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Ref:	NR/L2/SIG/19608
Issue:	7
Date:	27 May 2014
Compliance date:	6 September 2014

Level 2

Level crossing asset inspection and implementation of minimum action codes

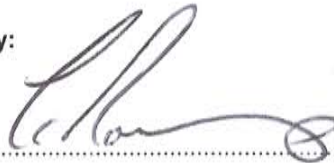
Endorsement and Authorisation

Endorsed by:



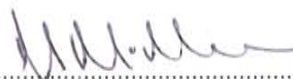
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User information

This Network Rail standard contains colour-coding according to the following Red–Amber–Green classification.

Red requirements – *No variations, could stop the railway*

- **Red requirements shall** always be complied with and achieved.
- Red requirements shall be presented in a red box **with the word “shall” or expressed as a direct instruction**.
- Accountability for the efficacy of red requirements lies with the Professional Head/Standard Owner.
- Red requirements are monitored for compliance.
- Corrective actions shall be enforced if variations are discovered through functional checks (e.g. engineering verification visits, audit or Operations Self-Assurance).

Amber requirements – *Controlled variations, approved risk analysis and mitigation*

- **Amber requirements shall** be complied with unless variation has been approved in advance.
- Amber requirements shall be presented with an amber sidebar **and with the word “shall” or expressed as a direct instruction**.
- Accountability for the efficacy of these requirements lies with the Professional Head/Standard Owner, or their nominated Delegated Authority.
- Amber requirements are monitored for compliance.
- Variations **may** be permitted. Variations are approved by the Standard Owner or through existing Delegated Authority arrangements.
- Corrective actions shall be enforced if **non-approved** variations are discovered through functional checks (e.g. engineering verification visits, audit or Operations Self-Assurance).

Green – *Guidance*

- Guidance is based on good practice. Guidance represents supporting information to help achieve **Red** and **Amber** requirements.
- Guidance shall be presented with a dotted green sidebar **and with the word “should” (usually in notes) or as a direct instruction**.
- Guidance is **not mandatory** and is not monitored for compliance.
- Alternative solutions may be used. Alternative solutions do not need to be formally approved.
- Decisions made by a competent person to use alternative solutions should be backed up by appropriate evidence or documentation.

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Issue record

Issue	Date	Comments
1	April 2004	First Issue
2	Feb 2006	Revised to reflect use of dedicated Level Crossing Inspectors
3	26/08/2008	Revised to reflect new posts in organisational change
4	01/12/2008	Revised after review to correct inconsistencies and to include reference to Sleeping Dogs and Mothballed Crossings plus a dedicated check sheet for Surface Systems (Level Crossing Decks)[Later withdrawn due to anomalies].
5	04/12/2010	Revision of document to be up issued to Issue 5 and also to include recommendations from RAIB reports, detail from TI 142, revised LXi28 Surface Systems (Level Crossing Decks) and new decking profile checksheet.
6	04/06/2011	Standard reissued as import and export from DOORs corrupted issue 5.
7	27/05/2014	Revised to clarify process, change responsibilities for inspections to Level Crossing Managers and introduce assurance appendices.

Compliance

This Network Rail standard is mandatory and shall be complied with by Network Rail and its contractors if applicable from 6 September 2014.

When this standard is implemented, it is permissible for all projects that have formally completed GRIP Stage 3 (Option Selection) to continue to comply with the issue of any relevant Network Rail standards current when GRIP Stage 3 was completed and not to comply with requirements contained herein, unless stipulated otherwise in the scope of this standard.

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1 Purpose

This document provides Level Crossing Managers (LCMs) and Delivery Unit staff, see RACI in clause 4, with acceptable means of compliance for the inspection of level crossing assets.

This document assists in the mitigation of the following high level risk:

- Level Crossings: vehicle, person or animal on the line at risk of collision.

The inspections form part of a multi-disciplinary process that demonstrate that level crossings remain safe, reliable and legally compliant.

2 Scope

This process describes a method of inspecting level crossings on Network Rail Managed Infrastructure. It includes:

- a) preparing for inspections;
- b) undertaking inspections, identifying defects and the minimum actions to be taken on site;
- c) recording inspections and defects identified; and
- d) managing defect repairs.

It does not apply to authorised walking routes that cross the railway unless they are classified as a staff crossing with white lights. It does not apply to road rail access points or track access points.

Assurance requirements are given in Appendices:

- A – Annual check that the inspection frequencies in Ellipse are correct
- B – Checking the quality of repairs to level crossing defects
- C – Monitoring the timescales for rectifying level crossing defects
- D – Checking the quality of level crossing inspections

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3 Level crossing inspection and defect rectification process

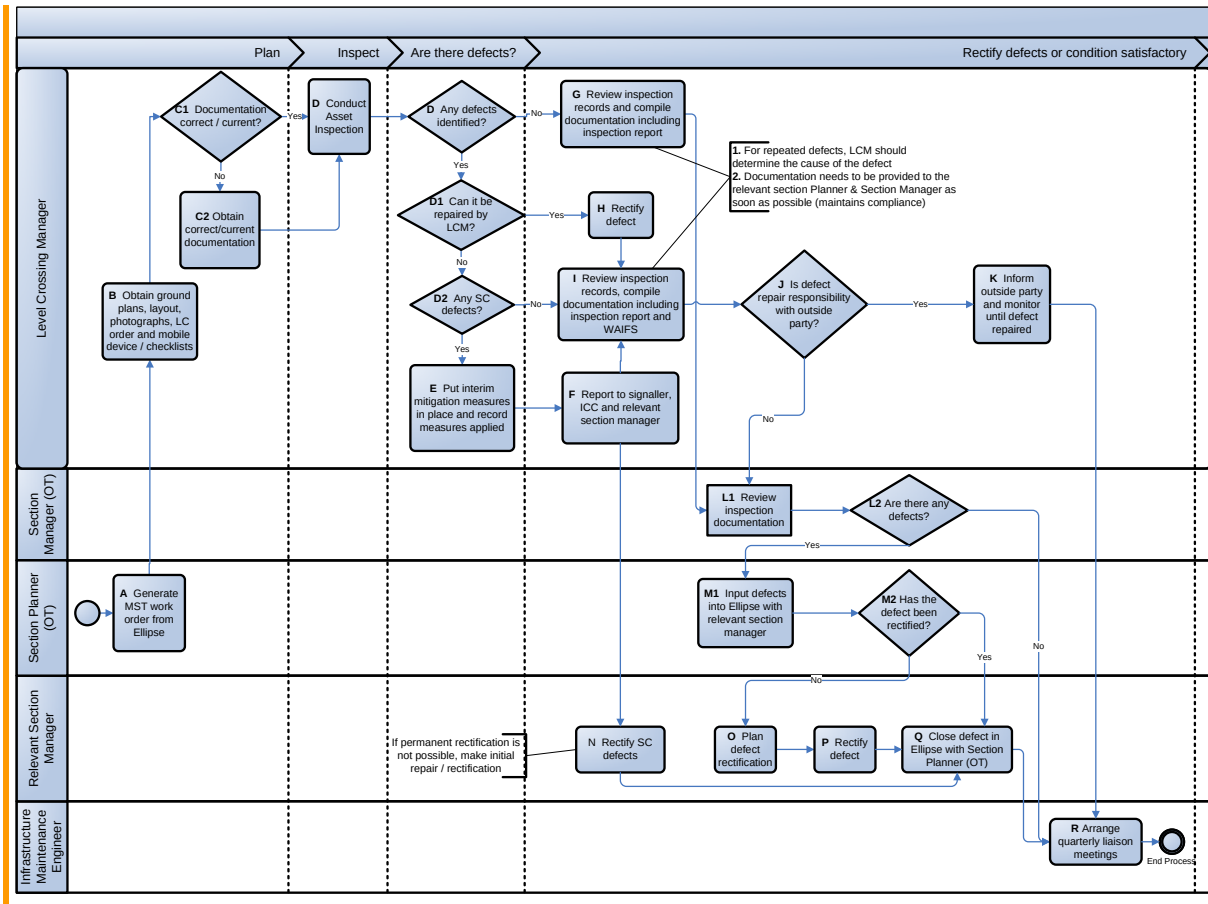


Figure 1 – Process flow chart

Sub-task	Responsible	Information
A	Section Planner (Off-track)	<p>Work orders shall be generated using MSTs in Ellipse.</p> <p>NOTE Wherever possible, any crossing that uses sighting distance as the main risk mitigation measure should be scheduled for inspection during the vegetation growing period.</p> <p>Frequency of inspections:</p> <p>The maximum intervals for level crossing inspections are given in Table 7.</p> <p>A seven-day tolerance is permitted for re-scheduling in cases of sickness and emergency.</p> <p>No other extension to the inspection intervals is permitted.</p> <p>Non-standard inspection frequencies are allocated to the relevant inspection MSTs in Ellipse.</p>

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Sub-task	Responsible	Information
B, C (C1 and C2)	Level Crossing Manager (LCM)	<p>LCMs shall prepare for inspections by gathering the relevant documentation and equipment. This shall include:</p> <ul style="list-style-type: none"> a) ground plan or crossing sketch and layout photographs; b) Level Crossing Order where relevant; c) signalling plan; and d) mobile device. <p>The LCM may include previous inspection records as a reminder of previously identified defects.</p> <p><i>NOTE Inspection records are currently kept on TEF 3243.</i></p>
D (D1 and D2)	LCM	<p>Conduct asset inspection.</p> <p>LCMs shall use a mobile device when undertaking inspections.</p> <p>LCMs shall use the mobile device to record the results of inspections.</p> <p><i>NOTE The mobile device will present LCMs with the relevant questions for the crossing being inspected. Dropdown menus will provide LCMs with the available options to record the results of the inspection.</i></p> <p>If the mobile device fails, LCMs shall undertake the inspections using the level crossing inspection checklists selected. The checklists contain a check box for each item on the checklist. The check boxes shall be completed in accordance with Table 3.</p> <p>In case of mobile device failure, LCMs shall take copies of the level crossing checklists to site. If the checklists need to be used, LCMs shall select the appropriate checklists using the guidance given in the <i>Level crossing inspection checklists</i> and Table 2.</p> <p>The checklists selected shall cover all the functionality and infrastructure elements of the level crossing to be inspected.</p>
D, E	LCM	<p>LCMs, as part of the inspection process, shall identify any defects needing repair. Defects identified shall be prioritised in accordance with Table 7.</p> <p>Actions taken on site shall comply with Table 7. It gives the minimum actions to be taken on site. It includes mitigation measures that can be applied and temporary repairs to be made when full repair is not possible.</p>
D2, E, H	LCM	<p>Repair defects:</p> <p>Where possible, defects shall be repaired as they are identified. This includes those that are not the responsibility of Network Rail and which can be safely, easily and quickly rectified providing the activity does not require a change to the Highways Interface process. These repairs shall be included on the defect forms.</p> <p>Factors to take into account when assessing if a repair is possible at the time of inspection include having a safe system of work, the availability of materials and individual competence.</p> <p>Examples of defects that are not the responsibility of Network Rail include loose/skewed road signs, cleaning dirt and graffiti on road signs. Check local arrangements.</p>

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Sub-task	Responsible	Information
G, I (I1 and I2)	LCM	<p>Complete inspection records. After every inspection, LCMs shall:</p> <ol style="list-style-type: none"> complete a Level Crossing Inspection Record; record all defects identified, including any rectified during the inspection; record interim mitigation measures implemented and temporary repairs made; where necessary, complete the level crossing inspection checklists; prioritise all defects using Table 7; produce the supporting Ellipse Work Arising Inspection Forms (WAIFs); and pass the completed documentation to the SM(OT). <p><i>NOTE 1 Inspection records are currently kept on TEF 3243.</i></p> <p><i>NOTE 2 Produce WAIFs for defects that are the responsibility of outside parties. The WAIF should be input into Ellipse against the LCM's workgroup with a monitor code.</i></p> <p>LCMs shall retain copies of inspection documentation.</p> <p><i>NOTE 3 This is to assist with monitoring repeated defects and monitoring defect repair.</i></p> <p>LCMs shall lead the investigation of repeated defects to determine the cause of the defect.</p>
L (L1 and L2)	Section Manager (OT)	<p>The SM(OT) shall:</p> <ol style="list-style-type: none"> review all inspection documentation for completeness; review defects identified for ownership; approve or reject the inspection record; escalate any queries to the TME; and send all completed WAIFs to the Off track Section Planner for input into Ellipse. <p>The SM(OT) shall retain copies of inspection documentation in accordance with record keeping requirements.</p>
M1 and M2	Section Planner (OT)	<p>Input defects into Ellipse with relevant Section Manager.</p> <p>Close defects that have been rectified already.</p>
O, P, Q	Section Manager	<p>Defects shall be rectified in a timescale according to their assigned priority based on safety risk. Table 5 gives the timescales to be applied.</p> <p>The relevant SM shall plan the delivery of defect repairs to comply with Table 7.</p> <p>This includes temporary repairs which shall be made before the defect can be permanently rectified.</p>
R	Infrastructure Maintenance Engineer	<p>The IME shall arrange regular review meetings between themselves, their functional engineers and relevant LCMs to monitor the progress of defect rectification.</p> <p>The meetings shall take place at least four times a year. Invite external bodies if necessary.</p> <p>Records of the meetings shall be kept.</p>

Table 1 – Key to process flow chart

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Checklist	Title	AHBC	ABCL	AOCL+B	AOCL	AOCR	MCB all types	MG	UWC	OC	TMO	FP & BW	Barrow	SD
LXi01	Road Arrangements	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	-
LXi02	Road Signals	✓	✓	✓	✓	✓	✓	✓	-	-	✓	-	-	-
LXi03	Booms / Barriers	✓	✓	✓	-	-	✓	-	✓	-	✓	-	-	-
LXi04	Manned Gates	-	-	-	-	-	-	✓	-	-	✓	-	-	-
LXi05	Telephone Systems	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-
LXi06	Road Signals & Signs, MSL /MWL	-	-	-	-	-	-	-	✓	-	-	✓	✓	-
LXi07	Road Signs AHBC, ABCL & AOCL+B	✓	✓	✓	-	-	-	-	-	-	-	-	-	-
LXi08	Road Signs AOCL / AOCR	-	-	-	✓	✓	-	-	-	-	-	-	-	-
LXi09	Road Signs MCB all types	-	-	-	-	-	✓	-	-	-	✓	-	-	-
LXi10	Road Signs Manned Gates	-	-	-	-	-	-	✓	-	-	-	-	-	-
LXi11	Road Signs Open Crossings	-	-	-	-	-	-	-	-	✓	-	-	-	-
LXi12	Road Signs UWC	-	-	-	-	-	-	-	✓	-	-	-	-	-
LXi13	Road Signs Footpath & Bridleway	-	-	-	-	-	-	-	-	-	-	✓	-	-
LXi14	Road Signs Station Barrow	-	-	-	-	-	-	-	-	-	-	-	✓	-
LXi15	Rail Signs AHBC / MSL / MWL / AOCR	✓	-	-	-	✓	-	-	✓	-	-	✓	-	-
LXi16	Rail Signs Traincrew Operated	-	-	-	-	-	-	-	-	-	✓	-	-	-
LXi17	Rail Signs AOCL / AOCL+B / ABCL / OC	-	✓	✓	✓	-	-	-	-	✓	-	-	-	-
LXi18	Whistle Boards	✓	-	-	-	-	-	-	✓	-	-	✓	✓	-
LXi19	Barrier crossings operation including AHBC, ABCL & AOCL+B	✓	✓	✓	-	-	-	-	-	-	-	-	-	-
LXi20	Open crossings operation including AOCL & AOCR	-	-	-	✓	✓	-	-	-	-	-	-	-	-
LXi21	MCB Operation all types	-	-	-	-	-	✓	-	-	-	-	-	-	-
LXi22	Manned Gates Operation	-	-	-	-	-	-	✓	-	-	-	-	-	-
LXi23	Gates / Barriers Operation	-	-	-	-	-	-	-	✓	-	-	✓	✓	-

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Checklist	Title	AHBC	ABCL	AOCL+B	AOCL	AOCR	MCB all types	MG	UWC	OC	TMO	FP & BW	Barrow	SD
LXi24	Traincrew Operated Operation	-	-	-	-	-	-	-	-	-	✓	-	-	-
LXi25	Station Barrow Operation	-	-	-	-	-	-	-	-	-	-	-	✓	-
LXi26	Sleeping Dog	-	-	-	-	-	-	-	-	-	-	-	-	✓
LXi27	Crossings on Mothballed Lines	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	✓	✓	-
LXi28	Surface Systems (Crossing Decks)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Table 2 – Level crossing inspection checklists and checklist selection

Mark	Status
X	Unacceptable
R	Acceptable – defect repaired
C	Acceptable
T	Unacceptable – temporary repair made
N/A	Not applicable

Table 3 – Marks for completing inspection checklists

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Description	Maximum Inspection Interval
Automatic Half Barrier Crossings	7 weeks
Automatic Half Barrier Crossings Locally Monitored	7 weeks
Automatic Full Barrier Crossings	7 weeks
Automatic Open Crossings Locally Monitored	7 weeks
Automatic Open Crossings Remotely Monitored	7 weeks
Miniature Stop / Warning Lights	7 weeks
Manually Controlled Barriers all types	3 months
Traincrew Operated Crossings	3 months
Manned Gated Level Crossings	3 months
Station, Barrow or foot Crossings with White Lights	3 months
Open Crossings	6 months
User Worked Crossings	6 months
Footpath and Bridleway Crossings	6 months
Station, Barrow or Foot Crossings without White Lights	6 months
Sleeping Dog Crossing	6 Months
Crossings on Mothballed lines	In accord with specific crossing type

Table 4 – Maximum inspection intervals

Defect code	Timescale
SC	Within 36 hours
SI	Within 7 days
M1	Within 4 weeks
M2	Within 7 weeks
M3	Within 13 weeks
M6	Within 26 weeks
M12	Within 52 weeks
M24	Within 104 weeks

Table 5 – Defect codes, timescales and limits

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4 RACI

Sub-Task	Route Level Crossing Manager / ORA	Level Crossing Manager	Infrastructure Maintenance Engineer	Functional Maintenance Engineer(s)	Section Manager [Off track]	Section Planner	System Support Manager	Signaller	Operations Manager / LOM	Integrated Control Centre	Section Manager [other]	Infrastructure Maintenance Services Manager	Maintenance Protection Coordinator	Outside Party
A					A	R								
B	A	R												
C1	A	R												
C2	A	R												
D, D1 & D2	A	R												
E	A, C	R		C	C			I	C	C				
F	A	R		I	I			I		I	I			
G & I	A	R		I	I	I								
H	A	R			I									
J & K	A	R			I	I					I		I	I
L1 & L2		C		A	R	I								
M1 & M2	I	C			A	R					C			
N		I	A	R										
O				A	R						R			
Q				A	R	R								
R	C	C	A	C	C						C			C