123 MARSHALL STREET, IVANHOE

Transport Impact Assessment

ADVERTISED PLAN

Prepared for
IVANHOE GIRLS' GRAMMAR SCHOOL

URBIS

20 November 2024

URBIS STAFF RESPONSIBLE FOR THIS REPORT WERE:

Director	Manesha Ravji
Senior Consultant	Katie Harker
Consultant	James Ramm
Project Code	P0012511
Report Number	Final – Revision 1

Acknowledgement of Country

Urbis acknowledges the Traditional Custodians of the lands we operate on.

We recognise that First Nations sovereignty was never ceded and respect First Nations peoples continuing connection to these lands, waterways and ecosystems for over 60,000 years.

We pay our respects to First Nations Elders, past and present.

The river is the symbol of the Dreaming and the journey of life. The circles and lines represent people meeting and connections across time and space. When we are working in different places, we can still be connected and work towards the same goal.

Title: Sacred River Dreaming
Artist Hayley Pigram
Darug Nation
Sydney, NSW

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1. INTRODUCTION

Urbis has been engaged by Ivanhoe Girls' Grammar School to provide transport advice in relation to the proposed Enterprise Centre project located at 123 Marshall Street in Ivanhoe. This site is the main campus of Ivanhoe Girls' Grammar School.

This report details our assessment which includes the following:

- An inspection of the site and surrounding area to ascertain existing transport conditions.
- A review of the adequacy of the proposed supply of on-site car parking.
- An assessment of the potential impacts of site-generated traffic on the surrounding road network.

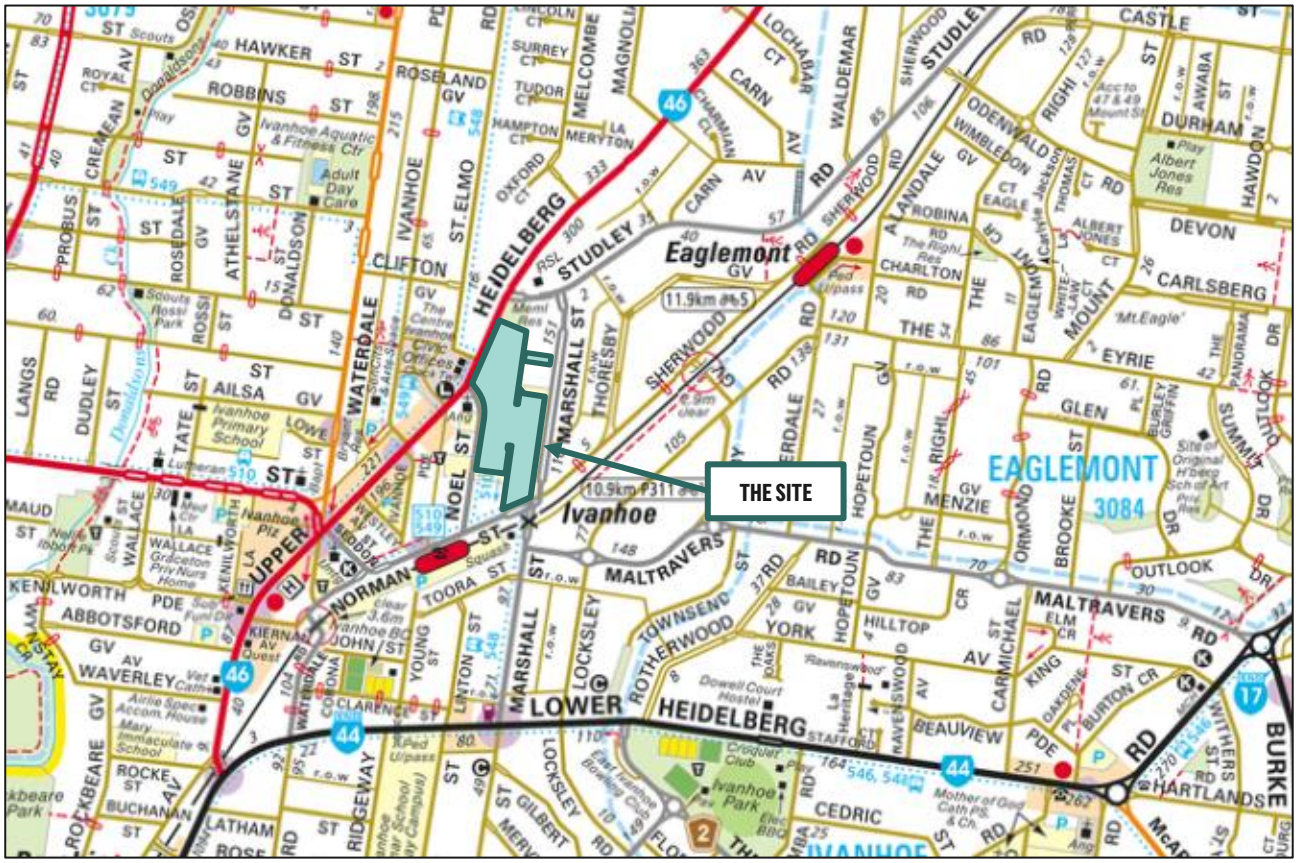
2. EXISTING CONDITIONS

2.1. SITE LOCATION AND SURROUNDS

The site is primarily located at 123 Marshall Street and includes the 137 Marshall Street property in the suburb of Ivanhoe. The site has frontages to Upper Heidelberg Road, Noel Street, Marshall Street and Norman Street, and comprises an area of approximately 31,072 square metres.

A map of the site and surrounding area is provided in **Figure 1**.

Figure 1 Site Context



Source: Melways Online

The western portion of the site is located within a General Residential Zone 2 (GRZ2) and the eastern portion within a Neighbourhood Residential Zone 3 (NRZ3) under the Banyule Planning Scheme, and is subject to the following overlays:

- Development Contributions Plan Overlay (DCPO), Schedule 1 – Banyule Development Contributions Plan

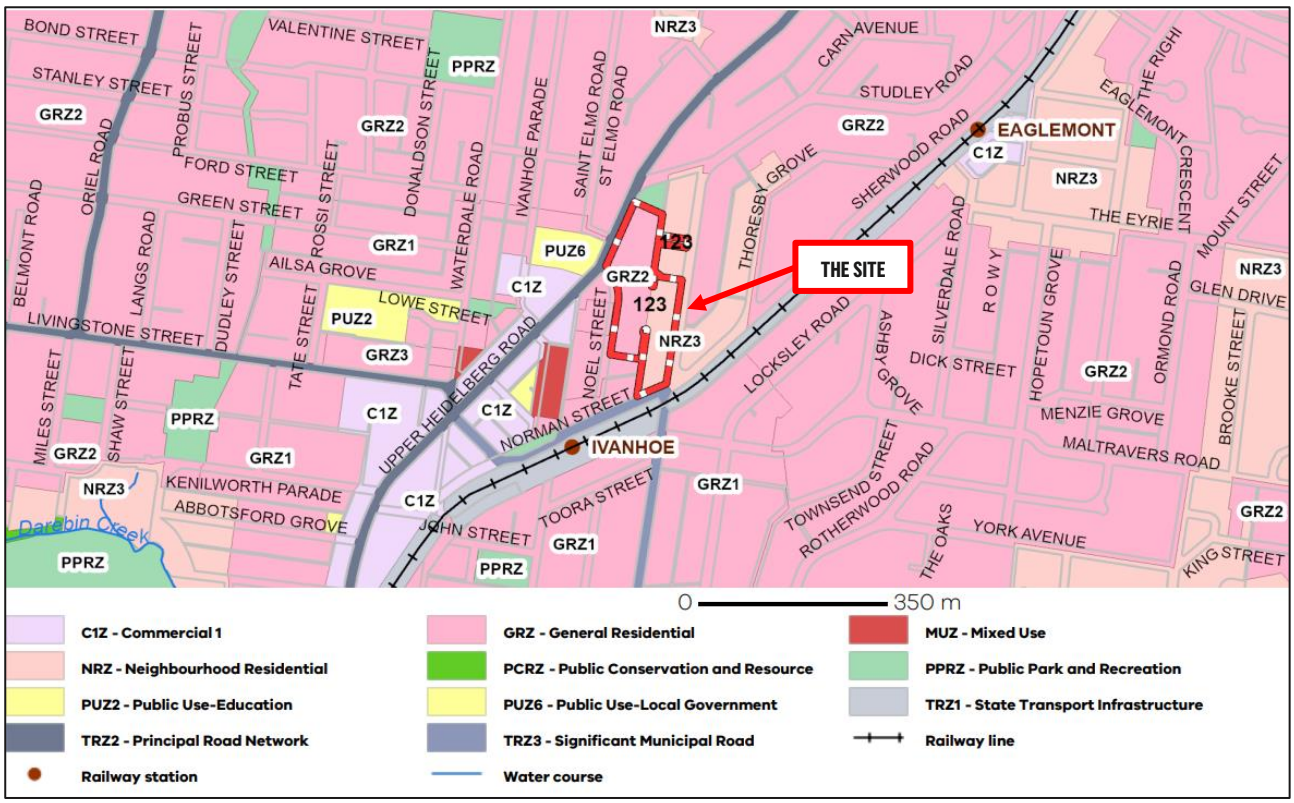
- Environmental Significance Overlay (ESO), Schedule 4 – Significant Trees and Areas of Vegetation
- Heritage Overlay (HO), Schedule 5 (Marshall Street/Thoresby Grove/Sherwood Road Precinct, Ivanhoe)
- Vegetation Protection Overlay (VPO), Schedule 3 – Eaglemont, Ivanhoe East and Ivanhoe Area

An aerial image of the site and its surroundings is shown in **Figure 2**, and the land use zoning for the site is shown in **Figure 3**.

Figure 2 Site Location Aerial Image

Source: Nearmap (modified by Ulysis)

Figure 3 Land Use Zoning Map



Source: VicPlan

Land use in the immediate vicinity of the site is typically residential in nature to the north, east and south, and commercial in nature to the west. The Ivanhoe Town Centre area is located west of the site and comprises a range of retail, commercial and civic uses, including the Ivanhoe Town Hall, Library and Cultural Hub. Residential areas in the vicinity of the site typically comprise low density development with a small amount of multi-unit typologies.

The site is currently used by Ivanhoe Girls' Grammar School and is occupied by various buildings and sporting fields. On-site car parking is provided in various areas on the site, including in a basement/undercroft facility located off Noel Street, an at-grade car park located off Upper Heidelberg Road, and small parking areas located off the unnamed Right of Way bisecting the site.

2.2. EXISTING ROAD NETWORK

The site has primary frontages to Upper Heidelberg Road, Noel Street and Marshall Street. The characteristics of the existing road network in proximity to the site are summarised in **Table 1**.

Table 1 Surrounding Road Network Characteristics

Road	Upper Heidelberg Road	Noel Street	Marshall Street
Classification / Function	Arterial	Collector	Collector
Movement lanes	One lane in each direction	One lane in each direction	One lane in each direction
Parking	Typically permitted kerbside – unrestricted where permissible AM Clearway restriction on eastern side of road	Typically permitted kerbside – subject to a 2P restriction on Mon-Fri 2-minute parking restriction adjacent to school for drop-off/pick-up Two on-street 2P DDA spaces provided near Upper Heidelberg Road	Typically permitted kerbside, unrestricted or subject to 4P restriction Mon-Fri. 2-minute parking restriction adjacent to school for drop-off/pick-up
Carriageway width (approx.)	13.2 metres	9.3 metres	15.6 metres (divided section) 9.0 metres (undivided section)
Signposted speed	40 km/h	40 km/h	40 km/h
Line marking / divided lanes	Yes	No	Typically median divided
Pedestrian pathways	Yes	Yes	Yes
Bus stops	Yes	Yes	No

In addition, the site is also bisected by an unnamed Right of Way, running in a north-south orientation from Studley Road and turning to an east-west orientation to intersect Noel Street. The Right of Way has a varying cross-section, typically comprising a width of approximately three metres.

2.3. SUSTAINABLE TRANSPORT

Pedestrian Network

The streets in proximity to the site have a well-connected pedestrian network, with all streets in the local area providing well sealed footpaths, and generally providing dedicated pedestrian crossings at key locations in the form of zebra crossings, signalised crosswalks, or kerb ramps. School crossings are provided on Upper Heidelberg Road, Marshall Street and Noel Street.

Painted pedestrian crosswalks are provided on the Right of Way bisecting the site at two pedestrian desire lines located between School buildings. These facilities comprise painted zebra-style linemarking, warning signage and speed humps to manage vehicle speeds.

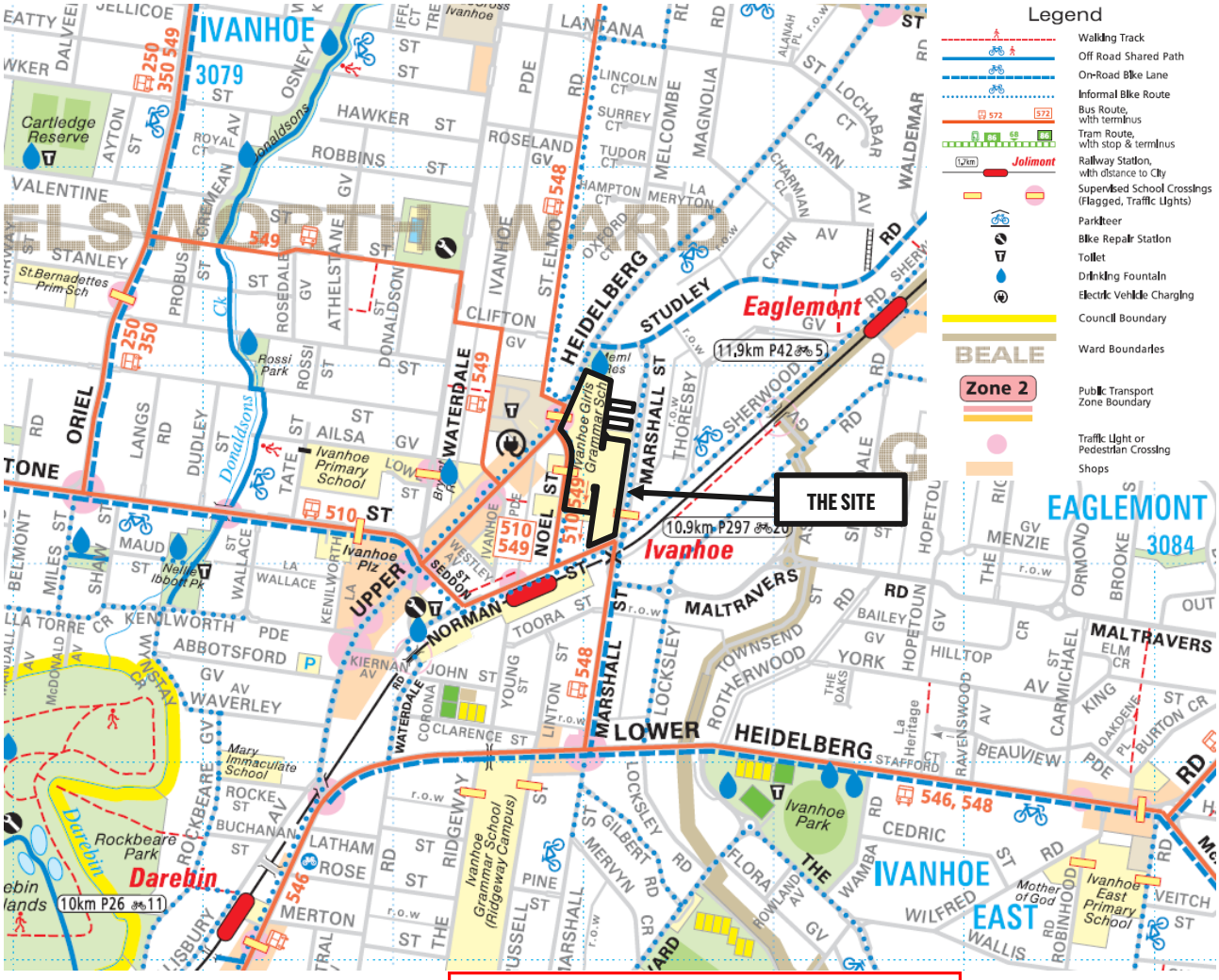
Bicycle Network

The site has reasonable access to existing bicycle infrastructure, including:

- The Donaldson Creek Trail is located to the east.
- Various bicycle advisory routes are located to the east, south and west (identified as Local Bicycle Networks under the Banyule Bicycle Strategy).

The existing bicycle network in the vicinity of the subject site is shown in **Figure 4**.

Figure 4 Existing Bicycle Network



Source: City of Banyule TravelSmart map

Public Transport Network

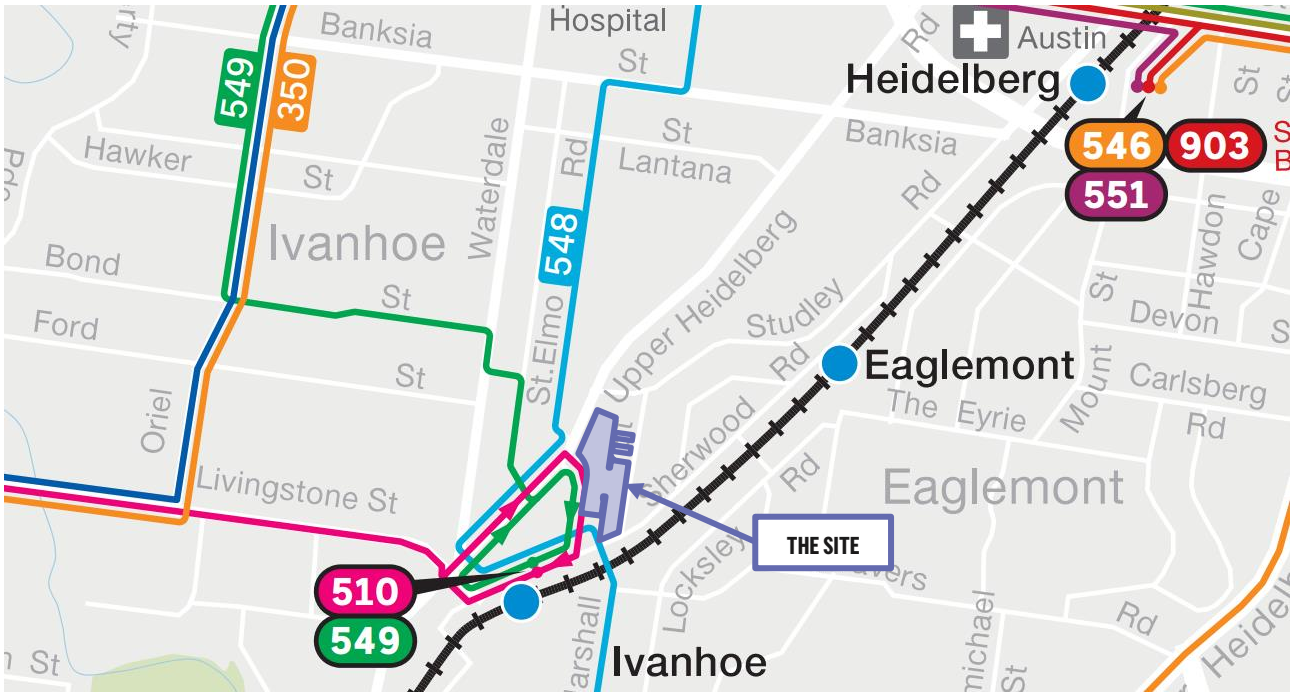
The site is located within the Principal Public Transport Network (PPTN) area.

Table 2 lists the public transport services which run proximate to the site.

Table 2 Proximate Public Transport Services

Mode	Route	Description	Distance from Site	Typical Frequency
Train	Hurstbridge Line	Ivanhoe Train Station	100 metres south west (2 minute walk)	15-20 min
Bus	510	Essendon Station – Ivanhoe Station via Brunswick & Northcote & Thornbury	100 metres south west (2 minute walk)	20 min
	548	Kew (Cotham Road) – La Trobe University via Bundoora	100 metres south west (2 minute walk)	20 min
	549	Ivanhoe – Northland via Oriel Road	100 metres south west (2 minute walk)	30 min

Figure 5 Public Transport Network



Source: Public Transport Victoria

2.4. EXISTING TRAFFIC VOLUMES

Urbis commissioned video traffic surveys at each end of the unnamed Right of Way bisecting the 123 Marshall Street site (i.e. at the intersections with Noel Street and Studley Road). The surveys were undertaken 7:30am – 9:30am and 2:30pm – 4:30pm on Wednesday 11 September 2024. This survey period was selected to capture typical conditions during school drop-off and pick-up periods.

These surveys indicated that existing traffic movements on the Right of Way are minimal. The observed traffic volumes at each end of the Right of Way across the two-hour AM and PM survey periods are summarised in **Table 3**. Detailed results of the surveys are provided in **Appendix A**.

Table 3 Traffic Volume Survey Results - Right of Way

Road	Direction	AM two-hour Volume (vehicles)	PM two-hour Volume (vehicles)	Estimated Daily Volume (vehicles per day)[1]
Right of Way at Noel Street	Eastbound	0	1	10
	Westbound	1	1	10
			Total	20
Right of Way at Studley Road	Northbound	0	3	30
	Southbound	1	1	10
			Total	40

Note 1: Assuming that 10 per cent of daily traffic occurs in the peak two-hour period

Source: Data Audit Systems Traffic Surveys

As indicated, it is estimated that the Right of Way carries approximately 40 vehicles per day at the Studley Road end, and 20 vehicles per day at the Noel Street end. It is noted that these estimates are conservative given the proportion of daily traffic occurring during the observed two-hour AM and PM peak periods is likely greater than 10 per cent.

2.5. SITE INSPECTION

Urbis Transport Advisory undertook a site inspection of the subject site and surrounding area during the afternoon of Thursday 12 September 2024 to observe existing transport conditions. Key observations made during this inspection are summarised below, and photographs are included in **Appendix B**.

- The Right of Way was not observed to be utilised for drop-off or pick-up. Primary drop-off pick-up activity was observed on Marshall Street, with some activity observed on Noel Street. No significant safety concerns (such as double parking or extensive mid-block pedestrian crossing demand) were observed on either of these streets, with existing school crossing facilities well utilised.
- Some pedestrian crossing demand (comprising staff, parents and students) was observed along the Right of Way between school buildings. These movements were typically observed to occur at designated pedestrian crossing points, which are marked with zebra linemarking and signage. Speeds

humps are also provided along the Right of Way near these points of pedestrian crossing demand to manage vehicle speed.

- No students, parents or staff were observed walking along the Right of Way to access Studley Road or Noel Street, with students typically exiting the School via the gates directly on to Noel Street, Upper Heidelberg Road and Marshall Street.
- A significant number of students were observed utilising train and bus services at Ivanhoe Station.

3. THE PROPOSAL

The proposed development comprises:

- Removal of 36 existing car parking spaces near the north-western corner of the site.
- Construction of a new four-storey building near the north-western corner of the site, with a ground level car park comprising nine car parking spaces, including one accessible space. Vehicle access to and from the ground level car park is provided via the existing 5.4 metre wide 'entry' crossover to Upper Heidelberg Road.
- Construction of eight additional car parking spaces comprising:
  - three spaces at 137 Marshall Street, accessed from an unnamed Right of Way, and
  - five spaces at 123 Marshall Street to the east of the unnamed Right of Way bisecting the site.

The construction of the new building will be a purpose-built facility to support a new learning program at the School, centred on immersive project-based activities.

The proposal does not seek to increase the number of students or staff at the School.

4. CAR PARKING

4.1. STATUTORY CAR PARKING REQUIREMENT

The statutory car parking requirements for various land uses are set out in Clause 52.06 of the Banyule Planning Scheme.

The purpose of Clause 52.06, amongst other things, is:

- *To ensure that car parking is provided in accordance with the Municipal Planning Strategy and the Planning Policy Framework.*
- *To ensure the provision of an appropriate number of car parking spaces having regard to the demand likely to be generated, the activities on the land and the nature of the locality.*
- *To support sustainable transport alternatives to the motor car.*
- *To promote the efficient use of car parking spaces through the consolidation of car parking facilities.*
- *To ensure that car parking does not adversely affect the amenity of the locality.*
- *To ensure that the design and location of car parking is of a high standard, creates a safe environment for users and enables easy and efficient use.*

The number of car parking spaces required for specific uses are outlined in Table 1 of Clause 52.06-5.

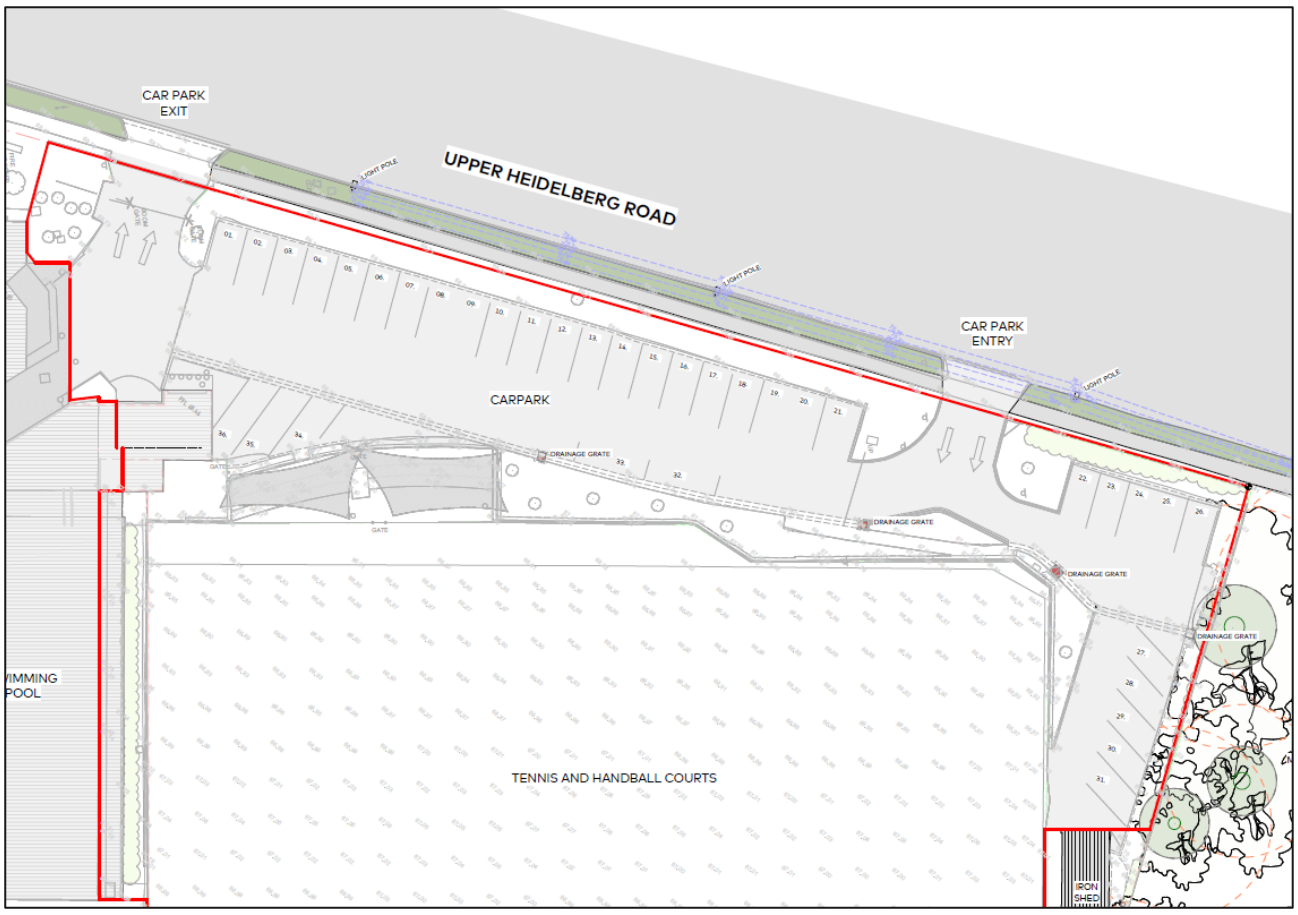
The proposed building is conducive to a 'secondary school' use. The statutory car parking requirement for a secondary school use is based on the number of employees permitted on site at any time.

Given there is no proposed increase in the number of School employees as part of the application, the proposal does not trigger a statutory car parking requirement.

4.2. REMOVAL OF EXISTING CAR PARKING SPACES

Whilst the proposal does not constitute an increase in the existing use from a statutory car parking requirement perspective, it does include the removal of 36 existing at-grade car parking spaces from near the north-western corner of the site. This car park was restricted to staff use only via signage and boom gate access control. The location of these spaces is shown in **Figure 6**.

Figure 6 Existing Car Parking Spaces to be Removed



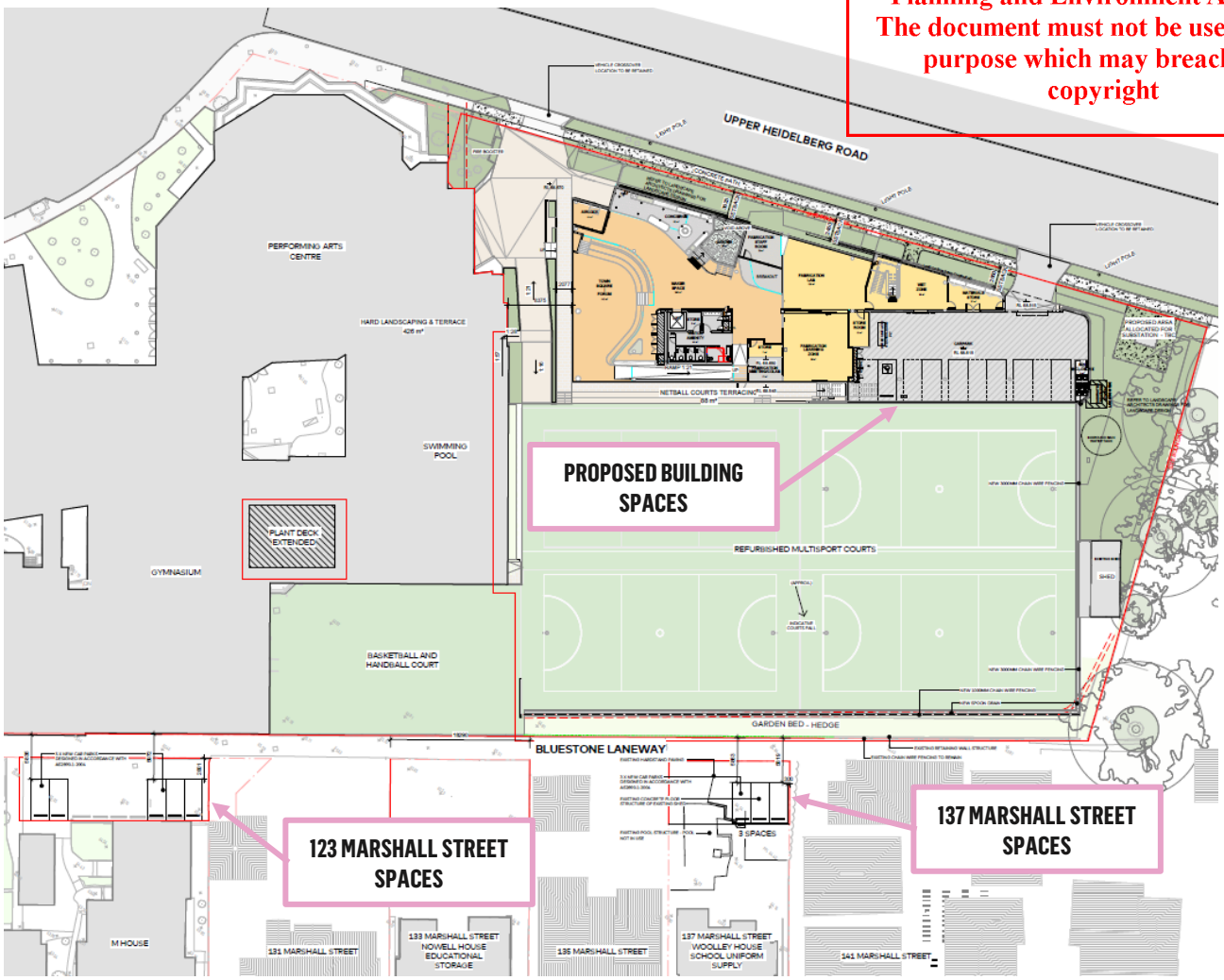
Source: Cox Architecture (TP-002 – Project No. 320078.00, dated 21/06/2024)

A total of 17 additional car parking spaces are proposed to be constructed, including:

- nine spaces on the ground level of the proposed building,
- three spaces at 137 Marshall Street, accessed from an unnamed Right of Way, and
- five spaces at 123 Marshall Street to the east of the unnamed Right of Way bisecting the site.

The locations of these additional spaces are shown in **Figure 7**.

Figure 7 Proposed Development Site Plan



On this basis, there is a proposed reduction in on-site car parking provision of 19 spaces associated with the proposal.

4.3. ADEQUACY OF PROPOSED CAR PARKING SUPPLY

As discussed, there is a reduction of 19 on-site staff car parking spaces associated with the proposal from existing conditions. The following discussion assesses the adequacy of the revised on-site car parking provision of 17 spaces, compared to the existing provision of 36 spaces:

- Urbis Transport Advisory is working with the School to develop a Green Travel Plan. This Plan will provide targeted initiatives to increase the use of sustainable transport modes amongst staff and students, and will also provide a framework for continual monitoring and evaluation of the initiatives.
- The School has advised that the majority of staff currently drive to work, however are committed to promote the use of alternative transport modes. Through the aforementioned Green Travel Plan, and based on further discussions with the School and the results of staff travel surveys, potential initiatives to target reduced private vehicle use by staff may include:
  - Rebates for alternative transport mode usage including subsidised public transport fares, rebates for staff bike, e-bike or other micromobility purchases, and/or reservation of a portion of on-site car parking for car pooling vehicles.
  - Provide an incentive (financial or otherwise) for staff who do not use a parking space.

  - Establish a car pool matching service to connect staff who live near each other.
  - Develop an e-bike or micromobility share program for staff use to allow them to “try before you buy”.
  - Provide information to staff that will aid in facilitating alternative transport uptake (for instance relating to public transport services, safe cycling routes, bicycle maintenance workshops).
  - Measure behaviour, record data and inform staff at the start of each semester about the School’s trends in travel mode usage.

- The School is located in close proximity to Ivanhoe Station and is located within the Principal Public Transport Network (PPTN) area, presenting a significant opportunity for modal shift away from staff private vehicle use. Reduction in the availability of car parking will assist with this behavioural change transition amongst staff.
- The School is bounded by the Principal Bicycle Network on Upper Heidelberg Road and Sherwood Road, and Marshall Street is designated as a Main Route (C2) Strategic Cycling Corridor. This suggests that the area is targeted for improvement in safe and attractive cycling infrastructure, which may encourage some staff to ride to work who are currently “interested but concerned” to do so.
- The School has advised that it provides ample secure bicycle parking for staff (and student) use, as well as end of trip facilities for staff, increasing the attractiveness of bike riding.
- The proposed reduction in on-site car parking provision aligns with the following Strategic Directions specified in the Banyule Integrated Transport Plan
  - Strategic Direction 2 relating to reduced reliance on private cars.
  - Strategic Direction 6 relating to ensuring development supports and encourages walking, cycling and public transport use.
  - Strategic Direction 18 relating to the influence that parking availability has on travel mode choice.
  - Strategic Direction 21 relating to Council becoming a leader in encouraging, developing and implementing sustainable transport behaviour, including the encouragement of schools in Banyule to prepare and implement green travel plans.
- The proposed reduction also aligns with the Ivanhoe Parking Plan in relation to recognition of car parking supply as a key travel demand management tool when viable alternative modes of travel are available.

Based on the above considerations, the proposed provision of 17 on-site car parking spaces (representing a reduction of 19 spaces from the existing supply) is considered appropriate. This reduction in car parking supply also presents a strong opportunity for travel behaviour shift in alignment with the Banyule Integrated Transport Plan.

5. CAR PARK ACCESS & LAYOUT

5.1. NEW BUILDING CAR PARKING SPACES

It is proposed to provide nine car parking spaces on the ground floor of the new building. The following comments are made in relation to the proposed car park access and layout arrangement:

- Vehicle access is provided via the existing 5.4 metre wide crossover to Upper Heidelberg Road and a 4.0 metre wide roller door. These widths exceed the crossover width requirement specified in Design Standard 1 of Clause 52.06-9 of the Banyule Planning Scheme, and the accessway width requirement for one-way traffic specified in Australian Standard 2890.1-2004 *Parking facilities: Off-street car parking*.
- The proposed car parking spaces and aisle width exceeds the dimensional requirements of Australian Standard 2890.1-2004 *Parking facilities: Off-street car parking* for a Class 1A facility (applicable to employee parking). Given the standard car parking spaces will be allocated for staff use only, the design of spaces in accordance with the Australian Standards (rather than Clause 52.06-9) is considered acceptable.
- The proposed columns are located 0.3 metres from adjacent car parking spaces, allowing for appropriate door opening clearance in accordance with Australian Standard 2890.1-2004 *Parking facilities: Off-street car parking*.
- One accessible space is provided, meeting the provision requirement specified in the National Construction Code 2022. This accessible space is designed in accordance with Australian Standard 2890.6-2022 *Parking facilities: Off-street parking for people with disabilities*, including provision of a minimum 2.5 metre headroom clearance above the car space and adjacent shared area.
- A minimum headroom clearance of 2.2 metres is provided in the remainder of the ground level car park area, in accordance with relevant Australian Standard requirements.
- A one metre aisle extension is provided beyond the last car parking space in accordance with Australian Standard 2890.1-2004 *Parking facilities: Off-street car parking*.

5.2. RIGHT OF WAY CAR PARKING SPACES

It is proposed to provide eight spaces along the existing unnamed Right of Way that bisects the 123 Marshall Street site. The locations of these spaces are shown in **Figure 7**.

The proposed car parking spaces and aisle width (inclusive of the Right of Way) exceed the dimensional requirements of Australian Standard 2890.1-2004 *Parking facilities: Off-street car parking* for a Class 1A facility (applicable to employee parking).

Attachment C provides swept path analysis for an Australian Standard 85th percentile car entering and exiting critical car parking spaces located along the Right of Way. It is noted that all spaces can be entered and exited within one corrective movement, which is permissible for a Class 1A facility under Australian Standard 2890.1-2004 *Parking facilities: Off-street car parking*. Given the spaces will be allocated for staff use only, and likely assigned to individual staff who will be familiar with the corrective movement required to access some of the spaces, this is considered acceptable.

The impact of additional vehicle movements associated with these car parking spaces on the Right of Way is discussed in **Section 8.**

6. BICYCLE PARKING REQUIREMENTS

The statutory requirement for provision of bicycle parking spaces is set out in Clause 52.34 of the Banyule Planning Scheme.

The proposed building is conducive to a 'secondary school use' under the Planning Scheme.

Table 4: Statutory Bicycle Parking Requirement

Use	Size	Statutory Rate		Statutory Requirement	
		Employee	Student	Employee	Student
Secondary school	No increase in staff or students	1 space to each 20 employees	1 space to each 5 pupils	0 spaces	0 spaces
			Total	**0 spaces**	**0 spaces**

On this basis, the proposal does not trigger a statutory bicycle parking requirement.

7. LOADING AND WASTE COLLECTION

The development does not propose any changes to the existing loading and waste collection arrangements for the School.

8. TRAFFIC GENERATION, DISTRIBUTION & IMPACT

8.1. TRAFFIC GENERATION

The proposal does not seek to increase the number of students or staff at the School.

As discussed, the existing 36 car parking spaces along the Upper Heidelberg Road frontage will be removed and a total of 17 additional car parking spaces will be provided. Given both the existing and proposed car parking spaces are allocated for staff use, the frequency and temporal turnover of the spaces is likely to remain the same. The proposal will therefore result in a decrease in vehicle traffic originating from or arriving to the site.

Given these spaces are used by staff, it is expected that each space would be turned over twice per day, with up to one inbound vehicle movement during the AM peak hour and one outbound vehicle movement during the PM peak hour. For the proposed 17 spaces, this equates to:

- up to 17 inbound vehicle movements during the AM peak hour, and
- up to 17 outbound vehicle movements during the PM peak hour.

8.2. TRAFFIC DISTRIBUTION & IMPACT

Upper Heidelberg Road

Of the 17 spaces proposed, nine spaces will be provided along the Upper Heidelberg frontage of the site, with vehicle access provided via a single crossover. As such, it is envisaged that there will be up to nine vehicle movements to/from Upper Heidelberg Road during the peak hour. This represents a reduction in 27 peak hour vehicle movements from existing conditions.

On this basis, the proposal will have no adverse impact on the existing safety and operation of Upper Heidelberg Road.

Right of Way

Of the 17 spaces proposed, eight spaces will be provided along the unnamed Right of Way bisecting the 123 Marshall Street site. As such, it is envisaged that there will be up to eight additional vehicle movements generated along the Right of Way during the peak hour.

The Australian Standards (AS2890.1) for Off Street Parking provides a guide for vehicle traffic along laneways. Where 30 or more vehicle movements occur during a peak hour (in and out combined), two-way passing opportunities should be provided. For constrained laneways which do not provide through access, 30 vehicle movements could be considered the capacity.

The addition of eight vehicle movements during the peak hour to the existing Right of Way would result in a maximum of 12 vehicle movements during a peak hour. As such, the additional vehicle movements would result in no adverse safety or operational impacts to the Right of Way.

9. CONCLUSION

The proposed development at 123 Marshall Street, Ivanhoe involves the construction of a new purpose-built facility to support a new learning program at the School, centred on immersive project-based activities. The proposal does not seek to increase staff or student numbers.

The site is well-served by connected pedestrian network and is located within 100 metres of both train and bus services at Ivanhoe Station. The site is also bisected by an unnamed Right of Way, running in a north-south orientation from Studley Road and turning to an east-west orientation to intersect Noel Street

The proposal includes reducing the existing on-site car parking spaces from 36 to 17, seeking a reduction of 19 car parking spaces for the site.

This proposed car parking provision is considered appropriate and presents a strong opportunity for travel behaviour shift in alignment with the Banyule Integrated Transport Plan. The School are working with Urbis Transport Advisory to develop a Green Travel Plan which will include a range of staff and student based incentives the leverage the School's excellent access to public transport and the potential for increased uptake in walking, cycling and car pooling.

The proposed car parking spaces are designed in accordance with Australian Standard 2890.1-2004 *Parking facilities: Off-street car parking* and are appropriate considering they will be allocated for staff use only.

A proportion of the proposed car parking spaces will generate additional vehicle movements on the Right of Way, however it is expected that these will result in no adverse safety or operational impacts.

Based on this assessment, the proposal is considered appropriate from a transport and parking perspective.

DISCLAIMER

This report is dated 20/11/2024 and incorporates information and events up to that date only and excludes any information arising, or event occurring, after that date which may affect the validity of Urbis Ltd **(Urbis)** opinion in this report. Urbis prepared this report on the instructions, and for the benefit only, of Ivanhoe Girls' Grammar School **(Instructing Party)** for the purpose of a Traffic Impact Assessment Report **(Purpose)** and not for any other purpose or use. To the extent permitted by applicable law, Urbis expressly disclaims all liability, whether direct or indirect, to the Instructing Party which relies or purports to rely on this report for any purpose other than the Purpose, and to any other person which relies or purports to rely on this report for any purpose whatsoever (including the Purpose).

In preparing this report, Urbis was required to make judgements which may be affected by unforeseen future events, the likelihood and effects of which are not capable of precise assessment.

All surveys, forecasts, projections and recommendations contained in or associated with this report are made in good faith and on the basis of information supplied to Urbis at the date of this report, and upon which Urbis relied. Achievement of the projections and budgets set out in this report will depend, among other things, on the actions of others over which Urbis has no control.

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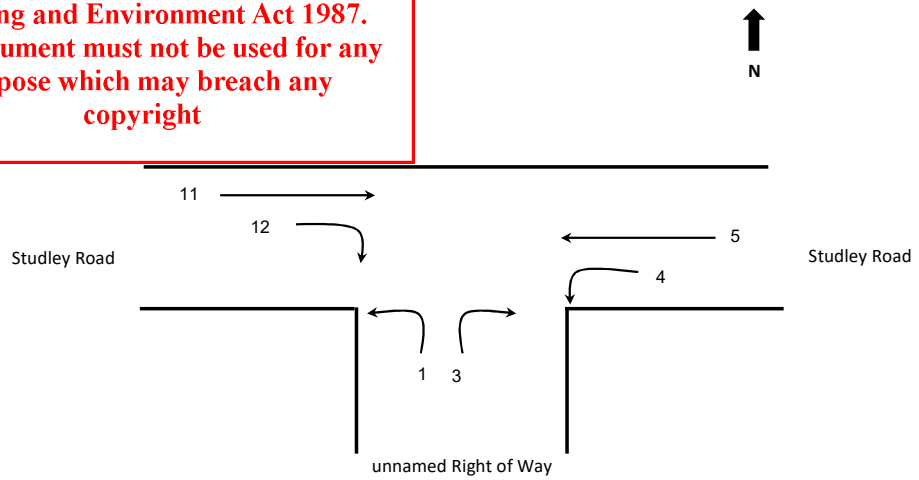
This report has been prepared with due care and diligence by Urbis and the statements and opinions given by Urbis in this report are given in good faith and in the reasonable belief that they are correct and not misleading, subject to the limitations above.

APPENDIX A TURNING MOVEMENT COUNT SURVEY RESULTS

Data Audit Systems
FOR INFORMED DECISION MAKING
TRAFFIC SURVEYS

Location: Studley Road / unnamed Right of Way
Weather: Fine
Date: Wednesday, 11 September 2024
Survey Period : 7:30am-9:30am and 2:30pm-4:30pm

AM Peak: 8am - 9am
PM Peak: 3:30pm - 4:30pm



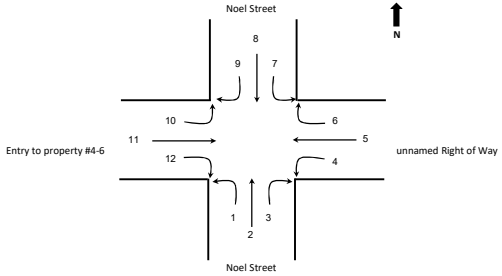
TIME	1			3			4			5			11			12			AM PEAK	
	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Hour	Total
7:30	0	0	0	0	0	0	0	0	0	23	1	24	44	0	44	0	0	0	7:30 - 8:30	393
7:45	0	0	0	0	0	0	0	0	0	38	0	38	46	1	47	0	0	0	7:45 - 8:45	420
8:00	0	0	0	0	0	0	0	0	0	46	1	47	50	0	50	0	0	0	8:00 - 9:00	437
8:15	0	0	0	0	0	0	0	0	0	73	1	74	69	0	69	0	0	0	8:15 - 9:15	416
8:30	0	0	0	0	0	0	0	0	0	46	0	46	49	0	49	0	0	0	8:30 - 9:30	341
8:45	0	0	0	0	0	0	0	0	0	51	3	54	47	0	47	1	0	1	AM PEAK	437
9:00	0	0	0	0	0	0	0	0	0	36	0	36	38	2	40	0	0	0		
9:15	0	0	0	0	0	0	0	0	0	30	1	31	36	1	37	0	0	0		
TOTAL	0	0	0	0	0	0	0	0	0	343	7	350	379	4	383	1	0	1		
AM PEAK	0	0	0	0	0	0	0	0	0	216	5	221	215	0	215	1	0	1		

TIME	1			3			4			5			11			12			PM PEAK	
	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Hour	Total
14:30	0	0	0	0	0	0	0	0	0	29	1	30	21	1	22	0	0	0	14:30 - 15:30	312
14:45	0	0	0	0	0	0	0	0	0	40	1	41	37	1	38	0	0	0	14:45 - 15:45	388
15:00	0	0	0	0	0	0	0	0	0	38	0	38	46	2	48	0	0	0	15:00 - 16:00	421
15:15	0	0	0	0	0	0	0	0	0	57	0	57	37	1	38	0	0	0	15:15 - 16:15	426
15:30	0	0	0	0	0	0	0	0	0	77	0	77	50	1	51	0	0	0	15:30 - 16:30	437
15:45	1	0	1	0	0	0	0	0	0	62	1	63	46	2	48	0	0	0	PM PEAK	437
16:00	1	0	1	0	0	0	1	0	1	50	0	50	39	0	39	0	0	0		
16:15	0	0	0	1	0	1	0	0	0	54	0	54	50	1	51	0	0	0		
TOTAL	2	0	2	1	0	1	1	0	1	407	3	410	326	9	335	0	0	0		
PM PEAK	2	0	2	1	0	1	1	0	1	243	1	244	185	4	189	0	0	0		

Data Audit Systems
TRAFFIC SURVEYS

Location: Noel Street / unnamed Right of Way
Weather: Fine
Date: Wednesday, 11 September 2024
Survey Period : 7:30am-9:30am and 2:30pm-4:30pm

AM Peak: 7:30am - 8:30am
PM Peak: 3:15pm - 4:15pm



	1			2			3			4			5			6			7			8			9			10			11			12			AM PEAK	
TIME	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Hour	Total
7:30	0	0	0	26	0	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	74	2	76	0	0	0	0	0	0	0	0	0	0	0	0	7:30 - 8:30	520
7:45	0	0	0	29	0	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	88	4	92	0	0	0	1	0	1	0	0	0	0	0	0	7:45 - 8:45	515
8:00	0	0	0	34	4	38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	103	1	104	0	0	0	1	0	1	0	0	0	0	0	0	8:00 - 9:00	482
8:15	0	0	0	43	0	43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	106	3	109	0	0	0	0	0	0	0	0	0	1	0	1	8:15 - 9:15	425
8:30	0	0	0	34	0	34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60	2	62	0	0	0	0	0	0	0	0	0	1	0	1	8:30 - 9:30	354
8:45	0	0	0	32	2	34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	5	55	0	0	0	0	0	0	0	0	0	0	0	0	AM PEAK	520
9:00	0	0	0	24	0	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60	2	62	0	0	0	0	0	0	0	0	0	0	0	0		
9:15	0	0	0	31	2	33	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	47	1	48	0	0	0	0	0	0	0	0	0	0	0	0		
TOTAL	0	0	0	253	8	261	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	588	20	608	0	0	0	2	0	2	0	0	0	2	0	2		
AM PEAK	0	0	0	132	4	136	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	371	10	381	0	0	0	2	0	2	0	0	0	1	0	1		

	1			2			3			4			5			6			7			8			9			10			11			12			PM PEAK	
TIME	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Hour	Total
14:30	0	0	0	31	0	31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33	3	36	0	0	0	0	0	0	0	0	0	0	0	0	14:30 - 15:30	341
14:45	0	0	0	29	1	30	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	43	2	45	0	0	0	0	0	0	0	0	0	0	0	0	14:45 - 15:45	402
15:00	0	0	0	29	0	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	67	3	70	0	0	0	0	0	0	0	0	0	0	0	0	15:00 - 16:00	440
15:15	1	0	1	40	2	42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54	2	56	0	0	0	0	0	0	0	0	0	0	0	0	15:15 - 16:15	442
15:30	1	0	1	50	1	51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	74	1	75	0	0	0	1	0	1	0	0	0	0	0	0	15:30 - 16:30	439
15:45	1	0	1	48	1	49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60	4	64	0	0	0	0	0	0	0	0	0	0	0	0	PM PEAK	442
16:00	0	0	0	48	0	48	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	52	0	52	0	0	0	0	0	0	0	0	0	0	0	0		
16:15	0	0	0	38	0	38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	56	2	58	0	0	0	0	0	0	0	0	0	0	0	0		
TOTAL	3	0	3	313	5	318	1	0	1	1	0	1	0	0	0	0	0	0	0	0	0	439	17	456	0	0	0	1	0	1	0	0	0	0	0	0		
PM PEAK	3	0	3	186	4	190	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	240	7	247	0	0	0	1	0	1	0	0	0	0	0	0		

APPENDIX B KEY SITE INSPECTION PHOTOGRAPHS

Right of Way, facing north near existing School buildings

Right of Way, facing south near existing School buildings

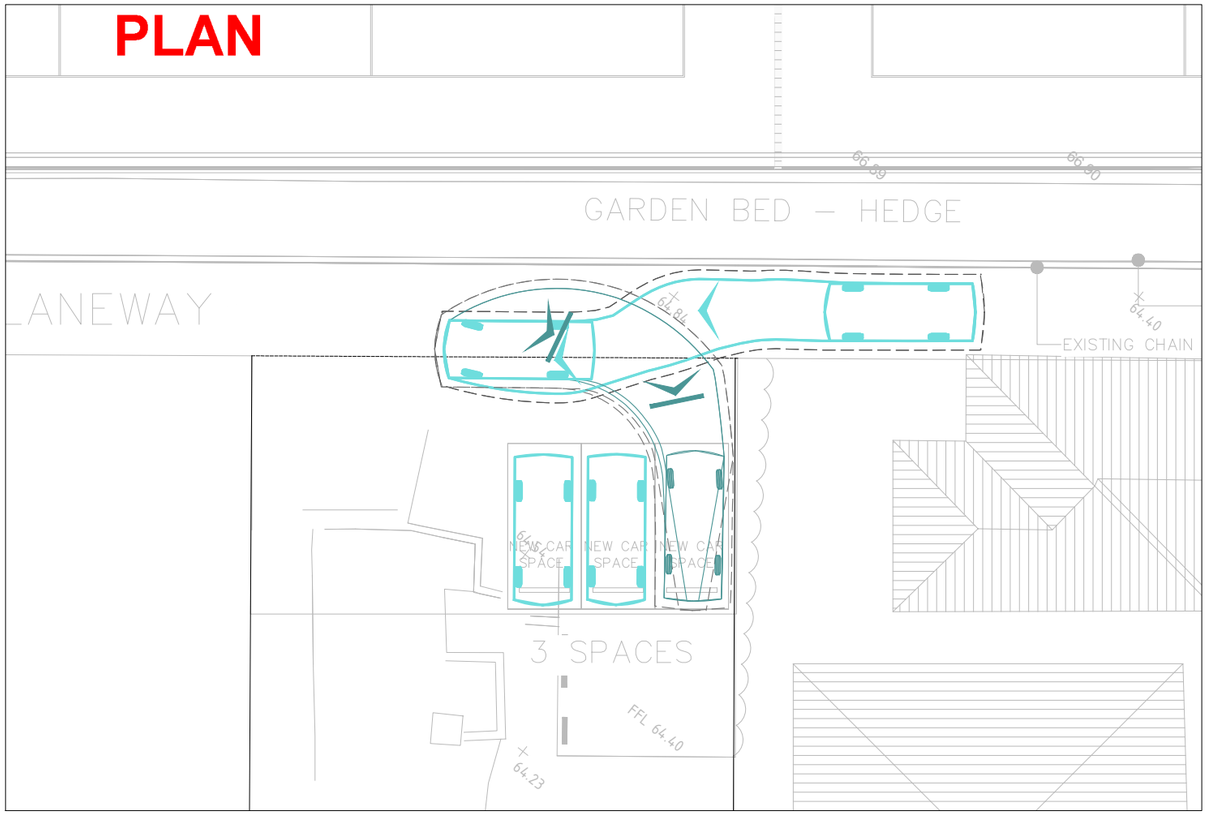
Right of Way near 137 Marshall Street, facing north

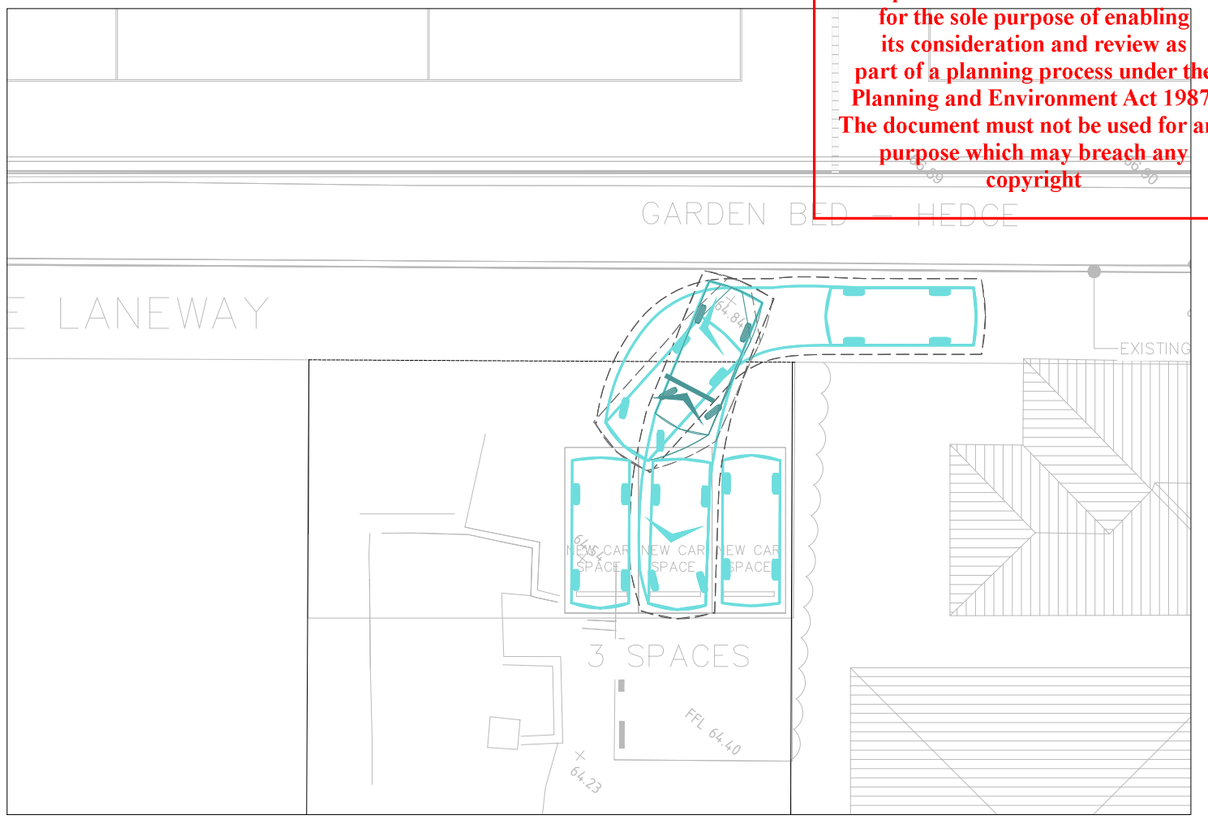
Right of Way near 137 Marshall Street, facing south

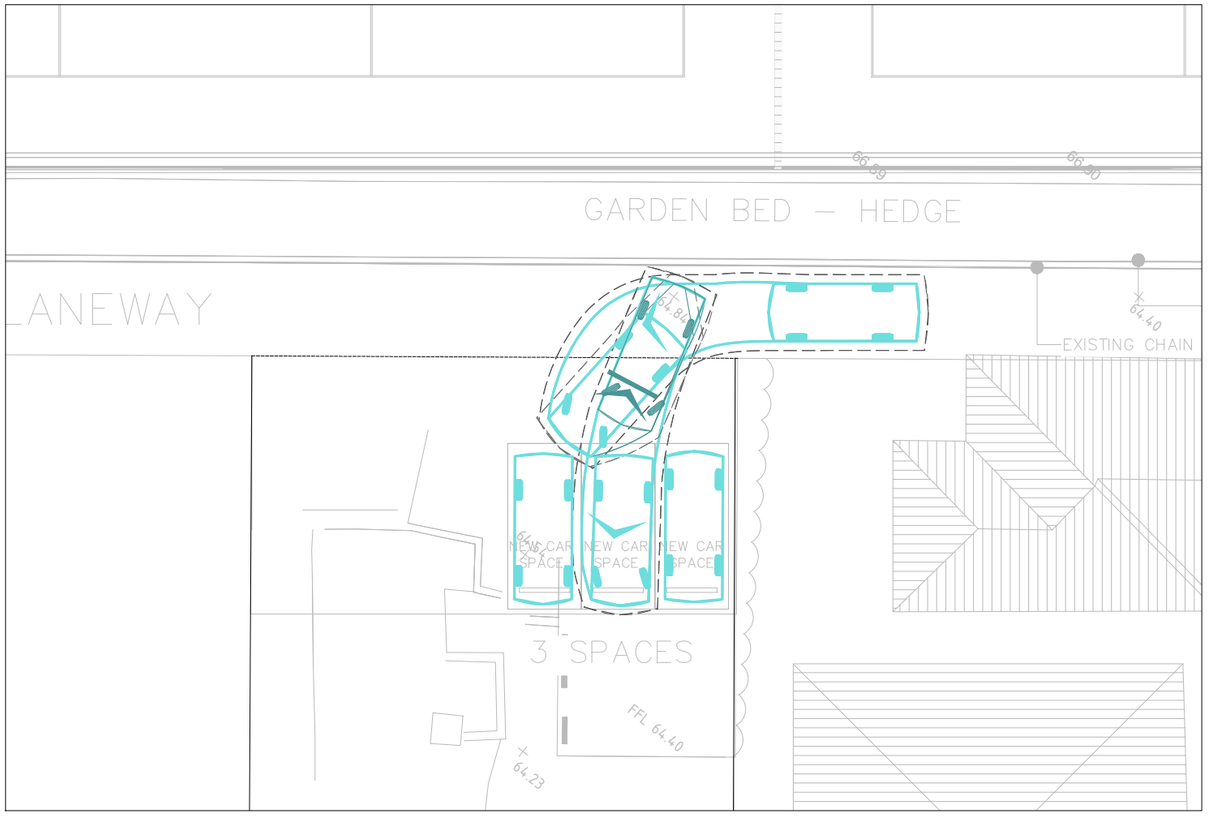
Existing staff car park, Upper Heidelberg Road

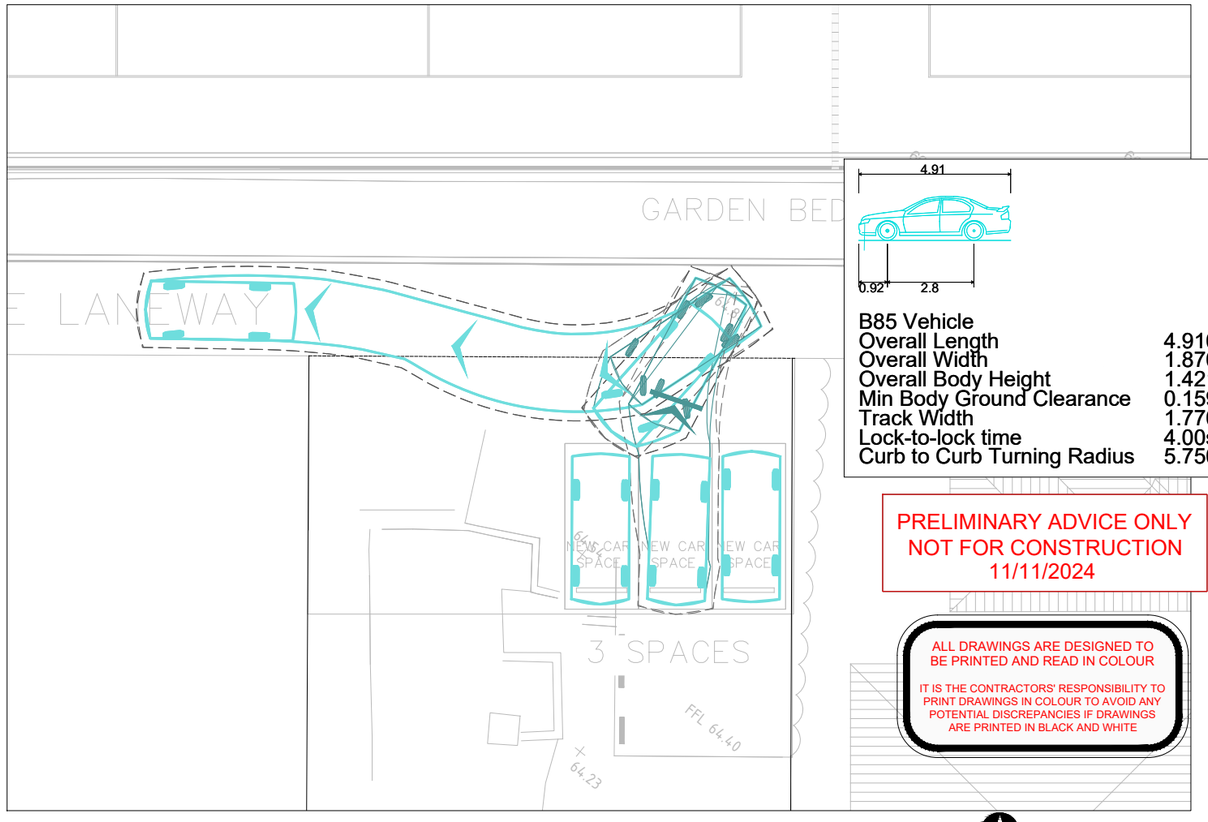
APPENDIX C SWEPT PATH ANALYSIS

ADVERTISED
PLAN









B85 Vehicle	
Overall Length	4.910m
Overall Width	1.870m
Overall Body Height	1.421m
Min Body Ground Clearance	0.159m
Track Width	1.770m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	5.750m

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11/11/2024

ALL DRAWINGS ARE DESIGNED TO BE PRINTED AND READ IN COLOUR

IT IS THE CONTRACTORS' RESPONSIBILITY TO PRINT DRAWINGS IN COLOUR TO AVOID ANY POTENTIAL DISCREPANCIES IF DRAWINGS ARE PRINTED IN BLACK AND WHITE

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11/11/2024

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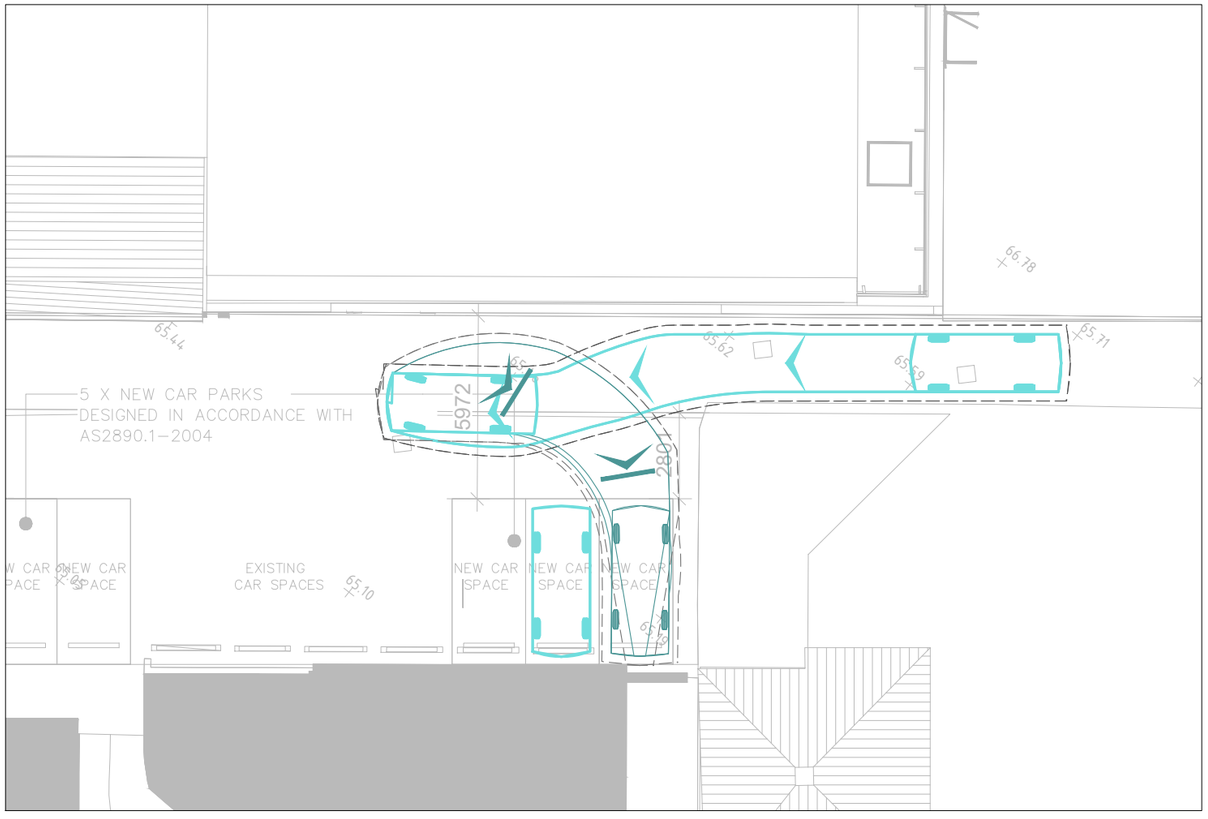

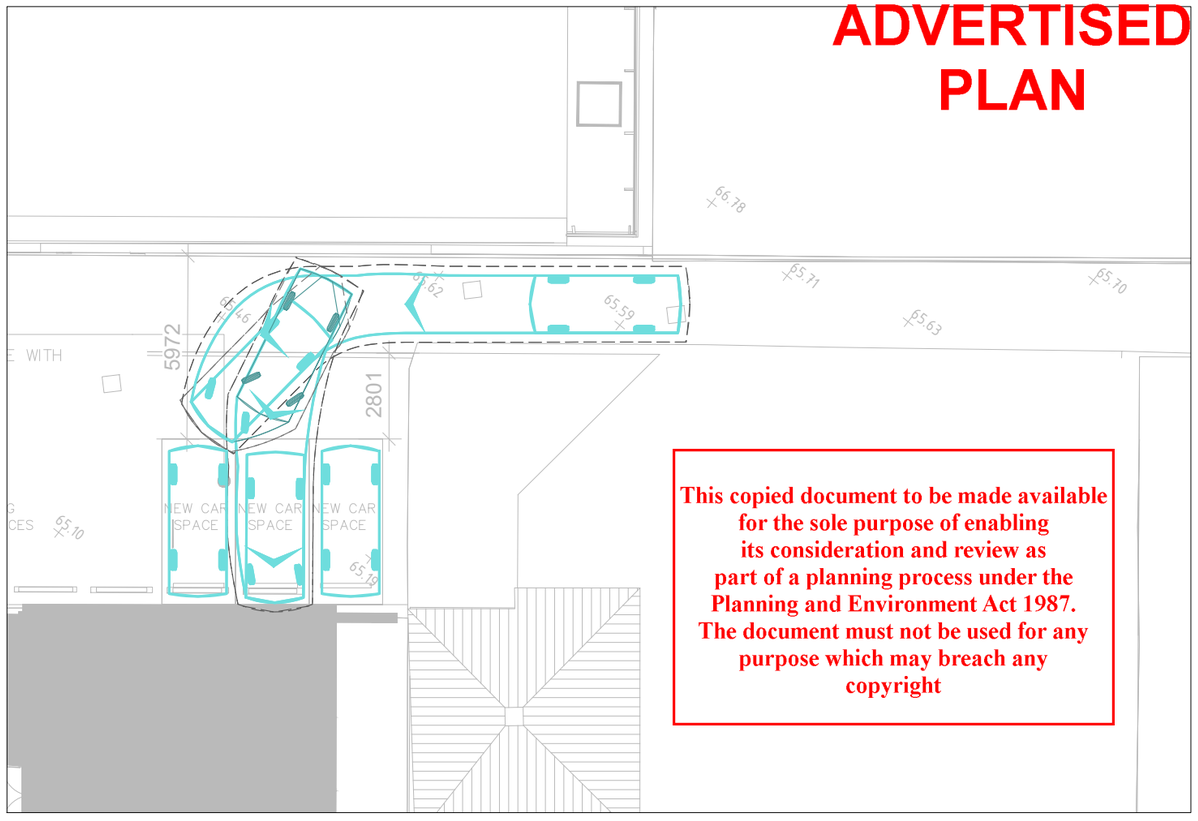

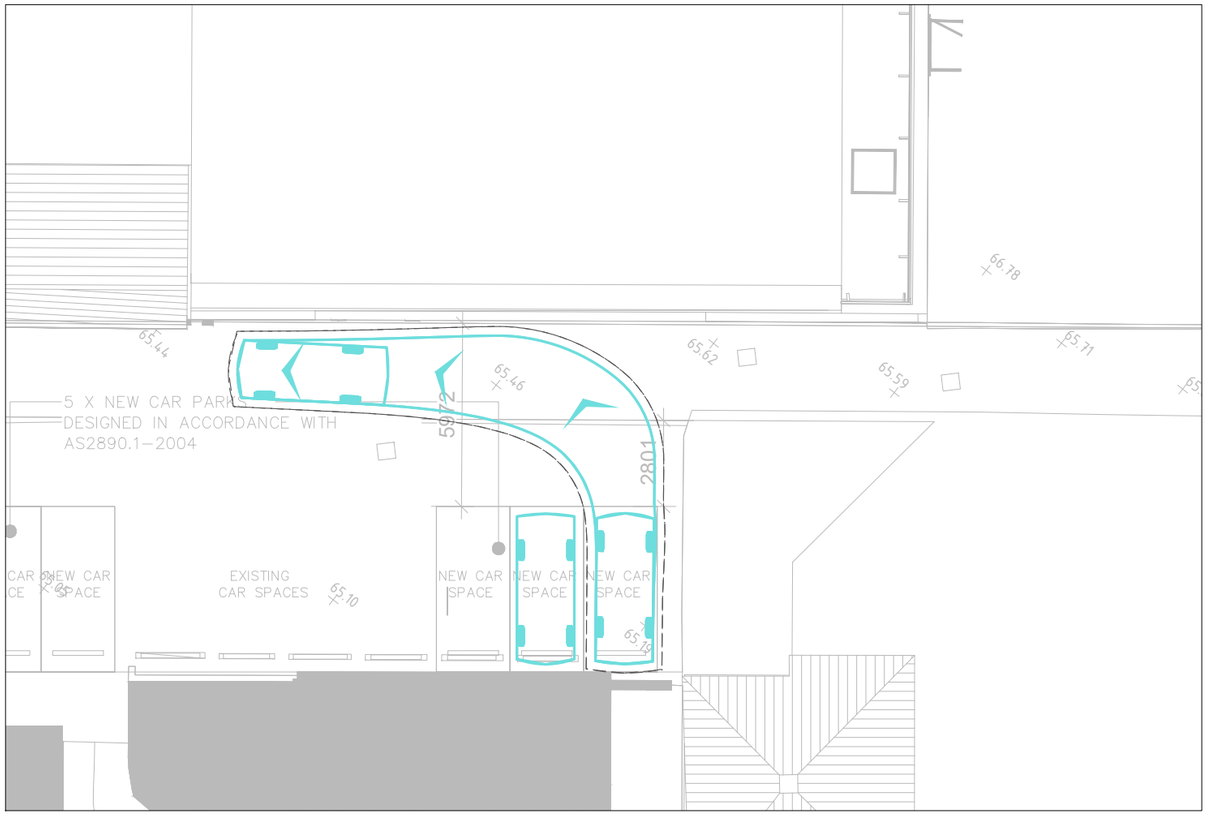

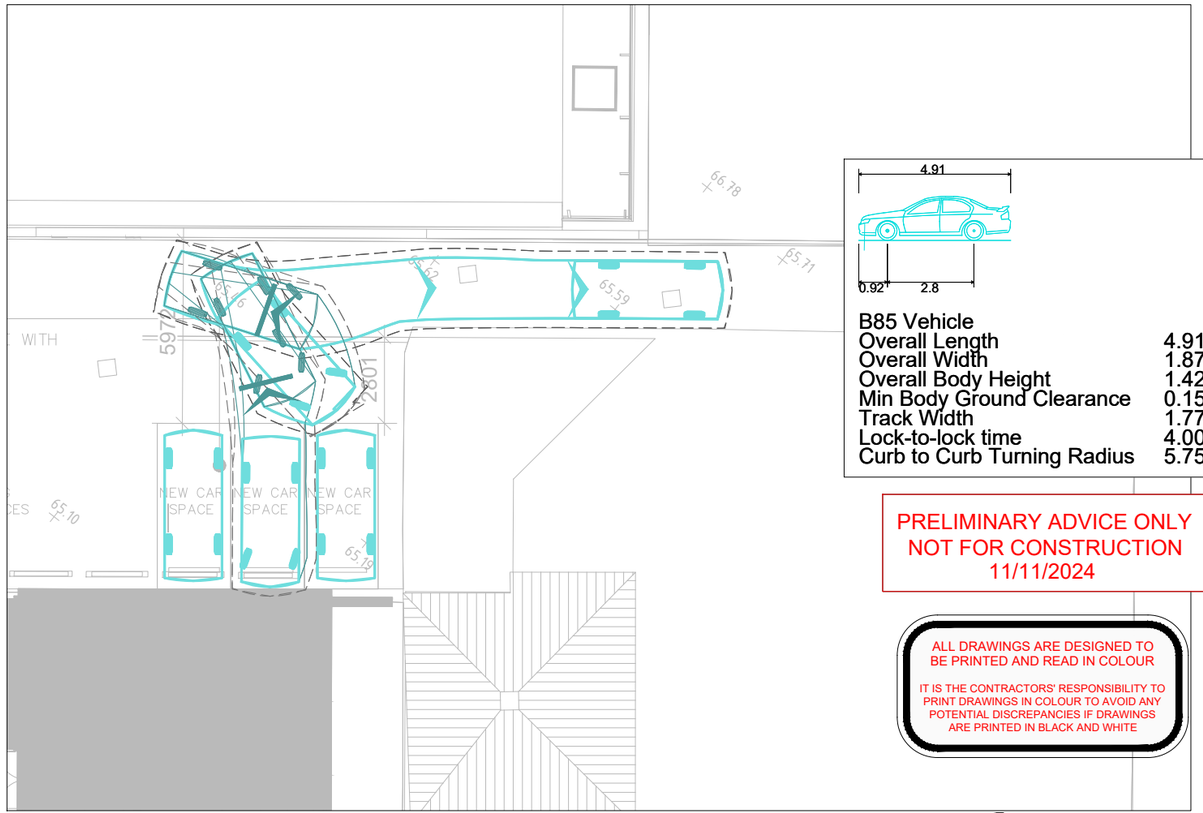

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