

Exception Reports when and why.

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Tullamore Court Hotel
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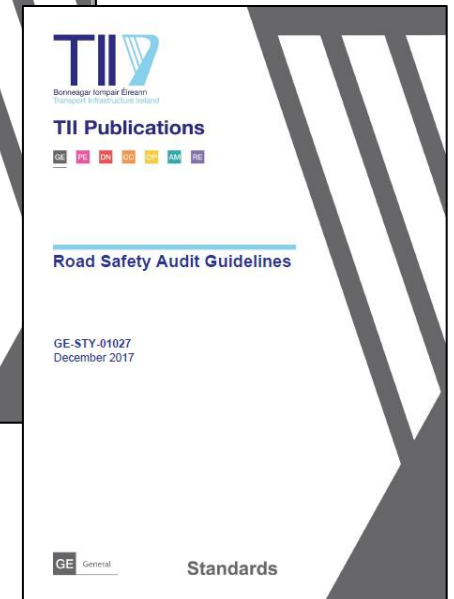
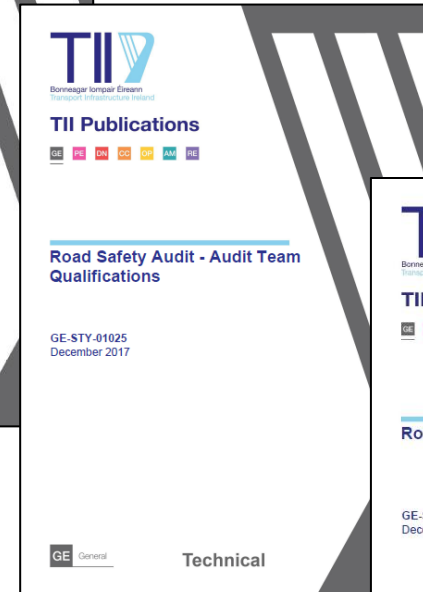
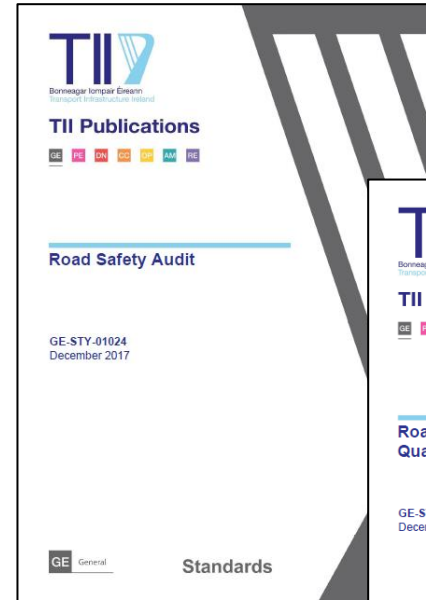
Road Safety Audit

Standards

- GE-STY-01024 Road Safety Audits
- GE-STY-01025 Road Safety Audit – Audit Team Qualifications
- GE-STY-01027 Road Safety Audit Guidelines

What is an Audit

The evaluation of a road scheme during design, construction and early operation, to identify potential safety hazards which may affect any type of road user, and to suggest measures to eliminate or mitigate those problems



Road Safety Audit

What an Audit is Not

A Road Safety Audit is **not a check of compliance** with **design standards**. The audit shall not be concerned with structural safety.

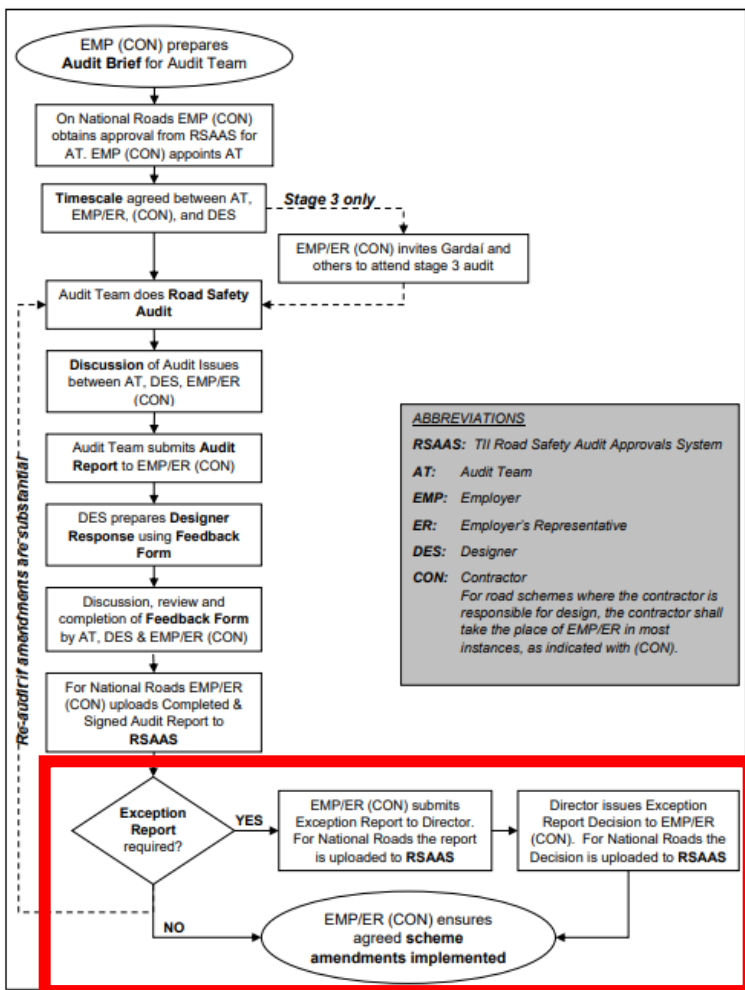
Schemes to be audited

This Standard shall apply to all National Road Schemes. This includes work carried out under agreement with the Overseeing Organisation resulting from developments alongside or affecting the National Roads. The Standard sets out two categories of scheme:

- **Road Scheme.** A scheme results in new road construction or permanent change to the existing road or roadside layout.
- **Development Scheme.** A scheme which results in a change to the road or roadside layout that is initiated and/or executed for commercial or private development

Road Safety Audit

Road Safety Audit Process



Ultimate Objective

- to suggest measures to eliminate or mitigate those problems
- And to get those measures implemented

Exception Report

For those cases where the **Designer** and the **Audit Team** cannot agree appropriate means of addressing a safety problem identified by the audit, an Exception Report must be prepared on each disputed item in the audit report. The Exception Report should be submitted by the Employer / Contractor. It must address only those items in the Audit Report for which an Exception Report is necessary.

Feedback Form

Road Safety Report

- Problems identified
- Recommendations made

2 ITEMS ARISING FROM THE AUDIT

2.1 Problem: Gully at ch 8000 approximately

For the length from ch 7800 to 8100 there is a significant difference in the levels between the two carriageways and thus the macadam surface slopes from the barrier to a drainage channel alongside the median edge line on the eastbound carriageway. The sloped area is not for use as a running lane and is hatched out with road markings to denote this.

At the eastern end of the drainage channel is a gully which is laid approximately 50mm below the level of the surrounding surface.

It is possible that, because the concrete median barrier is so far away, drivers may stray momentarily from the right hand lane and find their vehicle's right hand wheel guided into the drainage channel. If a vehicle's wheel travels in the drainage channel to its end it will hit the dropped gully, which may cause loss of control for the driver.

Recommendation:

Raise the gully grating so that its level is flush with the surrounding surface.

2.2 Problem: Westbound off-slip at junction 9 for Garrycastle, ch 7500

At this chainage the mainline N6 has a small radius, giving a tight left hand bend for drivers travelling westbound; on this bend there is an exit slip road for junction 9. The tight radius and the presence of dense vegetation close to the road edge combine to give very little forward visibility of the off-slip and the junction at the top of it.

Observation shows that there is a tendency for drivers in the left hand lane to drive this tight bend by following the edge line on their left hand side. As there is no obvious change in alignment as this edge line leaves the mainline and starts tapering into the off-slip some drivers are mistakenly straying into the off slip at this point, thinking it is a continuation of the mainline. When the drivers realise their mistake they pull sharply out again into the mainline; this manoeuvre can result in collisions when traffic flow is high.

Recommendation:

Make the layout of the exit slip more easily visible on approach by doing the following.

- Extend the diverge lane line marking back to meet the point at which the edge line starts on the off-slip taper. It is usual to leave a gap of up to 100m at the start of the taper, but in this case the gap is misleading and should be reduced to almost zero length.
- Remove the trees from the verge to provide visibility of the slip road from the mainline.

Typical Feedback Form

Road Safety Audit Feedback Form

Scheme: **N99/R599 Junction Realignment** _____ Route No. **99** _____

Audit Stage: **1 – Preliminary Design**

Date Audit Completed: **Thur 20th April 2017**

Paragraph No. in Safety Audit Report	To Be Completed By Designer			To Be Completed by Audit Team Leader
	Problem accepted (yes/no)	Recommended measure accepted (yes/no)	Describe alternative measure(s). Give reasons for not accepting recommended measure. Only complete if recommended measure is not accepted.	Alternative measures or reasons accepted by auditors (yes/no)
2.1	Yes	Yes		—
2.2	Yes	Yes		—
2.3	Yes	Yes		—
2.4	Yes	No	If vehicle overrun is common, permanent bollards will be installed to highlight the possible presence of pedestrians	Yes
2.5	No	No	Existing N99 (south east corner) will be closed to traffic. A farm access gate will be located at this point	Yes
2.6	Yes	Yes		—

Signed:  Designer Date 20 April 2017

Signed:  Audit Team Leader Date 20/4/17

Signed:  Employer Date 23/4/17

Feedback Form

Road Safety Audit Feedback Form

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2.5	No	No	Existing N99 (south east corner) will be closed to traffic. A farm access gate will be located at this point	Yes
2.6	Yes	Yes		—

Signed: _____ Designer Date 20 April 2017
 Signed: _____ Audit Team Leader Date 22/4/17
 Signed: _____ Employer Date 23/6/17

First: Response From Designer

Designer has to answer 2 questions for each item in the Audit Report

Problem accepted ?	Recommended measure accepted ?
Yes or No	Yes or No

Designer can respond to each item in one of three ways

Yes	Yes	Yes I'll do that
Yes	No	Yes I see the problem, but I'll solve it my way
No	No	No, there's no problem, and this is why

Feedback Form

For Example



Sight distance for pedestrians crossing minor road



The pedestrians' view

Problem:

Pedestrians walking along footpath on main road will need to cross minor road, and the sight distance at this crossing point is poor

Recommendation:

Improve visibility by removing or lowering the wall

Feedback Form

For Example



Sight distance for pedestrians crossing minor road



The pedestrians' view

Designer Response

- Yes, it's a problem
- No I don't want to demolish the wall
- The problem can be solved by moving the pedestrian crossing point 30m down the side road, where there is sufficient visibility

Paragraph No. in Safety Audit Report	To be Completed by Designer			To be Completed by Audit Team Leader
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**	YES	NO	Alternative Measure	

Feedback Form

Designer's suggested solution



The problem can be solved by moving the pedestrian crossing point 30m down the side road, where there is sufficient visibility

Feedback from Audit Team Leader

Designer's Response	Auditor's Response
Yes	OK
Yes, but I'll solve it my way	Yes, your way is fine
	No, that won't work
There's no problem, and this is why	Yes, I see it's not a problem after all
	No, it's a problem and needs sorting out

To be Completed by Designer				To be Completed by Audit Team Leader
Paragraph No. in Safety Audit Report	Problem accepted (yes/no)	Recommended measure accepted (yes/no)	Describe alternative measure(s). Give reasons for not accepting recommended measure. Only complete if recommended measure is not accepted.	Alternative measures or reasons accepted by auditors (yes/no)
**	YES	NO	Alternative Measure	

Feedback Form

Feedback from Audit Team



The problem can be solved by moving the pedestrian crossing point 30m down the side road, where there is sufficient visibility

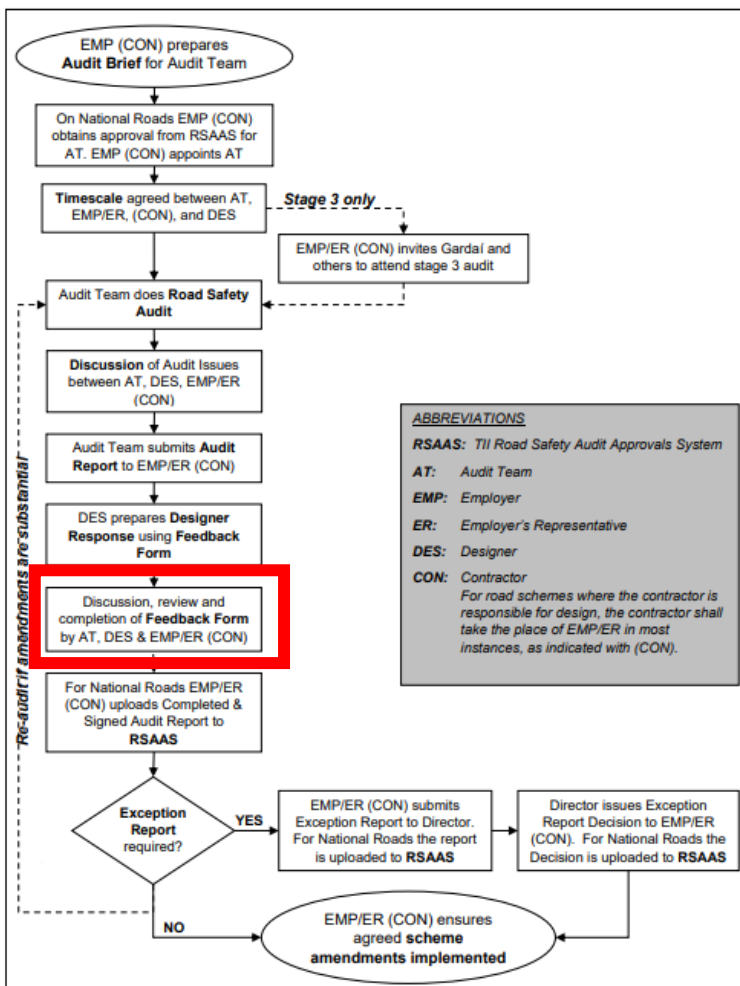
Audit TL could have responded Yes or No

- **NO**, this will not solve the problem, as pedestrians will be reluctant to walk the extra 30m and will still be likely to attempt to cross at the junction mouth, where visibility is poor
- **YES**, that will solve it.

To be Completed by Designer				To be Completed by Audit Team Leader
Paragraph No. in Safety Audit Report	Problem accepted (yes/no)	Recommended measure accepted (yes/no)	Describe alternative measure(s). Give reasons for not accepting recommended measure. Only complete if recommended measure is not accepted.	Alternative measures or reasons accepted by auditors (yes/no)
**	YES	NO	Alternative Measure	

Feedback Form

Road Safety Audit Process



The process flow chart in GE-STY-01024 Road Safety Audits includes specific stage for discussion between audit team, designer and client – before report submission

- Discussion should also occur after designer's response – if necessary.
- A great help in explaining the responses
- Talk to each other

Feedback Form

Feedback Form Signing Off

Road Safety Audit Feedback Form

Scheme: **N99/R599 Junction Realignment** _____ Route No. **99** _____

Audit Stage: **1 – Preliminary Design**

Date Audit Completed: **Thur 20th April 2017**

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2.3	Yes	Yes		—
2.4	Yes	No	If vehicle overrun is common, permanent bollards will be installed to highlight the possible presence of pedestrians	Yes
2.5	No	No	Existing N99 (south east corner) will be closed to traffic. A farm access gate will be located at this point	Yes
2.6	Yes	Yes		—

Signed: [Signature] Designer Date 20 April 2017
 Signed: [Signature] Audit Team Leader Date 22/4/17
 Signed: [Signature] Employer Date 23/4/17

Feedback form is signed by all 3 parties involved:

- Designer
- Audit Team Leader
- Client - Employer's nominated person

Signed: _____	Designer	Date _____		
Signed: _____	Audit Team Leader	Date _____		
Signed: _____	Employer	Date _____		

Exception Report

When is Exception Report needed?

All possible combinations of Response in Feedback

Item	Designer			Audit Team
	Problem Accepted	Recommended measure accepted	Alternative Recommendation / Explanation	Accepted by auditors
2.1	Y	Y	-	-
2.2	Y	N	ααα ααα ααα ααα ααα ααα ααα ααα ααα ααα	Y
2.3	Y	N	ααα ααα ααα ααα ααα ααα ααα	N
2.4	N	N	ααα ααα ααα ααα ααα ααα	Y
2.5	N	N	ααα ααα ααα ααα ααα ααα ααα ααα ααα ααα ααα	N

Exception Report

When is Exception Report needed?

Wherever there is a NO in the final columnn

Item	Designer			Audit Team
	Problem Accepted	Recommended measure accepted	Alternative Recommendation / Explanation	Accepted by auditors
2.1				
2.2				
2.3	Y	N	ααα ααα ααα ααα ααα ααα ααα	N
2.4				
2.5	N	N	ααα ααα ααα ααα ααα ααα ααα ααα ααα ααα ααα	N

Exception Report

Exception Report Procedure

- Written by Client / Employer, or their Nominated Person
- Submitted to TII through Road Safety Audit Approvals System (RSAAS)
- TII issues Director's Decision – through RSAAS
- If not National Road then Director's Decision comes from relevant Overseeing Organisation or Road Authority

Exception Report

No set format for report

For each disputed item in RSA report:

- Describe problem
- Describe audit team's recommendation
- Either:
 - Provide evidence to show problem is not valid
 - Outline alternative solutions, compare pros and cons of each and expected difficulties in implementation

Exception Report

Typical Exception Report format

2.6	Problem 3.2.6	Cyclists on the mainline. At the section of single land dualling the drawings do not give a dimension for the cross-sectional width to be provided between centre line hatching and edge hatching in front of splitter island. If the width is narrow cyclists may be at risk of side swipe collision by large vehicles travelling at speed.
	Recommendation	Provide adequate space to accommodate cyclists to the front of the splitter islands at the left-in/left-out junctions.
	Problem accepted (yes/no)	No
	Recommended measure accepted (yes/no)	No
	Alternative measures or reasons	Lane width is 3.65m as required for this project. Additionally there is a further 1m width of hatching between the edge of lane and traffic island. Traffic islands are designed in accordance with the Works Requirements and the Design Standards.

Designer's explanation

- Lane width is 3.65m as required for this project. Additionally there is a further 1m width of hatching between the edge of lane and traffic island.
- Traffic islands are designed in accordance with the Works Requirements and the Design Standards.



Exception Report

TII Response – Reject

Exception Report Item	Paragraph No. in Road Safety Audit Report	Decision by Director (Accept / Reject Exception Report)
2.6	3.2.6	Rejected The designer's response has been noted. However, there are several issues at this location concerning the narrowness of the lane for cyclists and the fact that the splitter island extends out into the hard shoulder. To allow adequate space for cyclists and for consistency, this junction should be laid out as recommended by the Audit Team, with the splitter island set back to the edge-of-hard-shoulder line.

TII Response – Accepted

Exception Report Item	Paragraph No. in Road Safety Audit Report	Decision by Director (Accept / Reject Exception Report)
2.2	3.2.2	Accepted The Auditors concerns about adverse camber on the circulatory carriageway are noted, however it is considered that, with appropriate roundabout approach warning signage and with a single lane entry to the compact roundabout, the current design should reduce the speeds sufficiently to facilitate all vehicles. The proposed design is consistent with other compact roundabouts designs.

Exception Report

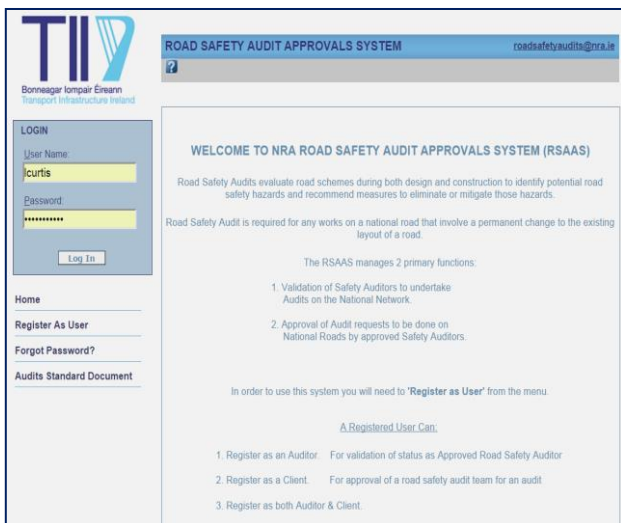
Example of poor Designer Response/Explanation

Item	2.8
Problem	The Rxxx will terminate in a cul-de-sac when the existing junction of the Rxxx / Nx is closed. Drivers, familiar with the existing layout, and failing to note the new one, could travel at excessive speed to the terminal point of the cul-de-sac.
Recommendation	Realign the Rxxx so that it forms a continuous route with the local access road at the cul-de-sac end. Retain the turning head. Erect cul-de-sac signs within both verges of the western Rxxx arm of the Rxxx / Lxxxx crossroads.
Alternative Measures /Reasons	This is outside Lands Made Available for Contract. The matter will be referred to the Employer.
Accepted by Audit Team	No

Exception report will get rejected

Item	Decision by Director
2.8	<p>Reject designer's solution.</p> <p>The designer has referred to 'lands made available' as a reason for not carrying out the works, and has not made any attempt to address the safety issues involved. This is not an acceptable response.</p> <p>This is a design and build contract, the contractor was aware of the lands made available and these issues are the responsibility of the design and build consortium to address.</p>

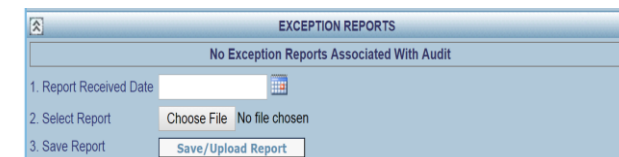
Road Safety Audit Approvals System



Client uploads Audit Report
Indicates whether Exception Report needed



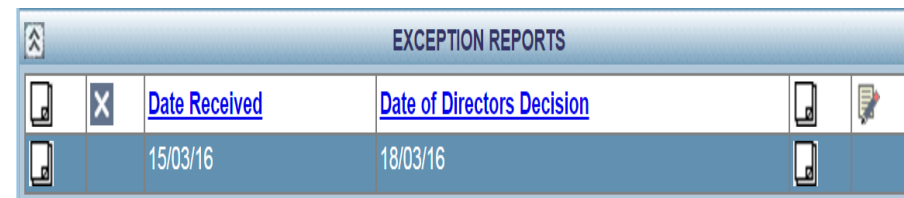
New Exception Report Section will appear



Once uploaded it awaits the Director's Decision



Directors Decision Uploaded by TII



Exception Reports

Far fewer than expected

- Exception reports are an important and valid part of the audit process
- Don't be ashamed of them
- Don't try to avoid them at all costs
- Exception reports are very useful for TII as they record the areas where design and road safety audit are at odds

Final compromise on the wall



Thank You.

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Transport Infrastructure Ireland
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