The Great Grid Upgrade

Sea Link

Preliminary Environmental Information Report

Volume: 2

Part 2 Suffolk Onshore Scheme

Appendix 2.2.A Photomontage Methodology

Version A

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nationalgrid

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2.2.A Photomontage Methodology

2.2.A.1 Introduction

2.2.A.1.1 This document details how the AECOM Digital Media Team in Belfast prepares photomontages. These are Visually Verified Montages (VVM), also known as Accurate Visual Representations (AVR), as they are produced using a combination of specific site photography and accurate survey data.

2.2.A.1.2 Visually Verified Montages are photomontages based on photography captured at the same time as survey data for the most accurate match. Depending on the project location we either take the photography and survey ourselves or use a trusted sub-contractor.

2.2.A.2 Guidelines

2.2.A.2.1 The photomontages that we prepare are based on guidance from the following publications:

- Visual Representation of Development Proposals Technical Guidance Note 06/19 – Landscape Institute, 2019 (Ref 2.2.A.1);
- Photography and Photomontage in Landscape and Visual Impact Assessment Advice Note 01-11 – Landscape Institute, 2011 (Ref 2.2.A.2); and
- Guidelines for Landscape & Visual Impact Assessment (Third Edition) – Landscape Institute, 2013 (Ref 2.2.A.3).

2.2.A.2.2 We also refer to the guidance published by the Scottish Natural Heritage. Although specific to wind farms this offers guidance on photography and the presentation of visualisations.

- Visual Representation of Wind Farms Version 2.2 – Scottish Natural Heritage, February 2017 (Ref 2.2.A.4).

2.2.A.3 Site Photography

2.2.A.3.1 The procedure for taking photography on site along with recording the survey is described below:

- Site visits are planned around time of day and taking the weather into consideration. The photos are best taken with the sun behind the camera. This means views facing west are best taken in the morning and views facing east in the afternoon.
- Photos are taken using a full-frame FX format (Nikon or Canon) with a fixed 50mm focal length lens mounted to a panoramic head on a steady tripod.
- The panoramic head is used to eliminate any parallax problems between near and distant objects in the scene. The sliding plates are set to the marks calculated to enable the camera & lens combination to rotate accurately around the nodal point (centre of panorama rotation).
- The camera is levelled in both pitch and roll referencing the bubble level on the panoramic head and the electronic 'virtual horizon' feature in the camera. A levelling base between tripod and panoramic head is used to fine adjust the camera level.
- Manual camera settings used to ensure consistent exposure across all photos taken.
- Photos are taken using a remote shutter release to eliminate any camera shake.
- The panoramic head is rotated to the next interval using the built-in step rotator and another photo is taken using the remote shutter release. This is repeated until a full 360° sweep of photos is taken.
- A plumbline from the centre of the tripod is used to mark the exact viewpoint position. This ensures the surveyor can position their equipment accurately at the same location.
- The position of the camera head and reference points within the viewshed (various fixed structures) should be recorded. These can be recorded from either a reflector-less survey head mounted in the same place as the camera, point cloud capture or from an accurate handheld device. A good spread of points should be recorded across the field of view.

2.2.A.3.2 Often photomontages are produced based on an accurate camera location but relying upon other sources of data to align the view (Digital OS or other map data). Using the method above meets the requirements for the highest level of photomontages (Type 4), and we always aim to exceed these requirements by utilising bespoke survey data recorded on site together with existing digital terrain data as further reference for the area.

2.2.A.4 Photo Stitching and Post-Production

2.2.A.4.1 When dealing with panoramic views the photos are loaded into specialist photo stitching software (PTGui Pro). The images are automatically corrected for lens distortion and stitched to create a full 360° image. Adjustments can be made to manually correct the blend between images where appropriate.

2.2.A.4.2 The resulting image is output as Spherical projection to correctly match the virtual camera to be used later in the 3D software. With spherical projection (also known as Equirectangular) the height and width in pixels is proportional to the FOV's angle. The software can remap images as cylindrical or planar projection in accordance with LVIA requirements.

2.2.A.4.3 A virtual camera is positioned in the 3D software (Autodesk 3ds Max) according to the same real-world position and height as per the survey. This camera is set-up to match the field of view as the stitched panorama. The stitched image is loaded as the camera back plate.

2.2.A.4.4 The survey points are imported to create points in 3D space. The camera target is aligned to ensure the points match the exact locations visible in the photograph. The match can be confirmed further by including 3D contour data or 3D OS to help match features in the photography.

Image 2.2.A.1 Photographs illustrating an existing photograph (top) and typical reference line connecting surveyed points (bottom)

2.2.A.4.5 The daylight settings in the scene are matched to the time and location of the original photography. This ensures the direction of shadows created in the render will match those in the existing photography.

2.2.A.4.6 The proposed design is modelled and placed at the correct geo-referenced position. The virtual camera views are rendered and composited into the background photography using Adobe Photoshop. The images are adjusted to mask the correct parts of the render behind existing elements in the photography. Proposed

mitigation is added as required. A wireframe version can also be produced to illustrate the parts of the development hidden behind existing structures and vegetation.

Image 2.2.A.2 Photographs illustrating a wireframe (top) and the proposed mitigation (bottom)

2.2.A.5 References

Ref 2.2.A.1 Landscape Institute (2019). Visual Representation of Development Proposals Technical Guidance Note 06/19

Ref 2.2.A.2 Landscape Institute (2011). Photography and Photomontage in Landscape and Visual Impact Assessment Advice Note 01-11

Ref 2.2.A.3 Landscape Institute (2013). Guidelines for Landscape & Visual Impact Assessment (Third Edition)

Ref 2.2.A.4 Scottish Natural Heritage (2017). Visual Representation of Wind Farms Version 2.2

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