Letter of instruction

Information for users

The following document: NR/L3/CIV/006/4A Issue 1 has had changes made to it, most recently, with effect from 23 February 2015.

Instructions for use

It is essential that you first read and understand each letter of instruction pertaining to the standard before proceeding to use the standard. You must then apply the requirements of each letter to the standard.

NR/BS/LI/348	Issue 1	23 February 2015	Proceed to letter ▶
NR/L3/CIV/006/4A	Issue 1	05 September 2009	Proceed to standard ▶

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Reference	**NR/L3/CIV/0006/4A**
Issue	1
Publication date	5th September 2009
Compliance date	5th December 2009

Level 3

Handbook for the examination of Structures Part 4A: Lined Tunnels

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1 Purpose

The purpose of this part of the handbook is to define the particular requirements and recommendations for examination of lined Tunnels

2 Scope

This part of the handbook applies to all Network Rail owned or managed, Shared and Outside Party lined Tunnels that have been assigned to Structure Category C in accordance with NR/L1/CIV/032: *Managing existing Structures*[1].

A cut and cover Tunnel shall be examined as a Tunnel unless stated in the Tunnel Management Strategy that the Structure or part of is to be examined as a Bridge (See **Part 2A**).

Non operational Tunnels shall be subject to Visual Examinations only unless otherwise required by the Structure Manager.

3 Competency

In addition to **Part 1D**:

- the Lead Examiner who carries out an examination of a lined Tunnel shall satisfy the competence requirements of NR/SP/CTM/017: *Competence and training in Civil Engineering* unit STE 2 or STE6;
- the appointment of an Examining Engineer, Lead Examiner and Examiner for a Tunnel shall be subject to the acceptance of the Structure Manager.

Notwithstanding the above, the observation of the surface ground along the line of the Tunnel may be undertaken by a person who has not been assessed as competent in accordance with NR/SP/CTM/017 providing the Structure Manager is satisfied that the person has the necessary skill and experience to undertake the task.

4 Preparations for an examination

4.1 General requirements

Further to **Part 1D**, to enable each Detailed Examination of a Tunnel and Shaft to be completed effectively the following information should be obtained:

- the method of construction;
- the type and details of the lining and presence or otherwise of an invert;

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

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- the location of any known Shafts and Suspected Shafts;
- the location of any straight joints, abrupt changes in section or changes in method of construction;
- the nature, location and extent of any known defects;
- details of repairs previously proposed;
- details of any repairs carried out since the previous Detailed Examination;
- the geology of the ground through which the Tunnel passes;
- the location, type, and details of drainage systems;
- the location of surface and underground Watercourses;
- the extent and severity of water ingress (see **Part 4C**);
- the method used to mark distances and Shaft locations within the Tunnel.

4.2 TCMI reference sketch and element breakdown

In addition to **Part 1D**, a definitive TCMI sketch and elements breakdown for rating the condition of the Tunnel shall be prepared, reviewed and maintained in accordance with **Part 4C**.

A revised TCMI reference sketch and element breakdown in accordance with **Part 4C** shall be prepared if since the previous Detailed Examination:

- the structural form has changed;
- significant repairs have been carried out with introduced strengthening.

In all other cases the existing TCMI reference sketch shall be considered suitable for use in the Detailed Examination.

4.3 Removal of water management sheeting

Requirements for the removal of water management sheeting for the examination and reinstatement including replacement of defective fixings shall be agreed with the Structure Manager.

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