

**THE OXFORDSHIRE COUNTY COUNCIL (DIDCOT GARDEN TOWN HIGHWAYS  
INFRASTRUCTURE – A4130 IMPROVEMENT (MILTON GATE TO COLLETT  
ROUNDAABOUT), A4197 DIDCOT TO CULHAM LINK ROAD, AND A415 CLIFTON  
HAMPDEN BYPASS) COMPULSORY PURCHASE ORDER 2022**

**THE OXFORDSHIRE COUNTY COUNCIL (DIDCOT TO CULHAM THAMES  
BRIDGE) SCHEME 2022**

**THE OXFORDSHIRE COUNTY COUNCIL (DIDCOT GARDEN TOWN HIGHWAYS  
INFRASTRUCTURE – A4130 IMPROVEMENT (MILTON GATE TO COLLETT  
ROUNDAABOUT), A4197 DIDCOT TO CULHAM LINK ROAD, AND A415 CLIFTON  
HAMPDEN BYPASS) (SIDE ROADS) ORDER 2022**

**THE CALLED-IN PLANNING APPLICATION BY OXFORDSHIRE COUNTY  
COUNCIL FOR THE DUALLING OF THE A4130 CARRIAGEWAY,  
CONSTRUCTION OF THE DIDCOT SCIENCE BRIDGE, ROAD BRIDGE OVER  
THE APPLEFORD RAILWAY SIDINGS AND ROAD BRIDGE OVER THE RIVER  
THAMES, AND ASSOCIATED WORKS BETWEEN THE A34 MILTON  
INTERCHANGE AND THE B4015 NORTH OF CLIFTON HAMPDEN,  
OXFORDSHIRE (APPLICATION NO: R3.0138/21)**

**PLANNING INSPECTORATE REFERENCE:**

**APP/U3100/V/23/3326625 and NATTRAN/SE/HAO/286 (DPI/U3100/23/12)**

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**Rebuttal proof of evidence of**

**Karl Chan**

**Technical Highways Engineering – Culham River Crossing and Clifton  
Hampden Bypass**

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## **1 SCOPE OF EVIDENCE**

- 1.1 This Rebuttal Proof of Evidence has been prepared regarding Technical Highways Engineering of Culham River Crossing and Clifton Hampden Bypass matters relating to:
  - 1.1.1 The viability of the Thames River Crossing Bridge and Appleford Siding Bridge designs by Chris Hancock and Russell Harman on behalf of the Neighbouring Parish Councils – Joint Committee (NPC-JC) in January 2024;
  - 1.1.2 The viability of Sutton Courtenay roundabout and the Design Risks raised by Russell Harman on behalf of the NPC-JC; and
  - 1.1.3 the concerns about the design at the proposed A4197 / Proposed Access Road and HGV traffic in Appleford by Sam Casey-Rerhaye.
- 1.2 The aim of this Rebuttal Proof of Evidence is to respond to a number of points that have not already been addressed in my main proof of evidence, to provide further clarification of my evidence or to correct misunderstandings within evidence presented by other parties. I have sought to avoid unnecessary repetition of matters already addressed at length, with the ultimate intention of assisting the Inquiries. Where I do not respond to a point raised by another party, my lack of response should not be construed nor interpreted as agreement, unless explicitly stated so within this Rebuttal Proof of Evidence

## **2 RESPONSE TO CHRIS HANCOCK**

- 2.1 Chris Hancock, on behalf of NPC-JC, raises a number of concerns regarding bridge design. In Mr Hancock's proof of evidence at para 4.5.2, he notes that VOWHDC commented that *"Appendix G (Oversized Bridge examples) of the Reg 25 response, provide little confidence that the bridge will be an attractive feature or sensitive to its rural setting"*.
- 2.2 For clarity, Appendix G of the Nov 2022 Reg 25 response (refer to CD B.2 Appendix G) was provided to demonstrate examples for the Appleford Sidings Bridge and not the Thames Bridge.
- 2.3 Mr Hancock further comments on the Appleford Sidings Bridge, noting that the bridge will cross the siding at an acute angle and alleging that the design is wasteful of resource.
- 2.4 The proposed bridge location is linked to the proposed road alignment which has been described in my proof of evidence at para 3.11 to 3.13. In relation to the design, a Bridge Option study was carried out (refer to Appendix KC2.1 in my proof of evidence) and the positives and negatives of different structure types have been considered thoroughly before arriving at the preferred option.

### **3 RESPONSE TO RUSSELL HARMAN**

- 3.1 Russell Harman, giving evidence on behalf of NPC-JC, alleges in his proof at Section 2.2 that based on the number of objections, it can reasonably be concluded that these key stakeholders have not yet been consulted. This is incorrect. Stakeholder engagement has continued throughout the design process and will continue into next stage of design (detailed design) and construction.
- 3.2 Utility companies have been engaged following the process set out in the Manual of Contract Documents for Highway Works Volume 6 Section 2 Part 2 SA10/05 – New Roads and Street Works Act 1991 – Diversionary Work. Utilities information was obtained from Statutory Undertakers and where apparatus is affected Budget Estimates and Detailed Estimates were obtained from the Undertakers. The proposed utility diversions from this process are illustrated in CD D.215 to D.233 Proposed Utilities Diversion Drawings and the estimated cost captured in the Scheme budget.
- 3.3 Regarding businesses and landowners, all parties Mr Harman mentioned (Network Rail, National Grid, Thames Water, UKAEA, CEG, LEDA, RWE) and others along the Scheme that he did not mention have been engaged throughout the Scheme design. It should be noted that UKAEA, CEG and LEDA are supportive of the Scheme in general, their concerns mainly lie with the Orders (refer to my proof of evidence para 3.70 to 3.76 and 3.94 to 3.104, and Steve Moon's proof of evidence para 4.95 to 4.102 and 4.171 to 4.210 for details). However, it is acknowledged that engagement and negotiation is ongoing with some of the local businesses and landowners, the current status is detailed in Section 4 of Steve Moon's proof of evidence.
- 3.4 Mr Harman also comments on the viability of the Bridges. On the Appleford Sidings Bridge (see Russell Harman's proof of evidence Section 4), Mr Harman makes reference to stakeholders and observes that the bridge will be subject to Network Rail possessions.
- 3.5 Regarding stakeholders and possessions, the main stakeholder for Appleford Sidings Bridge is Hanson Quarry Products Europe Limited (Hanson) as it is a private siding rather than owned by Network Rail. AECOM and the Acquiring Authority have engaged with Hanson throughout the feasibility and preliminary design stages. Possession and oversailing rights will be agreed with Hanson and other stakeholders prior to construction work.
- 3.6 Mr Harman suggests that the reason why the Appleford Sidings Bridge is proposed is because Network Rail do not sanction new level crossings. He further states that the Landfill Site Waste Licence expires in 2030 and that Network Rail could tolerate a level crossing, such that the Sidings Bridge can be decommissioned at that point.
- 3.7 The main reasons why the Appleford Siding Bridge is proposed are due to the Scheme crossing over an operational siding and the topography of the land. Crossing the Appleford Rail Sidings at railway level is not an appropriate option as it would affect the operation of the siding. As Mr Harman has acknowledged, new level crossings are major safety concerns and is not industry practice to install new level crossings. During stakeholder engagement, Hanson mentioned shunting of wagons happens throughout the day. Any level crossing across the sidings would affect the siding operation. As such a bridge structure traversing the siding would be required to eliminate rail/road conflicts.
- 3.8 The second reason why the Sidings Bridge is proposed is because the rail siding tracks are in a valley, as mentioned in my proof of evidence at para 3.64. The rail tracks are set at approximately 51.4m AOD with ground to the south of the siding reaching the height of 56m AOD to the west of the Scheme alignment. The land to the north reaches the height of 58m.

Hence a bridge is required to traverse the sidings location. Regarding Mr Harman's suggestion that the Sidings Bridge can be decommissioned when the landfill licence expires, again due to the topography of the land this is unlikely to be appropriate as it would involve major earth cutting work including cutting into the landfill site north of the siding.

- 3.9 Mr Harman further comments on the viability of the Thames Crossing Bridge (referred to as Sutton Courtenay Road Bridge in Section 5.1 of his proof of evidence). He comments that the viability of the bridge design would most likely be determined by geotechnical data and flood risk.
- 3.10 Regarding geotechnical data, during the development of the feasibility and preliminary design desk study information was used for a Preliminary Geotechnical Design where bridge foundation was assessed. Ground Investigation has since been carried out in 2021 and Ground Investigation Reports (refer to CD A.14) prepared in accordance with BS EN 1997-2 and DMRB CD 622 Managing Geotechnical Risk, covering the area of the Scheme alignment including the Thames Bridge and viaduct. The ground investigation information will inform the next stage of the design (detailed design).
- 3.11 Regarding flood risk, Flood Risk Assessment (FRA) (refer to CD A.17 Appendix 14.1) and further analyses (refer to CD B.2 Appendix M Flood Risk Technical Note) have been prepared in line with the National Planning Policy Framework (NPPF) and Planning Policy Guidance (PPG) as part of the Scheme assessment. Flood risk has been considered and assessed from all sources including fluvial, surface water, ground water, tidal, reservoirs and sewers. Where mitigation is needed, adequate mitigation has already been included in the design of the Scheme.
- 3.12 Mr Harman also comments on the viability of Sutton Courtenay roundabout (Section 5.2 of his proof of evidence), he alleges that Sutton Courtenay roundabout is proposed as a value engineering solution. This is incorrect. A roundabout at the B4016 junction with the proposed A4197 has been part of the Scheme since its optioneering stage. The proposed location of the roundabout has moved due to alignment change following stakeholder engagement, traffic modelling and archaeological assessment (refer to para 8.68 to 8.73 in Aron Wisdom's proof of evidence for further information).
- 3.13 Mr Harman further raises concerns about potential increase of traffic through Sutton Courtenay Village as a result of the Scheme. The main junction in Sutton Courtenay is Brook Street / High Street / Church Street junction. Junction assessment has been carried out as part of the Transport Assessment and the assessment has shown that capacity with the Scheme is significantly better than without the scheme (refer to CD A.07 Transport Assessment para 6.8.21 and 6.8.24).
- 3.14 Within Section 6.1 of Mr Harman's proof of evidence, he listed a number of stakeholder objections under design changes risk. Those relevant to Culham River Crossing and Clifton Hampden Bypass are Thames Water, UKAEA and LEDA. Thames Water's objections are covered in my proof of evidence para 3.57 to 3.60; UKAEA's objections are covered in para 3.70 to 3.73; and LEDA's objections are covered in para 3.102 to 3.104.
- 3.15 Comments made on the scheduling and cost escalations (sections 7 and 8 of Mr Harman's proof of evidence) will be addressed as appropriate in Tim Mann's rebuttal.
- 3.16 In Section 9.2 of Mr Harman's proof of evidence, he comments on the Appleford Siding Bridge value engineering considerations. In his view, the Sidings Bridge is not necessary. The reason why the Siding Bridge is needed is detailed in para 3.5 to 3.8 of this rebuttal.

- 3.17 Mr Harman further suggests that the cheapest solution would be to adopt and adapt the existing Haulage Roads. This is not a viable option as detailed in my proof of evidence para 3.5 to 3.8.
- 3.18 Mr Harman then made four alternative proposals which I have listed below and the reasons why these are not viable:
- 3.18.1 Reject/withdraw FCC Landfill Waste Licence Extension which would significantly reduce the heavy rail traffic in/out of Appleford Sidings – This is incorrect, as the sidings is used also by Hanson and Forterra. Whether FCC landfill license is extended or not (outside the scope of the Scheme) would not change the fact that the sidings would still be used by heavy rail traffic.
  - 3.18.2 Deletion of Appleford Sidings Bridge from the HIF Scheme – the need for Appleford Sidings Bridge is discussed in para 3.7 to 3.8 of this rebuttal.
  - 3.18.3 Slew the Scheme alignment west such that it passes just to the east of where the Appleford Sidings fan out into dual tracks (illustrated in Appendix E of Mr Harman's proof of evidence) – this alignment would directly cross the lozenge shaped pond close to the sidings which form part of the drainage system of the historic landfill site north of the sidings. This potentially requires the filling in or bridge over the pond. The alternative location of the Siding Bridge would also mean the bridge crosses the sidings at a potential higher elevation as the surrounding ground level is at 58m AOD.
  - 3.18.4 Introduce an interim bi-direction single track level crossing – it is unclear where Mr Harman is referring to; however, the only single-track section of the sidings would be east of the proposed Appleford Sidings Bridge location as the rail sidings have three tracks west of the bridge location. The Scheme alignment would have to move east closer to Appleford.
- 3.19 Mr Harman further suggests the historical alternative information is Section 9.3 of his proof. These alternatives have been discussed in length in my proof of evidence para 3.6 to 3.8 and 3.12 to 3.13 and Aron Wisdom's proof of evidence para 8.80 to 8.112.
- 3.20 In Section 9.4 of Mr Harman's proof of evidence, he comments on the Thames Crossing Bridge value engineering considerations. Mr Harman recommends changing the current proposed design to have a similar appearance of the Culham and Clifton Hampden Bridges and adjust the Bridge elevation to just above acceptable flood mitigation level (circa 3m above current B4016 level).
- 3.21 In relation to the appearance of Culham Bridge and Clifton Hampden Bridge, both of these bridges are single track bridges with supporting piers on the River Thames. One of the main design considerations of the Thames River Bridge is the navigation requirement (refer to my proof of evidence para 4.4 and 4.5) as such bridge piers in the River Thames are not considered viable if elevation is to be kept to a minimum.

#### **4 RESPONSE TO SAM CASEY-RERHAYE**

- 4.1 In Sam Casey-Rerhaye's proof of evidence (Para 22 ii & iii), she refers to HGV traffic movements at the proposed Portway junction (A4197 junction with the proposed access road to FCC and Hanson). The junction is designed in accordance with DMRB CD 123 Geometric design of at-grade priority and signal controlled junctions. Stage 1 Road Safety Audit has been carried out on the Scheme and has not raised any safety issues at this junction.
- 4.2 Sam Casey-Rerhaye's proof of evidence (Para 22 vii), further states that without the Scheme, only vehicles less than 7 tonnes pass through Appleford. Currently there is a 7.5 tonnes (except access) weight restriction on B4016 through Appleford. No changes to this weight restriction have been proposed by the Scheme.

## **5 STATEMENT OF TRUTH AND DECLARATION**

- 5.1 I confirm that, insofar, as the facts stated in my rebuttal evidence are within my own knowledge, I have made clear what they are and I believe them to be true and that the opinion I have expressed represent my true and complete professional opinion.
- 5.2 I confirm that my rebuttal evidence includes all facts that I regard as being relevant to the opinions that I have expressed and that attention is drawn to any matter which would affect the validity of those opinions
- 5.3 I confirm that my duty to the Inquiry as an expert witness overrides any duty to those instructing or paying me, and I have understood this duty and complied with it in giving my evidence impartially and objectively, and I will continue to comply with that duty as required.
- 5.4 I confirm that, in preparing this rebuttal evidence, I have assumed that same duty that would apply to me when giving my expert opinion in a court of law under oath or affirmation. I confirm that this duty overrides any duty to those instructing or pay me, and I have understood this duty and complied with it in giving my evidence impartially and objectively, and I will continue to comply with that duty as required.
- 5.5 I confirm that I have no conflicts of interest of any kind other than those already disclosed in this rebuttal evidence.

**Karl Chan**

**9 FEBRUARY 2024**