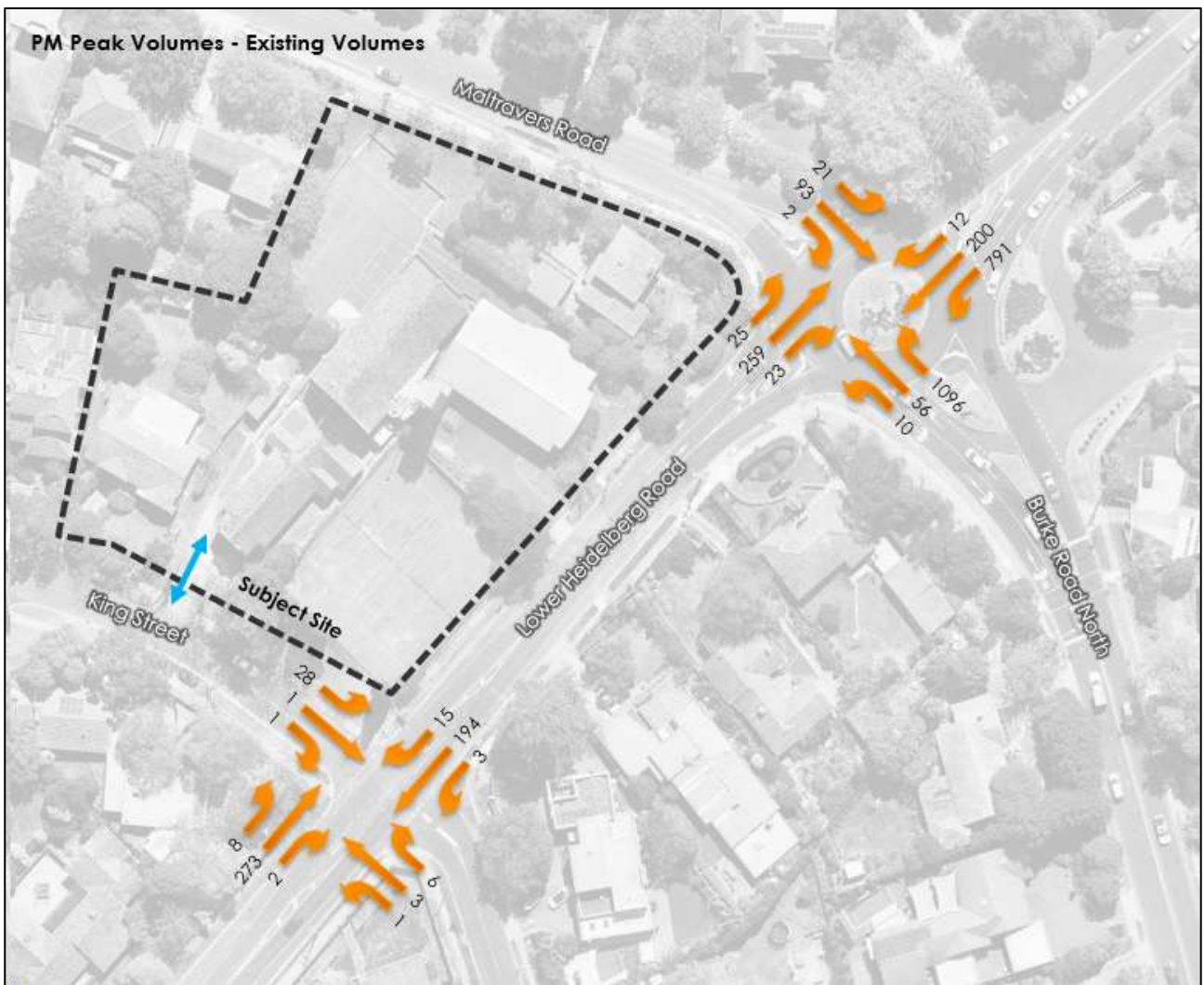
Figure 8 Existing Traffic Volumes – Wednesday 13th September 2023 – AM Peak Hour (8am start)



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Figure 9 Existing Traffic Volumes – Wednesday 13th September 2023 – PM Peak Hour (3pm start)



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2.4.2 Intersection Capacity Assessment

To assess the existing operation of the identified intersections, the surveyed traffic volumes have been input into SIDRA Intersection, a traffic modelling software package.

The SIDRA Intersection software package has been developed to provide information on the capacity of an intersection with regard to a number of parameters. Those parameters considered relevant are, Degree of Saturation (DoS), 95th Percentile Queue, and Average Delay as described below.

Table 1 SIDRA Intersection Parameters

Parameter	Description	
Degree of Saturation (DoS)	The DoS represents the ratio of the traffic volume making a particular movement compared to the maximum capacity for that particular movement. The value of the DoS has a corresponding rating depending on the ratio as shown below.	
	Degree of Saturation	Rating
	Up to 0.60	Excellent
	0.61 – 0.70	Very Good
	0.71 – 0.80	Good
	0.81 – 0.90	Fair
Average Delay (seconds)	0.91 – 1.00	Poor
	Above 1.00	Very Poor
95th Percentile (95%ile) Queue	Average delay is the time delay that can be expected for all vehicles undertaking a particular movement in seconds.	
	95%ile queue represents the maximum queue length in metres that can be expected in 95% of observed queue lengths in the peak hour	

The results of the existing intersection capacity analysis during the morning and evening peak periods are detailed in Table 2 and Table 3 respectively. It can be seen the identified intersections currently operate within their respective capacities.

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Table 2 Thursday – AM Peak Hour Intersection Analysis Summary – Existing Conditions

<i>Intersection</i>	<i>Approach</i>	<i>Movement</i>	<i>D.o.S</i>	<i>Avg Delay</i>	<i>Queue (m)</i>
Burke Road North / Lower Heidelberg Road / Maltravers Road	Lwr Heidelberg Rd (south)	Left	0.09	10.9	2.7
		Through	0.27	9.3	11.0
		Right	0.27	12.4	11.0
	Burke Rd (east)	Left	0.26	7.3	10.5
		Through	0.26	7.4	10.5
		Right	0.70	12.7	60.0
	Lwr Heidelberg Rd (north)	Left	0.67	5.8	54.2
		Through	0.33	5.7	16.1
		Right	0.33	9.8	16.1
	Maltravers Rd (west)	Left	0.40	16.9	17.0
		Through	0.40	13.1	17.0
		Right	0.40	16.9	17.0
Lower Heidelberg Road / King Street / Withers Street	Lwr Heidelberg Rd (south)	Left	0.10	5.6	0
		Through	0.10	0.0	0
		Right	0.00	6.5	0
	Withers Street (east)	Left	0.04	6.9	0.9
		Through	0.04	9.4	0.9
		Right	0.04	12.0	0.9
	Lwr Heidelberg Rd (north)	Left	0.17	5.5	0
		Through	0.17	0.0	0
		Right	0.02	6.0	0.5
	King Street (west)	Left	0.05	6.3	1.2
		Through	0.05	9.5	1.2
		Right	0.05	11.7	1.2

Table 3 Thursday – PM Peak Hour Intersection Analysis Summary – Existing Conditions

<i>Intersection</i>	<i>Approach</i>	<i>Movement</i>	<i>D.o.S</i>	<i>Avg Delay</i>	<i>Queue (m)</i>
Burke Road North / Lower Heidelberg Road / Maltravers Road	Lwr Heidelberg Rd (south)	Left	0.15	12.4	4.7
		Through	0.46	12.4	22.1
		Right	0.46	15.3	22.1
	Burke Rd (east)	Left	0.27	6.4	11.0
		Through	0.27	6.5	11.0
		Right	0.73	11.9	61.8
	Lwr Heidelberg Rd (north)	Left	0.55	5.3	37.8
		Through	0.22	5.4	9.7
		Right	0.22	9.5	9.7
	Maltravers Rd (west)	Left	0.34	24.1	13.7
		Through	0.34	16.1	13.7
		Right	0.34	19.9	13.7
Lower Heidelberg Road / King Street / Withers Street	Lwr Heidelberg Rd (south)	Left	0.15	5.6	0
		Through	0.15	0.0	0
		Right	0.00	6.1	0
	Withers Street (east)	Left	0.02	6.4	0.6
		Through	0.02	9.2	0.6
		Right	0.02	11.7	0.6
	Lwr Heidelberg Rd (north)	Left	0.11	5.5	0
		Through	0.11	0.0	0
		Right	0.01	6.4	0.4
	King Street (west)	Left	0.03	6.8	0.9
		Through	0.03	9.3	0.9
			Right	0.03	11.5

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The SIDRA analysis identified that the intersection between Lower Heidelberg Road, King Street and Withers Street operates with a rating of excellent.

The intersection between Lower Heidelberg Road, Burke Road North and Maltravers Road generally operates with a rating of excellent, with the exception of the movements between the north (Lower Heidelberg Road) and the east (Burke Road North), due to the high traffic volumes between the Eastern Freeway and Heidelberg.

2.5 Sustainable Transport

2.5.1 Public Transport

The full public transport provision in the vicinity of the site is shown in Figure 10 and detailed in Table 4. It is shown that public transport in the area is limited to the 546 bus service which runs along the site's frontage and the 548 service which is approximately 500 m walk to the southwest of the site. The Hurstbridge train service runs through Ivanhoe Station, which is located approximately 1.8 km from the site.

Figure 10 Public Transport Provision

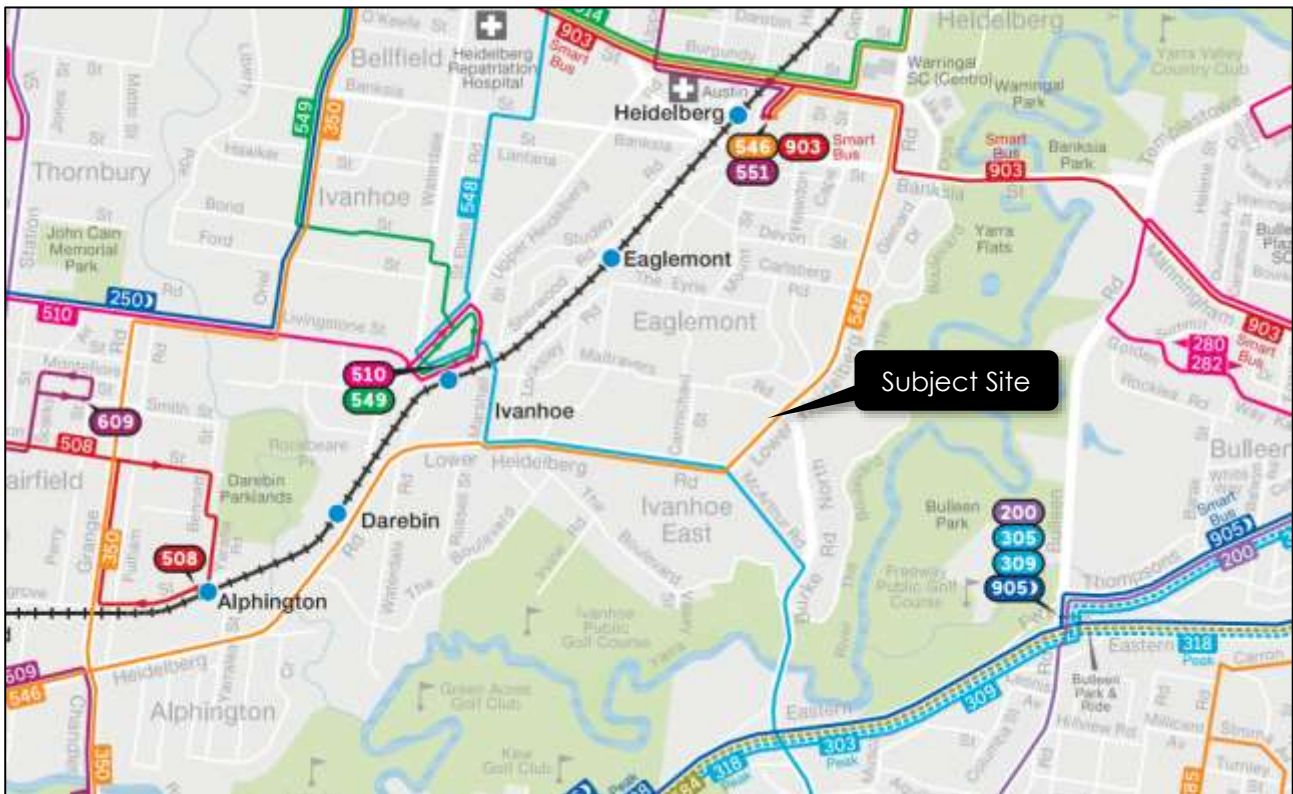


Table 4 Public Transport Provision

Mode	Route No.	Route Description	Nearest Stop/Station
Train		Hurstbridge Line	Ivanhoe Station
Bus	546	Heidelberg Station - Melb Uni - Queen Victoria Market via Clifton Hill and Carlton	Maltravers Road
	548	Kew (Cotham Road) - La Trobe University Bundoora	Carmichael Street

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2.5.2 Bicycle Facilities

On-road bicycle lanes are currently provided along Lower Heidelberg Road and McArthur Road, with an off-road shared path along Main Yarra Trail. These provide further connection to a wider bicycle network, providing excellent bicycle access for the subject site.

2.5.3 Walkability

Walkability is a measure of how friendly an area is to walking. Walkability has many health, environmental, and economic benefits. Factors influencing walkability include the presence or absence and quality of footpaths or other pedestrian rights-of-way, traffic and road conditions, land use patterns, building accessibility, and safety.

The site has a Walk Score rating of 69/100 and is somewhat walkable, with some errands able to be accomplished on foot.

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3 DEVELOPMENT PROPOSAL

3.1 General

It is proposed to demolish the existing buildings and structures (excluding the existing church building on the southern portion of the site) and develop the site for the purposes of a mixed-use development comprising a health-club, child care centre, medical centre, café and gallery.

Table 5 provides a breakdown of each component of the proposed development.

Table 5 Proposed Development

Component	No/Area
Child Care Centre	96 children 1,241 m ²
Café (Food and Drink Premises)	310 m ²
Medical Centre	5 practitioners 465 m ² NLA
Gallery	20 patrons 128 m ²
Health Club (gym, pools and health and wellbeing)	118 patrons 1,350 m ²

The health club component of the site has proposed operational hours of 6am-9pm Monday-Friday and 7am-3pm Saturday-Sunday. It is also noted that the proposed patron cap for the health club has been derived from the car parking availability, as discussed later in this report.

We have been advised that the health club will be a private facility and only open to members. The combined facilities will be managed by a single operator and most facilities will require specific bookings. The operator of the site is therefore able to regulate and enforce the number of patrons which are using the combined facilities at various times throughout the day.

3.2 Car Parking and Vehicular Access

Vehicle access to the site is proposed from King Street at the south-western corner of the site, which provides access to 2 basement car parking levels. The proposed crossover includes an island, signage and linemarking to direct traffic to turn left out of the site onto King Street.

A total of 97 car parking spaces are provided. Both basement levels have been designed to accommodate on-site car parking for staff and visitors. Waste collection and loading activity will be undertaken from the upper basement level.

Of the 97 car parking spaces proposed within the basement, 4 spaces will be DDA compliant, and a further 7 spaces will be marked for future EV charging facilities.

3.3 Bicycle Parking and End-of-Trip Facilities

A total of 36 bicycle spaces are proposed across the development which comprises of 16 staff spaces and a repair station on the upper basement level, 10 visitor spaces on the lower ground floor (accessible from King Street), and 10 visitor spaces on the upper ground floor (accessible from Maltravers Road).

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3.4 Loading and Waste Collection

Loading and waste collection will be undertaken on-site within a formal loading bay area within the upper basement level of the car park.

The loading bay, basement ramp and height have been designed to accommodate a 6.4m length mini-loader waste collection vehicle. It is understood that general loading activities will occur via vans on a day to day basis, and can utilise the loading area as required to undertake these activities.

3.5 Pedestrian Facilities

The proposed development includes pedestrian access to the Lower Heidelberg Road, King Street and Maltravers Road frontages, with internal connections between the frontages.

4 DESIGN ASSESSMENT

4.1 Banyule Planning Scheme – Clause 52.06

onemilegrid has undertaken an assessment of the car parking layout and access for the proposed development with due consideration of the Design Standards detailed within Clause 52.06-9 of the Planning Scheme. A review of those relevant Design Standards is provided in the following sections.

4.1.1 Design Standard 1: Accessways

A summary of the assessment for Design Standard 1 is provided in Table 6.

Table 6 Clause 52.06-9 Design Assessment – Design Standard 1

Requirement	Comments
Be at least 3 metres wide.	Satisfied – minimum width of accessway is 6.4 m
Have an internal radius of at least 4 metres at changes of direction or intersection or be at least 4.2 metres wide.	Satisfied – changes of direction are between accessways of more than 4.2m wide
Allow vehicles parked in the last space of a dead-end accessway in public car parks to exit in a forward direction with one manoeuvre.	Satisfied – public parking spaces are positioned in accessible areas
Provide at least 2.1 metres headroom beneath overhead obstructions, calculated for a vehicle with a wheel base of 2.8 metres.	Satisfied – a minimum height clearance of 3.2 m is achieved
If the accessway serves four or more car spaces or connects to a road in a Transport Zone 2 or Transport Zone 3, the accessway must be designed so that cars can exit the site in a forward direction.	Satisfied
Provide a passing area at the entrance at least 6.1 metres wide and 7 metres long if the accessway serves ten or more car parking spaces and is either more than 50 metres long or connects to a road in a Transport Zone 2 or Transport Zone 3.	Satisfied

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Requirement	Comments
Have a corner splay or area at least 50 per cent clear of visual obstructions extending at least 2 metres along the frontage road from the edge of an exit lane and 2.5 metres along the exit lane from the frontage, to provide a clear view of pedestrians on the footpath of the frontage road. The area clear of visual obstructions may include an adjacent entry or exit lane where more than one lane is provided, or adjacent landscaped areas, provided the landscaping in those areas is less than 900mm in height.	Satisfied – the footpath is located adjacent the kerb of King Street, providing increased sight lines within the verge
If an accessway to four or more car parking spaces is from land in a Transport Zone 2 or Transport Zone 3, the access to the car spaces must be at least 6 metres from the road carriageway.	N/A – does not connect to a Transport Zone

A swept path assessment has been undertaken demonstrating design vehicle access to the site and specifically shows a 99.8th percentile passenger vehicle (B99) and 85th percentile passenger vehicle (B85) passing simultaneously. The swept path assessment is provided as Appendix A.

4.1.2 Design Standard 2: Car Parking Spaces

All standard car spaces on-site are proposed with a minimum width of 2.6 m, length of 4.9 m and are accessed from aisles of no less than 6.4 m. Spaces adjacent to walls have been suitably widened and columns adjacent spaces are suitably positioned, in accordance with Design Standard 2 of the Planning Scheme.

The accessible spaces are provided with a length of 5.4 m and a width of 2.4 m, and an adjacent shared area of the same dimensions, in accordance with the Australian Standard for Parking facilities, Part 6: Off-street parking for people with disabilities (AS 2890.6:2022). Furthermore, a height clearance of no less than 2.5 m is provided above the centre of the accessible bay and adjacent shared area, in accordance with the Australian Standard.

A swept path assessment has been undertaken demonstrating access to critical parking spaces using the 85th percentile passenger vehicle (B85), provided as Appendix A.

4.1.3 Design Standard 3: Gradients

A summary of the assessment for Design standard 3 is provided in Table 7.

Table 7 Clause 52.06-9 Design Assessment – Design Standard 3

Requirement	Comments
Accessway grades must not be steeper than 1:10 (10 per cent) within 5 metres of the frontage to ensure safety for pedestrians and vehicles. The design must have regard to the wheelbase of the vehicle being designed for; pedestrian and vehicular traffic volumes; the nature of the car park; and the slope and configuration of the vehicle crossover at the site frontage. This does not apply to accessways serving three dwellings or less.	Satisfied
Ramps (except within 5 metres of the frontage) must have the maximum grades as outlined in Table 3 (of Design standard 3) and be designed for vehicles travelling in a forward direction.	Satisfied – a maximum grade of 1:5 is proposed

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Requirement	Comments
Where the difference in grade between two sections of ramp or floor is greater than 1:8 (12.5 per cent) for a summit grade change, or greater than 1:6.7 (15 per cent) for a sag grade change, the ramp must include a transition section of at least 2 metres to prevent vehicles scraping or bottoming.	Satisfied – a maximum change in grade of 12.5 % is proposed

4.2 Waste Collection

A bin storage area is located within basement level 1 of the car park. On collection days a private waste contractor will enter the basement and empty bins into a rear-lift waste truck. The parking spaces adjacent the waste collection area are to be allocated to staff to ensure that access for visitor/patron spaces isn't obstructed.

Swept paths have been prepared illustrating a 6.4m rear-lift waste collection vehicle (mini-loader) circulating the basement and accessing the loading area. These swept paths are provided in Appendix A.

Refer to the Waste Management Plan for further information.

4.3 Bicycle Parking

Bicycle parking is proposed to be provided in a mixture of vertically mounted and staggered bicycle racks and on-ground bicycle hoops. The typical product dimensions, in accordance with AS 2890-3 are detailed in Table 8.

Table 8 Bicycle Parking Dimensions

Product	Number	Location	Dimensions
Vertical Racks	16	Basement Level 1	1.2m long, 0.5m separation between racks (provides 1.0m separation between racks at the same height when staggered) and 1.5m access aisle
Horizontal Rails	5 double sided 5 double sided	Lower Ground Upper Ground	1.8m long, 1.0m separation between rails (double sided), 0.5m separation to walls and 1.5m access aisle

The bicycle parking facilities are positioned in locations which are accessible for visitors, and both accessible and secure for residents/staff.

5 LOADING

Clause 65 (Decision Guidelines) of the Banyule Planning Scheme identifies that "Before deciding on an application or approval of a plan, the responsible authority must consider, as appropriate: The adequacy of loading and unloading facilities and any associated amenity, traffic flow and road safety impacts."

The proposed development provides an area for waste collection which will require regular loading vehicle access. Other loading activities are only anticipated on occasional instances and can utilise on-street parking in the area for their temporary demands.

The loading area is located approximately 20m from the eastern lifts which is considered a practical location for these activities.

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The provision for loading is therefore considered appropriate for the proposed use.

6 BICYCLE PARKING

The bicycle parking requirements for the subject site are identified in Clause 52.34 of the Banyule Planning Scheme, which specifies the following requirements for the different components of the proposed development. There is no rate listed for a child care centre use.

Table 9 Clause 52.34 – Bicycle Parking Requirements

Component	No/Area	Requirement	Total
Medical centre	5 practitioners	1 space per 8 practitioners for employees	1
		1 space per 4 practitioners for visitors	1
Health Club (Minor sports and recreation facility)	10 employees 1,350 m ²	1 space per 4 employees for employees	3
		1 space per 200m ² for visitors	7
Gallery (Place of assembly)	128 m ²	1 space per 1,500m ² for employees	-
		2 + 1 space per 1,500m ² for visitors	2
Café (Retail Premises)	310m ²	1 space per 300 m ² of leasable floor area	1
		1 space per 500 m ² of leasable floor	1
Total		Employees	5
		Visitors	11

Furthermore, where 5 or more employee bicycle spaces are required, employee facilities are required in accordance with Clause 52.34 of the Banyule Planning Scheme, as identified in Table 10 below.

Table 10 Clause 52.34 – Bicycle Facility Requirements

Facility	Employee Bicycle Spaces	Requirement	Total
Showers	5 spaces	1 shower for the first 5 employee bicycle spaces; plus 1 to each 10 employee bicycle spaces thereafter	1

Showers must have access to a communal change room, or combined shower and change room

Considering the above, the proposed provision of employee and visitor bicycle parking exceeds the requirements of the Planning Scheme, and is therefore considered appropriate.

Additionally, the provision of bicycle facilities (in the form of showers and change rooms) meets the requirements of the Planning Scheme, and is therefore considered appropriate.

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7 CAR PARKING

7.1 Statutory Car Parking Requirements

The car parking requirements for the subject site are identified in Clause 52.06 of the Banyule Planning Scheme. The Planning Scheme does not specifically refer to parking requirements for Health Club uses, therefore, the parking provision must be to the satisfaction of the responsible authority.

As the site is located within the Principal Public Transport Network Area, the Column B car parking rates apply to the proposed development, as shown in Table 11 below.

Table 11 Clause 52.06 – Car Parking Requirements

Use	No/Area	Rate	Car Parking Measure	Total
Child care centre	96 children	0.22	to each child	21
(Café) Food and drink premises	310 m ²	3.5	to each 100m ² of leasable floor area	10
Medical centre	465 m ²	3.5	to each 100m ² of leasable floor area	16
Gallery (Place of assembly)	20 patrons 128 m ²	0.3	to each patron permitted	6
Health Club (Restricted Recreation Facility)	1,350 m ²	N/A	To the satisfaction of the relevant authority	Refer to Car Parking Demand Assessment
Total				53 + Health Club

Based on the above calculations, a total of 53 parking spaces are required for the proposed development, plus the parking associated with the health club facilities.

It is proposed to provide a total of 97 car parking spaces to service the proposed development, which satisfies the Planning Scheme requirements for the child care, café, medical centre and gallery components for 53 spaces. The remainder of 44 spaces will be allocated to the health club.

A Car Parking Demand Assessment has been undertaken for the proposed development in accordance with the guidelines of Clause 52.06, having consideration to:

- The likelihood of multi-purpose trips within the locality which are likely to be combined with a trip to the land in connection with the proposed use.
- The variation of car parking demand likely to be generated by the proposed use over time.
- The short-stay and long-stay car parking demand likely to be generated by the proposed use.
- The availability of public transport in the locality of the land.
- The convenience of pedestrian and cyclist access to the land.
- The provision of bicycle parking and end of trip facilities for cyclists in the locality of the land.
- The anticipated car ownership rates of likely or proposed visitors to or occupants (residents or employees) of the land.
- Any empirical assessment or case study.

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7.2 Car Parking Demand Assessment

7.2.1 Child Care Centre

The parking rate from Clause 52.06 is considered suitable in assessing the peak parking demands associated with the child care centre, equivalent to 21 spaces. It is acknowledged that this use will generate reduced parking demands outside of the peak pick-up/drop-off and staffing periods.

7.2.2 Café

The parking rate from Clause 52.06 is considered suitable in assessing the peak parking demands associated with the café, equivalent to 14 spaces. It is acknowledged that this use will generate reduced parking demands outside of the morning peaks.

It is also acknowledged that this component of the development will draw the majority of customers from patrons who are already visiting the facility for other uses.

7.2.3 Medical Centre

The parking rate from Clause 52.06 is considered suitable in assessing the peak parking demands associated with the medical centre, equivalent to 16 spaces. It is acknowledged that this use will generate reduced parking demands outside of typical operating hours.

7.2.4 Gallery

The parking rate from Clause 52.06 is considered suitable in assessing the peak parking demands associated with the gallery, equivalent to 6 spaces. It is acknowledged that the gallery is not proposed to hold large showings.

7.2.5 Health Club

As mentioned above, the car parking provision for the health club component should be to the satisfaction of the responsible authority, and therefore the projected demands have been assessed and calculated below.

There are a number of case studies undertaken for gym and fitness facilities which indicated parking demands ranging between 0.5 and 0.8 spaces per patron, with lower demands demonstrated in areas with proximity to residential catchments and the availability of public transport. Specifically, Cardno previously undertook a survey of a Fitness First facility in St Kilda which demonstrated a parking rate of 0.53 spaces per patron. The subject site is well located with surrounding residential catchments and is therefore considered attractive for walking and cycling access. The proposed parking rate for the health club of 0.6 spaces per patron is considered appropriate.

Furthermore, the 0.6 rate assumes that just over 1 in 2 attendees drive to the site, which is considered suitable when taking into consideration:

- Carpooling with various patrons
- Parents driving 1 or more children
- Walking and cycling to the site

The parking demands for a health club facility, which includes a mixture of uses, may best be calculated based on the number of patrons which are present on the site at any one time. It is

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typically adopted that gym and other recreational facilities generate peak parking demands at a rate of 0.6 spaces per patron. This demand includes allowance for a relatively high percentage of drivers and then a portion of patrons who car pool or travel to the site by other means (walking, cycling, public transport or ride share). Noting the surrounding residential catchment and convenient bicycle parking facilities proposed, this parking rate is considered suitable.

The parking calculations for the health club have been based on a peak patronage of 122 persons. Application of the above rate to this proposed peak patronage of 122 equates in a peak parking demand of 73 spaces for this component of the site. This patron cap has been reverse calculated based on the availability of car parking on the site for the various uses.

A review of visitation data (sourced from Google) has been undertaken for a range of similar uses to determine parking profiles for a typical weekday and Saturday. The centres reviewed include:

- Olympic Leisure Banyule
- Reservoir Leisure Centre
- Collingwood Leisure Centre
- Ivanhoe Aquatic Banyule

The visitation data indicated that weekday peak demands typically occur from 10am-12midday and 5pm-7pm, and these are approximately equivalent to 70% of the peak Saturday demands which occur between 9am-12midday.

In light of the varying parking demands for the health club, a review of the parking profile for the combined uses on the site has been undertaken below.

7.3 Parking Profile Demand

A review of the parking profiles for the specific site uses has been undertaken in Figure 11 and Figure 12 for the weekday and Saturday, respectively. The following is specifically noted for the parking profiles:

- The health club facilities generate peak demands on a Saturday and then approximately 70% of the peak demands at key times on a weekday;
- The child care centre operates during typical business hours on a weekday and no activity on a weekend;
- The medical centre will generate peak demands on weekdays, a reduced demand on Saturdays and no activity on a Sunday; and
- The café generates peak demands in the morning through to midday on the weekday and Saturday.

The parking demand profiles for the other uses are based on typical experience of onemilegrid for mixed use sites. It should also be recognised that each of the use parking demands have been assessed in isolation and it would be expected that there will be a strong crossover of parking demands, including:

- Parents and guardians for the child care centre using the health facilities/café; and
- Visitors to the health facilities then purchasing food or drinks from the café.

The specific profiles for the other uses have generally been derived from a review of Google visitation data to similar sites and a first principals consideration of each specific use.

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Figure 11 Weekday Parking Profile

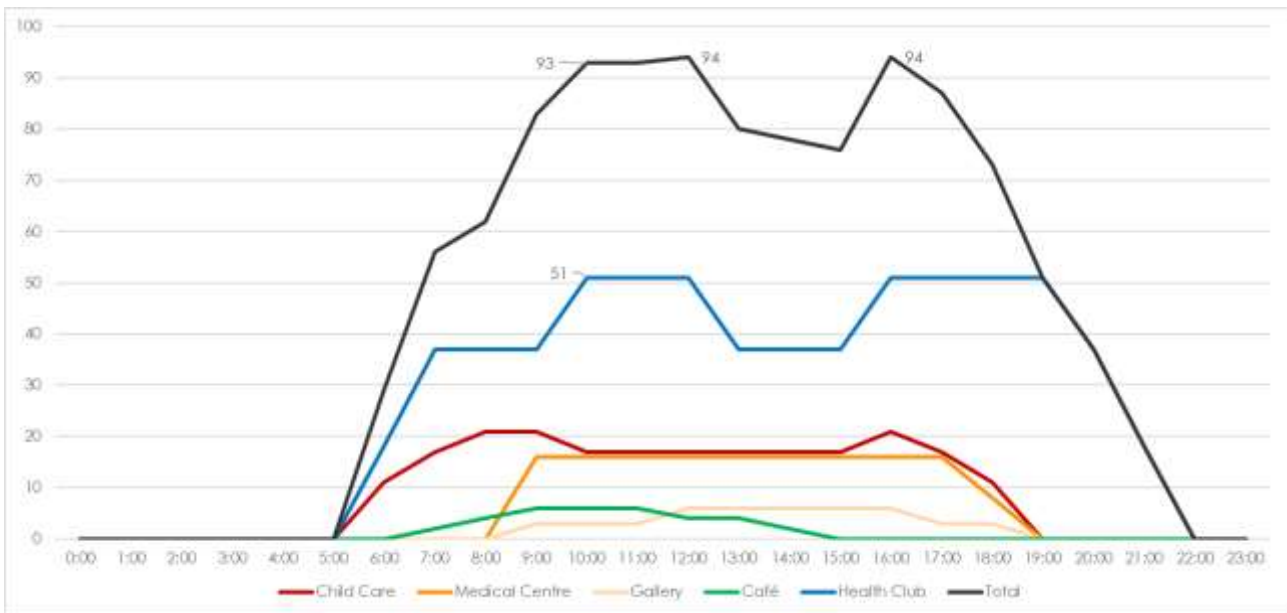
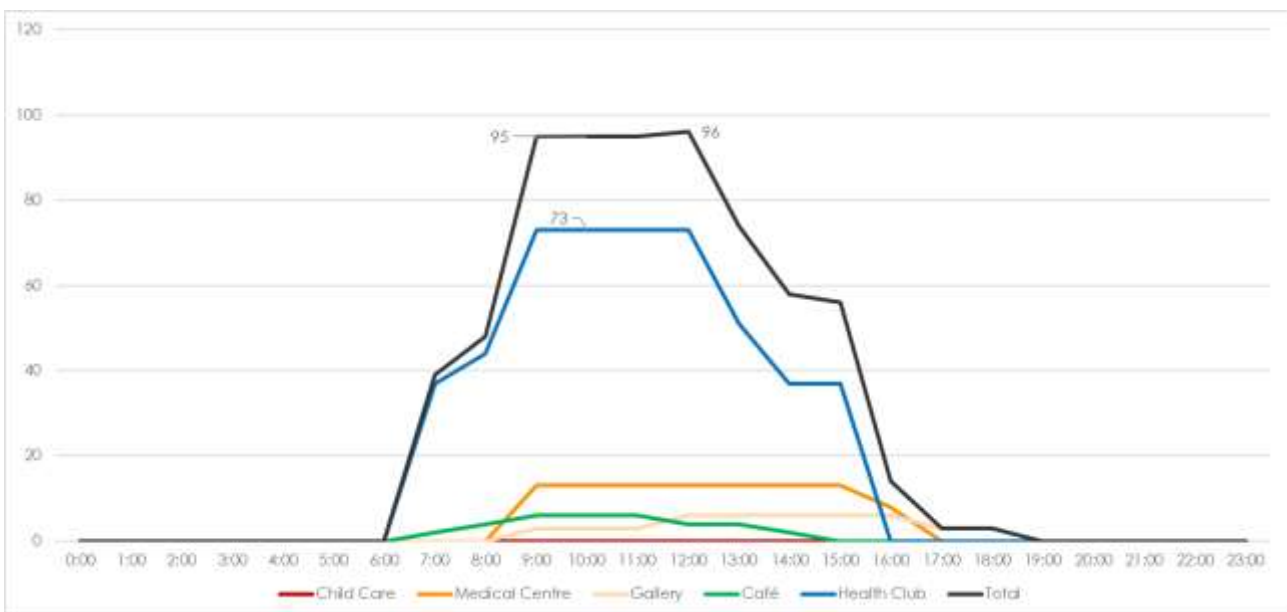


Figure 12 Saturday Parking Profile



The parking profile review indicates a peak parking demand for 94 spaces on a weekday and 96 spaces on a Saturday. The proposed provision for 97 spaces therefore meets the peak anticipated demands on a Saturday and exceeds the anticipated demands on weekdays.

7.4 Accessible Car Parking

The National Construction Code (NCC) specifies the minimum requirements for provision of accessible car parking. Noting there are a number of uses proposed within the development, the NCC requirements for each are outlined in Table 12 below.

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Table 12 NCC Accessible Parking Requirements

<i>Use</i>	<i>DDA Requirement</i>
Medical Centre	1 space per 100 car spaces
Café	1 space per 50 spaces
Child Care	1 space per 50 spaces
Gym	1 space per 50 spaces

Noting the proposed provision of 97 car spaces on-site, the National Construction Code (NCC) requires at least 4 accessible car space on-site.

The proposed provision of 4 spaces thus satisfies the NCC requirements.

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8 TRAFFIC

8.1 Traffic Generation

The various uses present on the site are likely to generate peak traffic volumes at various times throughout the day. In order to assess the critical impact to the surrounding road, a review of the anticipated volumes has been conducted commensurate with the commuter / school traffic peak hour periods. According to the traffic surveys referenced in Section 2.4 the existing peak hour periods for the combined surveyed intersections occurred from 8am-9am and 3pm-4pm.

The traffic generation rates adopted in Table 13 have been based on relative experience with similar developments and case studies undertaken by various consultants. The health club component of the development includes some bespoke uses and an empirical assessment of the traffic volumes has been adopted based on the car parking demands generated.

Table 13 Traffic Generation Rates – Weekday Peaks

Component	AM Peak Hour		PM Peak Hour	
	Inbound	Outbound	Inbound	Outbound
Child Care Centre	0.31 per child	0.27 per child	0.3 per child	0.34 per child
Café	0.5 per space	0.1 per space	0.2 per space	0.4 per space
Medical Centre	3 per practitioner	-	1.5 per practitioner	1.5 per practitioner
Gallery	1 per 100 m ²	-	1 per 100 m ²	1 per 100 m ²
Health Club (gym, pools and health and wellbeing)	0.5 per space	0.1 per space	0.2 per space	0.4 per space

Application of the above rates to the proposed development results in the peak hour traffic movements calculated in Table 14.

Table 14 Projected Peak Hour Traffic Generation

Component	Area/No.	AM Peak Hour		PM Peak Hour	
		Inbound	Outbound	Inbound	Outbound
Child Care Centre	96 children	30	26	56	29
Café	10 car spaces	5	1	6	2
Medical Centre	5 practitioners	15	0	15	8
Gallery	128 m ²	1	0	1	1
Health Club (gym, pools and health and wellbeing)	51 spaces (weekday peak demand)	26	5	31	10
Total		77	32	50	66

The above traffic generation calculations project that the proposed development may generate up to 109 vehicle movements in the AM peak hour and 116 vehicle movements in the PM peak hour.

As mentioned previously, it is expected that each component would generate morning and evening peak generation volumes at varying intervals throughout the day. Furthermore, within a

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mixed-use site, the actual level of traffic generation may be reduced, with trips to the site shared with visits to another components.

8.2 Traffic Distribution

Vehicle access to the site is proposed via King Street in the south-west corner of the site. King Street is a local road connecting Lower Heidelberg Road in the east and Carmichael Street in the west. The intersection between King Street and Carmichael Street is restricted to westbound traffic only, with traffic intending to travel east using Elm Crescent to enter from Carmichael Street.

Given the proximity of the site to the surrounding arterial road network and the suitability of the intersection between Lower Heidelberg Road and King Street to accommodate turning movements, it is expected that the vast majority of development traffic will utilise this route to access Lower Heidelberg Road. Having reviewed the connecting road network, the following traffic distribution has been adopted:

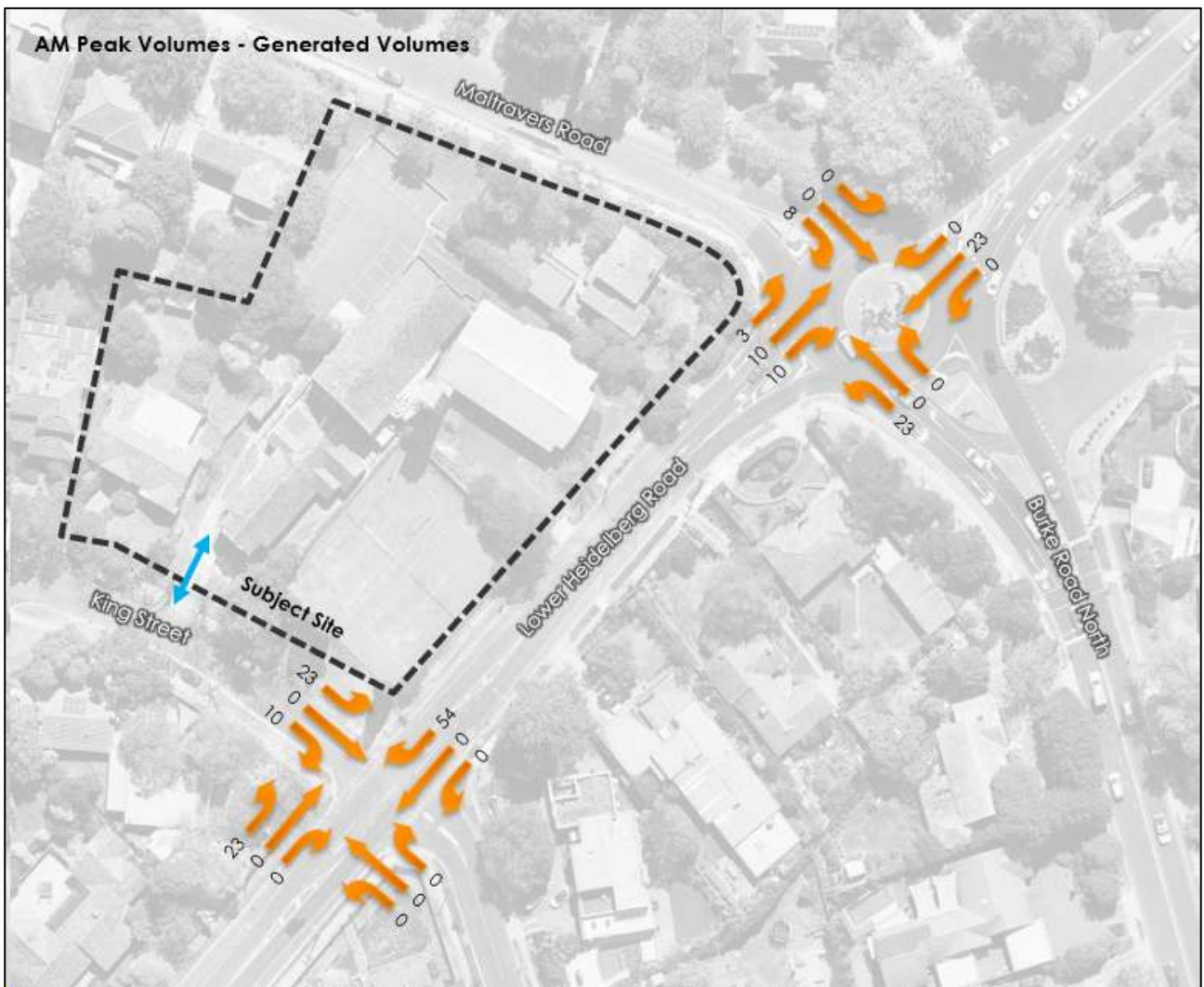
- Lower Heidelberg Road (south-west) – 30%
- Burke Road North (south) – 30%
- Lower Heidelberg Road (north-east) – 30%
- Maltravers Road (west) – 10%

Application of these traffic distribution percentages to the projected peak hour traffic generation results in the development anticipated traffic volumes presented in Figure 13.

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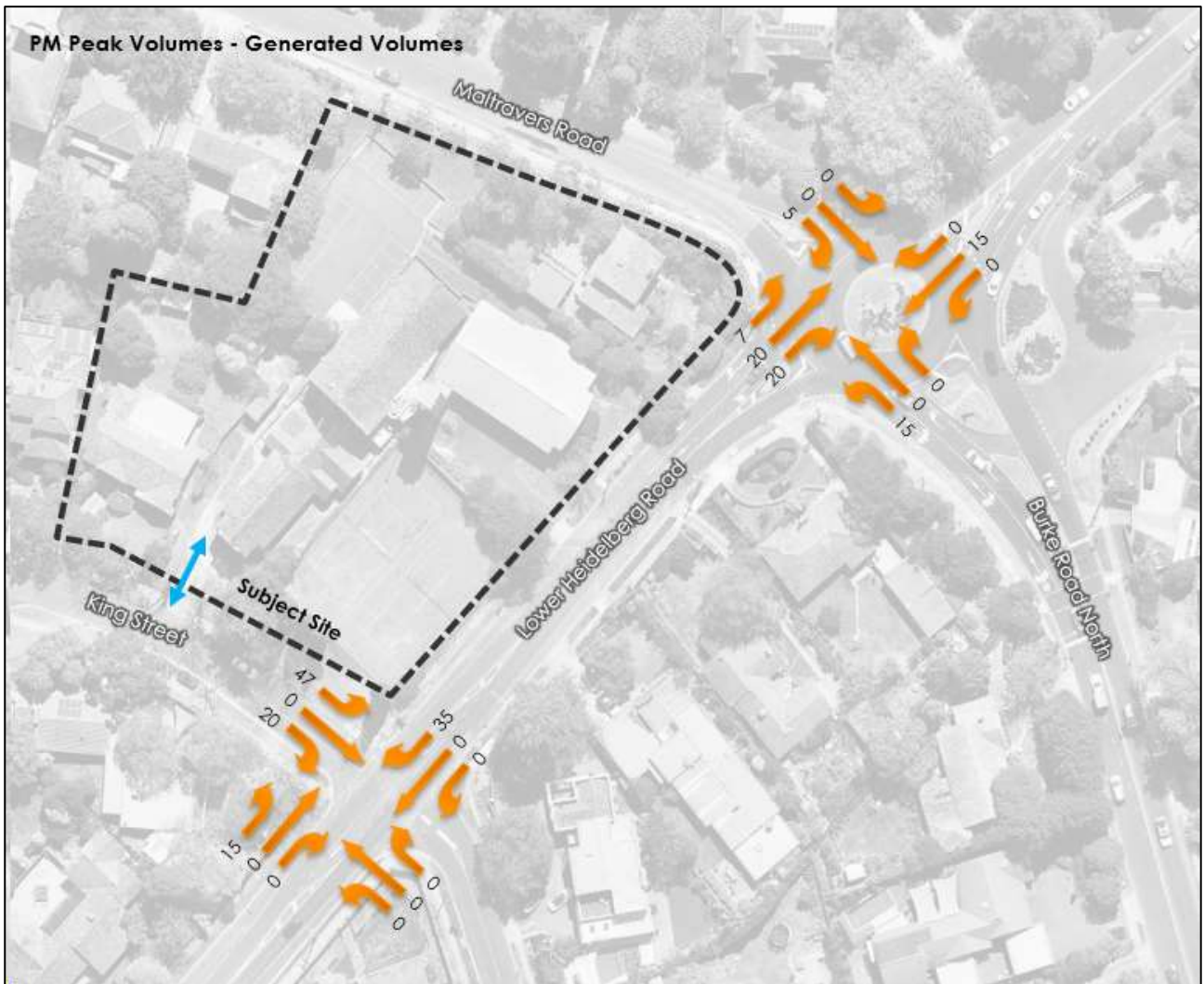
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Figure 13 Generated Traffic Volumes



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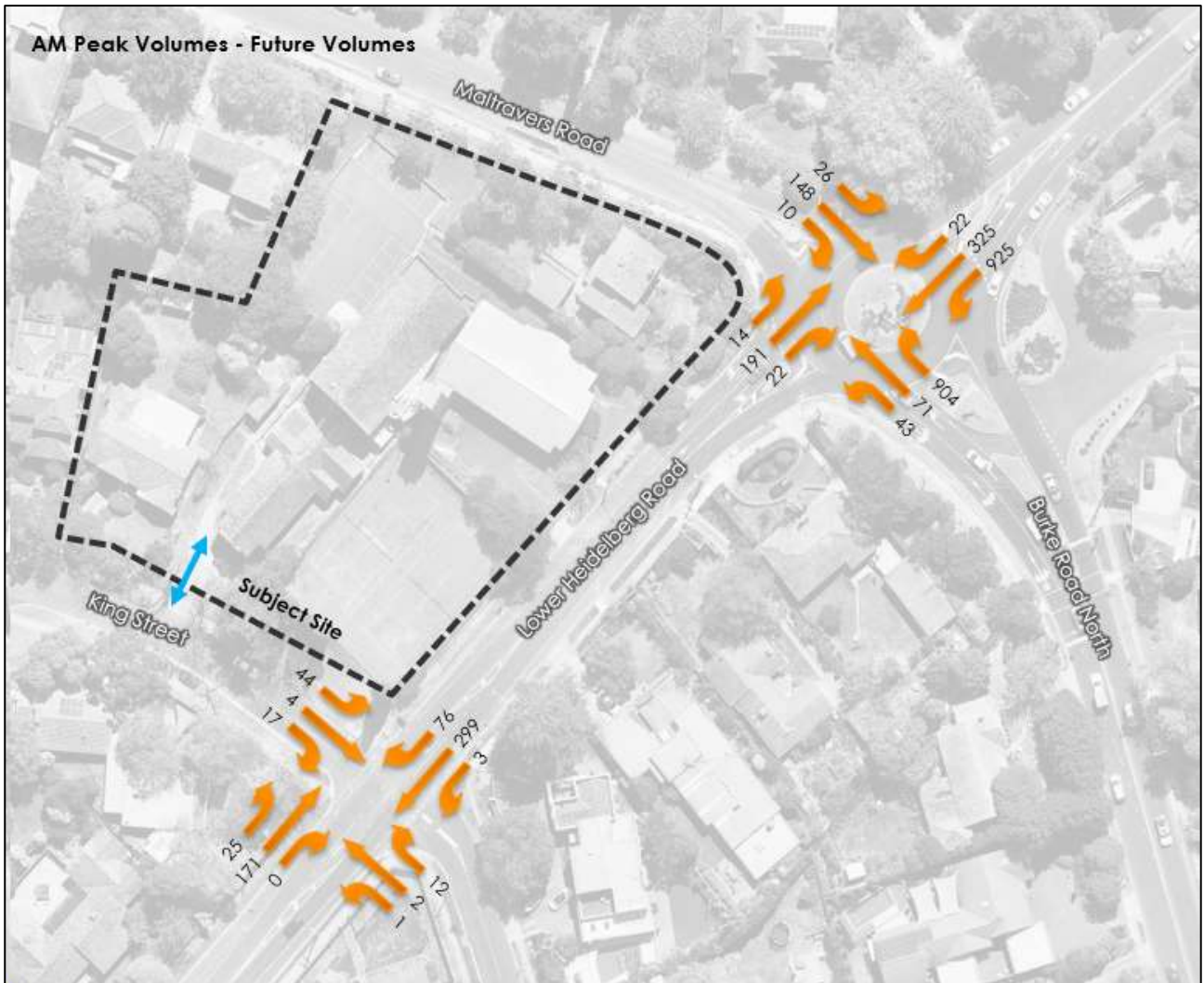
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8.3 Post Development Traffic Volumes

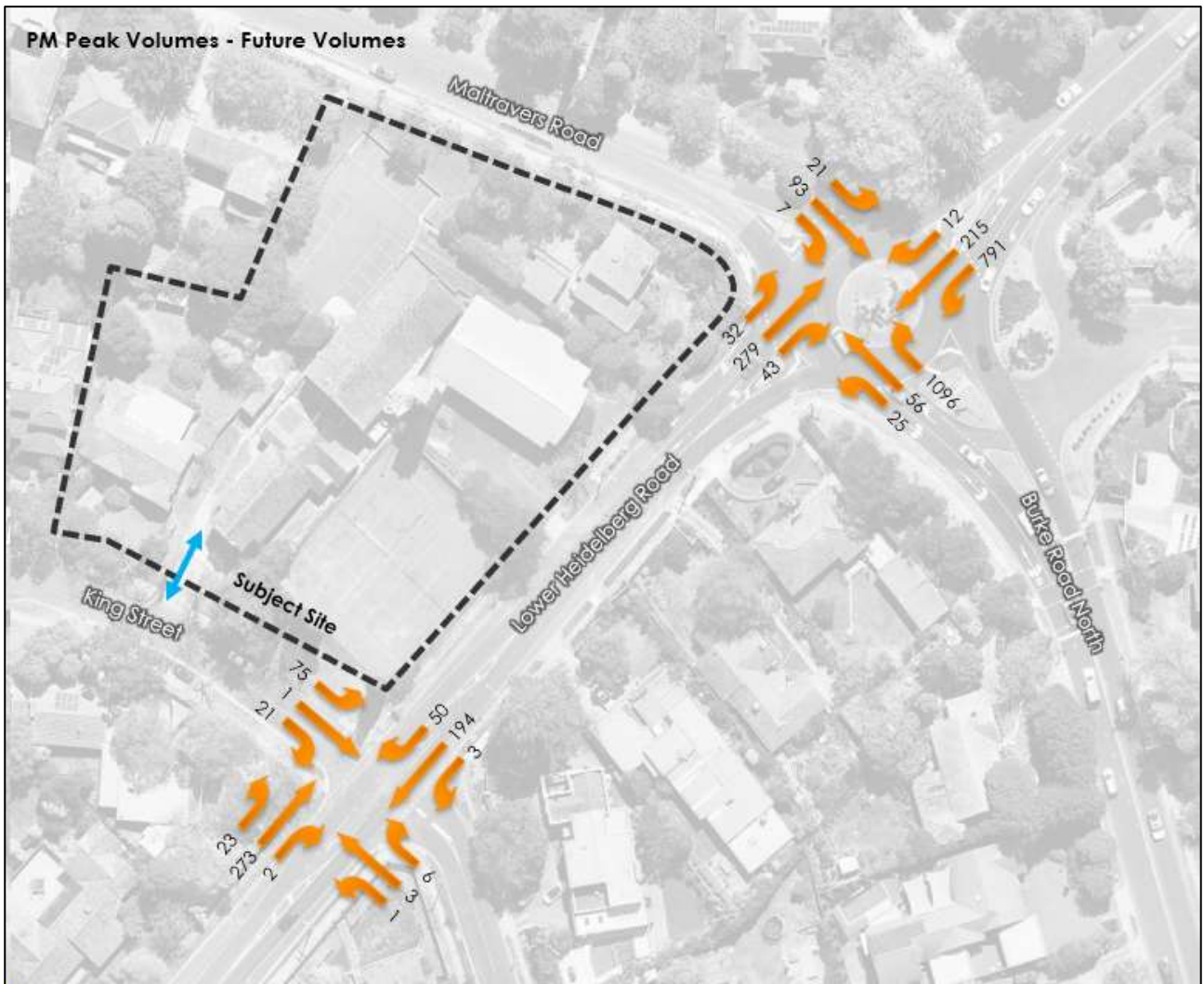
The anticipated development traffic has been superimposed on the existing traffic volumes for the intersections and resultant post development traffic volumes presented in Figure 14.

Figure 14 Post Development Anticipated Traffic Volumes



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8.4 Intersection Capacity Assessment

To assess the future operation of the identified intersections post-development, the combined existing and generated traffic volumes and have been input into SIDRA Intersection. The anticipated post development intersection operating conditions are detailed in Table 10 and Table 11.

Table 15 Thursday – AM Peak Hour Intersection Analysis Summary – Future Conditions

Intersection	Approach	Movement	Existing Conditions			Future Conditions			
			D.o.S	Avg Delay	Queue (m)	D.o.S	Avg Delay	Queue (m)	
Burke Road / Lower Heidelberg Road / Maltravers Road	Lwr Heidelberg Rd (south)	Left	0.09	10.9	2.7	0.10	11.1	3.2	
		Through	0.27	9.3	11.0	0.32	9.6	13.1	
		Right	0.27	12.4	11.0	0.32	12.6	13.1	
	Burke Rd (east)	Left	0.26	7.3	10.5	0.27	7.7	11.2	
		Through	0.26	7.4	10.5	0.27	7.8	11.2	
		Right	0.70	12.7	60.0	0.75	14.0	72.5	
	Lwr Heidelberg Rd (north)	Left	0.67	5.8	54.2	0.69	6.0	55.2	
		Through	0.33	5.7	16.1	0.36	5.8	17.8	
		Right	0.33	9.8	16.1	0.36	9.9	17.8	
		Maltravers Rd (west)	Left	0.40	16.9	17.0	0.45	18.5	20.2
			Through	0.40	13.1	17.0	0.45	14.6	20.2
			Right	0.40	16.9	17.0	0.45	18.4	20.2
Lower Heidelberg Road / King Street / Withers Street	Lwr Heidelberg Rd (south)	Left	0.10	5.6	0	0.11	5.6	0	
		Through	0.10	0.0	0	0.11	0	0	
		Right	0.00	6.5	0	0.00	6.5	0	
	Withers Street (east)	Left	0.04	6.9	0.9	0.04	6.9	1.0	
		Through	0.04	9.4	0.9	0.04	10.7	1.0	
		Right	0.04	12.0	0.9	0.04	13.7	1.0	
	Lwr Heidelberg Rd (north)	Left	0.17	5.5	0	0.17	5.5	0	
		Through	0.17	0.0	0	0.17	0	0	
		Right	0.02	6.0	0.5	0.06	6.1	1.9	
		King Street (west)	Left	0.05	6.3	1.2	0.10	6.3	2.6
			Through	0.05	9.5	1.2	0.10	11.1	2.6
			Right	0.05	11.7	1.2	0.10	13.6	2.6

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Table 16 Thursday – PM Peak Hour Intersection Analysis Summary – Future Conditions

Intersection	Approach	Movement	Existing Conditions			Future Conditions		
			D.o.S	Avg Delay	Queue (m)	D.o.S	Avg Delay	Queue (m)
Burke Road / Lower Heidelberg Road / Maltravers Road	Lwr Heidelberg Rd (south)	Left	0.15	12.4	4.7	0.18	12.6	5.8
		Through	0.46	12.4	22.1	0.56	14.0	29.8
		Right	0.46	15.3	22.1	0.56	17.0	29.8
	Burke Rd (east)	Left	0.27	6.4	11.0	0.28	6.6	11.5
		Through	0.27	6.5	11.0	0.28	6.7	11.5
		Right	0.73	11.9	61.8	0.76	12.7	72.1
	Lwr Heidelberg Rd (north)	Left	0.55	5.3	37.8	0.57	5.5	38.1
		Through	0.22	5.4	9.7	0.24	5.6	10.5
		Right	0.22	9.5	9.7	0.24	9.7	10.5
	Maltravers Rd (west)	Left	0.34	24.1	13.7	0.39	27.7	16.8
		Through	0.34	16.1	13.7	0.39	18.9	16.8
		Right	0.34	19.9	13.7	0.39	22.7	16.8
Lower Heidelberg Road / King Street / Withers Street	Lwr Heidelberg Rd (south)	Left	0.15	5.6	0	0.16	5.6	0
		Through	0.15	0.0	0	0.16	0	0
		Right	0.00	6.1	0	0.00	6.1	0
	Withers Street (east)	Left	0.02	6.4	0.6	0.03	6.4	0.6
		Through	0.02	9.2	0.6	0.03	10.1	0.6
		Right	0.02	11.7	0.6	0.03	13.5	0.6
	Lwr Heidelberg Rd (north)	Left	0.11	5.5	0	0.11	5.5	0
		Through	0.11	0.0	0	0.11	0	0
		Right	0.01	6.4	0.4	0.04	6.5	1.4
	King Street (west)	Left	0.03	6.8	0.9	0.15	6.9	3.9
		Through	0.03	9.3	0.9	0.15	10.7	3.9
		Right	0.03	11.5	0.9	0.15	13.2	3.9

As shown above, the intersection between Lower Heidelberg Road, Burke Road North and Maltravers Road will continue to operate with a rate of 'good', with marginal increases to average delays and peak queues. The intersection between Lower Heidelberg Road, King Street and Withers Street will continue to operate with a rating of 'excellent' and specifically the right turn movements to and from King Street will continue to operate with minimal delays.

In view of the foregoing, the anticipated level of traffic to be generated by the proposed development is projected to be assimilated into the surrounding road network.

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8.5 Impacts from North-East Link Project

The North-East Link project involves the construction of a link road between the Ring Road and Eastern Freeway, reducing travel times in the area and redirecting traffic from other local roads. An extract from the traffic modelling for the project is provided in Figure 15, indicating a projected decrease in traffic volumes for Lower Heidelberg Road (to the north of the site) and Burke Road North. Lower Heidelberg Road at the site frontage and further south is identified for no change as a result of the project.

Figure 15 North-East Link Traffic Modelling

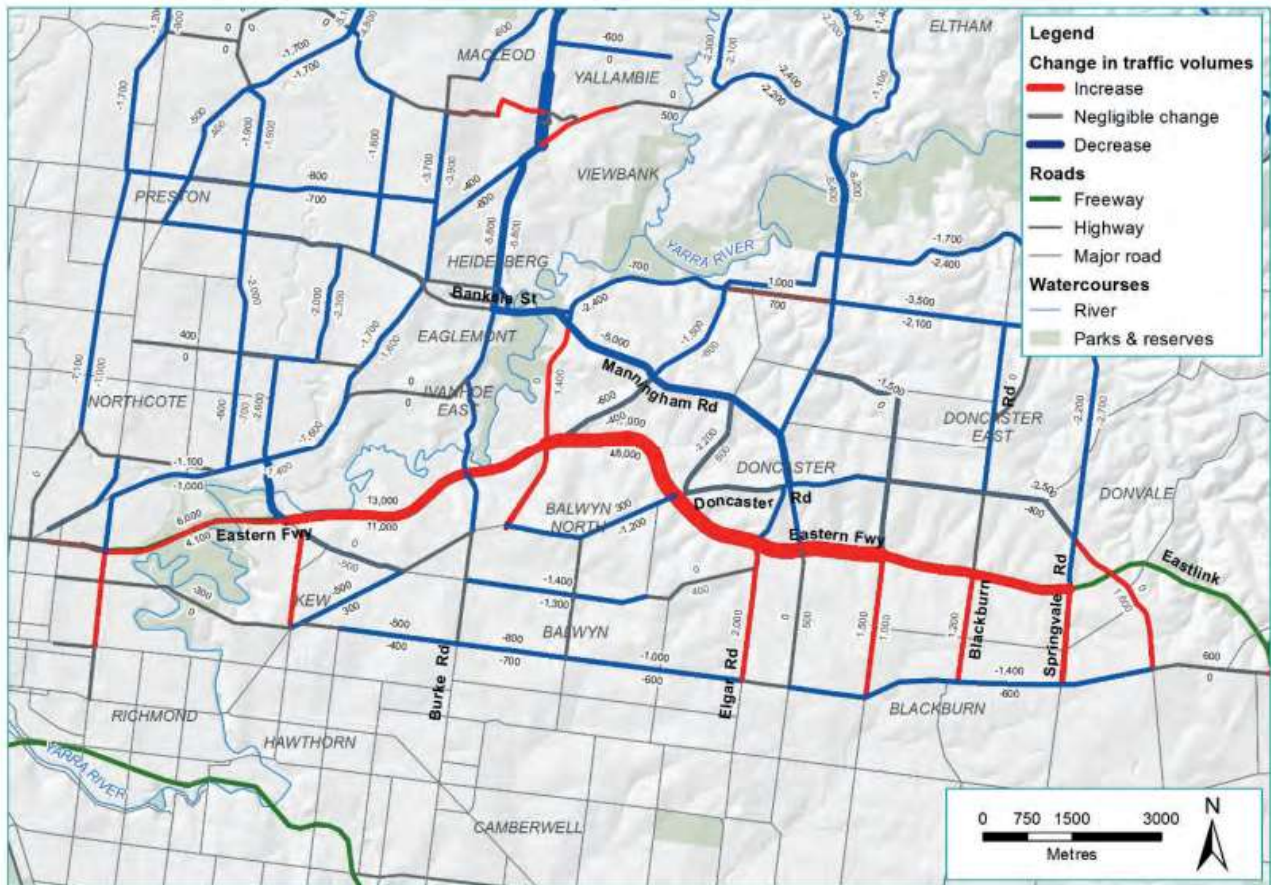


Figure 9-29 Change in total average weekday traffic volumes, 2036 'with project' versus 2036 'no project' – study area south

Source: North-East Link Environment Effects Statement: Chapter 9 Traffic and Transport

The completion of the North-East Link project is therefore anticipated to have a positive impact on the operation of the roundabout intersection between Lower Heidelberg Road, Burke Road North and Maltravers Road.

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9 RESPONSE TO COUNCIL REQUEST FOR FURTHER INFORMATION

The development plans and Transport Impact Assessment have been updated in response to feedback provided by Council and the traffic engineering department. A direct response to the traffic engineering comments is provided below in Table 17.

Table 17 Response to Council Traffic Engineering Comments

Section	Comment	Response
5.	An updated Traffic and Parking Assessment which includes the following:	
	a) The swimming pool rate applied to the parking calculations for the swimming pool area or justification provided as to why this can be included as ancillary to the gym and wellness centre.	Additional information has been provided to detail the operation of the site and acknowledge that all of the health and wellbeing services will be managed by a single operator and only open to members. It is therefore considered appropriate to assess the parking demands for these as a combined use and based on a patron limit.
	b) An empirical assessment to justify how the 0.6 spaces per patron has been adopted for the health club.	There are a number of case studies undertaken for gym and fitness facilities which indicated parking demands ranging between 0.5 and 0.8 spaces per patron, with lower demands demonstrated in areas with proximity to residential catchments and the availability of public transport. Specifically, Cardno previously undertook a survey of a Fitness First facility in St Kilda which demonstrated a parking rate of 0.53 spaces per patron. The subject site is well located with surrounding residential catchments and is therefore considered attractive for walking and cycling access. The proposed parking rate for the health club of 0.6 spaces per patron is considered appropriate. Furthermore, the 0.6 rate assumes that just over 1 in 2 attendees drive to the site, which is considered suitable when taking into consideration: - Carpooling with various patrons - Parents driving 1 or more children - Walking and cycling to the site
	c) Details as to how the patron cap will be enforced for the gym and wellness facility.	The combined health facility (pool, gym and health and wellbeing spaces) will all be managed by the same operator and the use of the facilities will generally require bookings. The operator of the site is therefore able to regulate and enforce the number of patrons which are using the combined facilities at various times throughout the day.
	d) Evidence to support the assumptions made in deriving the parking demand for other uses in Part 7.3 Parking Profile Demand.	The parking demand profiles for the other uses are based on typical experience of onemilegrid for mixed use sites. It should also be recognised that each of the use parking demands have been assessed in isolation and it would be expected that there will be a strong crossover of parking demands, including: - Parents and guardians for the child care centre using the health facilities/café - Visitors to the health facilities then purchasing food or drinks from the café The specific profiles for the other uses have generally been derived from a review of Google visitation data to similar sites and a first principals consideration of each specific use.

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10 CONCLUSIONS

It is proposed to develop the subject site for a mixed-use development comprising a child care centre, café, medical centre, gallery and health club.

Considering the analysis presented above, it is concluded that:

- The car parking layouts and accesses have been designed in accordance with the requirements of the Planning Scheme and are considered appropriate;
- The proposed loading facilities are considered appropriate for the use;
- The proposed supply of car parking meets the anticipated peak demands and is considered appropriate;
- The anticipated traffic volumes generated by the development is expected to be assimilated into the surrounding road network; and
- There are no traffic engineering reasons which would preclude a permit from being issued for this proposal.

ADVERTISED PLAN
Application No. P4/2024

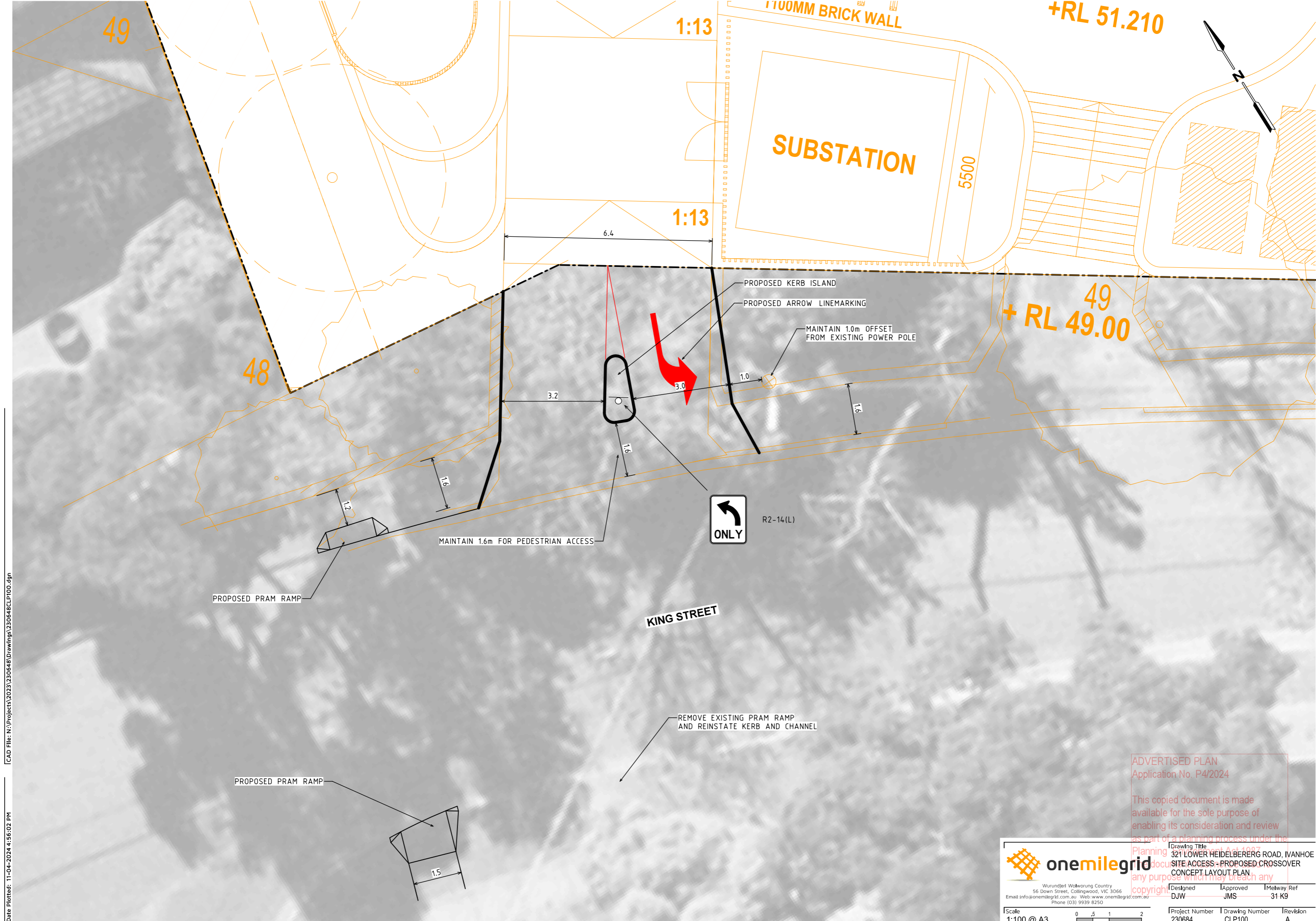
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Appendix A Swept Path Diagrams



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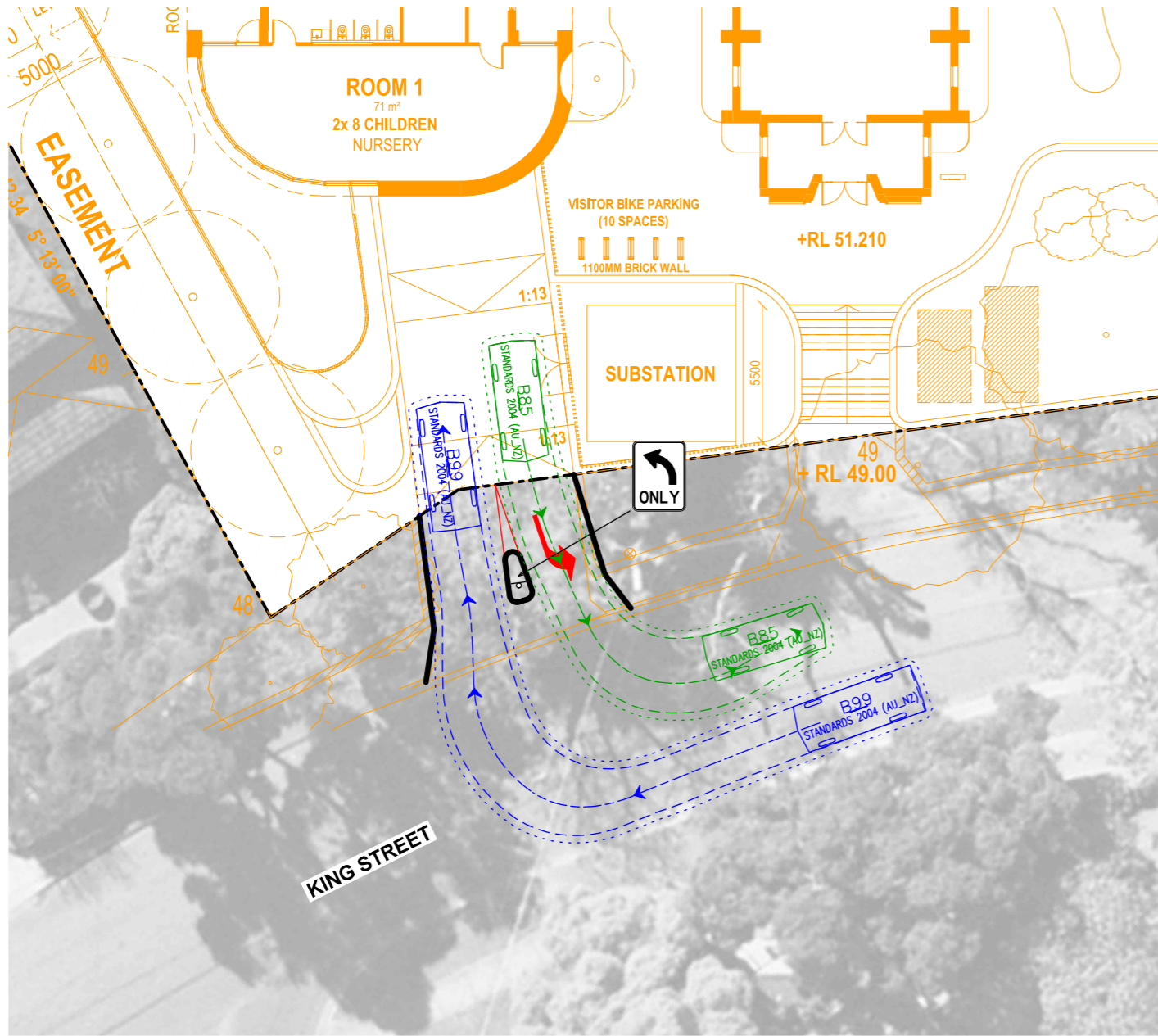
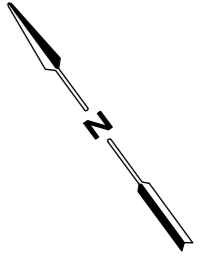
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321 LOWER HEIDELBERG ROAD, IVANHOE
SITE ACCESS - PROPOSED CROSSOVER
CONCEPT LAYOUT PLAN

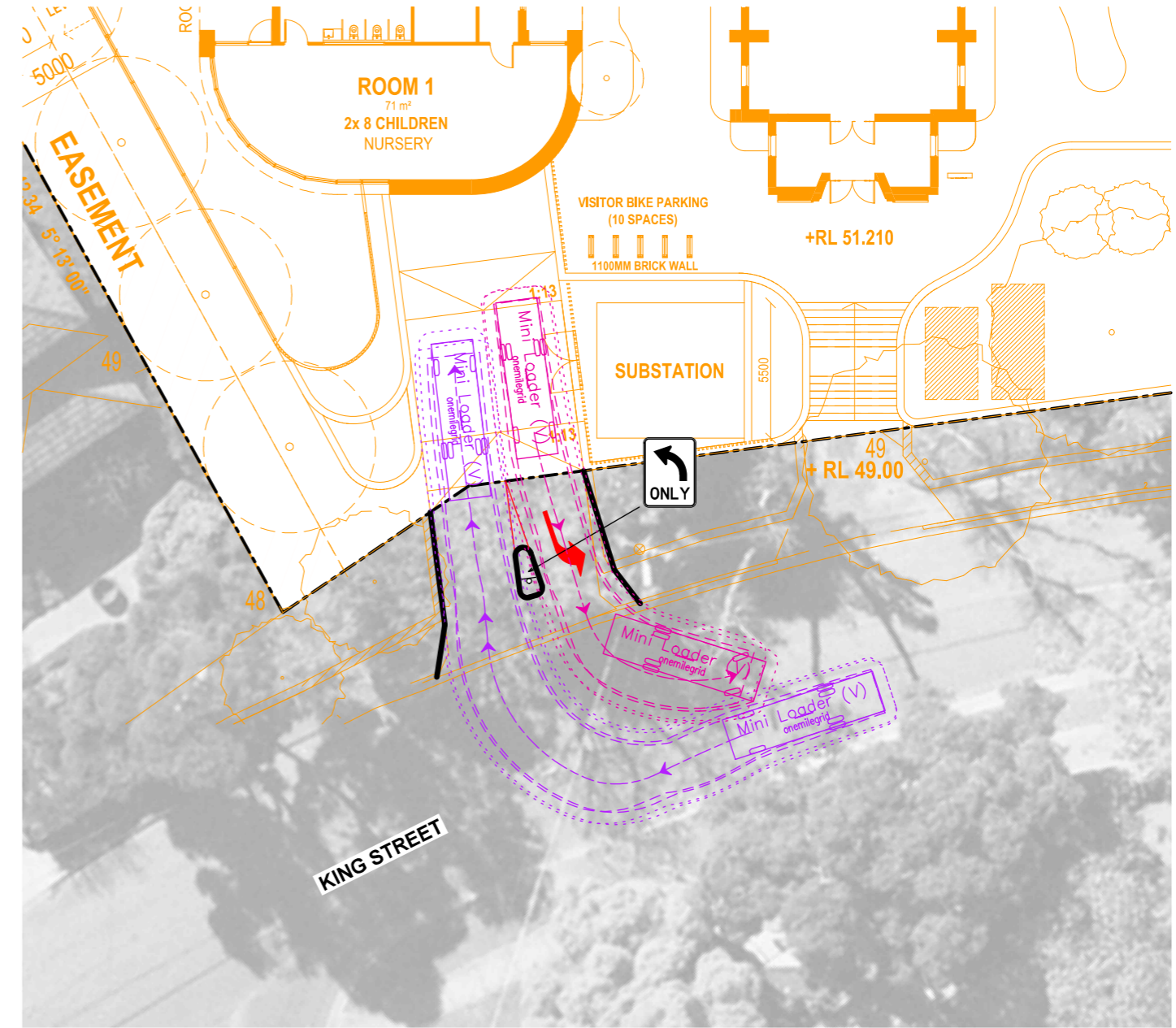
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Project Number 230684	Drawing Number CLP100	Revision A

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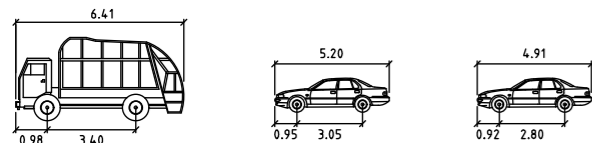
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 ······ 300mm CLEARANCE ENVELOPE SHOWN DOTTED



WASTE MINI LOADER MANOEUVRES
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Steering Angle : 33.6	Steering Angle : 33.9	Steering Angle : 34.1

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Aerial Photography provided by Nearmap

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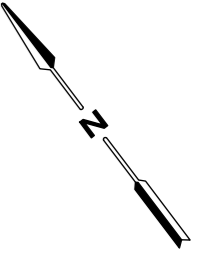
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Drawing Title: 321 LOWER HEIDELBERG ROAD, IVANHOE
 SITE ACCESS SWEEP PATH ANALYSIS

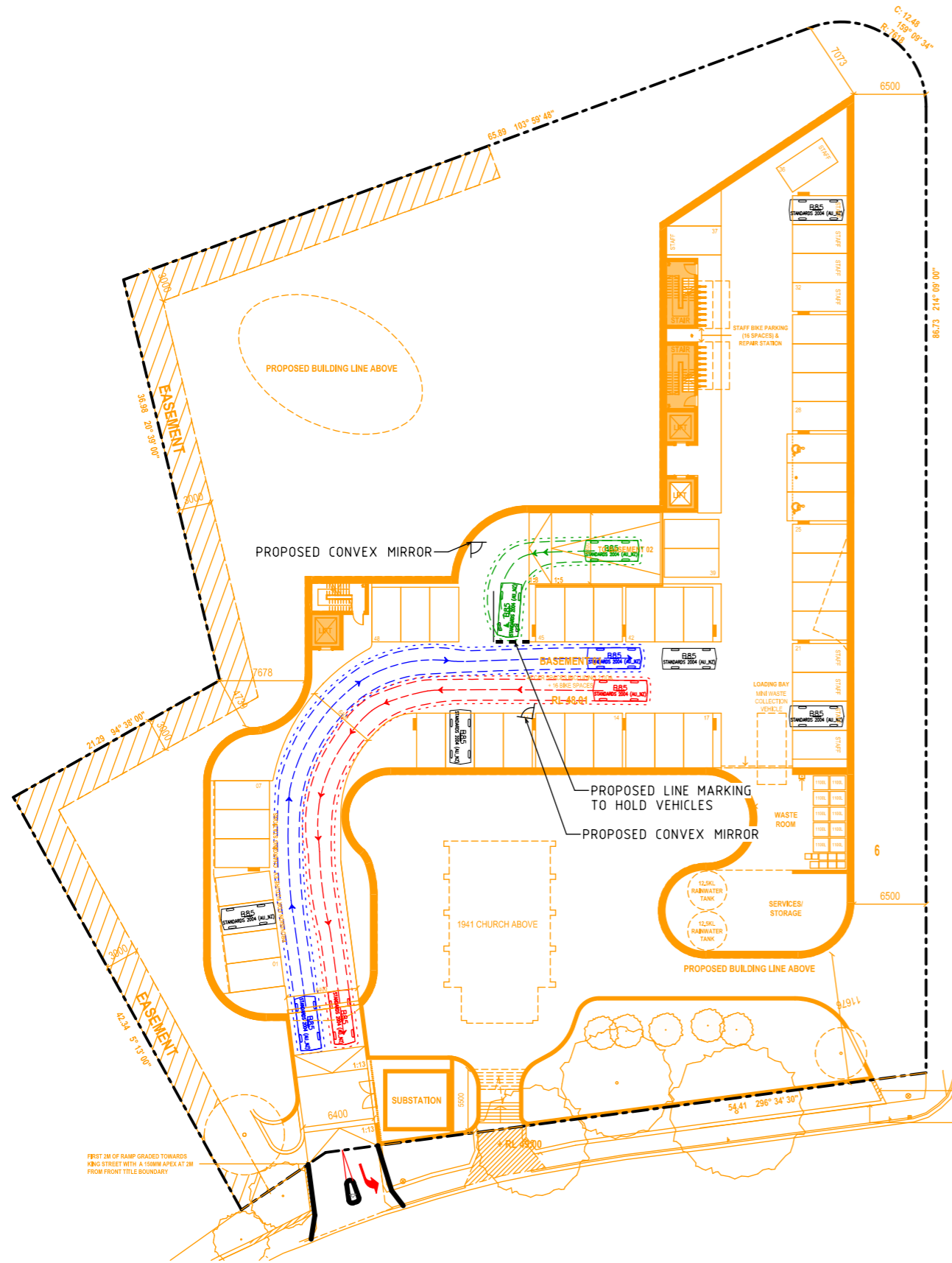
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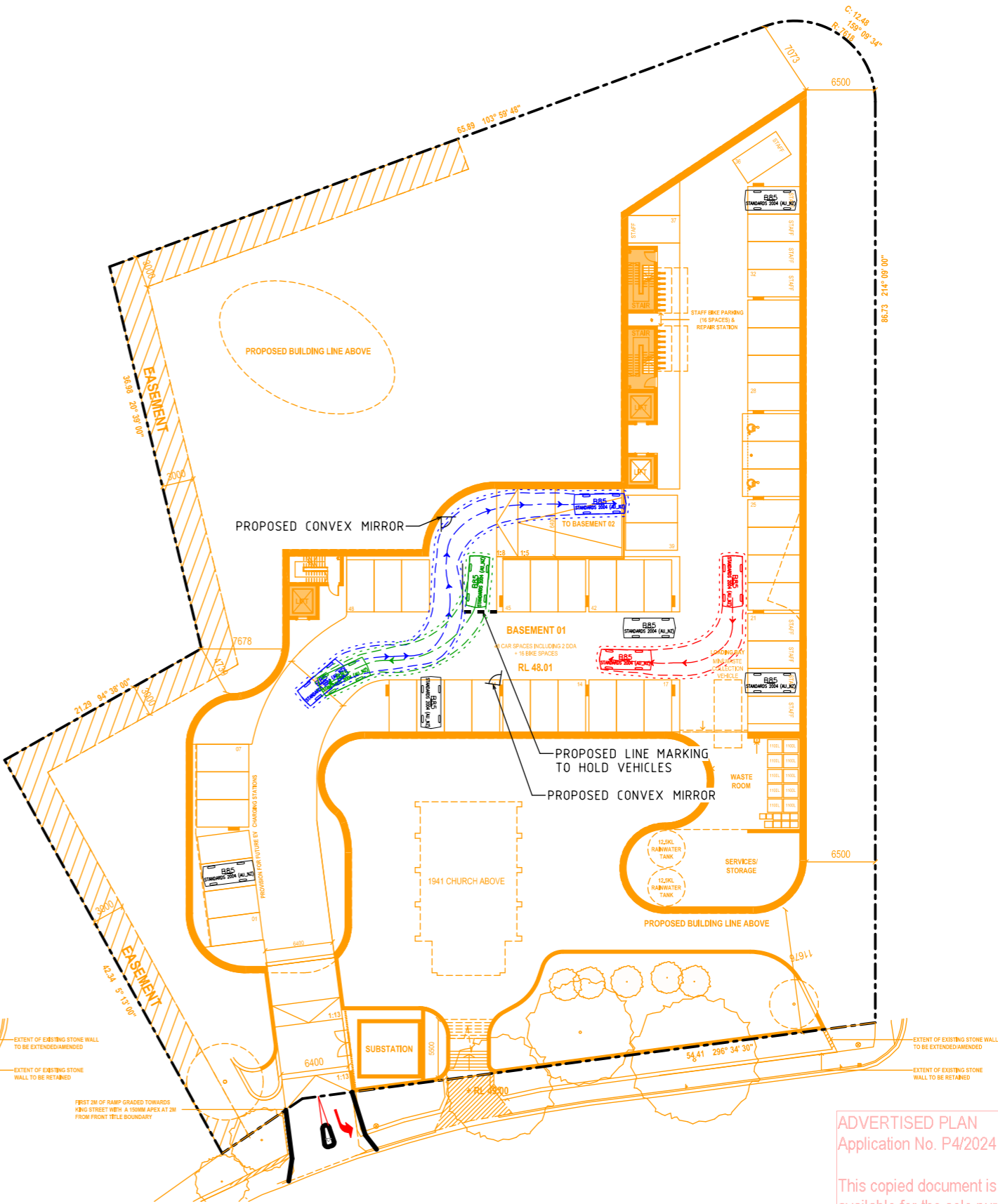
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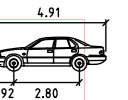
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ACCESS MANOEUVRES

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Drawing Title: 321 LOWER HEIDLEBERG ROAD, IVANHOE
BASEMENT 1 - B85 CIRCULATION SWEEP PATH ANALYSIS

Designed	Approved	Melway Ref
DJW	JMS	31 K9



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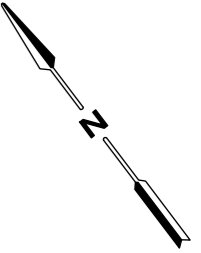
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Project Number	Drawing Number	Revision
230684	SPA200	C

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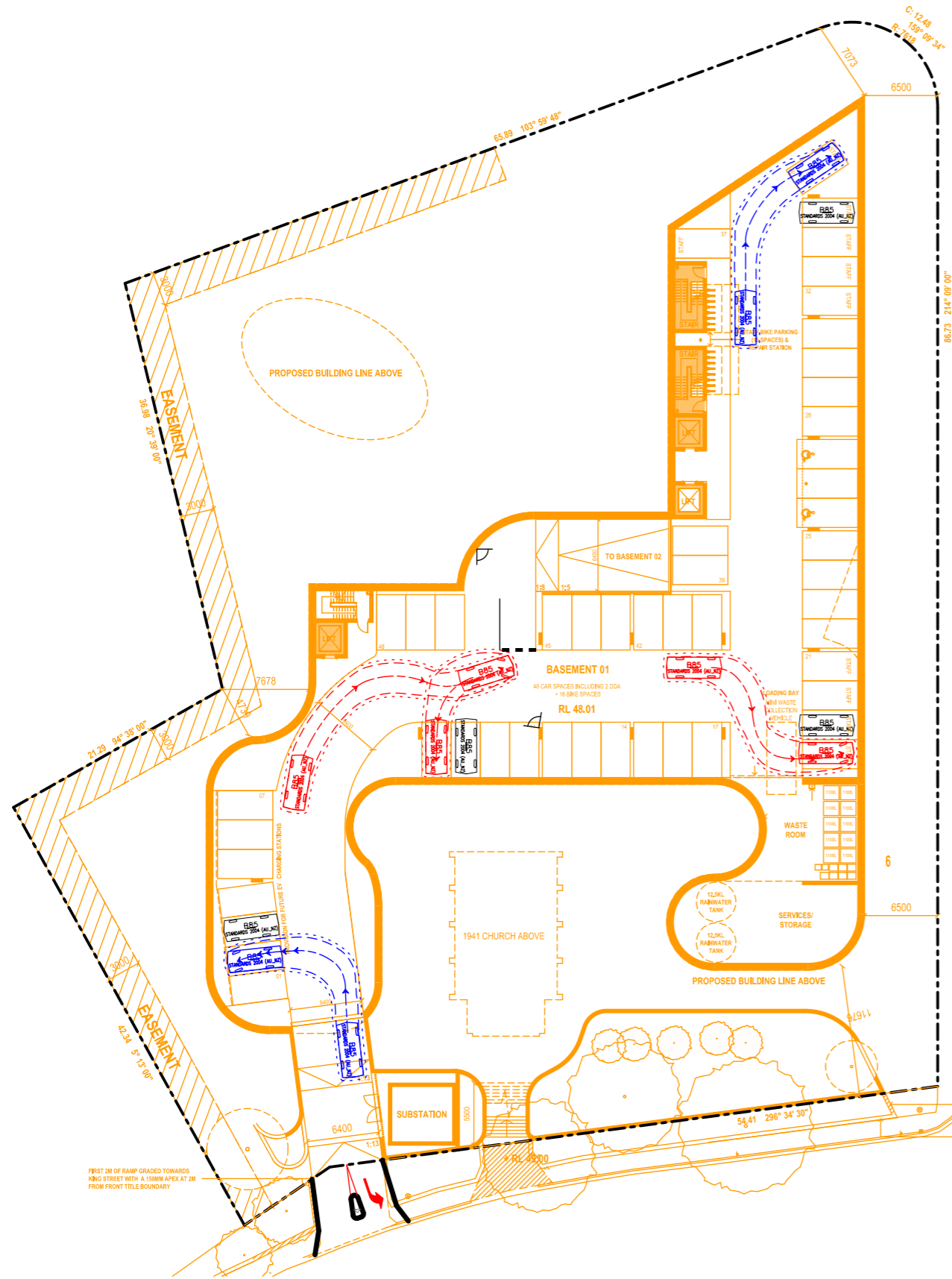
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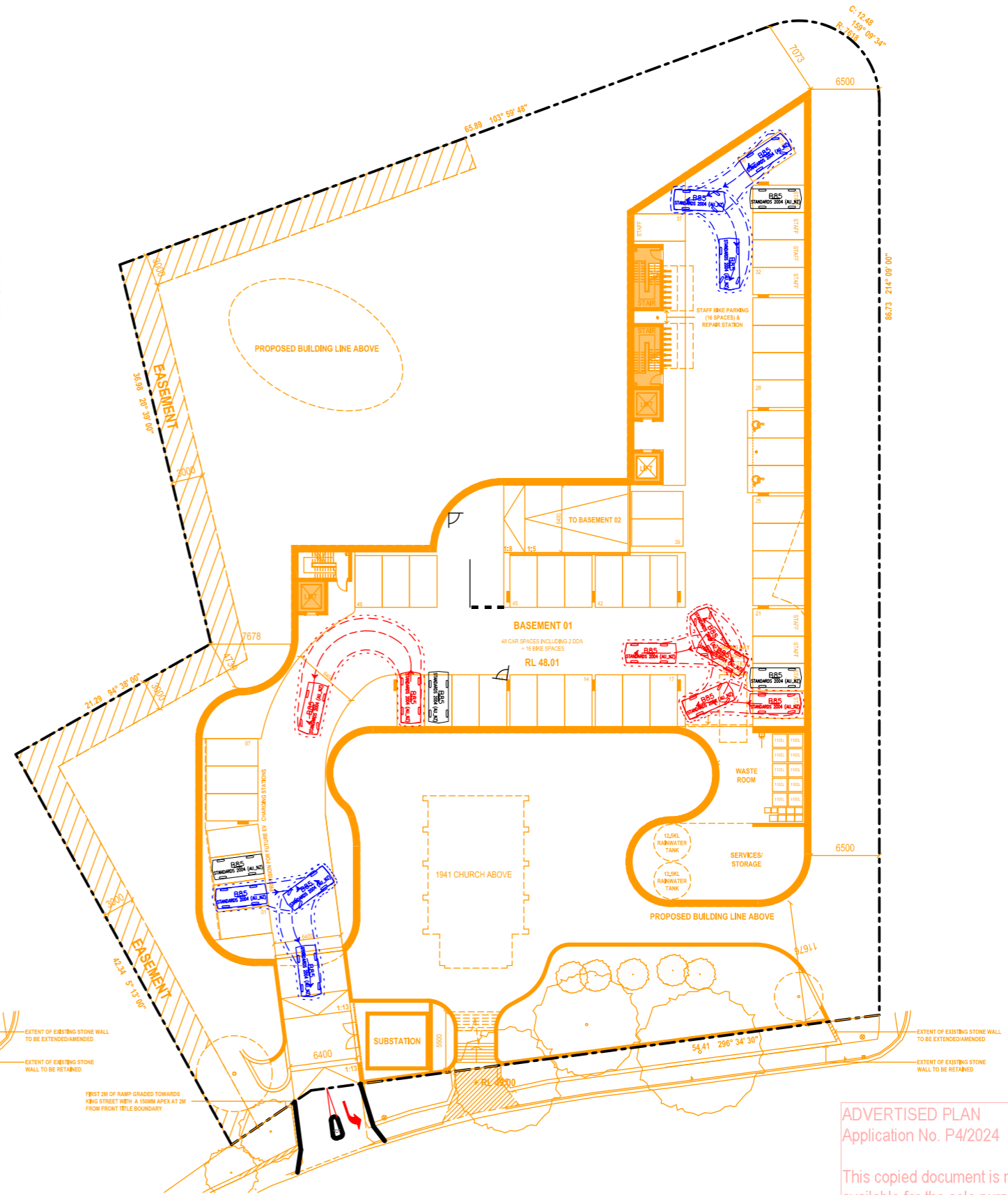


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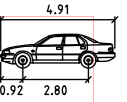


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EXIT MANOEUVRES
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Drawing Title: 321 LOWER HEIDLEBERG ROAD, IVANHOE
 BASEMENT 1 - B85 CAR SPACE ACCESS SWEEP PATH ANALYSIS

Designed	Approved	Melway Ref
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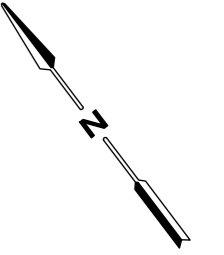
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Project Number	Drawing Number	Revision
230684	SPA201	C

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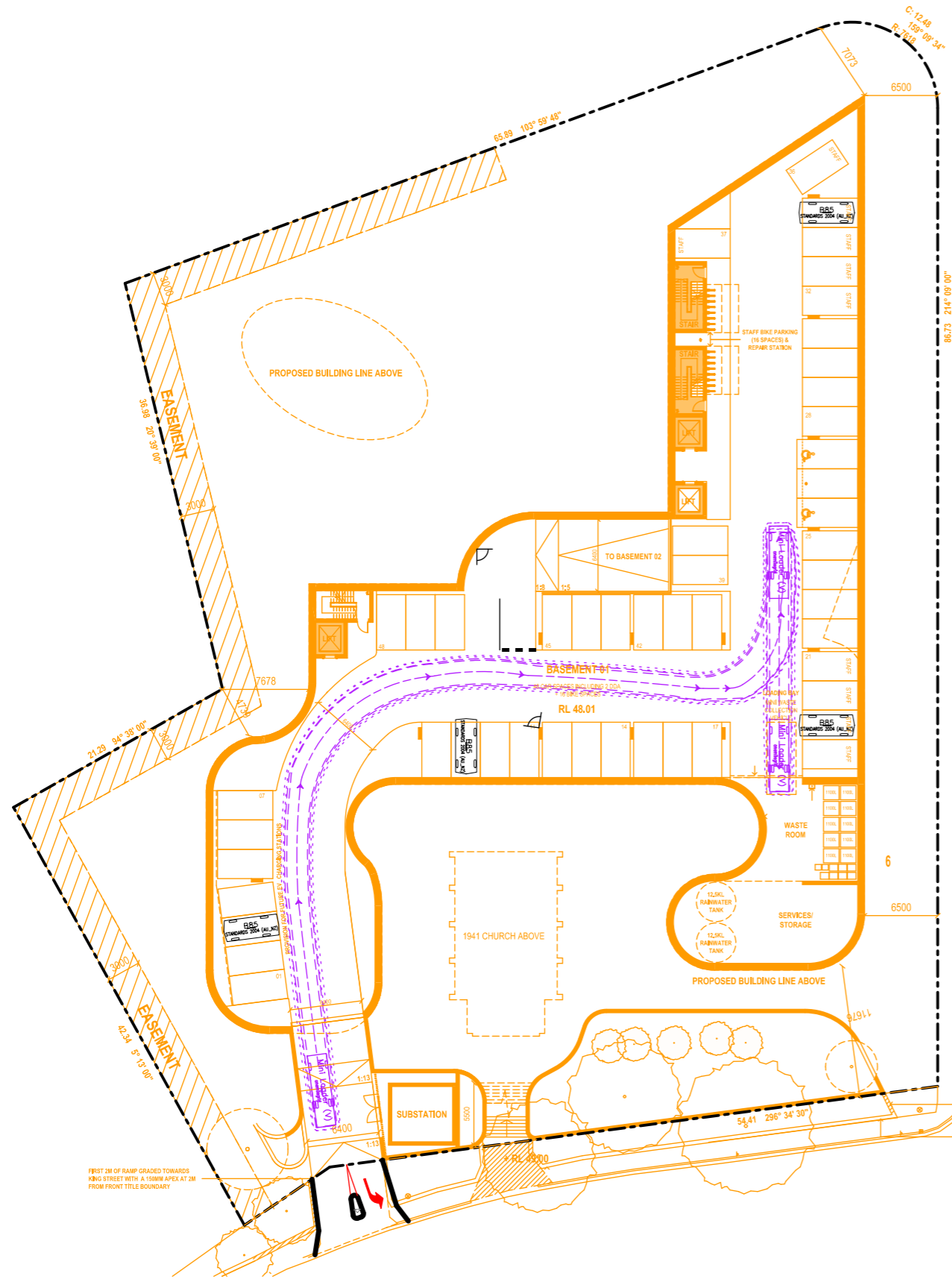
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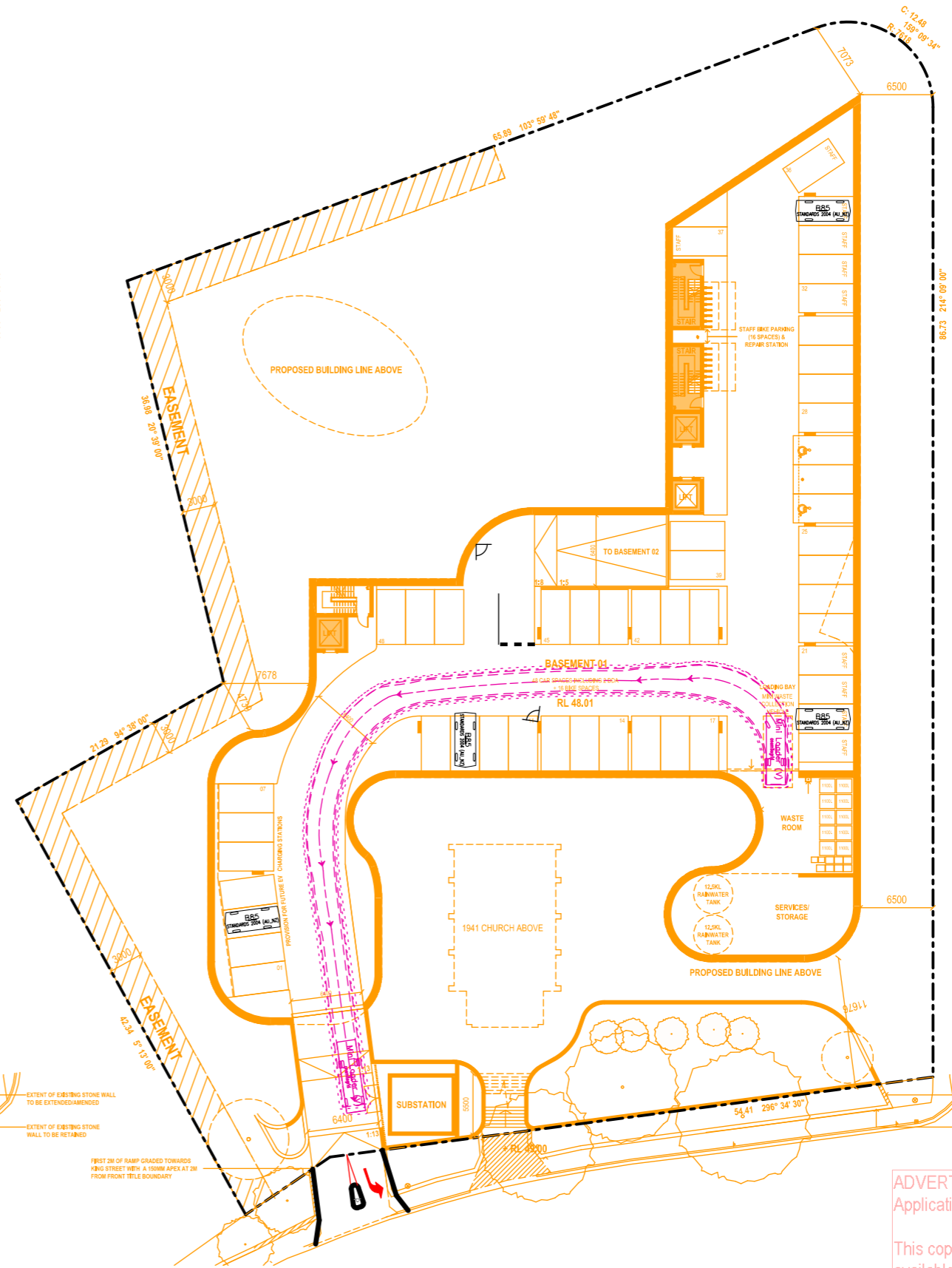
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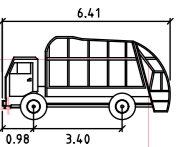
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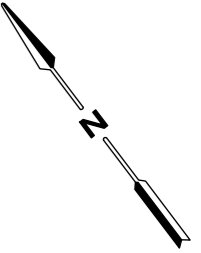
Drawing Title: 321 LOWER HEIDLEBERG ROAD, IVANHOE
 BASEMENT 1 - MINI WASTE LOADER ACCESS
 SWEEP PATH ANALYSIS

Designed: DJW Approved: JMS Melway Ref: 31 K9



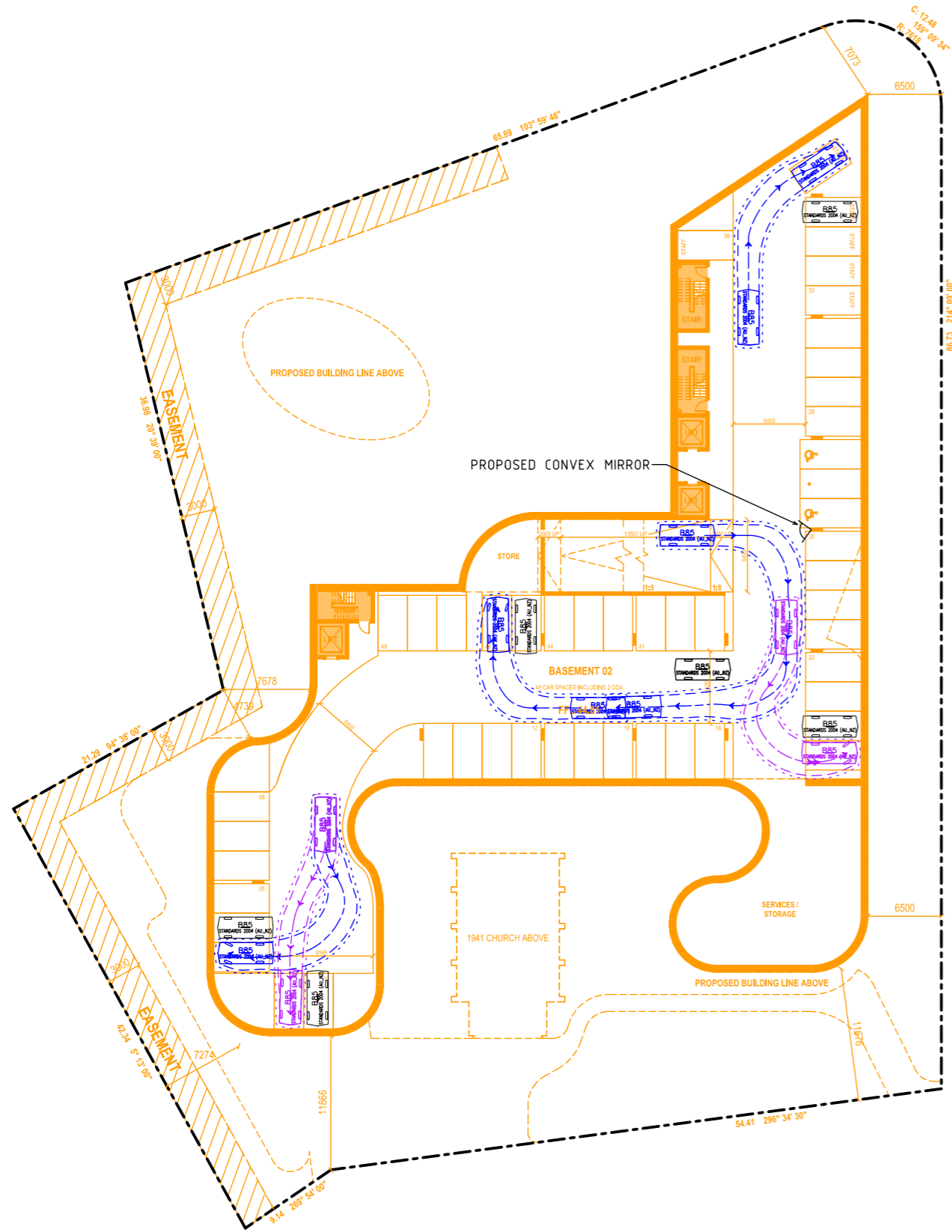
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Project Number: 230684 Drawing Number: SPA202 Revision: C



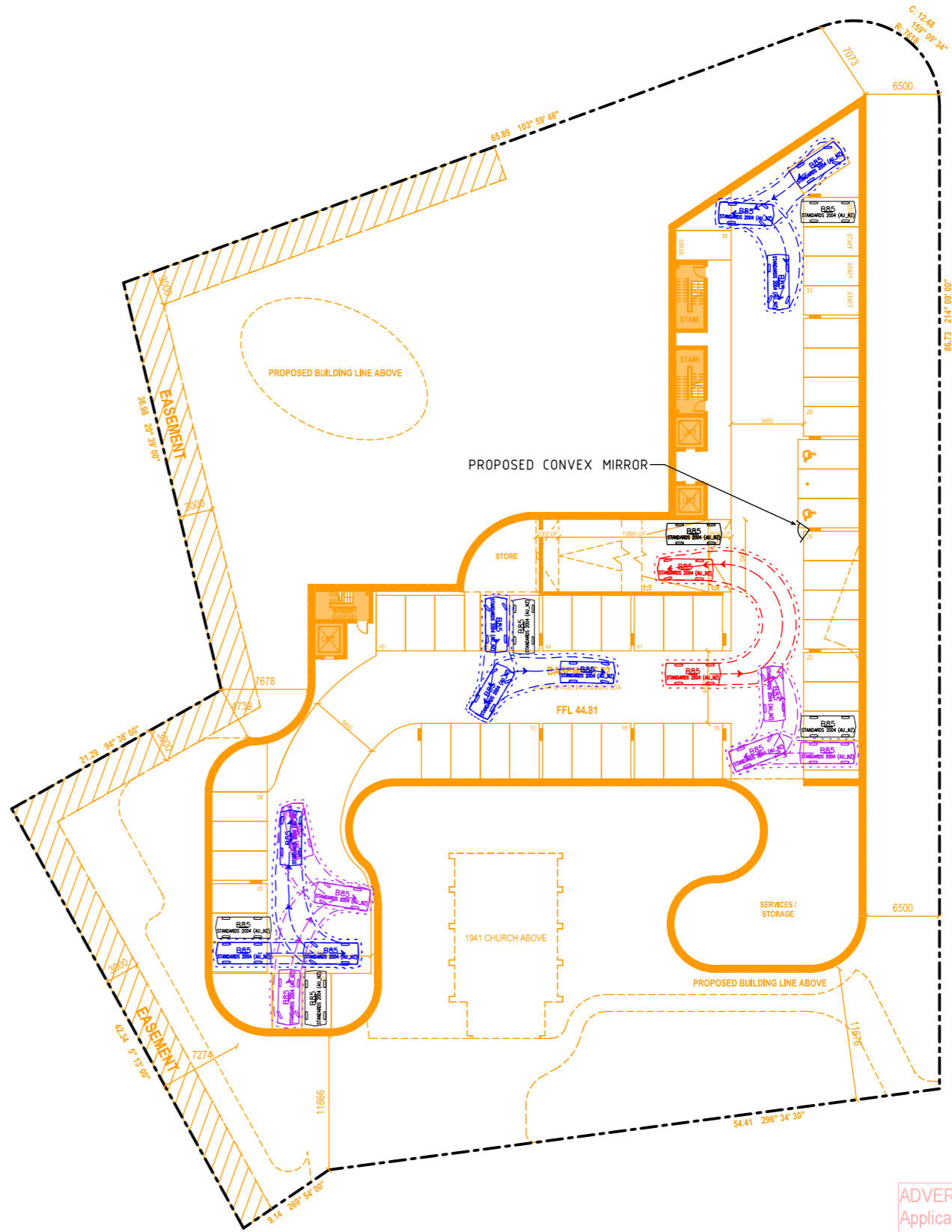
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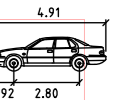
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Drawing Title
321 LOWER HEIDLEBERG ROAD, IVANHOE
BASEMENT 2 - B85 CIRCULATION
SWEEP PATH ANALYSIS

Project Number	Drawing Number	Revision
230684	SPA300	C

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