HELIOS RENEWABLE ENERGY PROJECT

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Environmental Statement Appendix 7.2: Type 3 Visualisations - Methodology and Survey Data

June 2024

HELIOS RENEWABLE ENERGY PROJECT

TYPE 3 VISUALISATIONS - METHODOLOGY AND SURVEY DATA

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CONTENTS

1.0 INTRODUCTION

1.1 The visualisations have been produced in accordance with the Landscape Institute Technical Guidance Note 06/19 (17 September 2019).

1.2 There are 4 Visualisation Types within the LI guidance:

Type 1 - Annotated Viewpoint Photograph - To represent context and outline or extent of development and of key features

Type 2 - 3D Wireline / Model (non-photographic) - To represent 3D form of development / context

Type 3 - Photomontage / Photowire - To represent appearance, context, form and extent of development

Type 4 - Photomontage / Photowire Survey / Scale Verifiable - To represent scale, appearance, context, form, and extent of development

The visualisations produced for the scheme accord to Type 3 Visuals.

1.3 The Landscape Institute defines Type 3 visuals as:

'This Type encompasses photomontages and photowires which will commonly be produced to accompany planning applications, LVAs and LVIAs. They provide a reasonable level of locational and photographic accuracy, but are not suitable for the most demanding 4.1.2 and sensitive of contexts. Type 3 visualisations do not need to be accompanied by verification data, nor is a precise survey of features and camera locations required. Although minimum standards are set for image presentation, the visualisations do not need to be reproduced with scale representation. Type 3 visualisations offer an appropriate level of detail and accuracy for a range of EIA and non-EIA projects.'.

2.0 VIEWPOINT LOCATION

2.1 A total of 31 viewpoints were identified as requiring Type 3 visuals, as shown in Figure 1.

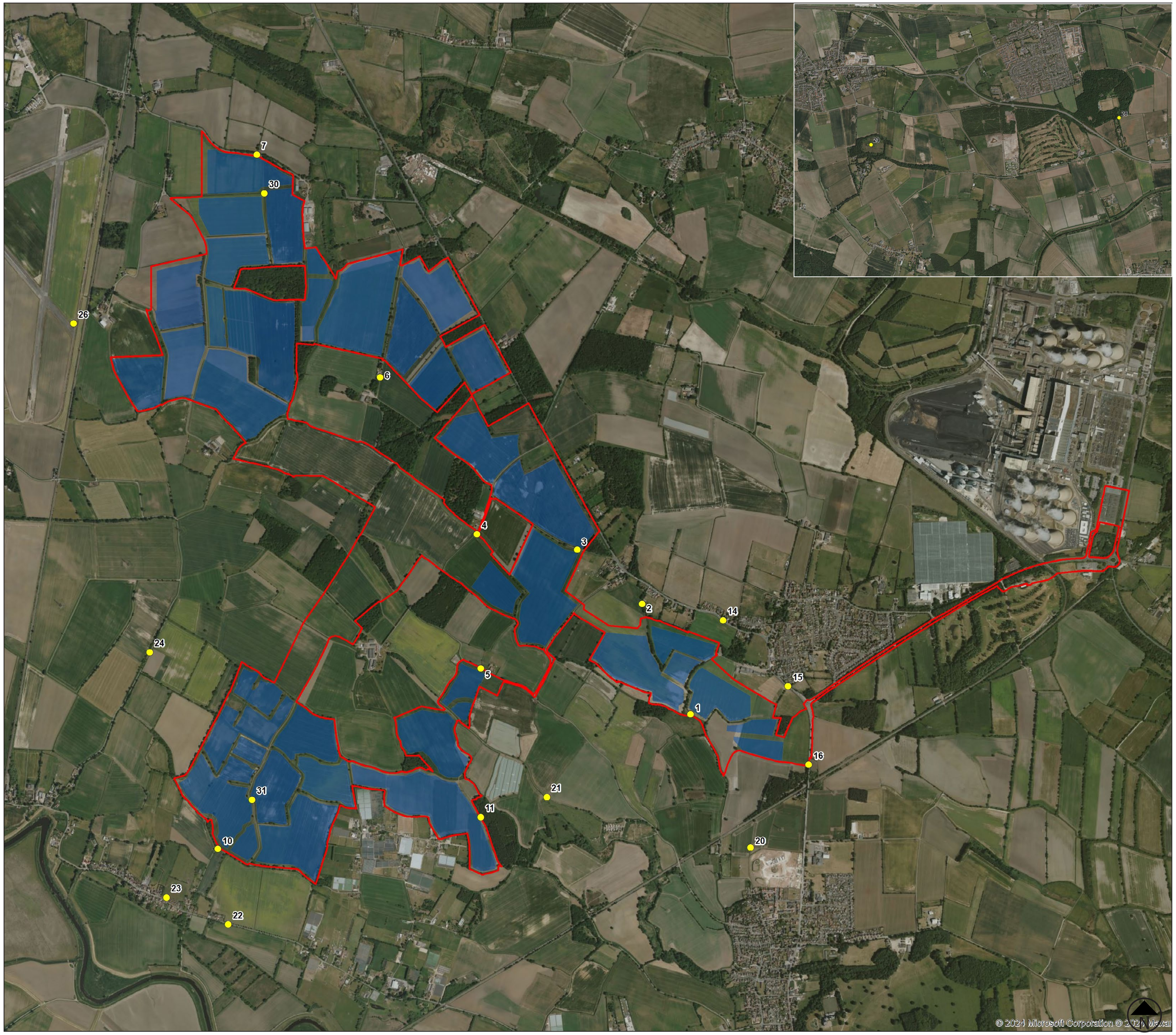


Figure 1: Viewpoint Location Plan

3.0 METHODOLOGY

Site Visit and Viewpoint Locations

Snapshot Visuals carried out the site photography and survey on the 5th and 12th of May 2024.

Photography

For each agreed viewpoint location, high resolution photography was taken with a full frame digital SLR camera. The camera is set up on a calibrated tripod at a height of 1.5m to replicate a typical eye level. The camera was levelled horizontally and vertically using a tripod mounted levelling base and two camera mounted spirit levels. The location of the camera was GPS/RTK recorded and photographed.

Lens Selection

In order to capture the full vertical extent of the proposed development and an appropriate amount of contextual built form, a 50mm lens in landscape format was used for the photography (39.6° horizontal field of view and 27° vertical field of view).

Photography Equipment

- Canon 6D mkII digital SLR camera (35mm)
- Canon EF 50mm f/1.4 USM Lens
- Canon TS-E 24mm f.3.5 Lens (for optional 24mm shots)
- Tripod indexed pano head
- Levelling base with spirit level

Field Survey Methodology & Survey Data Post Processing

A RTK Rover with LIDAR and Photogrammetry capabilities was used to pinpoint the location and height of the camera lens. This RTK Rover is accurate to +/- 20mm.

For alignment of the viewpoints, DEFRA opensource LIDAR data (DSM) is used. This is imported into 3ds Max, and combined with the topographic survey. This provides an accurate point cloud with which to align the views.

Survey Equipment

- ViDoc RTK Rover & Iphone 13 Pro with HxGN SmartNet Real-Time Kinematic (RTK) Corrections to provide a tolerance of +/- 20mm.

Photography Post Processing

The relevant images were stitched using PTGui to create a 90° cylindrical panorama. This field of view was selected due to the close proximity of the viewpoints to the development. The stitched panoramas were then edited in Adobe Photoshop to adjust the levels and exposure where necessary.

The Development Proposal

Snapshot Visuals were provided with PDF, DWG and Sketchup files of the proposed layout and elevations by the project architect.

Once the supplied 3D model was imported into 3ds Max, the proposals were aligned to the OSGB36 co-ordinate system to correlate with the 3D survey data.

Photographic Alignment within the 3d Environment

A virtual camera was created within 3ds Max using the surveyed camera location, recorded target point and field of view (FOV) based on the camera and lens combination selected for the shot.

The baseline photograph was attached as a background to this view, to assist the Visualiser in aligning the point cloud to each corresponding background point, based on the Camera Matching Technique. Example images that demonstrate how the baseline photography and point cloud have been aligned are included in Section 5.0 of this document.

At this stage a 2nd member of the visualisation team cross-checked the camera alignment to verify the view was correctly set.

Using this virtual camera, a render was created of the aligned model at a resolution to match the baseline photograph. This was overlaid onto the baseline photograph to assess the accuracy of the alignment. When using a wide-angle lens, observations outside the circle of distortion are given less weighting.

Final Rendering and Post-Production

The photomontages were produced in line with Landscape Institute TGN 06/19: Visual Representation of Development Proposals. They were produced as Type 3 visuals.

The final renders were exported at the same resolution as the baseline photography. Multi pass renders are exported to give the visualiser more control in enhancements of the final image. These multi passes may included but not limited to Reflections, Refractions, Shadows, Lighting, Ambient Occlusion and Global Illumination.

The multi pass renders are layered within Adobe Photoshop and blended together to produce the correct level of detail and photo-realistic feel. Finally, masking is applied to the image. Endless aesthetic effects can be applied to the rendered image to enhance the realism of the final image and/or make adjustments as a result of proposed material changes. However, the visualiser always attempts to be faithful to the proposed design within the environment.

The final image is verified by a second visualiser to check the appearance, masking and form of the development.

The final photomontages are then saved in an appropriate format for inclusion within the InDesign document. The renders were set out in accordance with the LI TGN 06/19 with the relevant data on each sheet.

Software Used

- AutoCAD
- 3ds Max 2024
- V-Ray 6 for 3ds Max
- Adobe Photoshop
- Adobe InDesign
- PTGui 12.16
- PIX4D Cloud
- PIX4D Catch

4.0 DATA SOURCES

Supplied Data

Asset	File Type	Supplier	Reference	Date Supplied	Comments
Site layout	dwg	Enso Energy	DX-01-P47 Rev08 Indicative Design	25/04/2024	imported into 3ds Max
Landscape Proposals	dwg	SLR Consulting	240423_ Landscape Strategy	07/05/2024	imported into 3ds Max
3D topo survey	dwg	Enso Energy	Drax_UAV-TOPO_Linework_OSGB36_ODN_Rev1_2022-05-06	19/06/2023	imported into 3ds Max
3d Point Cloud	las	DEFRA	SE6020_P_10727_20200322_20200323, SE6025_P_10728_20201123_20201123, SE6520_P_10727_20200322_20200323, SE6525_P_10728_20201123_20201123.	19/07/2023	imported into 3ds Max

Generated Data by Snapshot Visuals

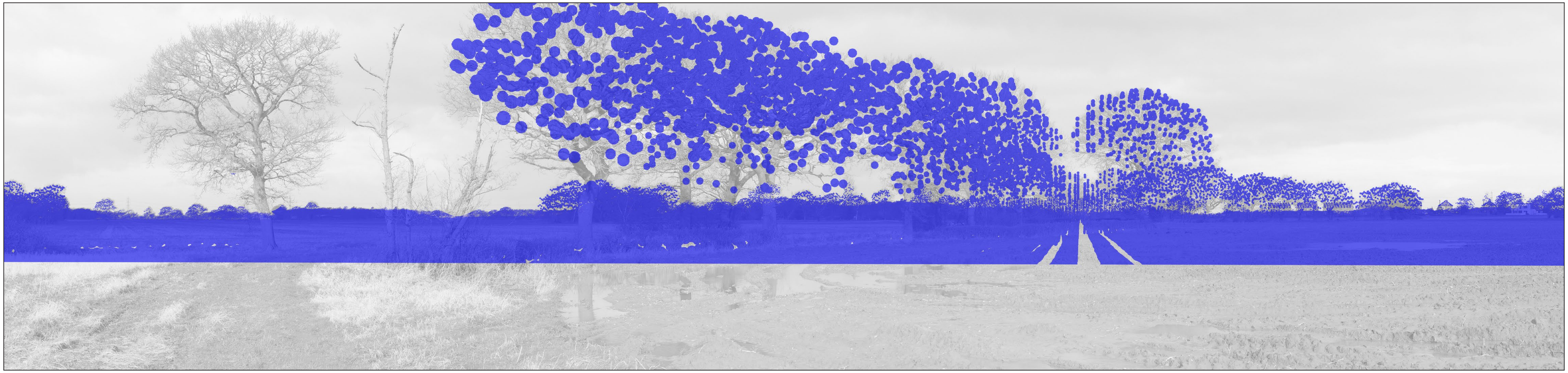
Asset	File Type	Reference	Date	Comments
Viewpoint Locations	csv	ENE_010_Drax2-PIX4Dmatic.csv	12/05/2024	Imported into 3ds Max

5.0 EXAMPLES OF TYPE 3 VISUALS VERIFICATION DATA

Viewpoint 01a - Verification Data Alignment

Tripod Location

Viewpoint Location

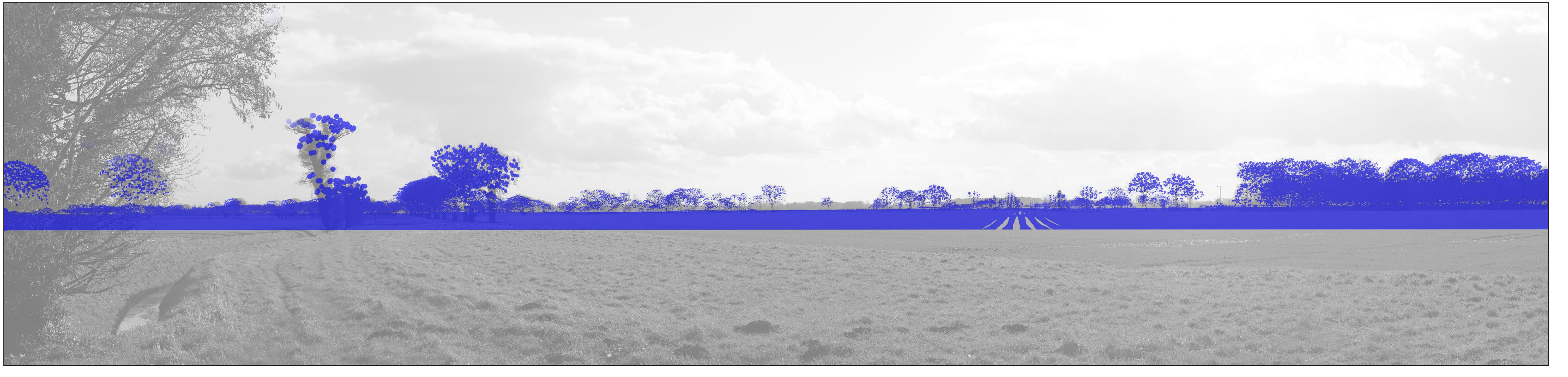


Survey Reference Points - LIDAR Point Cloud Alignment on existing photography

Viewpoint 04 - Verification Data Alignment

Tripod Location

Viewpoint Location



Survey Reference Points - LIDAR Point Cloud Alignment on existing photography

Viewpoint 07A - Verification Data Alignment

Tripod Location

Viewpoint Location

Survey Reference Points - LIDAR Point Cloud Alignment on existing photography

Viewpoint 14 - Verification Data Alignment

Tripod Location

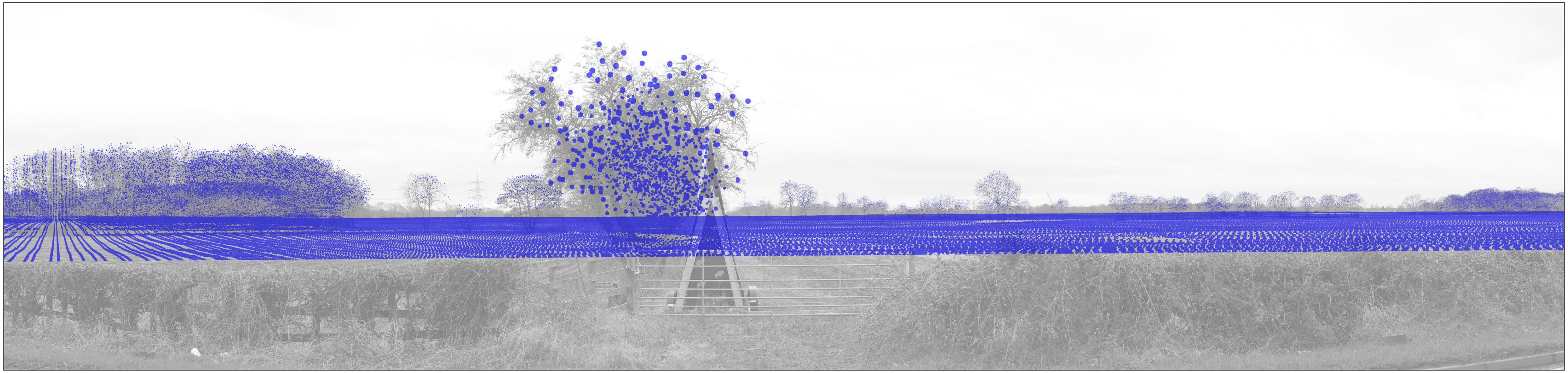
Viewpoint Location

Survey Reference Points - LIDAR Point Cloud Alignment on existing photography

Viewpoint 15A - Verification Data Alignment

Tripod Location

Viewpoint Location



Survey Reference Points - LIDAR Point Cloud Alignment on existing photography

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