

# **Highways Agency**

## **Audit Report DN52**

### **M40 Denham to Warwick DBFO**

**March 2012**



### Document Control

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### Distribution

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### Revision History

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### Approvals

<b>Name</b>	<b>Signature</b>	<b>Title</b>	<b>Date</b>	<b>Version</b>
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**Audit Details**

<b>Audited Organisation</b>	UK Highways (M40) Ltd
<b>Audit Date</b>	29 March 2012
<b>Audit Number</b>	DN52

<b>Auditors</b>	<b>Name</b>	<b>Role</b>	<b>Organisation</b>
		Lead Auditor / Department's Representative	Highways Agency
		Assistant Department's Representative	Highways Agency

<b>Other participants</b>	Clare Fionda	Quality Director	UK Highways (M40) Ltd
	Steve Field	Operations Manager	UK Highways (M40) Ltd
	Andy Hicks	Contract Manager	Carillion Highway Maintenance
		Manager	Carillion Highway Maintenance

<b>Audit area</b>	Structures
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<b>Non-conformance</b>	Five
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<b>Observation</b>	Eight
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<b>Best Practice</b>	Zero
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## **1 Introduction**

- 1.1 The audit was carried out on UK Highways (M40) Ltd (UKH) to evaluate compliance with the DBFO contract and their Quality Management System in the following areas of operation and maintenance:
- Structures inspections and defects;
  - Structures major maintenance;
  - Structures routine maintenance;
  - Structures records.
- 1.2 UKH is responsible for the M40 Denham to Warwick DBFO from junction 1 to 15. UKH have subcontracted Carillion Highway Maintenance (CHM) to provide operations and maintenance for the duration of the contract. The contract started in 1996 and expires in 2026.
- 1.3 The following documents were referred to during the audit:
- M40 DBFO Contract;
  - UKH & CHM Quality Management System and processes.
- 1.4 The audit set out to examine DBFO contract compliance, the processes for conducting operations and maintenance, areas of good practice and changes that could be made to improve performance.

## **2 Review of corrective actions from previous audits**

- 2.1 Since last audit, UKH have closed a number of historic outstanding corrective actions from previous audits. Outstanding items now only relate to audit DN51.





### **3 Audit findings**

#### **3.1 Inspections and defects**

- 3.1.1 UKH explained the role of CHM in the management of over 250 structures on the M40. CHM explained their processes and procedures for inspections and defects. Principal inspections (PI) take place every 6 years and general inspections (GI) every 2 years. M40 structures are being inspected at these frequencies and reports are being submitted to the DR within 3 months of completion as required by schedule 6, part 2, paragraph 6.3.1.1.
- 3.1.2 Clause 12.3.1 of the DBFO contract requires UKH to provide timely notice of any PI/GI. This is fulfilled through inclusion in monthly report.
- 3.1.3 CHM explained that defects are identified at PI/GI and categorised into high, medium and low priority, a severity rating between 1 and 4 is then allocated to each defect (1 being the lowest). Unless defects pose an immediate hazard to road users, they should be remedied as soon as possible after identification in accordance with M40 DBFO contract, schedule 6, part 6, paragraph 6.5.
- 3.1.4 CHM currently reviewing PI/GI programme to optimise intervention in terms of traffic management, road space and disruption to the network.
- 3.1.5 CHM encourage operatives to perform superficial inspections during the conduct of other network operations as required by TRMM volume 2, part 2 paragraph 2.1.6. Only safety critical defects or issues would be identified.
- 3.1.6 A copy of PI/GI programme for 2012 was provided to UKH in December 2011. All PI/GI for 2011 were completed apart from those structures where there were issues with obtaining access from Network Rail in order to conduct the inspection. These failures were raised in non-conformance reports 57 to 78.
- 3.1.7 UKH include structures inspection programme within monthly operation and maintenance report.
- 3.1.8 A copy of PI/GI programme covering the entire duration of the DBFO contract was provided. This showed 8 gantries (ref: 23712 to 23719) have not been subject to PI/GI. These gantries were installed in 2003 and instructed into maintenance on 10 April 2010 via additional works notice (AWN) 56 and eligible change notice (ECN) 9.
- 3.1.9 **Non-conformance 52/01 (NCR 52/01):** Failure to conduct PI/GI on structures instructed into maintenance in 2006 via AWN 56 and ECN 9.

- 3.1.10 **Observation 52/01 (OBS 52/01):** AWN 56 and ECN 9 relating to 8 gantries included a cost for PI/GI and routine maintenance. UKH have been paid for PI/GI that have not taken place but need to confirm whether routine maintenance has taken place. Once investigated, UKH to confirm of money owed to the Agency.
- 3.1.11 **Observation 52/02 (OBS 52/02):** PI/GI programme confirms that gantries 21981 and 21982 at M40 junction 14 have not been instructed into maintenance and therefore, PI/GI have not taken place.
- 3.1.12 PI/GI programme showed that CCTV masts were not included in PI/GI programme. Although BD 62/94 states that CCTV masts should be considered as a structure and should be subject to PI/GI, schedule 17 of the M40 DBFO contract excludes the structural element of the CCTV masts from the communications requirements. Therefore, only civil elements should be included within routine maintenance.
- 3.1.13 Civil elements relating to the additional CCTV masts installed and instructed under AWN 57 and ECN 11 are being maintained by UKH but are not subject to PI/GI in accordance with schedule 17 of the M40 DBFO contract.
- 3.1.14 **Observation 52/03 (OBS 52/03):** Confirmation that civil elements relating to all CCTV assets and transmission stations are being maintained and that inspections of the masts are being carried out by TechMAC.

### 3.2 *Major maintenance*

- 3.2.1 On completion of PI/GI, UKH send the reports to their consultant BCS for review. BCS review the defects and make recommendations to UKH for major maintenance works and packages for repair.
- 3.2.2 UKH are in the process of finalising technical appraisal forms (TAF) for structure repairs including Three Pigeons overbridge.

### 3.3 *Routine maintenance*

- 3.3.1 UKH retain files on each structure at Banbury depot. Each structure file should include a routine maintenance manual/schedule and a record of annual maintenance.
- 3.3.2 Hollybush south retaining wall, Fulmer Road overbridge, Gantry (SG09) 8419B and Nell bridge culvert were sampled.
- 3.3.3 **Non-conformance 52/02 (NCR 52/02):** Hollybush south retaining wall routine maintenance schedule for 2010 missing from file.



- 3.3.4 TRMM volume 2 part 2 paragraph 2.1.6 requires inspections and any subsequent defects identified to be carried out in accordance with BD 62/94 for structural elements and in accordance with the relevant section of TRMM for non-structural elements (e.g. safety fence, drainage).
- 3.3.5 **Observation 52/04 (OBS 52/04):** It appears that PI/GI reports only identify structural defects and do not separately identify structural and non-structural defects identified during inspections.
- 3.3.6 **Non-conformance 52/03 (NCR 52/03):** There was no maintenance manual present within the file for Gantry 8419B.
- 3.3.7 **Observation 52/05 (OBS 52/05):** Nell bridge culvert, inspection identified lack of handrail/guardrail as a UKH defect (ref: 18796). UKH wrote to Agency on 24 March 2011 (letter ref: 52498) proposing a safety improvement to address this issue. The Agency responded on 17 May 2011 posing further questions but has not yet received a response. In addition to a response to this letter, a particular area that needs to be considered is whether the provision of a handrail/guardrail is required by contract standards and would therefore be considered a latent defect.
- 3.3.8 **Observation 52/06 (OBS 52/06):** Off network defects for which the local authority is responsible, were identified at an inspection of Fulmer road overbridge. These types of defects pose a potential risk to the operation and safety of the M40. To ensure these types of defects are addressed within a reasonable timescale, the respective boundary and areas of responsibility at these locations needs to be addressed.
- 3.3.9 **Observation 52/07 (OBS 52/07):** Medium severity 2 defect identified at Fulmer road overbridge relating to the parapet handrail was incorrectly recorded on the defects management system, Insight.

### 3.4 **Records**

- 3.4.1 BD 62/94 requires retention of specific records relating to each structure, including form 277, BE 13, original technical appraisal form (TAF)/approval in principle (AIP) and others.
- 3.4.2 All forms relating to the structures sampled were present in the respective file.
- 3.4.3 DBFO contract, schedule 14, part 1, paragraph 3.2 requires PI/GI reports to be retained for 12 years. All reports for structures sampled were retained for over 12 years.



- 3.4.4 **Non-conformance 52/04 (NCR 52/04):** DR not being informed of completion of any actions identified at inspection within 3 months of completion as required by Schedule 6, part 2, paragraph 6.3.1.1. This was previously included in monthly operation and maintenance report.
- 3.4.5 **Non-conformance 52/05 (NCR 52/05):** Routine maintenance schedule not being sent to Agency upon completion as required by TRMM volume 2, part 2, annex 2.1.1.
- 3.4.6 **Observation 52/08 (OBS 52/08):** Quality procedures for structures could benefit from being updated based on the findings from this audit.

## **4 Conclusion**

- 4.1 The audit identified 5 non-conformances and 8 observations.
- 4.2 UKH and CHM manage over 250 structures on the project road. PI/GI are being delivered to programme. The PI/GI programme is being reviewed to optimise the use of traffic management and roadspace.
- 4.3 Serious concerns were raised in relation to the gantries adopted into the project facilities under Awn 56 and ECN9. CHM records suggested that the gantries were not part of the project facilities and that PI/GI have not been conducted since the instruction in 2006. It is not clear if routine maintenance has ever been conducted on the gantries. The Agency has paid an annual fee for the maintenance of these gantries so any overpayment needs to be reimbursed.

**END**

## **ANNEX A – Audit meeting attendance record**

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Safe roads, reliable journeys, informed travellers

### Audit Meeting Attendance Record

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**ANNEX B – Audit non-conformance and Observation Reports**

Audit Non-Conformance Report			
<b>Audit No.</b>	DN52	<b>Date</b>	29 March 2012
<b>Item</b>	Structures inspections and defects	<b>NCR No.</b>	52/01
Statement			
You are hereby notified of the following Non-Conformance:			
<p>BD 63/94 <i>inspection of highway structures</i> requires PI/GI to be conducted every 6 years and every 2 years respectively.</p> <p>8 gantries (ref: 23712 to 23719), installed in 2003, became part of the M40 DBFO project facilities in 2006 under instruction AWN 56 and ECN 9.</p> <p>A copy of PI/GI programme covering the entire duration of the DBFO contract showed a failure to conduct PI/GI on these gantries since date of instruction.</p>			
<b>Category (Major/Minor)</b>	Major		
<b>Signature (Auditor)</b>		<b>Date</b>	29/03/12
Response			
Proposed immediate Corrective Action:			
Proposed Preventive Action (Long Term):			
Cause of deviation:			
Scheduled completion/implementation:			
<b>Signature (Auditee)</b>		<b>Date</b>	
Verification			
<b>Signature</b>		<b>Date</b>	



Audit Non-Conformance Report			
<b>Audit No.</b>	DN52	<b>Date</b>	29 March 2012
<b>Item</b>	Routine maintenance	<b>NCR No.</b>	52/02
Statement			
You are hereby notified of the following Non-Conformance:			
<p>BD 62/94 as built operational and maintenance records of structures requires annual routine maintenance schedule to be retained on file for each individual structure.</p> <p>Routine maintenance schedule for 2010 missing from file for Hollybush south retaining wall.</p> <p>Failure to comply with requirements of BD62/94.</p>			
<b>Category (Major/Minor)</b>	Minor		
<b>Signature (Auditor)</b>		<b>Date</b>	29/03/12
Response			
Proposed immediate Corrective Action:			
Proposed Preventive Action (Long Term):			
Cause of deviation:			
Scheduled completion/implementation:			
<b>Signature (Auditee)</b>		<b>Date</b>	
Verification			
<b>Signature</b>		<b>Date</b>	



Audit Non-Conformance Report			
Audit No.	DN52	Date	29 March 2012
Item	Routine maintenance	NCR No.	52/03
Statement			
You are hereby notified of the following Non-Conformance:			
<p>BD 62/94 as built operational and maintenance records of structures requires a maintenance manual to be retained on file for each individual structure.</p> <p>There was no maintenance manual present within the file for Gantry 8419B.</p> <p>Failure to comply with requirements of BD62/94.</p>			
Category (Major/Minor)	Major		
Signature (Auditor)		Date	29/03/12
Response			
Proposed immediate Corrective Action:			
Proposed Preventive Action (Long Term):			
Cause of deviation:			
Scheduled completion/implementation:			
Signature (Auditee)		Date	
Verification			
Signature		Date	



Audit Non-Conformance Report			
<b>Audit No.</b>	DN52	<b>Date</b>	29 March 2012
<b>Item</b>	Records	<b>NCR No.</b>	52/04
<b>Statement</b>			
You are hereby notified of the following Non-Conformance:			
<p>M40 DBFO contract, schedule 6, part 2, paragraph 6.3.1.1 requires records to be provided to the DR within 3 months of the completion of actions taken as a result of an inspection.</p> <p>No evidence to demonstrate that DR is being informed within 3 months of the completion of any actions identified at inspection.</p> <p>Failure to comply with the requirements of schedule 6 part 2 paragraph 6.3.1.1.</p>			
<b>Category (Major/Minor)</b>	Major		
<b>Signature (Auditor)</b>		<b>Date</b>	29/03/12
<b>Response</b>			
Proposed immediate Corrective Action:			
Proposed Preventive Action (Long Term):			
Cause of deviation:			
Scheduled completion/implementation:			
<b>Signature (Auditee)</b>		<b>Date</b>	
<b>Verification</b>			
<b>Signature</b>		<b>Date</b>	





Audit Non-Conformance Report			
Audit No.	DN52	Date	29 March 2012
Item	Records	NCR No.	52/05
Statement			
You are hereby notified of the following Non-Conformance:			
<p>TRMM volume 2, part 2, annex 2.1.1 requires annual routine maintenance schedule for each structure to be sent to the Agency upon completion.</p> <p>No evidence to demonstrate that routine maintenance schedule is being sent to DR.</p> <p>Failure to comply with TRMM, volume 2, part 2, annex 2.1.1.</p>			
Category (Major/Minor)	Minor		
Signature (Auditor)		Date	29/03/12
Response			
Proposed immediate Corrective Action:			
Proposed Preventive Action (Long Term):			
Cause of deviation:			
Scheduled completion/implementation:			
Signature (Auditee)		Date	
Verification			
Signature		Date	





Audit Observation Report			
Audit No.	DN52	Date	29 March 2012
Item	Inspections and defects	Observation No.	52/01
Statement			
You are hereby notified of the following Observation:			
AWN 56 and ECN 9 relating to 8 gantries included a cost for PI/GI and routine maintenance. UKH have been paid for PI/GI that have not taken place but need to confirm whether routine maintenance has taken place. Once investigated, UKH to confirm of money owed to the Agency			
Signature (Auditor)	[Redacted]		Date 28/03/12
Response			
Proposed action (if any):			
Cause of deviation:			
Scheduled completion/implementation:			
Signature (Auditee)			Date
Verification			
Signature			Date

Audit Observation Report			
Audit No.	DN52	Date	29 March 2012
Item	Inspections and defects	Observation No.	52/02
Statement			
You are hereby notified of the following Observation:			
<p>PI/GI programme confirms that gantries 21981 and 21982 at M40 junction 14 have not been instructed into maintenance and therefore, PI/GI have not taken place.</p>			
Signature (Auditor)	[Redacted]		Date 29/03/12
Response			
Proposed action (if any):			
Cause of deviation:			
Scheduled completion/implementation:			
Signature (Auditee)	[Redacted]		Date
Verification			
Signature			
Signature		Date	

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Audit Observation Report			
Audit No.	DN52	Date	29 March 2012
Item	Routine maintenance	Observation No.	52/04
Statement			
You are hereby notified of the following Observation:			
It appears that PI/GI reports only identify structural defects and do not separately identify structural and non-structural defects identified during inspections.			
Signature (Auditor)		Date	
[Redacted Signature]		29/03/12	
Proposed action (if any):			
[Redacted Response]			
Cause of deviation:			
[Redacted Response]			
Scheduled completion/implementation			
[Redacted Response]			
Signature (Auditee)		Date	
[Redacted Signature]		[Redacted Date]	
Verification			
[Redacted Response]			
Signature		Date	
[Redacted Signature]		[Redacted Date]	






Audit Observation Report			
Audit No.	DN52	Date	29 March 2012
Item	Routine maintenance	Observation No.	52/05
Statement			
You are hereby notified of the following Observation:			
<p>Nell bridge culvert, inspection identified lack of handrail/guardrail as a UKH defect (ref: 18796). UKH wrote to Agency on 24 March 2011 (letter ref: 52498) proposing a safety improvement to address this issue. The Agency responded on 17 May 2011 posing further questions but has not yet received a response. In addition to a response to this letter, a particular area that needs to be considered is whether the provision of a handrail/guardrail is required by contract standards and would therefore be considered a latent defect.</p>			
Signature (Auditor)	[Redacted]		Date 29/03/12
Response			
Proposed action (if any):			
Cause of deviation:			
Scheduled completion/implementation:			
Signature (Auditee)		Date	
Verification			
Signature		Date	





Audit Observation Report			
Audit No.	DN52	Date	29 March 2012
Item	Routine maintenance	Observation No.	52/06
Statement			
You are hereby notified of the following Observation:			
Off network defects for which the local authority is responsible, were identified at an inspection of Fulmer road overbridge. These types of defects pose a potential risk to the operation and safety of the M40. To ensure these types of defects are addressed within a reasonable timescale, the respective boundary and areas of responsibility at these locations needs to be addressed.			
Signature (Auditor)	[Redacted]		Date 29/03/12
Response			
Proposed action (if any):			
Cause of deviation:			
Scheduled completion/implementation:			
Signature (Auditee)			Date
Verification			
Signature			Date



Audit Observation Report			
Audit No.	DN52	Date	29 March 2012
Item	Routine maintenance	Observation No.	52/07
Statement			
You are hereby notified of the following Observation:			
Medium severity 2 defect identified at Fulmer road overbridge relating to the parapet handrail was incorrectly recorded on the defects management system, Insight.			
Signature (Auditor)		Date	
		29/03/12	
Proposed action (if any):			
Cause of deviation:			
Scheduled completion/implementation:			
Signature (Auditee)		Date	
Verification			
Signature			
Date			

Audit Observation Report			
<b>Audit No.</b>	DN52	<b>Date</b>	29 March 2012
<b>Item</b>	Records	<b>Observation No.</b>	52/08
<b>Statement</b>			
You are hereby notified of the following Observation:			
Quality procedures for structures could benefit from being updated based on the findings from this audit.			
<b>Signature (Auditor)</b>	[Redacted Signature]		<b>Date</b> 29/03/12
<b>Response</b>			
Proposed action (if any):			
Cause of deviation:			
Scheduled completion/implementation:			
<b>Signature (Auditee)</b>			<b>Date</b>
<b>Verification</b>			
<b>Signature</b>			<b>Date</b>