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**Our ref:** SO/2022/121848/08-L01  
**Your ref:** Deadline 11 - 11/05/2022  
**Date:** 11 May 2022

**FAO: Edwin Mawdsley / A57 Planning Inspectorate**

Dear Sirs

**APPLICATION BY NATIONAL HIGHWAYS FOR AN ORDER GRANTING  
DEVELOPMENT CONSENT FOR A57 LINK ROADS PROJECT:**

**DEADLINE 11 (11TH MAY 2022) ENVIRONMENT AGENCY COMMENTARY &  
WRITTEN RESPONSE TO:**

- **RELEVANT SUBMISSIONS MADE BY THE APPLICANT (NATIONAL HIGHWAYS) UNDER EXAMINATION DEADLINE 10**
- **RESPONSES TO THE ExA'S THIRD WRITTEN QUESTIONS**

Thank you for the opportunity for the Environment Agency (EA) to provide the Examining Authority (ExA) with written representation in relation to the further submissions made by the applicant under Deadline 10 (D10) and the Third Written Questions as part of the A57 Development Consent Order (DCO) Examination. Notification on the availability of D10 submissions was received by the EA on the 9<sup>th</sup> May 2022.

For the purpose our written representation, we have chosen to focus on the D10 submissions made by the applicant which we consider to be of key importance:

- Deadline 10: [REP10-002] / [REP10-007] – 5.5/9.42 Flood Risk Assessment (Clean and Tracked)
- Deadline 10: [REP10-003] / [REP10-009] – 7.3/9.66 Register of Environmental Actions and Commitments (Clean and Tracked)
- Deadline 10: [REP10-006] – 9.18 Statement of Common Ground with Environment Agency
- Deadline 10: [REP10-008] – 9.61 Register of Environmental Statement Changes
- Deadline 10: [REP10-010] – 9.84 Applicant's Comments on Deadline 9 Responses

In addition, we have also reviewed the following submission:

- Deadline 3: [REP3-025] [9.43 Environmental Statement] Appendix 13.2; Hydrology Risk Assessment dated January 2022

Should the ExA identify there to be any wider submissions made under D10 or otherwise which this response does not address and for which EA review/ comment is considered necessary, then please do not hesitate to notify us at the earliest possible opportunity.

Detailed comments are included as separate appendices to this covering letter and set out as follows:

- Appendix 1 – EA response against ExA’s Third Written Questions
- Appendix 2 – Technical comments and review of [REP3-025] [9.43 Environmental Statement] Appendix 13.2; Hydrology Risk Assessment dated January 2022

We trust the ExA will find the contents of this letter beneficial. However, should you have any queries or questions then please do not hesitate to get in contact. We look forward to the opportunity to make further representation as part of examination D12 should this be required.

Yours Sincerely,

**Helen Telfer**  
**Sustainable Places Planning Specialist**

Direct e-mail [REDACTED]

**Appendix 1: - EA Commentary against Third Written Questions**

## A57 – Link Roads NSIP – Written Submission Deadline 11 (EA Related Questions from ExA’s Third Written Questions)

No.	Question to	Reference	Question	EA Response
<b>1</b>	<b>The draft Development Consent Order (dDCO) and other consents</b> Reference is made to the dDCO submitted by the Applicant for Deadline 9 [REP9-004].			
1.3	Applicant  Environment Agency	Requirement 3(4) Detailed design	The Environment Agency [REP9-046] has suggested that a requirement be added for detailed design to be consulted on “with relevant wider regulatory authorities”.  a) Have the Applicant and the Environment Agency agreed the wording?  b) If the wording cannot be agreed, please could the Applicant and the Environment Agency each provide their preferred wording, with reasoning?	We confirm that this representation was made as a recommendation for the ExA to consider if it was deemed appropriate, rather than a request to amend the wording of requirement 3 (4).  Following further discussion with the applicant, we are satisfied that no further amendments are necessary.  Requirement 3(4) requires the relevant planning authority, the local highway authority and other parties identified in the Community Engagement Plan (Annex B.6 of the Environmental Management Plan (First Iteration) (REP9-008)) to be consulted on the detailed design.  National Highways further clarified that they consider that the wording of the submitted draft CEP confirms that it will include 'statutory' stakeholders which covers regulatory bodies.

<p>1.4</p>	<p>Environment Agency</p>	<p>Requirement 4 Second Iteration Environmental Management Plan (EMP)</p>	<p>The ExA [PD-016] said that it may suggest changes subject to further advice from the Environment Agency and the Applicant.</p> <p>The Applicant [REP9-028] suggested that no changes would be required following updates to the Register of Environmental Actions and Commitments [REP9-009] and the submission of an Outline Dewatering Management Plan [REP9-008].</p> <p>Environment Agency [REP9-046] said that it would not have any comments on Requirement 4, subject to the Applicant's submissions being acceptable.</p> <p>Does the Environment Agency have any outstanding concerns regarding Requirement 4?</p> <p>If so, does the Environment Agency consider that these can be addressed within the dDCO and can it provide any suggested wording to address these concerns?</p>	<p>We can confirm that we are happy to endorse the proposed changes to the Register of Environmental Action and Commitments [REP10-009] and that no further amendments are necessary to requirement 4.</p>
<p>1.6</p>	<p>Applicant Environment Agency</p>	<p>Requirement 6 Contaminated land and groundwater</p>	<p>The ExA [PD-016] suggested changes to address the Environment Agency's concerns [REP8-037].</p> <p>The Applicant [REP9-028] referred to discussions with the Environment</p>	<p>We would refer the ExA to our response under the D10 submission which confirms our position that we are supportive of the additional wording added to this requirement and as recommended by the ExA previously: 6 (6) – (8). This includes</p>

			<p>Agency and provided revised wording and an Outline Dewatering Management Plan [REP9-008].</p> <p>The Environment Agency [REP9-046] said that it would comment on the Applicant's revised wording.</p> <p>a) Please could the Applicant review the formatting of its suggested changes, including the use of capital letters at the start of 6(2)(a), 6(2)(b) and 6(2)(c) and the use of brackets?</p> <p>b) Please could the Applicant and the Environment Agency comment on whether "previous site investigations" should be removed from 6(3) to recognise that all contamination should be addressed in the approved remediation strategy?</p> <p>c) Have the Applicant and the Environment Agency agreed the wording?</p> <p>d) If the wording cannot be agreed, please could the Applicant and the Environment Agency each provide their preferred wording, with reasoning?</p> <p>e) Does the Environment Agency agree with the Applicant [REP9-028] that the provisions suggested by the ExA [PD016] in relation to a hydrogeological</p>	<p>the specific provisions in relation to a hydrogeological risk assessment.</p> <p>We understand that the applicant will submit revised changes to this requirement as part of the next iteration of the dDCO which we have jointly agreed as part of recent discussions. This includes the removal of the reference to "previous site investigations".</p>
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			<p>risk assessment are not needed in the dDCO? f) Does the Environment Agency have any outstanding concerns regarding Requirement 6?</p>	
1.7	<p>Applicant</p> <p>Environment Agency</p>	<p>Requirement 9 Flood risk assessment</p>	<p>The ExA [PD-016] said that it may suggest changes subject to further advice from the Environment Agency and the Applicant.</p> <p>The Applicant [REP9-028] suggested that no changes would be required following its submission of a revised Flood Risk Assessment [REP8-007].</p> <p>Environment Agency [REP9-046] said that it would comment following its review of the revised Flood Risk Assessment.</p> <p>Does the Environment Agency have any outstanding concerns regarding Requirement 9? If so, does the Environment Agency consider that these can be addressed within the dDCO and can it provide any suggested wording to address these concerns?</p> <p>Are additional measures required to provide certainty that appropriate mitigation can be secured to address issues of flooding and allow the SoS to carry out any Exception Test as required?</p>	<p>We would refer the ExA to our response [REP10-014] under D10 which confirms that we no longer consider it necessary for any further amendments to Requirement 9 owing to the changes submitted under D11 to the Register of Environmental Action and Commitments [REP10-009]</p>

2	General Matters			
2.3	<p>Applicant</p> <p>Tameside Metropolitan Borough Council</p> <p>Derbyshire County Council</p> <p>High Peak Borough Council</p> <p>Environment Agency</p> <p>Natural England</p>	<p>Remaining Concerns</p>	<p>Apart from the issues covered elsewhere in these third written questions or in their signed Statements of Common Ground, please could Tameside Metropolitan Borough Council, Derbyshire County Council, High Peak Borough Council, Peak District National Park Authority, the Environment Agency, and Natural England summarise any remaining concerns that they have about the:</p> <ul style="list-style-type: none"> <li>• Case for the Scheme [REP2-016]</li> <li>• Environmental Management Plan (First Iteration) [REP9- 008]</li> <li>• Register of Environmental Actions and Commitments [REP9-009]</li> <li>• Works Plans [REP9-002], Streets, Rights of Way and Access Plans [REP9-003], Scheme Layout Plans [REP8- 004], and Engineering Drawings and Section Plans [REP5-005]</li> <li>• compliance of the Proposed Development with relevant legislation and policy, including local policies</li> <li>• any other important and relevant matters, including in relation to the ExA's Initial Assessment of Principal Issues [PD-005]</li> </ul>	<p>No additional comments.</p>

<b>6</b>	<b>Other noise, vibration and nuisance</b>			
6.2	<p>Tameside Metropolitan Borough Council</p> <p>Derbyshire County Council</p> <p>High Peak Borough Council</p> <p>Peak District National Park Authority</p> <p>Environment Agency</p>	<p>Remaining Concerns</p>	<p>Apart from the issues covered elsewhere in these third written questions, please could Tameside Metropolitan Borough Council, Derbyshire County Council, High Peak Borough Council, Peak District National Park Authority, and the Environment Agency summarise any remaining concerns that they have about the Applicant's consideration of noise, vibration, common law nuisance or statutory nuisance?</p>	<p>No additional comments.</p>
<b>10</b>	<b>Soils, ground conditions, material assets and waste</b>			
10.1	<p>Environment Agency</p> <p>Applicant</p>	<p>Ground Investigation Report [APP187]. Supplementary Ground Investigation Report [REP7-027].</p> <p>Environment Agency Written Representation at Deadline 8 [REP8-037].</p>	<p>During Issue Specific Hearing 3 and subsequently in their Written Response at Deadline 8 [REP8-037] the Environment Agency identified concerns regarding the level of data supplied within the Ground Investigation Report [APP-187] and Supplementary Ground Investigation Report [REP7-027].</p> <p>During Issue Specific Hearing 3 the Environment Agency and Applicant</p>	<p>We can confirm that we are in agreement with the applicant's summary within [REP9-027].</p> <p>We are also in agreement with the amendments within RD1.1 and RD1.20 of the REAC [REP9-009] and for RD1.20 as submitted under D10 [REP10-009].</p> <p>As noted to the response in the ExA's question above (1.6) we are now in an agreed position with the applicant of</p>

		<p>Applicant's Response to Written Representations at Deadline 8 [REP9-027].</p> <p>dDCO [REP9-004] Register of Environmental Actions and Commitments [REP9-009]</p> <p>Environment Agency Comments on the ExA's schedule of changes to the draft Development Consent Order and comments submissions made by the Applicant for Deadline 6 and 8 [REP9-046]</p>	<p>undertook to meet to seek agreement on the Ground Investigation Report [APP-187] and Supplementary Ground Investigation Report [REP7-027].</p> <p>Meetings between the Applicant and the Environment Agency have subsequently taken place and a summary of progress has been provided by the Applicant [REP9-027].</p> <p>a) Would the Environment Agency confirm whether it agrees with the Applicant's summary?</p> <p>b) Does the Environment Agency consider that the revised wording of RD1.1 and RD1.20 of the REAC [REP9-009] is appropriate and acceptable?</p> <p>c) Please would the Applicant and the Environment Agency confirm whether meetings to resolve this matter are ongoing and provide any update on their positions?</p>	<p>proposed wording for requirement 6 which will be incorporated into the next iteration of the dDCO. This will satisfy our remaining concerns and will also be reflected in an updated SoCG which we understand the applicant is intending to submit for D12.</p>
10.2	Environment Agency	<p>Environmental Management Plan [REP9-008]</p> <p>Environment Agency Comments on the ExA's schedule of changes to the draft Development Consent Order and comments submissions made by the</p>	<p>At Deadline 9 the Applicant provided, as Annex 8 to the First Iteration Environmental Management Plan [REP9-008], an Outline Dewatering Management Plan.</p> <p>Please would the Environment Agency comment on the Outline Dewatering Management Plan [REP9-008 Annex 8]</p>	<p>We would refer the ExA to our response [REP10-014] under D10 which confirms our review of the Outline Dewatering Management Plan [REP9-008 Annex 8].</p> <p>As noted in the response above to Q1.6, this also further clarifies that in agreement with the applicant we are proposing to include additional wording</p>

		Applicant for Deadline 6 and 8 [REP9-046]		as recommended by the ExA previously: 6 (6) – (8).
10.5	Tameside Metropolitan Borough Council  Derbyshire County Council  High Peak Borough Council  Peak District National Park Authority  Environment Agency	Remaining Concerns	Apart from the issues covered elsewhere in these third written questions, please could Tameside Metropolitan Borough Council, Derbyshire County Council, High Peak Borough Council, Peak District National Park Authority, and the Environment Agency summarise any remaining concerns that they have has about the Applicant's consideration of soils, ground conditions, material assets or waste?	No comments.
<b>11</b>	<b>The water environment, drainage, flood risk assessment, Water Frameworks Directive</b>			
11.1	Environment Agency  Applicant	Environment Agency's representation at Deadline 8 [REP8-037] Applicant's Written Summary of Issue Specific Hearing 3 [REP8-019]	The model for the River Etherow has not been agreed between the Environment Agency and the Applicant.  Further, in their response to the ExA's Second Written Questions [REP6-039], the Environment Agency identified outstanding concerns regarding the Hydrogeological Risk Assessment [REP3-025], the Flood Risk	We can confirm we are in agreement with the applicant's summary and would also refer the ExA to our response under D10 [REP10-014] and to Q1.7 above. In conclusion we consider this matter to be satisfactorily resolved.

		<p>Applicant's Response to Representations made at Deadline [REP9-027]</p> <p>River Etherow modelling Environment Agency Comments on the ExA's schedule of changes to the draft Development Consent Order and comments submissions made by the Applicant for Deadline 6 and 8 [REP9-046]</p>	<p>Assessment [REP5- 010] and how risks could be identified, addressed and mitigation secured within the dDCO.</p> <p>During Issue Specific Hearing 3 the Environment Agency and Applicant undertook to meet to progress agreement of modelling of the River Etherow.</p> <p>Meetings between the Applicant and the Environment Agency have subsequently taken place and a summary of progress has been provided by the Applicant [REP9-027].</p> <p>a) Would the Environment Agency confirm whether it agrees with Applicant's summary?</p> <p>b) Please would the Applicant and the Environment Agency confirm whether meetings to resolve this matter are ongoing and provide any update on their positions?</p>	
11.2	Environment Agency Applicant	<p>Environment Agency's Response to the Examining Authority's Second Written Questions [REP6-039]</p> <p>Environment Agency's representation at Deadline 8 [REP8-037]</p>	<p>The Environment Agency [REP6-039] has identified concerns that the Flood Risk Assessment has not been updated to reflect the latest fluvial climate change allowances that were introduced in 2021.</p> <p>The findings of the Flood Risk Assessment have potential to impact on</p>	<p>We can confirm we are in agreement with the applicant's summary and would also refer the ExA to our response under D10 [REP10-014] and to Q1.7 above. In conclusion we consider this matter to be satisfactorily resolved.</p>

		<p>Applicant's Written Summary of Issue Specific Hearing 3 [REP8- 019]</p> <p>Applicant's Response to Representations made at Deadline [REP9-027] Flood Risk Assessment [REP8-007]</p> <p>River Etherow Outfall Technical Note [REP9-030]</p> <p>Environment Agency Comments on the ExA's schedule of changes to the draft Development Consent Order and comments submissions made by the Applicant for Deadline 6 and 8 [REP9-046]</p>	<p>the balance of environmental benefits against the flood risk.</p> <p>In their response to the Examining Authority's Second Written Questions [REP6-039 Q11.5] the Environment Agency suggests that, if it is the Applicant's intention to address issues of the flood modelling, and thus consequent implications within the Flood Risk Assessment, during the detailed design stage, assurance is needed during the examination that the development design provided is feasible and that there is confidence that it would remain feasible once the latest climate change guidance is factored in.</p> <p>Such an approach, the Environment Agency has suggested, may allow a conditional approach for the remaining issues to be addressed as part of an updated FRA.</p> <p>During Issue Specific Hearing 3 the Environment Agency and Applicant undertook to meet to progress agreement of Flood Risk Assessment.</p> <p>The Applicant submitted a revised Flood Risk Assessment [REP8-007] at Deadline 8. Meetings between the Applicant and the Environment Agency have subsequently taken place and a</p>	
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			<p>summary of progress has been provided by the Applicant [REP9-027].</p> <p>This indicates that an updated Flood Risk Assessment has been provided to the Environment Agency.</p> <p>The Applicant has submitted, at Deadline 9, a Technical Note regarding the River Etherow Outfall [REP9- 030].</p> <p>a) Would the Environment Agency confirm whether it agrees with the Applicant's summary?</p> <p>b) Would the Environment Agency comment on the Revised Flood Risk Assessment [REP8-007] and the River Etherow Outfall Technical Note [REP9-030] and whether, or not these address their outstanding concerns?</p> <p>c) If not, would the Applicant and the Environment Agency comment on the likelihood of agreement being reached prior to;</p> <ul style="list-style-type: none"> <li>• The end of the Examination Period?</li> <li>• The end of the Reporting Period?</li> <li>• The period for issue of the Secretary of State's decision?</li> </ul> <p>d) If no agreement can be reached prior to each of these periods, how can the Examining Authority be satisfied that the Secretary of State would have the</p>	
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			<p>necessary information available to carry out an Exception Test?</p>	
<p>11.3</p>	<p>Environment Agency</p>	<p>Environment Agency's representation at Deadline 8 [REP8-037]</p> <p>Applicants comments on Deadline 8 Submissions [REP9-027]</p> <p>Environment Agency Comments on the ExA's schedule of changes to the draft Development Consent Order and comments submissions made by the Applicant for Deadline 6 and 8 [REP9-046]</p>	<p>On pages 9-10 of its representation at Deadline 8 [REP8-037] the Environment Agency, in relation to concerns regarding the potential for adverse environmental impacts created by dewatering advises that that the action / commitment detailed under RD1.3 is currently incorrect in as much as RD1.3 currently states that exemption from an abstraction licence will apply for abstractions less than 100 cubic metres per day.</p> <p>The Environment Agency advises that, under its latest guidance a water abstraction or impoundment licence is required if there is an intention to abstract more than 20 cubic metres per day, and that the Applicant should seek to update this section of the REAC (and any other relevant sections) in accordance with the latest guidance.</p> <p>The Applicant [REP9-027] said that it is their understanding that a temporary dewatering abstraction can be licence exempt if it is less than 100 m3 per day and meets the conditions laid out in 'Regulation 5 of the Water Abstraction and Impounding (Exemptions) Regulations 2017.'</p>	<p>We can confirm that the wording within the REAC submitted under D10 [REP11-003] correctly reflects the requirements under Regulation 5 of the Water Abstraction and Impounding (Exemptions) Regulations 2017. No further amendments are necessary.</p>

			<p>a) Is this also the Environment Agency’s understanding of those regulations?</p> <p>b) If so, does the Environment Agency still consider that the REAC should be updated to clarify the requirements?</p>	
11.6	<p>Jeff Brown Applicant</p> <p>Environment Agency</p>	<p>Written Representation at Deadline 6 [REP6-035]</p> <p>Written Representation at Deadline 8 [REP8-038]</p> <p>Applicant’s Response to Written Representations at Deadline 6 [REP7-026]</p> <p>Applicant’s Response to Written Representations at Deadline 8 [REP9-027 Response Reference 9.79.80].</p>	<p>Mr Brown has identified in his representation at Deadline 6 [REP6-035] that there is a well on his land from which the property has historically abstracted water and for which there is a legal obligation to provide water to “Dial Cottage”.</p> <p>a) Please would Mr Brown why he considers that there is a legal obligation to provide water to “Dial Cottage”?</p> <p>b) Would the Applicant and the Environment Agency please comment?</p>	<p>We can confirm that we have no records of an abstraction license associated with this property. However we could clarify that it is the responsibility of the Local Authority under the</p> <p>Under Reg 14 of the <a href="#">Private Water Supplies (England) Regulations 2016</a>, there is a duty for Local Authorities to maintain records in respect of every private water supply in its area.</p>
11.8	<p>Tameside Metropolitan Borough Council</p> <p>Derbyshire County Council</p> <p>High Peak Borough Council</p> <p>Environment Agency</p>	<p>Remaining Concerns</p>	<p>Apart from the issues covered elsewhere in these third written questions, please could Tameside Metropolitan Borough Council, Derbyshire County Council, High Peak Borough Council, and the Environment Agency summarise any remaining concerns that they have about the Applicant’s consideration of the water environment, drainage, flood risk assessment, or the Water Frameworks Directive?</p>	<p>No comments</p>

12	<b>Biodiversity, ecological and geological conservation, Habitat Regulation Assessment</b>			
12.9	<p>Tameside Metropolitan Borough Council</p> <p>Derbyshire County Council</p> <p>High Peak Borough Council</p> <p>Peak District National Park Authority</p> <p>Natural England</p> <p>Environment Agency</p>	Remaining Concerns	<p>Apart from the issues covered elsewhere in these third written questions, please could Tameside Metropolitan Borough Council, Derbyshire County Council, High Peak Borough Council, Peak District National Park Authority, Natural England, and the Environment Agency summarise any remaining concerns that they have about the Applicant's consideration of biodiversity, ecological and geological conservation, or the Habitat Regulation Assessment?</p>	No comments

**Appendix 2 – Technical Comments and Review of Deadline 3: [REP3-025]  
[9.43 Environmental Statement] Appendix 13.2; Hydrology Risk  
Assessment dated January 2022**

The Environment Agency has reviewed REP3-025 (Deadline 3 Submission) [9.43 Environmental Statement] Appendix 13.2; Hydrogeology Risk Assessment dated January 2022.

As part of this response, we are also mindful of the additional submissions associated with the Geology and Soils section of the Environmental Statement to which we have and continue to refer as these submissions contain a lot of the background technical information which underpins the hydrogeology risk assessment (HRA) report.

We are providing our comments to address gaps and issues relating to the submitted HRA. We have reviewed the HRA report to understand the current environmental conditions; the risks to controlled waters during construction and at the post-construction stage of road development.

For ease of consideration, we have broken down our commentary and referred specifically to identified sections and bullet points throughout the hydrogeology risk assessment, as set out below:

**Section 1.1.5** The project's scope is so large scale that anything mentioned explicitly in the HRA/HIA needs to be included in the HRA or a summary provided.

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**Section 1.1.8** Why are the following road sections not specifically considered in the HRA:

- The Mill Farm Underpass
- Old Mill farm underpass
- Western cutting
- Carhouse farm underpass
- Eastern Embankments or piling or any deep foundation structures
- The Scheme in its entirety
- In addition:
  - The Mottram underpass
  - The Eastern Cutting

Additionally, are there any other features that need to be included that we are not immediately aware of due to the large scale of the highway development?

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**Section 1.1.6** The assessment of the potential temporary impacts from dewatering during construction: these works need to be the precursor to all other hydrogeological and hydrological work through the ground investigation consent process. By skipping this stage, the assessment lacks the information to inform and support the modelling which has been carried out for post construction hydrogeological conditions and impacts.

The National Permitting Service needs to be contacted, and there is a need to apply for an S32 (3) GIC (s) and appropriately investigate the impacts of pre and post construction works.

We advise that you will also need to contact the National Permitting Service regarding pre and post-construction groundwater discharges and potential water quality issues.

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**Section 1.2.1**

A check of the records that the Environment Agency hold suggest that we may not have seen the 2017 Arcadis Groundwater Modelling Report

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**Section 2.2**

The absence of mapped bedrock geology is a significant omission in the HRA.

Conceptual understanding of the study area will be enhanced by mapping the bedrock geology, superficial geology and faults with the Scheme (road) superimposed over these.

The road sections listed in Section 1.1.8 above need to be indicated on these figures.

Figures are also needed showing the above features in combination with groundwater flow direction and groundwater levels.

The Environment Agency needs to understand the recharge zone for the catchment overall. The Environment Agency also needs to understand the recharge zone for discrete fault-bounded blocks potentially isolated from regional groundwater baseflow because of low permeability boundaries.

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**Insert 2.1**

(Page 9)

Is the line of section A in the correct orientation?

Section B is not in the Figure.

The figure needs a key.

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**Insert 2.2**

(Page 10)

There are multiple boreholes and presumably borehole logs from the planned route.

Any hydrogeological cross sections reported in the HRA must be based on these logs; the faults need to be added (the road passes through more than one fault), and groundwater levels need to be included. We would suggest the sections run from NW - SE along the proposed bypass route, with the second section starting close to Hurstclough Brook.

A further section running W - E that crosses the River Etherow would be beneficial.

All cross-sections need to be scaled vertically and laterally, or they need to have an mAOD scale at least.

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**Section 2.2.7**

Glaciofluvial deposits to the west/southwest must be included in geological mapping and discussions.

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**Insert 2.3**

(Page 12)

The next revision needs to show the underpass location, the cutting and any other excavation features (see page 5

comments) on all figures to develop conceptual understanding.

The Environment Agency needs to understand the location of these features relative to the bedrock and superficial cover, groundwater levels, faulting and groundwater flow.

<b>Sections 2.3.5 - 2.3.9</b>	A cross-section or similar showing the information from these sections needs to be develop conceptual understanding. Combining this information with the cross-sections from appendix A of the supplementary ground investigation report would be appropriate
<b>Sections 2.3.10 - 2.3.16</b>	A cross-section or similar showing the information in this section is needed to develop conceptual understanding
<b>Inserts 2.7 - 2.10 (Page 16)</b>	Please add a line showing the ground surface elevation/datum level on all graphs
<b>Section 2.3.6</b>	<p>We advise that for a geological fault to be a significant barrier to groundwater flow, it needs to be laterally extensive, with hydraulic conductivity orders of magnitude lower than the main aquifer.</p> <p>In general, faults within the same aquifer can make a significant difference to local groundwater flow patterns (and thus influence the distribution of local impacts) however, they rarely make a significant difference to regional flow patterns (and, therefore, regional impacts).</p> <p>The HRA appears to be making the case for the former rather than the later in this circumstance; Can you confirm if this is this the case?</p> <p>The Environment Agency are aware it was mentioned that the project team is not sure of the lateral extent.</p>
<b>Section 2.3.8</b>	<p>Bullet point one: The Environment Agency agree for the most part, but the data set is minimal.</p> <p>Bullet point three:</p> <ul style="list-style-type: none"> <li>• Was this pumping test carried out to test fault permeability?</li> <li>• What was the pumping rate?</li> </ul> <p>Any pump test data needs to be included in the HRA/HIA rather than under a separate cover as this is a key document for the wider project and one on which other plans and methodologies are linked to.</p>
<b>Section 2.3.11</b>	Upwards hydraulic gradient at or close to the underpass and cutting; how will you manage this?
<b>Section 2.5</b>	We request that you identify and plot the sinks, springs, private and licensed abstractions (surface water and groundwater) in a figure/insert with bedrock geology, superficial geology, groundwater levels and the road features.
<b>Section 2.6.3</b>	Why was the pump test data not included?

### Section 3.2.16

The Environment Agency have not agreed to the extent of the study area/buffer zone/WFS radius or any other boundary.

Without discussions, we cannot know what private spring, well, borehole (private and licensed), surface water abstractions and surface water features should/need to be included within the radius of influence/study area.

Taken from the Geology and Soils report:

- there are no registered Environment Agency groundwater abstractions (licensed) within the study area.
- there are five private abstractions (recorded by Tameside MBC) from spring, surface and groundwater (borehole) located within the study area, and
- some additional private spring, well, and borehole abstractions within a 1 km radius were identified through the surface water features survey.

The location of these within the study area is shown on Figure 9.1.

The closest abstraction is located at Mottram Old Hall, approximately 75m of the closest red line boundary.

According to the Environment Agency's Approach to Groundwater Protection, "*All abstractions, including private water supplies, that are used for drinking water supply or food production purposes are by default in an SPZ1 or SPZ2.*".

On Figure 9.1 of the HRA there needs to be a list of spring, surface and groundwater abstractions and surface water features found within the study area. These features also require a unique national grid reference number.

Please be aware that Source Protection Zones's are defined for pollution prevention and control, not water resource management.

The area of influence around any abstraction or other is defined by the environmental setting, geology and hydrogeology of the site and the proposed dewatering/abstraction volume.

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### Section 3.4

The Environment Agency would like to request confirmation of the scenario to which you refer in this section.

Arising from our review it is not clear and the Environment Agency is not absolutely sure it is being modelled as a single scenario works.

There are so many more compartments to this scheme than the three which have been mentioned in Table 3.7.

In terms of groundwater and surface water receptors and the risk of impact on these from the Scheme the HRA and works need to be broken down into:

1. The Mill Farm Underpass
2. Old Mill farm underpass
3. Western cutting
4. Carhouse farm underpass
5. Eastern Embankments or piling or any deep foundation structures.
6. Mottram underpass
7. Eastern Cutting
8. All other sections

For the above you need to determine:

- The bedrock and superficial geology you are cutting into
- Groundwater level and flow if applicable
- Which aquifer(s) you are cutting into/dewatering/abstracting from if applicable

**Please note in this respect that:**

Perched and/or shallow groundwater in the superficial Glacial Till deposits has been recorded in multiple boreholes across the entire scheme. The Glacial Till deposits are likely to be in hydraulic connectivity with surface water features and/or bedrock aquifer hence, it needs to be classified either as a:

Secondary A - permeable strata capable of supporting water supplies at a local rather than strategic scale and in some cases forming an important source of base flow to rivers. These generally equate to aquifers formerly classified as 'Minor Aquifers'

Secondary B - predominantly lower permeability strata which may in part have the ability to store and yield limited amounts of groundwater by virtue of localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former 'Non Aquifers'.

The Environment Agency needs to determine if the aquifer (s) unit (s) you are planning to abstract /dewatering from are fault-bounded and if so, how permeable are the faults.

The geology of the area is complicated, and this needs to be understood for 1-8, as it stands, conceptual understanding is limited; see previous comments.

What is the hydrogeological connectivity of the aquifer (s) you are abstracting from? Are the aquifer (s) unit (s)/groundwaters contained with discrete blocks, if so are there any Surface water/Groundwater features that rely on this Groundwater source that could have limited recharge? The Environment Agency believe that the project could easily drain an isolated block/aquifer or cause significant drawdown.

We would like to know how are you assessing any impact from 1-8 (list above) without knowing the volume of groundwater you will be removing from the aquifer(s) system pre and post-construction?

Prior to the commencement of the highways development this will need to be tested for this and once known, or have an estimated value based on testing, you can define a likely radius of influence and drawdown for 1-8 if applicable.

Doing this will indicate what the local impact is from any cuttings along the Scheme, and it will help all concerned to determine the collective regional impact and the impact east and west of the Mottram fault.

<b>Section 3.4.3</b>	Where is the central focus of the drawdown? Is this based on one cut section only or is the report using a midpoint between the Mottram underpass and the Eastern Cutting? Is the HRA reporting that that the long-term impact will be an 11 m drawdown across the whole scheme and, that the highway development will be losing 63.5 m <sup>3</sup> /d across both the Mottram underpass and the Eastern cuttings?
<b>Section 4.1.5</b>	Buffer zone not agreed with the The Environment Agency
<b>Table 4.1,</b>	<p>Step 1; Not established</p> <p>In addition to previous comments, the report will need to also focus on both the bedrock and superficial cover until you have more data, see comment above. The HRA reports that there is significant groundwater in the superficial cover (Inserts 2.2, 2.7, 2.8) and, at least in some areas these will need to be treated as a Secondary A or B aquifer.</p> <p>West of the fault, based on the data provided, there are at least two aquifers; in the overlaying Glacial Till and the Millstone grit.</p> <p>These appear hydraulically separate, and it's likely that the superficial deposits are providing baseflow to surface water features and there may be private abstractors using this resource.</p> <p>Future revisions of the HRA will need to know about these links and understand the impacts if any.</p>
<b>Table 4.1</b>	<p>Step 2; Not established.</p> <p>See comments for Section 2 and on pages 30 &amp; 46</p>
Table 4.1	<p>Steps 3 - 7, Not established. See comments for page 46.</p> <p>The Environment Agency requires more detail information on 4.4.7.</p>
<b>Insert 2.7</b>	<p>This suggests that the area has either have three aquifer units within the superficial or one large superficial aquifer; we believe that the relevant borehole logs will inform your decisions.</p> <p>East the fault there is continuity between the superficial and bedrock aquifers therefore, the HRA cannot just discount the superficial cover.</p>

**HIA Guidance  
(SCHO0407BMAH-  
E-P); conceptual  
model**

The model must be tested; this is an essential part of conceptual model development, as it forces hypotheses to be evaluated and alternatives found if necessary.

Testing the model, where the numbers come in and the conceptual model becomes quantitative rather than just qualitative.

If there is no quantitative testing (i.e., step and constant rate testing), the degree to which the model represents the real system cannot be assessed. Testing with numbers also enables uncertainty to be explicitly addressed, which links conceptual modelling to risk assessment. Conceptual modelling is an iterative or cyclical process.

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**Section 4.7:**

This needs more consideration/discussion with regards to surface water and groundwater.

The Environment Agency has some doubt as to the simplicity and straight-forwardness of this task and warns that it may be a resource intensive process.