Amber

Traffic & Transportation Direction

PLANS AND DOCUMENTS
referred to in the PDA
DEVELOPMENT APPROVAL

Approval no: DEV2024/1488

Date: 30/09/2024

Queensland Government

Residential Development

67-69 Shore Street East, Cleveland

Traffic Impact Assessment

June 2024

Reference: 858 rep 240613 final

Residential Development

67-69 Shore Street East, Cleveland

Traffic Impact Assessment

Prepared for: Provincial Building

Status: Final report

Date: 13 June 2024

Reference: 858 rep 240613 final

Revision	Date	Description	Author	Reviewed	Approved
A	11/01/24	Draft 01	Rico Kobelt	Michael Willson	Michael Willson
B	04/03/24	Final	Rico Kobelt	Michael Willson	Michael Willson
C	13/06/24	Final	Rico Kobelt	Michael Willson	Michael Willson

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Amber

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1. Introduction

Amber Organisation has been engaged by Provincial Building to advise on the traffic and parking matters of the proposed residential development located at 67-69 Shore Street East, Cleveland.

The proposal involves the construction of a multi-storey building that will accommodate a total of 30 three-bedroom residential dwellings across 6 above-ground levels. A total of 63 car parking spaces are proposed on-site on the ground level, including 3 for visitors. Access to the car park will be provided via a new double-width crossover to Shore Street East.

This report has been prepared to address the traffic and parking impacts of the proposed development. It is based on observations at the site and our experience of similar developments elsewhere.

2. Transport Network

2.1 Site Location

The site is located on the south side of Shore Street East, Cleveland, approximately 100 metres south of North Street. Figure 1 shows the location of the site in relation to the surrounding transport network.

Figure 1: Site Location

Source: OpenStreetMap

The site is located within the Toondah Harbour Priority Development Area (PDA) as set out by Economic Development Queensland (EDQ) at the request of Redland City Council (RCC). The site is located in the northwestern precinct of the PDA which will accommodate predominantly residential development.

The surrounding land use immediately to the north and west, outside the PDA, is zoned Medium Density Residential. The surrounding land use immediately to the east and south will provide for mixed use residential, retail and commercial development as well as parking areas and areas of public open space, including GJ Walter Park. Slightly further to the south is the Cleveland Ferry Terminal which acts as a gateway to North Stradbroke Island via ferry services.

The site has an almost-rectangular shape with a frontage to Shore Street East of approximately 40 metres and a varying depth of 52 to 60 metres, resulting in a site area of 2,226 sqm. The site is currently occupied by two lots with a dwelling each, which both gain access to Shore Street East via their respective unsealed crossovers.

Figure 2 shows an aerial photograph view of the site and the surrounding area.

Figure 2: Aerial Photograph

Source: Nearmap

2.2 Road Network

Shore Street East is a municipal local road which operates in an east-west alignment with terminations at both ends, both approximately 320 metres away from the site. It has a carriageway width of approximately 6.5 metres which accommodates two-way vehicle movement and unrestricted kerbside parallel parking on either side. It has a default speed limit of 50km/hr.

North Street is a municipal local road which operates in an east-west alignment between its roundabout intersection at Passage Street in the west and Cleveland Point in the east. It has a typical carriageway width of approximately 12.0 metres which accommodates one lane of traffic

and bicycle lane in each direction, as well as kerbside parallel parking on the south side. It typically has concrete footpaths on either side and has a speed limit of 50km/hr.

Wharf Street is a municipal local road which operates in a north-south alignment between North Street and Middle Street. It has a carriageway width of approximately 12.5 metres which accommodates one lane of traffic and kerbside parallel parking in each direction. Concrete footpaths are provided on either side and a default speed limit of 50km/hr applies.

Middle Street is a municipal local road which operates in an east-west alignment between its continuation onto Emmett Drive and Norfolk Park adjacent to Waterloo Street. In the vicinity of the site, it has a carriageway width of approximately 19.0 metres which accommodates one lane of traffic and either kerbside parallel parking or 45-degree parking in each direction. Concrete footpaths are typically provided on either side and a speed limit of 50km/hr applies.

The **intersection of Shore Street East and Wharf Street** is priority controlled, with line marking and a give-way sign provided on Shore Street East.

2.3 Sustainable Transport

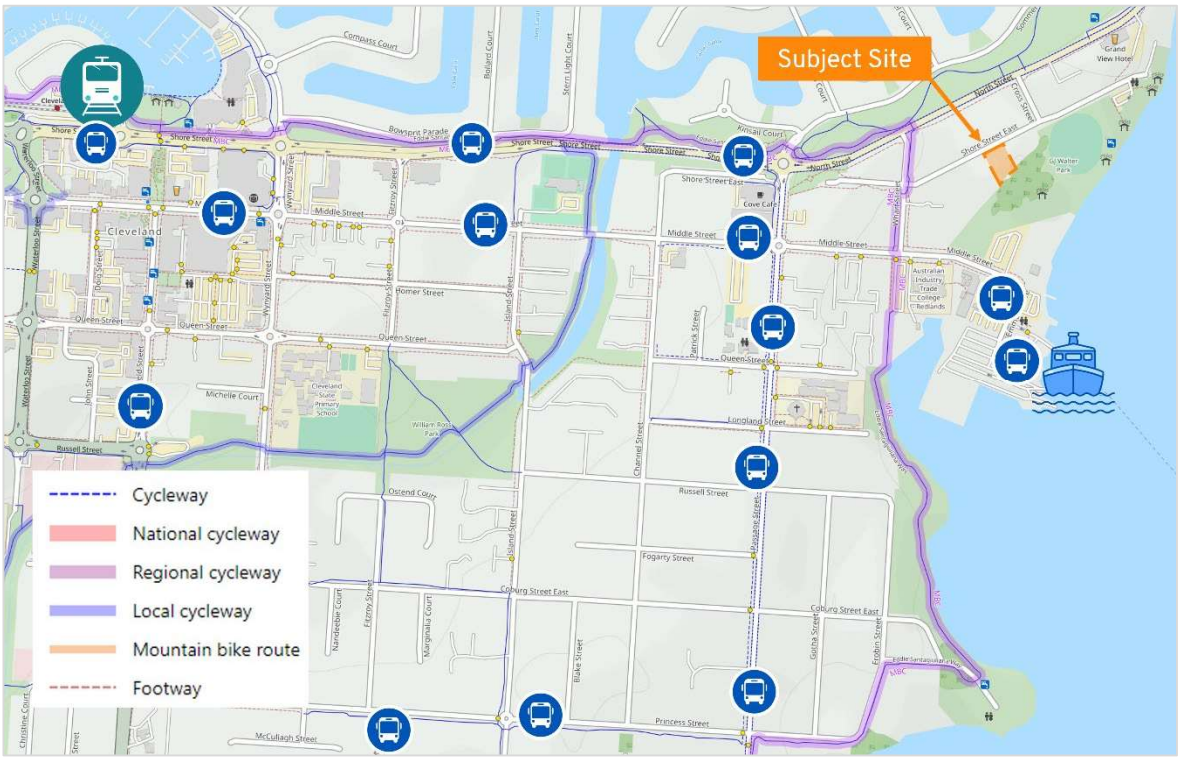
The site has access to the public transport network via the following bus stations and routes:

- Emmett Drive near Middle Street, located 330 metres walking distance south of the site and provides the Route 271 service: Toondah Harbour to/from Redland Hospital. Services are provided approximately every hour from 6:00am to 8:00pm on all days.
- Shore Street at Passage Street, located 460 metres walking distance west of the site and provides the Route 275 service: Thornlands to/from Brisbane City. Services are provided approximately every 30 minutes in the morning to Brisbane City, and every 30 minutes in the evening to Thornlands.
- Middle Street at Redlands RSL Services, located 590 metres walking distance west of the site and provides the Route 271 and 274 service: Cleveland to/from Victoria Point Jetty. Services for the 274 service are provided approximately every hour from 6:00am to 6:00pm on all days except Sundays which provides services approximately every two hours between 8:00am and 4:00pm.

The site also has access to Cleveland Station, located 1.9km west of the site. It is the end station of the Cleveland Line, which is part of the South East Queensland rail network, offering services into Brisbane and the greater area.

The sustainable transport services within the vicinity of the site are shown within Figure 3.

Figure 3: Surrounding Sustainable Transport Facilities



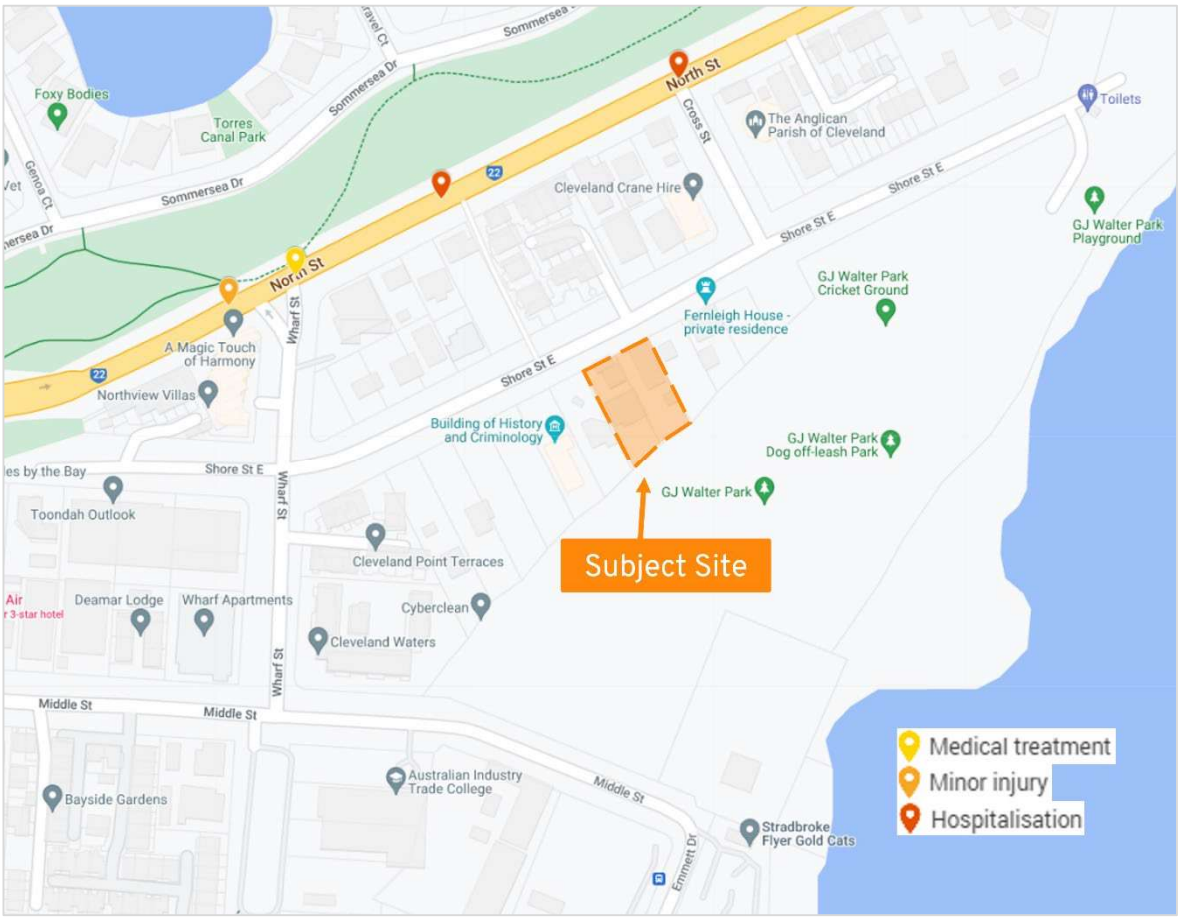
Source: OpenStreetMap

The figure also indicates the local road network links with on and off-road cycleways which provide access to the wider cycle network. Footpaths are provided on at least one side of the road for most roads within the vicinity of the site which link with the nearby bus stops and commercial and community facilities. Overall, the site has good access to the cyclist and pedestrian network within the vicinity of the site.

2.4 Crash History

Amber has conducted a review of the crash data from the Queensland roads database for all injury crashes that occurred in the six-year period between 2016 and 2022 for the surrounding road network. The study area and crashes are summarised in Figure 4.

Figure 4: Crash Statistics Map



Source: Queensland Government Open Data Portal and Google Maps

As shown, a total of 4 crashes were recorded which resulted in Medical Treatment (1), Minor Injuries (1) and Hospitalisation (2). No crashes were recorded on Shore Street East.

No discernible crash patterns were identified that would indicate a systemic road safety issue on the surrounding road network. Accordingly, in consideration of the traffic volumes and road classifications, the surrounding road network is operating in a relatively safe manner.

3. The Proposal

The proposed development at 67-69 Shore Street East, Cleveland, involves the construction of a multi-storey building that will accommodate a total of 30 three-bedroom residential dwellings across 6 above-ground levels.

Car parking for the dwellings is proposed on the ground level, which will be accessed via a new shared double-width crossover to Shore Street East on the northwestern corner of the site. A total of 60 car parking spaces are proposed for residents, secured with a roller door at the entrance. 3 additional visitor parking spaces are also proposed on site outside the entrance separate to the resident car parking spaces.

2 motorcycle parking spaces are proposed on-site internally, each located adjacent to a separate pedestrian access point.

Waste is proposed to be collected by RCC contractors, as detailed in the Waste Management Plan prepared by Modus Transport & Traffic Engineering. A refuse collection room is proposed adjacent to the accessway / loading area for general waste and recycling, which will be collected at a maximum frequency of once per week, during off-peak times. The green waste bins are proposed to be placed and collected kerbside at the frontage on an as needed basis. It is expected that the waste caretaker will move the bins from the refuse storage room to their respective collection points prior to servicing and return them afterwards.

4. Parking Assessment

The number of car parking spaces required for various land uses is listed under Table 9.3.5.3.2 of Part 9.3.5 of the Redland City Plan. Application of the relevant parking rates is provided below in Table 1.

Table 1: City Plan Car Parking Requirement

Use	Number	Parking Rate	Parking Requirement
Multiple dwelling	30 three-bedroom dwellings	2 spaces per unit with 3 bedrooms or more	60 spaces
		1 visitor space per 10 units	3 spaces
Total			**63 spaces**

Accordingly, the proposed development has a statutory parking requirement of 63 spaces. It is proposed to provide each dwelling with 2 spaces and 3 visitor spaces are proposed on-site which meets the requirements of the City Plan.

The number of motorcycle parking spaces required for development is listed under AO8.2 in Table 9.3.5.3.1 of Part 9.3.5 of the Redland City Plan which specifies where more than 50 car spaces are required, that 2% of the number of spaces is provided for motorcycles. Application of this rate results in a requirement of 2 motorcycle spaces. It is proposed to provide 2 motorcycle spaces on-site, which meets the requirements of the City Plan.

It is concluded that the proposed parking provision is suitable to accommodate the parking demand generated by the proposal which is not expected to create any parking impacts in the surrounding area.

5. Car Park Layout

All car parking spaces will be located on the ground level underneath the building and will be accessed via a double-width crossover from Shore Street East in the northwestern corner of the site. The driveway entrance can be utilised as a loading area during waste collection at off-peak times and provides access to 3 visitor parking spaces, located outside the security door. The internal resident parking spaces are provided access via remote control. The internal accessway provides access to the 60 resident car parking spaces which are located on either side, apart from space 60 which is located in tandem arrangement with space 59. The accessway is in a general U-shape, with a blind aisle extension provided at its termination at the northeastern corner of the site.

5.1 Access Arrangements

Access to the site is proposed via a new double-width crossover to Shore Street East in the northwestern corner of the site. The access arrangements comply with the requirements of AS/NZS 2890.1:2004, and have the following key features:

- The crossover has been designed to allow a B85 and B99 vehicle to pass at the site entrance;
- The accessway has a minimum width of 6.2 metres to allow simultaneous two-way vehicle movement;
- A minimum height clearance of 2.6 metres is provided within the car parking area, including underneath the stairwell at the southwestern corner;
- All vehicles are able to enter and exit the site in a forward direction; and
- A pedestrian sight splay has been provided on either side of the access, which extends 2 metres along the site frontage from the edge of the access and 2.5 metres along the access from the site frontage, to provide a clear view of pedestrians on the footpath adjacent to the site. The pedestrian sight triangle is to be kept clear of obstructions to visibility with low level landscaping permitted to a maximum mature height of 500mm above driveway level.

Accordingly, the access arrangements for the site are designed in accordance with the requirements of the City Plan and AS/NZS 2890.1:2004.

5.2 Car Parking Design

The dwellings have been provided with 60 90-degree car parking spaces on the ground floor. The spaces have a minimum length of 5.4 metres, except for 1 space dedicated for a small car which has a length of 5.0 metres. All spaces have a minimum width of 2.45 metres. Spaces 59 and 60, and spaces 34 and 35 are in tandem which is acceptable given they are allocated to the same dwelling, respectively.

The three 90-degree visitor parking spaces have been designed with a minimum width of 2.6 metres and a length of 5.4 metres.

Each motorcycle space has been designed with a length of 2.5 metres, and a width of 1.2 metres.

Structural columns are located outside of each parking space design envelope (Figure 5.2, AS/NZS 2890.1:2004) and are not obstructive. Each space adjacent to a column has a reduced

width of 2.45 metres in comparison with other car parking spaces which have a width of 2.6 metres, but this is considered acceptable as it is still greater than the 2.4 metres required for user class 1A as stipulated in AS/NZS 2890.1:2004.

Each parking space adjacent to a wall, i.e. obstruction greater than 150mm in height, has the 300mm required offset in excess to the minimum 2.4 metre width required.

A blind aisle extension is located at the end of the internal accessway and meets the minimum 1.0 metre requirement to allow sufficient access and egress to/from the end spaces.

Wheel stops have been installed for spaces 24-28 and 55-58 to prevent vehicles encroaching into the tandem spaces (59 and 60). The dimensions and distances comply with Table 2.1 in AS/NZS 2890.1:2004.

In the low-probability event that there is congestion in the car park, the security door is setback from Shore Street East by 23.8 metres which can effectively accommodate up to 4 vehicles to prevent vehicles queuing back to the external road network.

A swept path assessment has been prepared using a B85 vehicle (85th percentile vehicle) to ensure vehicles are able to access the parking areas, and is provided within Appendix A. The assessment found that each space could be accessed (ingress and egress) in a satisfactory manner. Some corrective manoeuvres may be required, which is in accordance with AS/NZS 2890.1:2004, which specifies that three-point turn movements to enter and exit 90-degree parking spaces are permitted for regular users.

The swept path assessment also demonstrates a 9.9-metre-long rear-lift waste collection vehicle (WCV) suitably reversing into the exit-lane of the driveway for waste collection, and then exiting in a forward direction. This is acceptable according to AS 2890.2 clause 3.2.3.2, which stipulates one reverse movement can be permitted if access is from a minor road for occasional use. On the off-chance vehicles need to pass the WCV, sufficient space is provided.

Overall, the assessment demonstrates that vehicles are able to access the car parking spaces in a suitable manner and that the design is in accordance with requirements of the City Plan and AS/NZS 2890.1:2004.

5.3 City Plan Review

The following provides a review of the relevant performance outcomes and acceptable outcomes specified in Table 9.3.5.3.1 under Section 9.3.5.3 of the Redland City Plan against the proposal's provision.

Table 2: City Plan Design Review

Performance outcomes	Acceptable outcomes	Provision
Driveways		
PO1 Driveways are located and designed having regard to: (1) public safety and convenience; (2) volume and type of traffic and parking generated by the use; (3) servicing requirements; (4) the characteristics of the frontage road including:	**AO1.1** Driveway location and design complies with driveway access location and the standard drawings contained in Planning Scheme Policy 2 – Infrastructure works.	The driveway is suitably located and designed in accordance PO1 and AO1.1. It accommodates simultaneous two-way vehicle movement to allow vehicles to safely leave the road network, provides space for queuing while residents wait for the security door, and is provided with

(a) road type; (b) road target speed; € existing and future traffic volumes; (d) vertical and horizontal geometry; € queue and turn lane lengths; (5) minimising loss of on-street parking opportunities; and (6) ensuring adequate visibility between vehicles on a driveway and pedestrians on the verge.		suitable sight lines to allow vehicles to safely exit the site.
PO2 Driveway crossovers and their splays/kerb tapers do not protrude across adjoining property boundaries.	**AO2.1** All parts of a driveway are entirely contained within the width of the lot frontage.	All parts of the crossover and driveway are contained within the lot boundary.
Internal accessways for large residential developments		
PO5 Internal accessways in residential developments provide safe and efficient internal traffic operations.	**AO5.1** Development complies with internal accessways for large residential developments in Planning Scheme Policy 2 – Infrastructure works.	The internal accessway provides safe and efficient movement of traffic and complies with A05.1. The swept path assessment shows that vehicles are able to suitably circulate within the car park aisle.
On-site parking		
PO8 On-site vehicle parking: (1) is clearly defined, safe and easily accessible; (2) accommodates a sufficient number of vehicles, having regard to: (a) the type and size of development; (b) expected resident, employee and customer movements; (c) the location of the use; (d) the capacity of the existing road network to accommodate on-street parking; and (e) access to public transport; (3) includes dedicated parking spaces for people with a disability, motor cycles and bicycles.	**AO8.1** Parking is provided in accordance with Table 9.3.5.3.2—Minimum On-Site Vehicle Parking Requirements.	The minimum number of on-site parking spaces specified in Table 9.3.5.3.2 is provided in the proposal.
	AO8.2 Where more than 50 car spaces are required, 2% of the number of spaces is provided for motorcycles, each measuring 2.5m by 1.2m, located immediately adjacent to major pedestrian access points.	2 motorcycle parking spaces are provided.
	AO8.3 Parking areas comply with Australian Standard 2890.1 – Parking Facilities.	Parking areas comply with AS 2890.1 as outlined above.
PO9 Car parking and internal circulation is designed and constructed to: (1) provide a clear internal movement hierarchy;	**AO9.1** Parking is provided in accordance with minimum on-site vehicle parking requirements, minimum circulation road width in car parking areas and maximum longitudinal grades in car parking	Minimum on-site vehicle parking requirements, circulation road width and max longitudinal grades are provided in accordance with A09.1.

(2) separate servicing and customer parking and circulation functions as far as possible; (3) discourage high vehicular speed and short-cutting; (4) be clearly distinguishable from pedestrian entries and paths; (5) be easily negotiated by vehicles and pedestrians, including persons with a disability; (6) ensure vehicles do not reverse into areas of high pedestrian activity; and (7) optimise safety and security of users.	areas in Planning Scheme Policy 2 – Infrastructure works.	
	AO9.2 The layout of car parking areas and structures complies with the internal movement system in Section 3.7.1 in Planning Scheme Policy 2 – Infrastructure works.	Car park layout and structures comply with AO9.2.
	AO9.3 Parking areas comply with: (1) Australian Standard 2890.1: 2004 - Parking Facilities – Off-Street Car Parking; and (2) the standards set out in Planning Scheme Policy 2 – Infrastructure works.	Compliant.
On-street parking		
PO14 Road design and access location accommodates on-street parking that is appropriate to the function of the street and the demand generated by surrounding uses.	No acceptable outcome is nominated.	The access location is considered appropriate and accommodates on-street parking. Shore Street East is considered a local street with an associated low volume of traffic.
PO15 The carriageway width, verge width and driveway dimensions allow for unobstructed and efficient access to properties when a vehicle is parked on the opposite side of the road.	No acceptable outcome is nominated.	The carriageway width is sufficient for unobstructed access to the site with vehicles parked on-street on the opposite side.
Site access		
PO16 Site access is located and designed to avoid adverse impact on existing or intended: (1) utility infrastructure, such as power poles, street lighting, gully pits and the like; (2) bus stops, taxi ranks, traffic control devices; and (3) pedestrian and cycle paths and crossings; and (4) street trees.	No acceptable outcome is nominated.	Site access is located sufficiently distant from existing infrastructure, objects and trees.
PO17 Access to trunk collector, sub-arterial and arterial roads is restricted to optimise the safety and efficiency of those roads,	No acceptable outcome is nominated.	Vehicles are able to enter and leave the site in a forward direction. Pedestrian sight splays are provided on either end. The driveway width is sufficient to provide

having regard to (amongst other things): (1) opportunities for shared access arrangements; (2) the ability for vehicles to enter and leave the premises in a forward direction; (3) turning movements and the need for medians and other traffic control devices; (4) the need for queuing, deceleration or passing lanes; and (5) (5) any future road improvement intentions.		simultaneous passing of a B85 and B99 vehicle to/from the site.
PO18 Provision is made for any queuing to be accommodated within the development site, so that external traffic operations are not obstructed, and designed to avoid conflict with internal intersections or manoeuvring areas.	**AO18.1** Queuing is accommodated in accordance with Section 3.8.1 and the standards contained in Planning Scheme Policy 2 – Infrastructure works.	Approximately 23.8 metres length is provided between the crossover and security door, allowing queueing of up to 4 vehicles from the external road network.

Accordingly, it is concluded that the car park layout and access arrangements have been suitably designed in accordance with the City Plan and relevant Australian Standards.

6. Bicycle Parking

PO8 of Table 9.3.5.3.1 under Section 9.3.5.3 of the Redland City Plan specifies that on-site parking includes dedicated parking spaces for bicycles, but no specific rate is prescribed.

In order to provide bicycle parking for residents it is proposed that occupants will have the option to have 'Mona Lisa' bicycle parking (Appendix B) installed upon request, on the wall above their dedicated car parking space(s). It is noted that this option would not be possible for the residents of car spaces 24-27 and 55-58.

The arrangement provides most residents with an option for a bicycle parking space which is considered appropriate given the location of the site and access to cycling infrastructure. Accordingly, the bicycle parking arrangements are considered appropriate.

7. Waste Collection

Waste is proposed to be collected by RCC contractors, as detailed in the Waste Management Plan prepared by Modus Transport & Traffic Engineering. A refuse collection room is proposed adjacent to the accessway / loading area for general waste and recycling, which will be collected at a maximum frequency of once per week, during off-peak times. The green waste bins are proposed to be placed and collected kerbside at the frontage on an as needed basis. It is expected that the waste caretaker will move the bins from the refuse storage room to their respective collection points prior to servicing and return them afterwards.

A swept path assessment has been prepared (refer Appendix A) which demonstrates a 9.9-metre-long rear-lift waste collection vehicle (WCV) suitably reversing into the exit-lane of the driveway for waste collection, and then exiting in a forward direction. This arrangement is in accordance with Clause 3.2.3.2 of AS 2890.2, which stipulates one reverse movement can be permitted if access is from a minor road for occasional use. On the off-chance vehicles need to pass the WCV, the swept paths demonstrate that sufficient space is provided.

The Waste Management Plan outlines the suitability of the proposed loading area and the minimal impact waste collection is expected to have on the operation of the visitor car parking. Given the low likelihood of a visitor expected to require access to a parking space whilst waste is collected, and there is space on-site for visitors to wait momentarily before accessing the space, it is considered that the waste collection arrangements for the site are acceptable.

8. Traffic Assessment

8.1 Traffic Generation

The traffic generation rate of the proposed development can be determined by analysing typical rates for residential developments as discussed in The Department of Main Roads Road Planning and Design Manual: Chapter 3: Road Planning and Design Fundamentals.

The traffic generation rates for high-density residential dwellings land use are specified by Queensland Transport and are as follows:

Table 3: Traffic Generation Rates

	Trip generation rate
Peak hour rate	0.4 vph/dwelling
Daily rate	4.5/dwelling

It is typical for high density residential activities to yield a trip distribution involving about 80% of traffic in the morning peak hour being departing trips, and 20% arriving trips. Similarly, it is typical that 25% of trips will be departing and 75% will be arriving trips in the evening peak hour. Application of this distribution to the peak hour rate is as follows.

Table 4: Peak Hour Traffic Generation Rates

	AM Peak	PM Peak
Inbound	0.32 vph/dwelling	0.1 vph/dwelling
Outbound	0.08 vph/dwelling	0.3 vph/dwelling
Total	**0.4 vph/100sqm**	**0.4 vph/100sqm**

Application of the above rates to the 30 three-bedroom dwellings results in the following expected traffic generation during each peak hour period.

Table 5: Expected Peak Hour Traffic Generation

	AM Peak (vph)	PM Peak (vph)
Inbound	10	3
Outbound	2	9
Total	**12**	**12**

Accordingly, the dwellings are expected to generate up to 12 vehicle movements (two-way total) in the morning and evening peak hours, which is approximately one vehicle movement every 5 minutes.

8.2 Traffic Impact

The majority of vehicles traveling to and from the site are expected to travel via the intersection of Wharf Street and Shore Street East, before dispersing to either North Street or Middle Street. Assuming a split of 90% of vehicles traveling to/from the west on Shore Street East, the

intersection of Wharf Street and Shore Street East would experience an increase in traffic in the order of 11 vehicles in both the AM and PM peak periods.

This level of traffic (approximately one vehicle every 5-6 minutes) is expected to have a negligible impact on the surrounding road network and would be less than the typical daily variation in road volumes.

9. Conclusion

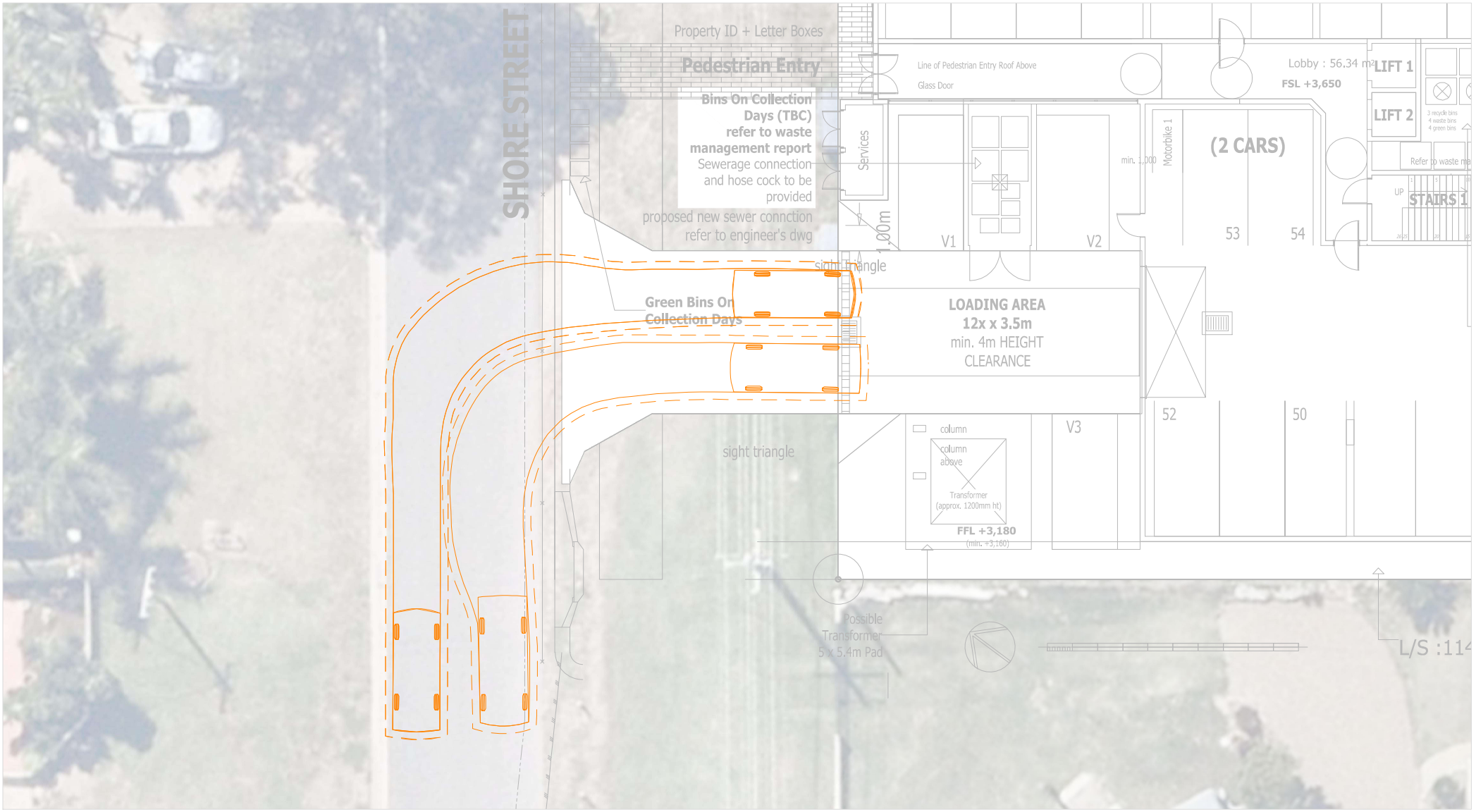
The proposed residential development located at 67-69 Shore Street East will provide a total of 30 three-bedroom residential dwellings across 6 above-ground levels. Car parking for the dwellings is proposed within the ground floor level which will be accessed via a new shared double-width crossover to Shore Street East. Based on the above assessment, the following conclusions are provided:

- The proposal meets the parking requirement of Table 9.3.5.3.2 of the Transport Code within the Redland City Plan;
- The proposed car parking and access arrangements have been suitably designed and are in accordance with the City Plan and AS/NZS 2890.1:2004;
- Most residents will have the option to install 'Mona Lisa' bicycle parking;
- Waste is proposed to be collected by RCC contractors with the bins to be transferred by the waste caretaker on site to the refuse collection room and kerbside for servicing;
- Up to 12 vehicular trips will be generated by the development during the morning and evening peak hour. The surrounding road network has the capacity to readily accommodate the additional traffic volumes generated in a safe manner.

Therefore, it is concluded that the traffic and parking aspects of the proposed development are satisfactory, and the development will have a negligible impact on the surrounding environment.

Appendix A

Swept Path Assessment



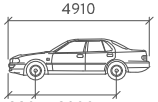
Vehicle Envelope

300mm Clearance

Reverse Manoevure

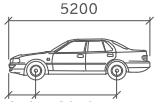
Min. Design Speed 5km/h

B85



	mm
Width	: 1870
Track	: 1770
Lock to Lock	: 6.0s
Steering Angle	: 34.1
Height	: 2100

B99



	mm
Width	: 1940
Track	: 1840
Height	: 2200
Lock to Lock	: 6.0s
Steering Angle	: 33.9

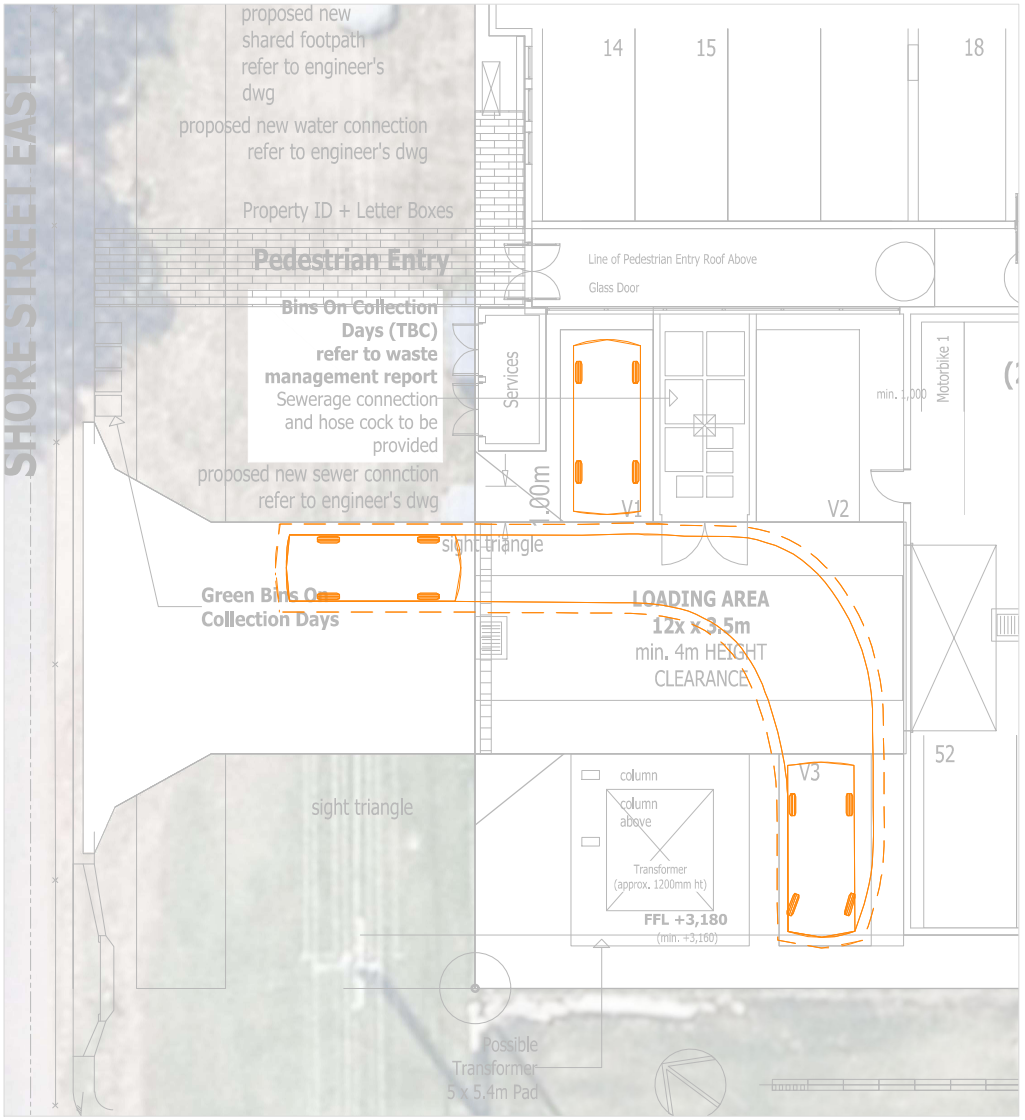
Residential Development

67-69 Shore Street East, Cleveland

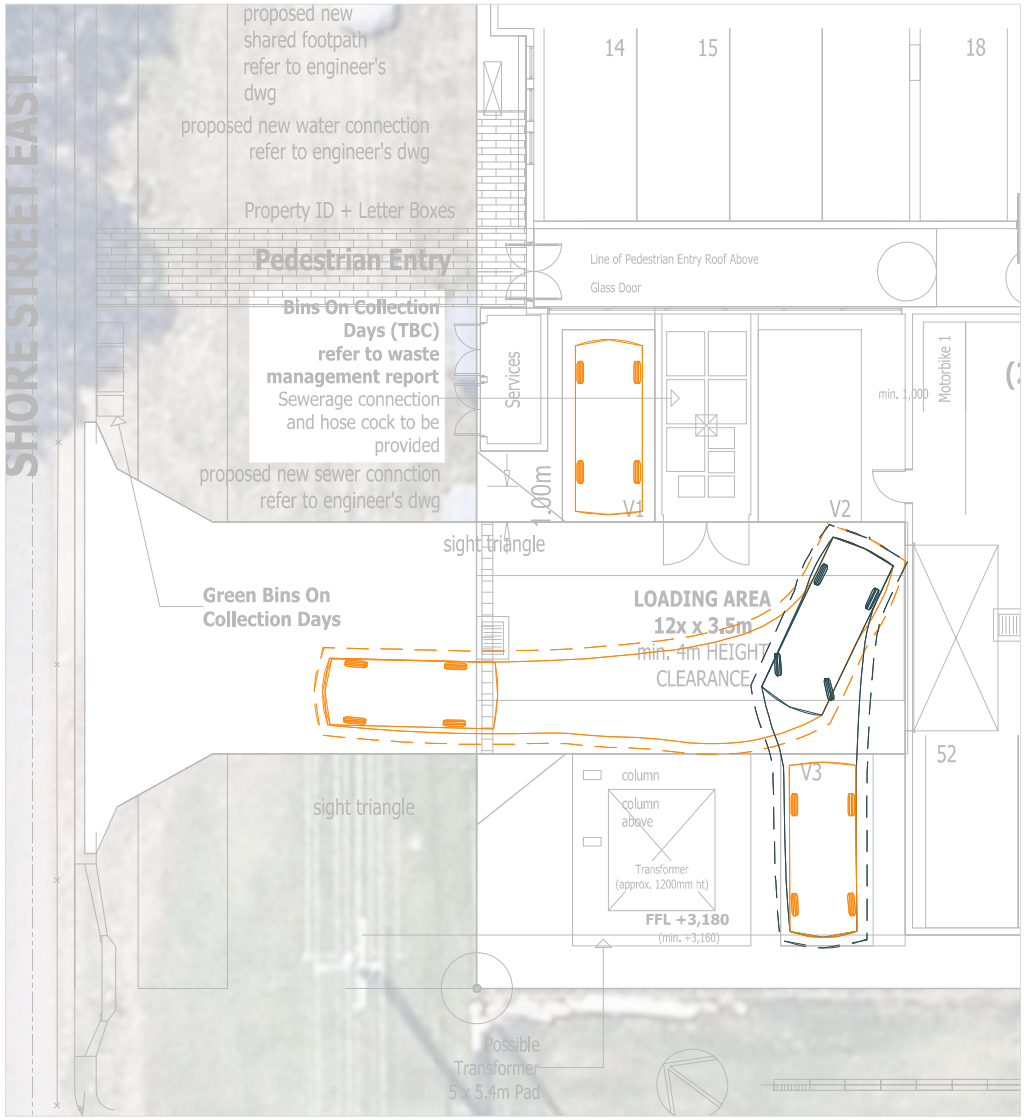
Swept Path Assessment

DRAWN: RK
DATE: 13/06/2024
DWG NO: 858 S05A
SCALE at A3: 1:150

Amber 01



Visitor Entry



Visitor Exit

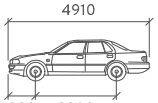
Vehicle Envelope

300mm Clearance

Reverse Manoevure

Min. Design Speed 5km/h

B85



	mm
Width	: 1870
Track	: 1770
Lock to Lock	: 6.0s
Steering Angle	: 34.1
Height	: 2100

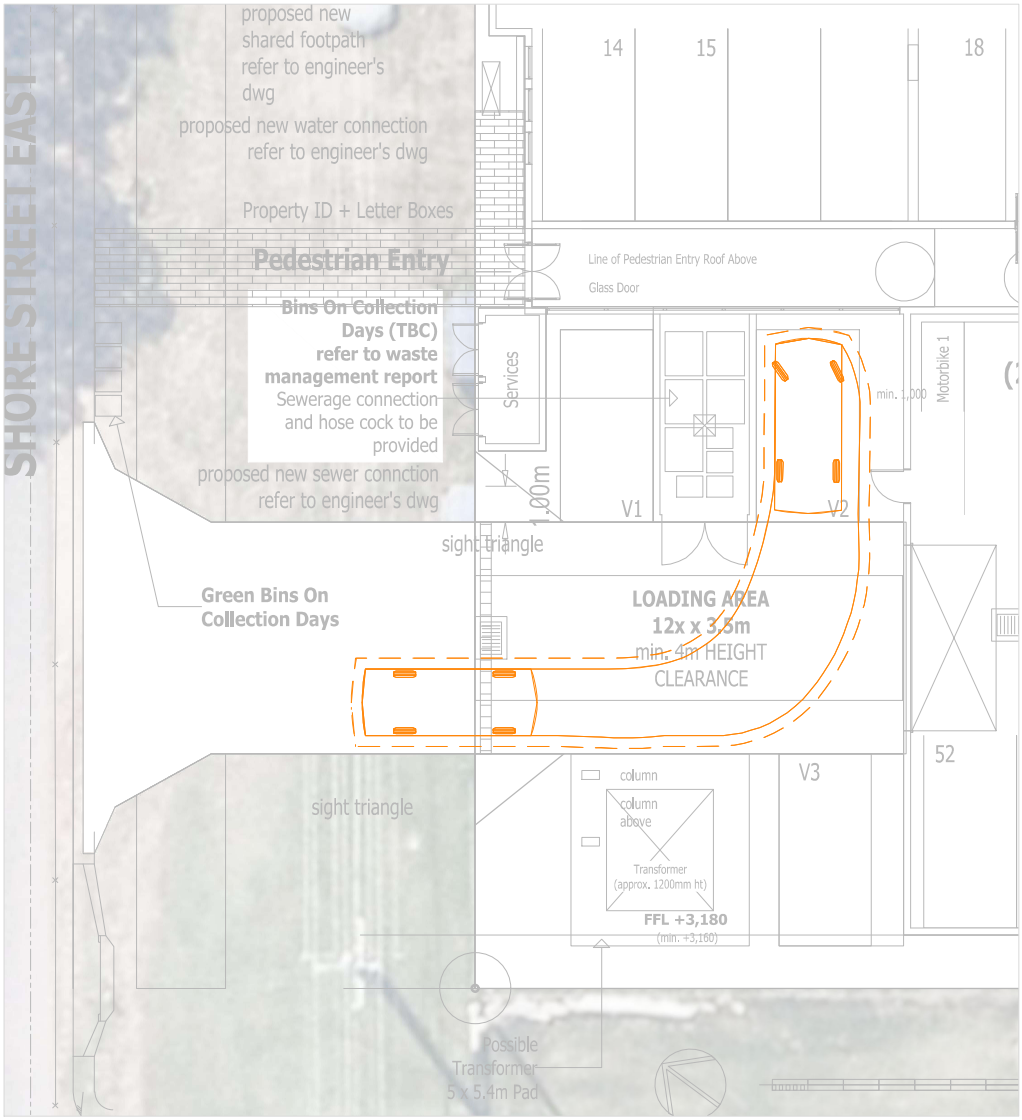
Residential Development

67-69 Shore Street East, Cleveland

Swept Path Assessment

DRAWN: RK
DATE: 13/06/2024
DWG NO: 858 S05A
SCALE at A3: 1:150

Amber 02



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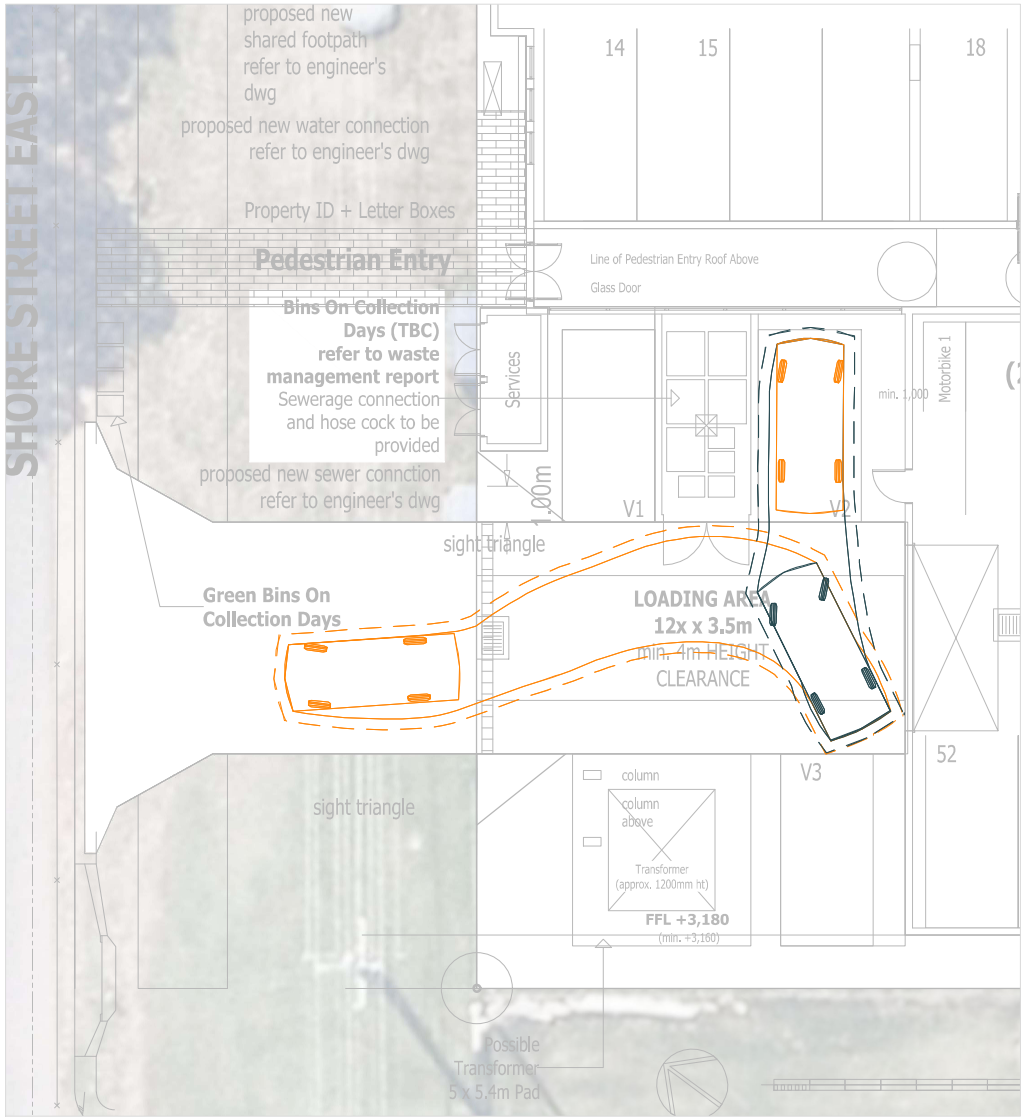


Visitor Exit

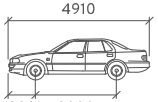
Vehicle Envelope

300mm Clearance

Reverse Manoevure

Min. Design Speed 5km/h

B85



	mm
Width	: 1870
Track	: 1770
Lock to Lock	: 6.0s
Steering Angle	: 34.1
Height	: 2100

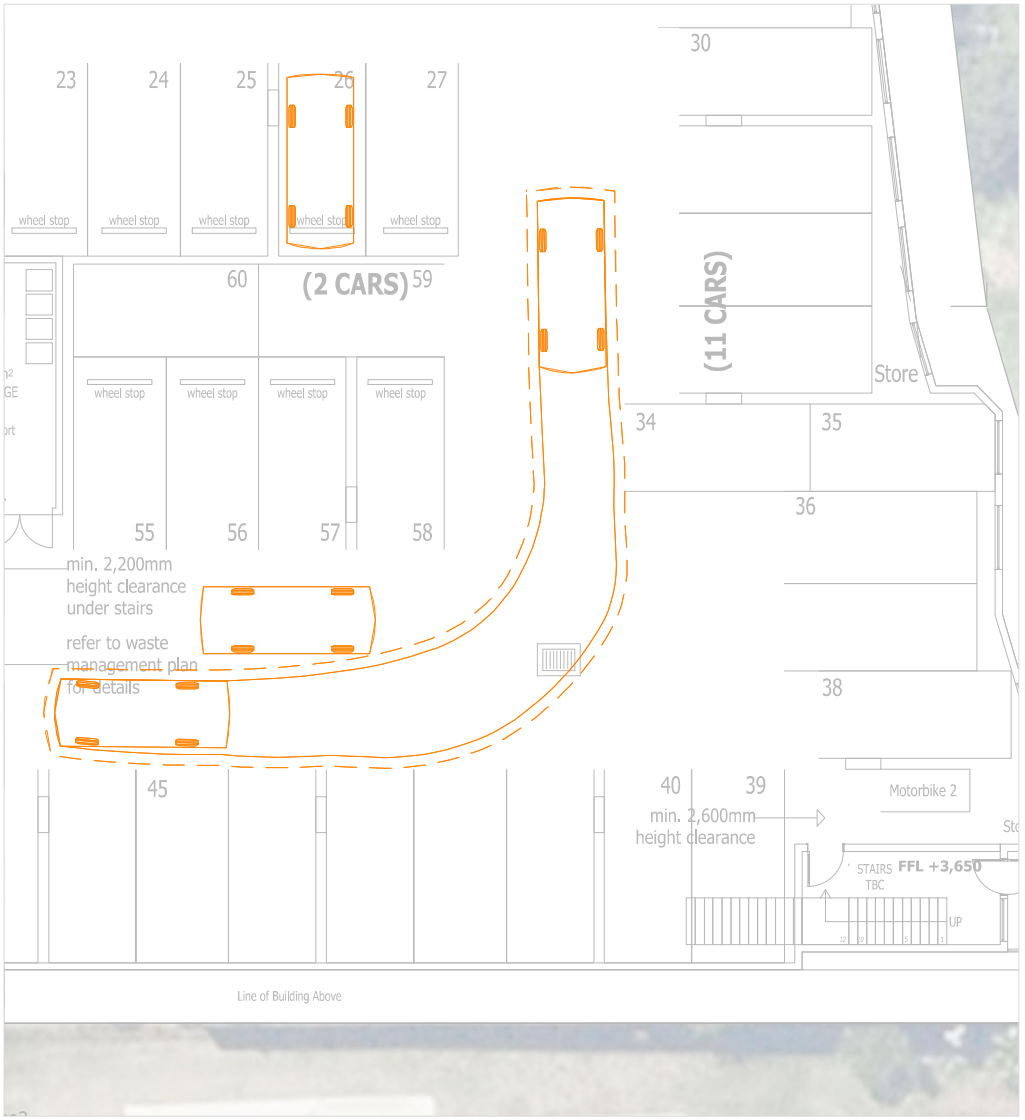
Residential Development

67-69 Shore Street East, Cleveland

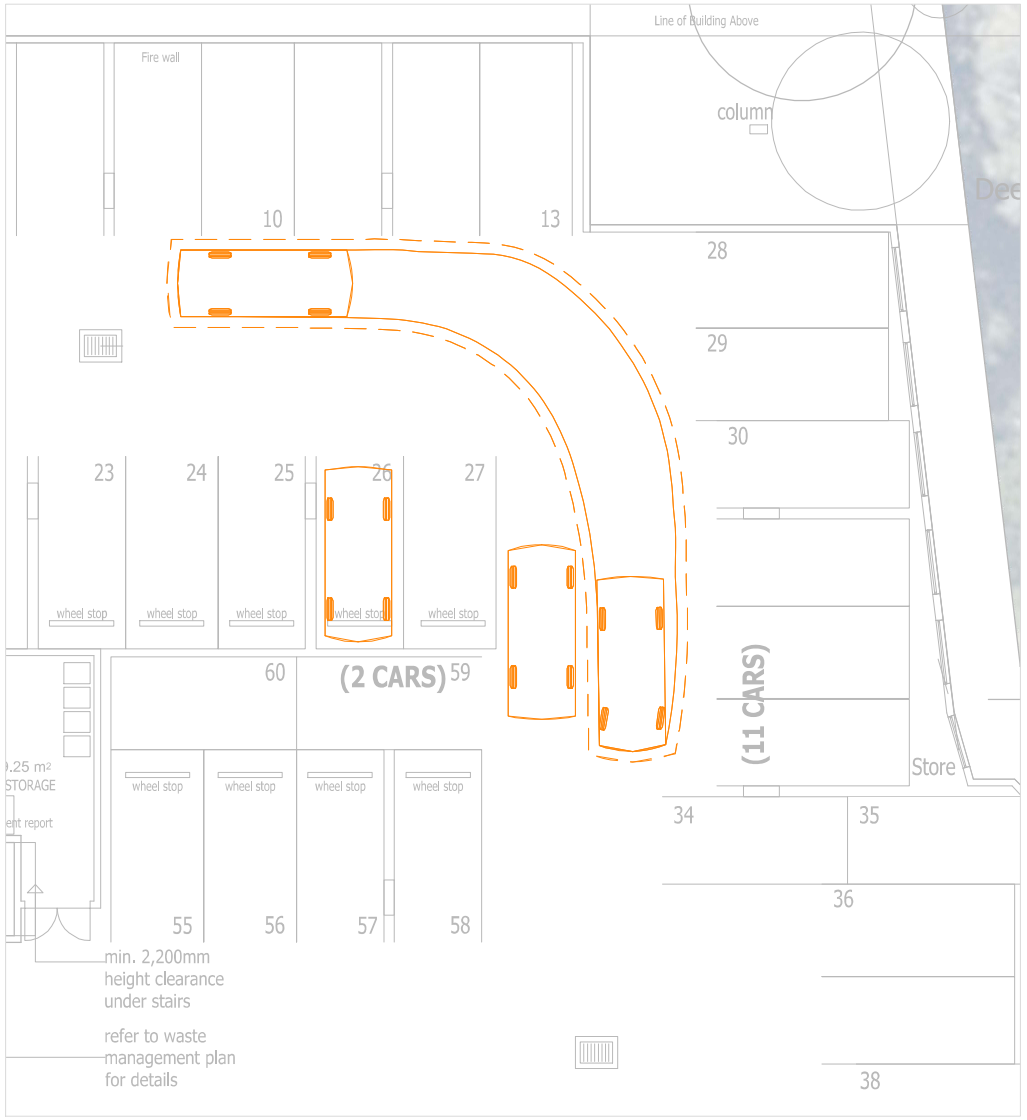
Swept Path Assessment

DRAWN: RK
DATE: 13/06/2024
DWG NO: 858 S05A
SCALE at A3: 1:150

Amber



Passing Manoeuvre



Passing Manoeuvre

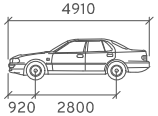
Vehicle Envelope

300mm Clearance

Reverse Manoeuvre

Min. Design Speed 5km/h

B85



	mm
Width	: 1870
Track	: 1770
Lock to Lock	: 6.0s
Steering Angle	: 34.1
Height	: 2100

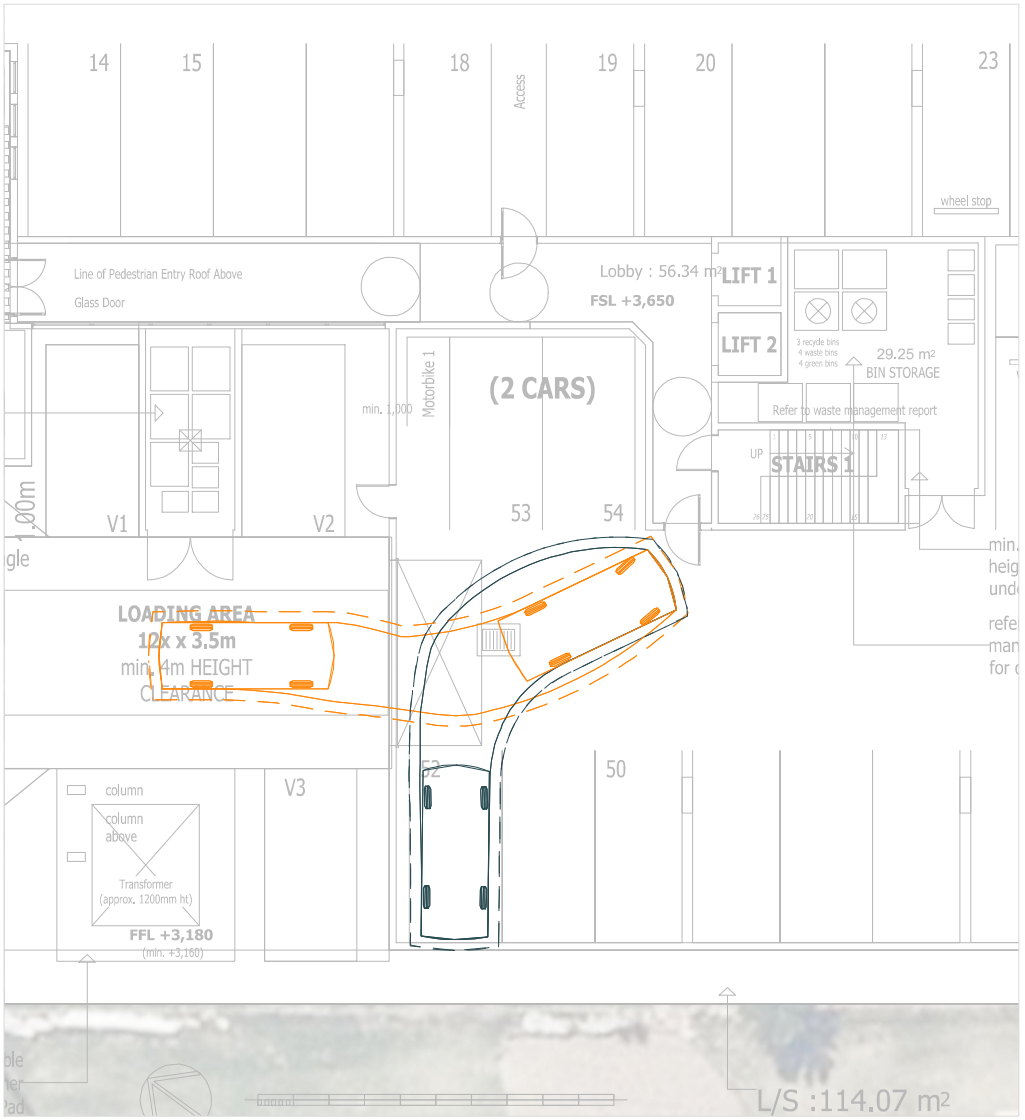
Residential Development

67-69 Shore Street East, Cleveland

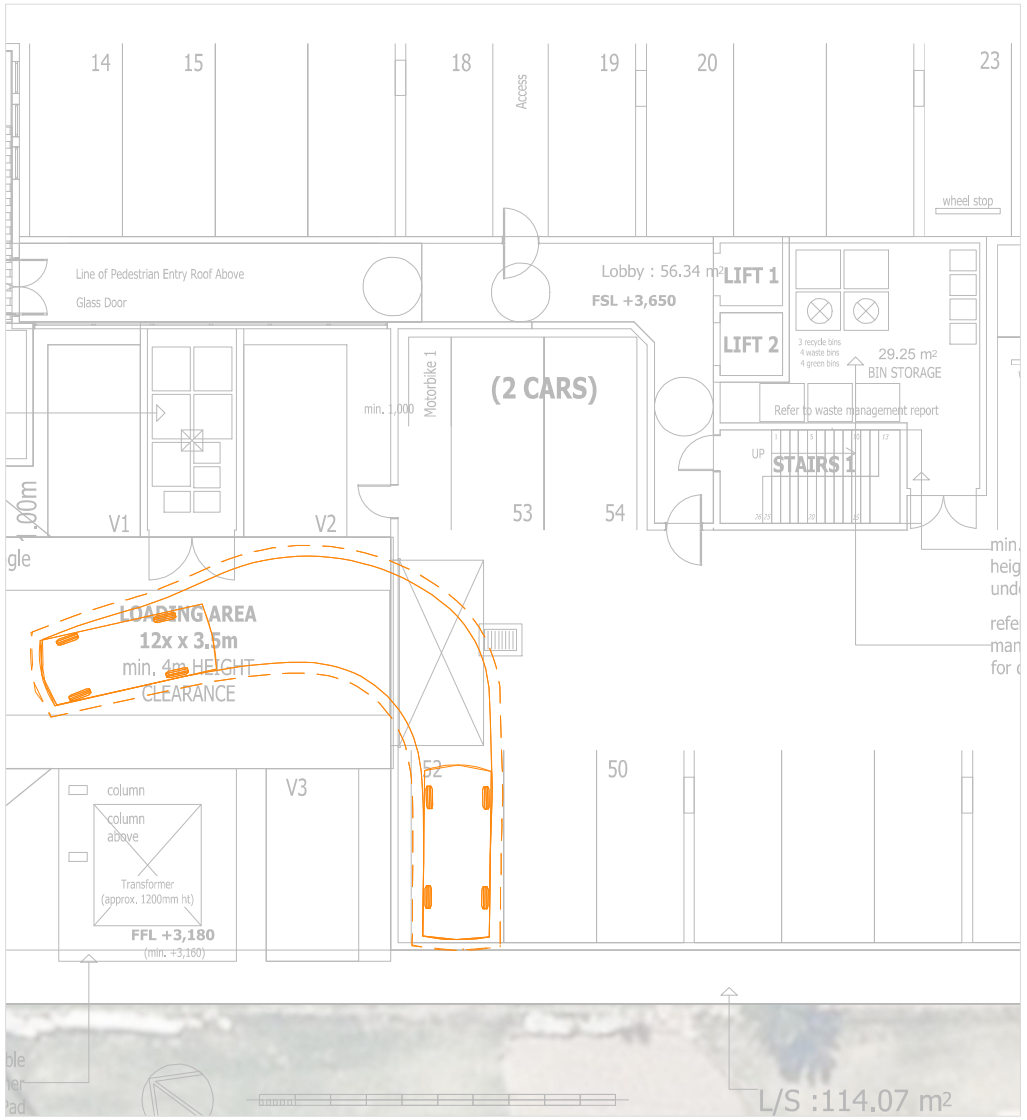
Swept Path Assessment

DRAWN: RK
DATE: 13/06/2024
DWG NO: 858 S05A
SCALE at A3: 1:150

Amber



Entry Manoeuvre



Exit Manoeuvre

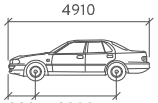
Vehicle Envelope

300mm Clearance

Reverse Manoeuvre

Min. Design Speed 5km/h

B85



	mm
Width	: 1870
Track	: 1770
Lock to Lock	: 6.0s
Steering Angle	: 34.1
Height	: 2100

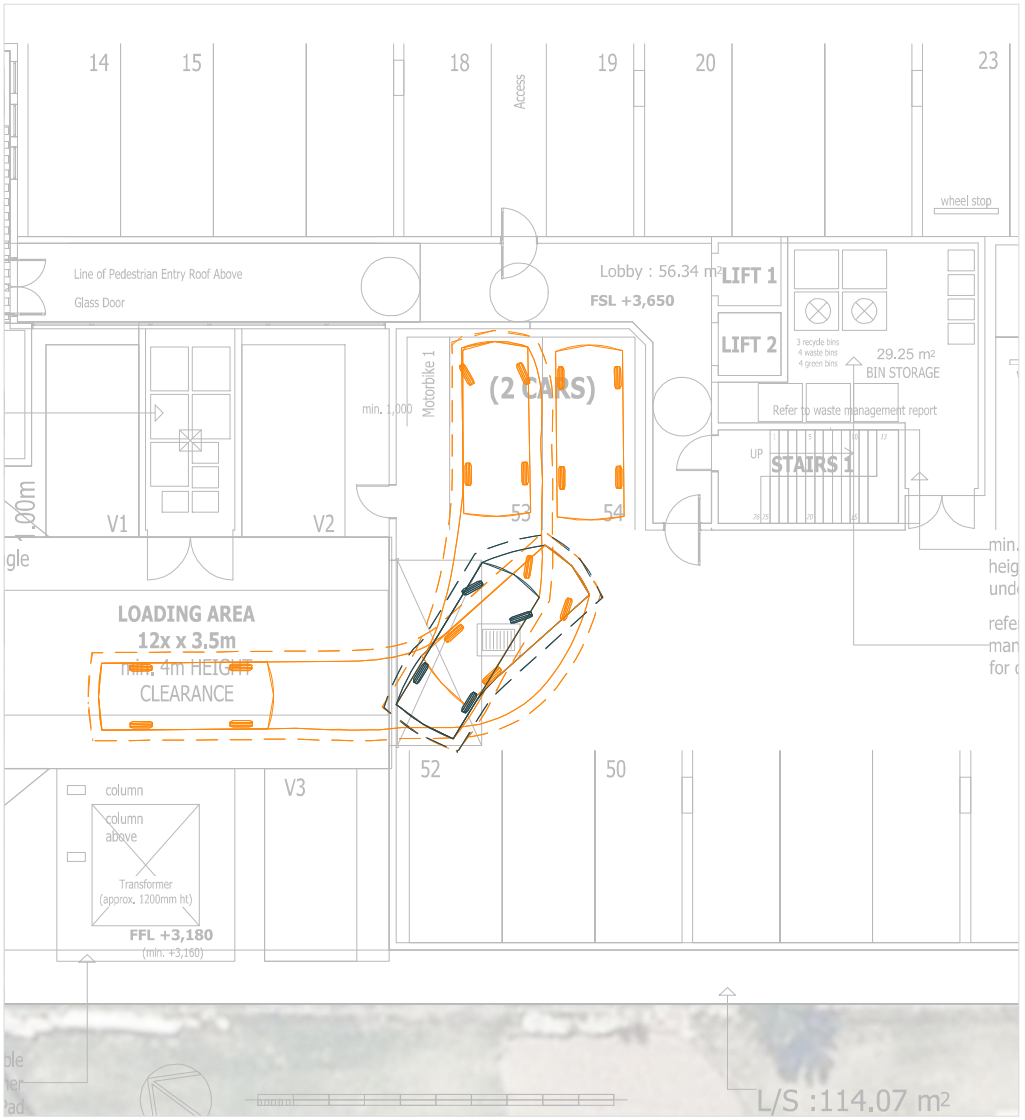
Residential Development

67-69 Shore Street East, Cleveland

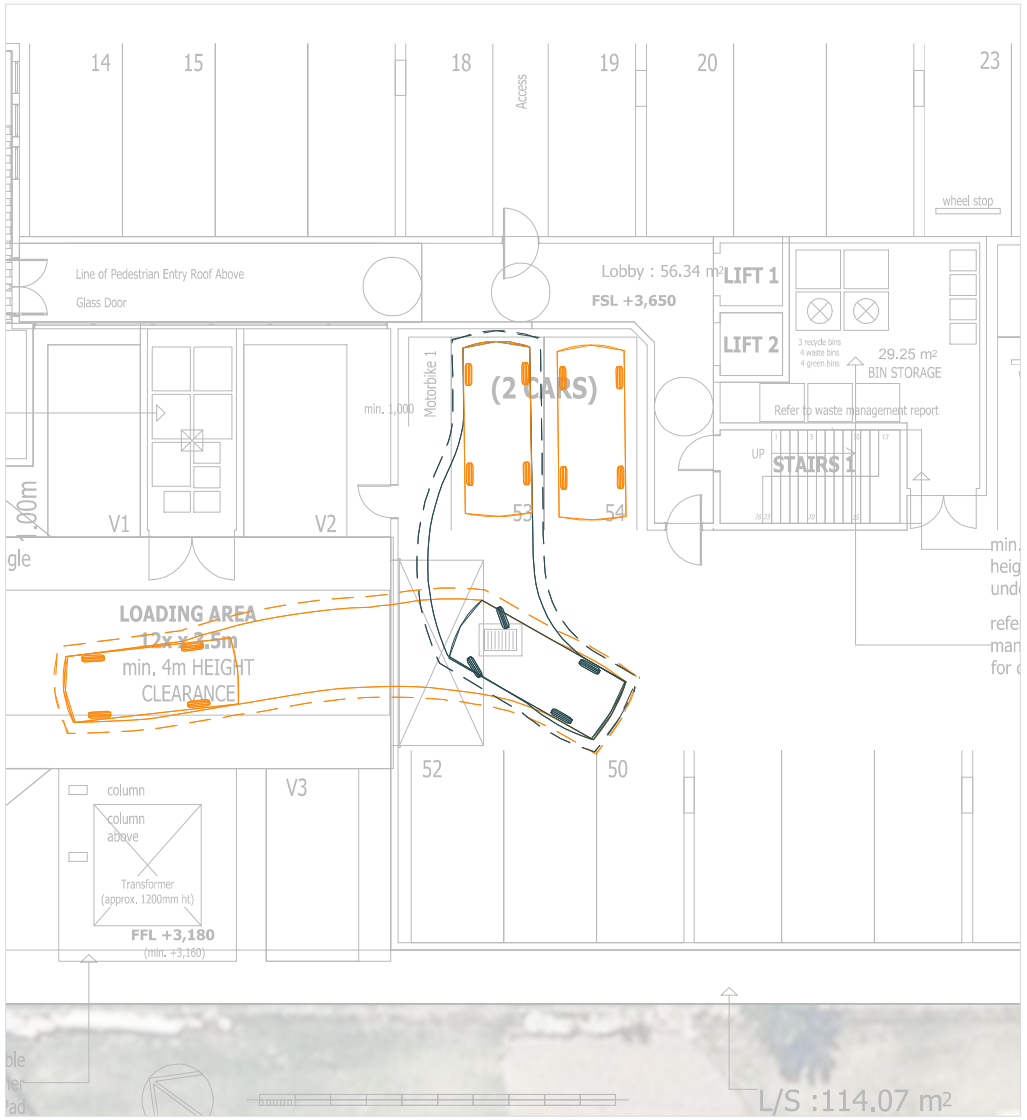
Swept Path Assessment

DRAWN: RK
DATE: 13/06/2024
DWG NO: 858 S05A
SCALE at A3: 1:150

Amber



Entry Manoeuvre



Exit Manoeuvre

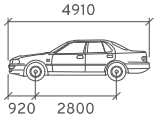
Vehicle Envelope

300mm Clearance

Reverse Manoeuvre

Min. Design Speed 5km/h

B85



	mm
Width	: 1870
Track	: 1770
Lock to Lock	: 6.0s
Steering Angle	: 34.1
Height	: 2100

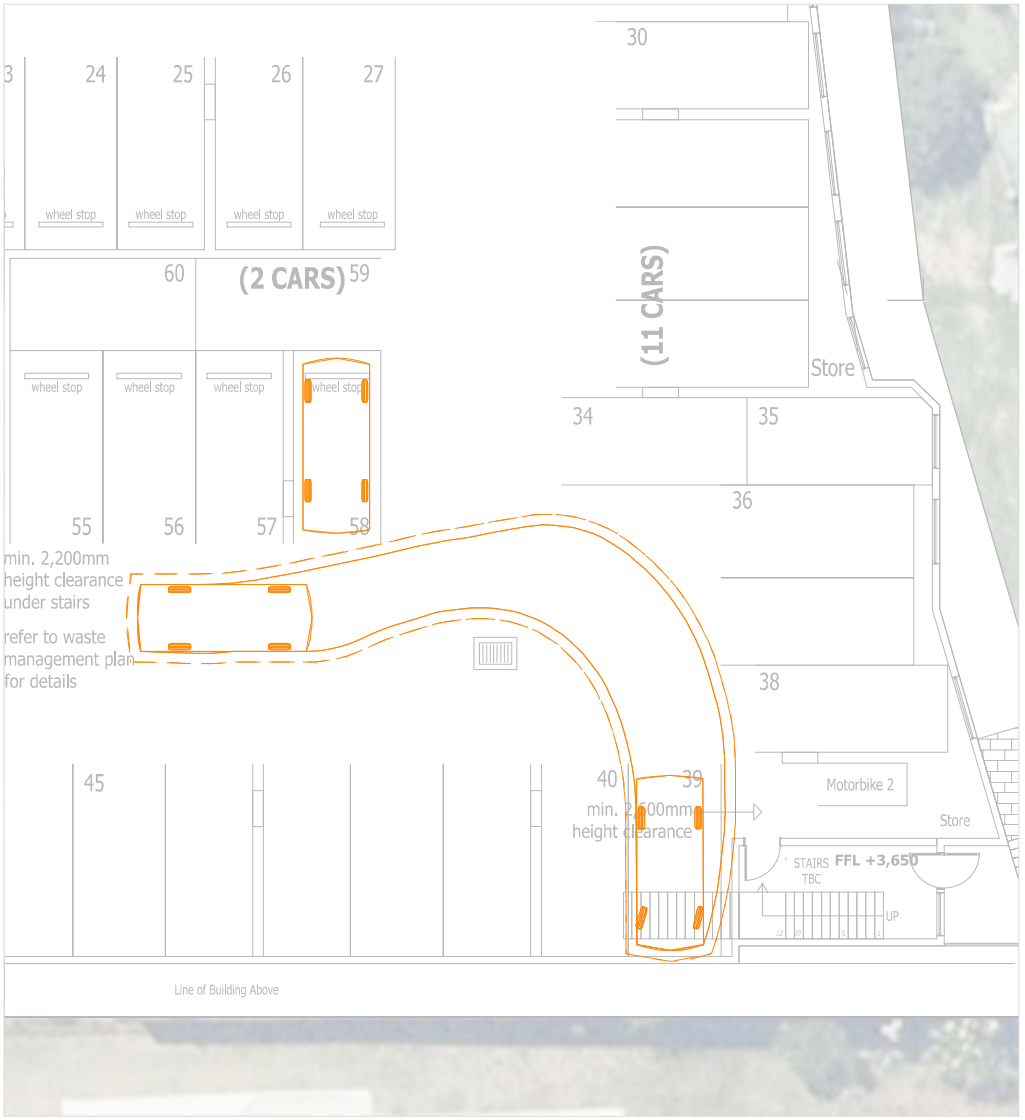
Residential Development

67-69 Shore Street East, Cleveland

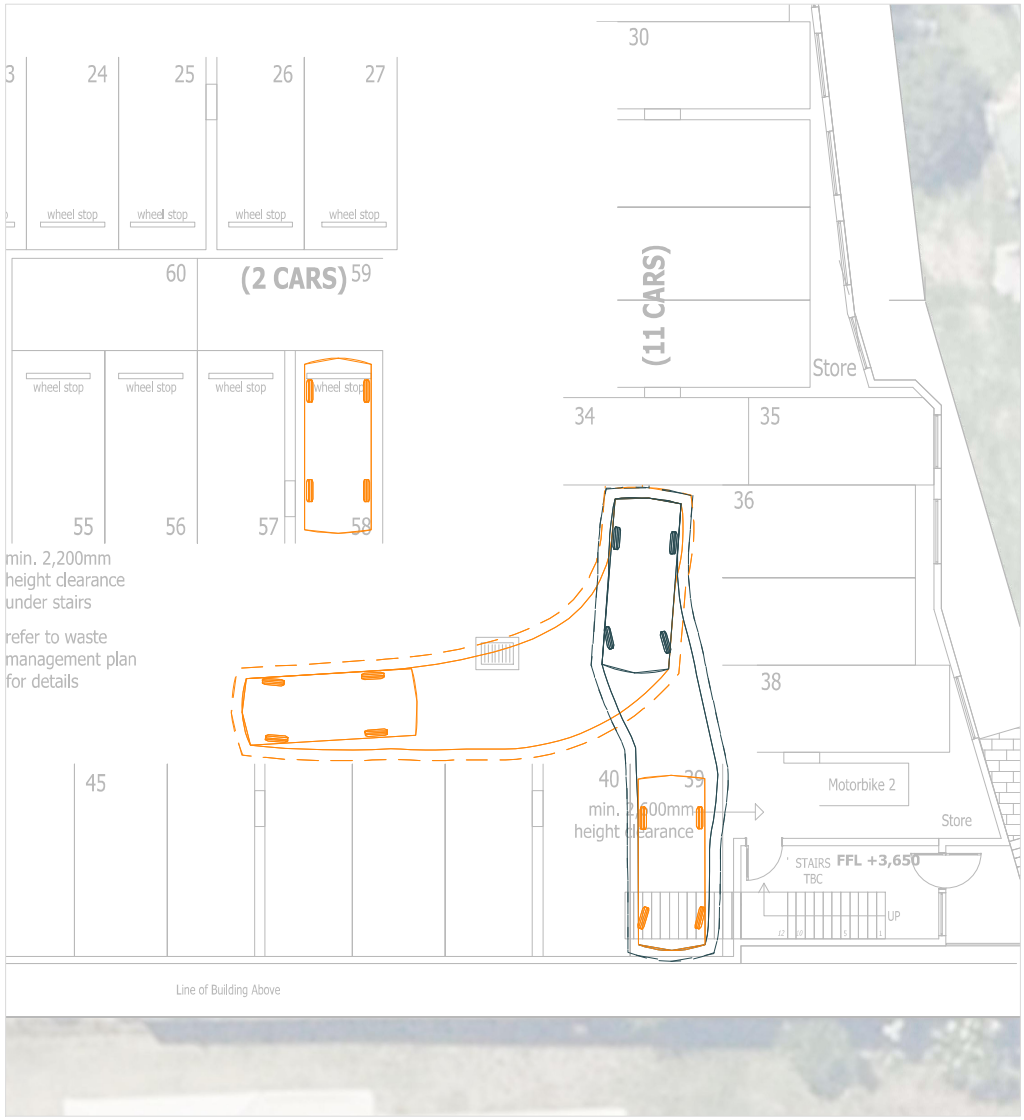
Swept Path Assessment

DRAWN: RK
DATE: 13/06/2024
DWG NO: 858 S05A
SCALE at A3: 1:150

Amber



Entry Manoeuvre



Exit Manoeuvre

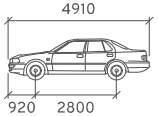
Vehicle Envelope

300mm Clearance

Reverse Manoevure

Min. Design Speed 5km/h

B85



	mm
Width	: 1870
Track	: 1770
Lock to Lock	: 6.0s
Steering Angle	: 34.1
Height	: 2100

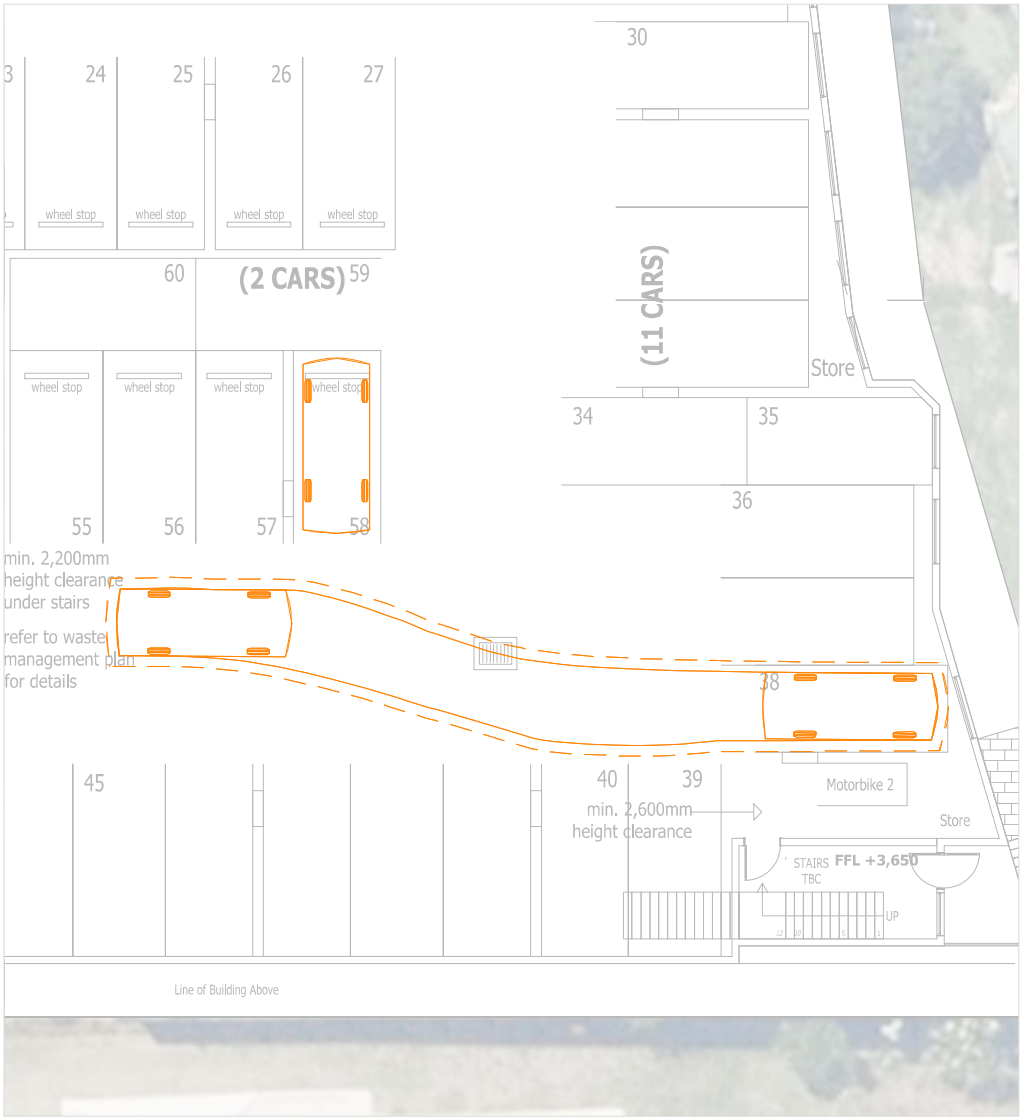
Residential Development

67-69 Shore Street East, Cleveland

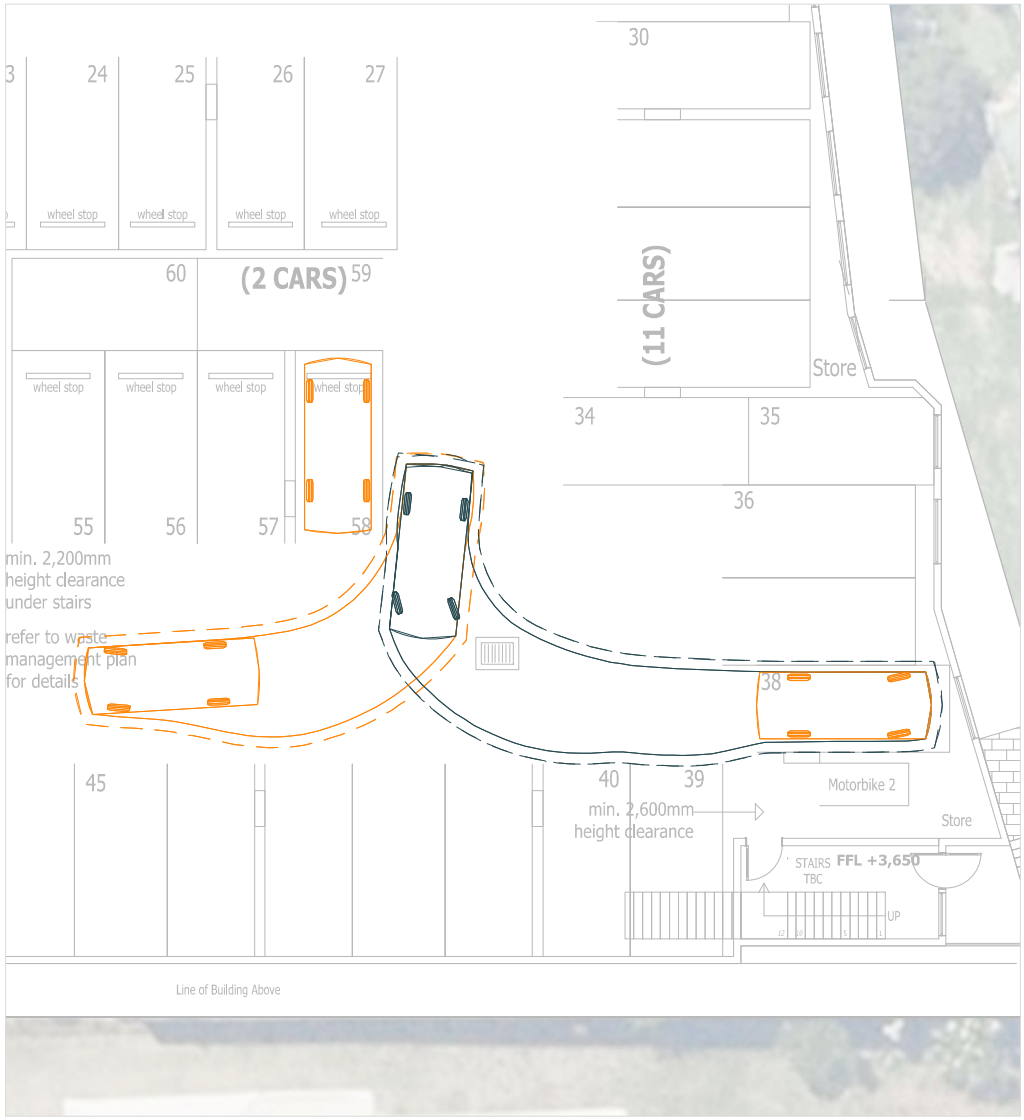
Swept Path Assessment

DRAWN: RK
DATE: 13/06/2024
DWG NO: 858 S05A
SCALE at A3: 1:150

Amber



Entry Manoeuvre



Exit Manoeuvre

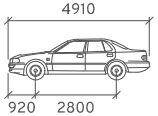
Vehicle Envelope

300mm Clearance

Reverse Manoeuvre

Min. Design Speed 5km/h

B85



	mm
Width	: 1870
Track	: 1770
Lock to Lock	: 6.0s
Steering Angle	: 34.1
Height	: 2100

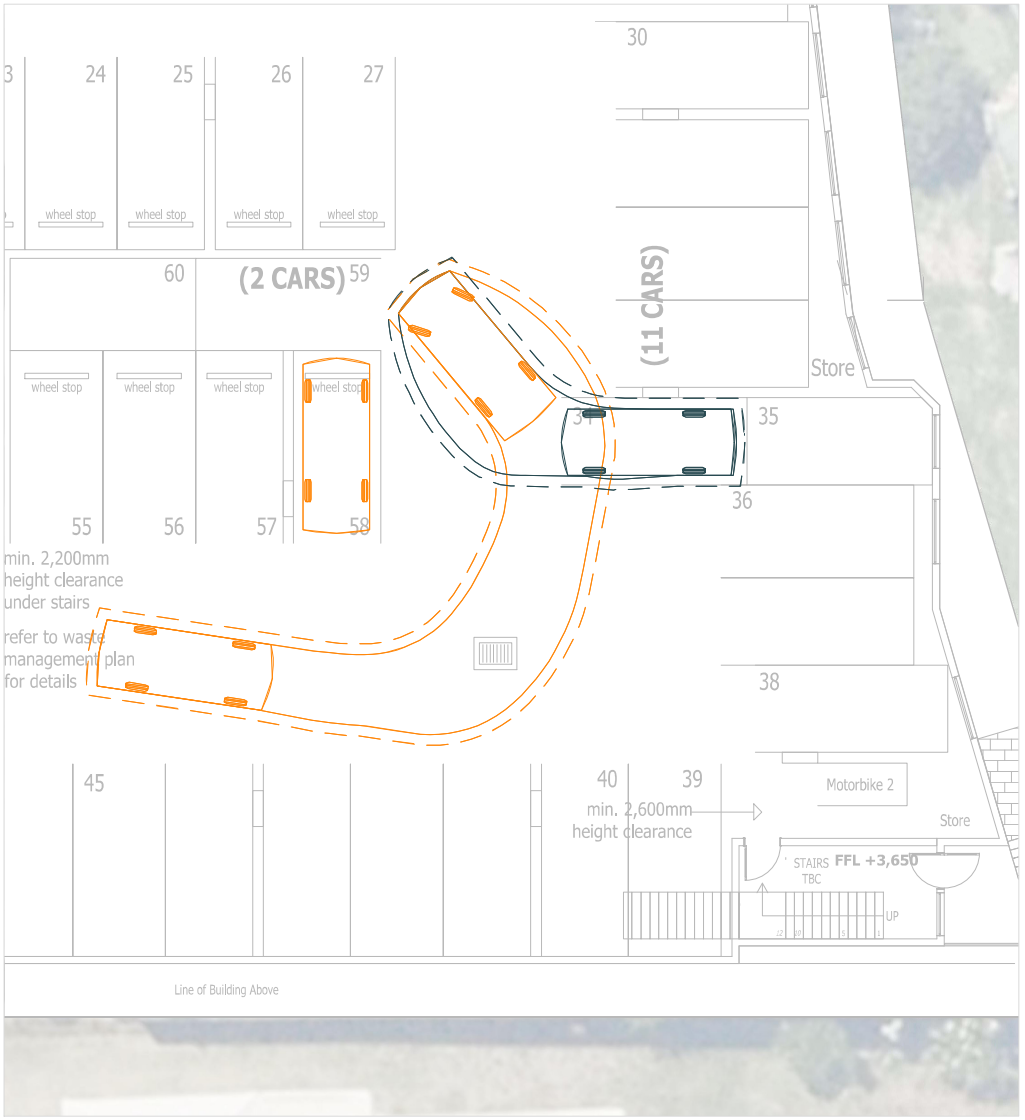
Residential Development

67-69 Shore Street East, Cleveland

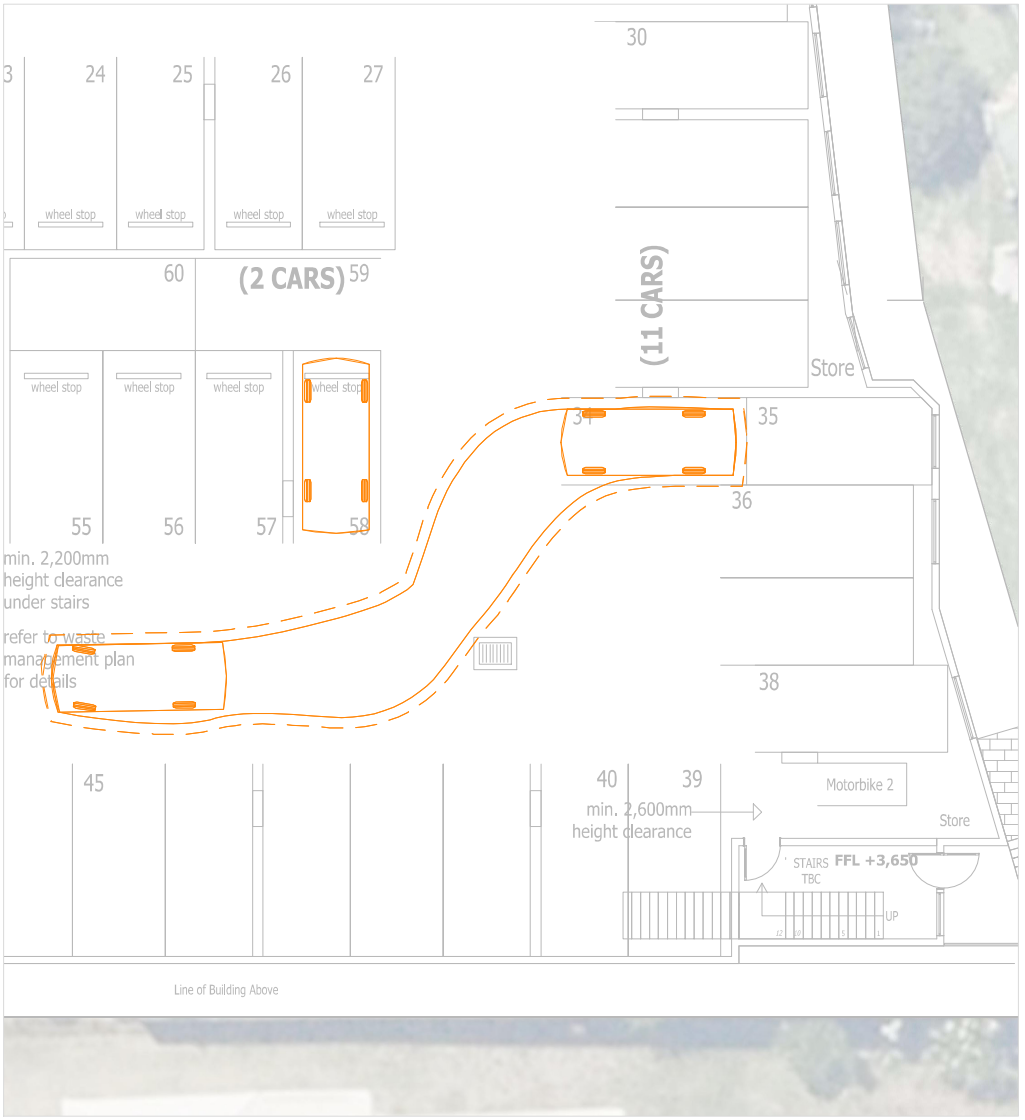
Swept Path Assessment

DRAWN: RK
DATE: 13/06/2024
DWG NO: 858 S05A
SCALE at A3: 1:150

Amber 08



Entry Manoeuvre



Exit Manoeuvre

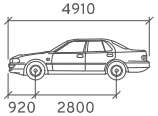
Vehicle Envelope

300mm Clearance

Reverse Manoeuvre

Min. Design Speed 5km/h

B85



	mm
Width	: 1870
Track	: 1770
Lock to Lock	: 6.0s
Steering Angle	: 34.1
Height	: 2100

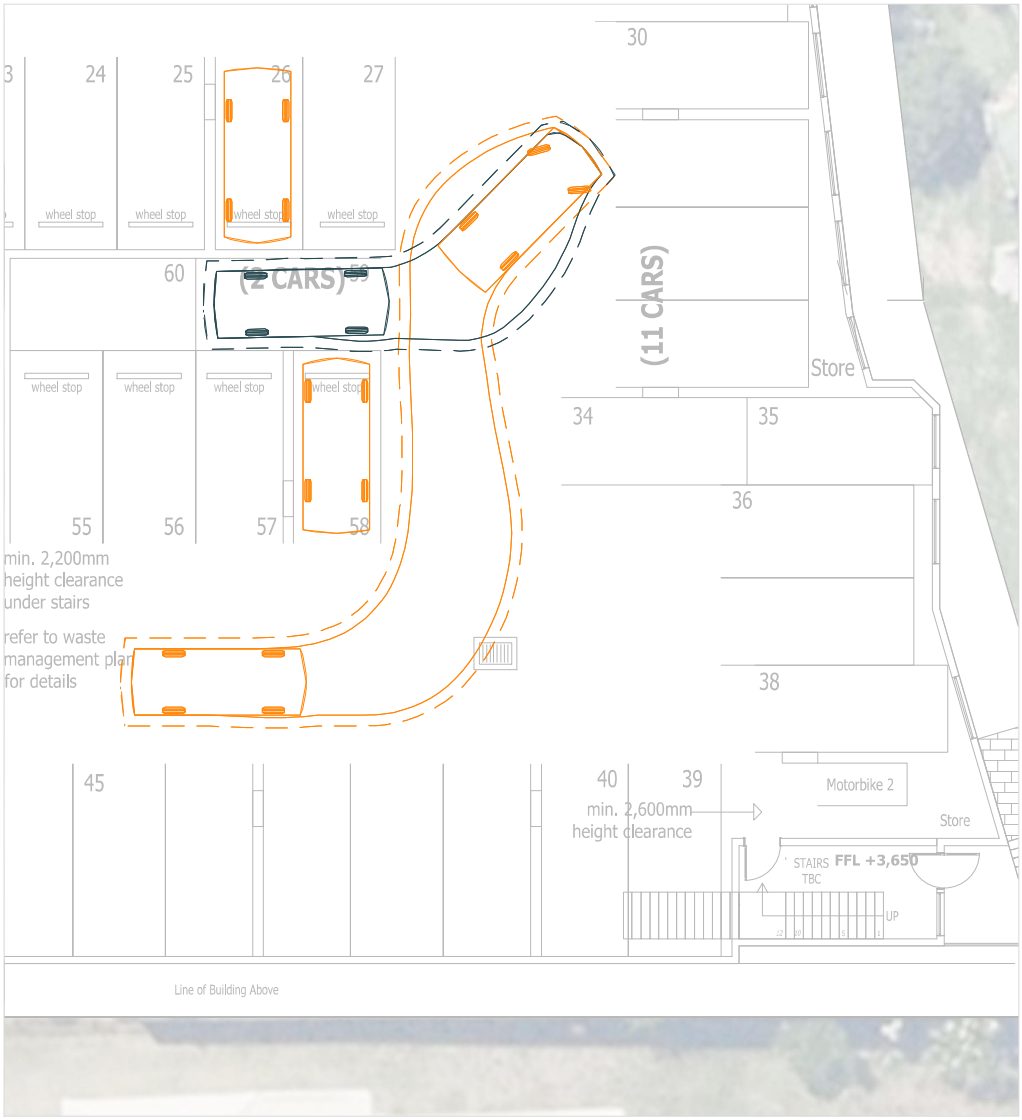
Residential Development

67-69 Shore Street East, Cleveland

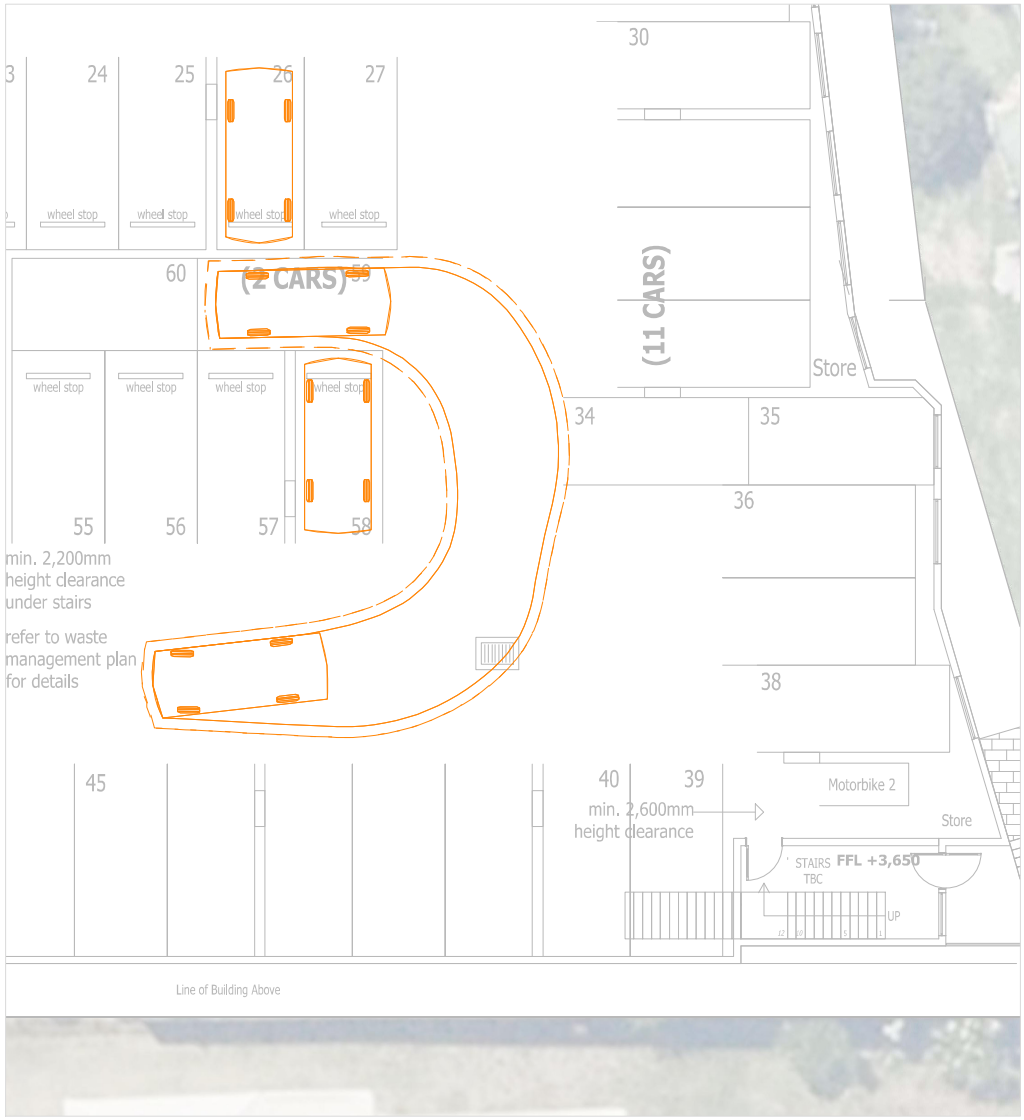
Swept Path Assessment

DRAWN: RK
DATE: 13/06/2024
DWG NO: 858 S05A
SCALE at A3: 1:150

Amber



Entry Manoeuvre



Exit Manoeuvre

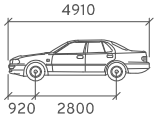
Vehicle Envelope

300mm Clearance

Reverse Manoevure

Min. Design Speed 5km/h

B85



	mm
Width	: 1870
Track	: 1770
Lock to Lock	: 6.0s
Steering Angle	: 34.1
Height	: 2100

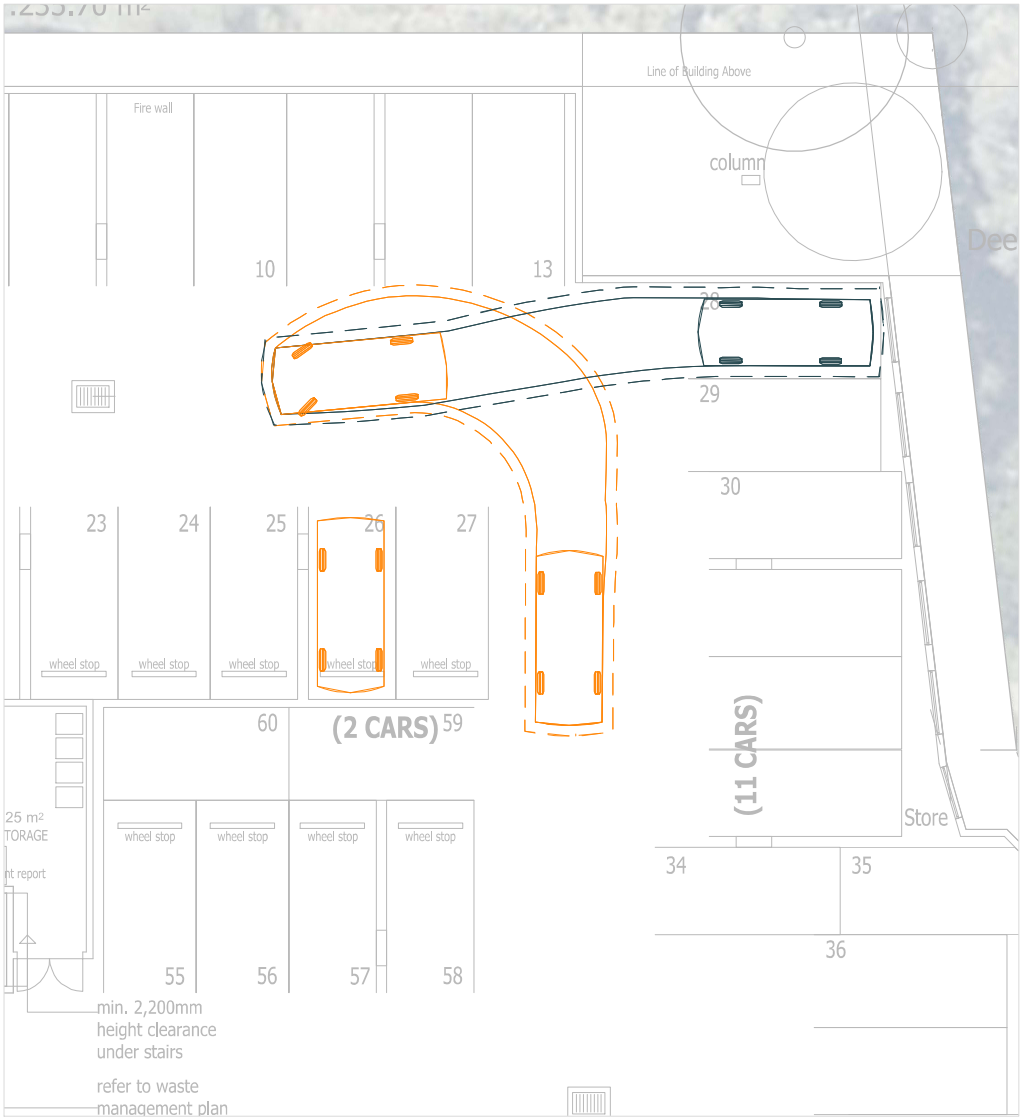
Residential Development

67-69 Shore Street East, Cleveland

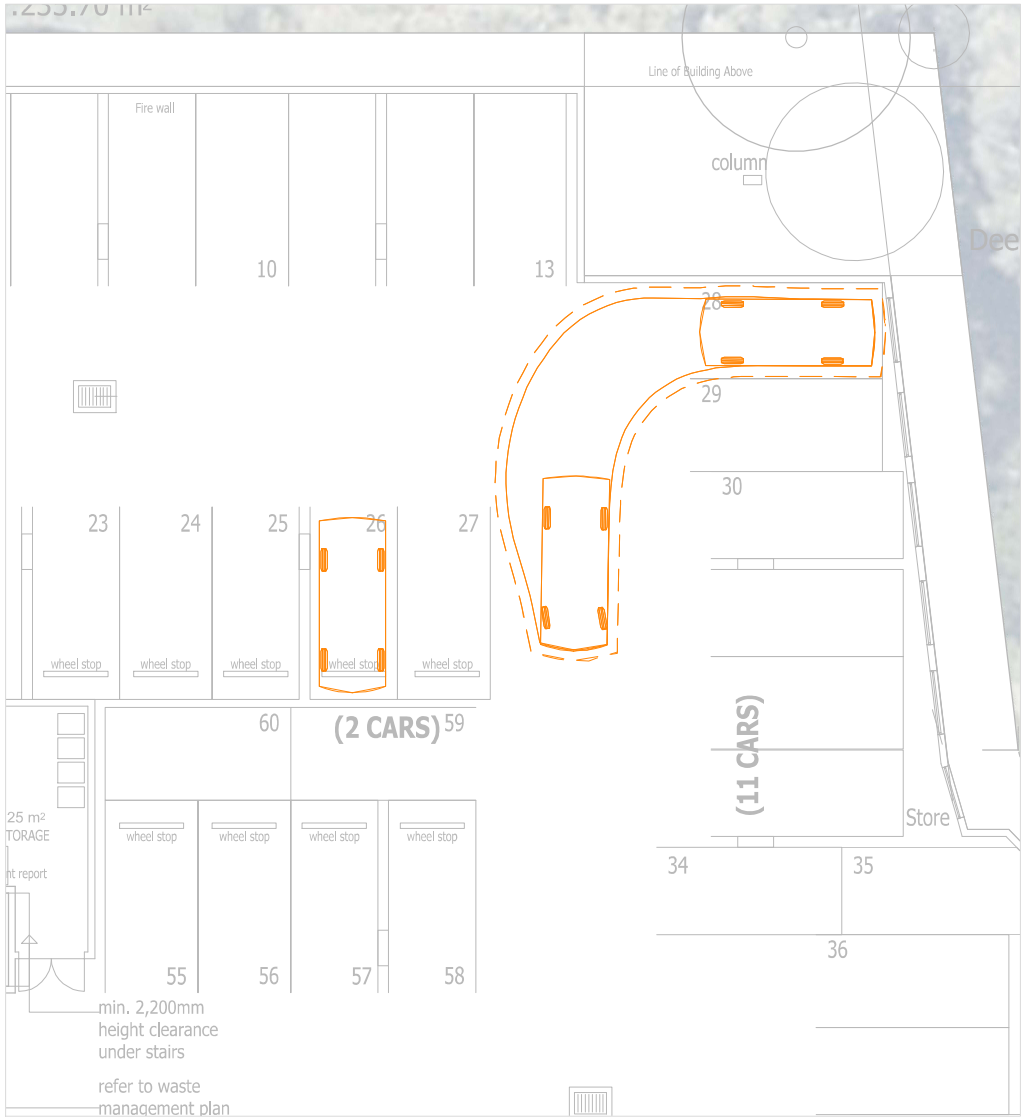
Swept Path Assessment

DRAWN: RK
DATE: 13/06/2024
DWG NO: 858 S05A
SCALE at A3: 1:150

Amber



Entry Manoeuvre



Exit Manoeuvre

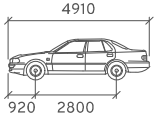
Vehicle Envelope

300mm Clearance

Reverse Manoeuvre

Min. Design Speed 5km/h

B85



	mm
Width	: 1870
Track	: 1770
Lock to Lock	: 6.0s
Steering Angle	: 34.1
Height	: 2100

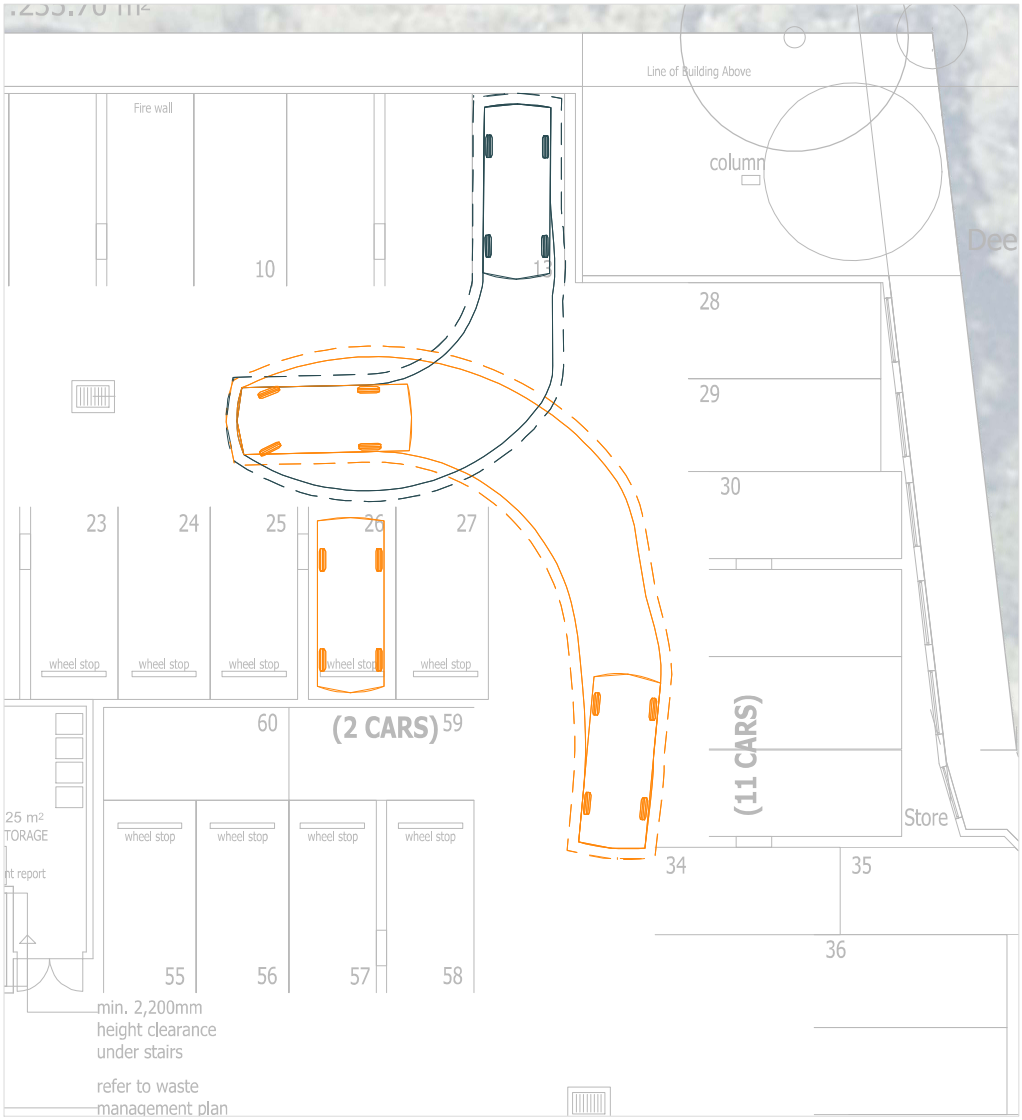
Residential Development

67-69 Shore Street East, Cleveland

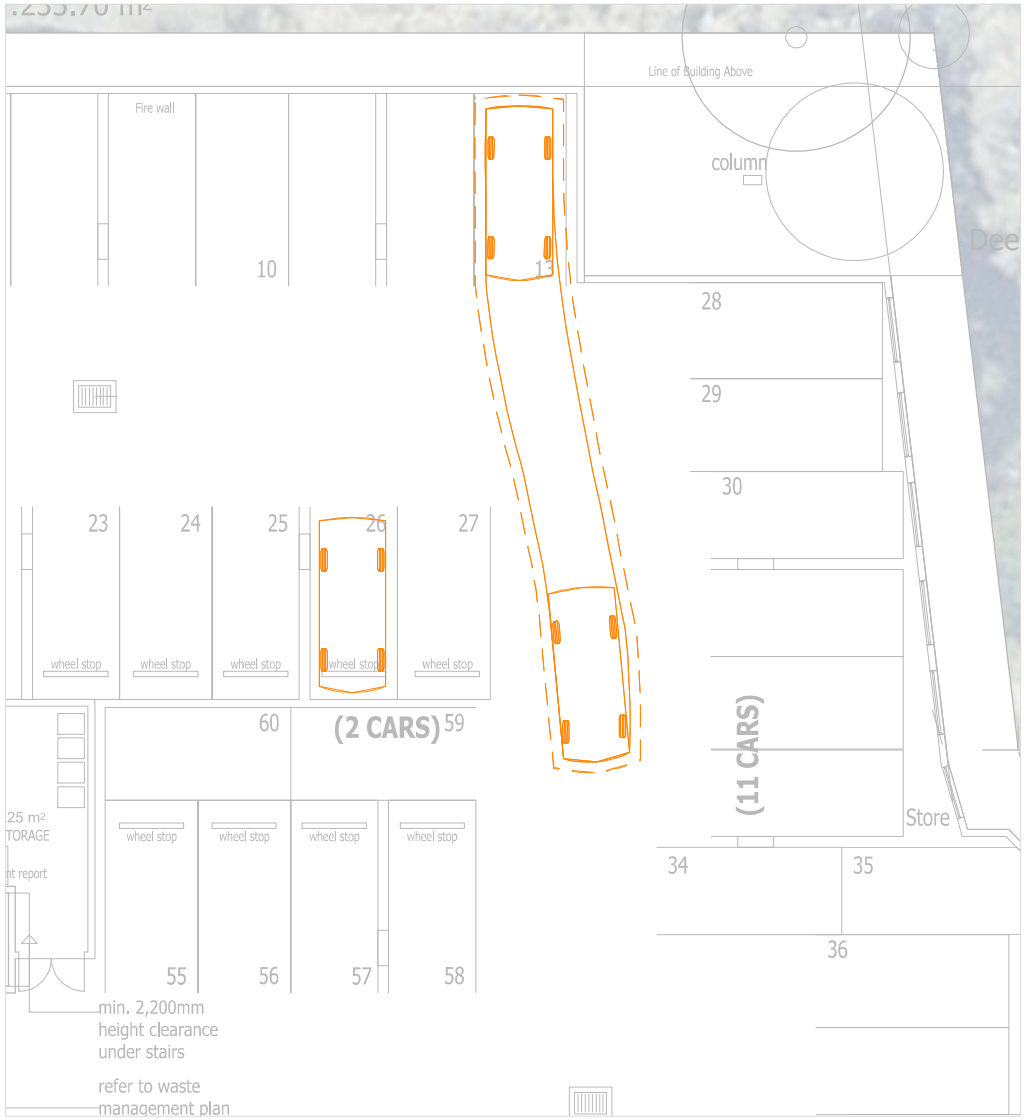
Swept Path Assessment

DRAWN: RK
DATE: 13/06/2024
DWG NO: 858 S05A
SCALE at A3: 1:150

Amber



Entry Manoeuvre



Exit Manoeuvre

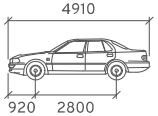
Vehicle Envelope

300mm Clearance

Reverse Manoevure

Min. Design Speed 5km/h

B85



	mm
Width	: 1870
Track	: 1770
Lock to Lock	: 6.0s
Steering Angle	: 34.1
Height	: 2100

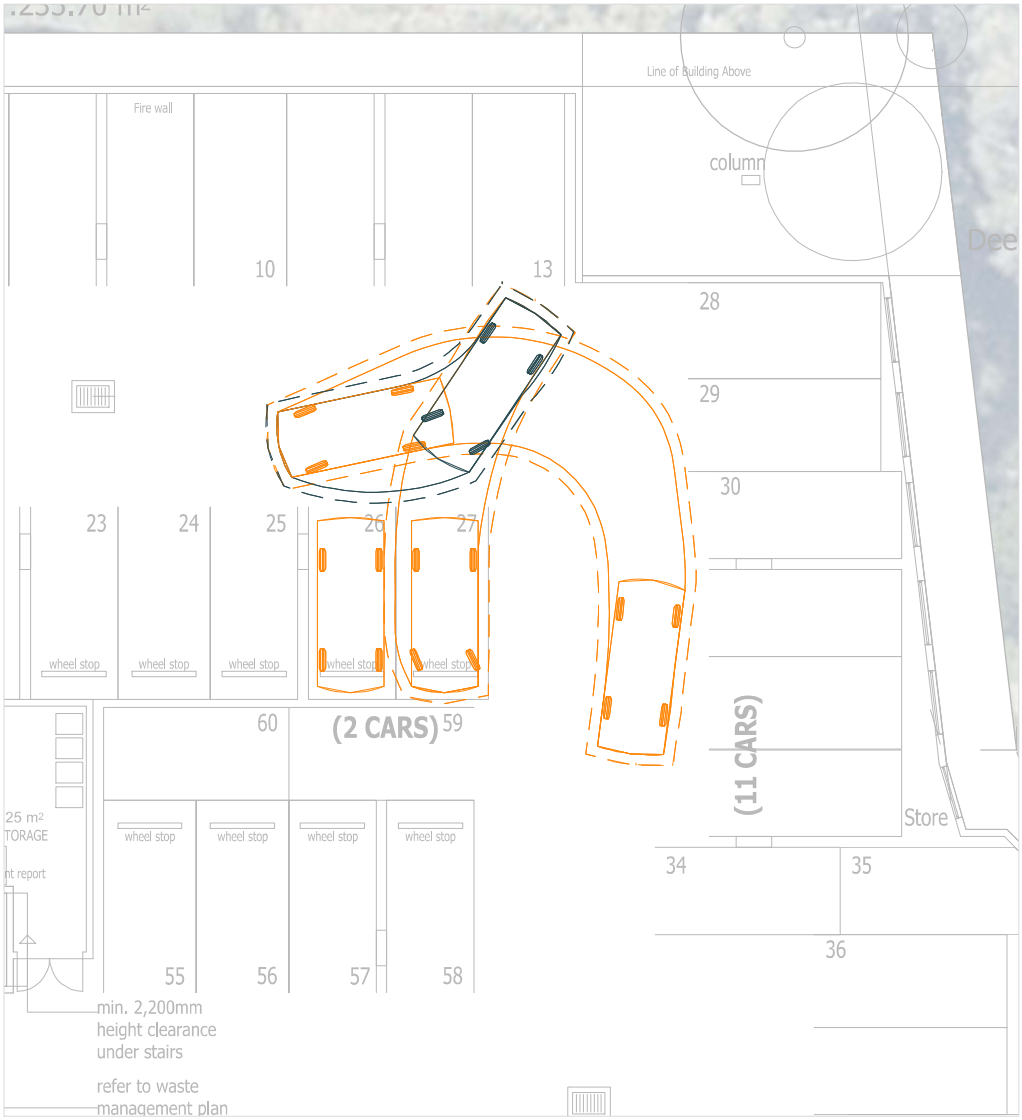
Residential Development

67-69 Shore Street East, Cleveland

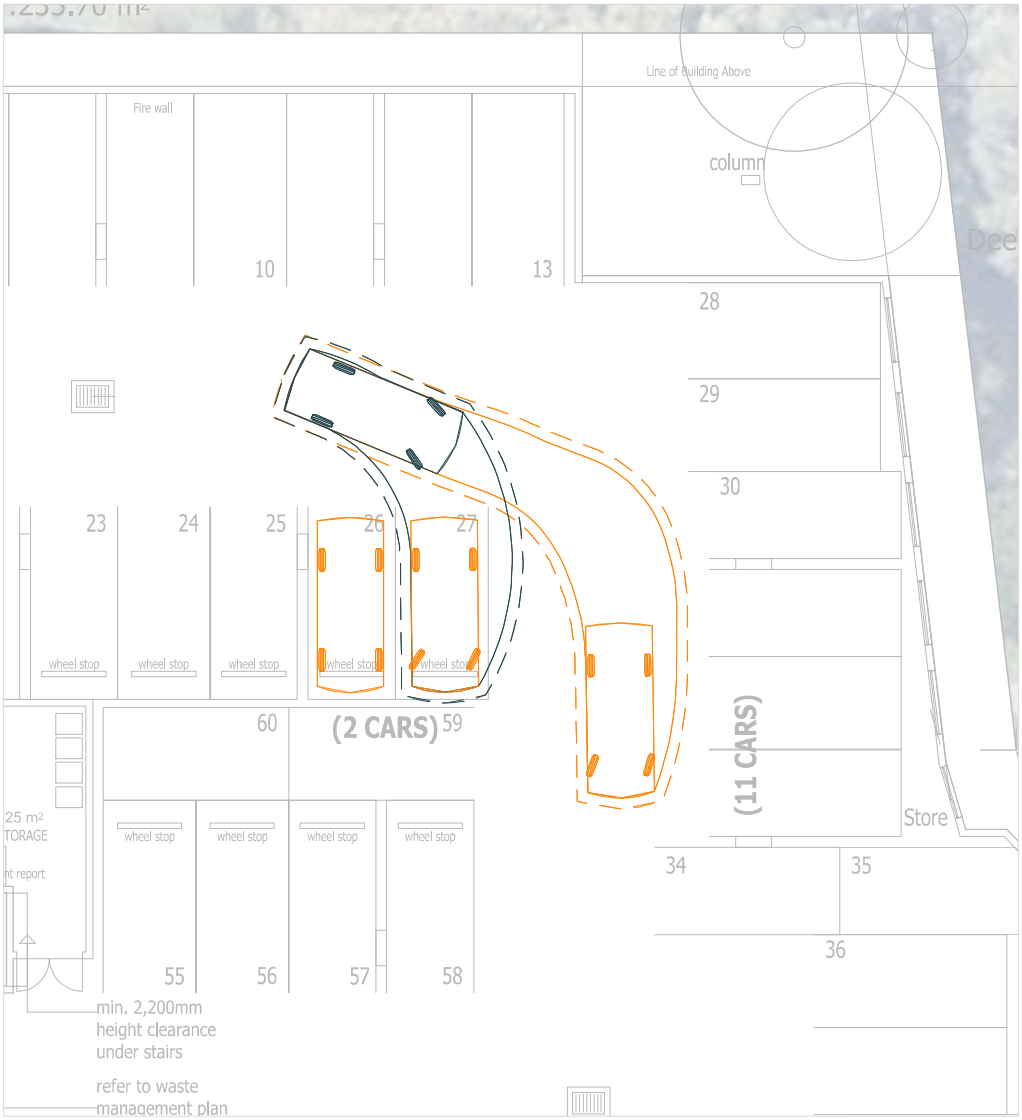
Swept Path Assessment

DRAWN: RK
DATE: 13/06/2024
DWG NO: 858 S05A
SCALE at A3: 1:150

Amber 12



Entry Manoeuvre



Exit Manoeuvre

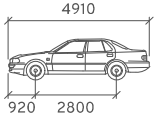
Vehicle Envelope

300mm Clearance

Reverse Manoeuvre

Min. Design Speed 5km/h

B85



	mm
Width	: 1870
Track	: 1770
Lock to Lock	: 6.0s
Steering Angle	: 34.1
Height	: 2100

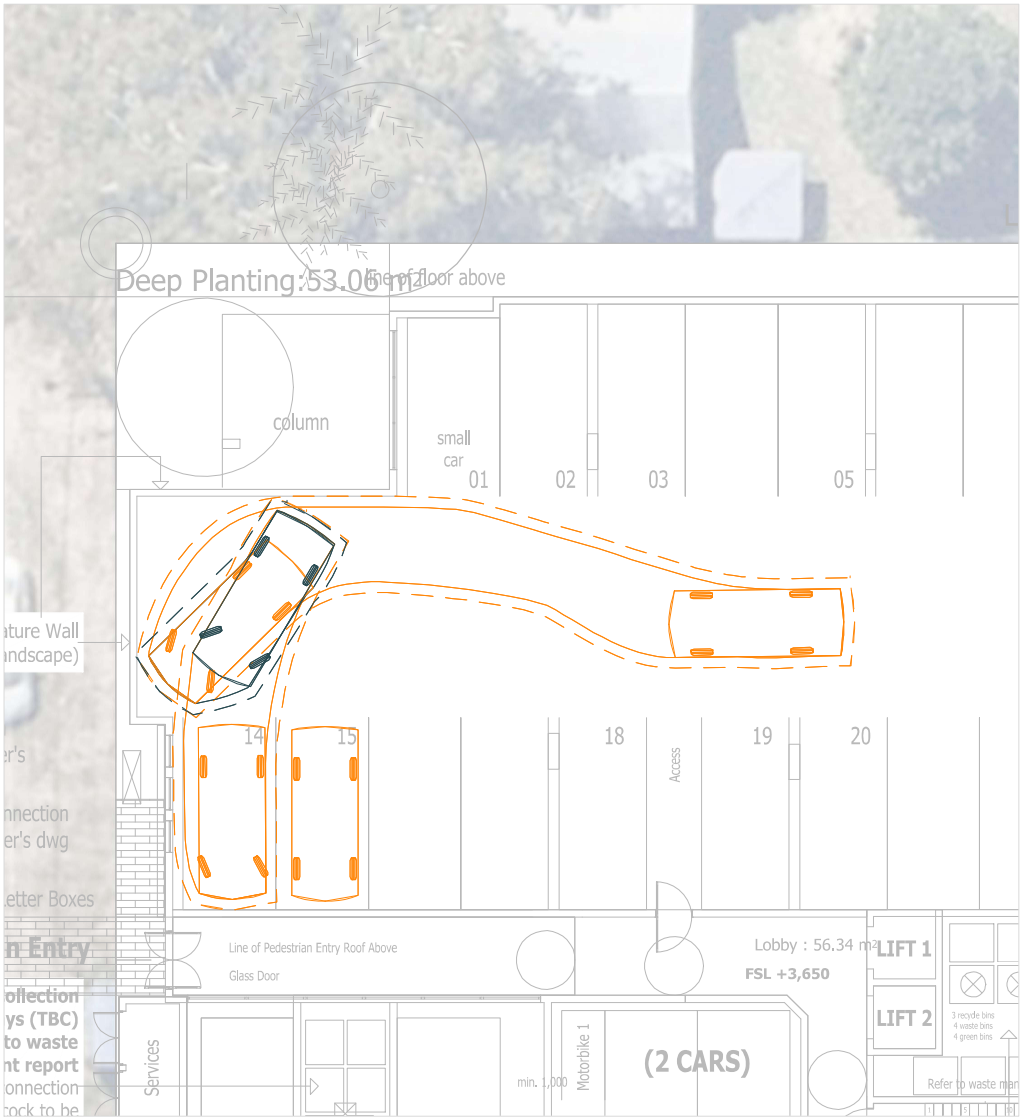
Residential Development

67-69 Shore Street East, Cleveland

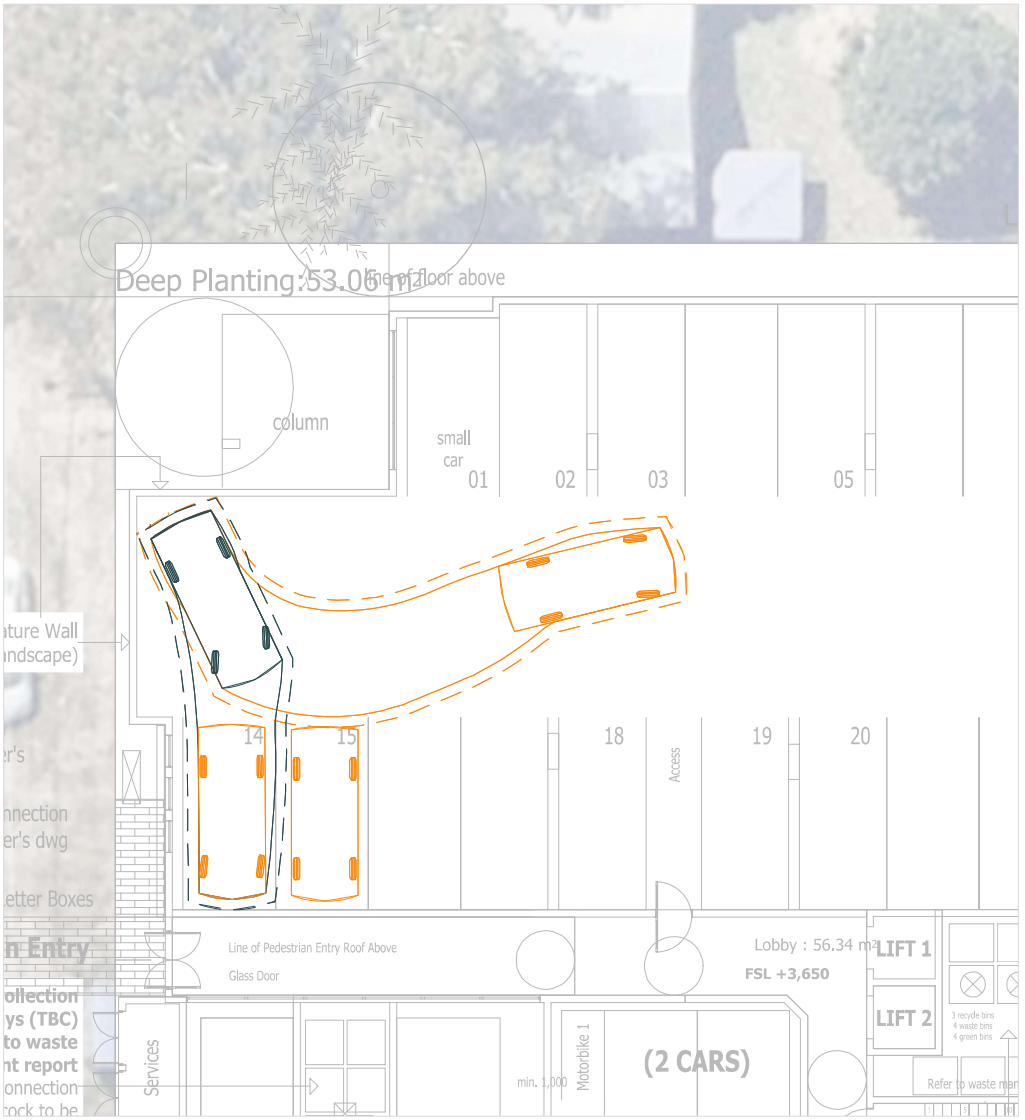
Swept Path Assessment

DRAWN: RK
DATE: 13/06/2024
DWG NO: 858 S05A
SCALE at A3: 1:150

Amber



Entry Manoeuvre



Exit Manoeuvre

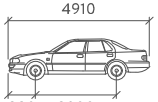
Vehicle Envelope

300mm Clearance

Reverse Manoeuvre

Min. Design Speed 5km/h

B85



	mm
Width	: 1870
Track	: 1770
Lock to Lock	: 6.0s
Steering Angle	: 34.1
Height	: 2100

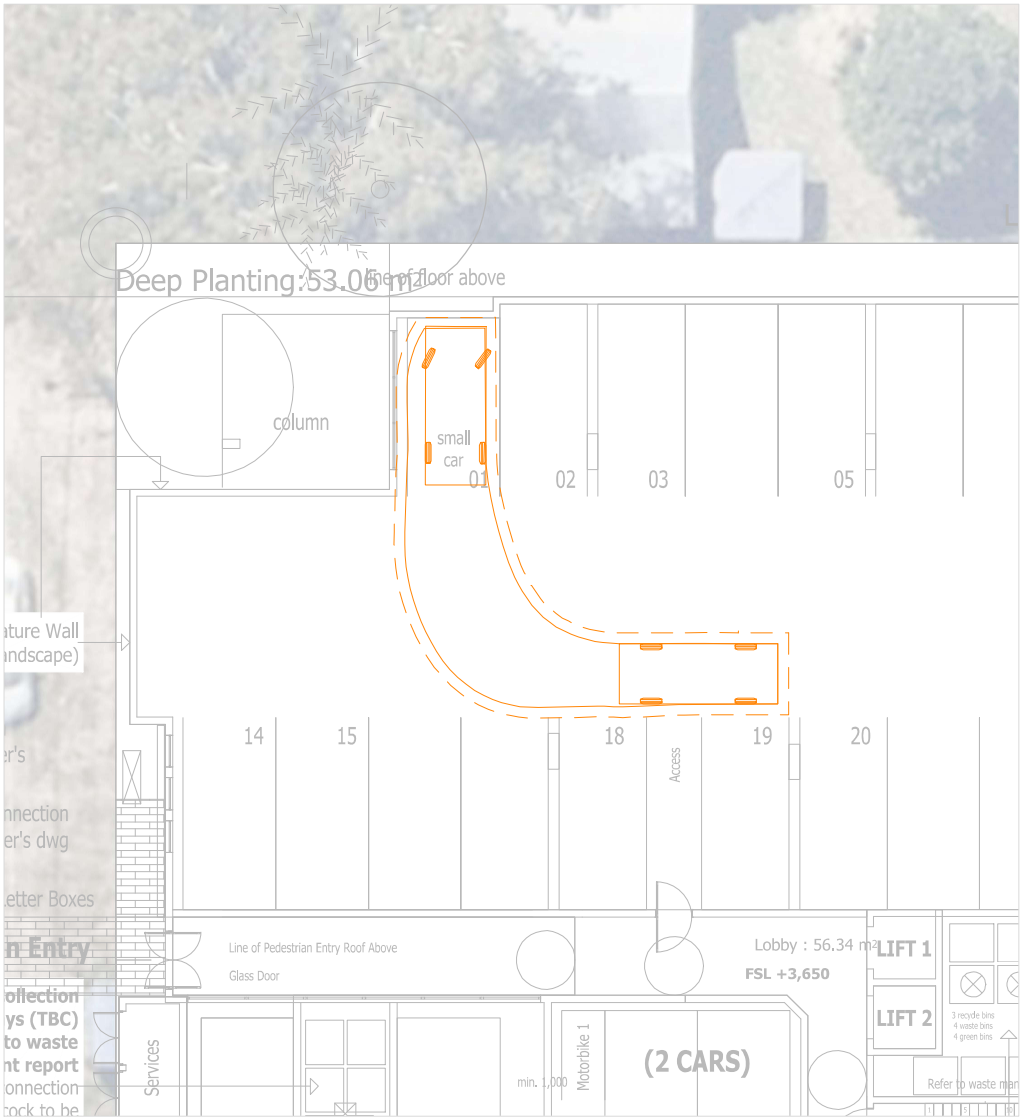
Residential Development

67-69 Shore Street East, Cleveland

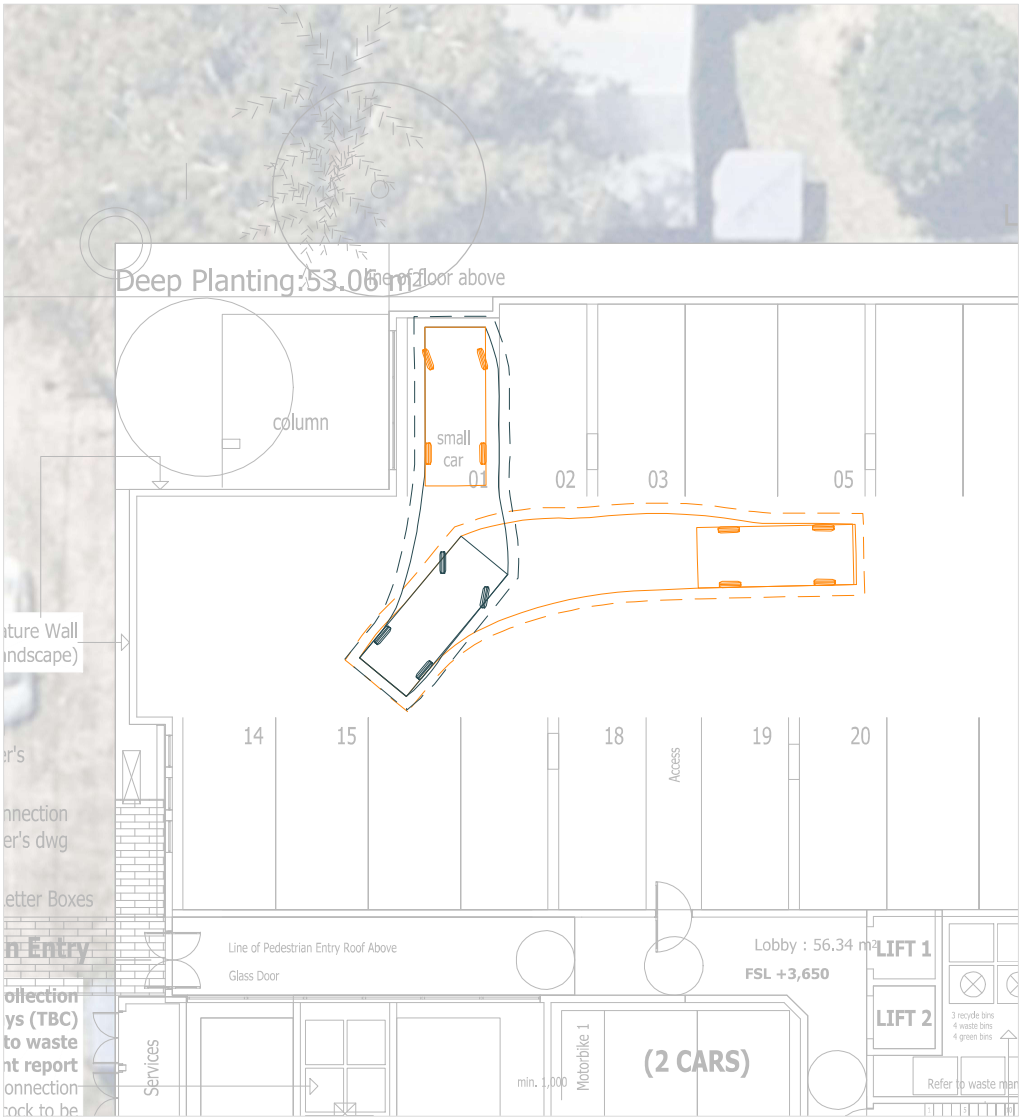
Swept Path Assessment

DRAWN: RK
DATE: 13/06/2024
DWG NO: 858 S05A
SCALE at A3: 1:150

Amber



Entry Manoeuvre



Exit Manoeuvre

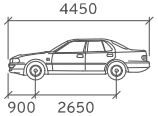
Vehicle Envelope

300mm Clearance

Reverse Manoevure

Min. Design Speed 5km/h

B35



	mm
Width	: 1700
Track	: 1650
Lock to Lock	: 4.0s
Steering Angle	: 35.1

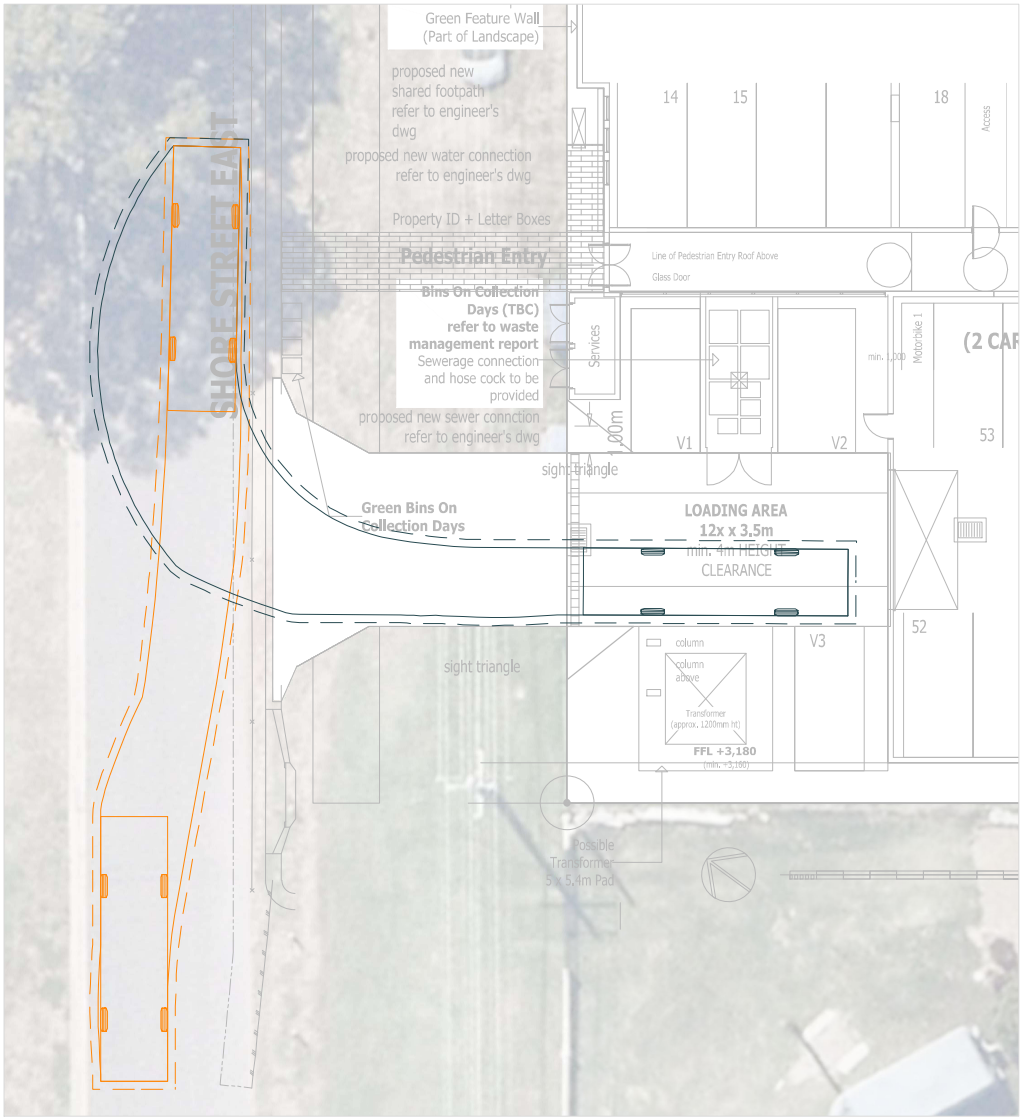
Residential Development

67-69 Shore Street East, Cleveland

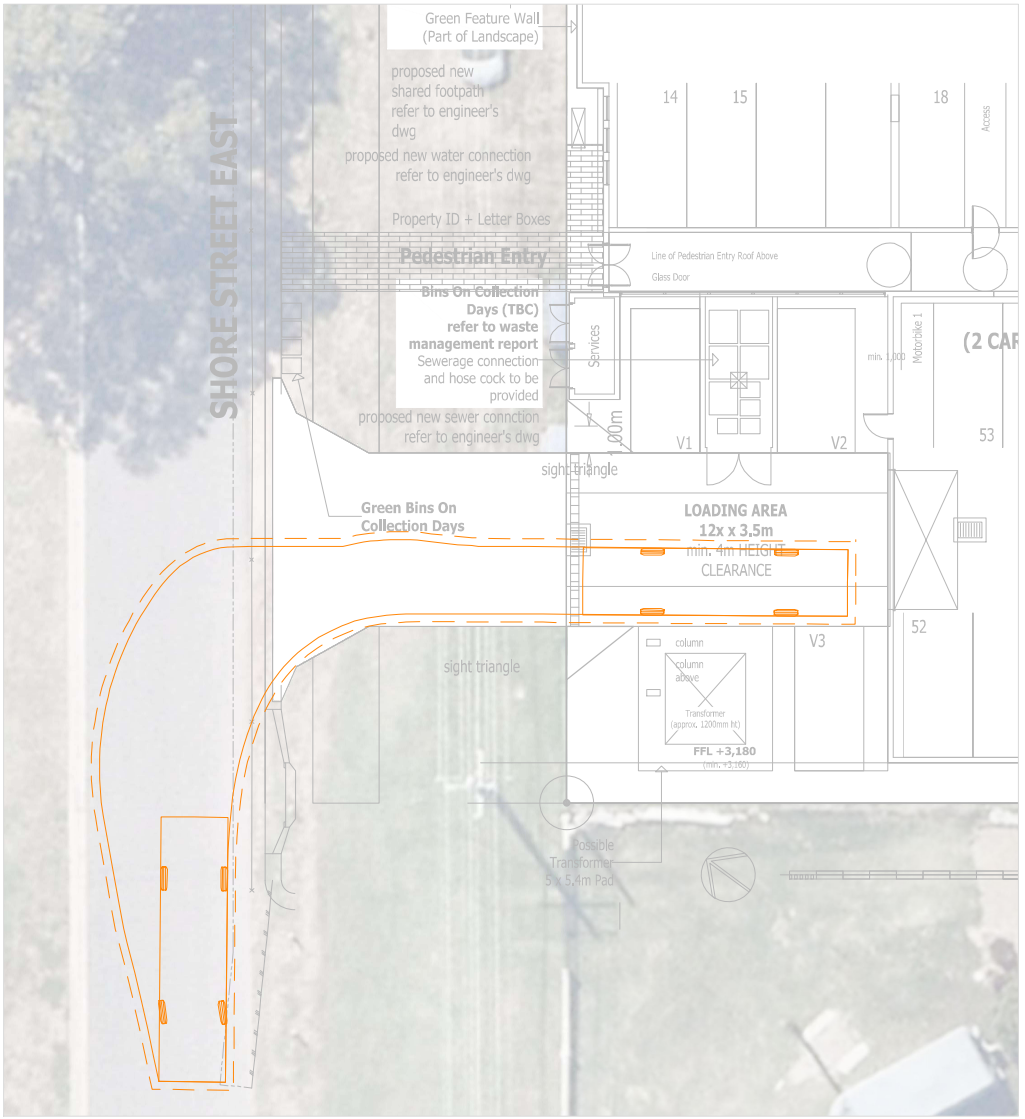
Swept Path Assessment

DRAWN: RK
DATE: 13/06/2024
DWG NO: 858 S05A
SCALE at A3: 1:150

Amber



Entry Manoeuvre



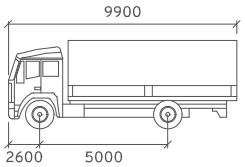
Exit Manoeuvre

Vehicle Envelope

300mm Clearance

Reverse Manoevure

Min. Design Speed 5km/h



Rear lift (bulk bins)

	mm
Width	: 2500
Track	: 2500
Lock to Lock	: 4.0s
Steering Angle	: 34.0
Height	: 4000
Wall to Wall Turning Radius	: 11200

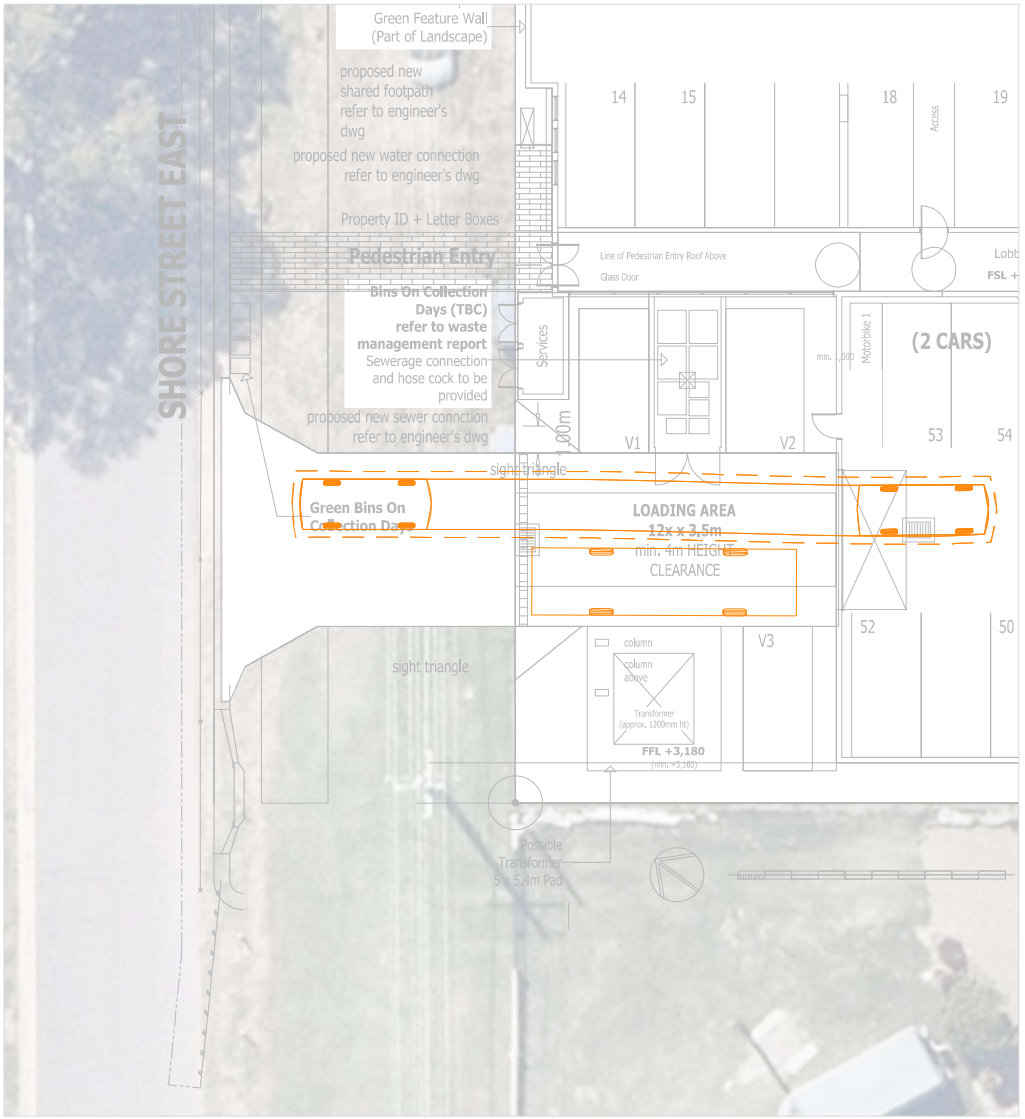
Residential Development

67-69 Shore Street East, Cleveland

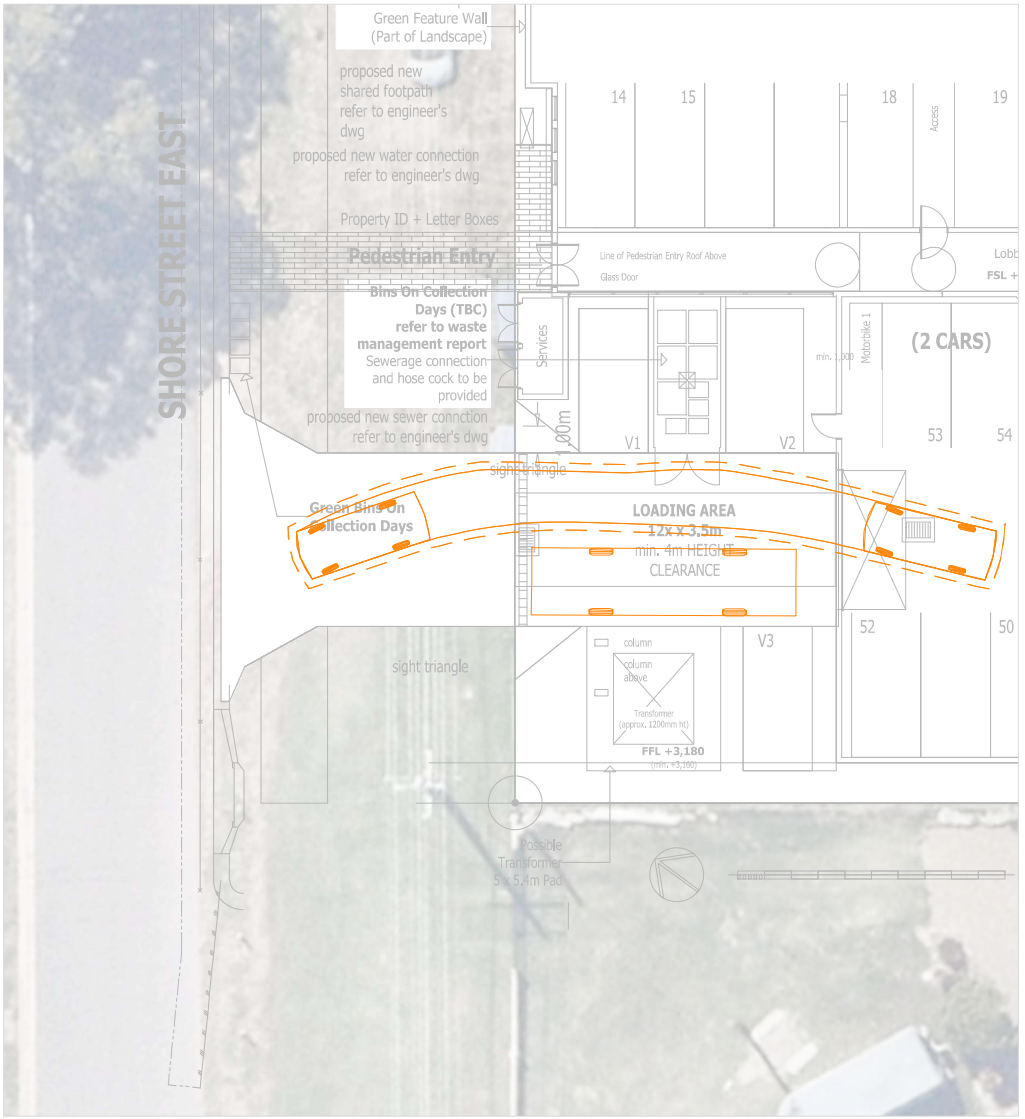
Swept Path Assessment

DRAWN: RK
DATE: 13/06/2024
DWG NO: 858 S05A
SCALE at A3: 1:200

Amber



Passing Manoeuvre during Waste Collection



Passing Manoeuvre during Waste Collection

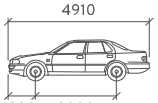
Vehicle Envelope

300mm Clearance

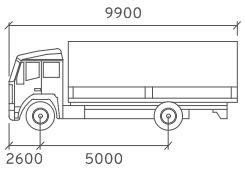
Reverse Manoevure

Min. Design Speed 5km/h

B85



	mm
Width	: 1870
Track	: 1770
Lock to Lock	: 6.0s
Steering Angle	: 34.1
Height	: 2100



Rear lift (bulk bins)

	mm
Width	: 2500
Track	: 2500
Lock to Lock	: 4.0s
Steering Angle	: 34.0
Height	: 4000
Wall to Wall Turning Radius	: 11200

Residential Development

67-69 Shore Street East, Cleveland

Swept Path Assessment

DRAWN: RK
DATE: 13/06/2024
DWG NO: 858 S05A
SCALE at A3: 1:200

Amber 17

Appendix B

Bicycle Parking Specifications

Mona Lisa™

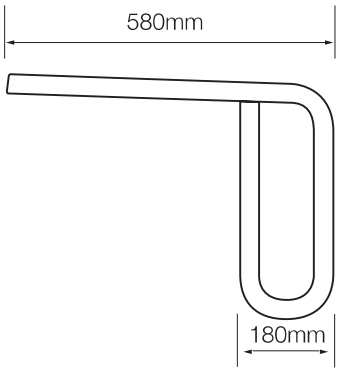
Zinc finish

Features

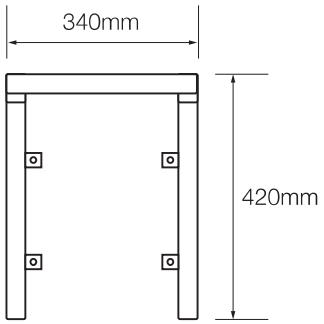
- Each rail supports two standard framed bikes*
- Provides economical use of space above car bonnet
- Provides the ability to lock the main frame and both wheels
- Available in Zinc finish

**Womens style frames can use a top tube convertor to mount on rail*

Dimensions



SIDE



FRONT

Specifications

Material options

- Zinc finish

Fixing options

- Bolt on to wall
- Fixed to support framing

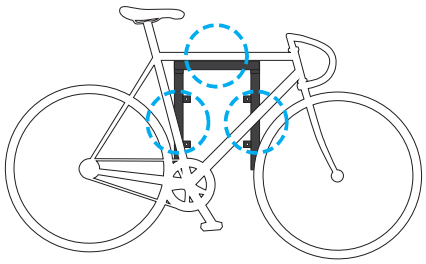
Recommended fasteners

- Dynabolts (M8 x 40mm)
- Shear Nut security fasteners
- Bolt and nut (M10 x 60mm)
- Tek screws

Dimensions

350mm [w] x 450mm [h] x 600mm [d]

Locking Points



V4.1 - 1/05/2017 | Specification may be subject to change without notice.

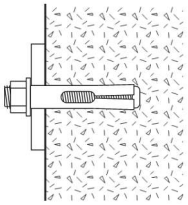
BICYCLE NETWORK BIKE PARKING

DESIGN. SUPPLY. INSTALL.

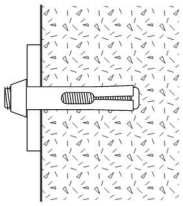
Bicycle Network ABN 41 026 835 903
p. 1300 727 563 e. parking@bicyclenetwork.com.au bikeparking.com.au
VIC Level 4, 246 Bourke Street, Melbourne VIC 3000 NSW 234 Crown Street, Darlinghurst NSW 2010
TAS 210 Collins Street, Hobart TAS 7000 NT Suite 5, 18-20 Cavenagh Street, Darwin 0800

Fixing options

Fix to a wall using 4x fasteners or Shear Nuts

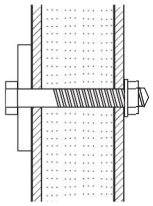


Shown with M8 x 40mm fastener

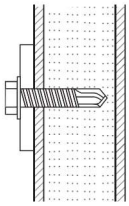


Shown with M8 x 40mm Shear Nuts

Fix to a frame using 4x bolts or Tek Screws



Shown with M10 x 60mm Bolt, Washer & Nut

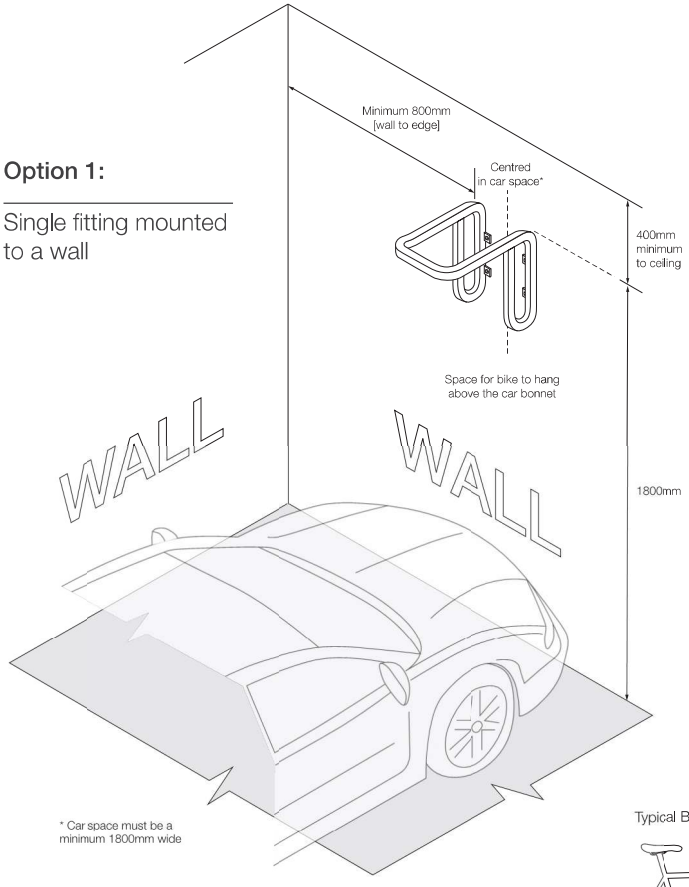


Shown with Tek Screw

Layout guidelines

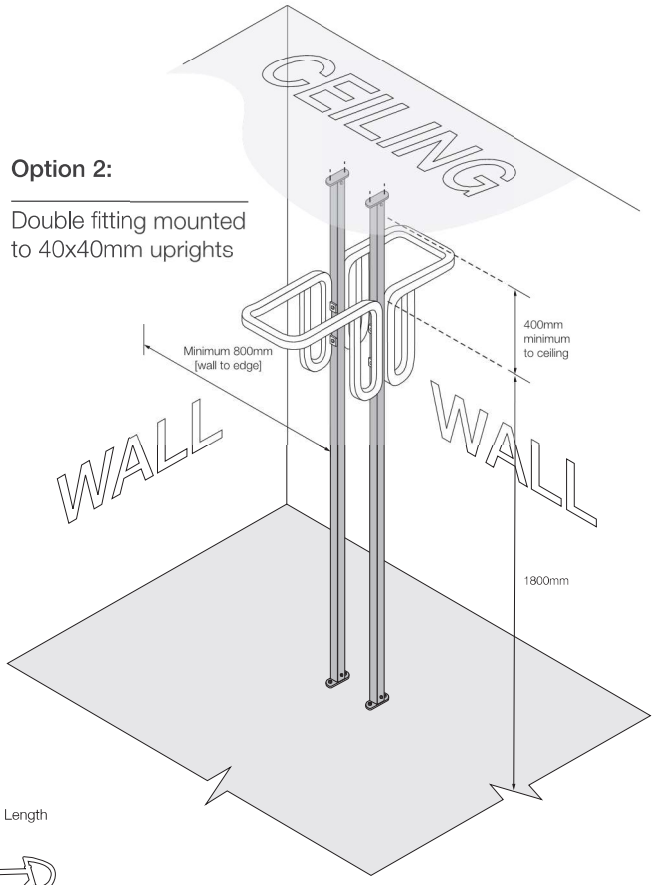
Option 1:

Single fitting mounted to a wall

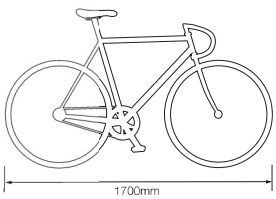


Option 2:

Double fitting mounted to 40x40mm uprights



Typical Bicycle Length



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