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Appendix 2.5

Bridge inspection report

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ENVIRONMENTAL IMPACT ASSESSMENT REPORT (EIAR) FOR THE PROPOSED SHANCLOON WIND FARM, CO.GALWAY

Bridge crossing number 1
Visual Structural Inspection

Prepared for:

RWE Renewables Ireland Ltd

RWE

Date: **July 2025**

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1. INTRODUCTION

1.1 Purpose of Inspection

Fehily Timoney and Company (FT) were appointed by RWE Ltd. to undertake visual structural inspections of a one-span reinforced concrete bridge located along proposed delivery route options to the Shancloon Wind Farm site. The bridge locations are shown in Figure 1-1.

The purpose of the inspections was to:

- Determine details and condition of the of the existing bridge structure,
- Provide an indication of the structural capacity of the bridge, if possible,
- Provide an opinion on whether:
  - The existing bridge would be adequate to support turbine delivery loads,
  - The existing bridge could be modified temporarily or permanently to facilitate turbine delivery,

Figure 1-1: Bridge crossing number 1 Location

2. STRUCTURAL INSPECTION

2.1 Methodology

The structural inspection of the bridge was carried out on 17th January 2024 by Elia Alasia and Leigh Doyle, FT Engineers. The inspection was visual in nature with observations and measurements taken from the deck and the riverbed levels. The bridge inspection was carried out in accordance with TII Standards (AM-STR-06002 and AM-STR-06054).

2.2 Findings and observations

The Bridge crossing number 1 is a one-span reinforced concrete bridge located on a local road and crossing Corrib Headford Arterial Drainage Scheme (channel C4/13). A summary of the findings is provided below:

- Deck Slab: The reinforced concrete slab is in good condition. Minor honeycombs in concrete are visible towards the western abutment. Vegetation is partially covering the deck slab towards the western abutment, an additional inspection to be carried out after vegetation is cleared.
- Bridge Surface: Good condition overall with evidence of minor localised raveling on the east side of the deck.
- Parapets: The visible sections of parapet are in reinforced concrete and in good condition overall. On both sides, vegetation needs to be cleared to assess the structural condition of the parapets. On both sides parapets are 800mm high approximately. Which is lower than the minimum (1250mm) required by DN-STR-03011.
- Embankments: Riverbanks are grassed and in good condition and were observed as being very steep (estimated inclination 45 deg) on both sides of the bridge.
- Parapet Retaining Wall: The reinforced concrete parapet retaining walls are located on the western end of the bridge and are 0.8m high and approximately 4m long. The reinforced concrete walls are partially covered with vegetation which needs to be removed to fully determine the structural condition of this element. The portion of wall which is visible is in good condition.
- Abutments: No scour was observed on the abutments. The reinforced concrete abutments appear in good condition; however, some areas are partially covered in vegetation. A few crevices not impacting the structural integrity of the bridge are visible on both abutments located approximately from 0.5m to 1m above the water level. The northern side wall on the eastern and western abutments displays cracks at the bottom in the order of 15 to 30 mm in width and 150 mm in length.
- Riverbed: The riverbed appears in good condition overall, however in-stream vegetation along the downstream/southern side of the bridge needs to be cleared out.

Appendix 1 contains the Structural Inspection Report for Bridge crossing number 1.

3. RECOMMENDATIONS

Due to the type of bridge inspected, it was not possible to carry out a structural capacity assessment based solely on the information gathered through the visual structural inspection. Further in-depth structural investigation needs to be carried out to determine the key structural parameters, such as concrete strength and reinforcement arrangement, to determine the load capacity of the existing structure. Recommendations for repair and/or further works are made exclusively based on visual site observations to date.

Appendix 1 contains the Structural Inspection Report for Bridge crossing number 1 showing pictures of the current condition of the different bridge elements assessed.

Note that part of the structure is covered by vegetation at present, an additional structural inspection is required to identify any further repair works necessary.

The bridge crossing number 1 based on the visual inspection carried out appears to be in good condition overall and potentially suitable for turbine delivery. However, additional in-depth structural investigation needs to be carried out to determine key structural parameters to prepare a detailed analysis which will result in the determination of the load capacity of the existing structure.

Once this analysis is carried out, if the capacity of the existing structure is not sufficient to guarantee the safe delivery of the turbine components, the structural engineer can propose a series of alternative solutions or enhancement works to achieve the required load capacity.

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APPENDIX 1

Bridge crossing number 1
Inspection Report

Bridge Inspection

conducted for

RWE Ltd.
Shancloon Wind Farm

Structure Name
Bridge Crossing number 1

Structure ID
N/A

Location
53.528259, -9.0215109
Conducted on
17/01/2024

Weather
0 deg C, Sunny

Inspection Organization
Fehily Timoney and Company

Inspection Team
EAA/LD

Access Equipment Needed
None

Table of Contents

Bridge Description

Structure Type	
Over Road	Local road
Obstacle Crossed	Corrib Headford Arterial Drainage Scheme (channel C4/13)
Structure Type	one span reinforced concrete slab
Materials and Construction	
Deck/Arches	Reinforced Concrete
Piers/Abutments	Reinforced Concrete
Foundations	Strip Foundation (assumed)
Retaining Walls	Reinforced concrete

Condition Rating

Condition Rating	**Description for Condition Rating**
0	No or insignificant damage
1	Minor damage but no need for repair
2	Some damage, repair needed when convenient. Components are still functioning as originally designed. Observe the condition development.
3	Significant damage, repair needed very soon. i.e. within next financial year.
4	Damage is critical and it is necessary to execute repair works at once, or to carry out a detailed inspection to determine whether any rehabilitation works are required.
5	Ultimate damage. The component has failed or is in danger of total failure, possibly affecting the safety of the road user. It is necessary to implement emergency temporary repair work immediately or rehabilitation work without delay after the introduction of load limitation measures.
?	Unknown
-	Does not exist

Condition Rating Summary

Element	Condition Rating
Masonry Arch	N/A
Bridge Surface	1
Expansion Joints	N/A
Footways/Median	N/A
Parapets/Safety Barrier	2
Embankments/Revetments	0
Wing/Spandrel/Parapet Retaining Walls	2
Abutments	2
Piers	N/A
Bearings	N/A
Deck/Slab/Arch Barrel	1
Beams/girders/traverse beams	N/A
Riverbed	1
Other Elements	1

Masonry Arches

Arch Barrel Type of Stone	N/A
Condition of Barrel Masonry	N/A
Arch Fill Material	N/A
Width of Joints	N/A
Condition of Joints	N/A
Construction of Joints	N/A
Condition Rating	N/A

Geometry

Number of spans	1
Overall length (m)	9.5
Min Span length (m)	4
Max Span length (m)	4
Overall Width (m)	4.35
Width of carriageway (m)	4.35
Width parapet to parapet (m)	4.35
Width of median (m)	0
Width of soft verge upstream (m)	0.5
Width of soft verge downstream (m)	0.5
Width of approach road (m)	4.35
Min Parapet Height (m)	0.8
Approach Skew 1 (deg)	0
Approach Skew 2 (deg)	0

Span Geometry

Span Dimensions	
Span Dimensions 1	
Span Length (m)	4
Rise of Arch Barrel, at crown (m)	0
Rise of Arch Barrel, at quarter points (m)	0
Spring height above mudline (m)	N/A
Thickness of Arch Barrel adjacent to keystone	N/A
Average depth of fill above crown (m)	0.275
Parapet thickness (m)	0.35

Bridge Surface Inspections

Inspection Notes	Good condition overall few minor areas east of the bridge are raveling (center of the carriageway east of the bridge in Appendix 1)	
Condition Rating	1	
Repair Needed	No	

Footways/Median

Inspection Notes	N/A	
Condition Rating	N/A	
Repair Needed	No	.

Parapets/Safety Barrier Inspection

Inspection Notes	The visible sections of the parapet are reinforced concrete and overall, in good condition with few areas fully/partially covered by vegetation (see appendix 3 and 6). On both sides, vegetation needs to be cleared to fully assess the structural condition of the parapets. On both sides parapets are 800mm high approximately. Which is lower than the minimum (1250mm) required by DN-STR-03011. Parapets should be rebuilt to achieve minimum height to be in accordance with current standards.	
Condition Rating	2	
Repair Needed	Yes	Vegetation is to be removed to determine if any additional work is needed.

Embankments/Revetments

Inspection Notes	The riverbank is grassed and generally in good condition although very steep along the west side upstream and downstream along both side of the banks (estimated inclination 45 deg.). This information needs to be considered if any work will be carried out that requires the use of the riverbank is needed.	
Condition Rating	0	
Repair Needed	No	

Wing/Spandrel/Parapet Retaining Wall

Inspection Notes	The reinforced concrete parapet retaining walls are present on the western end of the bridge and they appear in good condition but partially covered in vegetation. The parapet retaining walls are partially covered with vegetation which needs to be removed to fully determine the structural condition of this element (see appendix 3 and 6).	
Condition Rating	2	
Repair Needed	Yes	Vegetation is to be removed to determine if any additional work is needed.

Abutments

Inspection Notes	No scour was observed on the abutments. Both abutments are reinforced concrete and generally in good condition, vegetation is partially covering the upper part of the western abutment (see appendices 7,9,10,14,15). A few crevices are visible on both abutments located approximately from 0.5m to 1m above the water level. Note that these openings do not seem to impact the structural integrity of the bridge (see appendices 9,11,12,13,17). The northern side wall on the eastern and western abutments displays cracks at the bottom in the order of 15 to 30 mm in width and 150 mm in length (see appendix 8 and 20). Upon clearance of vegetation, the rest of the abutment shall be inspected to determine if any further repair works are required.	
Condition Rating	2	
Repair Needed	Yes	Vegetation to be cleared.

Piers

Inspection Notes	N/A	
Condition Rating	N/A	
Repair Needed	No	

Bearings

Photograph the condition of the bearings		
Inspection Notes	N/A	
Condition Rating	N/A	
Repair Needed	N/A	

Deck/Slab/Arch Barrel

Inspection Notes	The reinforced concrete slab is in good condition overall. No cracks are visible along the deck, however mild honeycombs in concrete are visible towards the western abutment (see Appendix 15). Vegetation is partially covering the deck area located towards the western abutment (see Appendices 14,15). An additional assessment will be carried out after vegetation clearance.	
Condition Rating	1	
Repair Needed	No	However, additional assessment to be carried out once vegetation clearance is carried out.

Beams/girders/traverse beams

Inspection Notes	N/A	
Condition Rating	N/A	
Repair Needed	N/A	

Riverbed

Inspection Notes	The riverbed appears in good condition overall, however in-stream vegetation along the downstream/southern side of the bridge needs to be cleared out.	
Condition	1	
Repair Needed	Yes	Vegetation to be cleared out.

Other Elements

Inspection Notes	The bridge is heavily vegetated, and removal of the vegetation needs to be carried out over the entire structure to allow further inspection of these areas to be carried out. No drainage outlet is present at deck level at present.	
Condition Rating	1	
Repair Needed	Yes	General removal of vegetation required at the bridge.

General

Inspection Notes	In general, the structure is in good condition. An additional inspection needs to be carried out once the vegetation is removed from the structure. Due to the type of the structure inspected (Reinforced Concrete bridge), It is not possible to carry out a reliable assessment of the load capacity of the bridge without further investigations into the type of concrete and reinforcement used. A preliminary assessment would be possible if construction drawings were made available to the FT structural engineer, however these assumptions must be validated during the detailed design with a thorough investigation of the materials used during construction.

Media

Appendix 1: Road surface: View facing west from the east side of the structure showing minor raveling along the side of the carriageway.

Appendix 2: Road surface/Parapet: View facing east from the west side of the structure.

Appendix 3: Southern parapet/Retaining wall showing overgrown vegetation.

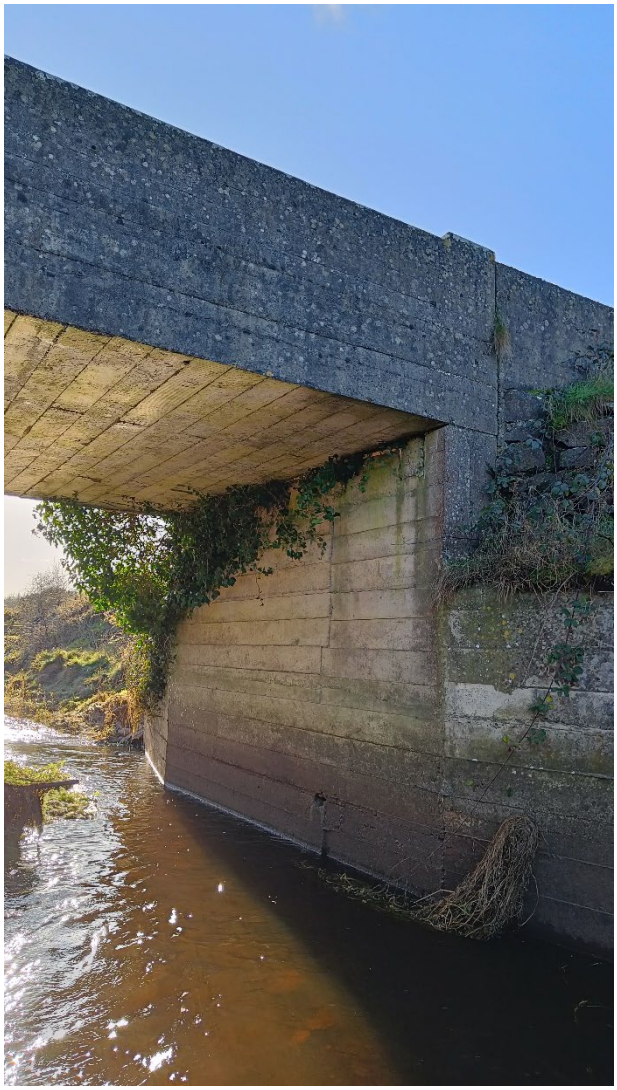
Appendix 4: Northern parapet view.

Appendix 5: Northern parapet view facing entrance of property – showing parapet covered in moss.

Appendix 6: Southern parapet/Retaining wall view from the entrance of property– showing overgrown vegetation.

Appendix 7: View of the bridge from riverbed north side – showing heavily vegetated soffit of the bridge deck.

Appendix 8: West abutment view along the northern side – cracks shown at the bottom of the abutments needing repairs.



Appendix 9: West abutment view along the northern side – showing heavily vegetated soffit of the bridge deck and minor crevices approximately 0.5m above the water level at the center of the abutment.

Appendix 10: West abutment view along the southern side – showing heavily vegetated abutment/ soffit of the bridge deck.

Appendix 11: East abutment view along the southern side – showing 2 no. minor crevices located 1m above the water level and 0.4m from the face of the bridge approximately.

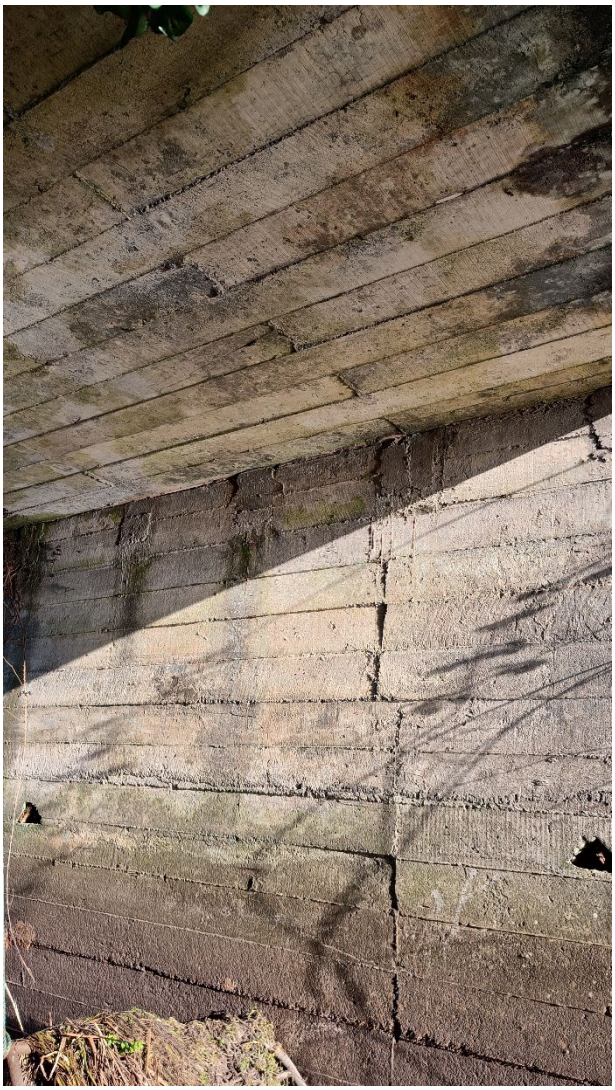
Appendix 12: East abutment view along the northern side – showing 1 no. minor crevices located 1m above the water level and 0.4m from the face of the bridge approximately.

Appendix 13: East abutment view along the northern side – showing 1 no. minor crevices located 1m above the water level and 0.4m from the face of the bridge approximately.

Appendix 14: West abutment and deck soffit front view – showing overgrown vegetation.

Appendix 15: West abutment and deck soffit front view – showing concrete honeycombs area and overgrown vegetation.

Appendix 16: Center of deck soffit view.



Appendix 17: East abutment and deck soffit front view – showing 2 no. minor crevices located 1m above the water level and 0.4m from the face of the bridge approximately.

Appendix 18: East abutment and deck soffit front view.

Appendix 19: East abutment and deck soffit front view.

Appendix 20: Crack shown at the East Abutment side wall along the northern side of the bridge.

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