



TRAFFIC IMPACT ASSESSMENT

Hubble Traffic

March 2026

NEW CHILDCARE CENTRE 1686 CHANNEL HIGHWAY MARGATE

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1. Introduction

Falcon Building Group has engaged Hubble Traffic Pty Ltd to prepare an independent Traffic Impact Assessment, to evaluate the traffic impact from redevelopment of the site at 1686 Channel Highway, Margate.

This assessment has considered the functional requirements of the facility; the surrounding road network; the need to provide adequate on-site parking, and the provision of safe and efficient access.

This redevelopment has been assessed against the Kingborough Interim Planning Scheme E5 Road and Railway Assets Code, E6 Parking and Access Code and the Australian Standard 2890.1:2004 (the Standard).

This report has been prepared to satisfy the requirements of Austroads, Guide to Traffic Management Part 12: Traffic Impacts of Developments, 2019, and referred to the following information and resources:

- Kingborough Interim Planning Scheme
- Transport for NSW Guide to Transport Impact Assessment (NSW Guide) Version 1.1, 2024
- Australian Standards AS2890 parts 1, 2 and 6
- Austroads series of Traffic Management and Road Design
 - Part 4: Intersection and crossings, General
 - Part 4a: Unsignalised and Signalised Intersections
 - Part 12: Traffic Impacts of Development
- Department of State Growth crash database
- Autoturn Online Software
- Land Information System Tasmania Database

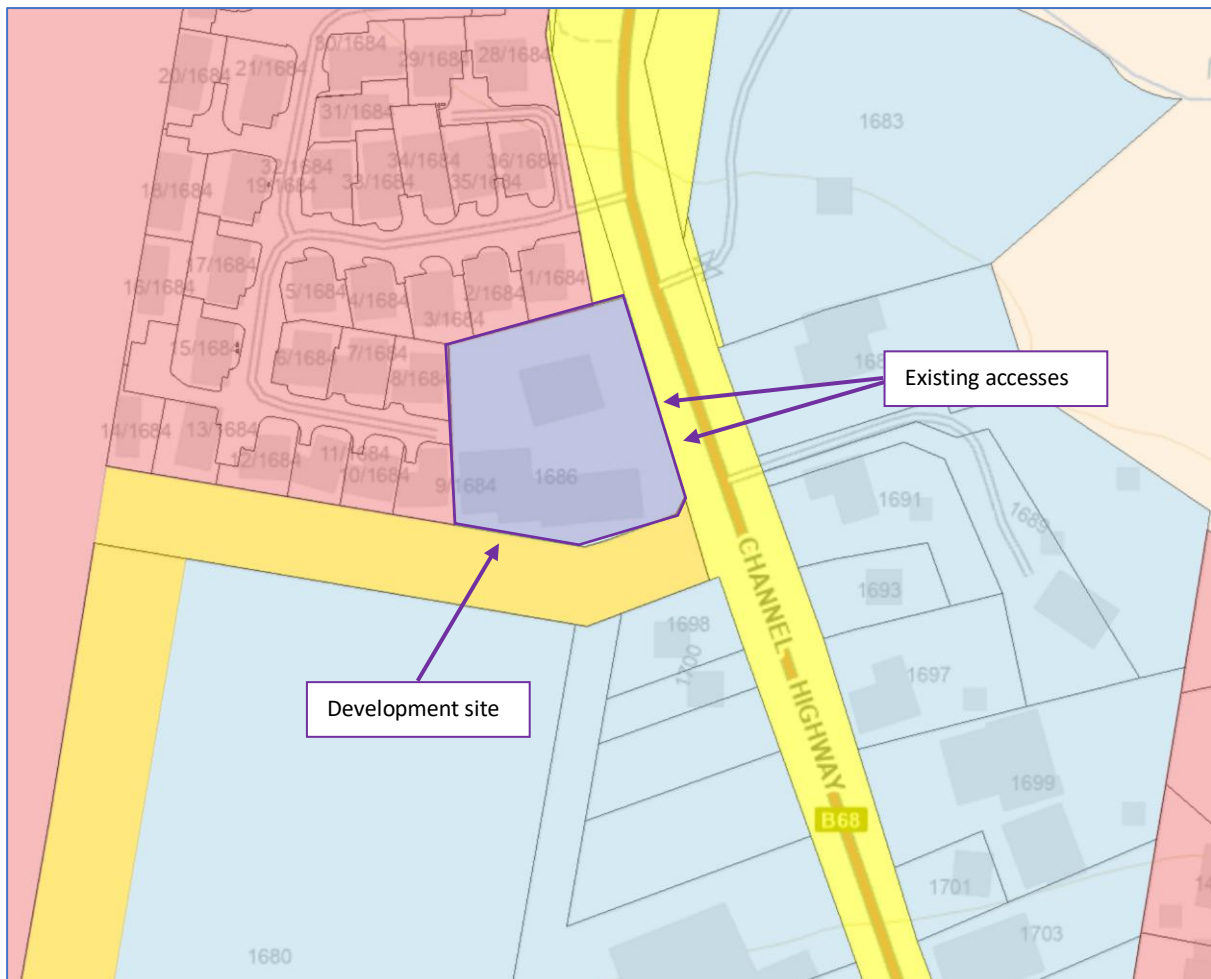
2. Site Description

Located at 1686 Channel Highway, Margate, the redevelopment site is occupied by a two-storey building currently operating as Channel Construction, which is classified within the Business and Professional Services use class. The site is serviced by two existing vehicular access points to Channel Highway and is situated immediately south of the Margate shopping precinct, along the township's primary commercial strip.

The broader precinct comprises a mix of retail, service and community-based uses, including supermarkets, specialty shops, cafés and local businesses, which together form the primary activity centre for Margate.

According to the Land Information System Tasmania (LIST) database, the site is zoned Local Business. Surrounding land uses are predominantly local business activities, with a residential area located to the north.

Diagram 2.0 – Extract from LIST Database



3. Redevelopment proposal

The proposal involves the redevelopment and extension of the existing building to accommodate a childcare centre and an associated office use. The childcare centre will be located solely on the ground floor, while the office component will occupy areas across both the ground and first floors.

The childcare centre is designed to accommodate a maximum of 74 children and will operate between 7:00 am and 6:30 pm, Monday to Friday. Up to 15 staff members may be on site at any one time, including childcare educators, reception staff and administrative personnel. Staff movements will occur across staggered shifts, with peak staff numbers anticipated around midday.

The office use is anticipated to operate between 8:00 am and 6:30 pm on weekdays. Similar to the childcare centre, office staff will arrive and depart at varied times, with peak staffing levels also expected around midday.

A total of 24 on-site car parking spaces will be provided as part of the redevelopment. One of the existing vehicular accesses to Channel Highway will be retained, with the second access removed to improve site layout, and vehicle circulation.

Diagram 3.0A – Proposed site layout

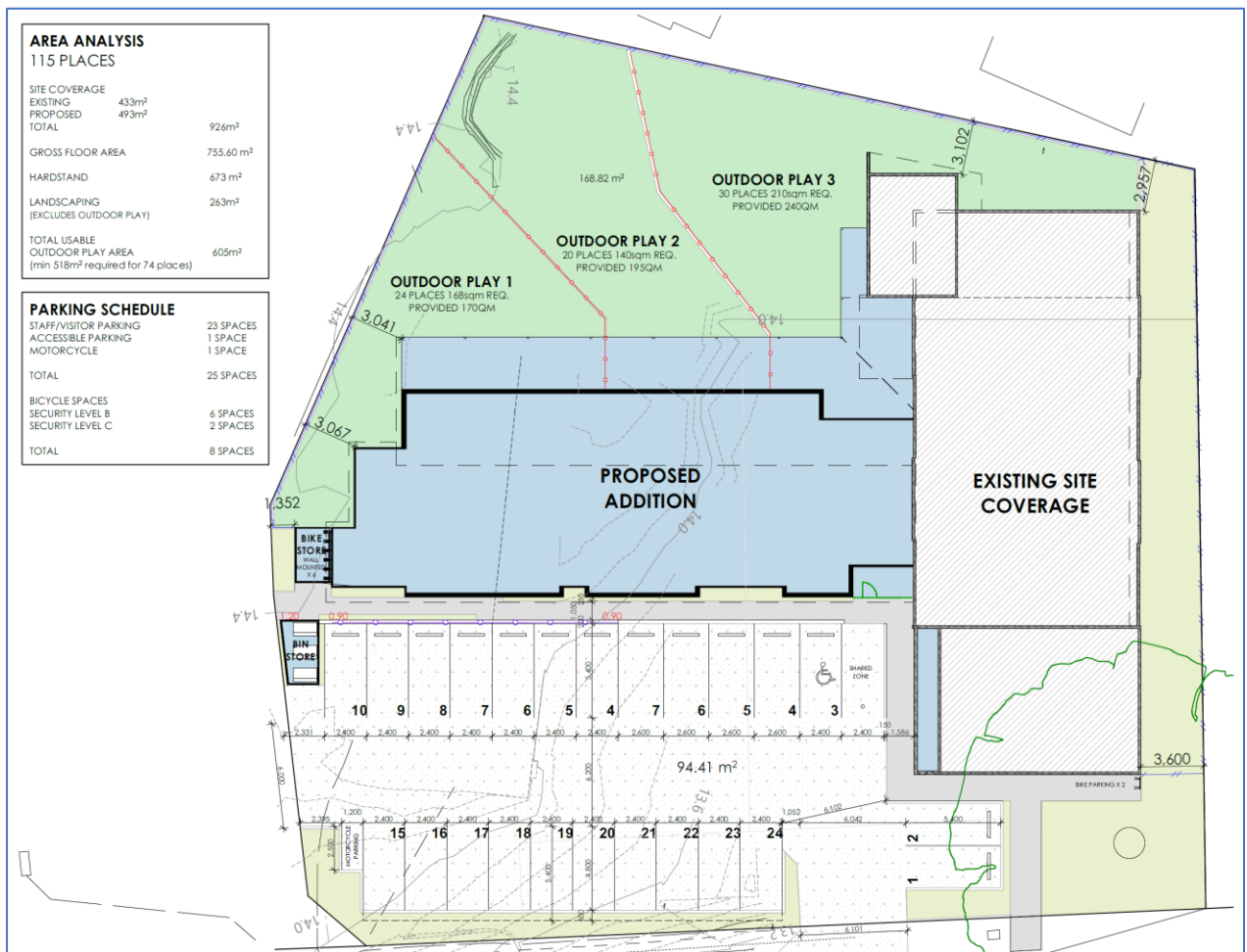


Diagram 3.0B – Proposed ground floor layout

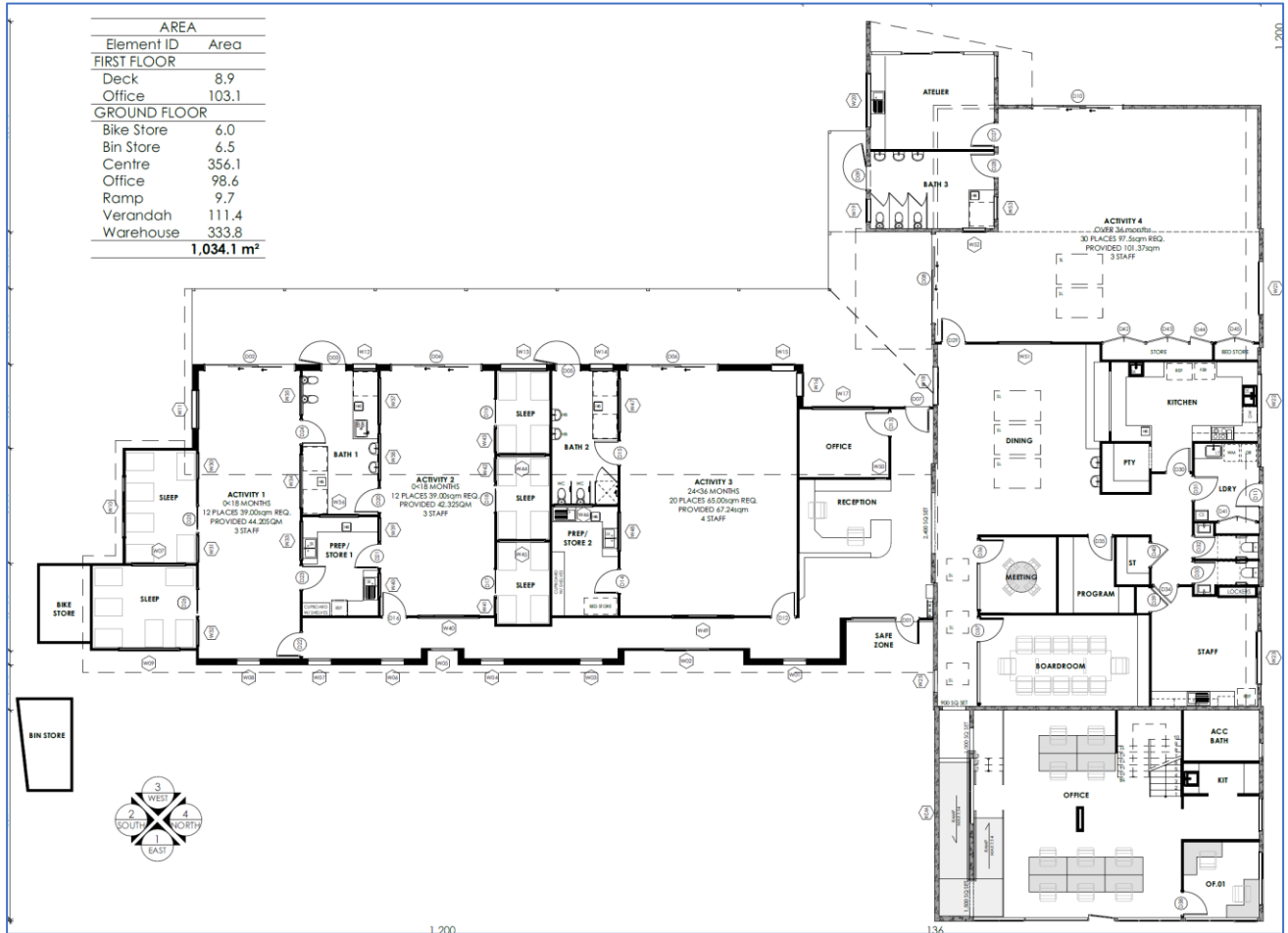
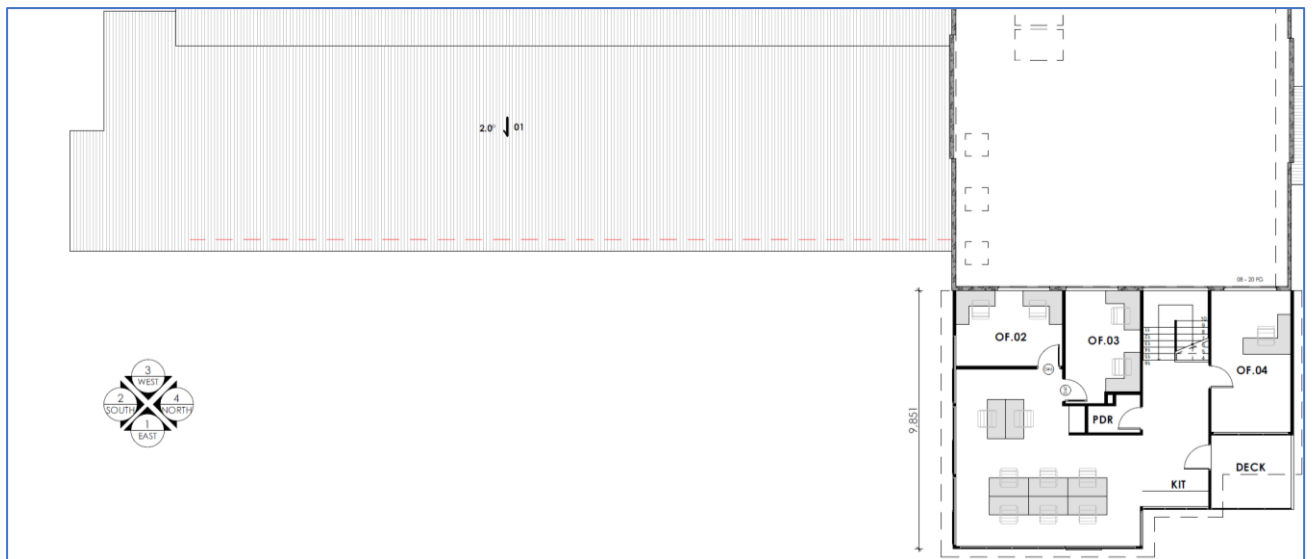


Diagram 3.0C – Proposed first floor layout



4. Trip generation by this redevelopment

A trip in this report is defined as a one-way vehicular movement from one point to another, excluding the return journey. Therefore, a return trip to and from a land use is counted as two trips.

4.1 Existing site trips

To quantify the number of trips currently generated during the peak commuter periods, manual traffic surveys were undertaken at the site's northern access onto Channel Highway. The surveys show that the site is a low trip generator during the commuter peak periods, with three vehicle movements recorded in the morning peak and eight movements in the evening peak. At the commencement of the morning survey, 11 vehicles were observed parked within the on-site car parking area, indicating that a greater proportion of site activity occurs outside the commuter peaks.

Based on the observed peak-period activity, it is estimated that the site generates approximately 44 daily vehicle trips. This estimate is derived by applying a factor of four to the combined peak-period trips, which provides a reasonable indication of daily activity for a low-intensity commercial use.

4.2 New trips from the redevelopment

Office use

In determining the number of trips likely to be generated by the office component of the redevelopment, reference has been made to the Transport for NSW – Guide to Transport Impact Assessment (Version 1.1, 2024), specifically Section 5.6.4 (Office Use). The Guide recommends the following trip generation rates for office or commercial redevelopment:

- 10 daily vehicle trips per 100 m² of gross floor area
- 2 peak-hour vehicle trips per 100 m² of gross floor area on weekdays

Based on the proposed office area of 184 m², the Guide indicates that this use has the potential to generate approximately 18 daily vehicle trips, with around four trips expected to occur during the weekday peak periods.

Childcare use

To assist in estimating the number of vehicle trips likely to be generated by the proposed childcare facility, reference has been made to manual traffic survey data collected during the morning and afternoon peak periods at an existing childcare centre accommodating 50 children. The surveys, together with on-site observations, identified the following:

- Children were dropped off and collected by parents using a private motor vehicle, with most trips involving a single child. For this assessment, it is assumed that each child generates four daily trips—two associated with drop-off and two associated with pick-up.
- The main arrival and collection activity occurred over a two and a half-hour period in both the morning and afternoon.
- Parent vehicles typically occupied a parking space for an average duration of eight minutes.
- During the arrival and collection periods, vehicle movements were steady. On average, parent vehicles occupied two parking spaces, with a maximum demand of four spaces observed.

Staff are expected to work in staggered shifts, arriving and departing at different times throughout the day. For assessment purposes, a worst-case scenario has been adopted, assuming that 50 percent of staff arrive and depart during the peak-hour periods.

Based on these assumptions, the proposed childcare facility is estimated to generate approximately 326 vehicle trips per day when operating at full (100 per cent) capacity. While the daily trip total provides useful context, the number of trips occurring during the peak periods are of greater relevance as this is when the surrounding road network experiences the highest demand.

It is estimated that the facility will generate approximately 68 vehicle trips during both the morning and afternoon peak hours. Parent drop-off and pick-up activity accounts for two vehicle movements per child during each peak period, comprising one inbound and one outbound trip.

This assessment represents a worst-case scenario, noting that childcare centres typically operate at around 80 percent occupancy due to child illness and other absences.

Table 4.2 – Predicted trip generation from childcare use by on observed data

Type of user	Number	Daily trips	Morning peak hour			Evening peak hour		
			Total	In	Out	Total	In	Out
Parent	74 children	296	60	30	30	60	30	30
Staff	15	30	8	8	0	8	0	8
Total		326	68	38	30	68	30	38

4.3 Trip summary

When the childcare centre and office use are operating at 100 percent capacity, this assessment estimates that the redevelopment could generate approximately 300 additional daily vehicle trips, with around 69 trips likely to occur during the morning peak hour and 64 trips during the evening peak hour. These estimates consider the trips associated with the existing use and represent a conservative worst-case scenario that will be adopted throughout this assessment.

Table 4.3 – Trip generation summary

Generator	Daily trips	Morning peak	Evening peak
Total existing	44	3	8
Office	18	4	4
Childcare	326	68	68
Total new	344	72	72
Difference	300	69	64

5. Existing traffic Conditions

5.1 Channel Highway

Channel Highway forms part of the State Road network and is classified as a Category 3 Regional Access Road. Roads in this category are of strategic importance to regional and local communities, carrying through-traffic and providing a key route for freight vehicles. The highway is the principal road servicing Margate, connecting motorists with Kingston to the north and Snug to the south. Within the surrounding road network, it functions as an arterial road, facilitating through movements while also supporting a limited amount of on-street parking for adjacent businesses.

Adjacent to the redevelopment site, the highway has been constructed to an urban standard, comprising a sealed bitumen surface, concrete kerb and channel, footpaths on both sides, and street lighting. The carriageway has an average width of approximately 12.4 metres, consisting of one 3 metre traffic lane in each direction and 3.2-metre parking lanes. On the redevelopment side, the parking lane terminates at the southern property access, with a No Standing zone extending northwards to the Sandfly Road junction. On the opposite side of the road, the parking lane ends opposite the northern boundary of the site. North of the redevelopment, the parking lanes have been removed to accommodate a marked right-turn lane serving a substantial unit development. There is no time limit on the available on-street parking spaces.

Delineation consists of a solid centreline and edge lines, with the road alignment past the site being generally straight and characterised by gentle vertical grades.

Photograph 5.1A – Channel Highway standard to the north



Photograph 5.1B – Channel Highway standard to the south



5.2 Speed Limit

The highway has a posted 50 km/h speed limit, encompassing the local business area and redevelopment site within Margate. The speed limit increases to 60 km/h approximately 80 metres north of the redevelopment site, in line with change in roadside density.

5.3 Traffic Activity

To understand the current traffic flow past the redevelopment site, manual traffic surveys were undertaken during the morning and evening commuter peak periods adjacent to the site's access onto Channel Highway. The surveys identified that the highway carries a consistent level of traffic, with slightly higher volumes observed during the evening peak. During both peak periods, traffic movements were notably directional, reflecting commuter travel to and from Kingston. The table below summarises the two-way traffic flow on the highway, with detailed turning-movement data for the site access provided in Appendix A.

During the evening peak, the Beach Road roundabout caused highway flow to be interrupted, resulting in a slow-moving queue extending north from the roundabout. At times, this queue extended past the redevelopment site. Motorists within the slow-moving queue created intermittent gaps improving opportunities for traffic turning from the properties.

Table 5.3 – Summary of traffic flows on the surrounding road network

Period	Northbound Towards Kingston	Southbound Towards Margate	Two-way total
Morning peak	938	539	1,477
Evening peak	625	928	1,553

5.4 Traffic safety near the redevelopment site

The Department of State Growth (State Growth) maintains a database of reported road crashes. A review of the most recent five completed years identified a total of eight reported crashes on Channel Highway in the vicinity of the development site. These comprised four rear-end collisions involving vehicles travelling in the same lane, two crashes involving vehicles failing to give way when exiting a driveway, one crash where a vehicle left the carriageway and struck an object or parked vehicle, and one crash associated with a parking or unparking manoeuvre from the on-street parking supply.

Of the eight recorded crashes, seven resulted in property damage only, with one crash requiring first-aid treatment. The frequency and nature of the crashes are considered proportionate to the high traffic volumes carried by Channel Highway, while the generally low severity is consistent with an urban environment where operating speeds are moderated by reduced speed limits.

The additional traffic generated by the proposed redevelopment is not expected to materially alter crash risk in the area, and the recorded crash history does not represent a constraint to the redevelopment proceeding.

6. Impact from traffic generated by this redevelopment

Section 4 of this report estimates that the redevelopment site could generate an additional 300 daily trips, with 69 trips likely to occur during the morning peak and 64 during the evening peak periods. Although childcare facilities typically operate at 80% capacity, this assessment will consider the higher trip generation to evaluate the worst-case impact on the surrounding road network.

6.1 Trip distribution

In assigning the new trips to the surrounding road network, consideration has been given to the distribution of traffic along Channel Highway and the location of the redevelopment site. The manual surveys indicate that traffic movements are strongly directional during the commuter peaks, reflecting travel to and from Kingston.

During the morning peak, 64 percent of traffic travels northbound towards Kingston, suggesting that a high proportion of vehicles generated by the redevelopment will turn left from the site and continue north. The opposite pattern is expected in the evening peak, with 60 percent of vehicles travelling southbound as commuters return from Kingston.

The following table presents the allocation of new trips generated by the redevelopment to the surrounding road network, and these distributions form the basis of the assessment that follows.

Table 6.1 – Distribution of generated trips

Period	Total trips	Redevelopment sites access onto the highway					
		Vehicles arriving			Vehicles leaving		
		Left	Right	Total	Left	Right	Total
Morning peak	69	25	14	39	29	11	30
Evening peak	64	12	18	30	14	20	34

The redevelopment to provide new childcare and office spaces will enhance local community facilities, with many users expected to originate from the surrounding catchment. A significant proportion of vehicle movements generated by the redevelopment are expected to be passing trips, where motorists are already travelling along Channel Highway and simply divert into the site before continuing their journey.

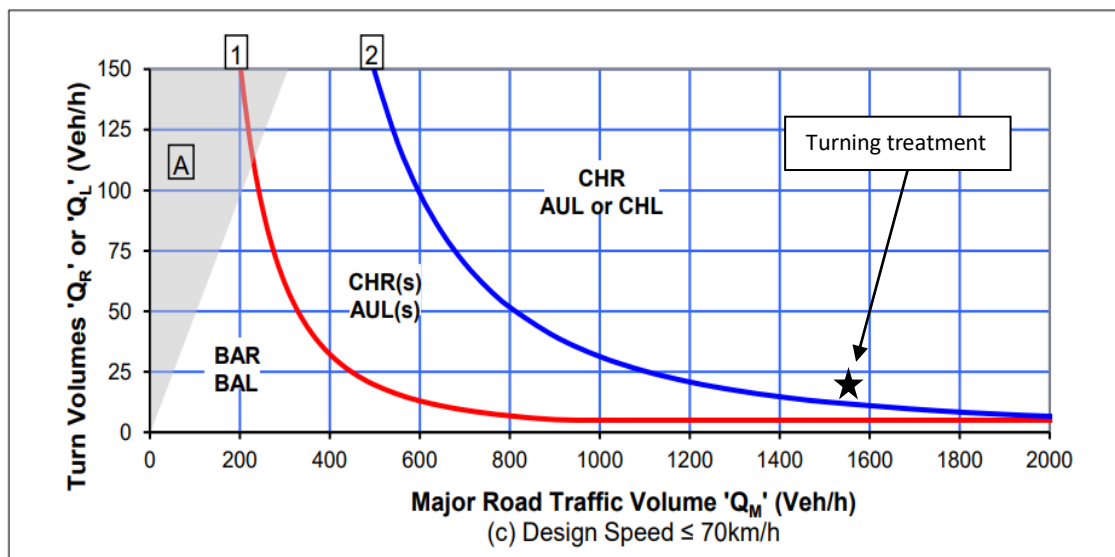
Based on an assumption that 70 percent of peak-period movements are passing trips, only 30 percent of the peak-hour traffic associated with the redevelopment represents new vehicle trips on the surrounding road network. This equates to 20 additional peak-hour trips on the highway, representing an increase of approximately 1.5 percent in highway traffic volumes. This level of change is well within the tolerance of the existing highway flows and is not expected to result in any adverse operational impacts.

6.2 Need for turning treatments

As the additional trips generated from this redevelopment will create additional turning movements on the highway, it is necessary to analyse the impact and determine whether dedicated turning treatments are required. Guidance on turning treatments is taken from Austroads Guide to Traffic Management Part 6: Intersection, Interchanges and Crossing Movements.

Traffic data indicates that the highway generates the highest flows during the evening peak, with 1,553 two-way movements. During this period, the redevelopment site is estimated to generate 30 vehicles turning into the site, with 18 vehicles predicted to turn right and 12 vehicles turning left. Using the Austroads warrant for turning traffic in Extract 6.2, indicates that a Channelised Right-Turn treatment is required to support the redevelopment site.

Extract 6.2 – Austroads warrant for turning treatments



6.3 Infrastructure improvements on the highway

The redevelopment will provide a channelised right-turn (CHR) treatment on Channel Highway to create a sheltered area for vehicles turning right into the site, thereby ensuring that through-traffic is not impeded. There is sufficient carriageway width to reconfigure the existing layout and establish a marked right-turn lane using line-marking, which will require the removal of some on-street parking. A possible layout for this treatment is included in Appendix D, with a detailed design to be prepared as part of the building approval process.

Based on the existing right-turn lane provided for the nearby unit development, northbound vehicles could be diverted into the parking lane connecting with the alignment past the unit development. This arrangement minimises impacts on traffic flow, noting parking is removed outside of the redevelopment site and the adjacent vacant property where the new junction would be positioned.

6.4 Consultation with State Growth

The redevelopment of the site has been discussed with State Growth as the manager of the highway. State Growth indicated no objection to the proposed change of use, provided that sufficient on-site parking is delivered and that a marked right-turn facility is incorporated to maintain transport efficiency on the highway.

State Growth also advised that there is potential for a new road and highway junction to be constructed on the property immediately south of the redevelopment site. As the proposal will utilise only the northern access crossover to Channel Highway, there is expected to be adequate separation between the two junctions to allow both to operate safely, each with its own marked right-turn lane.

In response to this advice, the redevelopment layout has been designed to accommodate the potential for a future access connection to the new road. This would provide an additional circulation option for the site and may enhance internal traffic movements over the longer term.

6.5 Traffic performance at junctions, intersections and roundabouts

The traffic performance of junctions, intersections, and roundabouts can be estimated using the SIDRA software package. The performance of intersections is commonly described by the Degree of Saturation (DoS) of the critical traffic movements, a measure of the volume/capacity ratio or degree, to which the available intersection capacity is utilised.

Other terms used, Level of service (LOS) which is based on the average stopped delay in seconds, and maximum queue length in metres. The table below provides a reference to the level of service for the various traffic controls. It is acceptable for arterial roads to operate at LOS D during peak-hour periods, as infrastructure upgrades are typically uneconomic when congestion occurs only during short, intense commuter peaks.

Table 6.5 – Austroads Guide for level of service at junctions, intersections, and roundabouts

Level of Service	Average delay per vehicle (secs/vehicle)	Traffic Signals and Roundabouts	Give Way and Stop controls
A	<10	Good operation	Good operation
B	10 to <15	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	15 to <25	Satisfactory	Satisfactory, but crash study required
D	25 to <35	Operating near capacity, acceptable for State Roads	Near capacity and crash study required
E	35 to <50	At capacity for signals, will cause excessive delays. Roundabouts require other control mode	At capacity, requires other control modes
F	>50	Saturated flows – at signals, consider additional lanes	

6.6 Traffic efficiency during the morning peak period

A traffic model was developed in SIDRA to replicate the existing operation of the redevelopment's access onto Channel Highway and to quantify the change in performance when the site operates with the proposed channelised right-turn lane. The assessment is based on current morning peak-hour highway flows.

The modelling indicates that during the morning peak hour the access currently operates with a DoS of 0.481, meaning it is functioning around 48 percent of its theoretical capacity. Overall, the access provides motorists with a high level of traffic efficiency, with all turning movements into the site operating at LOS A, and all movements exiting the site operating at LOS B.

The right-turn-out movement is the most challenging manoeuvre, as motorists rely on suitable gaps in both traffic streams. The model shows this movement operating with an average delay of 12 seconds, with no queuing, reflecting the low volume of vehicles currently exiting the site. Left-turn-out and right-turn-in movements also operate with favourable performance.

When the additional trips generated by the redevelopment are assigned to the access, the modelling predicts that the access will continue to operate with an acceptable level of traffic efficiency. Right-turn-out vehicles are expected to experience an increase in delay of just over 10 seconds, while the average queue length remains below one vehicle.

Overall, despite the consistent traffic flow along the highway during the morning peak, there are sufficient gaps in both directions to enable vehicles to enter and exit the site efficiently. The modelling results confirm that the access will continue to operate satisfactorily with the proposed redevelopment and right-turn treatment.

Table 6.6 – Summary of traffic modelling during the morning peak

Activity	Total vehicles	Degree of Saturation	Turn Movement	Average Delay	Queue Length	LOS
Existing flows	1,479	0.481	Right out	12.0 secs	0.1m	B
			Left out	10.1 secs	0.1m	B
			Right in	6.2 secs	0.2m	A
			Left in	4.8 secs	0.0m	A
With redevelopment operating	1,553	0.493	Right out	22.3 secs	2.5m	C
			Left out	10.6 secs	2.5m	B
			Right in	10.7 secs	0.7m	B
			Left in	4.8 secs	0.0m	A

Traffic modelling results are available in Appendix B.

6.7 Traffic efficiency during the evening peak period

Modelling indicates that during the evening peak hour, the current developments access is operating with a similar DOS of 0.477, despite the slightly higher traffic flows observed during this period. Except for motorists turning right-out, all other turning manoeuvres are operating at a high level of traffic efficiency, LOS A.

The right-turn-out manoeuvre is assessed as operating at LOS B, with an average delay of 12.9 seconds and an average queue length of less than one vehicle. Both the left-turn-out and right-turn-in manoeuvres experience average delays of less than 10 seconds.

When the additional trips generated by the redevelopment are assigned to the access, traffic modelling predicts the access will continue to provide motorists with an acceptable level of traffic efficiency. Although, motorists turning right-out incur a slightly longer delay time, the slow moving queue created by the Beach Road roundabout generates gaps, improving the ability for vehicles to enter the southbound traffic stream easier.

Vehicles turning left out and right in are predicted to continue to operate at LOS A. The predicted queue length for vehicles turning right in is expected to be less than one vehicle, well within the lane capacity of the proposed right turn lane. As a result, southbound through traffic on Channel Highway are unlikely to be impacted.

Overall, while the highway is consistently trafficked, modelling indicates that the access will operate at an appropriate level of traffic performance for an access onto a busy State Road.

Table 6.6 – Summary of traffic modelling during the evening peak

Peak	Total vehicles	Degree of Saturation	Turn Movement	Average Delay	Queue Length	LOS
Existing flows	1,555	0.477	Right out	12.9 secs	0.2m	B
			Left out	7.1 secs	0.2m	A
			Right in	5.1 secs	0.3m	A
			Left in	4.7 secs	0.0m	A
With redevelopment operating	1,610	0.475	Right out	24.1 secs	2.8m	C
			Left out	7.2 secs	2.8m	A
			Right in	7.2 secs	0.5m	A
			Left in	4.7 secs	0.0m	A

Traffic modelling results are available in Appendix B.

6.8 Impact with incremental traffic along the highway

This assessment has considered the traffic impacts of the proposed redevelopment in conjunction with background traffic growth along the Channel Highway corridor, based on an assumed annual growth rate of 1 per cent over a ten-year period. Traffic modelling indicates that access performance in the 2036 design year will remain acceptable and manageable.

While vehicles turning right are predicted to continue to experience the greatest delays, all other movements are expected to operate at LOS A or B. The predicted queue length within the highway right-turn lane is expected to remain minimal, with through-traffic efficiency unlikely to be affected.

Overall, the site access is forecast to continue operating satisfactorily under future-year traffic conditions. Table 6.8 below summarises the access performance under 2036 traffic conditions.

Table 6.8 – Summary of access performance for 1% incremental growth for ten years

Peak	Total vehicles	Degree of Saturation	Turn Movement	Average Delay	Queue Length	LOS
Morning peak	1,701	0.544	Right out	29.4 secs	3.2m	D
			Left out	12.4 secs	3.2m	B
			Right in	12.6 secs	0.8m	B
			Left in	4.8 Secs	0m	A
Evening peak	1,772	0.525	Right out	32.7 secs	3.7m	D
			Left out	8 secs	3.7m	A
			Right in	7.7 secs	0.6m	A
			Left in	4.7 secs	0m	A

6.9 Summary of traffic impact

When assessed against the Austroads Guide, the predicted SIDRA modelling results for the redevelopment scenario remain within acceptable operational performance thresholds, with no adverse impact on traffic flow along Channel Highway. While the redevelopment will result in an increase in vehicle movements at the existing access, the modelling confirms that the surrounding road network will continue to operate efficiently, and no material traffic impacts are anticipated.

The minor increase in highway traffic associated with the proposal is therefore unlikely to materially affect overall traffic performance.

7. Redevelopment layout and internal road arrangements

7.1 Existing northern vehicular access

The redevelopment will operate with the northern most vehicular access, which is 9.2 metres wide and suitable to accommodate two-way traffic flow. The southern access will be removed, with concrete kerb and channel reinstated.

Photograph 7.1 – Existing northern vehicular access



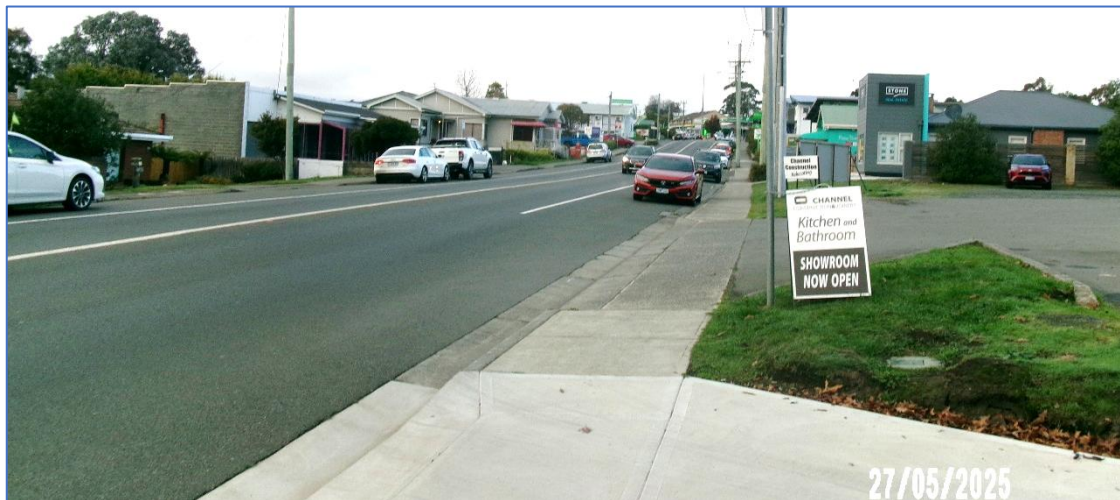
7.2 Sight distance leaving the redevelopment site

At the redevelopment site, Channel Highway is subject to a posted speed limit of 50 km/h. In accordance with Table E5.1 of the planning scheme, a Safe Intersection Sight Distance (SISD) of 80 metres is required.

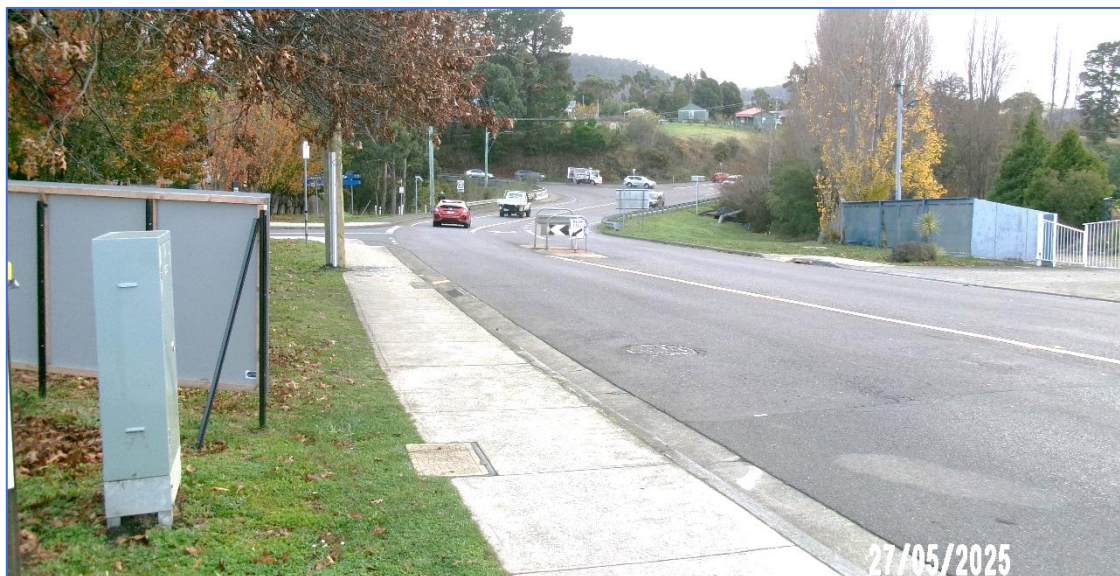
On-site measurements of the available sight distance were taken based on the driver leaving the access being 1.1 metres above the access surface, and an approaching vehicle being 1.2 metres high. The available sight distance in both directions exceeds 90 metres.

With the available sight distance exceeding the SISD, vehicles will be able to enter and leave the highway in a safe and efficient manner, without impacting other road users.

Photograph 7.2A – Available sight distance to the right



Photograph 7.2B – Available sight distance to the left



7.3 Pedestrian sight distance

It is important that drivers exiting the site have adequate sightlines to pedestrians using the existing footpath along Channel Highway. Adequate visibility between exiting vehicles and pedestrians will be achieved by ensuring that no physical obstructions are located on either side of the driveway.

The redevelopment will maintain a clear pedestrian sight triangle, as illustrated in Photograph 7.3 below, to ensure that drivers have unobstructed sightlines to pedestrians when leaving the site.

Photograph 7.3 – Pedestrian sight distance



7.4 Number of parking spaces

Planning Scheme Table E6.1 prescribes the minimum number of on-site car parking spaces required according to the type of land use. The proposed redevelopment comprises two land uses, for which the following parking rates apply:

- Business and Professional Services (Office): one space per 30 m² of floor area
- Education and Occasional Care (Childcare Centre): 0.25 spaces per for each child the centre is licensed to accommodate

Based on the licensed capacity of the childcare centre and the gross floor area of the office component, the redevelopment is required to provide a total of 24 on-site car parking spaces.

The redevelopment proposes to provide 24 on-site car parking spaces, thereby complying with the Acceptable Solution under the Planning Scheme and minimising the potential for overflow parking on surrounding streets.

Table 7.4 – Number of on-site car parking spaces

Activity	Use	Planning scheme requirements	Floor area / children	Number of parking spaces
Office	Office	One space per 30m ² of floor area	184m ²	6
Childcare centre	Education and occasional care	0.25 spaces for each child the centre is licensed to accommodate	74	18
Total				24

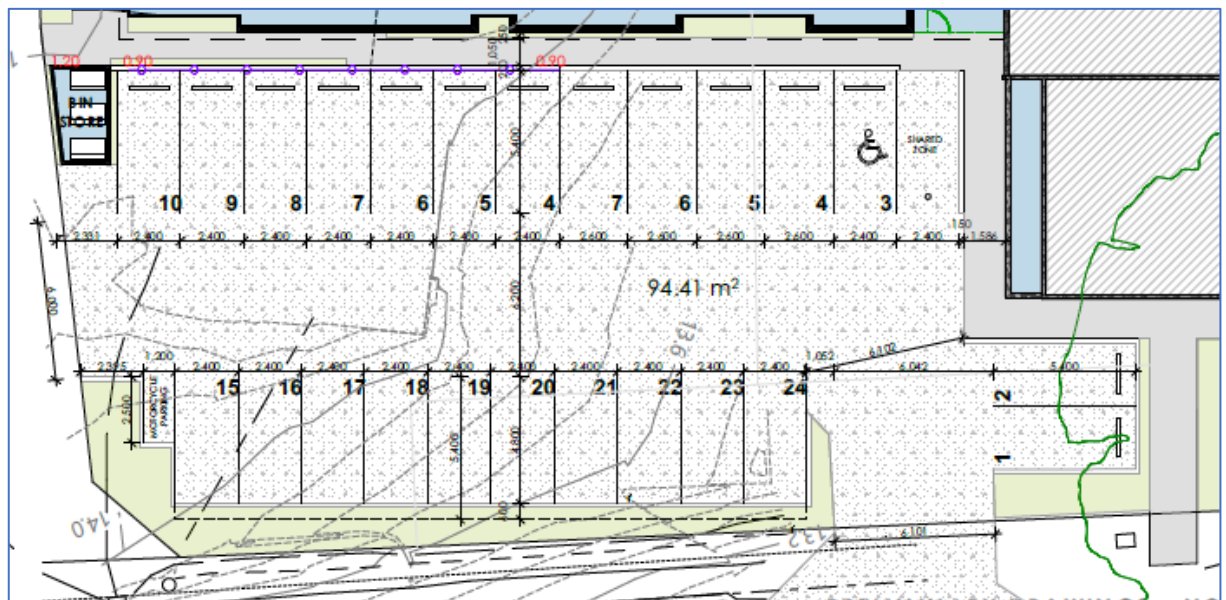
7.5 Layout and dimensions of on-site car parking spaces

Of the 24 car parking spaces, 19 will be designed under the Australian Standards 2890.1:2004 (the Standard) as user class 1A, suitable for long-term employee parking. These spaces will be 2.4 metres wide, 5.4 metres long, and supported with a minimum manoeuvring area of 5.8 metres.

Ten employee parking spaces located along the Channel Highway frontage will be configured at 90 degrees and will incorporate a 600 mm vehicle overhang beyond the kerb. The kerb height is less than 150 mm and will effectively function as a wheel stop. The 600 mm overhang area in front of these spaces will not be landscaped in order to accommodate the vehicle overhang. As a result, the effective parking space length will be 4.8 metres, which is permissible under the relevant Standard.

Four spaces will be designed as user class 3A, suitable for short-term high turnover and designated as visitor spaces for parent pick-up and drop-off. These spaces will be 2.6 metres wide, 5.4 metres long, and supported with a minimum 5.8 metre wide manoeuvring area.

Diagram 7.5 – Parking layout



7.6 Gradient of parking spaces

With the property having gentle vertical grades, the grades of the parking spaces will comply with Section 2.4.6 of the Standard and shall not exceed five percent.

7.7 Car parking manoeuvrability

The car park design provides sufficient manoeuvring area behind all on-site parking spaces to allow vehicles to enter and leave efficiently, complying with the Standard for both user class 1A and 3.

Vehicle swept path software has been used to demonstrate the swept path of a B85 vehicle entering and leaving a selection of the parking spaces. The swept-path diagrams are provided in Appendix C.,

7.8 Other parking requirements

Motorcycle parking spaces

Based on the redevelopment providing 24 on-site car parking spaces, one dedicated motorcycle parking space is required. One motorcycle parking space will be provided, complying with the acceptable solution of the planning scheme.

Bicycle parking spaces

Planning scheme table E6.2 prescribes the number and class of bicycle parking spaces required, based on the type of land use, with each use requiring the following:

- Office – One for each 250 square metres of floor area (employees) and one for each 1000 square metres of floor area (customers), and
- Childcare centre – One space for each 20 employees and one space for each 20 children.

Based on the floor area for the office use and number of employees and children for the childcare centre, the redevelopment site is required to provide one bicycle space for employees and four spaces for customers and visitors. A total of eight bicycle parking spaces will be provided, complying with the acceptable solution of the planning scheme.

Accessible parking spaces

One accessible parking space with a shared zone will be provided and situated as close as possible to the building entrance.

7.9 Internal driveway layout

The design incorporates a primary internal driveway extending from Channel Highway, which terminates as a blind aisle. The driveway extends beyond the final parking spaces to facilitate effective vehicle manoeuvrability.

Having regard to the potential future construction of a road to the south of the site, the blind aisle could be extended to form a secondary access, thereby enhancing internal circulation and connectivity.

The internal driveway will be constructed with a concrete pavement and designed with an appropriate camber to direct surface water toward kerbing, which will discharge to an approved stormwater drainage system. The driveway will have a minimum width of six metres, increasing to 6.2 metres adjacent to parking spaces, and is suitable to accommodate two-way vehicle movements.

7.10 Internal gradients

While detailed civil engineering plans have not been provided at this stage, the site is characterised by gentle vertical grades. On this basis, the vertical gradients of the internal driveway are not expected to result in any adverse impacts on vehicles entering, circulating within, or exiting the site.

7.11 Pedestrian access

Suitable internal pedestrian pathways will be provided along the side of the building and will connect to the Channel Highway footpath. This will provide safe and convenient pedestrian connectivity between the on-site parking spaces, the building entrance and the public footpath network.

The accessible parking space is located as close as practicable to the main entrance and will operate with a shared zone designed to provide compliant and suitable access.

All internal pedestrian pathways will be a minimum of one metre wide and separated from parking spaces and the internal driveway by bollards, wheel stops or kerbing.

7.12 Waste collection vehicles

Due to site constraints and the need to maximise the provision of on-site car parking, it is not possible for a standard waste-collection vehicle to enter and exit the site during operational hours. Accordingly, the client will engage a private waste-collection contractor to service the site outside of operational hours.

Vehicle swept-path analysis has been used to demonstrate that the site layout accommodates a medium rigid vehicle measuring 8.8 metres in length. The analysis confirms that such a vehicle can enter the site, manoeuvre within the internal parking area, and exit in a forward direction. This demonstrates that waste-collection vehicles can service the site safely and efficiently without the need for reversing movements.

The redevelopment includes a dedicated, enclosed waste-bin storage area located adjacent to the on-site parking spaces. This arrangement may be subject to change should the proposed new road to the south of the site proceed, as this would enable a standard waste-collection vehicle to enter the site, service the waste storage area, and exit in a forward direction via two access points.

Diagram 7.12 – Swept path of a medium rigid vehicle entering and leaving the site



8. Planning scheme

8.1 E5.0 Road and Railway Assets Code

E5.5.1 Existing road accesses and junctions

As the redevelopment will increase the use of the existing access onto the highway by more than 20 percent, it is required to be assessed against the performance criteria P3, to ensure that the access can operate safely and efficiently.

Performance criteria	Assessment
Any increase in vehicle traffic at an existing access or junction in an area subject to a speed limit of 60 km/h or less, must be safe and not unreasonably impact on the efficiency of the road, having regard to:	
a) The increase in traffic caused by the use;	When operating at full capacity, the redevelopment site is estimated to generate 300 daily trips, with 69 trips expected during the morning peak and 64 trips during the evening peak periods.
b) The nature of the traffic generated by the use;	The redevelopment is likely to generate light vehicle movements associated with urban living. These vehicles measure less than 5.5 metres in length, have good manoeuvrability and are compatible with the traffic operating on the surrounding road network.
c) The nature and efficiency of the access or the junction;	The redevelopment will retain the northern access, which is of sufficient width to accommodate two-way traffic flow, while the southern access will be removed. Detailed SIDRA modelling indicates that the existing access currently provides motorists with an acceptable level of traffic efficiency, with all movements operating at LOS A or B. With the redevelopment in place, the access is predicted to continue operating satisfactorily, with all manoeuvres remaining at LOS A, except for the right-turn-out movement, which is expected to operate at LOS C. The redevelopment will also provide a marked right-turn lane within the highway carriageway, improving turning opportunities and maximising traffic efficiency along the highway.
d) The nature and category of the road;	Channel highway is part of the State Road network and is classified as a Category 3 Regional Access Road, which is of strategic importance to regional and local communities to carry through traffic and provide a network for freight vehicles.
e) The speed limit and traffic flow of the road;	The highway has a posted speed limit of 50 km/h. A recent manual survey recorded a consistent traffic flow, with 1,477 two-way vehicles during the morning peak and 1,553 two-way vehicles during the evening peak period. As the majority of redevelopment-related movements are expected to be passing trips, the increase in new highway trips is relatively low—approximately 1.5 percent. This level of change will not create any material difference to highway performance and remains well within the capacity tolerance of the road.

f) Any alternative access to a road;	None.
g) The need for the use;	The redevelopment will provide the local area with more childcare spaces, benefiting the local community.
h) Any traffic impact assessment; and	A traffic impact assessment found no reason for this redevelopment not to proceed.
i) Any written advice received from the road authority	Aware of none.

E5.6.2 Road accesses and junctions

The redevelopment will operate with the existing vehicular access onto the highway, which is of sufficient width to accommodate two-way traffic flow, complying with the acceptable solution A2.

E5.6.4 Sight distances at accesses, junctions, and level crossings

The available sight distance at the existing vehicular access onto the highway exceeds the planning scheme requirement for a 50 km/h speed environment. This means vehicles will be able to enter and leave in a safe and efficient manner, complying with the acceptable solution A1.

8.2 E6.0 Parking and Access Code

E6.6.1 Number of parking spaces

Twenty four on-site car parking spaces will be provided, meeting the requirements under planning scheme Table E6.1 and complying with the acceptable solution.

E6.6.2 Number of accessible parking spaces

One accessible parking space, supported with a shared zone, will be provided as close to the front entrance as possible, complying with the acceptable solution A1.

E6.6.3 Number of motorcycle parking spaces

One dedicated motorcycle parking space will be provided, complying with the acceptable solution A1.

E6.6.4 Number of bicycle parking spaces

A total of eight bicycle parking spaces will be provided, exceeding the required five spaces under planning scheme Table E6.2 and complying with the acceptable solution.

E6.7. Development standards

Development standards	Comment
6.7.1 Number of Vehicular Accesses;	The southern access will be removed, and northern access onto the highway retained, complying with the acceptable solution.
6.7.2 Design of Vehicular Access;	The existing northern access measures 9.2 metres wide and is suitable to accommodate two-way traffic flow, complying with the acceptable solution.
6.7.3 Vehicular Passing Areas Along an Access;	The access, driveway and parking aisles will be of sufficient width to allow for two-way internal traffic movements, complying with the acceptable solution.
6.7.4 On-site Turning;	The design allows all vehicles to enter, circulate and leave the site in a forward-driving direction.
6.7.5 Layout of Parking Areas;	The layout of all on-site parking spaces has been designed to comply with AS2890.1:2004, ensuring that vehicles can enter and leave in a safe and efficient manner, in accordance with the acceptable solution.
6.7.6 Surface Treatment of Parking Areas;	The internal driveway and parking areas will be constructed with a concrete surface, incorporating appropriate cambers to direct surface water toward kerbing and into an approved stormwater drainage system.
6.7.7 Lighting of Parking Areas;	Sufficient lighting will be provided by the redevelopment.

Development standards	Comment
6.7.8 Landscaping of Parking Areas;	Suitable landscaping will be provided by the redevelopment.
6.7.9 Design of Motorcycle Parking Areas;	One dedicated motorcycle parking space will be provided and designed to comply with section 2.4.7 Provision for Motorcycles of the Standard AS/NZS 2890.1:2004 Parking Facilities Part 1: Off-street car parking.
6.7.10 Design of Bicycle Parking Facilities;	A secure bicycle storage facility will be provided to accommodate six bicycles, and two wheel frames provided within close proximity to the entrance.
6.7.11 Bicycle End of Trip Facilities;	Not applicable for a development requiring five bicycle parking spaces.
6.7.12 Siting of Car Parking;	Not applicable for this type of development.
6.7.13 Facilities for Commercial Vehicles;	Not applicable
6.7.14 Access to a Road;	The site will have direct access onto the highway.

9. Conclusion

From a traffic engineering and road safety perspective, additional traffic generated from this redevelopment site is not expected to create any adverse safety, amenity, or traffic efficiency problems, as:

- the amount of traffic generated by the redevelopment is considered to be moderate and there is sufficient capacity within the surrounding road network to absorb these movements without impacting other users,
- the site will retain the northern vehicular access onto the highway, which is suitable to accommodate two-way traffic flow,
- there is sufficient available sight distance at the access, enabling vehicles to enter and leave the redevelopment site safely and efficiently,
- the southern access will be removed, with concrete kerb and channel reinstated,
- there will be a sufficient number of on-site car parking spaces to meet the reasonable demand, minimising parking overflow,
- all parking spaces have been designed to comply with the Standard, ensuring that all vehicles can enter and leave the spaces in an efficient manner, and
- a private waste collection service will be engaged that will operate outside of operating hours, enabling service vehicles to enter and exit the site in a forward direction.

This Traffic Impact Assessment found no reason for this redevelopment not to proceed.

10. Appendix A – Traffic surveys

10.1 Redevelopment sites access onto Channel Highway

Table 10.1A – Morning survey completed on Tuesday 27th of May 2025

Time	Channel Highway				Redevelopment site	
	Straight towards Kingston	Straight towards Margate	Left into redevelopment site	Right into redevelopment site	Left onto Channel Highway	Right onto Channel Highway
7:30 - 7:45	214	93	1	1	2	0
7:45 - 8:00	250	107	0	1	0	0
8:00 - 8:15	251	95	0	0	0	0
8:15 - 8:30	245	118	0	0	1	0
8:30 - 8:45	221	166	0	0	1	0
8:45 - 9:00	219	159	0	1	0	0
Total	1,400	738	1	3	4	0
Peak total	936	538	0	1	2	0

* 11 vehicles were already parked within Channel Construction's carpark before the start of the survey

Table 10.1B – Evening survey completed on Tuesday 27th of May 2025

Time	Channel Highway				Redevelopment site	
	Straight towards Kingston	Straight towards Margate	Left into redevelopment site	Right into redevelopment site	Left onto Channel Highway	Right onto Channel Highway
4:00 - 4:15	179	211	0	0	0	0
4:15 - 4:30	163	235	1	2	4	0
4:30 - 4:45	148	233	0	0	1	0
4:45 - 5:00	130	247	0	0	0	0
5:00 - 5:15	139	229	0	0	1	0
5:15 - 5:30	128	215	0	0	0	0
Total	887	1,370	1	2	6	0
Peak total	620	926	1	2	5	0

* 7 vehicles were already parked within Channel Construction's carpark before the start of the survey

10.2 Turning movements

Diagram 10.2A – Morning peak hour traffic movements

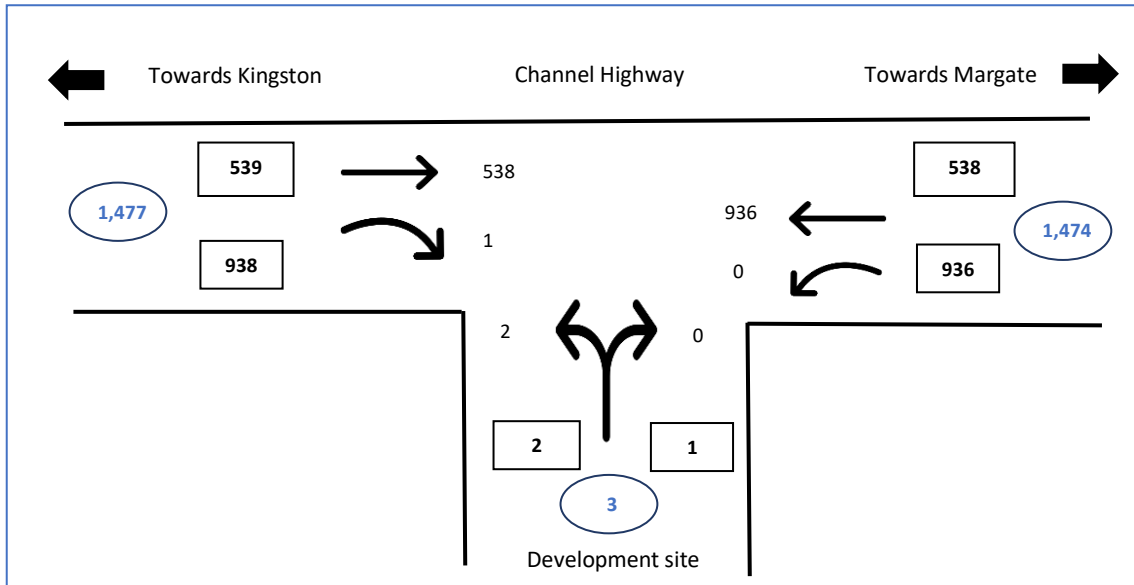
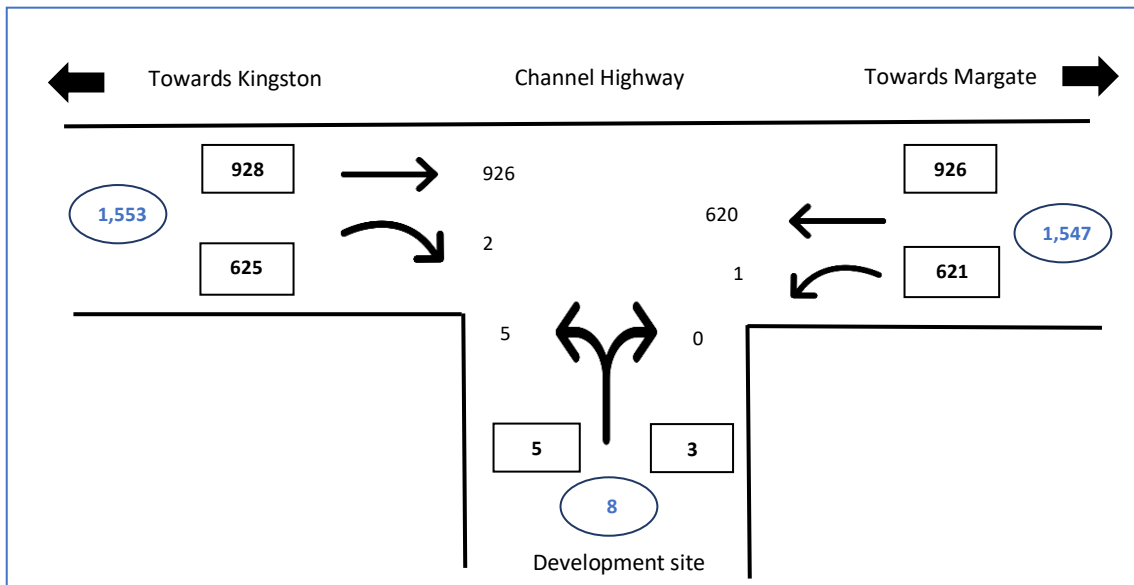


Diagram 10.2B – Evening peak hour traffic movements



11. Appendix B – Traffic modelling

Morning peak – Existing flows

MOVEMENT SUMMARY											
▽ Site: [CCHam] Chilcare access onto Channel Highway - Morning (Channel Highway Margate AM) Output produced by SIDRA INTERSECTION Version: 10.0.8.241											
New Site Site Category: (None) Give-Way (Two-Way) Site Scenario: 1 Local Volumes											
Vehicle Movement Performance											
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue	
			[Total	HV]	[Total	HV]				[Veh.	Dist]
			veh/h	%	veh/h	%	v/c	sec		veh	m
North: Channel Highway											
8	T1	All MCs	538	0.0	538	0.0	0.278	0.0	LOS A	0.0	0.2
9	R2	All MCs	1	0.0	1	0.0	0.278	6.2	LOS A	0.0	0.2
Approach			539	0.0	539	0.0	0.278	0.0	NA	0.0	0.2
South: Channel Highway											
1	L2	All MCs	1	0.0	1	0.0	0.481	4.8	LOS A	0.0	0.0
2	T1	All MCs	936	0.0	936	0.0	0.481	0.2	LOS A	0.0	0.0
Approach			937	0.0	937	0.0	0.481	0.2	NA	0.0	0.0
West: Development site access											
10	L2	All MCs	2	0.0	2	0.0	0.007	10.1	LOS B	0.0	0.1
12	R2	All MCs	1	0.0	1	0.0	0.007	12.0	LOS B	0.0	0.1
Approach			3	0.0	3	0.0	0.007	10.8	LOS B	0.0	0.1
All Vehicles			1479	0.0	1479	0.0	0.481	0.2	NA	0.0	0.2

Evening peak – Existing flows

MOVEMENT SUMMARY											
▽ Site: [CCHpm] Chilcare access onto Channel Highway - Evening (Channel Highway Margate PM) Output produced by SIDRA INTERSECTION Version: 10.0.8.241											
New Site Site Category: (None) Give-Way (Two-Way) Site Scenario: 1 Local Volumes											
Vehicle Movement Performance											
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue	
			[Total	HV]	[Total	HV]				[Veh.	Dist]
			veh/h	%	veh/h	%	v/c	sec		veh	m
North: Channel Highway											
8	T1	All MCs	926	0.0	926	0.0	0.477	0.0	LOS A	0.0	0.3
9	R2	All MCs	2	0.0	2	0.0	0.477	5.1	LOS A	0.0	0.3
Approach			928	0.0	928	0.0	0.477	0.0	NA	0.0	0.3
South: Channel Highway											
1	L2	All MCs	1	0.0	1	0.0	0.318	4.7	LOS A	0.0	0.0
2	T1	All MCs	620	0.0	620	0.0	0.318	0.1	LOS A	0.0	0.0
Approach			621	0.0	621	0.0	0.318	0.1	NA	0.0	0.0
West: Development site access											
10	L2	All MCs	5	0.0	5	0.0	0.009	7.1	LOS A	0.0	0.2
12	R2	All MCs	1	0.0	1	0.0	0.009	12.9	LOS B	0.0	0.2
Approach			6	0.0	6	0.0	0.009	8.0	LOS A	0.0	0.2
All Vehicles			1555	0.0	1555	0.0	0.477	0.1	NA	0.0	0.3

Morning peak – Existing flows with redevelopment operating

MOVEMENT SUMMARY
 ▽ Site: [CCHam (2)] Chilcare access onto Channel Highway - Morning - With development (Channel Highway Margate AM)
 Output produced by SIDRA INTERSECTION Version: 10.0.8.241

New Site
 Site Category: (None)
 Give-Way (Two-Way)
 Site Scenario: 1 | Local Volumes

Vehicle Movement Performance											
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue	
			[Total	HV]	[Total	HV]				[Veh.	Dist]
			veh/h	%	veh/h	%	v/c	sec		veh	m
North: Channel Highway											
8	T1	All MCs	538	0.0	538	0.0	0.276	0.1	LOS A	0.0	0.0
9	R2	All MCs	14	0.0	14	0.0	0.027	10.7	LOS B	0.1	0.7
Approach			552	0.0	552	0.0	0.276	0.4	NA	0.1	0.7
South: Channel Highway											
1	L2	All MCs	25	0.0	25	0.0	0.493	4.8	LOS A	0.0	0.0
2	T1	All MCs	936	0.0	936	0.0	0.493	0.2	LOS A	0.0	0.0
Approach			961	0.0	961	0.0	0.493	0.4	NA	0.0	0.0
West: Development site access											
10	L2	All MCs	29	0.0	29	0.0	0.112	10.6	LOS B	0.4	2.5
12	R2	All MCs	11	0.0	11	0.0	0.112	22.3	LOS C	0.4	2.5
Approach			40	0.0	40	0.0	0.112	13.8	LOS B	0.4	2.5
All Vehicles			1553	0.0	1553	0.0	0.493	0.7	NA	0.4	2.5

Evening peak – Existing flows with redevelopment operating

MOVEMENT SUMMARY
 ▽ Site: [CCHpm (2)] Chilcare access onto Channel Highway - Evening - With development (Channel Highway Margate PM)
 Output produced by SIDRA INTERSECTION Version: 10.0.8.241

New Site
 Site Category: (None)
 Give-Way (Two-Way)
 Site Scenario: 1 | Local Volumes

Vehicle Movement Performance											
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue	
			[Total	HV]	[Total	HV]				[Veh.	Dist]
			veh/h	%	veh/h	%	v/c	sec		veh	m
North: Channel Highway											
8	T1	All MCs	926	0.0	926	0.0	0.475	0.2	LOS A	0.0	0.0
9	R2	All MCs	18	0.0	18	0.0	0.020	7.2	LOS A	0.1	0.5
Approach			944	0.0	944	0.0	0.475	0.4	NA	0.1	0.5
South: Channel Highway											
1	L2	All MCs	12	0.0	12	0.0	0.324	4.7	LOS A	0.0	0.0
2	T1	All MCs	620	0.0	620	0.0	0.324	0.1	LOS A	0.0	0.0
Approach			632	0.0	632	0.0	0.324	0.2	NA	0.0	0.0
West: Development site access											
10	L2	All MCs	14	0.0	14	0.0	0.126	7.2	LOS A	0.4	2.8
12	R2	All MCs	20	0.0	20	0.0	0.126	24.1	LOS C	0.4	2.8
Approach			34	0.0	34	0.0	0.126	17.2	LOS C	0.4	2.8
All Vehicles			1610	0.0	1610	0.0	0.475	0.6	NA	0.4	2.8



Morning peak with 1% traffic growth for ten years

MOVEMENT SUMMARY
 ▽ Site: [CCHam (4)] Chilcare access onto Channel Highway - Morning - With development and Growth 1% (Channel Highway Margate AM)
 Output produced by SIDRA INTERSECTION Version: 10.0.9.250

New Site
 Site Category: (None)
 Give-Way (Two-Way)
 Design Life Analysis (Final Year): Results for 10 years
 Site Scenario: 1 | Local Volumes

Vehicle Movement Performance											
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue	
			[Total	HV]	[Total	HV]				[Veh.	Dist]
			veh/h	%	veh/h	%	v/c	sec		veh	m
North: Channel Highway											
8	T1	All MCs	594	0.0	594	0.0	0.305	0.1	LOS A	0.0	0.0
9	R2	All MCs	14	0.0	14	0.0	0.034	12.6	LOS B	0.1	0.8
Approach			608	0.0	608	0.0	0.305	0.4	NA	0.1	0.8
South: Channel Highway											
1	L2	All MCs	25	0.0	25	0.0	0.544	4.8	LOS A	0.0	0.0
2	T1	All MCs	1034	0.0	1034	0.0	0.544	0.3	LOS A	0.0	0.0
Approach			1059	0.0	1059	0.0	0.544	0.4	NA	0.0	0.0
West: Development site access											
10	L2	All MCs	29	0.0	29	0.0	0.146	12.4	LOS B	0.5	3.2
12	R2	All MCs	11	0.0	11	0.0	0.146	29.4	LOS D	0.5	3.2
Approach			40	0.0	40	0.0	0.146	17.1	LOS C	0.5	3.2
All Vehicles			1707	0.0	1707	0.0	0.544	0.8	NA	0.5	3.2

Evening peak with 1% traffic growth for ten years

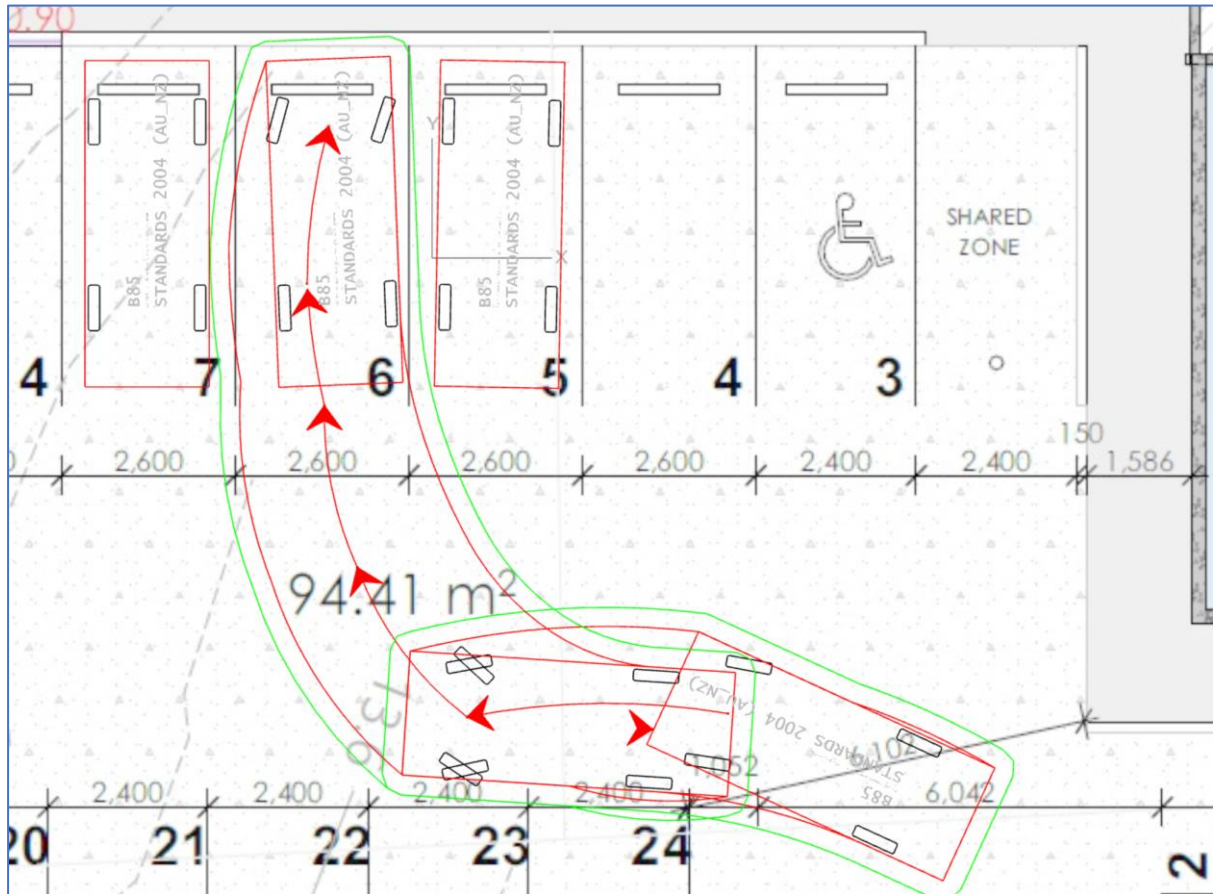
MOVEMENT SUMMARY
 ▽ Site: [CCHpm (4)] Chilcare access onto Channel Highway - Evening - With development and Growth 1% (Channel Highway Margate PM)
 Output produced by SIDRA INTERSECTION Version: 10.0.9.250

New Site
 Site Category: (None)
 Give-Way (Two-Way)
 Design Life Analysis (Final Year): Results for 10 years
 Site Scenario: 1 | Local Volumes

Vehicle Movement Performance											
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue	
			[Total	HV]	[Total	HV]				[Veh.	Dist]
			veh/h	%	veh/h	%	v/c	sec		veh	m
North: Channel Highway											
8	T1	All MCs	1023	0.0	1023	0.0	0.525	0.3	LOS A	0.0	0.0
9	R2	All MCs	18	0.0	18	0.0	0.022	7.7	LOS A	0.1	0.6
Approach			1041	0.0	1041	0.0	0.525	0.4	NA	0.1	0.6
South: Channel Highway											
1	L2	All MCs	12	0.0	12	0.0	0.358	4.7	LOS A	0.0	0.0
2	T1	All MCs	685	0.0	685	0.0	0.358	0.1	LOS A	0.0	0.0
Approach			697	0.0	697	0.0	0.358	0.2	NA	0.0	0.0
West: Development site access											
10	L2	All MCs	14	0.0	14	0.0	0.173	8.0	LOS A	0.5	3.7
12	R2	All MCs	20	0.0	20	0.0	0.173	32.7	LOS D	0.5	3.7
Approach			34	0.0	34	0.0	0.173	22.5	LOS C	0.5	3.7
All Vehicles			1772	0.0	1772	0.0	0.525	0.7	NA	0.5	3.7



Swept path of B85 vehicle entering parking space 6



Swept path of B85 vehicle entering parking space 15



13. Appendix D – Possible right turn treatment

