

# Spring Lane and Ellis Yard Development

Stage 1 – Road Safety Audit

Cork City Council

June 2023



# Notice

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## Document history

Revision	Purpose description	Originated	Checked	Reviewed	Authorised	Date
Rev 0	Draft	KB	DOB	KB	MOS	June 2023

## Client signoff

Client	TII
Project	Spring Lane and Ellis Yard Development
Job number	5221169
Client signature / date	

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# 1. Introduction

## 1.1. Background

This report describes the findings of a Stage 1 Road Safety Audit associated with the Spring Lane and Ellis Yard Development scheme in Ballyvolane, Co. Cork. The scheme provides 27 housing units on the site of an existing halting site.

The scheme is located off the Ballyvolane Road on the northside of Cork City.



**Figure 1-1 - Site Location – (image via Google Earth)**

The Audit has been completed by Atkins on behalf of Cork City Council.

## 1.2. Site Inspection

A site Visit was undertaken by the RSA team on Tuesday the 27<sup>th</sup> June 2023. The weather during the site visit was dry and warm. The Auditors were accompanied, at all times, on site by a representative of Cork City Council.

### 1.3. The Team

The Road Safety Audit Team members were as follows:

- **Team Leader:** Keith Barry B.E. (Hons) PCert(RSA) CEng MIEI
- **Team Member:** Diarmuid O’ Brien BEng (Hons) MIEI

The auditor approvals for the RSA team are contained within Appendix A.

### 1.4. The Design

The following drawings were examined as part of the Stage 1 Road Safety Audit process:

**Table 1-1 – Design Team Drawings List**

Drawing No	Title	Revision
5221169-ATK-XX-XX-C-930500	Proposed Storm Water Layout	0
5221169-ATK-XX-XX-C-930520	Proposed Foul Sewer Layout	0
5221169-ATK-XX-XX-C-962700	Proposed Watermain Layout	0
5221169-ATK-XX-XX-C-930760	Proposed Longitudinal Road Sections Alignment Plan	0
5221169-ATK-XX-XX-C-930761	Proposed Longitudinal Road Sections Sheet 1 of 4	0
5221169-ATK-XX-XX-C-930762	Proposed Longitudinal Road Sections Sheet 2 of 4	0
5221169-ATK-XX-XX-C-930763	Proposed Longitudinal Road Sections Sheet 3 of 4	0
5221169-ATK-XX-XX-C-930764	Proposed Longitudinal Road Sections Sheet 4 of 4	0
5221169-ATK-XX-XX-C-930700	Ellis Yard Development – Proposed Pavement	0

### 1.5. Road Safety Audit Compliance

#### Procedure and Scope

This Road Safety Audit has been carried out in accordance with the procedures and scope set out in TII publication number **GE-STY-01024 - Road Safety Audit**.

As part of the road safety audit process, the Audit Team have examined only those issues within the design which relate directly to road safety.

#### Compliance with Design Standards

The road safety audit process is not a design check, therefore verification or compliance with design standards has not formed part of the audit process.

## Minimizing Risk of Collision Occurrence

All problems described in this report are considered by the Audit Team to require action in order to improve the safety of the scheme and minimise the risk of collision occurrence.

## 2. Road Safety Issues Identified

### 2.1. Problem: Dwell Areas at Junctions.

Steep hills and slopes are a feature of the site topography. This results in some steep gradients on the proposed internal roads. The provision of a dwell area on the approach to junctions helps vehicles to safely stop at the junction and also reduces the risk of rolling back when moving off. This can result in material damage collisions with other vehicles or serious injury incidents where a pedestrian passes behind a vehicle. While the gradients on the approach to junctions is generally within the recommended 2.5% the length of the dwell area is, on some roads, shorter than relaxed distance of 10m. While a further relaxation of 3m may be allowable in residential areas, on this site where vehicles are pulling trailers, the length of the dwell area should be maximised.

#### Recommendation

The Designer should check and confirm that dwell areas approaching junctions is maximised as much as possible within the site constraints.

### 2.2. Problem: Right of Way at Junctions

The supplied drawings did not include road markings for the final layout. Without these markings it is not possible to determine the right-of-way at junctions. Where there is not a clear indication of the right of way at junctions there is an increased risk of collisions.



Figure 2-1 – Junction layout without road markings

#### Recommendation

Ensure right-of-way is assessed at all junctions and appropriate road markings are set out in the detail design.

### 2.3. Problem: Turning Areas

A number of the internal roads are cul-de-sacs. Some of these cul-de-sacs are provided with turning areas, while others are not. The turning areas that have been provided do not appear to be sufficiently sized to cater for large vehicle turning movements. Inadequate turning areas can result in material damage collisions. Without dimensions it was not possible to assess the size and adequacy of these turning areas.





**Figure 2-2 – Turning Area.**

**Recommendation**

The Designer should review each cul-de-sac to determine if a turning area is required and the adequacy of the provided turning areas should be confirmed with a swept-path analysis for emergency services vehicles and vehicles with trailers.

**2.4. Problem: Interface of Footpath and Safety Barrier.**

At the northern end of the main road the safety barrier is broken to connect the footpath linking Spring Lane to Ellis’ Yard with the footpath to the north. This will affect the containment levels of the safety barrier with the resultant risk that it could fail to perform in a collision.



**Figure 2-3 – Safety Barrier Broken**

**Recommendation**



The Designer should consider diverting the footpath linking Spring Lane to Ellis' Yard to the back of the safety barrier to avoid the need to break the barrier. Alternatively, the connection point of the two footpaths could be relocated away from the barrier.

## 2.5. Problem: Safety Barrier Alignment

The safety barriers as indicated on drawing 5221169-ATK-XX-XX-C-930770 appear to be short and do not extend to the full length of the hazard posed by the steep embankment side slopes. This includes an area which has already been subject to loss of control type collisions (see figure 2-4). Without protection a vehicle falling over the side slopes could result in serious injuries to passengers.



**Figure 2-4 – Location of previous loss of control incident.**

### **Recommendation**

As part of the detail design, the hazards should be assessed and barrier lengths, containment levels and terminal types appropriate to the site conditions should be specified.

## 2.6. Problem: Gully locations

The stormwater layout drawing (5221169-ATK-XX-XX-C-930500) shows the alignment of the storm water carrier pipe but does not show gully locations. The low points on the internal roads, as assessed from the longitudinal sections, are adjacent to the entrance to some of the dwellings. In addition to the nuisance factor from water ponding on the roadway there is also an increased risk of ice and associated collisions in cold winter weather.

### **Recommendation**

Detail design should clearly indicate the location and numbers of gullies required, with particular attention going to the low points in the vertical alignments.

## 2.7. Problem: Northern Footpath Alignment

The proposed northern footpath traverses sloping ground as can be seen from the contours in figure 2-5. If the footpath is too steep it will not be used and can result in pedestrians walking across rough ground, increasing the risk of slips, trips and falls.



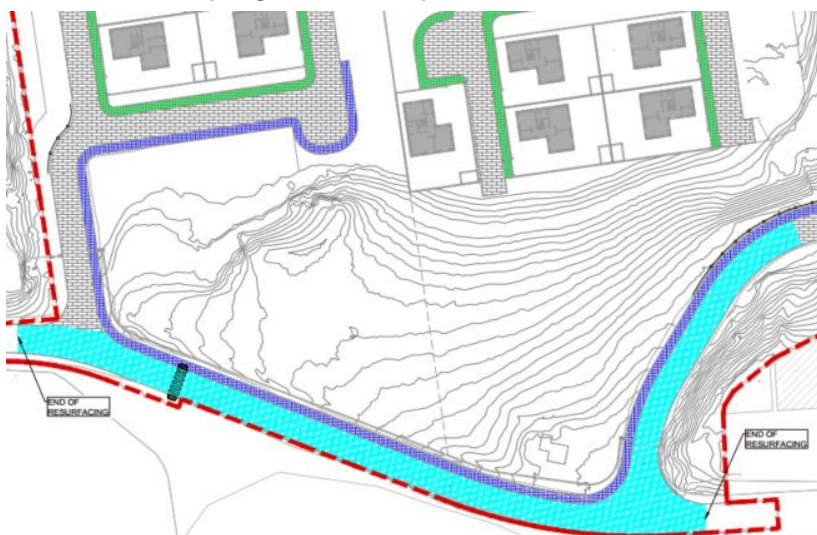
**Figure 2-5 – Northern footpath.**

### Recommendation

As part of the Detail Design the Designer should consider the alignment of the footpath, selecting the most favourable vertical alignment and as close as possible to any identified desire-lines.

## 2.8. Problem: Ballyvolane Road Junctions

There are two proposed entrances to the development from the Ballyvolane Road. While on site a number of vehicles were observed to be travelling on this road at speeds which appeared to be greater than the posted speed limits. High speeds increase the risk of collision with vehicles exiting the Ellis' Yard / Spring Lane development.



**Figure 2-6 – Entrance to site.**

### Recommendation



The risk of collisions at the entrances to the site should be mitigated by ensuring maximum possible sightlines are provided. Also, consideration should be given to the provision of speed control measures as party of the resurfacing of Ballyvolane Road.

## 2.9. Problem: Pedestrian Connectivity

The design drawings indicate a proposed dropped kerb and tactile paving arrangement near the Ellis’s Yard entrance, at the southeast of the site. However, there is no existing footpath on the south side of the Ballyvolane Road to receive this proposed crossing facility. Further to this, the location of this crossing facility fails to provide the most direct desire line for pedestrians exiting the Ellis’s Yard site. Both of these issues may expose a pedestrian, particularly those with mobility impairments, to a potential collision with vehicular traffic.



Figure 2-7 – Existing Ballyvolane Road and Ellis’s Yard Entrance.

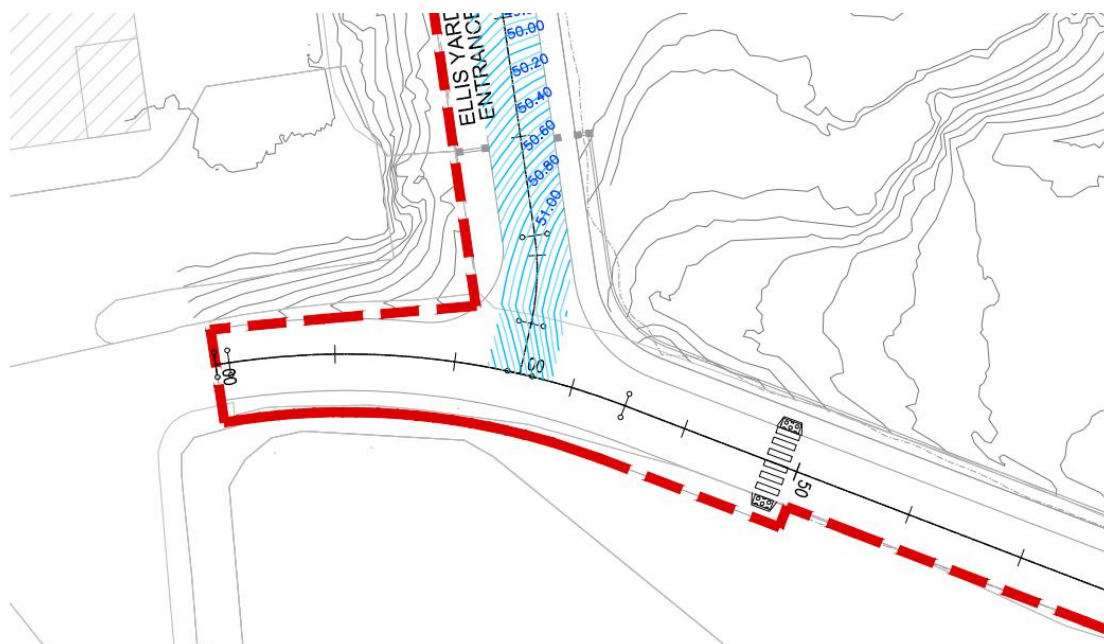


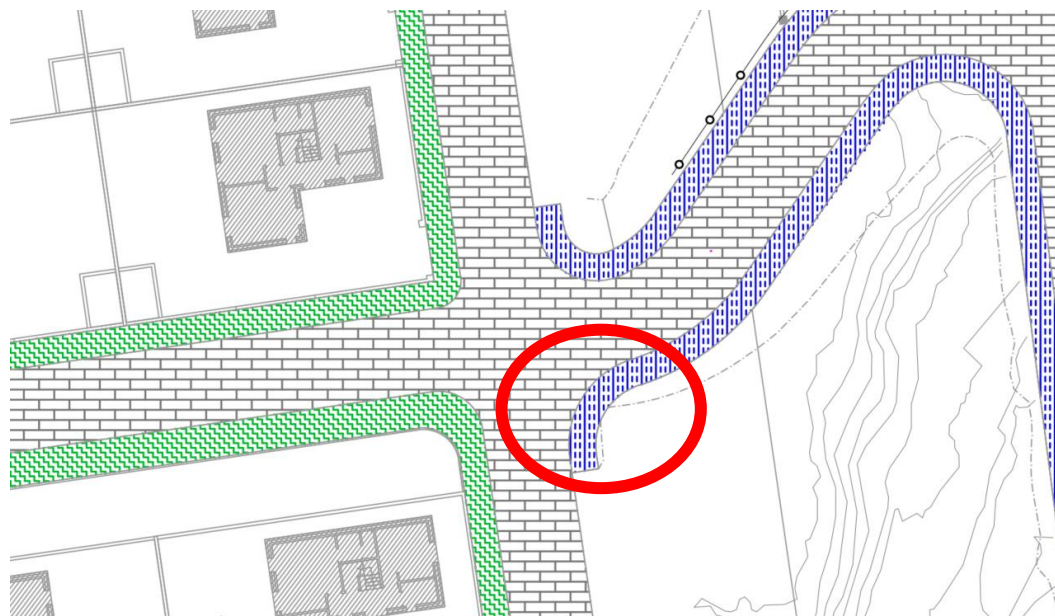
Figure 2-8 – Proposed Crossing Location.

### Recommendation

The existing footpath on the south side of the Ballyvolane Road should be extended to facilitate the crossing facility. The location of the crossing facility should be reviewed.

## 2.10. Problem: Corner Radii

Throughout parts of the scheme, some of the corner radii appear wide. Wide corner radii enable vehicles to take the corners at higher speed, and also reduces intervisibility between crossing pedestrians and drivers which could result in collisions with pedestrians.



**Figure 2-9 – Wide Corner Radius**

### Recommendation

Check the corner radii throughout the scheme and where appropriate the wide corner radii should be reduced.

## 2.11. Problem: Internal Pedestrian Crossing Facilities

The proposed scheme does not provide any pedestrian crossing facilities within the development. This may force a pedestrian, particular those with mobility or visual impairments to step down off the kerb, potentially at an unsafe location, and lead to slips, trips and falls or collisions with vehicles.

### Recommendation

Pedestrian crossing facilities such as dropped kerbs or raised tables should be provided to ensure the safety of vulnerable road users.

## 2.12. Problem: Speeding Within the Development

Some of the roads within the development are conducive to excessive speeds, where the proposed road is straight over a significant length or where the gradient of the road is excessively steep. Speeding within the development may lead to collisions between vehicles or it may also lead to collisions between vehicles and pedestrians. The topography of the site makes the steep road gradients unavoidable, however it also exacerbates any potential collisions due to the level difference between the road, particularly the access road into the Spring Lane site, and the ground below.



**Figure 2-10 – Straight Road**

**Recommendation**

Where possible traffic calming measures should be incorporated into the design to ensure that the risks associated with speeding withing the development are mitigated.

## 3. Audit Team Statement

### 3.1. Certification

We certify that we have examined the drawings listed in Chapter 1 of this Report.

### 3.2. Sole Purpose

The Road Safety Audit has been carried out with the sole purpose of identifying any features of the design which could be removed or modified in order to improve the road safety aspects of the scheme.

### 3.3. Implementation of RSA Recommendations

The problems identified herein have been noted in the Report together with their associated recommendations for road safety improvements. We (the Audit Team) propose that these recommendations should be studied with a view to implementation.

### 3.4. Audit Team's Independence to the Design Process

No member of the Audit Team has been otherwise involved with the design of the measures audited.

### 3.5. Road Safety Audit Team

**Keith Barry**

Audit Team Leader  
Road Safety Engineering Team  
**ATKINS**

Signed: 

Date: 27 June 2023

**Diarmuid O' Brien**

Audit Team Member  
Road Safety Engineering Team  
**ATKINS**

Signed: 

Date: 27 June 2023

## 4. Designer's Response

### 4.1. Preparing a Response to the Road Safety Audit

The Designer should prepare an Audit Response for each of the recommendations using the Road Safety Audit Feedback Form attached in Appendix B.

When completed, this form should be signed by the Designer and returned to the Audit Team.

### 4.2. Returning the Feedback Form

Please return the completed Road Safety Audit Feedback Form attached in Appendix B of this report to the following email or postal address:

Email address: [keith.barry@atkinsglobal.com](mailto:keith.barry@atkinsglobal.com)

Postal address: Road Safety Engineering Team  
Atkins  
150 Airside Business Park  
Swords  
Co Dublin  
K67 K5W4

Telephone: 00 353 (0)1 810 8000

The Audit Team will consider the Designers response and reply indicating acceptance or otherwise of the Designers response to each recommendation.

### 4.3. Triggering the Need for an Exception Report

Where the Designer and the Audit Team cannot agree on an appropriate means of addressing an underlying safety issue identified as part of the audit process, an Exception Report must be prepared by the Designer on each disputed item listed in the audit report.



# Appendices



# Appendix A. Auditor Approval

Keith Barry  
Atkins House  
150 Lakeside Drive  
Airside Business Park  
Swords, Co.Dublin

Date: 20/12/2021

Ref: KB217558

**re: APPROVAL AS ROAD SAFETY AUDITOR**

Dear Keith Barry,

You meet the qualification and experience requirements for Road Safety Audit as follows:

Scheme Category	Audit Team Status	Team Leader Expiry Date
Road Scheme	Team Leader	31/12/2023
Development Scheme	Team Leader	31/12/2023

The above assessment is based on information supplied and the qualification and experience requirements of National Roads Authority in accordance with HD 19 "Road Safety Audit". Further approval through RSAAS must be sought for the proposed road safety audit team for each audit undertaken on a National Road.

Yours sincerely,

Lucy Curtis

Regional Road Safety Engineer  
[roadsafetyaudits@tii.ie](mailto:roadsafetyaudits@tii.ie)

Diarmuid O'Brien  
3A Eastgate Road  
Eastgate  
Little Island  
Co. Cork

Date: 09/12/2021

Ref: DO7439162

re: APPROVAL AS ROAD SAFETY AUDITOR

Dear Diarmuid O'Brien,

You meet the qualification and experience requirements for Road Safety Audit as follows:

Scheme Category	Audit Team Status	Team Leader Expiry Date
Road Scheme	Team Member	
Development Scheme	Team Member	

The above assessment is based on information supplied and the qualification and experience requirements of National Roads Authority in accordance with HD 19 "Road Safety Audit". Further approval through RSAAS must be sought for the proposed Road.

Yours sincerely,

Lucy Curtis

Regional Road Safety Engineer  
[roadsafetyaudits@tii.ie](mailto:roadsafetyaudits@tii.ie)

# Appendix B. Road Safety Audit Feedback Form

**Scheme:** Ellis Yard and Spring Lane Development

**Audit Stage:** Stage 1

**Date Audit Completed:** 27/06/2023

Paragraph No. in Safety Audit Report	To be completed by the Designer			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)
2.1	Yes	Yes		
2.2	Yes	Yes		
2.3	Yes	Yes		
2.4	Yes	Yes		
2.5	Yes	Yes		
2.6	Yes	Yes		
2.7	Yes	Yes		
2.8	Yes	Yes		
2.9	Yes	Yes		
2.10	Yes	Yes		
2.11	Yes	Yes		
2.12	Yes	Yes		

**Signed by the Designer:** *Martin O Sullivan*

**Date:** 29/06/2023

**Signed by the Audit Team Leader:** *Keith Barry*

**Date:** 29/06/23

**Signed by the Client:** *Claire Curran*

**Date:** 19/07/23

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