

Appendix 16-1 - Road Safety Audit





Stage 1 Road Safety Audit

Cloghercor Wind Farm, Co Donegal

On behalf of Cloghercor Wind Farm 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

February 2023

Civil
Structural
Traffic

Table of Contents

document Control	2
1. Introduction	3
2. Items Resulting From Previous Stage 1 Audit.....	4
3. Items Resulting From This Stage 1 Audit	5
4. Audit Team Statement.....	11
Appendix A List of Documents Examined	12
Appendix B Problem Location Plan.....	13
Appendix C TII Approval of RSA Team	20
Appendix D RSA Feedback Form.....	21

DOCUMENT CONTROL

Revision	R0	R0							
Purpose of Issue: P=Preliminary PG=Progress C=Comment I=Information PL=Planning T=Tender CN=Construction	C	PL							
Date:	15 02 23	24 02 23							
Originator:	SS	SS							
Checked By:	KD	KD							
Approved By:	SS	SS							

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1. INTRODUCTION

- 1.1. This report describes a Stage 1 Road Safety Audit carried out on behalf of Cloghercor Wind Farm Ltd. on proposed road widenings for wind turbine delivery and development access junction between Killybegs Harbour and Cloghercor, Co Donegal.
- 1.2. The audit was carried out between 26th January and 15th February 2023.
- 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 Member:
Karl Dorman MEng CEng Eur Ing FICE FIEI FCIHT
Certificate of Competency in Road Safety Audits (HE, June 2016)
TII Auditor Ref. KD345515
- 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 both Audit Team members together on 26th January 2023 between the hours of 10:30-12:30. Weather conditions during the inspection were fine and the road surface was dry. Traffic conditions were considered busy with cars and light goods vehicles. 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 (Dec 2017) '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.
- 1.6. **Appendix A** describes the documents examined by the Audit Team.
Appendix B shows the location of the problems identified by the Audit Team.
Appendix C contains a copy of the TII's approval of the Audit Team.
Appendix D 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.
- 1.7. 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. ITEMS RESULTING FROM PREVIOUS STAGE 1 AUDIT

No previous audit has been offered for reference.

3. ITEMS RESULTING FROM THIS STAGE 1 AUDIT

3.1 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.

3.2 General Problems / Problems at Multiple Locations

3.2.1 Site Access 1 and 2 – Road width

Problem: The existing roads to the development are very narrow. No widths for the proposed development roads are stated on the drawings. There is concern that passing of opposing vehicles will not be possible on the route.

Hazard: Opposing traffic that may meet on the route may be required to reverse over a long distance. Impact with following traffic, possible pedestrians, may result.

Recommendation: Ensure a suitable system is in place such that opposing traffic have suitable opportunity to pass opposing users at regular intervals.

3.2.2 Site Access 1 and 2 – Road surface

Problem: No construction details are provided for the proposed access roads. There is risk that the roads are intended to remain with an unbound surface.

Hazard: Overshoot type collisions or loss of control due to loose material being dragged into the public road may result.

Recommendation: Ensure the proposed roads are finished with a suitable bound surface.

3.2.3 Site Access 1 and 2 – Carriageway drainage

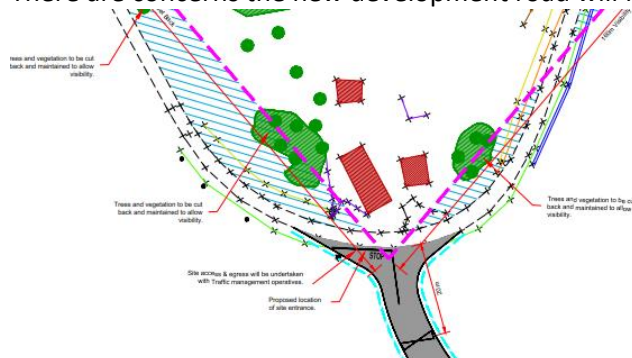
Problem: No drainage details have been provided. The construction of the access roads may result in additional surface water being routed to the public road, or impact with the existing road drainage system.

Hazard: Loss of control type collisions may result.

Recommendation: Ensure adequate surface water drainage is provided.

3.2.4 Site Access 1 – Gradient

Problem: The lands for the future development access junction are elevated above the existing road. There are concerns the new development road will fall steeply towards the existing road.

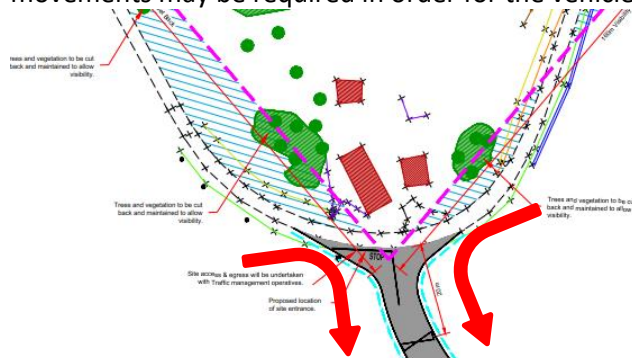


Hazard: Vehicles departing the development may overshoot the junction.

Recommendation: Ensure a suitable gradient dwell area is provided.

3.2.5 Site Access 1 – Swept Path

Problem: The audit team have been advised that turbine delivery will be via Access Location 1 only. The junction geometry appears tight for passage of long vehicles. Multiple forward / reverse movements may be required in order for the vehicle to access the new road.



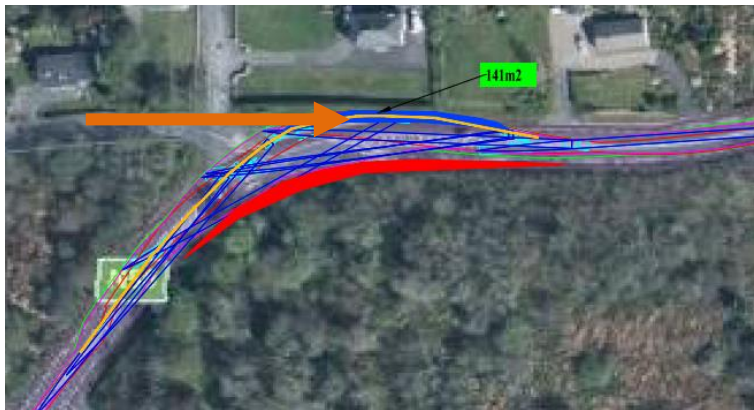
Hazard: Impact with following traffic may result.

Recommendation: Ensure a suitable junction geometry is provide for access of delivery vehicles.

3.3 Problems at Specific Locations

3.3.1 Road Widening Fig 16.8

Problem: The proposed widening on the National Road is in the area of the L5465 local grade road. At present the grassed verge assists in forcing vehicles exiting the location road to align right angles with the National Road.



Hazard: The removal of this verge / replacement with hardstanding may result in overshoot type collisions with National Road traffic.

Recommendation: Ensure adequate physical measures are retained / installed to ensure local road traffic both yield to the national Road users and also at a suitable angle, where approaching vehicles from both direction can be observed with ease.

3.3.2 Road Widening – Fig 16.9

Problem: The field level to the east of the proposed widening is substantially lower than the existing road level. The provision of road widening to this side of the road may result in the existing embankment being made steeper.



Hazard: Errant vehicles may overturn due to the steep embankment.

Recommendation: Ensure the embankment / fall is no greater than existing.

3.3.3 Road Widening Fig 16.9 – Signage

Problem: Existing chevron signs are located in the area of the proposed road widening. Removal / relocation of the chevron signs may lessen the impact of the sign to the motorist.



Hazard: Users may attempt to drive around the bend at excessive speed. Loss of control collisions may result.

Recommendation: Ensure suitable warning of the bend is provided to the road user at all times, even when component deliveries are scheduled.

3.3.4 Road Widening Fig 16.15 - VRS

Problem: The lands to the west of the proposed road widening fall away from the road at a steep gradient. Currently the fall is protected by a vehicle restraint barrier. The barrier will need to be removed for passage of the turbine delivery vehicles.



Hazard: Errant motorist may traverse the road widening and overturn on the steep gradient.

Recommendation: Ensure suitable vehicle restraints are provided wherever the gradient is within the carriageway clear zone. Furthermore, ensure the anticipated angle of impact is suitable for the performance of the barrier.

3.3.5 Road widening Fig 16.15 – Signage

Problem: Existing chevron signs are located in the area of the proposed road widening. Removal / relocation of the chevron signs may lessen the impact of the sign to the motorist.



Hazard: Users may attempt to drive around the bend at excessive speed. Loss of control collisions may result.

Recommendation: Ensure suitable warning of the bend is provided to the road user at all times, even when component deliveries are scheduled.

3.3.6 Road Widening – Fig 16.17

Problem: There is an existing humped back bridge with stone parapet walls in the area of the proposed road widening / body swing. There is concern that the delivery vehicle may impact with the parapet wall and cause structural damage.



Hazard: Future errant vehicles may impact with the damaged parapet and break through / enter the river.

Recommendation: Ensure no damage is caused to the parapet wall.

3.3.7 Set Down Area – Fig 16.22

Problem: The set down area is located just to the south of a crest curve on the Regional Road. Long and slow moving vehicles, in the process of crossing the Regional Road in order to access the set down area, may not be seen by southbound Regional Road traffic.



Hazard: Impact between the southbound public road user and the development vehicle may result.


Recommendation: Ensure the set-down area is provided where adequate forward visibility can be achieved.

4. 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 ..15th February 2023.....

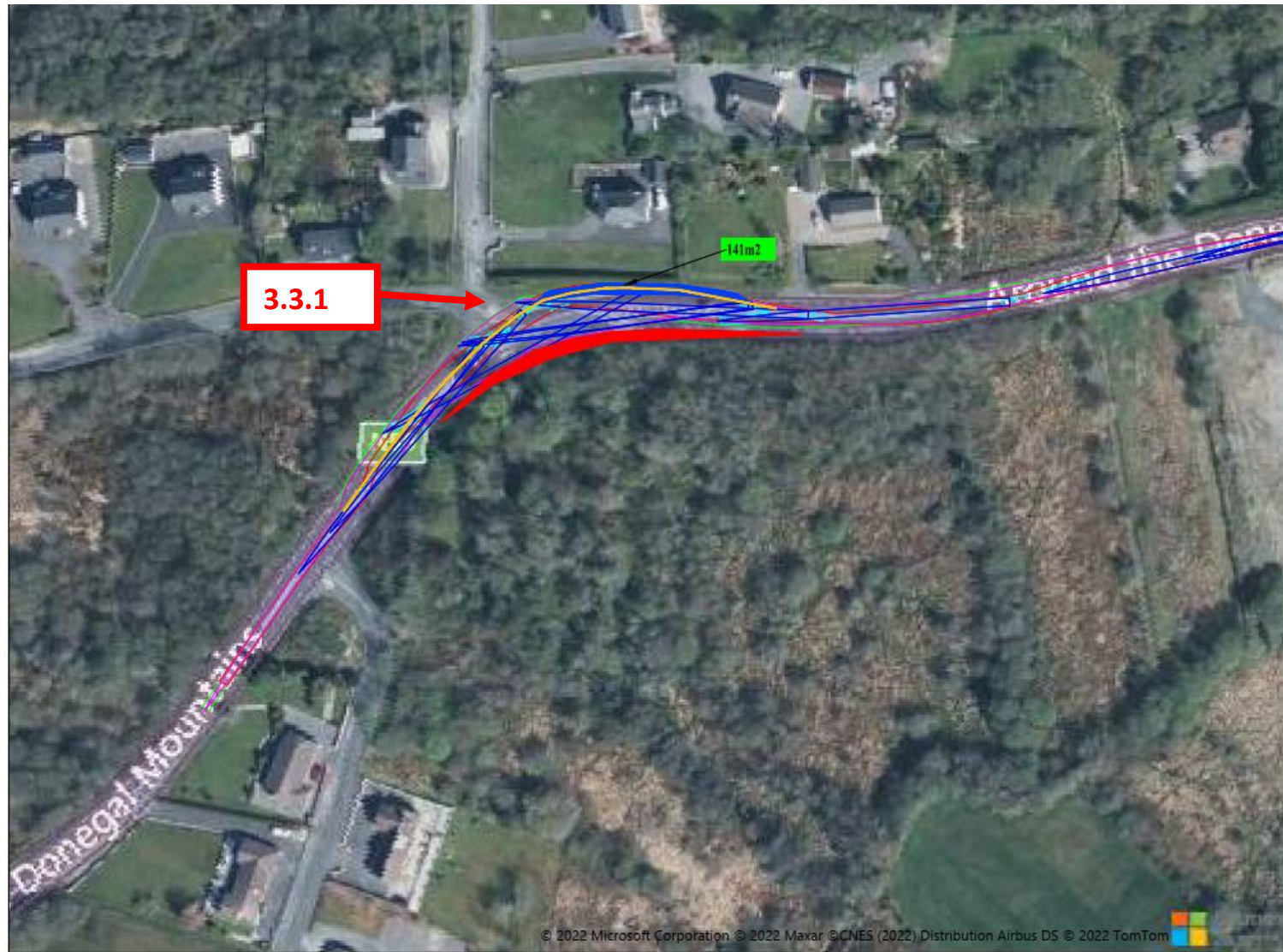
Signed 
.....
Karl Dorman
Chartered Engineer
Audit Team Member

Date ..15th February 2023.....

Appendix A List of Documents Examined

DOCUMENT REF / NAME:	RECEIVED FROM:	DATE:
Figure 16.1 D01 Traffic Count Locations	Tobin Consulting Engineers	20.01.2023
10798-2042 D03 Site Entrance Visibility Sightlines	Tobin Consulting Engineers	20.01.2023
Fig 16.8 B Autotrack Stage 1 – option 2	Tobin Consulting Engineers	20.01.2023
Fig 16.9 B Autotrack Stage 1 – option 2	Tobin Consulting Engineers	20.01.2023
Fig 16.12 B Autotrack Stage 1 – option 2	Tobin Consulting Engineers	20.01.2023
Fig 16.15 B Autotrack Stage 1 – option 2	Tobin Consulting Engineers	20.01.2023
Fig 16.17 B Autotrack Stage 1 – option 2	Tobin Consulting Engineers	20.01.2023
Fig 16.22 B Autotrack Stage 1 – option 2	Tobin Consulting Engineers	20.01.2023

Appendix B Problem Location Plan



- NOTES**
1. DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING.
 2. ALL DRAWINGS TO BE CHECKED BY THE CONTRACTOR ON SITE.
 3. ENGINEER/EMPLOYERS REPRESENTATIVE, AS APPROPRIATE, TO BE INFORMED BY THE CONTRACTOR OF ANY DISCREPANCIES BEFORE ANY WORK COMMENCES.
 4. THE CONTRACTOR SHALL UNDERTAKE A THOROUGH CHECK FOR THE ACTUAL LOCATION OF ALL SERVICES/UTILITIES ABOVE AND BELOW GROUND, BEFORE ANY WORK COMMENCES.
 5. ALL LEVELS SHOWN RELATE TO ORDNANCE SURVEY DATUM AT MALIN HEAD.

GENERAL LEGEND

HARDSTANDING

BODY SWING

No	Date	Description	By	Check
B	SEP 21	Design	TI	JCF
A	JUN 21	Design	TI	JCF

Client: _____

Project: **Coghercor Wind Farm**

Title: **Autotrack Stage 1 - Option 2**

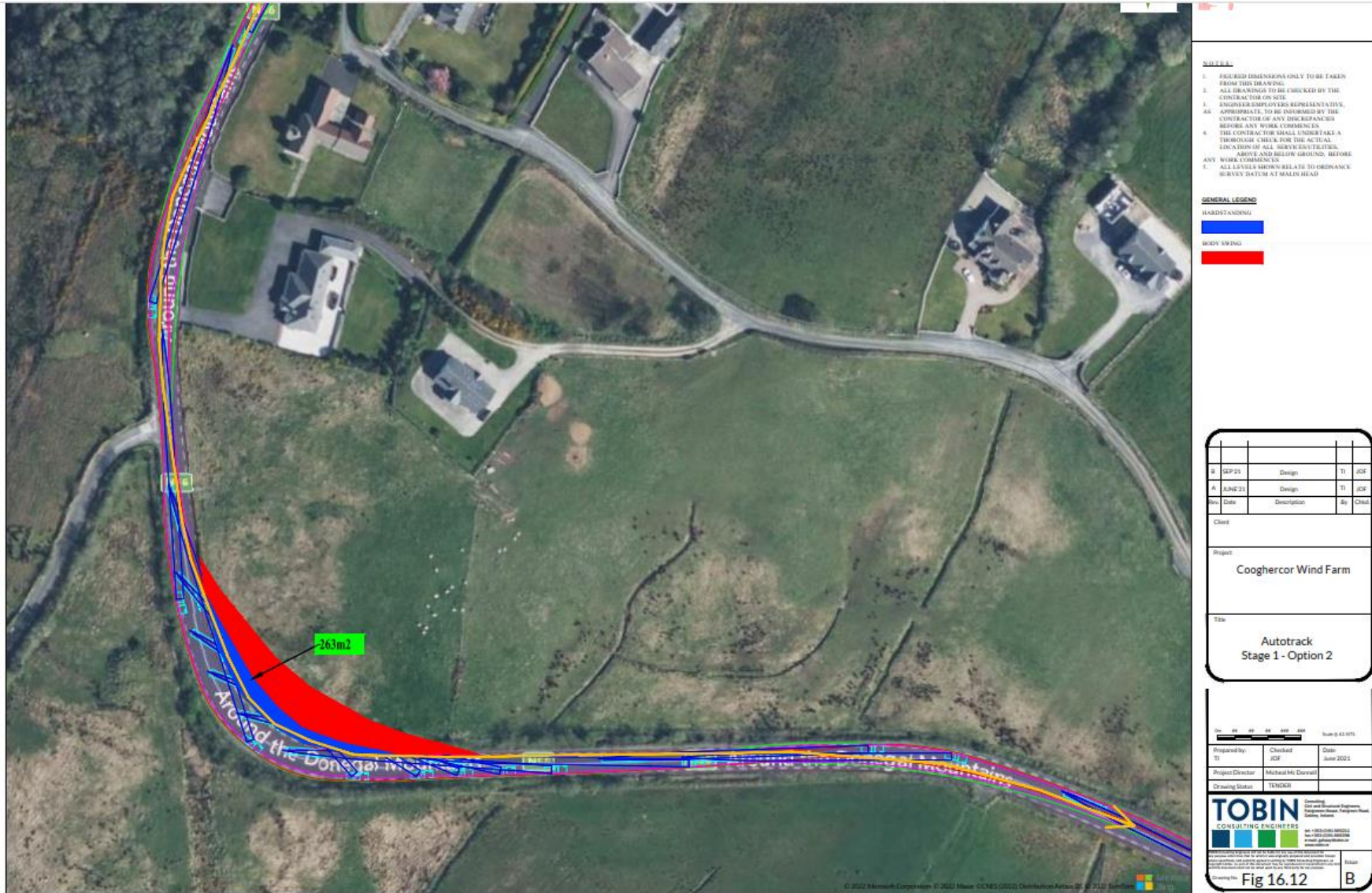
Scale: 1:1000

Prepared By: TI	Checked: JCF	Date: June 2021
Project Director: Michael Mc Donnell		
Drawing Status: TENDR		

TOBIN CONSULTING ENGINEERS
 Civil and Structural Engineers
 Environmental Engineers
 Planning Engineers
 Safety Engineers

Fig 16.8 B







- NOTES**
- FIGURED DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING.
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 - THE CONTRACTOR SHALL UNDERTAKE A THOROUGH CHECK FOR THE ACTUAL LOCATION OF ALL SERVICES UTILITIES, ABOVE AND BELOW GROUND, BEFORE ANY WORK COMMENCES.
 - ALL LEVELS SHOWN RELATE TO ORDNANCE SURVEY DATUM AT MALIN HEAD.

GENERAL LEGEND

HARDSTANDING

BODY SWING

Rev	01	02	03	04	05	06	07	08	09	10	11	12
Rev	SEP 21	Design	TI	JGF								
Rev	APR 21	Design	TI	JGF								
Rev	Date	Description	By	Chkd								
Client												
Project												
Cooghercor Wind Farm												
Title												
Autotrack Stage 1 - Option 2												

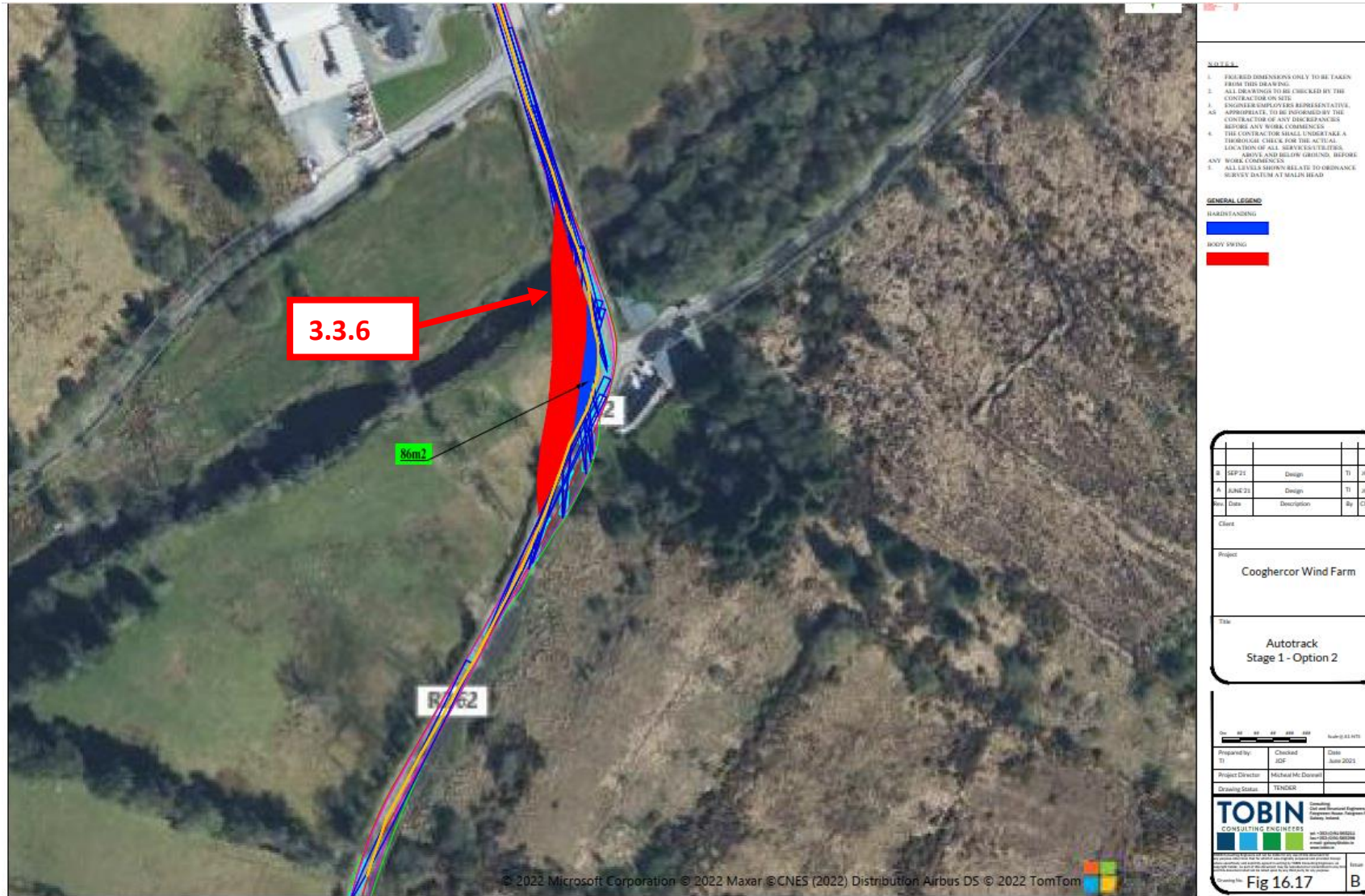
Scale: 1:1000

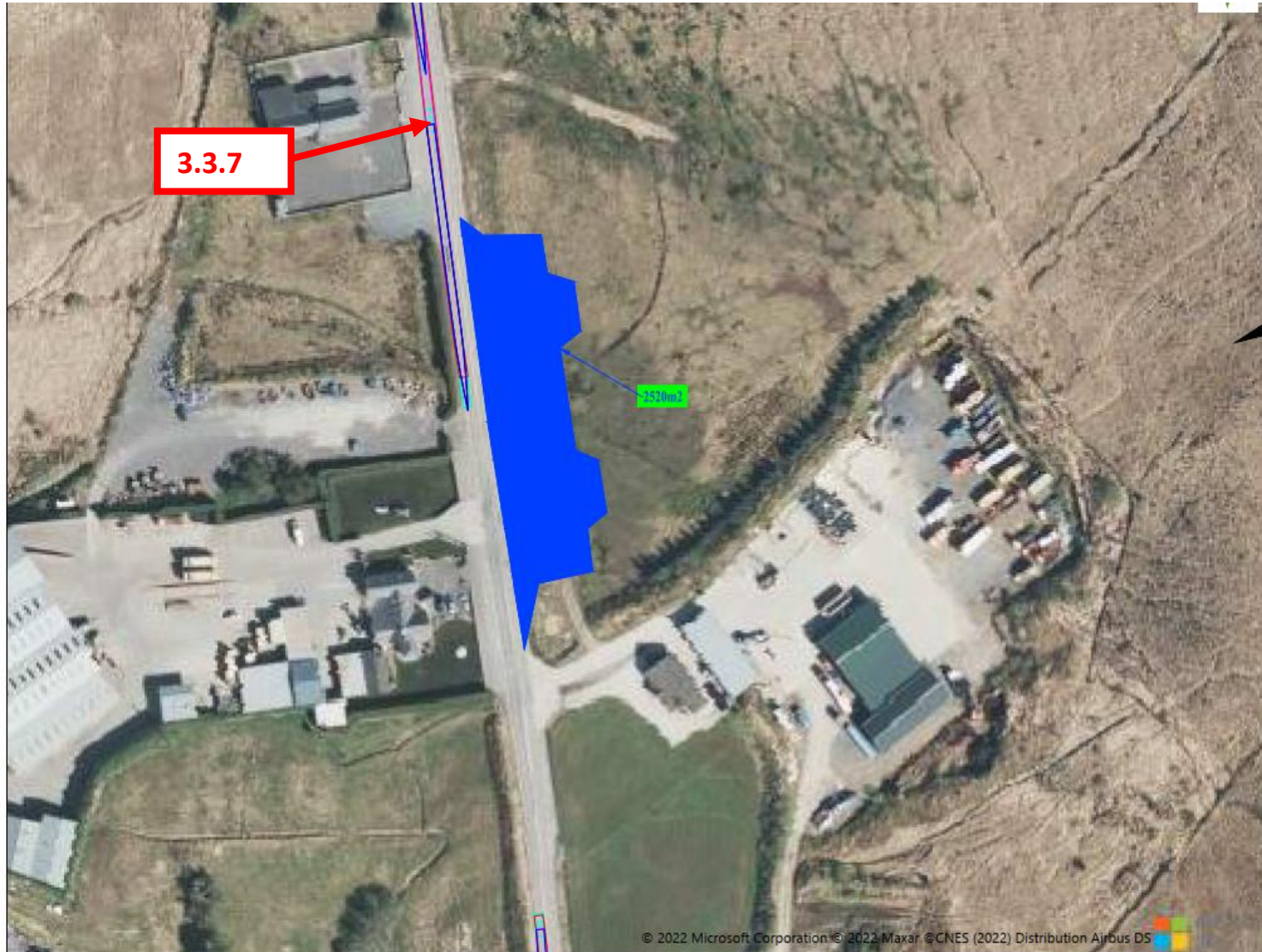
Prepared by: TI
Checked: JGF
Date: June 2021

Project Director: Michael Mc Donnell
Drawing Status: TENDR

TOBIN CONSULTING ENGINEERS
Chartered Consulting Engineers
100-1000 000000
000-0000 000000
www.tobin.ie

Sheet: B
Drawing No: Fig 16.15





- NOTES**
1. FIGURED DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING.
 2. ALL DRAWINGS TO BE CHECKED BY THE CONTRACTOR ON SITE.
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 4. THE CONTRACTOR SHALL UNDER TAKE A THOROUGH CHECK FOR THE ACTUAL LOCATION OF ALL SERVICES/UTILITIES ABOVE AND BELOW GROUND, BEFORE ANY WORK COMMENCES.
 5. ALL LEVELS SHOWN RELATE TO ORDNANCE SURVEY DATUM AT MALIN HEAD.

GENERAL LEGEND

HARDSTANDING

BODY SWING

No.	Date	Description	By	CHKD
01	SEP 21	Design	TI	JCF
02	JUNE 21	Design	TI	JCF

Client: _____

Project: **Cooghercor Wind Farm**

Title: **Autotrack Stage 1 - Option 2**

Scale: 1:500

Prepared by: TI	Checked: JCF	Date: June 2021
Project Director: Michael Mc Donnell		
Drawing Status: TENDER		

TOBIN CONSULTING ENGINEERS

1st Floor, The Exchange, 100-102, The Exchange, Malin Head, Malin, Donegal, Co. Donegal, Ireland.

Fig 16.22

Appendix C TII Approval of RSA Team

From: TII Systems Notification <noreply@tii.systems>
Date: 23 February 2023 at 5:53:03 pm GMT
To: Donncha Keohane <donncha.keohane@tobin.ie>
Cc: roadsafetyaudits@nra.ie, Fiona.Bohane@corkrdo.ie, Alastair.DeBeer@tii.ie, Bryan.kennedy@tii.ie, LCurtis@kerrycoco.ie, Kevin.O'Flynn@tii.ie, ssummerfield@cstgroup.ie, karl.dorman@hoy-dorman.com
Subject: RSAAS - Road Safety Audit Approvals System - Audit Approval 36578374/37291/Stage 1

CAUTION: This email originated from outside of the organisation. Do not click links or open attachments unless you recognise the sender and know the content is safe. Forward unusual emails to spam@tobin.ie for verification.

*Donncha Keohane
Fairgreen House
Fairgreen Road
Galway
H91 AXK8*

Date: 23/02/2023

Our Ref: 36578374/37291/Stage 1

re: N56 Cloghercor Wind Farm

APPROVAL OF ROAD SAFETY AUDIT TEAM, Stage 1

Dear Donncha Keohane,

The following members of the proposed road safety audit team are approved to carry out the Stage 1 road safety audit of N56 Cloghercor Wind Farm.

1. Stuart Summerfield - CST Group Consulting Engineers - Leader
2. Karl Dorman - Hoy Dorman - 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

Appendix D RSA Feedback Form

ROAD SAFETY AUDIT FEEDBACK FORM

CSTGroup Chartered Consulting Engineers
1, O'Connell Street, Sligo, F91 W7YV, Ireland

Scheme: Cloghercor Wind Farm, Co Donegal

Audit Stage: 1 Date Audit Completed: 15/02/2023 Route No. N15 Our Ref :122360|RO

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 re com mended measure. Only complete if recommended measure is not accepted.	Alternative measures or reasons accepted by Auditors (Yes/No)
3.2.1	Yes	Yes		
3.2.2	Yes	Yes		
3.2.3	Yes	Yes		
3.2.4	Yes	Yes		
3.2.5	Yes	Yes		
3.3.1	Yes	Yes		
3.3.2	Yes	Yes		
3.3.3	Yes	Yes		
3.3.4	Yes	Yes		
3.3.5	Yes	Yes		
3.3.6	Yes	Yes		
3.3.7	Yes	Yes		

Signed: Donncha Keohane Design Team Leader Date 21-02-23
Donncha Keohane
TOBIN Consulting Engineers

Signed: Stuart Summerfield Audit Team Leader Date 21/02/23
Stuart Summerfield
CST Group Chartered Consulting Engineers

Signed: Eamon Hutton Employer Date 21/02/23
For Cloghercor Wind Farm Ltd.