APPENDIX 10.2: VISUALISATION METHODOLOGY

1.0 Introduction

1.1.1 The purpose of this methodology is to provide an understanding of how visualisation material prepared to support the Landscape and Visual Impact Assessment (LVIA) has been produced.

1.1.2 It should be recognised that production of visualisations is only one component of a LVIA, which will consider a range of other factors when identifying and assessing changes to the landscape and to views. The use of visualisations is a useful aid when undertaking LVIA, but the assessment process is not dependent on them. LVIA may be undertaken without use of visualisation material, although for major developments the inclusion of visualisations is accepted practice.

1.1.3 Current good practice regarding the production of visualisations is set out in:

- Landscape Institute and Institute for Environmental Management and Assessment (3rd edition, 2013), *Guidelines for Landscape and Visual Impact Assessment*. This document is referred to hereafter as 'the GLVIA';
- Landscape Institute (2019), *Visual Representation of Development Proposals. Technical Guidance Note 06/19*. This document is referred to hereafter as 'TGN 06/19'.

1.1.4 The remainder of this Methodology document is structured as follows:

1.1.5 Section 2.0 includes the details required as part of the 'Visualisation Types Methodology' that forms part of the Technical Methodology specified in Appendix 10 of TGN 06/19.

1.1.6 Section 3.0 gives details of how the viewpoint visualisation material was produced, and includes the remaining details required by the Technical Methodology specified in Appendix 10 of TGN 06/19.

2.0 Viewpoint Selection

Introduction

2.1.1 When considering which viewpoints to include as part of an assessment it is important to not assess too few or too many viewpoints. A proportionate approach to viewpoint selection is necessary, in line with the recommendations of the GLVIA (*Guidelines for Landscape and Visual Impact Assessment*, 3rd edition 2013, Landscape Institute and Institute of Environmental Management and Assessment).

2.1.2 The absence of a viewpoint from any location does not imply that there would be no view of a Proposed Scheme, nor that views from such a location have not been considered in the LVIA.

2.1.3 Details of the process by which these were selected are set out in the LVIA.

2.1.4 Appendix 10 of TGN 06/19 sets out details of what should be included in the Technical Methodology for Viewpoint Visualisations (i.e. in this Methodology document). The list of required information is stated to be indicative.

2.1.5 Part of the required information is a 'Visualisation Type Methodology' including:

- The anticipated purpose/ users of the viewpoint visualisations;
- The indicative assessment of sensitivity and magnitude, and resulting likely indicative overall degree or level of effect; and
- Other factors influencing the selection of the visualisation type.

2.1.6 The purpose of the Viewpoint Visualisations is to inform the LVIA and the decision-making process. Users are likely to be landscape professionals, other environmental professionals and planning officers, consultee bodies and interested members of the public.

2.1.7 On the basis that the LVIA includes a detailed assessment of visual effects from each viewpoint, including a description of the sensitivity of receptors, the magnitude of change in view that would occur, and the resultant effect, it is considered that there is little benefit in providing an indicative assessment in this Methodology document.

2.1.8 The LVIA, and the accompanying Appendix 10.5 that addresses effects on Viewpoints, both include details of the type of receptors that each viewpoint seeks to represent, and a brief description of the viewpoint location. It is considered that this

information should be sufficient indication as to the factors that have influenced the selection of the viewpoint.

2.1.9 Baseline photography is provided from each viewpoint, which is annotated where deemed appropriate to highlight key features. Photomontages illustrating how the Proposed Scheme would appear are also included from selected viewpoints.

3.0 Viewpoint Visualisations

Photography

3.1.1 All photography for this assessment was taken using a Canon EOS 5D Mark II digital single lens reflex (DSLR) camera with a full-frame sensor, using a 50mm lens. The camera was mounted on a tripod to ensure a stable support and minimise camera shake. The camera was mounted on a panoramic tripod head with built-in spirit level (Nodal Ninja 3 MkII), which allows for the rotation of the camera at fixed intervals around a fixed point in vertical alignment with the camera lens, thereby eliminating parallax error. The camera was levelled using an auto-leveller device (Nodal Ninja EZ-Leveler II). The camera height was 1.5 m above the ground.

3.1.2 Photographs were taken over a full 360 degree sweep from each viewpoint location. The precise location of each photograph was recorded using a hand-held Garmin Oregon 600 GPS device (which has an accuracy of approximately 3m). A photograph was also taken of the tripod location (these photographs are included in Annex A). Following the Site visit, the GPS data was loaded into Google Earth, and the GPS waypoints were moved manually where necessary to reflect the tripod location. A spreadsheet was completed recording information about the viewpoint.

3D Model

3.1.3 A digital model of the Proposed Scheme was provided by the project Architect. This was imported into industry standard software (Autodesk 3DStudioMax), along with the viewpoint data recorded on site (as discussed above). This enables a series of 'camera' points to be created within the model, reflecting the view from each viewpoint towards the Proposed Scheme.

3.1.4 A series of markers were added to the model, representing real-world locations such as topographic features, vegetation and buildings. The locations of these markers were determined via the use of aerial imagery (e.g. Google Earth) and by the Environment Agency 1m Digital Surface Model (DSM) LIDAR data.

3.1.5 The model was then lined up with the individual photograph that focuses on the Site. The markers were used to ensure that the model lines up both horizontally and vertically as accurately as possible with the photograph (by matching the markers with the real-world equivalent), and to assist with identifying which features in the photograph would appear 'in front' of the Proposed Scheme, which would appear 'behind' and which, if any would be removed.

3.1.6 Once the model was lined up as accurately as possible, the Proposed Scheme was rendered, having regard to the particular materials and colours that are to be used, and to reflect light conditions typical of the time and date of the photography.

Photomontages

3.1.7 Photomontages are computer generated images, showing images of the Proposed Scheme superimposed upon the existing photography, with the aim of producing a visualisation that should give a realistic impression of how the Proposed Scheme would appear within the landscape.

3.1.8 Following the lining up of the 3D model with the photographs that include the Site, and the rendering of the Proposed Scheme, the full sweep of photos taken from each viewpoint were stitched together using the software package PTGui. The software reads the exif data attached to each individual photograph file to identify the specifications of the camera and lens, ensuring accurate production of the stitched panoramic image.

3.1.9 The resulting stitched viewpoint image was loaded into Adobe Photoshop. Any parts of the Proposed Scheme that would not be visible from an individual viewpoint due to the presence of intervening features were cropped out.

Limitations

3.1.10 It should be understood that viewpoint visualisations can never provide an exact match to what is experienced in reality. Visualisations are tools in the assessment process but independent from it. They illustrate the likely change in view in the context of a specific date, time and weather conditions, that would be seen within a photograph and not as seen by the human eye. As such, visualisations need to be used in conjunction with site visits and should be considered in the context of the totality of views experienced from the viewpoint and not just focussed on the Proposed Scheme.

3.1.11 Photography was taken in June 2019 and December 2020. The photographs reflect the level of foliage present at those times of year.

3.1.12 The software (3DStudioMax) used to produce the model of the Proposed Scheme from each Viewpoint does not take account of the curvature of the earth's surface, and assumes a flat horizon. The effects of the earth's curvature do influence what is visible, especially in longer range views. If a flat horizon is assumed, then a feature located approximately 5km away from any viewpoint would appear approximately 1.7m higher than in reality. As such the model slightly exaggerates the height that the Proposed Scheme would appear in each view. As all of the viewpoints are located within 5km of the Proposed Scheme, it is not considered that this is material to the conclusions of the LVIA.

Presentation & Viewing

3.1.13 Once the final viewpoint images have been produced, they are inserted into a Figure template, which also includes information about the viewpoint, including the date and time of photography, and details of the camera used.

3.1.14 In relation to the viewpoint visualisations presented in the LVIA, these are presented across a series of separate sheets for each Viewpoint.

3.1.15 The first sheet illustrates the existing view. The second sheet shows the same view, with the Proposed Scheme present.

3.1.16 The images presented on each sheet are displayed at an enlargement factor in accordance with the guidance set out in TGN 06/19. The enlargement factor is stated on each sheet.

3.1.17 The field of view displayed for each Viewpoint has been determined in accordance with the guidance set out in TGN 06/19, and is stated on each sheet.

3.1.18 Each sheet should be printed at the size stated on it. All printed sheets should be viewed **held flat at a comfortable arm's length**.