

Reference	NR/L3/CIV/006/11A
Issue	3
Publication date	5 th September 2015
Compliance date	5 th September 2015

Level 3

Handbook for the examination of Structures Part 11A: Reporting and recording examinations of Structures in CARRS

Reference	NR/L3/CIV/006/11A
Issue	3
Publication date	5 th September 2015
Compliance date	5 th September 2015

This page is intentionally blank.

Reference	NR/L3/CIV/006/11A
Issue	3
Publication date	5 th September 2015
Compliance date	5 th September 2015

Contents

1	Purpose	4
2	Scope	4
3	Examination reports to be recorded in CARRS	4
3.1	General requirements	4
3.2	Content generally	5
3.3	Format of examinations reports	5
3.4	CARRS Examination Summary	6
3.5	Examination front summary sheet	6
4	Photographs and videos generally	7
5	Detailed Examination report	8
5.1	General requirements	8
5.2	Content generally	8
5.3	Photographs	10
5.4	Bridges	10
5.5	Tenanted Spans	12
5.6	Culverts	12
5.7	Coastal, Estuarine and River Defences	12
5.8	Tunnels	13
6	Visual Examination	16
6.1	General requirements	16
6.2	Bridges	17
6.3	Retaining Walls	17
6.4	Tunnels	18
7	Line of Route reports	18
8	Additional Examination	20
8.1	Recommendations	20
8.2	Retaining Walls	20
8.3	Reports generally	20
8.4	Reporting a Bridge Strike	21
8.5	Reporting a flood, storm or exceptional high tide event	21
9	Signing of examination reports	22
	Appendix A: Structure defect risk 5 x 5 matrix	23
	Appendix B: Track identification	24
	Appendix C: Extract from Asset Accountability Matrix February 2009	25

Reference	NR/L3/CIV/006/11A
Issue	3
Publication date	5 th September 2015
Compliance date	5 th September 2015

1 Purpose

The purpose of this part of the handbook is to define the particular requirements and recommendations for:

- reports of examinations of Examination Groups;
- recording the findings of examinations in CARRS.

2 Scope

This part of the handbook applies to Network Rail owned or managed Structures including Major Structures, Shared Structures and Outside Party Structures that have been assigned to Structure Categories A, B, C, F and G in accordance with [NR/L1/CIV/032: Managing existing Structures](#)¹.

This part of the handbook does not apply to recording the findings of examinations or inspections of:

1. Earthworks assigned to Structure Category D in accordance with [NR/L1/CIV/032](#) using GISmo in the GIS database;
2. Buildings and Operational Property Structures assigned to Structure Category E or other category in accordance with [NR/L1/CIV/032](#) in OPAS.

3 Examination reports to be recorded in CARRS

3.1 General requirements

A written report shall be provided as an electronic 'pdf' file with a front summary sheet in accordance with Clause 3.5 following each Detailed Examination, Underwater Examination, Visual Examination, Additional Examination and Rapid Response Examination of a Structure listed in CARRS.

Examination reports shall be uploaded into CARRS.

A separate report shall be provided for each Structure, except when Line of Route reports of Visual Examinations of Ancillary Structures are submitted.

Each examination report shall be:

- reviewed by the Examining Engineer to identify matters that will or may affect the fitness of purpose of the Structure or operational safety to enable recommendations to be included detailing actions to address the identified matters;

¹ This provides information on managing Structures for all Structure Categories.

Reference	NR/L3/CIV/006/11A
Issue	3
Publication date	5 th September 2015
Compliance date	5 th September 2015

- signed in accordance with the requirements of Clause 9 prior to submission.

Following each Detailed and Visual Examination of a Structure any identified discrepancies in CARRS data shall be corrected or missing data input in to CARRS.

3.2 Content generally

Each page of the report is to provide the following information:

- the Network Rail Territory requesting examination of the Structure(s);
- the attributes identifying the “Located At” Structure of the Examination Group (Railway Identification, Asset Type);
- the location (ELR, miles, yards from) and Ordnance Survey grid reference of the “Located At” Structure of the Examination Group, including when applicable each Tunnel portal;
- the date and type of examination;
- CARRS examination identification;
- page number in the format x of y where y is the total number of pages;
- the examining organisation.

Where applicable, the report shall identify on which side of the track the Structure is located, e.g. Left or Right (as seen when standing facing increasing mileage direction).

Tracks shall be referenced in reports using the numeric identification shown in **Appendix B**.

When the condition of part of a Structure is such that urgent action has been taken or is likely to be required, the relevant information shall be recorded on the front summary sheet of the report.

3.3 Format of examinations reports

3.3.1 General requirements

Each examination report shall comprise a single electronic file. All reports shall be given a unique file name (including a version number for those replacing a rejected report).

Reference	NR/L3/CIV/006/11A
Issue	3
Publication date	5 th September 2015
Compliance date	5 th September 2015

The standard sheets do not preclude the Examiner or Examining Engineer from using extra sheets to amplify or cover parts of the examination not included on the standard sheet.

3.3.2 Tunnels

The format for reporting the Tunnel condition determined in a Detailed Examination shall be based on an Excel spreadsheet workbook as described in **Part 4C**.

The purpose of the examination report format is to:

- use an examination report template to provide reports in a consistent format, and to support the condition marking system for Tunnels;
- improve objectivity and reduce subjectivity leading to variance between Examiners;
- collect data to enable the TCMI to be determined for each Tunnel.

3.4 CARRS Examination Summary

In addition to the uploading of the examination report, an Examination Summary as an 'xml' file shall be uploaded.

The actual date of the examination shall be recorded against the Examination Summary.

When uploaded into CARRS, the status of the Examination Request in CARRS will change to 'In Progress'. When the Structure Manager signs off the Examination Summary (final report = "Y"), the status of an Examination Request will change to 'Completed'.

3.5 Examination front summary sheet

The first sheet of each Detailed Examination report shall be a report front summary sheet, whether or not work is recommended. The front sheet shall enable differentiation between reports for Detailed Examinations, Visual Examinations or Additional Examinations, and shall clearly state the type of examination.

The following information shall be provided for each Examination Group:

- ELR, Structure identification number, name of Structure, mileage, Structure ownership of 'Located At' element of the Examination Group;

Reference	NR/L3/CIV/006/11A
Issue	3
Publication date	5 th September 2015
Compliance date	5 th September 2015

- type of examination and examination date;
- CARRS examination identification number.

For any report, the front summary sheet shall detail the following information:

- whether the examination is for the complete Structure, and if not, the part or parts to which the report refers shall be identified;
- any parts of the Structure that have not been examined identified clearly and listed with reasons for not examining such parts and recommendations for further investigation;
- any work considered urgent.

When action is not considered necessary, the front summary sheet shall be endorsed “Recommended no action required”;

When work is recommended, the front summary sheet shall be endorsed “Work schedule contained within report”.

For each defect which, in the opinion of the Examining Engineer requires work to be undertaken before the next Detailed Examination to enable the safety and performance of the Examination Group to be maintained, the following information shall also be provided on the front summary sheet:

- a simple description of the defect, including the nature, extent, location, and the severity of consequences, likelihood of occurrence and resulting risk arising from the defect derived using the defect risk matrix in **Appendix A**;
- a simple description of the proposed work and recommendations for any further actions deemed necessary to rectify, monitor or assess the defect.

4 Photographs and videos generally

All photographs and videos included in examination reports shall be digital.

The camera resolution setting for photographs shall give a colour photograph quality acceptable to the Structure Manager but not so high a resolution that it creates a large file size.

A photograph file size of approximately 100kB to 150kB per photo is considered to provide sufficient resolution in most cases provided good practice is applied when taking photographs.

All photographs and videos shall be automatically dated, numbered and annotated to identify the particular view, elevation, element or defect.

Reference	NR/L3/CIV/006/11A
Issue	3
Publication date	5 th September 2015
Compliance date	5 th September 2015

5 Detailed Examination report

5.1 General requirements

The information and recommendations provided in the report of a Detailed Examination shall be sufficient to enable the Structure Manager to decide the need for and the priority of actions and works required to maintain the safety and performance of the Examination Group.

The likelihood of occurrence and consequential risk arising from the extent of defects and the severity of consequences shall be considered using the risk matrix in **Appendix A** and the results identified in each report.

5.2 Content generally

The report of a Detailed Examination shall:

- contain a licensed extract from a 1:50,000 OS map clearly showing the location of the Structure;
- include a sketch showing lateral and vertical distances from the track to the Structure and the locations where the dimensions were taken, including where there are any changes in construction or direction;
- confirm whether all accessible parts of the Structure have been examined within touching distance, and if applicable identify those parts examined visually;
- identify hidden or buried parts that have not been examined;
- where applicable, record the response of an ESS to the passage of trains;
- identify parts of the Structure where indirect examination techniques, such as CCTV, have been used;
- identify all parts of the Structure and their condition;
- record the location, extent and severity of all defects;
- identify the extent and severity of changes in condition, use or environment since the previous examination;
- identify Significant changes to the adjacent Watercourse, beach or foreshore;
- include relevant dated recorded observations, measurements, readings of monitoring points with a graph or other means of presentation provided to show the trend of movements;