Mallard Pass
Solar Farm

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Environmental Statement Volume 2 Appendix 9.2: Highways and Access - Assessment Methodology

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Appendix 9.2 - Highways and Access Assessment Methodology

Introduction

1.1.1. This appendix sets out the assessment methodology for Highways and Access.

Study Area

1.1.2. It is proposed for the full extent of Routes 1, 2 and 3 (as defined in the chapter) to form the scope of the study area for the assessment to assess the relevant Highways and Access effects of the Proposed Development.

1.1.3. The study area primarily comprises the Local Road Network (LRN) across Routes 1, 2 and 3 as these are the links that are likely to be most impacted by the Proposed Development, as they will carry the vast majority of deliveries to the primary compound (for Routes 1 and 3) and LGV trips to the Solar PV Site (for all Routes).

1.1.4. The study area will focus on trips from the Strategic Road Network (SRN) to the primary compound as this is likely to generate the greatest number of construction vehicles and will provide the most robust assessment. The study area also includes the links impacted by additional traffic associated with the movements from the primary compound to the secondary compounds, as well as the subsequent movements from the secondary compounds back to the SRN.

Sources of Information

1.1.5. The assessment has been undertaken primarily through a desktop-based assessment, which has been supported by a series of site visits to validate the findings of construction routing assessments and suitability of any access points.

Assessment Criteria and Assessment of Significance

1.1.6. The methodology for the assessment of effects is based on the 'Guidelines for the Environmental Assessment of Road Traffic' (GEART), produced by the Institute of Environmental Assessment (IEA) (now the Institute of Environmental Management and Assessment (IEMA) 1993) [Ref 1].

1.1.7. The assessment is based on a source-pathway-receptor methodology, where the sensitivity of the receptors and the magnitude of potential change upon those receptors identified within the study areas.

1.1.8. In line with industry guidance and best practice, including the IEMA GEART, the assessment has considered the potential impacts associated with the construction phase of the Proposed Development with regard to:

a) Severance;

b) Driver Delay;

c) Pedestrian Delay;

d) Pedestrian and Cyclist Amenity;

e) Fear and Intimidation;

f) Accidents and Road Safety; and

g) Hazardous Loads.

Receptor Sensitivity/Importance/Value

1.1.9. The significance of likely transport and access effects have been determined with criteria developed from the IEMA GEART, including the scale of sensitivity that has been applied to receptors.

1.1.10. For the purposes of the assessment with respect to Transport and Access, it is assumed that 'High Sensitivity' refers to any receptors who

are non-motorised or vulnerable road users, such as children, elderly people or disabled people who could be negatively impacted by a change in traffic flows. In particular, a change in HGV composition may significantly impact these users more than other motorised road users.

1.1.11. All other road users and drivers are classified as 'Low Sensitivity', as they are not regarded to be as sensitive to any potential uplift in vehicles or minor changes in HGV composition.

1.1.12. The key receptors identified to be incorporated within the assessment can therefore be categorised into the following key groups:

a) Non-motorised users, including vulnerable road users such as children, elderly and disabled people - categorised as High Sensitivity; and

b) Drivers and other users of the local highway network – categorised as Low Sensitivity.

Magnitude of Impact

1.1.13. To determine the magnitude of change experienced by the receptors and to determine the likely significance of the effects resulting from the Proposed Development, thresholds set out in the Guidelines have been used and interpreted using professional judgement. These thresholds for the magnitude of change are summarised below.

1.1.14. For the purposes of the ES, the IEMA GEART assessments that utilise total changes in traffic flow, rather than local capacity assessments, are considered to be more appropriate. It is not considered, given the controls on traffic movements that have been proposed in the CTMP (DOC REF) that the Proposed Development would generate sufficient demand within the peak hours to warrant the need for local capacity assessments.

1.1.15. To validate this assumption, reference is made to the (now superseded) DfT 'Guidance on Transport Assessment (2004) which sets out a threshold of 30 two-way vehicle trips in any peak hour to warrant the need for further assessment. It is noted that the LGV and HGV trips associated with the Proposed Development will take place outside the peak hours and would therefore not meet this threshold, meaning no localised capacity assessments are considered to be required. This approach has been agreed with stakeholders prior to the DCO submission.

Severance

1.1.16. Within the IEMA GEART, Severance is defined as the "***perceived division that can occur within a community when it becomes separated by a major traffic artery***". The IEMA guidelines suggest changes in traffic flow or HGV flow by 10%, 30%, 60%, or 90% can be considered as having a negligible, low, medium, or high impact, respectively, on severance.

Driver Delay

1.1.17. Driver Delay will be determined through analysis of the link assessments and determining the impacts of the additional vehicles per second over the busiest period. The IEMA GEART suggest that a change of less than 30 seconds, between 30-60 seconds, 60-90 seconds, and more than 90 seconds, represents a respective negligible, low, medium, and high change, respectively.

Pedestrian Delay

1.1.18. The IEMA GEART does refer to a lower threshold of ten seconds delay for pedestrians, and an upper threshold of 40 seconds delay for pedestrians, which for a link with no crossing facilities, equates to a lower threshold of approximately 1,400 vehicles per hour.

1.1.19. However, as the links within the study area vary considerably and do include crossings, it is proposed to undertake and utilise professional judgement to assess the impact of the Proposed Development on pedestrian delay, which will be based on the respective changes in traffic flows on each link and the associated implications this would have on any assumed pedestrian demand.

1.1.20. Pedestrian demand will be assumed based on the characteristics of each link and the likelihood that it will be utilised by pedestrians. This has been established based on the nearby amenities that could be reached by walking, as well as the provision of facilities for pedestrians to utilise.

Pedestrian and Cyclist Amenity

1.1.21. The IEMA GEART states that Pedestrian and Cycle Amenity is broadly defined as "***the relative pleasantness of a journey and is considered to be affected by traffic flow, traffic composition and pavement width/separation from traffic***".

1.1.22. The guidance suggests that a tentative threshold for judging the significance of changes in pedestrian and cycle amenity would be where the traffic flow is halved or doubled which would lead to a high impact. A change of less than a quarter would represent a low impact, and a change by more than a quarter would represent a medium impact.

1.1.23. Any changes then need to be considered with respect to the likely demand for pedestrians and cyclists along these links to determine the magnitude of the change.

1.1.24. This demand has been established based on assumptions as to the likely pedestrian and cyclist destinations that could be reached via these links, as well as the provision of pedestrian and cyclist facilities along these links.

Fear and Intimidation

1.1.25. The IEMA GEART states that "***there are no commonly agreed thresholds for estimating the levels of danger, or fear and intimidation, from known traffic and physical conditions***." Although the IEMA GEART does acknowledge that percentage changes in traffic flow can also be used.

1.1.26. It is proposed to utilise the same thresholds as within the assessment of Severance, with changes in traffic flow or HGV flow by 30%, 60%, or 90% considered as having a low, medium, or high impact, respectively.

Accidents and Safety

1.1.27. A detailed assessment of Accidents and Safety will be carried out by examination of road traffic accident data for the most recent three-year period available.

1.1.28. The IEMA GEART states that professional judgement should be applied to assess the implications and magnitude of local circumstances and any existing accident clusters that could potentially be exacerbated by the additional traffic flows associated with the construction phase of the Proposed Development.

Hazardous Loads

1.1.29. With respect to Hazardous and Dangerous Loads, the IEMA guidance states that the assessment should "***include a risk or catastrophe analysis to illustrate the potential for an accident to happen and the likely effect of such an event***." The guidance references any highway features that would pose a risk to any loads being transported, above the typical levels of risk that would generally be expected by utilising the highway network.

Significance of Effect

1.1.30. Table 1 sets out the significance criteria, with a description for each criteria.

Table 1: Significance Criteria

Significance Criteria	Description of Criteria
Major Beneficial	A considerable positive effect to receptor which is of a scale that has more than local importance
Moderate Beneficial	A positive effect on the receptor in terms of extent, duration, or magnitude.
Minor Beneficial	A positive effect on the receptor that is small, localised, or short term.
Neutral/Not Significant	No perceivable impact
Minor Adverse	A negative effect on the receptor that is small, localised, or short term.
Moderate Adverse	A negative effect on the receptor in terms of extent, duration, or magnitude.
Major Adverse	A negative effect on the receptor that will have an impact on the wider area or that may be in breach of standards or legislation.

1.1.31. The predicted significance of the effect is determined through a standard method of assessment and based on professional judgement, considering both the sensitivity of receptor and the magnitude of the potential effects, as shown in Table 2. Effects of moderate significance or greater are considered significant in terms of the EIA Regulation.

Table 2: Significance Matrix

Magnitude of Effect	Sensitivity of Resource or Receptor		
	High	**Moderate**	**Low**
High	Major	Major	Minor

Magnitude of Effect	Sensitivity of Resource or Receptor		
	High	**Moderate**	**Low**
Moderate	Major	Moderate	Minor
Low	Moderate	Minor	Negligible
Negligible	Negligible	Negligible	Negligible

1.1.32. It is noted that the GEART allows for the use of professional judgement in determining when an effect is significant.

1.1.33. In this instance, only effects that are assessed as 'Major' and 'Moderate' are considered significant, and which would subsequently require mitigation to ensure that the impacts of the Proposed Development are appropriately addressed.

References

Ref 1 Institute of Environmental Assessment (IEA) (1993). Guidelines for the Environmental Assessment of Road Traffic.