

Adran yr Economi a'r Seilwaith
Department for Economy and Infrastructure



Llywodraeth Cymru
Welsh Government

**THE CHESTER TO BANGOR TRUNK ROAD (A55) (JUNCTIONS 16 AND 16A
IMPROVEMENT REALIGNMENT AND SLIP ROADS) ORDER 202-**

**THE CHESTER TO BANGOR TRUNK ROAD (A55) (JUNCTIONS 16 AND 16A
IMPROVEMENT REALIGNMENT AND SLIP ROADS) (SIDE ROADS) ORDER 202-**

**THE WELSH MINISTERS (THE CHESTER TO BANGOR TRUNK ROAD (A55)
(JUNCTIONS 16 AND 16A IMPROVEMENT REALIGNMENT AND SLIP ROADS))
COMPULSORY PURCHASE ORDER 202-**

SUMMARY PROOF OF EVIDENCE

Note: See Document Reference WG 1.05.02 for full evidence and referencing

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WELSH GOVERNMENT, ENGINEERING

DOCUMENT REFERENCE: WG 1.05.01

Contents

1	Author	1
2	Engineering Design Process	2
3	Engineering Scheme	3
4	Objections to the Scheme.....	5
5	Conclusion and Declaration	6

1. Author

- 1.1 I am Jonathan Bayliss, Chartered Engineer and member of the Institution of Civil Engineers with 45 years' experience. I am Highways Lead for the Scheme.
- 1.2 I provide an overview of the engineering aspects of the Junction 16 and Junction 16A Scheme and set out the reasoning behind the proposed engineering solution and associated requirement for the compulsory purchase of land for that purpose.
- 1.3 I have been assisted by colleagues from within the project team who have prepared their own proofs of evidence within their expertise. My references to design apply to engineering matters.

2. Engineering Design Process

- 2.1 The Engineering design process has been based on the assessment of options under WelTAG and is described in my evidence.
- 2.2 A wide range of Engineering solutions were initially identified and assessed, with the outcome of a shortlist of 4 Options, as documented in the WelTAG Stage 1 Report.
- 2.3 Shortlisted options were developed sufficiently to confirm their feasibility and evaluate performance against Scheme Objectives, the assessment of these Options, as documented in the WelTAG Stage 2 Report, identified the Preferred Scheme.
- 2.4 Further refinement of the Preferred Scheme, sought to develop a solution compatible with identified constraints, considered compliance to standards and took on board feedback from public and statutory consultees, together with need to accommodate environmental mitigations being considered by colleagues. This resulted in a number of changes to the Preferred Scheme, which are more fully described in my full evidence, and referenced documents. It also considered structures, drainage and buildability and the requirement to acquire lands, either temporary or permanent to be able to construct the Scheme and associated mitigations.
- 2.5 The Preferred Scheme was finalised in terms of engineering design and associated details, such as active travel routes, and is the basis of the scheme presented to the Inquiry.

3. Engineering Scheme

- 3.1 Compared to the current arrangement the Scheme will provide a fully grade separated arrangement at Junction 16A, but only westbound access at Junction 16. There will be a new link road connecting the two junctions effectively serving as a bypass to Dwygyfylchi.
- 3.2 At Junction 16 the A55 will be realigned to the south as a consequence of removing the roundabout, to improve visibility. Junction 16 will have slip roads giving access to A55 westbound carriageway only connected to a new roundabout.
- 3.3 Conwy Road will be realigned to link with the new roundabout, and a new gateway to Penmaenmawr created east of the sports ground.
- 3.4 The new Link Road will run from the roundabout, with a new junction for Ysguborwen Road serving Dwygyfylchi from the west, to the narrow corridor between A55 and the Maes-y-Llan housing estate. The Link Road will then run to the rear of Orme View Services and up to the signal control junction at Junction 16A with a new junction for Glan-yr-Afon Road serving Dwygyfylchi from the east. Screening bunds, walls and planting will be provided to the south of the Link Road.
- 3.5 In the area of Junction 16A the eastbound A55 will realigned to the south to make space for the slip roads and both carriageways will be realigned vertically to improve visibility through the junction. Retaining walls will be required on the eastbound slip roads in order to accommodate the new slip roads and National Cycle Network Route 5 (NCNR5) within the space available to the north of the westbound carriageway.
- 3.6 Junction 16A will provide access to the Dŵr Cymru Welsh Water Sewage Treatment Works from the eastbound diverge and for Network Rail and Tunnel Maintenance from the eastbound merge. The westbound merge will be provided with an extended auxiliary lane as far as the Orme View Service access to assist weaving traffic.
- 3.7 A new length of cycleway will be provided over the full length of the scheme, connecting Junction 16A (with links to NCN5) through to Penmaenmawr
- 3.8 A replacement footbridge will be provided at Orme View Services, linked to the cycleway footpath via an at-grade signal-controlled crossing of the Link Road, and to footpath links to Maes-y-Llan and the centre of Dwygyfylchi.
- 3.9 My full Proof of Evidence also addresses in more detail these and other aspects of the Scheme including:
 - a) Highway Works
 - b) Structures

- c) Geotechnics
- d) Drainage
- e) Construction
- f) Public Transport Facilities
- g) Active Travel
- h) Lands to be Acquired

4. Objections to the Scheme

- 4.1 I have reviewed all objections but have focused on those which raise matters related to the Engineering design. All such objections have received a written response to which I will have contributed where appropriate.
- 4.2 As many of the respondents raise similar points, it was considered appropriate to address issues, rather than individual objections, including:
- a) Conwy Road Traffic Calming – In response to the proposed development along Conway Road, an alternative arrangement has been proposed which would see a gateway feature for Penmaenmawr established to the east of the sports ground and traffic calming measures introduced as far as Penmaenmawr.
 - b) Replacement Footbridge at Orme View Services – Whilst feasible to extend the footbridge from an engineering perspective, the proposed at-grade crossing can be detailed to provide a compliant and safe solution.
 - c) Safe Access to Orme View Services Road– an independent road safety assessment raised known issues related to junction spacing and maintaining direct access to the Services from A55. The need to provide a scheme which maintained direct access is discussed in my evidence, together with the mitigating measures which are proposed. Alternatives described in outline are similar to Options considered in the design process and rejected (although not on Engineering grounds)
 - d) Improvements to Glan-yr-Afon Road - Glan-yr-Afon Road will be improved to a consistent width and alignment, and to have improved visibility although not significantly wider in general. The main change will be the addition of a cycleway / footpath along the north edge of the road. It is not possible, as part of this Scheme, to address the lack of footway provision further into Dwygyfylchi. Traffic calming will be provided to reduce speeds on the approach to the settlement.
 - e) Accident data does not suggest roundabout is unsafe – whilst this is true, it remains the case that the risk at roundabouts is greater, as it applies to all drivers, and accidents are more likely to involve vehicle at speed.
 - f) Scheme is non-compliant – whilst it is true that certain aspects of the design are deemed to be ‘non-compliant’ this does not necessarily make the Scheme as a whole unsafe, rather it requires a more rigorous level of scrutiny through the departure process to ensure a safe solution.

5. Conclusion and Declaration

- 5.1 As Highways Lead for the Scheme, I have sought to provide a safe highways design, in compliance with standards, accommodating design elements and mitigating measures identified as necessary by other engineering and environmental specialists, and hence to determine the appropriate extents of lands to be acquired on a temporary or permanent basis.
- 5.2 In my opinion the engineering design has been carried out in accordance with Design Manual for Roads and Bridges (DMRB) Standards, and any derogations, in the form of relaxations or departures have been determined in accordance with good practice and are appropriate and reasonable in the circumstances.
- 5.3 Further, in my opinion the lands to be acquired, whether on a temporary or permanent basis, to construct the Scheme, associated mitigating measures and to be able to maintain the same, are equally appropriate and reasonable in the circumstances.
- 5.4 I understand my duty to the Inquiry to assist it with matters within my expertise and believe that I have complied with that duty.