

Appendix O. Stage F (Part 2) Road Safety Audit

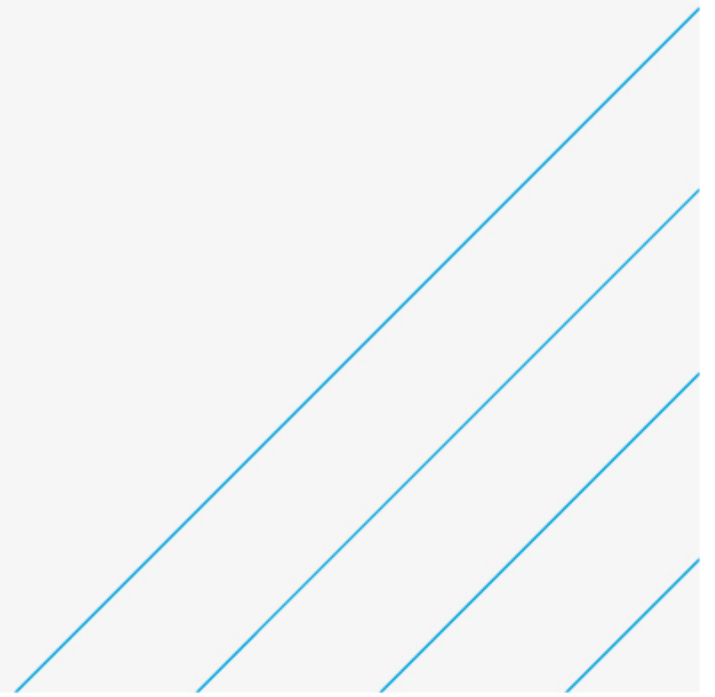


N25 Waterford to Glenmore

Stage F Part 2 Road Safety Audit

Kilkenny County Council

October 2020



Notice

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Document history

Revision	Purpose description	Originated	Checked	Reviewed	Authorised	Date
Rev 0	Draft Issue	CJP	CJP	MD	MD	08.09.2020
Rev 1	Amended following internal review	CJP	CJP	MD	MD	19.09.2020
Rev 2	Amended following internal review	CJP	CJP	MD	MD	19.10.2020
Rev 3	Final (Following Client Review)	CJP	CJP	MD	MD	29.10.2020

Client signoff

Client	Kilkenny County Council
Project	N25 Waterford to Glenmore
Job number	5190130
Client signature	<i>Seamus Foley</i>
date	29/10/2020

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1. Introduction

1.1. Background

This report describes the findings of a Stage F Part 2 Road Safety Audit associated with the N25 Waterford to Glenmore road scheme.

The Audit has been completed by Atkins on behalf of Kilkenny County Council.

1.2. Scheme Information

The N25 Waterford to Glenmore project is positioned between two major bypass schemes around Waterford City and the town of New Ross. The N25 Waterford Bypass dual carriageway was officially opened on the 19th of October 2009, whilst the N25 New Ross Bypass dual carriageway was completed in January 2020. The section of N25 under consideration consist of rural single carriageway with varying cross-section and varying standard of horizontal and vertical alignment geometry.

The Navy route is designed to a Type 1 Dual Carriageway standard connecting to the existing N25 dual carriageways at the existing Luffany roundabout in the south and the existing Glenmore roundabout in the north. The proposed scheme provides an off-line upgrade with approximately the first 2.5km on-line. The remaining single carriageway section of the existing N25 will be reclassified to a Regional Road with a default 80km/h speed limit and be used to retain all the existing traffic movements and a grade separated junction provided with the proposed N25 where the route is on-line in proximity to chainage 3300. The N25 is a TENT route and as such will not have pedestrian or cycle facilities provided as part of the cross section.

It is envisaged that the reclassified existing N25 will provide a safer environment for leisure activities such as walking and cycling. In addition, Kilkenny County Council are progressing a separate project to redevelop the existing railway line into a greenway (Southeast Greenway). The route of this greenway is to the east of the proposed option and runs the length of the proposed scheme with connectivity provided to the local road network at various locations along its route.

1.3. Site Inspection

The study included a desktop appraisal of the route presented by the Design Team.

A site visit was undertaken on the morning of Tuesday 30th of June 2020 by the audit team. Weather conditions were mild and dry with dry road surfaces. Traffic volumes were light to moderate along the existing N25 route.

The drawing review and compiling of the audit report was undertaken during the week ending October 16th 2020.

1.4. The Team

The Road Safety Audit Team members were as follows:

- **Team Leader:** Martin Deegan BEng (Hons) MSc CEng MICE
- **Team Member:** Colin J Prendeville BEng (Hons) PCert (RSA) CEng MIEI CIHT
- **Team Observer:** Daniel Rice Bsc, MIEI

1.5. The Design

The following drawings were examined as part of the Stage F Part 2 Road Safety Audit process:

Table 1-1 – Design Team Drawing List

Drawing No.	Drawing Title	Revision
5190130-ATK-ZZ-ZZ-SK-RE-054	Preliminary Navy Corridor	Rev A
5190130-ATK-ZZ-ZZ-SK-RE-055	Preliminary Navy Corridor	Rev A
5190130-ATK-ZZ-ZZ-SK-RE-056	Preliminary Navy Corridor	Rev A
5190130-ATK-ZZ-ZZ-SK-RE-0125	Preliminary Navy Corridor Plan and Profile	Rev A
5190130-ATK-ZZ-ZZ-SK-RE-0126	Preliminary Navy Corridor Plan and Profile	Rev A
5190130-ATK-ZZ-ZZ-SK-RE-0127	Preliminary Navy Corridor Plan and Profile	Rev A
5190130-ATK-ZZ-ZZ-SK-RE-0128	Preliminary Navy Corridor Plan and Profile	Rev A
5190130-ATK-ZZ-ZZ-SK-RE-0129	Preliminary Navy Corridor Plan and Profile	Rev A
5190130-ATK-ZZ-ZZ-SK-RE-0130	Preliminary Navy Corridor Plan and Profile	Rev A
5190130-ATK-ZZ-ZZ-SK-RE-0131	Preliminary Navy Corridor Plan and Profile	Rev A
5190130-ATK-ZZ-ZZ-SK-RE-0132	Preliminary Navy Side Roads Corridor Plan and Profile	Rev A
5190130-ATK-ZZ-ZZ-SK-RE-0133	Preliminary Navy Side Roads Corridor Plan and Profile	Rev A
5190130-ATK-ZZ-ZZ-SK-RE-0134	Preliminary Navy Side Roads Corridor Plan and Profile	Rev A

1.6. Documents

Document Number	Report Title	Date
5190130 RSA Stg F2 Brief rev 1	Road Safety Audit Brief	Oct 2020

1.7. Relaxations and Departures

Please refer to Appendix B which details the departures and relaxations which were reviewed as part of this audit.

1.8. 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. These should be given consideration by the design team in the development of the final design.

2. Road Safety Issues Identified

2.1. Problem: Proximity of Roundabout Arms

Location: Luffany Roundabout

The arm of the proposed N25 connecting to Luffany roundabout has been positioned relatively close to the existing arms on the roundabout. This could lead to sideswipe and shunt type collisions on the circulatory area where drivers are required to undertake opposing manoeuvres and cross each other's path over short distances.

Recommendation

The Designer should consider increasing the separation between the roundabout arms.

2.2. Problem: Bus Stops Along Mainline

Location: Glenmore Bus Stops, Mainline Chainage circa 1100

The continued operation of existing bus stops located along the mainline could lead to conflicts between mainline traffic and bus users as they wait adjacent to a high speed road. Conflict may arise with drivers dropping and picking up users of the bus stop also.

Recommendation

The Designer should seek to relocate the bus stops off-line.

2.3. Problem: Straight Leading into Low Radius Curves

Location: Chainage 3000m mainline

The proposed compact junction southbound on slip from the existing N25 is characterised by a straight section of road leading into a low radius horizontal curve. This might lead to loss-of-control type collisions where drivers fail to navigate the alignment (having driven on a straight) and may enter at inappropriate speed.

Recommendation

The Designer should consider adjusting the alignment to mitigate the risk described.

2.4. Problem: Loss-of-Control at Compact Junctions

Location: Chainage circa 2500 and 2900m

The low radius curves associated with both the northbound and southbound mainline exit slip roads of the compact junctions could lead to loss-of-control type collisions where drivers attempt to exit the mainline and fail to adequately reduce their speed while travelling through the junction. Similarly shunt collisions may arise where drivers brake on the main line and collide with drivers from behind who are not expecting a driver to reduce their speed on the nearside lane.

Recommendation

The Designer should consider an alternative junction type. If this is not feasible, measures should be developed to make the junction as legible as possible to approaching drivers i.e. optimize forward visibility, facilitate sufficient deceleration and acceleration lanes, warning signage and the use of high PSV chips in the surface course at key areas may also be considered to reduce the risk highlighted.

2.5. Problem: Existing N25 at Termination Point

Location: Alignment Chainage circa 2900m

The existing N25 carriageway is wide and straight which could lead to anti-social behaviour and vehicles driving at inappropriate speeds on approach to the new cul-de-sac location.

Recommendation

The Designer should consider measures as part of the preliminary and detailed design which might:

1. Inform drivers that they are approaching a cul-de-sac / dead end
2. Reduce speeds
3. Facilitate vehicles turning at the termination points

2.6. Problem: Existing Termination Points

Location: Various locations on existing minor / side roads

There are a number of existing side / minor roads that will be curtailed as a result of the proposed new N25 alignment. This could lead to anti-social behaviour and vehicles driving at inappropriate speeds on approach to the new cul-de-sac locations. This could lead to conflict such as loss-of-control and shunt collisions where drivers are unaware of the cul-de-sac ahead that has been created by the new alignment.

Recommendation

The Designer should consider measures as part of the preliminary and detailed design to:

1. Inform drivers that they are approaching a cul-de-sac / dead end
2. Reduce speeds
3. Facilitate vehicles turning at the termination points

2.7. Problem: Junctions Abruptly Tying In

Location: Accommodation Bridge 1 and 2
Road Bridge 1 to Local Road L7518

The proposed connections from Accommodation Bridge 1 and 2 (both ends) appear to meet the existing side roads in an abrupt manner. This may lead to visibility issues, vehicles crossing the centre-line and conflicts between opposing traffic where the new alignments do not smoothly tie-in across the scheme.

A similar concern relates to Road Bridge 1.

Recommendation

The Designer should ensure that the accommodation road alignment is adjusted to meet the existing side roads in a less abrupt and smooth manner.

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 Sign-Off

Martin Deegan

Audit Team Leader
Road Safety Engineering Team

Signed:



ATKINS

Date: 16th October 2020

Colin J Prendeville

Audit Team Member
Road Safety Engineering Team

Signed:



ATKINS

Date: 16th October 2020

Daniel Rice

Audit Trainee
Road Safety Engineering Team

Signed:



ATKINS

Date: 16th October 2020

4. Designers 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 A. 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 A of this report to the following email or postal address:

Email address: martin.deegan@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. Road Safety Audit Feedback Form

Scheme: N25 Waterford to Glenmore
Audit Stage: Stage F Part 2 Road Safety Audit
Date Audit Completed: 16th October 2020

Problem 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		

Signed by the Designer:  **Date:** 19/10/2020

Signed by the Audit Team Leader:  **Date:** 19/10/2020

Signed by Client:  **Date:** 07/12/2020

Appendix B. Departures and Relaxations

Appendix C. Audit Team Approval

Prendeville, Colin

From: TII Systems Notification <noreply@tii.systems>
Sent: 2020-06-04 15:42
To: Milan Gajic
Cc: roadsafetyaudits@nra.ie; Fiona.Bohane@corkrdo.ie; Alastair.DeBeer@TII.ie; Bryan.kennedy@TII.ie; LCurtis@Kerrycoco.ie; Prendeville, Colin; Deegan, Martin
Subject: RSAAS - Road Safety Audit Approvals System - Audit Approval 5767468/4575/Stage F

Importance: High

*Milan Gajic
Tramore
Co. Waterford*

Date: 04/06/2020

Our Ref: 5767468/4575/Stage F

re: N25 N25 Waterford to Glenmore

APPROVAL OF ROAD SAFETY AUDIT TEAM, Stage F

Dear Milan Gajic,

The following members of the proposed road safety audit team are approved to carry out the Stage F road safety audit of N25 N25 Waterford to Glenmore.

1. Colin James Prendeville - Atkins - Leader
2. Martin Deegan - Atkins - Leader

A copy of all audit reports, design team response and exception reports must be uploaded through RSAAS. Successful upload of these reports and completion of the audit approval process is necessary for any further audit approval on this scheme.

Yours sincerely,

Lucy Curtis

Regional Road Safety Engineer
roadsafetyaudits@tii.ie

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