

THE PLANNING ACT 2008

**M4 (JUNCTIONS 3 TO 12) (SMART MOTORWAY) DEVELOPMENT CONSENT
ORDER APPLICATION**

TR010019

Written Summary of Issue Specific Hearing Dealing With Landscape and Heritage

Date: Friday 12 February 2016

Venue: Holiday Inn Maidenhead/Windsor, Manor Lane, Maidenhead, West Berkshire, SL6 2RA

VISUAL IMPACT

1. *The 15m high concrete batching plants referred to in REPO3009 are not mentioned in Chapter 8 of the Environmental Statement (ES) and the Panel is concerned that the impact from this feature, including the impact from night time lighting on sensitive receptors has not been assessed.*
 - i. *Can the applicant confirm if this was assessed in the Landscape and Visual Impact Assessment?*

Highways England's response

1. Highways England confirmed that the construction visual effects reported in chapter 8, Appendix 8-3 Visual Effects schedule, Visual Effects Drawing 8.2 of the ES and the more recent construction compound Night Time Lighting Assessment submitted at Deadline III reflect the potential visual effects on high sensitivity receptors of a batching plant with associated 15m high cement silos within construction compounds.
2. Highways England confirmed that in undertaking the assessment in Chapter 8 of the ES, consideration was given to a range of facilities and operations which may occur within the construction compound for a Scheme of this nature, as outlined in 7-3 of the Engineering and Design Report and section 14.4.3 of the CEMP. This includes typical equipment such as offices, welfare facilities, storage hoppers, silos, aggregate stores and conveyors which are the main components of the concrete batching plant and associated silos, along with mobile equipment such as cranes and piling plant.
3. Moreover, in undertaking the latter assessment, possible locations on where the batching plant and associated silos could be located were discussed with the contractor to minimise the potential visual night time effects on the adjacent high sensitivity receptors. This assessment took the zone of visual influence into account.
 - ii. *Has the Zone of Visual Influence taken into account the potential for 15m high concrete batching plants, in order to have assessed the worst case scenario?*

Highways England's response

4. Highways England confirms that the Zone of Visual Influence ("ZVI") has taken into account the potential for batching plant and associated silos (the Visual Effects Drawing 8.2 of the ES reflected the worst case scenario for a batching plant and associated 15m cement silos). The ZVI was developed from the winter and summer visual surveys and, in undertaking this work, consideration was given to the construction compounds and a typical range of facilities and operations which may occur within them, as described above.
5. In the preparation of the Night Time Lighting Assessment submitted at Deadline III, further detail was provided on the provision of the concrete batching plant equipment, which included cement silos up to 15m high within Construction Compounds 2, 5 and 11. The batching plant and associated silos formed part of the Night Time Lighting Assessment and this included carrying out a review of the ZVI at these compounds to ensure that it covered all the receptors with a potential view to the batching plant. As a result of this assessment, it was considered that the ZVI did not need to be extended.

2. *Paragraph 5 of the Explanatory note to clarify the position on lighting columns (submitted at Deadline V), states that the revised heights have been considered by the landscape architect for the scheme who predicts no perceptible change to the visual impact.*

- *Can the applicant provide further details of how this conclusion was reached?*

Highways England's response

6. Highways England confirm that the proposed change in height of the lighting columns by no more than 1.0m would have no perceptible change in either day time or night time views. The visual assessment in chapter 8 of the ES (Application Document Reference 6-1, APP-148) was developed from both the winter and summer visual surveys. In undertaking this work, consideration was given to the visual impact of the existing lighting columns along the M4, which are either 12m or 15m in height. Only those columns which are presently 15m high will be increased to no more than 16m high and those columns which are presently 12m high will be increased to no more than 12.9m in height.
7. In drawing a conclusion on the potential effects of increasing the height of the existing 15m and 12m lighting columns by no more than 1.0m, the following matters were taken in to account:
- Potential change in the day time appearance of the lighting columns;
 - Potential change in the night time illumination; and
 - The potential to reduce the total number of lighting columns.
8. With regard to the day time appearance of the lighting columns, Highways England noted that in the context of the scale and nature of the proposed lighting, the new lighting columns would not be dissimilar in appearance to the existing situation. Once the new columns are installed and the existing columns removed, it is considered that the form of the individual column as a single element and as a collective group within the view would look exactly the same as the baseline situation and the change in height of no more than 1.0m would be very difficult to distinguish.
9. With regard to the night time illumination, Highways England confirmed (in the Deadline V submission on lighting columns (REP5-002)) that the illumination of the Scheme as a consequence of the higher lighting columns would be very similar to the present situation and would not give rise to additional light spill beyond the area presently lit, other than locally to those areas where the carriageway has been realigned. Where the carriageway has been realigned, the illumination would be limited to the proposed carriageway and its immediate verge. With regard to the appearance of a slightly higher light source, Highways England noted that once the new columns have been installed, and the existing columns removed, the nature of the light source as a single night time element and as a collective group within the view would look exactly the same as the baseline situation and the change in height of no more than 1.0m (and local changes in position) would be very difficult to distinguish. Highways England confirm that this included the illumination of the slip-roads.
3. *The use of lighting columns up to 16m high has not been discussed in the ES.*
- i. *Has the Zone of Visual Influence taken into account the inclusion of lighting columns which may be up to 16m high?*
10. Highways England confirm that it considers the proposed change of no more than 1.0m in the height of the lighting columns would not result in a change in the ZVI as indicated on the Visual

Effects Drawing 8.2 of the ES (Application Document 6.2, APP-219, 220, 221). The ZVI was developed from both the winter and summer visual surveys. In undertaking this work, consideration was given to the existing lighting columns along the M4 which are either 12m or 15m in height.

11. In response to further questioning by the Examining Authority, Highways England confirmed that 12m columns would not be replaced by 16m columns, and the 12m columns would be increased by no more than 1.0 m in height. The exact number of columns is subject to change, and will be confirmed in during detailed design.
 - ii. *Can the applicant provide plans showing the locations of lighting columns which are proposed to be higher than 12.9m?*

Highways England's response

12. An indicative drawing showing the length of the Scheme where 15m lighting columns are currently installed is provided at Appendix A to this summary. Highways England confirms that the only location where columns higher than 12.9m may be used is between junction 10 and 12.
 - iii. *In locations where the applicant intends the columns to be higher, does this mean there will be fewer columns? Or are the numbers proposed to be the same?*

Highways England's Response

13. As detailed in paragraph xx above, Highways England confirms that there are expected to be fewer columns but not significantly fewer. The exact number of columns is subject to change, and will be confirmed during the detailed design.
4. *With regard to the applicant's Deadline V response to Reading Friends of the Earth additional written representations² the following questions are raised:*
 - i. *At para 2.15.7 it is stated that the photobiological effects of light will be secured through the use of neutral or warm white LED sources. However para 2.15.9 states that warm white LEDs will not be used in the Scheme. How will photobiological effects be reduced?*

Highways England's response

14. Highways England noted that as detailed in paragraph 2.15.7 "the photobiological effects of light are related to its spectrum and intensity and choosing lower corrected colour temperature ("CCT") sources will generally reduce the photobiological risk potential."
15. However, lights with a higher corrected colour temperature, with a high blue-rich spectral content, are normally more efficient, producing more illuminance per watt per m2. As required by lighting design standards (TD 34/07 "Design of Road Lighting for the Strategic Motorway and All Purpose Trunk Road Network" paragraph 3.2) any scheme light sources "shall be selected to minimise whole life cost and energy consumption."
16. Therefore, although paragraph 2.15.7 provided an option of the use of warm or neutral lighting, following discussions with Highways England Professional Technical Services ("PTS", formally Netserve) informed by draft updates to TD34, Highways England can confirm that neutral light

sources are proposed, and not the option of a warm white. Neutral lighting represents a compromise between energy efficiency and photobiological effect.

17. In response to further comments from Reading Friends of the Earth regarding the photobiological and other benefits of warmer light sources, Highways England noted that due to the current poorer energy efficiency of warmer light sources, neutral lights had been chosen. Highways England noted that the leading suppliers were quoting a CCT rating of 4000Kelvin ("K") for neutral lighting compared to 3300K for warm lighting and reiterated that the decision to specify neutral lighting was made following discussions with PTS on the latest information available.
 - ii. *Para 2.17.3 states that new columns are to be used for the lighting of the scheme with the luminaires installed horizontally to reduce potential glare. However the applicant has stated that existing columns are to be re-used and a new requirement is being proposed in the DCO to enable existing columns to be re-used. If this is the case, how will horizontal installation of the luminaires be secured, and has the impact on glare arising from the use of existing columns been assessed?*

Highways England's response

18. Highways England confirms that the existing lighting columns that light the main carriageway are located in the central reserve. The installation of a concrete barrier in the central reserve will result in these existing columns being removed. Highways England's proposal is for the main carriageway lighting to be provided by new lighting columns located on top of the concrete barrier. The only areas where existing columns may be re-used will be on slip roads or where a short section of concrete barrier within the centre reserve is retained, if this area is not affected by the works. In these areas, the luminaires can be installed horizontally by either adjusting the tilt within the spigot attachment of the luminaire or by removing the brackets and installing post-top mounted luminaires horizontally and thereby reducing potential glare.
19. Highways England confirms that it considers that horizontal luminaries fitted to existing columns would not give rise to glare. Highways England notes the International Dark-Sky Association ("IDSA") recommendation that, in order to reduce glare, LED lighting should emit no upward light. The horizontal installation of flat glass luminaires on the Scheme will ensure that no light will be emitted upwards. There is now a general recognition that outdoor lighting should be designed not only to provide light where and when it is needed in an energy-efficient manner, but also to minimise or prevent the problems that can arise from stray light. The use of modern LED luminaires, with very tight optical control, ensures that the light is only distributed onto the areas where it is needed. The Scheme's lighting proposal will ensure that the luminaires are installed horizontally and that there will be no upward light distribution. On that basis, Highways England confirms that the use of existing columns would make no difference to that proposal.