

Cairn Homes Properties Ltd.



## Cairn Homes Development - Castletreasure

### Road Safety Audit: Stage 1

April 2019

The logo for Barry Transportation, featuring a stylized blue 'B' with a green and blue circular element on the left, followed by the word "BARRY" in a large, blue, serif font and "TRANSPORTATION" in a smaller, blue, serif font below it.	<p>Halcrow Barry is now <b>Barry Transportation</b></p> <p>Still the same excellent people providing our Clients with exceptional service</p>
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# Document Control Sheet

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## **APPENDIX 1: DRAWINGS SUPPLIED**

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# 1 Introduction

Barry Transportation was commissioned by Cairn Homes to undertake a Road Safety Audit (RSA) Stage 1 at its site in Castletreasure, Douglas, Co. Cork for a planning application for a proposed housing development. The aim of the RSA is to identify, quantify and communicate design features of the scheme that could be removed or modified to improve the safety of the proposed development. Due to the large scale of the development and level of detail provided at present, this RSA will serve as a Stage 1 RSA only. A future Stage 2 RSA will be required at a detailed design stage.

The proposed development site is located along the Carrigaline Road in Douglas as shown in Figure 1 below. A portion of the site in the north eastern corner has been sold to the Department of Education for the development of a proposed new school.

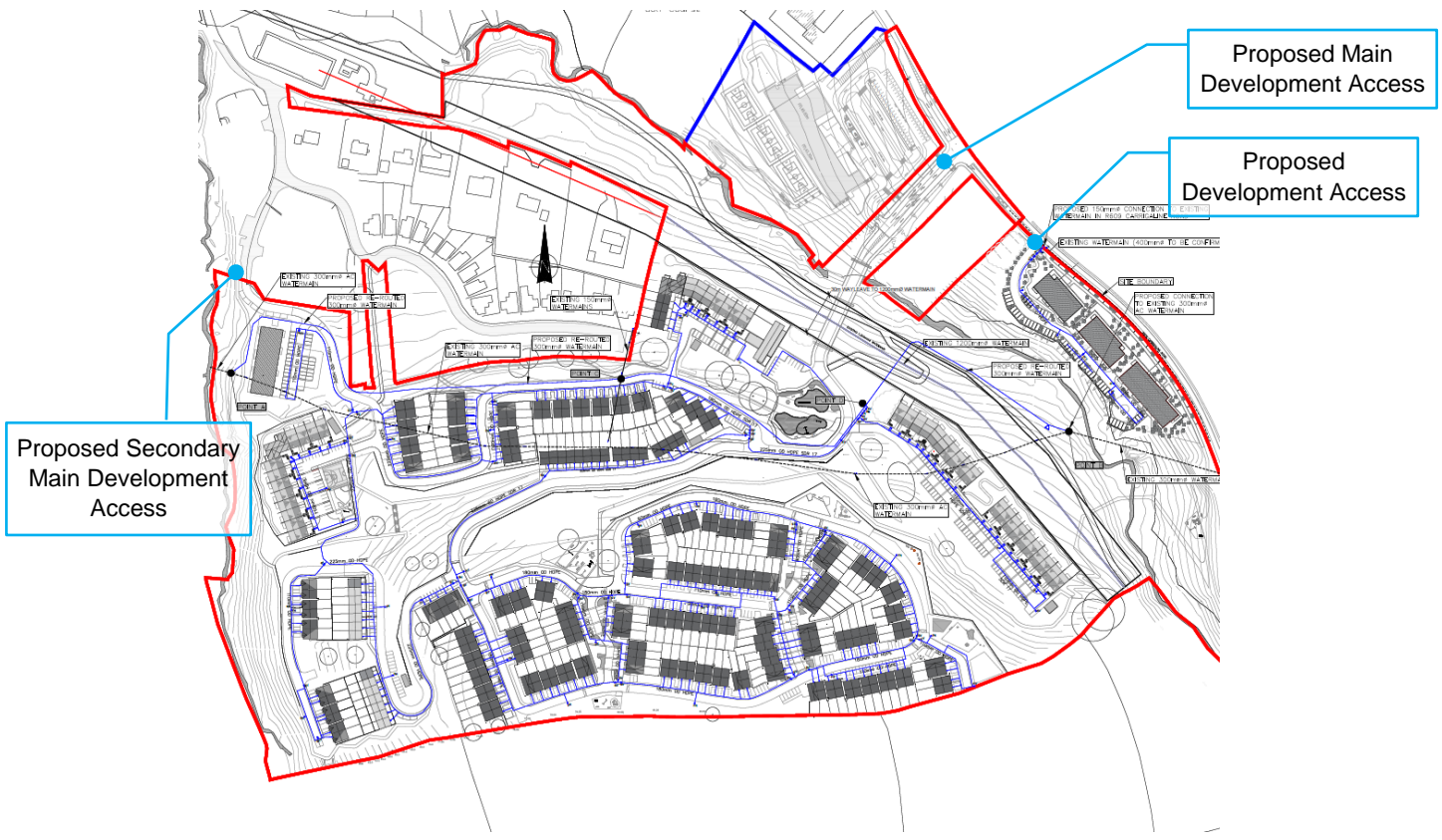


**Figure 1: Location of Proposed Development (Source: Google Maps, annotation by Barry Transportation)**

The proposed residential development consists of 472 no. dwelling houses/apartments, a creche, and associated ancillary site works as shown in Figure 2 below. The site is situated 1.5 kilometres outside Douglas village, approximately 6km south west of Cork city centre. The site is bounded by the Carrigaline Road to the north and east. Douglas is characterised by being a suburban area with medium-density housing and with direct accesses onto the N28 national primary road.

Footpath provision on Carrigaline Road begins at Douglas village to approximately 200m south-east of Darraglynn Nursing Home (on the southern side of the road only).

The proposed development will provide for a new signalised junction entrance along the Carrigaline Road. The development will also include footpaths connecting the internal development footpaths to the existing footpath on the Carrigaline Road. A further secondary minor access to the site will be provided through the Templegrove / Berkeley residential road and onto Carrigaline Road. Figures 3 and 4 illustrate the Carrigaline Road accessed and Templegrove access.



**Figure 2: Proposed Development at Castletreasure**



**Figure 3: Carrigaline Road at Main Access looking South-East & North-West**



**Figure 4: Templegrove looking towards the secondary development access & Berkeley looking towards junction onto Carrigaline Road**

On the day of the site visit it was observed that the Carrigaline Road carried a low volume of traffic. However, it appeared vehicles were travelling at excessive speed.

This report is for a Stage 1 Road Safety Audit undertaken by Barry Transportation.

The audit has been prepared in accordance with the TII publication “GE-STY-01024 - Road Safety Audit”. The Audit Team has examined and reported on only the road safety implications of the scheme and has not examined or verified the compliance of the design to any other criteria. This audit is confined to the details as shown on the scheme drawing provided.

The Audit Team is as follows:

<b>Peter Morehan</b> <b>BE MEngSc CEng MIEI</b>	<b>Gerard Claffey</b> <b>BA BAI MAI MIEI</b>
Audit Team Leader,	Audit Team Member,
<i>Barry Transportation</i>	<i>Barry Transportation</i>
<i>Classon House,</i>	<i>Classon House,</i>
<i>Dundrum Business Park,</i>	<i>Dundrum Business Park,</i>
<i>Dublin 14.</i>	<i>Dublin 14</i>

The site visit for this audit was carried out on Monday 11<sup>th</sup> February 2018 during daylight hours. Weather conditions during the site visit were dry. Road surfaces were dry.

An Audit Team Statement is included at the end of this report. The list of drawings and documents supplied with the audit brief are listed in Appendix 1.

## 2 Road Collision Data

Historical road collision data 2005-2014 from the Road Safety Authority website indicates that there was one serious and five minor collision along the Carrigaline Road, none of which occurred directly adjacent to the development site. The serious collision was a single car, head-on accident on a Friday afternoon. The minor accidents were all car collisions (one single vehicle, one two vehicle and three other vehicle collisions) all at various times and days of the week. There are no apparent common causation factors.

The proposed new development entrance signalised junction and implementation of the recommendations outlined in this report should reduce the likelihood of future incidents of a similar nature, particularly if any of the collisions are speed related.

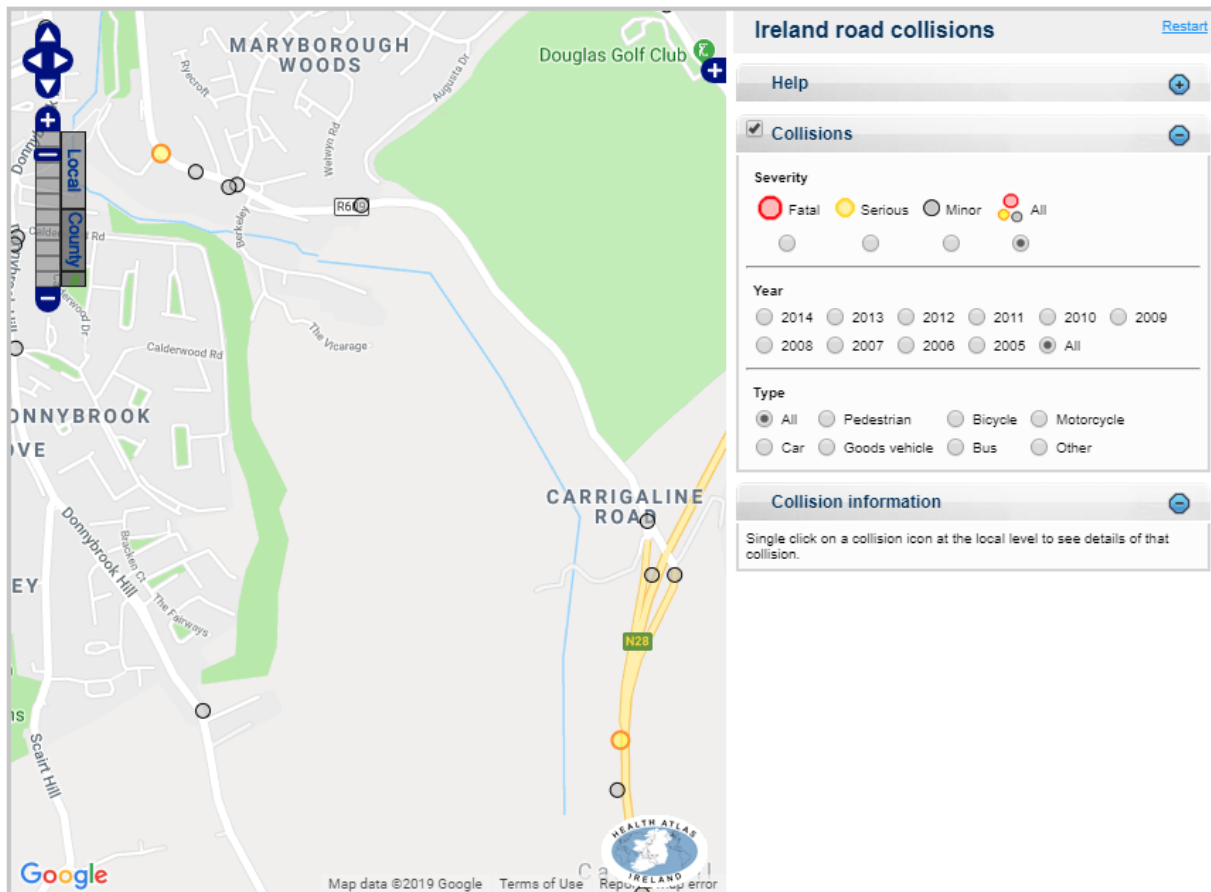


Figure 5: Traffic collisions 2005-2014 at the Carrigaline Road, Co. Cork

### 3 Audit Items

#### 3.1 Problem: High Speed on Carrigaline Road

The proposed southern junctions on the Carrigaline Road are located at the interface of a high speed/ low speed, rural/urban divide and close to the interchange with the N28, a high speed national primary road. It is noted that the change in speed zone (from 60kph to 50kph) is to the north (on the village side) of the proposed new Junctions. Vehicles were observed travelling at high speeds, far in excess of the posted speed limit, along this stretch, in particular vehicles traveling from the N28 towards Douglas.

There is a risk that drivers, on approaching the new junctions for the development, may be travelling at inappropriately high speed and may not have sufficient distance to reduce their speed to safely negotiate the junction or stop. This increases the likelihood of vehicle collisions with other road users or fixed roadside objects.



Figure 6: Location of Carrigaline Road with Excessive Speeds



Figure 7: Carrigaline Road Speed Limit Signs



**Recommendation:**

The 50kph speed limit zone should be relocated closer to the N28 to include the new accesses to the development.

Measures to reduce speeds, such as a gateway entry treatment, warning signage, street lighting and road markings etc. should be provided on approach to the new junctions to warning drivers of the change in road environment.

### 3.2 Problem: Access Sightlines and Visibility

It is unclear if sufficient visibility has been provided at the two southern access/egress point. The sharp bends to the south-east of the Carrigaline Road may obstruct visibility for motorists exiting the development via the main entrance, and eastern apartment block entrance.

Failure to provide adequate forward visibility may result in vehicle-vehicle and vehicle-pedestrian conflicts.



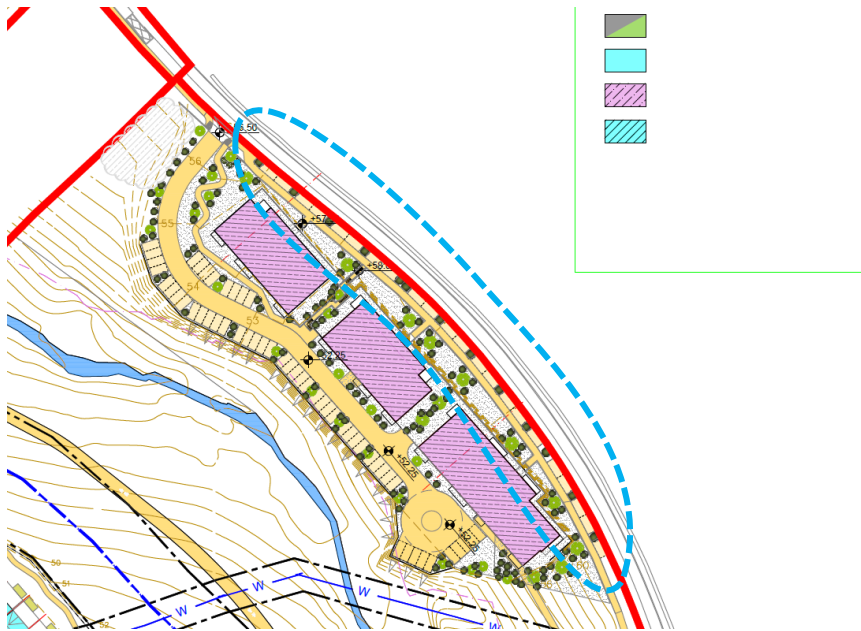
**Figure 8: Visibility looking south-east on the Carrigaline Road from the main entrance and secondary entrance**

**Recommendation:**

Visibility commensurate with the operational speed of the road should be provided at all locations throughout the site.

### 3.3 Problem: On-Street Parking

It appears that on street parking is to be provided along the Carrigaline Road for the north-eastern apartment blocks. Parked vehicles may present a road side hazard for drivers on the Carrigaline road, particularly when vehicles are manoeuvring in and out of the spaces. . Additionally, people exiting/entering parked vehicles are at risk of being struck by passing vehicles. Excessive speeds were observed along this road, further exacerbating the problem (See also problem 1.1).



**Figure 9: Dangerous On-Street Parking**

**Recommendation:**

The on-street parking should be relocated within the development and removed from Carrigaline Road.

### 3.4 Northern Junction on Carrigaline Rd

Visibility at the junction of Berkley Road and Carrigaline Road is limited, particularly for vehicles turning right onto Carrigaline road. Although a secondary entrance to the development, the junction will experience a significant increase in traffic volumes as a result of the proposed development.

The problem is exacerbated by the steep gradient on approach and lack of a dwell area provided for vehicles exiting from Berkley.

Insufficient visibility at junctions could lead to vehicles turning into oncoming traffic leading to side swipe collisions and rear end shunts.



**Figure 10: Steep gradient on approach to the secondary entrance**

**Recommendation:**

Sightlines/Visibility commensurate with the operational speed of the road should be provided. Ensure the appropriate dwell area is provided on the immediate approach the junction.

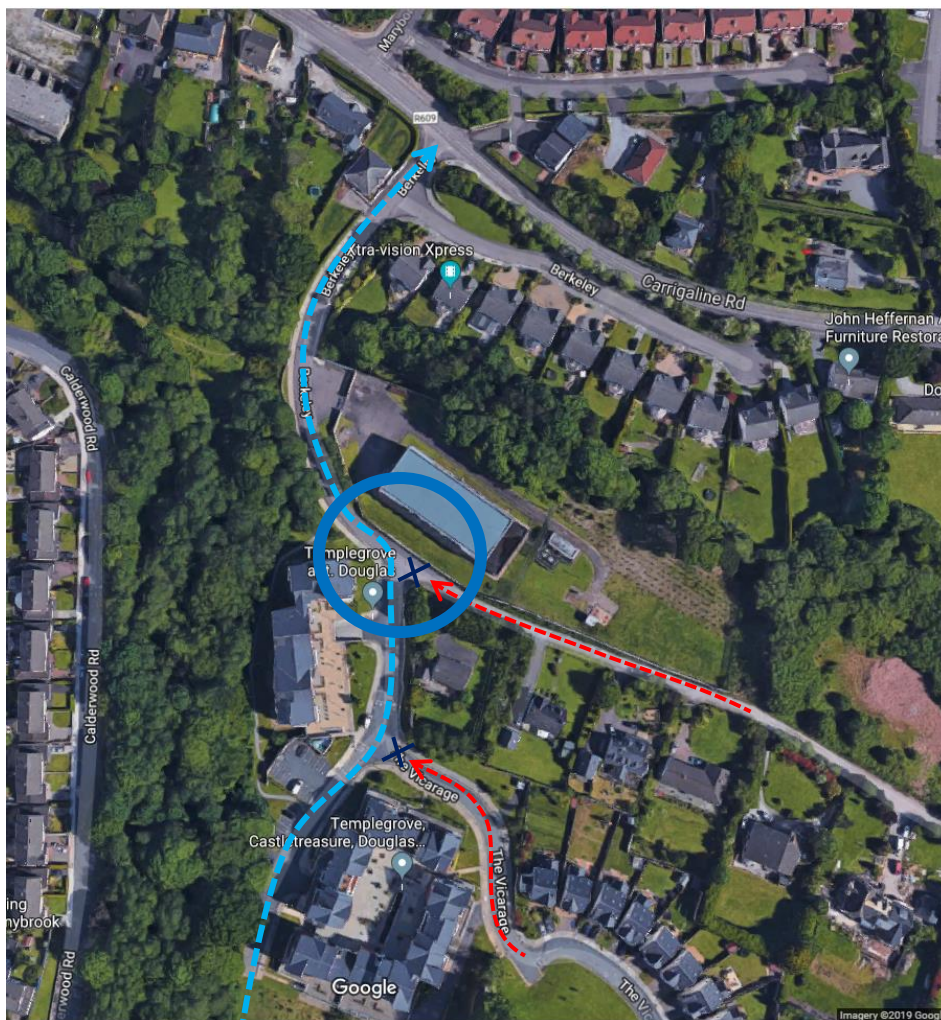
### 3.5 Problem: Vehicle Priority on Berkley Road

Currently along the secondary access route via Berkley road and Templegrove, priority is given to Berkley road and Vicarage road..

Sightlines at the junction of Berkley Road and Templegrove, for vehicles traveling from Templegrove (and the proposed development) are limited.

Although a secondary access route to the development, the route will experience a significant increase in traffic volumes as a result of the proposed development.

With very low volumes using the other roads along this route, vehicles traveling from the development will assume a priority and will not be expecting vehicle movements from The Vicarage or Berkeley. This behaviour will result in conflicts and an increased likelihood of vehicle collisions.



**Figure 11: Vehicle Priority (source: Google maps and annotation by JB Barry)**



**Figure 12: Inadequate sightlines at Berkley road and Templegrove junction**

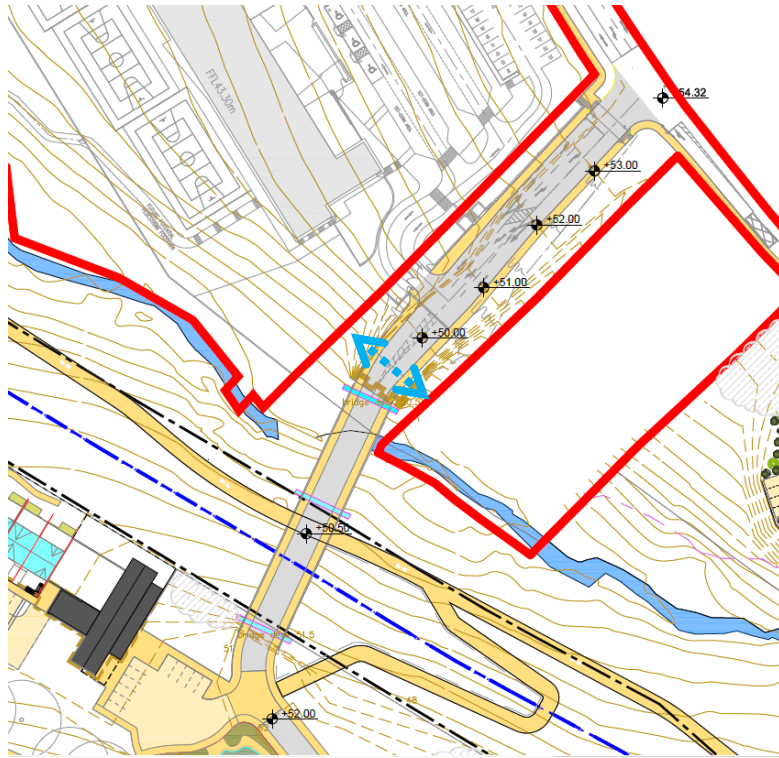
**Recommendation:**

Review the priority at on this access route to provide for the dominant flow of traffic. Stop Signs and Stop Road Markings should be introduced to confirm priority.

Sightlines/Visibility commensurate with the operational speed of the road should be provided.

### 3.6 Problem: Pedestrian Crossing to School

No pedestrian crossings have been provided to the west of the school. A crossing at this location would be on the desire line for pedestrians/cyclists coming to/from the proposed development and the proposed greenway to/from the new school. In the absence of a crossing, pedestrians will likely cross at an unsafe location resulting in possible conflicts with vehicles.



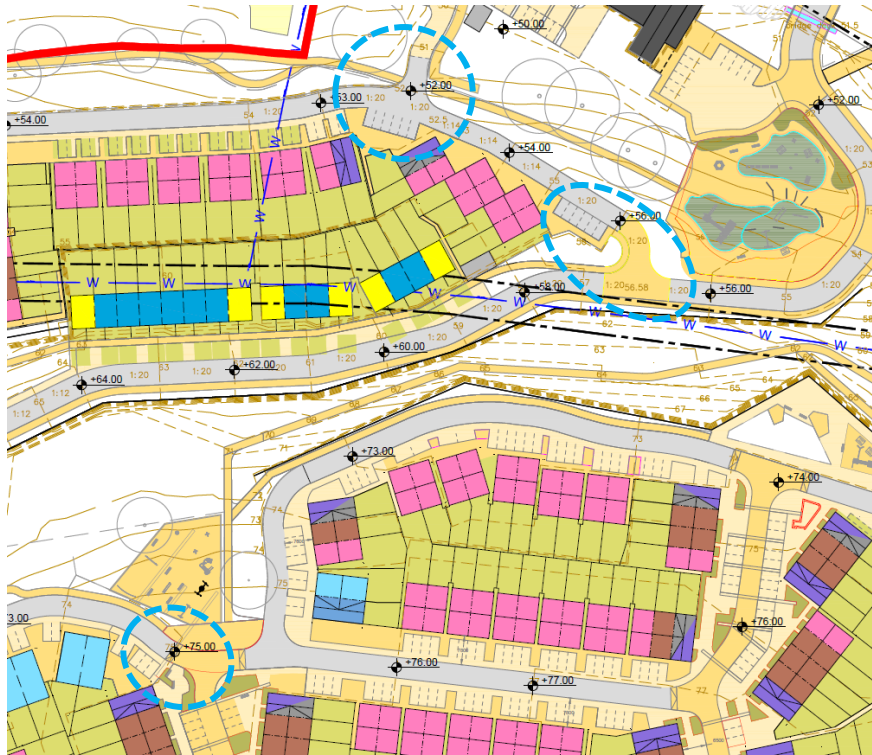
**Figure 13: Potential location for pedestrian crossing**

**Recommendation:**

Provide a pedestrian crossing (raised table) to the west of the school.

### 3.7 Problem Reversing into Junctions

At a number of locations throughout the development, residential parking bays are situated adjacent junctions. Vehicles will have to reverse into the adjacent junction, increasing the likelihood of collisions with other vehicles entering the junction.



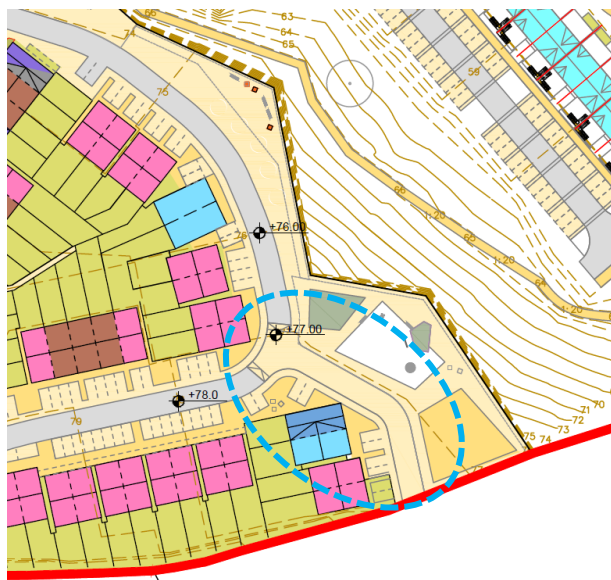
**Figure 14: Sample parking locations close to junctions**

**Recommendation:**

Relocate the parking bays away from the junctions.

### 3.8 Problem: Turning Head

The cul-de-sac at the south-eastern corner of the development is missing a turning head. This will result in an increase in complex reversing manoeuvres, and an associated increased risk to vulnerable road users.



**Figure 15: No turning head**

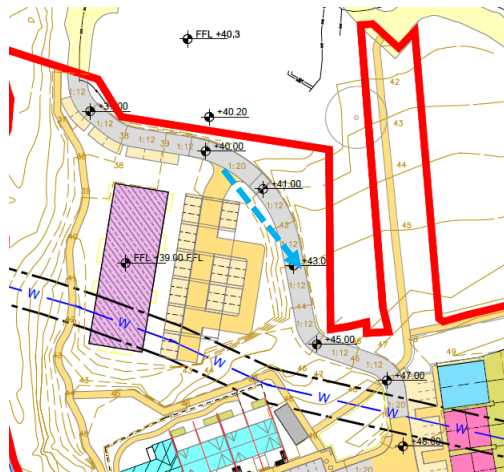
**Recommendation:**

Whilst it is noted that turning heads may not be required for short cul-de-sacs, a turning head should be provided for the longer more complex cul-de-sacs such as the one in Figure 15. Turning heads will minimise the requirement for vehicles, particularly larger goods or refuse vehicles, having to reverse long distances.

### 3.9 Problem: Visibility for internal Junctions

The internal junction for an apartment block along the southern access route is located on a bend. It is unlikely that sufficient visibility will be available for vehicles using this junction.

Insufficient visibility at junctions could lead to vehicles turning into oncoming traffic leading to side swipe collisions and rear end shunts.



**Figure 16: Sample obstructed visibilities**

**Recommendation:**

Sightlines/visibility commensurate with the operational speed of the road should be provided at all junctions.

### 3.10 Comment: Street Lighting

Public Lighting proposals were not available to the Audit team. Suitable public lighting should be provided throughout the development and along the Carrigaline Road.

### 3.11 Comment: Footpath Continuity

The proposed footpath at a number of locations throughout the site ends abruptly and the design does not provide for continued pedestrian facilities along all pedestrian desire lines. Furthermore, it is unsure if adequate crossing facilities have been provided at these locations. Failure to extend the pedestrian footpath at all locations may result in pedestrians walking on the carriageway or on the grass hills where there is an increased risk of conflict with vehicles or accidents. Footpaths should be extended for the full length throughout the scheme ensuring all areas are accessible along the pedestrian desire line.

### 3.12 Comment: Greenway Access

To improve permeability and attractiveness of the greenway, additional access locations (in particular, at the south-western side of the development) should be considered.

### 3.13 Comment: School Access

The access and internal drop off area for the proposed new school has not been considered in this Audit. It is assumed that this will be designed and sized appropriately to ensure that no pick/drop off will take place on the Carrigaline Road or main access road to the proposed development. It is understood that the school development will also be subject of a separate RSA.





## 4 Audit Team Statement


We certify that we have examined the drawings and documents listed in the appendices to this report.

The examination and subsequent report was made with the sole purpose of identifying any features of the scheme that could be removed or modified to improve the safety of the proposals.

The problems identified have been noted in this report together with associated safety improvement suggestions, which we recommend should be studied for implementation.

No one on the Audit Team has been involved in any way with the scheme design.

Audit Team Leader		
Name:	Peter Morehan BE CEng MIEI PMP	Signed: 
Position:	Audit Team Leader	Dated: 22 <sup>nd</sup> February 2019
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Address:	Classon House, Dundrum Business Park, Dundrum Road, Dublin 14.	

Audit Team Member		
Name:	Gerard Claffey BA BAI MAI MIEI	Signed: 
Position:	Audit Team Member	Dated: 22 <sup>nd</sup> February 2019
Organisation:	Barry Transportation	
Address:	Classon House, Dundrum Business Park, Dundrum Road, Dublin 14.	

# Appendix 1: Drawings Supplied

18203-JBB-1B-XX-M2-C-0096_Site_Layout_Proposed_P01.06	Site Layout
18203-JBB-1B-XX-M2-C-0105_Phasing_Plan_P03	Phasing Plan

**Appendix 2:**  
**Road Safety Audit Feedback Form**

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**Scheme:** Cairn Homes Development - Castletreasure

**Audit Stage:** Road Safety Audit Stage 1

**Date Audit Completed:** 11<sup>th</sup> February 2019

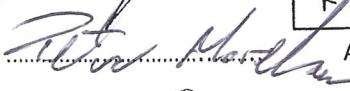
Paragraph No. in Report	To Be Completed by the Design Team			To Be Completed by the Audit Team
	Problem accepted (yes/no)	Recommended measure accepted (yes/no)	Alternative measures (describe)	Alternative Measures accepted by Auditors (yes/no)
3.1	Yes	Yes - A gateway treatment has been designed to be located on the R609 in advance of the proposed junctions on the R609.		
3.2	Yes	Yes - The main access junction is a controlled junction, in any event there is in excess of 100m on the near side at this junction.  The apartment entrance is within the proposed 50kph zone, under Table 4.2 of DMURS forward visibility of 45m are required. The two parking spaces closest to the junction have been removed to achieve the required sightlines.		
3.3	No	No	This issue is linked to Item 3.1, a gateway entry treatment has been designed south of the junctions on the R609 to create a gateway/entrance to Douglas. This will alter the nature of the roadway from rural to urban.  DMURS encourages on street parking to help reduce speed of vehicles along with the additional gateway entry treatments, warning signage, street lighting and road markings etc. The parking spaces are 2.5m x 5m with an additional 500mm setback from the road edge. There is also a 2m path inside the spaces.	Yes

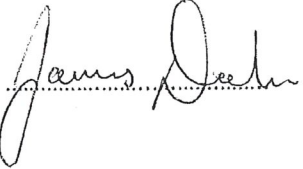
3.4	Yes	Yes - This will be reviewed in consultation with the Management Company for the estate.		
3.5	Yes	Yes - This will be reviewed in consultation with the Management Company for the estate.		
3.6	No	No	The raised table (uncontrolled crossing) at the creche junction is close to the proposed location for a pedestrian crossing. There is no real destination on the eastern side of the carriageway, and we feel people will have crossed to the western footpath at the creche junction. This will be designed to accommodate pedestrians crossing at detailed design stage.	Yes
3.7	Yes	No	The proposed site layout has been designed in accordance with DMURS to encourage a more pedestrian friendly environment within the development.  Raised tables are proposed at junctions to reduce speed; we propose to increase the raised table at the main junction highlighted to extend to the parking bays highlighted and to introduce another raised table at the second junction highlighted.	Yes
3.8	No	No	This is a short spur, cul de sac serving 4 no dwellings with a raised surface and play areas.  A turning area is not required in our opinion.	Yes
3.9	No	No	The access junction to the apartment highlighted is within a 30kph road zone, under Table 4.2 of DMURS forward visibility of 23m are required.  This is provided at this junction.	Yes

Signed:  Date ... 8.4.19

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Signed:  Audit Team Leader Date ... 30.4.19

Signed:  Client CAIRN HOMES Date ... 29.4.19.  
PROPERTIES LTD.