

## Appendix 12.2

### Methodology for producing ZTVs

#### Introduction

A Zone of Theoretical Visibility diagram (ZTV) illustrates the area of the landscape from which a viewer can theoretically see the object in question. This is often also referred to as the visual envelope and the map as the visual envelope map (VEM), or a Zone of Visual Influence diagram (ZVI). This is a desk-based technique and provides a framework and structure for the subsequent fieldwork. The ZTV represents a 'bare ground' assessment without screening, structures or vegetation. This kind of information can be manually derived from cross sections but the process is laborious. Computer software is usually now used to provide this information.

#### Method

##### *The Ground Model*

The first step in the production of a ZTV is to obtain a computer representation of the ground surface in the vicinity of the proposed development, referred to as a Digital Terrain Model (DTM).

The data used for this project was obtained from the Ordnance Survey. The DTM for ZTV analysis was derived from their Terrain 50 data.

The DTM consists of height values at each intersection of a 50m horizontal grid. Variations in DTM accuracy are to be expected depending upon the nature of the ground. DTM height accuracy is typically better than one half of the vertical interval of the source contour data. In practice, with a normal contour interval of 10 metres, this results in a height accuracy of up to +/- 5m.

##### *The Model of the Development*

To produce a ZTV, the XYZ data of the object under analysis is required. XYZ data is the easting and northing point plus the height or Z co-ordinate of the subject above the ground level.

The XYZ object data for the development is then entered into the ZTV program that uses the DTM to compute theoretical inter-visibility.