

Independent Review of Hereford Eastern Links Study

Herefordshire Council

October 2012

P
A
R
S
O
N
S

B
R
I
N
G
K
E
R
H
O
F
F

Independent Review of Hereford Eastern Links Study

3511200A-ZEV

Prepared for
Herefordshire Council
Brockington
35 Hafod Road
Hereford
Herefordshire
HR1 1SH

Prepared by
Parsons Brinckerhoff Ltd
Queen Victoria House
Redland Hill
Redland
Bristol
BS6 6US

0117 933 9300 www.pbworld.co.uk

Report Title	:	Independent Review of Hereford Eastern Links Study
Report Status	:	FINAL
Job No	:	3511200A-ZEV
Date	:	October 2012
Prepared by	:	R Singleton/C Du Heaume/M Thomas/R Perkins/ B Tuckett-Jones/P Davidson/ A Stoneman/ I Wain/ D Dodge
Checked by	:	R Singleton
Approved by	:	J Colcombe

Document History and Status

Report Issue	Date of Issue	Prepared By:	Checked By:	Approved By:
DRAFT	May 2012	R Singleton/C Du Heaume/M Thomas/R Perkins/ B Tuckett-Jones/P Davidson/ A Stoneman/ I Wain/D Dodge	Ross Singleton	James Colcombe
Revised Draft	July 2012	M Thomas/R Perkins/ B Tuckett-Jones/P Davidson/ A Stoneman/ I Wain/D Dodge	Marc Thomas, Ross Singleton	Ross Singleton
FINAL	October 2012	M Thomas/R Perkins/ B Tuckett-Jones/P Davidson/ A Stoneman/ I Wain/D Dodge	Marc Thomas, Ross Singleton	Ross Singleton



CONTENTS

	Page
EXECUTIVE SUMMARY	
SECTION 1	1
INTRODUCTION & METHODOLOGY	1
1.1 Introduction	2
1.2 Assumptions	2
1.3 Authors of the Report	3
1.4 Documents Reviewed	3
1.5 Structure of the Report	3
SECTION 2	5
REVIEW	5
2.1 Introduction	6
2.2 The Amey Approach (Overview of their Generic Methodology)	6
2.3 Review of Methodologies & Assessment	7
SECTION 3	17
CONCLUSIONS	17

Executive Summary

Parsons Brinckerhoff Ltd has been appointed by Herefordshire Council to undertake a high level independent review of the Hereford Relief Road Eastern Links: Draft Route Assessment report (Amey, April 2012) and the Hereford Eastern Links Study: Final Route Assessment report (Amey, July 2012). The objective was to review the conclusions reached in the report and to confirm or otherwise that the approach taken followed best practice.

Our review of the technical elements studied in the report is summarised below:

Noise

The report contained a brief qualitative and quantitative assessment of the noise impacts of the Eastern Link options has been undertaken, which generally followed the Screening guidance in the Design Manual for Roads and Bridges (DMRB). The traffic model used for the assessment did not distinguish between the various Eastern route options, therefore any derived noise calculations are indicative at best, and have not take account of the particular benefit or dis-benefits of any option

A high level qualitative assessment of the likely noise impacts was described which correctly identified that there is likely to be significant noise impacts. However the section provided no opinion which Eastern Link option that would have the lowest noise impact. More clarity would had been provided if the assessment had followed the process described in Section 7.7 of DMRB Volume 11 Section 3 Part 7 HD213/11 using modelled traffic data for each option

Air Quality

The conclusion of the air quality section was contradictory as it stated that there is no preferred Eastern Link route as 'all options are constrained in terms of air quality'. However, the air quality assessment predicted that there will be no exceedences of any of the UK's air quality objectives alongside the new link and that there would be a beneficial impact on the Hereford AQMA. Also there will be no significant impacts from the Inner Eastern Links, but that the Outer Eastern Links have potential impacts on the Lugg and Hampton Meadows SSSI. The information provided for air quality was also insufficient to allow us to draw conclusions as to the robustness of the assessment or whether the application of the DMRB Screening Model followed current practice and guidance.

Water

Some of the constraints associated with construction within the floodplain have been identified in this section, however the details of the floodplain classification (in terms of EA flood zones) have not been included.

Some of the operational mitigation measures that would be required for the eastern links (oil/water separators and control of surface water runoff) have been identified and mitigation measures required during the construction phase of any scheme have not been detailed at this stage. This is considered to be appropriate for this stage of assessment.

The water environment has been assessed and the description of the water environment has been separated into sub-sections for surface water and groundwater. The need for a Flood Risk Assessment (FRA) has been identified and the baseline conditions section of the assessment refers to HC's strategic FRA.

In summary, the report's conclusions are acceptable: pursuing any of the eastern links would be problematic based on the water environment constraints that exist. We agree that the innermost eastern links will have the least severe environmental impacts. However even where routes do not cross areas of designated as SSSI/SAC, there would still be an impact to the SSSI and therefore the SAC due to the increased traffic flows on existing carriageways. The section has noted the interlinked

nature of the surface water and groundwater within the SSSI and SAC areas, and that these relationships are highly complex. The significance of impacts to the SAC and the likely resistance to any adverse effects could still be more explicitly outlined.

Biodiversity

The report identified that all of the Eastern Link options under consideration would require a new bridge crossing over the River Wye SAC, however it did not identify that should both the Eastern Link and western Relief Road go ahead, that this would lead to an additional crossing over the River Wye SAC relative to either scheme in isolation. We consider that the potential for increased effects relating to the increased number of crossings of the SAC under this scenario should have been identified in the report and that in-combination effects would need to be considered in any subsequent assessments under the Habitats Regulations.

We consider that the assessment of air quality effects on the designated sites, principally the Lugg and Hamptons Meadows SSSI, remains weak. The report states that the Ledbury Road will not be an 'affected road' (as defined in HA 207/07), and therefore does not require consideration in relation to potential changes in emissions and nitrogen deposition. However, the evidence to support this assertion is not directly referred to.

We consider that the identification of the inner Eastern Link sections (EL2 and EL3) as having the least damaging effects on the designated sites correct, and the greatest potential exists to successfully avoid or mitigate Likely Significant Effects on the SAC and to minimise impacts on the Lugg Meadows SSSI with these route options. However, further work would be required to confirm this.

The report concludes with the recommendation that '...a link between the B4399 and the A438 only is not pursued'. In light of this there could be significant issues if subsequent Habitats Regulations Assessment work undertaken for a preferred route cannot robustly exclude the potential for an adverse effect on the integrity of the SAC. Should an adverse effect be predicted, it would be necessary to rely on demonstrating the preferred route is required for Imperative Reasons of Overriding Public Interest (IROPI), and that no suitable alternatives, such as the Eastern Link exist, in line with the requirements of the Habitats Directive. The recently published National Planning Policy Framework are also considered to provide strengthened protection to Natura 2000 sites and SSSI within the planning process, decreasing the likelihood that a scheme with adverse effects on these sites would be developable.

In summary, we agree with the assumed conclusions reached in the report, but feel additional detail should have been provided within the report to support the findings.

Landscape

We are satisfied that the Landscape section of the Final Hereford Eastern Links Study report (July 2012) conforms to best practice and provides a fair assessment of the landscape and visual issues in relation to each route option.

Heritage

There are a number of issues with the report in particular in the examination of National Planning Policy, the Methodology (both theoretical and as implemented) and the detailed discussion of effects.

The National Planning Policy Framework replaces Planning Policy Statement 5 (PPS5), but the PPS5 is referred to in the section. The methodology section is lengthy but is generally acceptable and follows standard industry practice, however there are signs of some cut and past from other reports with some inconsistencies in referencing the same documents.

It is uncertain (unstated) whether any site visits or site survey has been carried out in order to



prospect for archaeological sites along the route or to investigate the current settings or potential impacts of the roads upon the setting of the various designated sites (Listed Buildings, Scheduled Monuments, Conservation Areas etc) within the environs of the scheme. The potential effect of the scheme upon these settings is discussed but it is unclear whether this has been ground tested at all. If not this should be clearly stated in the report.

The assessment contains a number of inconsistencies and omissions e.g. 14 Scheduled Ancient Monuments are stated to be in study area but only 12 are assessed and not all of the monuments discussed within the text appear on the mapping.

This section provides an assessment of the potential impact of the scheme upon the unknown archaeological resource, however there has been no previous discussion of the likely potential of the scheme corridor to contain archaeological sites (beyond a general grading of unknown potential for prehistoric and negligible value for other periods) in the report so it is unclear how the grading of Potentially Major Adverse for the impact (effect) of this scheme has been arrived at.

Traffic

We are satisfied that the comments raised in our Draft Independent Review report in May 2012 have been addressed following our meeting with Amey on 29th May 2012 and in the subsequent revised Final Hereford Eastern Links Study: Route Assessment report (Amey, July 2012).

Other issues

The report would have benefited from an understanding of the Agricultural Land Classification of land potentially affected, and whether this would trigger the need to consult with DEFRA.

Conclusion

We generally agreed with Amey's conclusions that an Eastern Route between the B4399 and the A438 only is not viable from a traffic or environmental point of view and that the use of WebTAG guidance for the assessment was the correct overarching methodology.

We were mostly satisfied with the methodologies, information gathered and assessments undertaken for the environmental topics in helping to arrive at this conclusion. However, there were some concerns on the approach and the information presented for a couple of topics, namely air quality and heritage.

SECTION 1

INTRODUCTION & METHODOLOGY

1 INTRODUCTION & METHODOLOGY

1.1 Introduction

1.1.1 Parsons Brinckerhoff Ltd (PB) were appointed in June 2011 by Herefordshire Council (HC) to undertake a high level independent review of the Hereford Relief Road technical studies and Core Strategy Preferred Option: Hereford. The focus of the review was the environmental topics surrounding the technical studies but did broaden into planning and transportation issues.

1.1.2 The focus of the exercise was to confirm (or otherwise), that the conclusion reached by Amey (that the preferred route corridor for the Hereford Relief Road was an inner western route) was based on good practice and was solid. In addition, the validity of the 'East is Best' option on environmental grounds was also to be considered and the potential environmental impacts from the option summarised. Our findings were published in the following report, Independent Review of the Hereford Relief Road Technical Studies (Parsons Brinckerhoff, July 2011).

1.1.3 Following on from the June 2011 study, HC re-appointed PB in March 2012 to undertake a high level independent review of a further study by Amey on the Hereford Relief Road: Eastern Links. Our objective was review the conclusions reached by Amey and to confirm or otherwise that the approach taken followed best practice.

1.1.4 Amey's study explored the implications of a new River Wye crossing and road links to the East of Hereford between the B4399 at the Rotherwas Industrial Estate and the A438 Ledbury Road, both as a proposal in its own right and in conjunction with the preferred Western Relief Road.

1.1.5 Eastern Links EL2 and EL3 form an 'inner' route, passing to the west of Rotherwas Chapel and joining the B4224 at the Junction with Holywell Gutter Lane and the A438 250m east of the junction with Hampton Dene Road. Eastern Links EL9, EL10, EL11 and EL12 form options for the 'outer' routes, passing east of Rotherwas Chapel and joining the B4224 700m southeast of the junction with Holywell Gutter Lane and the A438 in the vicinity of the Lugwardine Bridge.

1.1.6 Amey's report recommended that an Eastern Link between the B4399 and the A438 should not be pursued, on both traffic and environmental grounds.

1.2 Assumptions

1.2.1 The following assumptions have been made in PB's review:

- No consideration of detailed engineering feasibility or cost issues have been included as part of this review.
- The need for the road arrived at via the Regional Spatial Strategy (RSS) has not been revisited.
- Consideration of environmental impacts is restricted to route corridors rather than specific routes.
- The review of Amey's environmental studies has assumed that the data they present are correct; there is no reason to suspect the data used (that is largely in the public domain) would be inaccurate.

- The conclusions made by HC in their August 2011 Hampton Bishop report which discounted an Additional Alternative Route are correct. PB have not been asked to review this report.

1.3 Authors of the Report

- 1.3.1 This study has been managed and delivered by the Environment group of PB.
- 1.3.2 PB is a specialist engineering consultancy company ranked by the Institute of Civil Engineers as one of the top such organisations in the UK. The company routinely undertakes road design and is retained on various framework agreements by the Highways Agency and numerous local authorities.
- 1.3.3 PB is a founder member of the Institute of Environmental Management and Assessment's (IEMA) 'Quality Mark' standard for organisations undertaking environmental impact assessments (EIA). This is a new scheme launched in April 2011. PB was a founder member of the previous EIA Registered Assessor scheme operated by IEMA.
- 1.3.4 This study is being led by a member of staff who has over 25 years experience in EIA, has undertaken numerous studies associated with highway schemes in the UK and overseas and holds a personal EIA Practitioner accreditation (also managed and run by IEMA) at the highest grade – Principal. With the exception of heritage elements, all comments on environmental topics have been undertaken by one of the lead practitioners in each field within PB. These are senior members of staff or heads of discipline. Heritage topic issues were addressed by a senior member of staff from Oxford Archaeology – one of the largest heritage and archaeological consultancies in the UK.

1.4 Documents Reviewed

- 1.4.1 The findings of this report were determined from a review of the following:
- Hereford Relief Road Eastern Links: Draft Route Assessment (Amey, April 2012)
 - Hereford Eastern Links Study: Final Route Assessment (Amey, July 2012)

1.5 Structure of the Report

- 1.5.1 A high level review was undertaken of the Hereford Relief Road Eastern Links: Draft Route Assessment (Amey, April 2012) report in May 2012 and our findings were published in our Draft Independent Review of Hereford Relief Road Eastern Links report in May 2012.
- 1.5.2 This report is a high level review of the Hereford Eastern Links Study: Final Route Assessment (Amey, July 2012) which is an amended version of the Draft report and therefore some of our comments will be similar to those made in our previous report.
- 1.5.3 The focus of this study has been to consider the decision making process by which Amey have reached their conclusion that an Eastern Link between the B4399 and the A438 is not pursued on both traffic and environmental grounds. There are two elements to this:

- Is the generic approach Amey have taken in terms of the level of study and the mechanism by which decisions have been made correct and has an appropriate level of study been conducted?
 - With respect to the technical elements studied (such as noise, biodiversity, water etc), have the Amey technical teams approached the studies using best practice, have the correct levels of significance been applied, and have the conclusions that have been reached been applied at a proportional level?
- 1.5.4 These elements are distinctly different (though related and overlapping) and consequently have been addressed separately in Sections 2.2 and 2.3 of this Report.
- 1.5.5 Conclusions are included within Section 3 of this Report.

SECTION 2

REVIEW

2 REVIEW

2.1 Introduction

2.1.1 This section considers two elements:

- 1) the generic approach that Amey have taken in terms of the level of study and the mechanism by which decisions have been made; and
- 2) the approach used for the technical elements studied (such as noise, biodiversity, water etc), in terms of whether the Amey technical teams have used best practice, have the correct levels of significance been applied, and have the conclusions that have been reached been applied at a proportional level?

2.2 The Amey Approach (Overview of their Generic Methodology)

2.2.1 We agree with Amey's conclusions that an Eastern Route between the B4399 and the A438 only is not viable from a traffic or environmental point of view.

2.2.2 Amey have utilised WebTAG guidance for the assessment; we concur that this is the correct overarching methodology for a study of this type.

2.2.3 However, many of the methodologies used to come this conclusion are weak and do not give a robust reasoning behind the dismissal of the Eastern Links. In particular, little attempt at addressing the significance of environmental impacts has been included.

2.2.4 The impact of the new National Planning Policy Framework seems to have been overlooked. This reinforces the protection given to protected areas including SSSIs, SACs and Scheduled Monuments and as such is an important document to refer to as it is likely to strengthen the value of the SAC designation and therefore weaken the argument for a route that would impact upon it.

Compliance with HC's Brief and Amey's Project Quality Plan(PQP)

2.2.5 HC's December 2011 brief to Amey for the further assessment of the Eastern Link included the requirement for consultation with relevant bodies including the Conservation and Archaeology teams of Herefordshire Council, Natural England, and English Heritage. Indeed, in their January 2012 PQP, Amey indicated that they would be undertaken. Consultation responses were included in Appendix D of the Final Route Assessment report, which included responses from:

- English Heritage
- Natural England
- Highways Agency
- Herefordshire Council Archaeological Advisor

2.2.6 In their PQP, Amey indicated that a site visit would be undertaken to verify the results of the 2010 Study of Options and to assess the landscape and any other environmental impacts of any new or revised routes. There was some evidence that site visits had taken place but not for all sections.

Additional Alternative Route (AAR)

- 2.2.7 The scope for Amey was to consider an easterly route from the B4399 and the A438. Amey have focussed almost entirely on routes and links previously considered as part of the East is Best option, and have not made detailed consideration of any new route options.
- 2.2.8 The AAR route further to the east, bisecting the SSSI and crossing the Lugg, is briefly mentioned but without any of the level of scrutiny of the other links considered in this Eastern Links report or in the 2010 report. It is understood that Amey dismissed this route based on a study produced by HC in 2011, although this is not referenced in their report. Although we agree with Amey's conclusion to dismiss the route based on the conclusions of the previous HC study, their conclusion to rule the option out should have been justified by reference to the Council's decision thus providing greater transparency to the reasons it has been excluded.

2.3 Review of Methodologies & Assessment

- 2.3.1 This element of the review considers the technical methodologies used and the conclusions made by Amey in reaching their recommendation that an Eastern Link between the B4399 and the A438 only should not be pursued. We have focussed on the key significant issues rather than addressing and reviewing every impact that could occur from each of the Eastern Link route corridors.

Noise

- 2.3.2 A brief qualitative and quantitative assessment of the noise impacts of the Eastern Link options has been undertaken, which generally follows the Screening guidance in the Design Manual for Roads and Bridges (DMRB). The traffic model used for the assessment did not distinguish between the various Eastern route options, Therefore any derived noise calculations are indicative at best, and have not take account of the particular benefit or dis-benefits of any option.
- 2.3.3 The report made reference to the Environmental Noise Directive and the Land Compensation Act, which we consider not relevant for this stage of the project. Also Policy Planning Guidance 24 – Planning and Noise was referenced which has been superseded by the National Planning Policy Framework (NPPF).
- 2.3.4 A high level qualitative assessment of the likely noise impacts was described which correctly identified that there is likely to be significant noise impacts. However the section provided no opinion which Eastern Link option that would have the lowest noise impact. More clarity would had been provided if the assessment had followed the process described in Section 7.7 of DMRB Volume 11 Section 3 Part 7 HD213/11 using modelled traffic data for each option.
- 2.3.5 With no modelling to base the assessment on, we cannot comment on their assertions e.g. with minor roads, increased flows can mean increased congestion, and reduced speeds, which can lead to noise decreases as the traffic is at a standstill. No weight can be put to the qualitative comment until more meaningful data is available.
- 2.3.6 Notwithstanding the concerns raised in our previous report (Independent Review of Hereford Relief Road Technical Studies, July 2011) the noise considerations provided in the Final Hereford Eastern Links Study report (Amey, July 2012) are insufficient on

which to draw any significant conclusions on the relative noise impacts of each route option.

Air Quality

- 2.3.7 The Route Assessment provides an assessment of the impacts of the Eastern Links on local air quality based in part on the DMRB Screening Model and in part on qualitative arguments. It considers the impacts on human receptors and on sensitive ecosystems.
- 2.3.8 The assessment predicts that there will be no exceedences of any of the UK's air quality objectives alongside the new link. In relation to the Lugg and Hampton Meadows SSSI, the report concludes that the Inner Eastern Links will have no significant impact, but that the Outer Eastern Links have the potential for adverse effects.
- 2.3.9 However, the information provided in the report is insufficient to allow conclusions to be drawn as to the robustness of the assessment. Furthermore, it is not clear that the application of the DMRB Screening Model follows current practice and guidance.
- 2.3.10 The Report also provides a brief, qualitative assessment of the impacts of the Eastern Links on regional air quality i.e. on total emissions of pollutants from the local road network. The assessment appears to be based on the comparison of journey lengths in the do minimum and do something scenarios for the Eastern Links and concludes that the impacts on total vehicle emissions will be negligible. Whilst this approach is justified, greater detail on the differentiation between routes could have been provided.
- 2.3.11 The report ends by concluding that there is no preferred Eastern Link route as "all options are constrained in terms of air quality". There is no clear justification for this statement since the report indicates that there will be no exceedences of air quality objectives alongside the new route and that there will be a beneficial impact on the Hereford Air Quality Management Area (AQMA).
- 2.3.12 Furthermore, the assessment of impacts on the designated sites states that the inner link routes would not result in significant volumes of additional traffic being directed through the proposed SSSI. There would, therefore, appear to be grounds for distinguishing between the degree of constraint on the different routes due to air quality considerations. Additionally,, the conclusions should make reference to the significant benefits that could occur within the AQMA.
- 2.3.13 The following paragraphs provide details of the limitations of the assessment and/or of the information provided:

Application of the DMRB Screening Model

- 2.3.14 Amey state that they have used the DMRB Screening Model in the local air quality assessment. Current best practice in the application of the Screening Model requires that, for the pollutant of most concern - nitrogen dioxide:
- the conversion of nitric oxide to nitrogen dioxide should be modelled using the calculator developed for Defra rather than the internal calculator provided with the DMRB, and

- the model results should be verified against monitoring data (<http://laqm.defra.gov.uk/laqm-faqs/faq27.html>, 15/04/2009).

2.3.15 The Route Assessment report provides no information on either point. If the recommended methodology has not been followed, but data taken directly from the DMRB Screening Model, it is highly likely that future roadside concentrations of nitrogen dioxide will be significantly under-predicted in the assessment.

Recent Defra research on vehicular emissions of nitrogen oxides

2.3.16 Recent research undertaken on behalf of Defra has found that ambient concentrations of nitrogen oxides and nitrogen dioxide in the UK have not decreased by as much as suggested by the current UK emissions factors that are incorporated into the DMRB Screening Model (Carslaw et al, 2011, Trends in NO_x and NO₂ emissions and ambient measurements in the UK). The research's analysis of monitored emissions from vehicles, and in particular diesel vehicles, showed that exhaust emissions are significantly higher than emissions factors would suggest. Essentially, the introduction of new vehicles into the UK fleet, with increasingly stringent emissions standards, has not provided the expected emissions reductions over time under real world driving conditions.

2.3.17 Therefore, the use of the DMRB Screening Method for future year predictions for 2019 will potentially under-estimate roadside concentrations and the impacts of the scheme.

2.3.18 Whilst new emissions factors are under-development, it is considered best practice to take into account the Defra research by undertaking sensitivity testing of opening year predictions assuming different/intermediate assessment years. Such testing has not been undertaken.

Selection of Receptors and Route Scenarios

2.3.19 Unlike the other environmental assessments included in the Route Assessment report, the quantitative local air quality assessment provides a single assessment for the Eastern Links, with reference to the route of the inner Eastern Link only (EL2/EL3 jointly).

2.3.20 It is not clear why Route EL12 which has the maximum number of receptors within 50m of the link road was not selected for assessment. Impacts at the selected receptors, including the SSSI, will be critically dependent on the route option and should be assessed for each link separately for the route assessment.

Analysis of Results

2.3.21 The air quality section makes no attempt to provide an explanation of the DMRB Screening Model results. For example, some receptors experience an increase in pollutant concentrations and some a decrease. An analysis of these results should have been provided to assist with their interpretation and also to judge how the different options will affect the individual receptors.

2.3.22 There is no quantification of potential impacts over the designated sites. Therefore, it is not possible to provide even screening conclusions on the likely constraints to the development from air quality impacts on ecosystems. Furthermore, Amey state, without justification, that with the Outer Eastern Links (EL9, EL10, EL11) there is the

potential for exceedence of critical loads for nitrogen deposition. However, there is no quantitative information provided to allow this statement to be critically appraised.

Impacts on the Hereford AQMA

- 2.3.23 The impacts on the Hereford AQMA have been assessed in the opening year and beneficial effects found. The assessment is however limited by a lack of evidence of appropriate verification and confirmation of the methodology use (see above comments on DMRB methodology). As acknowledged in the report, it is likely that future year impacts are underpredicted.

Regional Impacts

- 2.3.24 Journey data from the traffic models is used to justify the absence of a quantitative assessment of regional impacts. If emissions data are not available, then the traffic data should have been provided in the report to allow an assessment of this conclusion to be made. Furthermore, with different route lengths between the options, it should have been possible to differentiate between options.

Water

- 2.3.25 This section has been completely revised compared with the same section presented in the Draft Route Assessment report (May 2012). The section incorporates a significant amount of additional detail (particularly regarding baseline conditions) and is considered more suitable for this level of assessment.
- 2.3.26 Aspects of hydrology, hydrogeology and drainage are assessed in Section 3.6 of the Final Route Assessment report as part of the Route Engineering Assessment. Some of the constraints associated with construction within the floodplain have been identified in this section, however the details of the floodplain classification (in terms of EA flood zones) have not been included. Baseline conditions are described at the start of the section. The description of the water environment has been separated into surface water and groundwater as would be expected and the treatment of each is sufficiently detailed for this level of assessment.
- 2.3.27 Some of the operational mitigation measures that would be required for the eastern links (oil/water separators and control of surface water runoff) have been identified. The outline mitigation measures discussed are appropriate for this stage of assessment but detailed design and modelling would be required to fully assess the requirements for the treatment of runoff from any new or extended carriageway. Mitigation measures required during the construction phase of any scheme have not been detailed at this stage (which is acceptable for this stage of the assessment).
- 2.3.28 The need for a Flood Risk Assessment (FRA) has been identified and the baseline conditions section of the assessment refers to HC's strategic FRA.
- 2.3.29 The water environment has been assessed in Section 5.7 and the description of the water environment has been separated into sub-sections for surface water and groundwater.
- 2.3.30 The surface water bodies crossed by each link have been identified and details of the ecological status of the surface water bodies crossed have been included. No assessment of cumulative impacts from both the Eastern Links and Hereford Relief Road (and the additional crossing of the Wye that this would require) has been

identified in the assessment. The presence of (and recent extension of) the Lugg Meadows SSSI and associated link with the Wye SAC has been identified.

- 2.3.31 The location and application of surface water abstractions is tabulated in the text. Abstraction locations are also shown on the constraints map.
- 2.3.32 The extent of floodplain crossed by each link section is provided and reference made to the flood zone classification of the floodplain areas (1 in 200 or 1 in 1,000 year flood).
- 2.3.33 Potential impact of groundwater during construction of any of the eastern links has briefly been highlighted. Protection of groundwater quality during both construction and operational phases of any scheme would be key in order to mitigate adverse impacts to water environment and ecological receptors within the SSSI or SAC.
- 2.3.34 In summary, the water section conclusions are acceptable: pursuing any of the eastern links would be problematic based on the water environment constraints that exist. We agree that the innermost eastern links will have the least severe environmental impacts. However even where routes do not cross areas of designated as SSSI/SAC, there would still be an impact to the SSSI and therefore the SAC due to the increased traffic flows on existing carriageways. The section has noted the interlinked nature of the surface water and groundwater within the SSSI and SAC areas, and that these relationships are highly complex. The significance of impacts to the SAC and the likely resistance to any adverse effects could still be more explicitly outlined.

Biodiversity

- 2.3.35 Our review has been undertaken on the basis that *“the study explores the implications of a new River Wye crossing and road links to the east of Hereford, both as a proposal in its own right and in conjunction with the preferred Western Relief Road Corridor.”* It is therefore assumed that the proposals for the current Eastern Link road are separate from, and do not preclude the construction of, any future relief road. We also assume that the preferred option for any subsequent relief road remains the western corridor, also as stated in Amey’s report. We have had regard to Amey’s comments in relation to the implications of the eastern links for a western relief road.
- 2.3.36 The report states that the area of the Lugg and Hampton Meadows SSSI (previously Lugg Meadows SSSI) has significantly increased since the 2010 Study of Options Report. This follows notification of additional areas by Natural England (NE) in December 2011. We have not had sight of any representations that may have been made to NE by HC or any other party during the Notification Period, which ended on the 16th April 2012, and have not therefore been able to take these into account, should they exist.
- 2.3.37 Our review of the Biodiversity section has been split into two area: consideration of the ‘Additional Alternative Route’, as set out in Section 3.8 of the report; and secondly consideration of the ecological impacts of the Eastern Link sections.

Additional Alternative Route

- 2.3.38 A defined route for the Additional Alternative Route is not provided within the report, but would follow a more easterly alignment than the Eastern Link sections. The Additional Alternative Route would pass between Units 2 and 3 of the Lugg and Hampton Meadows SSSI, avoiding direct impacts on these.

- 2.3.39 From our review we assume that this option has been ruled out on a combination of environmental, engineering and traffic constraints. We understand that this option was assessed during 2011, when the decision to discount this route was taken. We consider that it would have been beneficial to include reference to this assessment work in the report, in order to provide a firmer basis to the exclusion of the Additional Alternative Route. Nevertheless, on the basis of the information provided in the report we consider that ruling out the Additional Alternative Route is a reasonable conclusion to reach.
- 2.3.40 The Additional Alternative Route would cross the River Lugg. It is of particular note that Section 3.8 does not mention the requirement for a bridge crossing over the River Lugg, part of the designated area of the River Wye SAC and a tributary to the River Wye. None of the Eastern Link routes would require a second crossing of the SAC.
- 2.3.41 Consultation with NE in relation to the Additional Alternative Route may also have been useful in further reaching an assessment of its viability relative to the Eastern Link sections, but on the basis of the report it is assumed this has not been undertaken.
- 2.3.42 In summary, we agree with the (assumed) conclusions reached in relation to the Additional Alternative Route, but feel additional detail should have been provided within the report to support the findings.

Assessment of the Eastern Link sections

- 2.3.43 The report identifies that all of the options under consideration would require a new bridge crossing over the River Wye SAC. The report also identifies a risk that an Eastern Link could undermine the business case for a western inner corridor Relief Road, whilst risks remain an Eastern Relief Road would not be achievable. Amey have not however identified that should both an Eastern Link and Western Relief Road go ahead, that this would lead to an additional crossing over the River Wye SAC relative to either scheme in isolation.
- 2.3.44 We consider that the potential for increased effects relating to the increased number of crossings of the SAC under this scenario should have been identified in the Amey report. In-combination effects would need to be considered in any subsequent assessments under the Habitats Regulations. If the Eastern Link is pursued in parallel to a Western Relief Road this point is likely to be identified as a cause of concern by Natural England (NE) and the Environment Agency (EA), although techniques to mitigate for crossings of watercourses, for example the use of wide-span crossings, do exist.
- 2.3.45 We also believe that NE / EA could continue to have concerns that the Eastern Link represents the first stage of an eastern Relief Road 'by stealth', as highlighted during our previous review of the East is Best consultation report.
- 2.3.46 The Final Route Assessment report includes an extract of a consultation response from NE, in which NE state they are concerned options east of Hereford are still being considered. We consider that the report should explain exactly what proposals NE have been asked to consult on.
- 2.3.47 In the air quality assessment within air quality section of the report, it was identified that there is greater potential for nitrogen deposition within the Lugg and Hampton Meadows SSSI to exceed Critical Thresholds (as defined in Status of UK Critical Loads, UK National Focal Centre 2003) with options EL9-EL11 relative to EL2 and

EL3. Significant increases of deposition in relation to EL2 and EL3 are not predicted on the basis that the traffic modelling does not predict Ledbury Road at the northern end of the scheme will be an 'affected road', as defined in DMRB (Section 207/07). The report also identifies that EL2 and EL3 will not directly impact the Lugg and Hampton Meadows SSSI.

- 2.3.48 We consider that the assessment of air quality effects on the designated sites, principally the Lugg and Hamptons Meadows SSSI, remains weak. The report states that the Ledbury Road will not be an 'affected road' (as defined in HA 207/07), and therefore does not require consideration in relation to potential changes in emissions and nitrogen deposition. However, the evidence to support this assertion is not directly referred to.
- 2.3.49 There would also seem to be potential ecological impacts associated with the predicted increase in traffic on local routes. However, we consider any such impacts arising likely to be of lesser significance relative to other identified impacts on the SAC/SSSI. Nevertheless, the potential for road-related mortality of species and for increased pollution incidents across minor roads with (presumably) minimal pollution interception measures are likely to require investigation should an Eastern Link option be taken forward.
- 2.3.50 We consider that Amey's identification of the inner Eastern Link sections (EL2 and EL3) as having the least damaging effects on the designated sites correct, and the greatest potential exists to successfully avoid or mitigate Likely Significant Effects on the SAC and to minimise impacts on the Lugg Meadows SSSI with these route options. However, further work would be required to confirm this, in particular in relation to junction improvement and pollution effects, and this may still not be able to rule out potential adverse effects on the integrity of the SAC.
- 2.3.51 The report concludes with the recommendation that '...a link between the B4399 and the A438 only **is not pursued**' (authors highlight). In light of this there could be significant issues if subsequent Habitats Regulations Assessment work undertaken for a preferred route cannot robustly exclude the potential for an adverse effect on the integrity of the SAC. Should an adverse effect be predicted, it would be necessary to rely on demonstrating the preferred route is required for Imperative Reasons of Overriding Public Interest (IROPI), and that no suitable alternatives, such as the Eastern Link exist, in line with the requirements of the Habitats Directive. The recently published National Planning Policy Framework are also considered to provide strengthened protection to Natura 2000 sites and SSSI within the planning process, decreasing the likelihood that a scheme with adverse effects on these sites would be developable.

Landscape

- 2.3.52 We are satisfied that the Landscape section of the Final Hereford Eastern Links Study report (July 2012) conforms to best practice and provides a fair assessment of the landscape and visual issues in relation to each route option.

Heritage

- 2.3.53 This review concentrates upon the Cultural Heritage Assessment Report: East Corridor.(Document 00551497): Revision 1. Issued June 2012. It has been reviewed in conjunction with four figures / maps (referred to in the text as Figures 1-4 but in fact un-numbered. We have subsequently received the full Final Route Assessment report in which the Cultural Heritage figures are labelled as Figures 30 to 40.

- 2.3.54 There are a number of issues with the report in particular in the examination of National Planning Policy, the Methodology (both theoretical and as implemented), and the detailed discussion of effects. These are discussed below.
- 2.3.55 *National Legislation and Guidelines*
The National Legislation and Guidelines Section (Section 2) cites and provides lengthy discussion of *Planning Policy Statement 5: Planning for the Historic Environment* (PPS5 March 2010) as the key piece of policy guidance/legislation for the Historic Environment. PPS5 has been superseded by the National Planning Policy Framework (NPPF) issued in March 2012. Section 2 of the report goes on to discuss the recommendations of NPPF but retains the section of PPS5 as if the two documents are complementary. This is not the case as NPPF replaces PPS5. Section 1 of the report mentions PPS5 as one of the three key documents that it has used in its compilation. It does not mention NPPF at all.
- 2.3.56 The legislation section provide discussion of the Hedgerow regulations (1997, amended 2003) and their definition of important historic hedgerows but this document does not appear to have been used during the subsequent impact section and no important historic hedgerows are mentioned or discussed within these sections. Equally the section discusses in some depth the methodology laid out by English Heritage for the assessment of Setting Effects (in their document 'The Setting of Heritage Assets'). It is unclear whether and how this methodology has been used in the subsequent report. As a relatively minor point it is suggested that discussion of this document might have been better placed in the General Methodology section where there is further discussion of relevant assessment methodologies and guideline documents.
- 2.3.57 *General Methodology*
This is a lengthy section, much of which contains detailed discussion of relevant assessment methodologies and guidelines. It is generally acceptable and follows standard industry practice. However it shows some signs of having been compiled from a number of other documents and there are some inconsistencies with referencing and table numbering. For instance the relevant DMRB is inconsistently referenced across the document sometimes being referred to as 'the DMRB', sometimes as Guidance Note 208/07 and/or DMRB Guidance note 208/07 and sometimes as DMRB DoT June 1993 as updated). There is an unfortunate typo/compilation error in Table 43 in which the description of the Value of Very High Value Historic Landscape assets has also been inserted into the row for assessing the value of Unknown Historic Landscape assets.
- 2.3.58 Reference was made within the report that the descriptions of the relevant characterised Historic Landscape Characterisation (HLC) areas are provided on Figure 4. This information was not included on any of the heritage figures reviewed.
- 2.3.59 The methodology follows the guidance laid out in DMRB (HA 208/07) in establishing the value of the resource, the magnitude of the impact and then discussing the interaction of the two in order to quantify (what the report refers to as the Significance of the Impact'. The principal concern with the methodology lies in the use of the word 'Impacts' when discussing what more suitably be referred to as 'Effects'. In the following sections this causes some difficulty and confusion in differentiating between magnitude of impact and significance of effect. DMRB (HA 208/07) which the report generally follows uses the word 'Effects' and it would be clearer if the report followed this lead.

2.3.60 The methodology for the assessment of Significance of Impacts suggests that the *the magnitude of impact of the scheme on the known heritage resources has been graded depending upon the degree of destruction to the known, suspected or potential remains*. This reads rather oddly and seems to omit any consideration of the potential changes to the setting of heritage features.

2.3.61 It is uncertain (unstated) whether any site visits or site survey has been carried out in order to prospect for archaeological sites along the route or to investigate the current settings or potential impacts of the roads upon the setting of the various designated sites (Listed Buildings, Scheduled Monuments, Conservation Areas etc) within the environs of the scheme. The potential effect of the scheme upon these settings is discussed but it is unclear whether this has been ground tested at all. If not this should be clearly stated in the report: if so then further discussion of the conclusions might have been expected.

General Comments

2.3.62 This section contains a number of inconsistencies and omissions e.g. the section mentions 14 Scheduled Ancient Monuments within the wider study area but the following section only discusses 12. It is stated that details of all the Scheduled Monuments are listed in Table 4 but there is no Table 4 in the report.

2.3.63 Not all the discussed monuments appear on the mapping with sites 10134405, 00523-4, and 1005346 missing. There is an inconsistency in the numbering between text and figures and also within the text: Scheduled monuments used to be listed under an individual county number but in recent years most have been allocated a National mapping number. The Scheduled hillfort at Dinedor and the Scheduled Montford Bridge are cited as Monuments HE12 and HE31 respectively (therefore they have been given their County numbers). They appear on the mapping with their National mapping nos (101758 and 1014883).

Detailed Discussion of potential Impacts (Effects) of Eastern Inner Corridor and Eastern Outer Corridor

2.3.64 There are a range of problems with these sections including inconsistent numbering, features not mapped on the accompanying figures/illustrations, lack of assessment of impact, lack of assessment of impact (effects), unclear methodology for assessment of impacts/effects and inconsistent terminology, detailed commentary of these sections has been provided in Appendix A.

2.3.65 The figures provided in the report have a number of inconsistencies and omissions including the lack of numbering of undesignated Cultural Heritage features (these are numbered in the text but not on the mapping so adequate cross-referencing between text and figures and identification of features mentioned in the text is not possible). Some sites were not mapped on the figures.

Conclusion

2.3.66 This section provides a summary of the wider impacts of the study corridors on the cultural heritage resource. It is assumed (although this is not stated) that the purpose of this section is to summarise and pull together the conclusions of the previous sections. The methodology by which this has been done is not stated and it is unclear how the general conclusions have been arrived at and how they relate to the detailed site by site assessments provided in the sections before. The report does not therefore provide sufficient information to adequately test or discuss the general conclusions presented in this section.

- 2.3.67 In addition it is noted that this section provides an assessment of the potential impact (effect?) of the scheme(s) upon the unknown archaeological resource. No previous discussion of the likely potential of the scheme corridor to contain archaeological sites (beyond a general grading of unknown potential for prehistoric and negligible value for other periods) is provided in the report so it is unclear how the grading of Potentially Major Adverse for the impact (effect) of this scheme has been arrived at.

Traffic and Transport

- 2.3.68 We are satisfied that the comments raised in our Draft Independent Review report in May 2012 has been addressed following our meeting with Amey on 29th May 2012 and in the subsequent revised Final Hereford Eastern Links Study: Route Assessment report (Amey, July 2012).

Other topics

- 2.3.69 Section 3.4 discusses Topography and Land Use. It would add to the assessment to understand what is the Agricultural Land Classification of land potentially affected, and whether this would trigger the need to consult with DEFRA.

SECTION 3

CONCLUSIONS

3 CONCLUSIONS

- 3.1.1 We generally agreed with Amey's conclusions that an Eastern Route between the B4399 and the A438 only is not viable from a traffic or environmental point of view and that the use of WebTAG guidance for the assessment was the correct overarching methodology.
- 3.1.2 We were mostly satisfied with the methodologies, information gathered and assessments undertaken for the environmental topics in helping to arrive at this conclusion. However, we have some concerns on the approach and the information presented for a couple of topics, namely air quality and heritage.
- 3.1.3 The methodologies, information gathered and assessment undertaken for the landscape and transport and traffic topics was satisfactory. The landscape section conforms to best practice and provides a fair assessment of the landscape and visual issues in relation to each route option. We were also satisfied that the traffic comments raised in our previous report (Draft Independent Review, May 2012) has been addressed.
- 3.1.4 The methodologies, information gathered and assessment undertaken for the noise, water and biodiversity topics was also satisfactory but would have benefited from having more detailed information.
- 3.1.5 A high level qualitative assessment of the likely noise impacts was undertaken which correctly identified that there is likely to be significant noise impacts, however the assessment provided no opinion as to which Eastern Link option may provide the lowest noise impacts.
- 3.1.6 We agree with the report's conclusions that pursuing any of the eastern links would be problematic based on the water environment constraints that exist and we agree that the innermost eastern links will have the least severe environmental impacts. Amey have noted the interlinked nature of the surface water and groundwater within the SSSI and SAC areas, and that these relationships are highly complex. The significance of impacts to the SAC and the likely resistance to any adverse effects could still be more explicitly outlined.
- 3.1.7 We agree with the assumed conclusions reached in the report for Biodiversity, but feel additional detail should have been provided within the report to support the findings.
- 3.1.8 The conclusion of the air quality section was contradictory as it stated that there is no preferred Eastern Link route as 'all options are constrained in terms of air quality'. However, the air quality assessment predicted that there will be no exceedences of any of the UK's air quality objectives alongside the new link and that there would be a beneficial impact on the Hereford AQMA. Also there will be no significant impacts from the Inner Eastern Links, but that the Outer Eastern Links have potential impacts on the Lugg and Hampton Meadows SSSI. The information provided for air quality was also insufficient to allow us to draw conclusions as to the robustness of the assessment or whether the application of the DMRB Screening Model followed current practice and guidance.
- 3.1.9 There were areas of concern in the heritage assessment including an unclear methodology for the assessment of effects upon buried (or extant above ground)

undesignated archaeological sites and also issues with the description of National Planning Policy and the Methodology (both theoretical and as implemented).

Appendix A: Heritage – Detailed Comments

Receptor	Significance of Impact (Effect)	Paragraph no	Comment
<i>Eastern Inner Corridor</i>			
Rotherwas House SM	Moderate to Large	7.2.2	Monument is numbered 27543 in text but 1014880 on figure. Nature of impact is not described: is it direct physical or setting (map suggests that road corridor passes immediately to west of SM area but it is not clear if there is landtake. Text should specify whether direct and/or distance from scheme to receptor.
Rotherwas House Listed Buildings	Moderate to Large	7.3.1	Nature of impact (proximity of road etc) is not described. Setting effect is diagnosed but no discussion of how setting will be impacted.
Hampton Park Conservation Area	Neutral or Slight Significance	7.4.1	Impact is described as Slight Adverse which does not match terminology used in Table 2 (should be Minor). Clarification of why new road immediately to east of Conservation Area would constitute Slight Adverse Impact would be welcome. Table 1 of Methodology (and DMRB upon which it is based) grades Conservation Areas as of either High (if they contain Very Important Buildings) or Medium (if they contain Important Buildings) value. Text grades Hampton Park Conservation Area as being of Low Importance. Clarification of rationale would be welcome.
Hampton Dene Unregistered Park	Slight Significance	7.5.1	Not mapped. Level of impact is not stated.
Rotherwas House Unregistered Park	Slight Significance	7.5.2	Not mapped. Level of impact is not stated.
Prehistoric flint findspots	No effects/impacts assessed.	7.6.1	Sites not mapped and/or sites on mapping not numbered (numbers used in text). Location uncertain: described as being <i>North of Hampton Park</i> but Hampton Park is not mapped. Impact therefore uncertain.
Area of archaeological cropmarks / Scheduled Monument	No effects/impacts assessed	7.6.2	Site not mapped. Text describes <i>area of cropmarks</i> but no area of site mapped. Text describes it as <i>includ[ing] Scheduled Monument 1005348</i> (and this is mapped and lies to east of route) but it is uncertain whether the area of cropmarks extends into area of route. Resource is defined as being of High Value but no Impact defined and no Impact (i.e. effect) defined.

Receptor	Significance of Impact (Effect)	Paragraph no	Comment
Lugg Meadows	No effects/impact assessed	7.6.3	Features not mapped (unless they are the Other Visible Remains on Post-Medieval sites drawing). Uncertainty about their location (text describes them as being <i>`Just to the east of or even within the corridor`</i> . The value of the features is unclear: the text describes them as being <i>`Unique within the county and of High Value`</i> but according to Table 1 features of regional sensitivity are of Medium rather than High Value. Unclear whether the scheme will affect the resource. No effect defined.
Undesignated archaeological sites	No effects/impact defined	7.6.4-7.6.7	Sites not clearly mapped or numbered. No impacts/effects defined.
Lugg Meadows	No impact/effect defined.	7.7.1	No definition of Historic Landscape Type L.1.1. Text suggests that more than one block of L.1.1 will be affected (<i>Links pass briefly through of block of U.1.1 unenclosed meadows, before passing back into another block of L.1.1</i>) but this is not otherwise discussed. Uncertainty whether L.1.1 or U.1.1 are the Lugg Meadows. The value of the features is unclear: the text describes them as being <i>`Unique within the county and of High Value`</i> but according to Table 1 features of regional sensitivity are of Medium rather than High Value.
<i>Easter Outer Corridor</i>			
Rotherwas House SM	Moderate to Large	8.2.2	Monument is numbered 27543 in text but 1014880 on figure.
SMs 1005230, 10055234	No discernible Impact	8.2.3	`No Discernible Impact` is presented in bold text like other Impact (ie Effect) assessments but it is not defined in Table 2 (Impacts) or Table 3 (Impacts/Effects). ..
SM 27523	No discernible impact	8.2.4	Site is either not mapped or wrongly numbered: SM is Lugwardine is numbered 1014883 (not 27523 as discussed in text) but it is assumed that these are the same feature. No Discernible Impact` is presented in bold text like other Impact (ie Effect) assessments but it is not defined in Table 2 (Impacts) or Table 3 (Impacts/Effects). Final sentence of paragraph is confused; <i>`Therefore there would have no discernible impact on the monument.`</i> ..
Lugwardine Bridge	Slight to Moderate significance	8.3.1	Nature of impact not defined. Typo: Medium Value not Medium Vale asset.
Whistle Field House	No impact/effect	8.3.3	No effect/Impact defined.

Receptor	Significance of Impact (Effect)	Paragraph no	Comment
Grade I/I Listed building	defined		
Listed Buildings in Hampton Bishop	Neutral or slight significance	8.3.4	Grades needed for building
Tidnor Cross Cotage	No discernible impact	8.3.5	Grade needed for building No Discernible Impact' is presented in bold text like other Impact (ie Effect) assessments but it is not defined in Table 2 (Impacts) or Table 3 (Impacts/Effects).
Aylestone Hill Conservation Area	No discernible Impact	8.4.1	Text says <i>'The northern edge of the Aylestone Hill Conservation Area is just within this corridor.</i> Aylestone Hill (as mapped) lies to the north-west of the Inner Link and is closer to EL2 (although it is not mentioned in the Inner Link Section) than to EL9/10/11. No Discernible Impact' is presented in bold text like other Impact (ie Effect) assessments but it is not defined in Table 2 (Impacts) or Table 3 (Impacts/Effects). ..
Hampton Bishop Conservation Area	No discernible Impact	8.4.1	No Discernible Impact' is presented in bold text like other Impact (ie Effect) assessments but it is not defined in Table 2 (Impacts) or Table 3 (Impacts/Effects).
Lugwardine Court and Rotherwas House Unregistereed Park and Garden (s)	No discernible impact	8.5.1-8.5.3	Features are not mapped. No Discernible Impact' is presented in bold text like other Impact (ie Effect) assessments but it is not defined in Table 2 (Impacts) or Table 3 (Impacts/Effects).
Water Meadows north of the A4103	No impact/effect defined	8.6.1	Features are not mapped. Links are described as 'traversing' the southern edge' of the features which lie 'to the north of A4103'. A4013 lies at least 1.4km to the north of the northern end of EL9, 10 and 11.
Non-designated Historic Features	No impact/effect defined	8.6.2, 8.6.3, 8.6.5, 8.6.7	Features are not mapped or not numbered so that there location cannot be deduced. No Impact upon these features has been specified (so that it is not possible to deduce whether the features are affected or not).
Post-medieval water meadows	No impact/effect defined	8.6.4	Features not mapped or not numbered. Text suggests that they are south of A438 and are affected by links suggesting that they may be the large area of Post Medieval Other remains on (un-numbered figure) Post-Medieval sites. Are they therefore Lugg Meadows? Text in section 8.6 suggest that they are of Negligible Value, text in 8.7 (relating to Lugg Meadows) suggest that they (Lugg Meadows) are of High Value. Some clarification of the relationship between the two features (and as appropriate the discrepancy between the two gradings) would be helpful. No effect defined.
Non-designated	No impact/effect	8.6.6	Features are not mapped or not numbered.



Receptor	Significance of Impact (Effect)	Paragraph no	Comment
Historic features at Rotherwas	defined.		<p>No impact or effect defined.</p> <p>No significance assigned. Text discusses features but then summarises significance by stating that <i>'the chapel and house</i> [which are not discussed in this section but are discussed in detail in Sections 8.2 and 8.3) <i>are of high value through their level of designation'</i>. Para 7.6.6 (which discusses these features in the context of the Inner Corridor ascribes them a Medium Value as a group so it is assumed that the same significance would be used here but this needs stating. .</p>
Lugg Meadows	No impact/effect defined.	8.7.1	<p>No definition of Historic Landscape Type L.1.1. Text suggests that more than one block of L.1.1 will be affected (<i>Links pass briefly through of block of U.1.1 unenclosed meadows, before passing back into another block of L.1.1</i>) but this is not otherwise discussed.</p> <p>Uncertainty whether L.1.1 or U.1.1 are the Lugg Meadows.</p> <p>The value of the features is unclear: the text describes them as being <i>'Unique within the county and of High Value'</i> but according to Table 1 features of regional sensitivity are of Medium rather than High Value.</p>