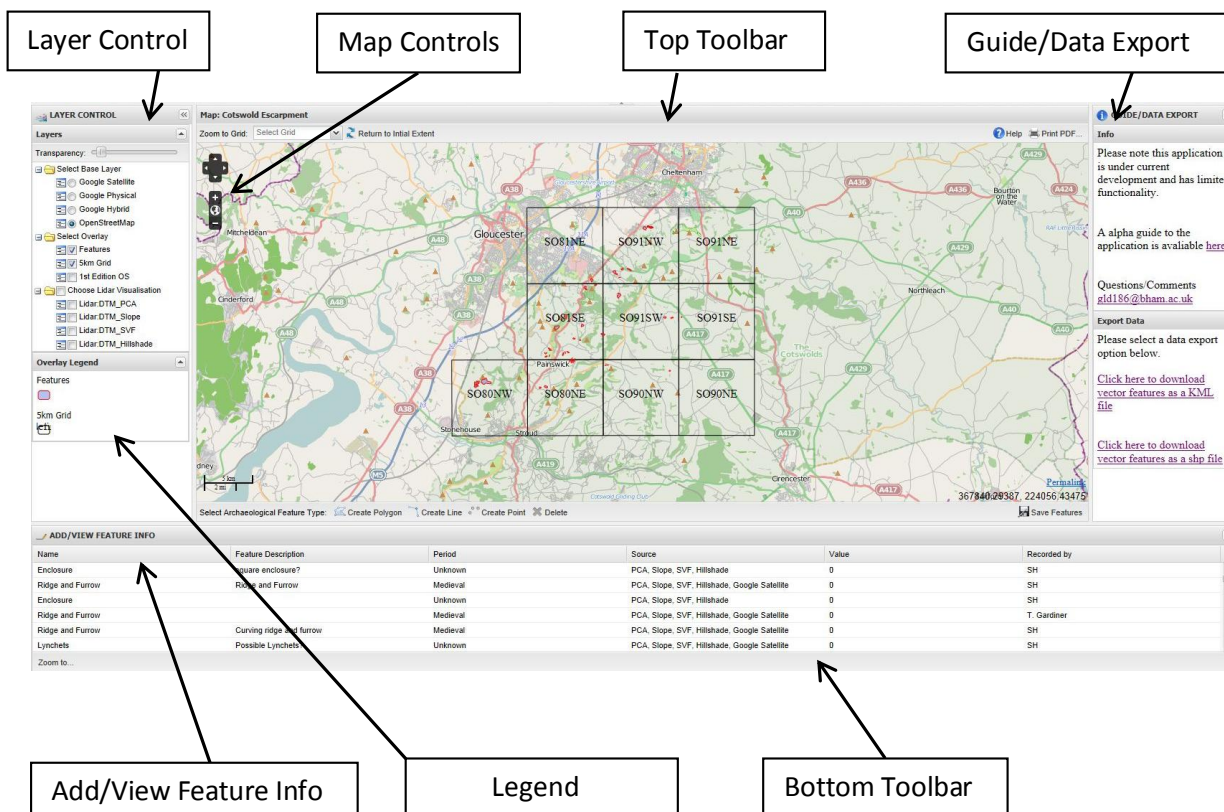# LIDAR WEBGIS APPLICATION GUIDE

How to use the application

Welcome to the LiDAR WebGIS application guide. This guide will provide you with all the information you will need to use the application as well as providing some hints and tips on what to look out for!

Interface Overview

The Layer Control positioned on the left of the interface, allows you to choose between the different available maps and overlays as desired.

Available Layers

Application Layers	Layer Name
Google API (Satellite, Physical and Hybrid)	Google Satellite
	Google Physical
	Google Hybrid

|	
OpenStreetMap	OpenStreetMap
Slope Analysis of Digital Terrain Model	Lidar: DTM_Slope
Hillshade of Digital Terrain Model	Lidar: DTM_Hillshade
Principal Component Analysis of Digital Terrain Model	Lidar: DTM_PCA
Sky View Factor of Digital Terrain Model	Lidar: DTM_SVF
Ordnance Survey 5km Grid overlay	5km Grid
WFS- T User Generated Features	The archaeological features you and your fellow volunteers create!
1st Edition Ordnance Survey 1:2500 1854-1949 © crown Copyright and Landmark Information Group Limited (2012). All rights reserved. (1854-1949).	1st Edition OS

Lidar Visualisations

Lidar: DTM_ Slope, Hillshade, PCA and SVF are the primary LAYERS for identifying features. The method uses various processing techniques commonly used in archaeology. All images are visualised in greyscale with black representing low areas/values and white representing high areas/values. The visibility of features will vary across the methods so it is useful to include several to improve the chances of spotting archaeology!

Transparency Slider

It is possible to adjust the transparency of the lidar visualisation layers using the slider control.

The transparency slider allows the viewing of base maps and overlays together with the lidar layers and greatly increases the ability to distinguish the nature of features with the data. For example, being able to distinguish modern farm structures rapidly.

| 0 % Transparency | 50% Transparency | 100% Transparency |

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Panning Controls
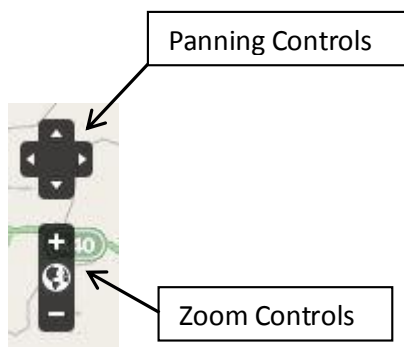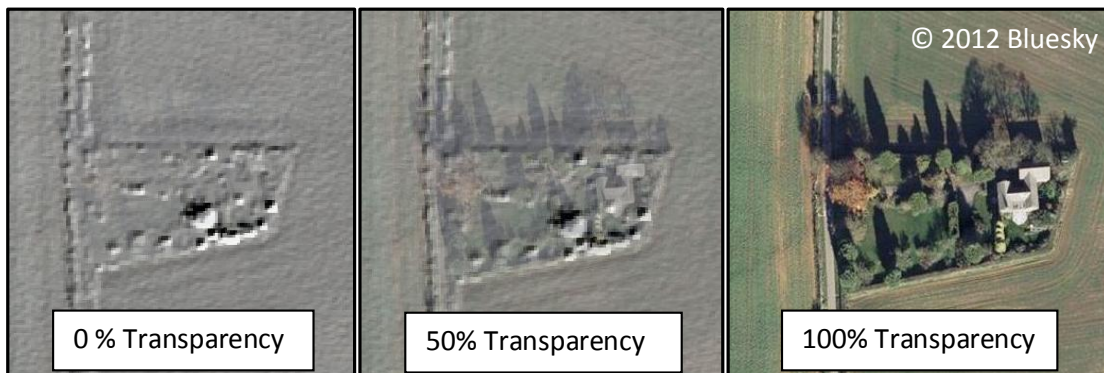
Zoom Controls

Once select the layers will be displayed in the map window. This window can be navigated using the map controls or using the mouse wheel to zoom in and out and left click and drag will allow you to pan around the view.

It is recommended that you focus on one 5x5km grid square at a time. To facilitate this there is a 5x5 km grid overlay provided and the ability to zoom to grid via the controls located on the top toolbar. IF you want to return to the default view simply click 'Return to Initial Extent'.

Recording Archaeological features

Select a lidar visualisation from the layer control panel and use the drawing tools at the bottom left of the map to mark archaeological features. Three different types of symbols can be used to mark archaeology, polygon, line and point.

Polygon: would be suitable for features such as field systems, enclosures or any feature that covers a distinct area.

*Line:* can be used to depict linear earthworks such as ditch and banks.

Point: suitable for small singular feature such as a charcoal burning pit.

Once the feature has been drawn, select the upwards facing arrow to expand the ADD/VIEW FEATURE INFO panel and enter complete fields with appropriate information (shown below) relating to the feature. A 'zoom to' control also allows you to quickly zoom to a specific feature if required.

ADD/VIEW FEATURE INFO		
Name	Feature Description	Period
Ridge and Furrow	Agriculture	Medieval
Ridge and Furrow	Agriculture	Medieval

Attributes

Name	Give the feature you have discovered a name
Feature Description	Write a brief description of the feature. Suitable descriptive types and terms can be found at the English Heritage Thesaurus. However, do not feel constrained by these terms and you may use your own.
Period	If you suspect that the feature dates from a specific period you can enter it here or enter 'Unknown' if you are not sure
Source	On which layers is the feature visible? You can indicate the layers that show the feature here (applies to Lidar visualisations, Google Satellite and 1st Edition OS layers)
Value	You can indicate the relative value 0-10 of the feature as a component of the historic environment of the area
Recorded by	Your name!
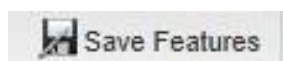
Once all features have been recorded, please click 'Save Feature' on the bottom toolbar to add features to the project database, entering the Username and Password provided.

Exporting Data

Data can be exported by expanding the right hand panel and selecting export type KMZ (good for use with Google Earth) and SHP (suitable for wide variety of traditional GIS software packages).

A printable PDF can also be generated using the Print PDF button located on the right of the top toolbar

Tips for transcribing lidar data

Spotting archaeological features in lidar data can be difficult and time consuming. To give you a helping hand in spotting archaeology some examples are included here to highlight the possible feature and monument types you may encounter during the transcription process.
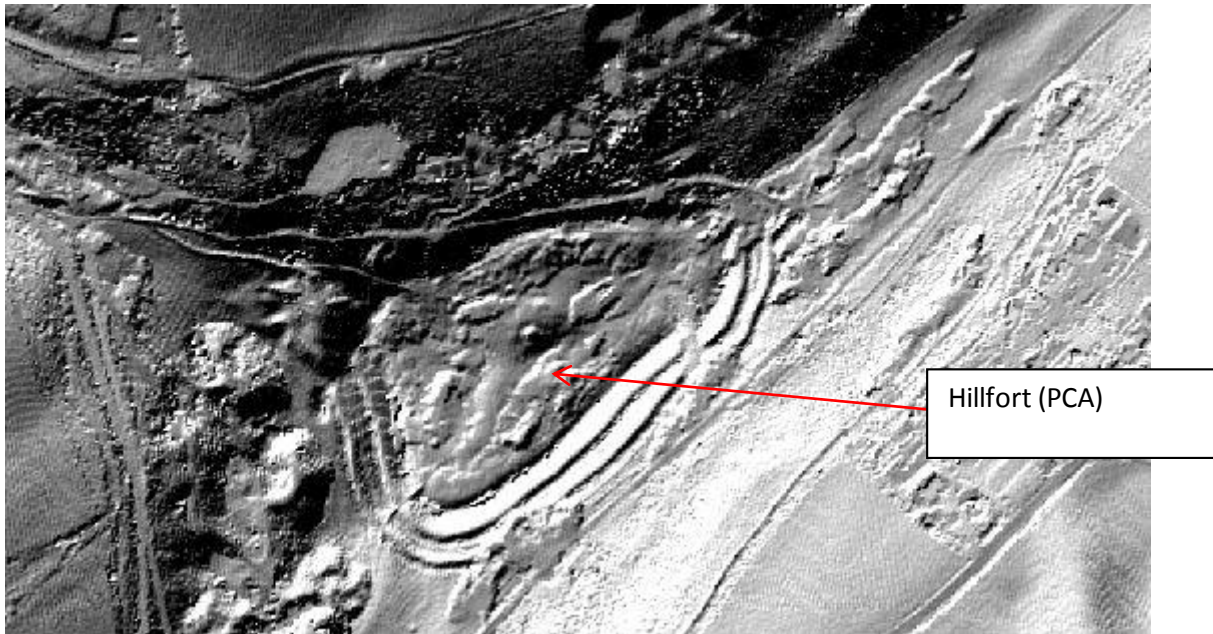
Hillfort (PCA)

Here is an example of a hillfort in the study area using a PCA visualisation. The ramparts are clearly visible particularly on the southern edge.


Motte and Bailey

(Hillshade)
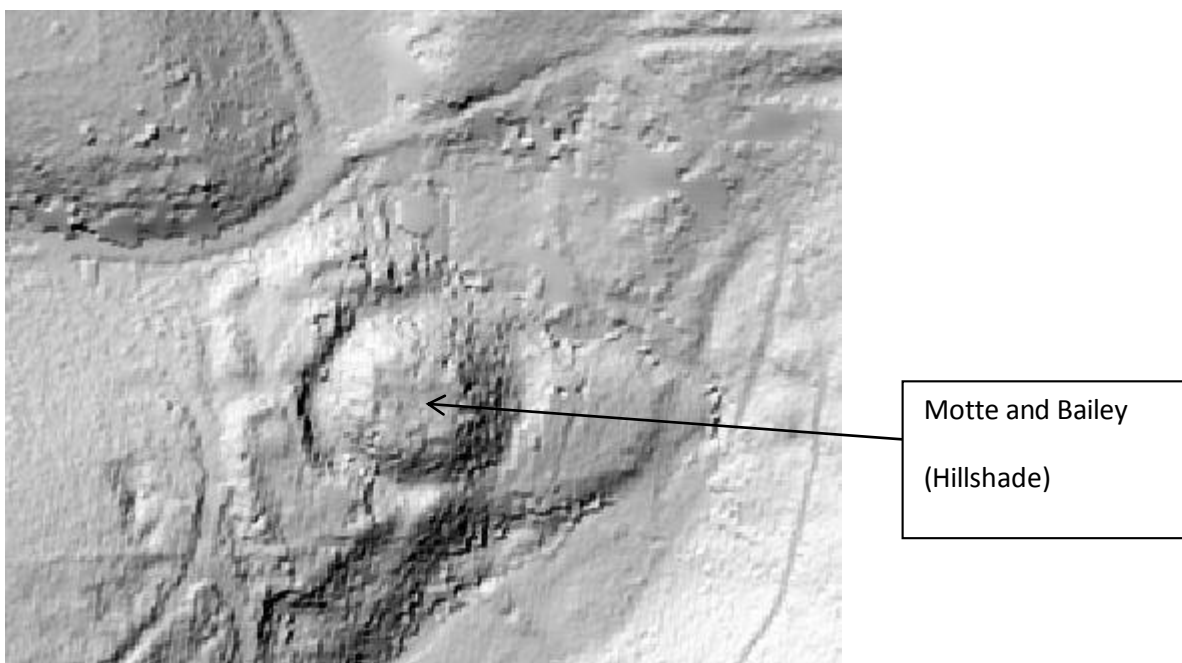
Another large monument example that may be present is medieval motte and bailey castles – the large central mound surrounded by a ditch and outer enclosure is very distinctive.
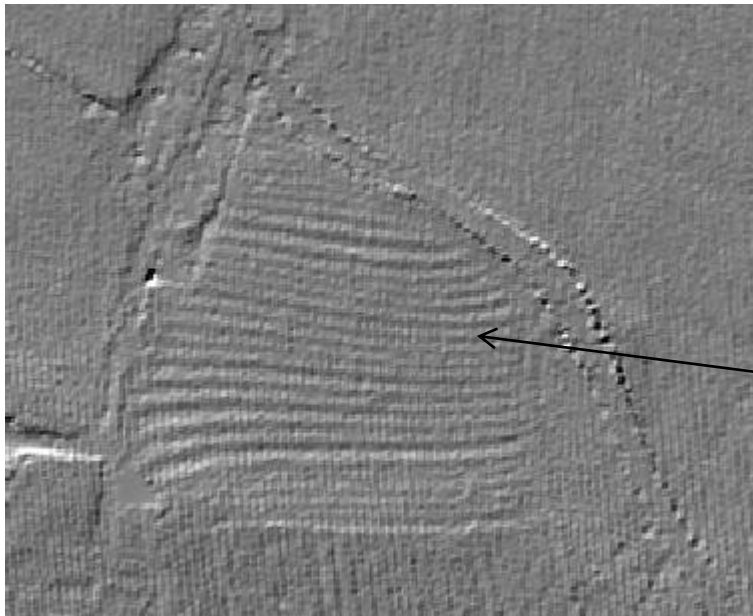
Ridge and Furrow (PCA)

Other feature types may also be visible – here is an example of ridge and furrow – an earthwork that results from ploughing. Different ploughing methods result in differing patterns. Broadly speaking, a curving ridge and furrow pattern is often an indication that the earthwork may be medieval and more straight forms tend to be post medieval or later.
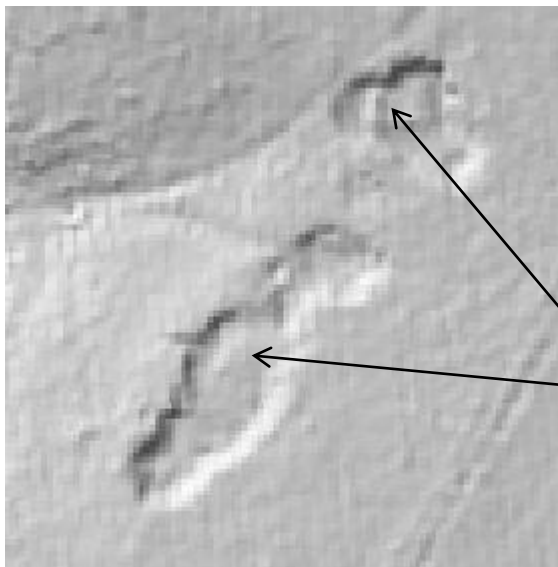
Effects of Quarrying (Hillshade)

Evidence of quarrying dating from a variety of periods may also be present. Small scale quarrying visible in the form of areas of scarring and pock marks similar to the example above.

Curving Bank

(Hillshade)
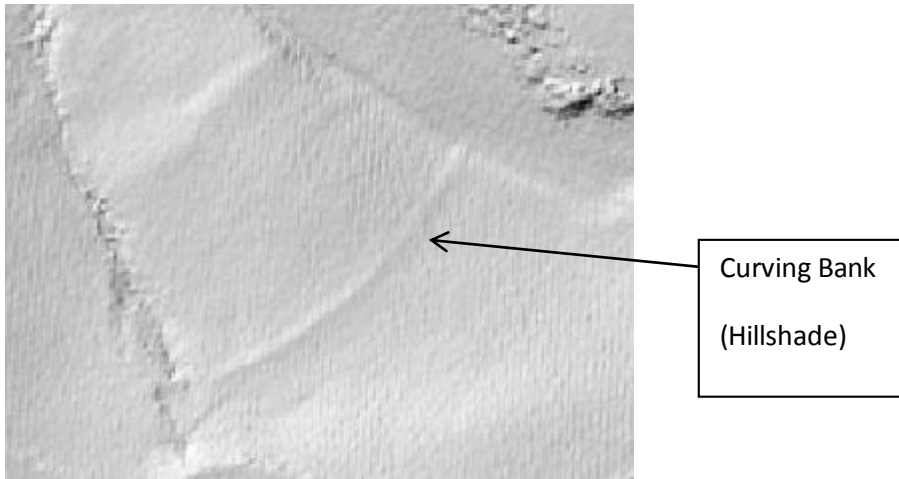
Earthwork features may be present such as this curving bank of earth. Although no obvious archaeological site can be associated with it, record it! It may turn out to be important.

Finally

Enjoy discovering archaeology.

Known Bugs/Limitations

Saving overlapping features is problematic and may result in an error when saving. Please use line tools and draw around a feature if there is a separate feature contained within the features boundaries.

Printing

Note: Printing with an active base layer from Google is not currently possible due to restrictions placed by Google on the API used to display maps within the application; please select the OpenStreetMap layer to print a PDF.

WFS does not rescale after print PDF, please refresh browser after printing