

Statws/Status:

Cyfrinachol / Confidential



**Adroddiad Adolygu Dylunio:
Design Review Report:**

21 November 2007

Dyddiad Cyfarfod / Meeting Date:

14 November 2007

Lleoliad/Location:

M4 Magor to Castleton

**Disgrifiad o'r Cynllun
Scheme Description:**

New motorway

**Cleient/Asiant:
Client/Agent:**

**WAG, Transport Wales
[Tim Dorken, Andy Phillips,
Matthew Enoch]**

Consultants / Cynllunio:

**Arup [Andrew Armstrong,
Andrew Huckson, Richard
Sanders, Simon Lawrence]**

**Awdurdod Cynllunio:
Planning Authority:**

**Newport CC and
Monmouthshire CC**

**Statws Cynllunio:
Planning Status:**

**Statutory Orders not yet
published**

**Y Panel Adolygu Dylunio/
Design Review Panel:
Wendy Richards (cadeirydd/chair)
Cindy Harris (swyddog/officer)
Charlie Deng (swyddog/officer)**

**Howard Wainwright
Mark Hallett
Kieren Morgan
Ashley Bateson**

Lead Panellist:

Mark Hallett

Cyflwyniad/Presentation

The project team stated that they would like this session to review the design philosophies which have informed the development of the project so far, and to identify future topics for review.

There has been a very long gestation period, with the need for improvements to this section of the M4 identified in 1990. The final preferred route was announced in 2006.

In terms of the engineering input, there are key considerations and constraints applying to different sections of the proposed route, for example: the level differences at Castleton; the substation, railway and local road crossing at Duffryn; the Newport docks and River Usk crossing and its relationship to existing bridges; the transition between industrial and rural context at Llanwern and the SSSI; and the concentration of structures at Magor / Rogiet. All solutions have to comply with DRMB standards.

The drainage design philosophy has to provide pollution control and protection for the environmentally sensitive area of the Gwent levels. The control mechanisms include petrol interceptors and attenuation buffering ponds, which filter out soluble contaminants. Reed bed treatment then enables further settlement, and biological treatment for hydrocarbons. The drainage channels are to be kept completely separate from the ree drainage network.

The landscape design strategy will respect the different character areas which the new road will pass through, and protect biodiversity. The aim is to screen unattractive development, protect residential areas from excessive traffic impact and frame selected views. The future maintenance regime has to be economical. There is an aspiration to achieve offsite planting agreements with local landowners to strengthen hedgerows.

In terms of the structures involved, the cross access bridges offer the best opportunity to develop a 'family' of similar structures. Overbridges are likely to be two span, with close abutments. Underbridges will have a minimum beam depth, and be as unobtrusive as possible – described as a 'letterbox' in the landscape. Three basic design options were presented for the Usk crossing.

It is intended to present the outline business case to the minister next year, and publish Draft Orders by the end of 2008. Construction could then begin in 2010.

Ymateb y Panel/Panel's Response

The Panel congratulated the team on a very competent presentation. We accepted the urgent need for this improvement and the case for the social and economic benefits that should follow. We understood that this was work in progress but still thought that there was insufficient 3D contextual analysis for us to fully assess the proposal. It was agreed that separate reviews will be arranged for different aspects or areas in the future.

While recognising the technical excellence of the proposals, the Panel thought that there was insufficient evidence of architectural and landscape contribution to the scheme, even at this early stage. We suggested that an international design competition might be held for the Usk crossing, with the aim of achieving a truly exemplary design. However, the team doubted whether the tight timetable would allow for such a process and pointed out that a high level of international design expertise already existed within Arup. The importance of ensuring a high level of architectural input was accepted.

The Panel considered that public art also needed to be embedded into the design development from an early stage. Land forms could be used, with the cooperation of landowners, and public art should be fully integrated with the landscape strategy. The team was asked about precedents which they had consulted and the Panel suggested that they look at the Emscher Landscape Park in the Ruhr Valley, Germany, which has made good use of existing ex-industrial structures.

The Panel was not convinced that it was appropriate to develop a 'family' of similar structures, and thought that the structures should relate at least as much to the immediate context as to each other. We thought that the illustrative examples we were shown were rather heavy and utilitarian in appearance, and we would like to see a more elegant design approach, possibly with a wider span bridge at Castleton. The team stated their intention that most bridges would be as low and unobtrusive as possible, rather than every bridge 'making a statement'. We suggested that photomontages be produced showing typical structures from a lower [road-level] angle.

The Panel was told that the lighting design will be based primarily on driver safety, with cut off lighting used to minimise light pollution. The colour would be the white/yellow of high pressure sodium and the team was aware of the problem of 'hot spots', where there was a necessary concentration of high level lighting. The Panel pointed out that the lighting strategy was also a positive opportunity to highlight certain features and structures, but needs a high quality professional design.

The Panel enquired whether there were specific limits on the use of virgin materials, or required proportions of recycled materials. We were informed that the Environmental Statement has not yet been produced, but we were

also advised that there were possible pollution issues with the use of slag materials, in terms of leachate to aquatic environments. The Environment Agency and CCW would have to be satisfied that the use of particular recycled materials was acceptable. It was confirmed that the achievement of a cut / fill balance was an overall objective.

The Panel urged that the Civil Engineering Environmental Quality Assessment, or CEEQUAL method be used to benchmark the project and ensure design goals were achieved. The client agreed that this could be useful, especially if linked to the environmental assessment, and stated that problems had arisen in past projects because the method had not been implemented early enough.

The Panel was informed that eventually the old M4 will still take traffic, but is in need of major maintenance first. This is a separate project which will follow on from this one, and could include bus routes and other more sustainable forms of transport.

In general, the Panel thought that the presentation lacked an aspirational design concept to match the technical one, and advised the team to engage a design champion to advocate and protect high standards and ensure that they are carried through. This will be the main gateway into South Wales, and as such should signify an excellence in architectural and landscape design, coupled with extreme environmental sensitivity.

Crynodeb/Summary

The Panel welcomed the early engagement and consultation on this important proposal and agreed that several distinct reviews would be necessary over the course of the project's development, possibly based on the different character areas, or on aspects such as structures, drainage, landscape, sustainable resource use, etc. In summary we would make the following points:

- We would like to see a more design-led approach for the structures in general, and an international architectural competition for the Usk crossing to ensure an exemplary design. Alternatively, a named designer from within the team may give confidence that such a competition is unnecessary.
- The public art strategy should be woven into and integrated with the landscape strategy. Similarly, the lighting design should be an integral part of the overall design development.
- In particular, we think there may be an alternative approach to screening unsightly features, or hiding bridges in the landscape, which would be to express them attractively and appropriately.
- We would like to see a Design Champion appointed to protect high standards and ensure delivery

- We urge the team to make full use of the CEEQUAL method of benchmarking and quality protection.
- We are aware of particular issues such as the impact on the SSSI and the village of Magor, which merit more discussion.
- An element of surprise and excitement needs to be introduced to the vision, seeing the landscape as art, possibly using the exposure of the site to harness wind power, and trumpeting the quality, value and long term sustainability of the project.

Diwedd/End

NB A Welsh language copy of this report is available upon request.