Stage 1 Road Safety Audit

Ballyfasy Wind Farm, Co Kilkenny

On behalf of **Manogate Ltd**

Prepared By:
CST GROUP
Chartered Consulting Engineers
1, O'Connell Street, Sligo, F91 W7YV
+353 (0)71 919 4500 info@cstgroup.ie www.cstgroup.ie

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Civil
Structural
Traffic

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DOCUMENT CONTROL

Revision	R0	R1									
Purpose of Issue: P=Preliminary C=Comment F=Final	C	F									
Date:	01 09 25	03 10 25									
Originator:	SS	SS									
Checked By:	PB PE	PB PE									
Approved By:	SS	SS									

1. INTRODUCTION

1.1. This report describes a Stage 1 Road Safety Audit carried out on behalf of Manogate Ltd on proposed permanent entrance junctions to the proposed Ballyfasy Wind Farm, Co Kilkenny, together with 13 separate turbine delivery locations where the public road networks is proposed to be amended for the turbine delivery vehicles.

1.2. The audit was carried out between 1st August and 1st September 2025.

1.3. The audit team were as follows:

Team Leader:
Stuart Summerfield, HNC (Civil) FCIHT FSoRSA
Certificate of Competency in Road Safety Audits (SoRSA, 2015)
TII Auditor Ref. SS73290

Team Members:
Philip Bayfield, Chartered Engineer, BE MSc CEng MIEI
TII Auditor Ref. PB106343

Philip Edwards, BSc Hons GMICE
TII Auditor Ref. PE192503

1.4. The audit comprised an examination of the drawings relating to the scheme supplied by the design office. A site visit was carried out by Stuart Summerfield and Philip Edwards on 2nd August 2025 between the hours of 11:50 and 12:40 to inspect the permanent site entrance locations. Weather conditions were fine, and the road surface dry. Traffic conditions were considered light. A separate site visit was undertaken by Stuart Summerfield and Philip Bayfield on the 22nd August 2025 between the hours of 12:30 – 15:30 to inspect the turbine delivery locations . Weather conditions during the inspection were fine and the road surface was dry. Traffic conditions were considered busy with cars, light goods and HGVs. Photographs were taken during the inspection.

1.5. This Stage 1 audit has been carried out in accordance with the relevant sections of the Transport Infrastructure Ireland (TII) Publication (Standard) GE-STY-01024 (May 2025) 'Road Safety Audit'. The audit team has examined only those issues within the design relating to the road safety implications of the scheme and has therefore not examined or verified the compliance of the design to any other criteria. It is noted the swept path analysis is shown for a generic delivery vehicle. The swept path of the chosen vehicle may differ from the model; therefore, greater or lesser works may be required. The Design Team should clarify this before undertaking physical works.

1.6. Temporary traffic management / road closures are outside the scope of this audit.

1.7. **Appendix A** describes the documents examined by the Audit Team.

Appendix B contains the Audit Feed Back Form. The Designer shall consider the Audit Report and prepare a Designer Response to each of the recommendations, using the Feedback Form. The response shall state clearly whether each recommendation is accepted, rejected, or whether an alternative recommendation is proposed. Copies of the Designer Response shall be sent to the Employer and the Audit Team. The Audit Team shall then consider the Designer Response and

indicate on the Feedback Form whether the Designer's response to each recommendation is accepted. The completed Report contains the completed Feedback Form with signatures of all three parties involved - Designer, Audit Team Leader and Employer.

1.8. All of the 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 collision occurrence.

2. COLLISION DATA

Collision data has not been supplied with this scheme.

Road Collision Data is not currently available on the Road Safety Authority Database, therefore no collision trends in the immediate vicinity of the proposed site can be analysed.

3. ITEMS RESULTING FROM PREVIOUS AUDIT(S)

No previous audits have been offered for reference. It should be noted that works on the proposed turbine delivery route have previously been undertaken. It is assumed these works were for previous turbine deliveries from the Waterford port.

4. ITEMS RESULTING FROM THIS STAGE 1 AUDIT

4.1 Site Access Junctions - General Problems / Problems at Multiple Locations

4.1.1 Visibility Splays

Problem: The site access junctions are off minor and narrow local grade roads that contain high field side hedging. There is concern users egressing the development lands will have visibility to approaching traffic restricted by the vegetation.

Hazard: Users may exit into the path of oncoming traffic.

Recommendation: The Design Team should ensure all development junctions have adequate junction visibility and this is maintained throughout the operation of the junction.

4.1.2 Vehicle Swept Path

Problem: The vehicle used for the swept paths is shown as a standard 16.5m long articulated vehicle. There is concern oversized vehicles used for this development will not be accommodated within the junction space provided at locations where temporary vehicle overrun areas are not proposed.

Hazard: Delivery vehicles may become stuck on the public road, while junction widening works are undertaken. Impact from other public road traffic may result.

Recommendation: The Design Team should ensure the proposed junctions are suitable for the anticipated vehicle size.

4.1.3 Temporary Over-run Areas

Problem: No details of the proposed construction for the temporary over-run areas is provided. If the surface is unsealed, loose gravel may be dragged onto the main carriageway by the delivery vehicles.

Hazard: Vehicles, especially powered two wheeled vehicles, may lose control on the stone scatter.

Recommendation: The Design Team should ensure no stone scatter occurs due to the passage of the development traffic.

4.1.4 Junction Gradients

Problem: Some of the lands where the entrance junctions are proposed are lower than the level of the public road. There are no levels given for the entrance junction.

Hazard: The junction may be formed to a steep gradient. There is concern exiting vehicles may stall their engine or roll backwards when attempting to exit. Impact with / from other vehicles may result.

Recommendation: The Design Team should ensure all junctions are formed to a suitable gradient.

4.1.5 Roadside Drainage

Problem: The existing roadside drainage is indicated to be culverted through the new entrance. There are no details given for the size and gradient of this culvert. Insufficient capacity within the culvert may result in flooding of the adjacent carriageway.

Hazard: Aquaplaning type collisions may result.

Recommendation: The Design Team should ensure suitable drainage systems are installed to replace the existing open drain.

4.1.6 Junction Visibility Splays

Problem: All junction visibility splays are indicated as 2.4 x 90m. During the site visit very few vehicles were observed and therefore it was difficult to estimate the existing vehicle speeds on these roads, however there is concern the visibility 'Y' distance is not suitable for the sped of vehicles on some of the roads.

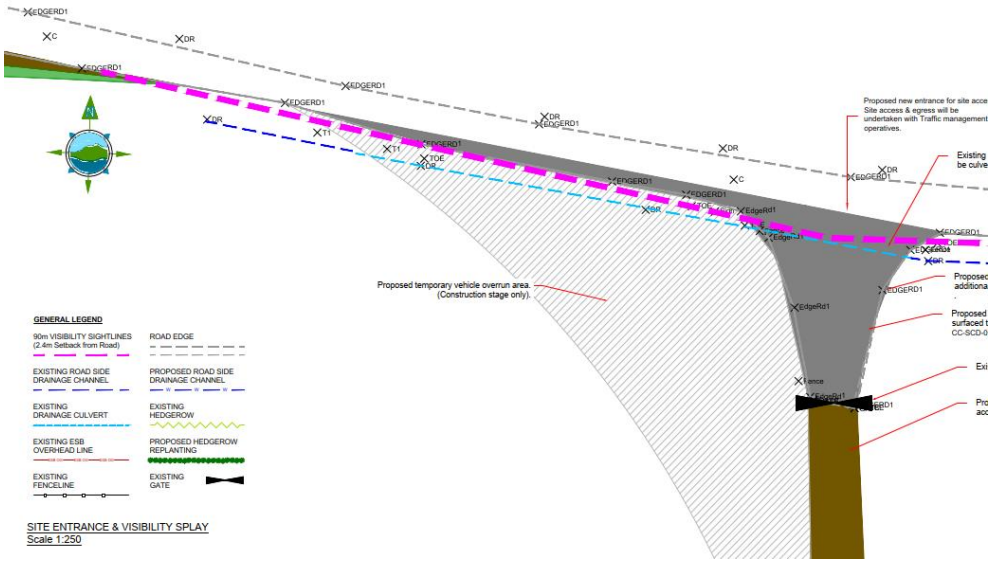
Hazard: Users may exit the development junction(s) into the path of unseen oncoming traffic. Impacts may result.

Recommendation: The Design Team should ensure the junction visibility splays are appropriate for the public road traffic speed.

4.2 Problems at Specific Locations

4.2.1 Entrance Location 4

Problem: There is a bend in the road to the west of the development junction. The dense vegetation / trees on the knuckle of the bend may impact with the required junction visibility envelope.



Hazard: Development traffic may exit the junction into the path of oncoming traffic.

Recommendation: The Design Team should ensure suitable junction visibility splays are provided and maintained.

4.3 Turbine Delivery Route - General Problems / Problems at Multiple Locations

4.3.1 Street Lighting

Problem: There are a number of locations, particularly at roundabout junctions, where street lighting columns are proposed to be removed. There is concern even the temporary removal of the street light will result in dark areas of carriageway and / or footpath.

Hazard: Other road users, especially two wheeled users and pedestrians may become inconspicuous to motorists. Impact between users may result.

Recommendation: The Design Team should ensure adequate and uniform lighting levels are provided at all times. This may require the use of tower lights when the problem columns are removed.

4.3.2 Drainage Kerbs

Problem: The roundabout central island at locations 5 and 6 utilises combined drainage kerbs. Some of these kerbs show evidence of damage, possibly caused by over-run of vehicles. There is concern the further over-running of the kerbs by the turbine delivery vehicles will further damage the kerbs and reduce the drainage capacity of the units.

Hazard: The carriageway may flood, resulting in aquaplaning type collisions.

Recommendation: The Design Team should ensure adequate protection of the kerbs is provided to prevent damage to the kerb unit.

4.3.3 Regulatory and Directional Signage

Problem: Regulatory (STOP) signs and directional signs are proposed to be removed for the turbine delivery vehicles. There is concern other road users will become confused and make erroneous movements due to the missing signs.

Hazard: Overshoot of junctions or users undertaking 'U' turns at dangerous locations may result in collisions.

Recommendation: The Design Team should provide temporary removable signs throughout the duration of the turbine deliveries. The signs should only be removed for the duration of the passage of the turbine delivery vehicles.

4.3.4 Temporary Over-run Areas (1)

Problem: Although no surface finish is shown for the temporary over-run areas, the material used for previous deliveries are a graded stone. There is concern some of the new or previous material may be dragged onto the main carriageway by the delivery vehicles.

Hazard: Powered two wheeled vehicles may lose control on the stone scatter.

Recommendation: The Design Team should ensure no stone scatter occurs due to the passage of the development traffic.

4.3.5 Temporary Over-run Areas (2)

Problem: The provision of the temporary over-run areas (shown shaded RED on the drawings supplied) may be used by public road traffic.

Hazard: Users may lose vehicle control due to the unbound surface.

Recommendation: The Design Team should ensure the over-run areas are physically not available for use by the general public.

4.3.6 Locations 9, 10 and 13 Overhead Cables

Problem: There are utility poles proposed to be removed at locations 9,10 and 13. There is concern the supported cable will be reduced in height where it crosses the road, such that it is at risk of vehicle impact.

Hazard: Loss of control collisions may result.

Recommendation: The Design Team should ensure the problem cables are not reduced in height where crossing the road or turbine delivery route.

4.3.7 Lighting Columns / Signage within the Vehicle Swept Path

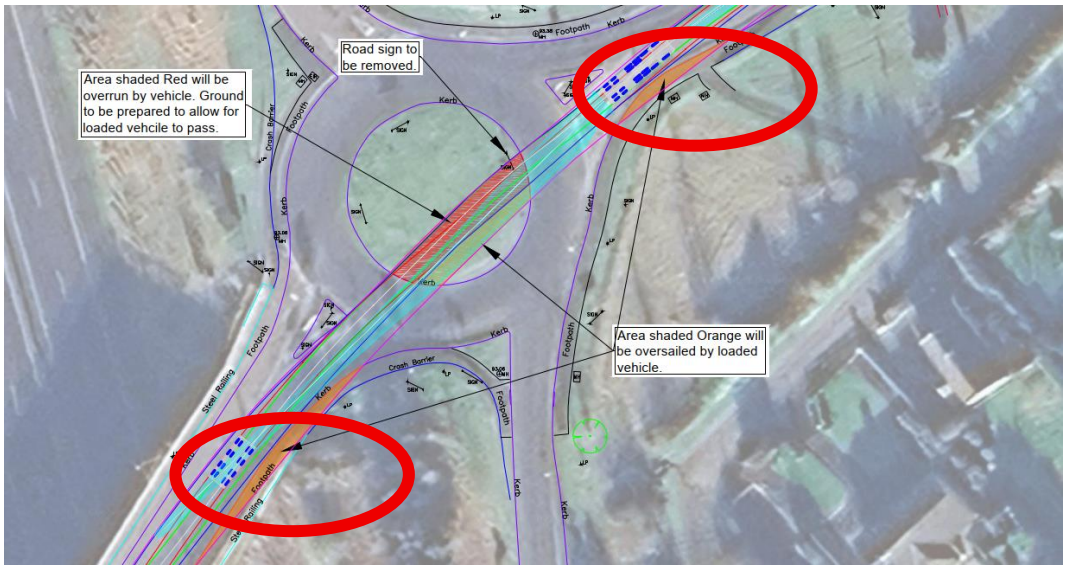
Problem: There are some locations where lighting columns and / or signage is located within the vehicle swept path and is not identified to be removed. There is concern the delivery vehicle team will be required to stop and wait while these elements are removed, therefore delaying completion of the turbine delivery.

Hazard: Increased duration of road closures and diversions may result in collisions by diverted traffic.

Recommendation: The Design Team should ensure all obstructions to the delivery vehicle are removed prior to arrival of the convoy.

4.3.8 Footpaths

Problem: There are a number of areas where the turbine delivery vehicle or vehicle load over sails the footpath.



Hazard: Pedestrians, possibly sightseers, may be struck.

Recommendation: The Design Team should physically close the problem areas of footpath and provide a suitable diversion route for the duration of delivery.

4.3.9 Field Boundary Fencing / Gates

Problem: There are areas of field boundary fencing (and possibly gates) shown to be removed by the works. There is concern livestock may escape onto the carriageway.

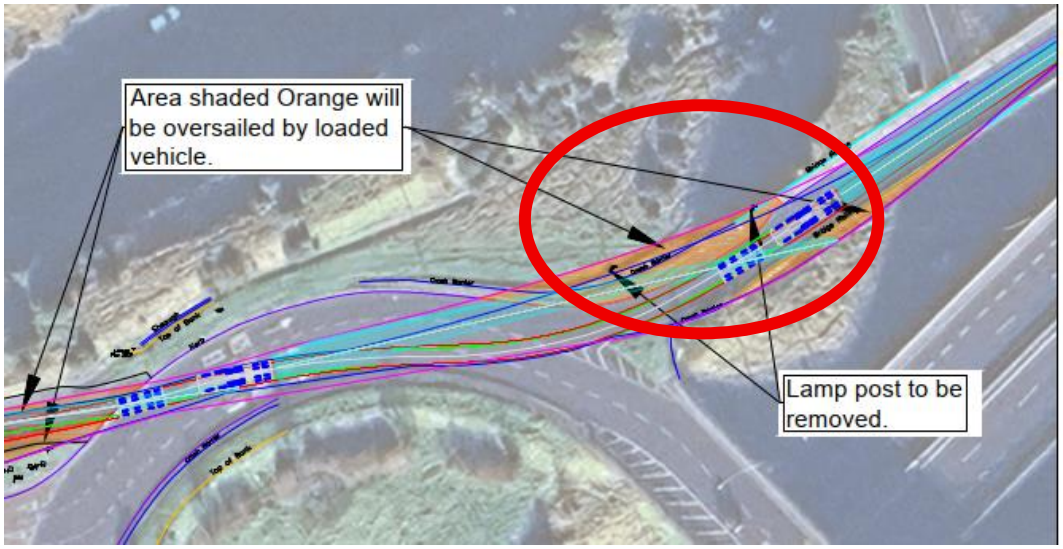
Hazard: Motorists may lose vehicle control when attempting to avoid impact with livestock.

Recommendation: The Design Team should ensure all livestock is contained throughout the delivery and suitable secure fencing is replaced upon completion.

4.4 Turbine Delivery Route - Problems at Specific Locations

4.4.1 Location 5 – Pedestrian Parapet

Problem: The turbine delivery is shown to over sail the pedestrian parapet at the N5 / N29 interchange. The pedestrian parapet is higher than the remaining vehicle restraint system in the area and may be struck by the turbine delivery vehicle. There is concern the delivery vehicle team will be required to stop and wait while these elements are removed / vehicle load adjusted, therefore delaying completion of the turbine delivery.

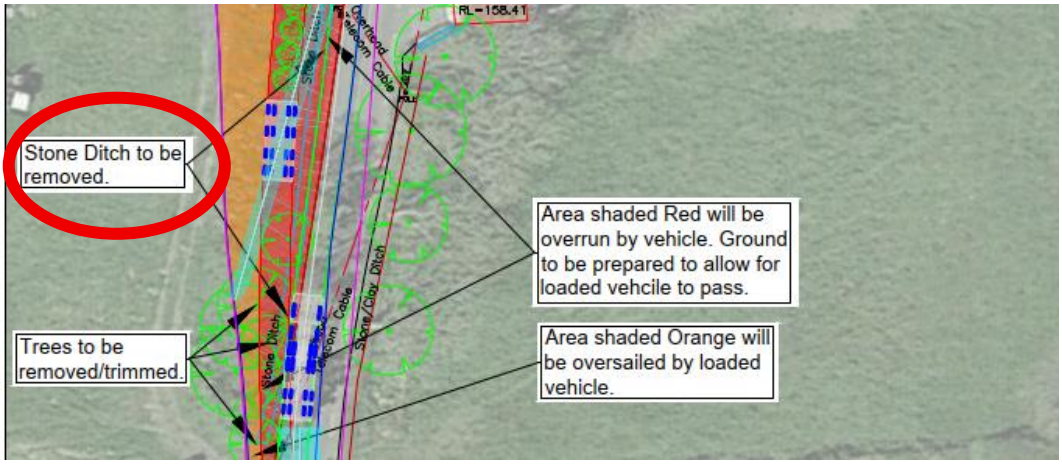


Hazard: Increased duration of road closures and diversions may result in collisions by diverted traffic.

Recommendation: The Design Team should assess the load height and parapet height, and ensure the proposals work workable.

4.4.2 Location 10

Problem: The existing roadside stone ditch is proposed to be removed by the works. There is concern removal of this ditch will result in surface water flooding of the adjacent carriageway.

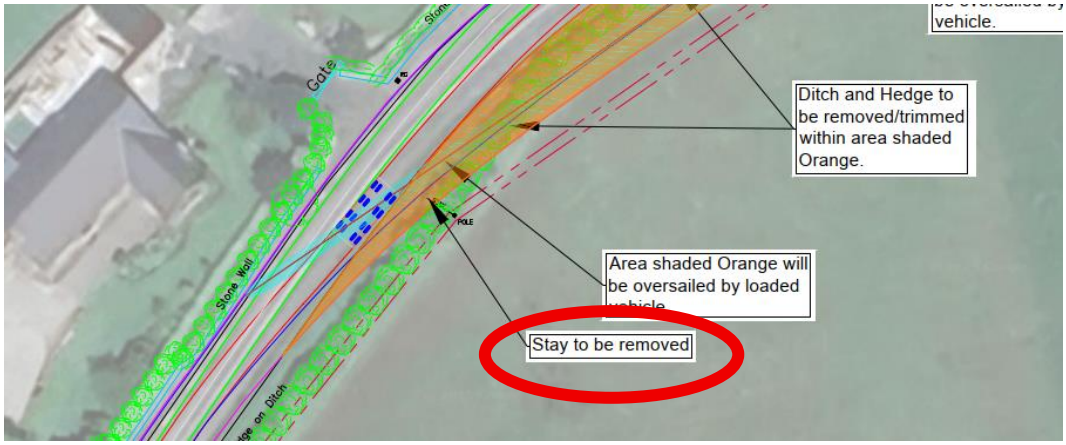


Hazard: Aquaplaning type collisions may result.

Recommendation: The Design Team should ensure suitable drainage systems are installed to replace the stone ditch.

4.4.3 Location 13 – Utility Pole Stay

Problem: There is a utility pole stay indicated to be removed by the works. Removal of this stay may result in the associated pole and cable falling into the carriageway.



Hazard: Impact from passing traffic may result.

Recommendation: The Design Team should ensure the pole and cable are secure.

5. AUDIT TEAM STATEMENT

We certify that we have examined the drawings and other information listed in Appendix A. This examination has been carried out with the sole purpose of identifying any features of the design that could be removed or modified to improve the safety of the scheme. The problems that we have identified have been noted in the report, together with suggestions for improvement which we recommend should be studied for implementation. No one in the Audit Team has been involved with the scheme design as shown in Appendix A.

Signed .....
Stuart Summerfield
Audit Team Leader

Date 1st September 2025

Signed .....
Philip Bayfield
Chartered Engineer
Audit Team Member

Date 1st September 2025

Signed .....
Philip Edwards
Audit Team Member

Date 1st September 2025

APPENDIX A LIST OF DOCUMENTS EXAMINED

The following drawings received from TOBIN on 23/07/2025:-

- 11474-2060
- 11474-2061
- 11474-2062
- 11474-2063
- 11474-2064
- 11474-2065
- 11474-2066
- 11474-2067

The following drawings received from TOBIN on 13/08/2025:-

- I2456 FuturEnergy Ireland, Ballyfasy Windfarm, Co.Kilkenny Autotrack 81.5 Blade-LOCATION 2
- I2456 FuturEnergy Ireland, Ballyfasy Windfarm, Co.Kilkenny Autotrack 81.5 Blade-LOCATION 3
- I2456 FuturEnergy Ireland, Ballyfasy Windfarm, Co.Kilkenny Autotrack 81.5 Blade-LOCATION 5
- I2456 FuturEnergy Ireland, Ballyfasy Windfarm, Co.Kilkenny Autotrack 81.5 Blade-LOCATION 6
- I2456 FuturEnergy Ireland, Ballyfasy Windfarm, Co.Kilkenny Autotrack 81.5 Blade-LOCATION 7
- I2456 FuturEnergy Ireland, Ballyfasy Windfarm, Co.Kilkenny Autotrack 81.5 Blade-LOCATION 8
- I2456 FuturEnergy Ireland, Ballyfasy Windfarm, Co.Kilkenny Autotrack 81.5 Blade-LOCATION 9
- I2456 FuturEnergy Ireland, Ballyfasy Windfarm, Co.Kilkenny Autotrack 81.5 Blade-LOCATION 10
- I2456 FuturEnergy Ireland, Ballyfasy Windfarm, Co.Kilkenny Autotrack 81.5 Blade-LOCATION 11
- I2456 FuturEnergy Ireland, Ballyfasy Windfarm, Co.Kilkenny Autotrack 81.5 Blade-LOCATION 12
- I2456 FuturEnergy Ireland, Ballyfasy Windfarm, Co.Kilkenny Autotrack 81.5 Blade-LOCATION 13
- I2456 FuturEnergy Ireland, Ballyfasy Windfarm, Co.Kilkenny Autotrack 81.5 Blade-LOCATION 14
- I2456 FuturEnergy Ireland, Ballyfasy Windfarm, Co.Kilkenny Autotrack 81.5 Blade-LOCATION 15

APPENDIX B RSA FEEDBACK FORM

ROAD SAFETY AUDIT FEEDBACK FORM

Scheme: Ballyfasy Wind Farm, Co Kilkenny

Audit Stage: 1 **Date Audit Completed:** 01/09/2025 **Route No.** **Our Ref :**125230|R0

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)
4.1.1	Yes	Yes		
4.1.2	Yes	Yes		
4.1.3	Yes	Yes		
4.1.4	Yes	Yes		
4.1.5	Yes	Yes		
4.1.6	Yes	Yes		
4.2.1	Yes	Yes		
4.3.1	Yes	Yes		
4.3.2	Yes	Yes		
4.3.3	Yes	Yes		
4.3.4	Yes	Yes		
4.3.5	Yes	Yes		
4.3.6	Yes	Yes		
4.3.7	Yes	Yes		
4.3.8	Yes	Yes		
4.3.9	Yes	Yes		
4.4.1	Yes	Yes		
4.4.2	Yes	Yes		
4.4.3	Yes	Yes		

Signed: M. Nolan Design Team Leader Date: 02/10/2025

Michael Nolan
TOBIN

Signed: S. Summerfield Audit Team Leader Date: 03-10-2025

Stuart Summerfield

ROAD SAFETY AUDIT FEEDBACK FORM

CST Group Chartered Consulting Engineers

Signed: Marin Kinahan (Director) Employer

Manogate Ltd

Date: 3/10/25