

# Appendix A9.4: LiDAR Analysis Report

## 1.1 Introduction

- 1.1.1 This report presents the results of the analysis of high-resolution Light Detection and Ranging (LiDAR) data captured for the A9 Dualling: Pass of Birnam to Tay Crossing project (hereafter the ‘proposed scheme’) undertaken by Jacobs UK Ltd on behalf of Transport Scotland. Its purpose is to support Chapter 9 (Cultural Heritage) of the Environmental Impact Assessment Report (EIAR) for the proposed scheme by gathering additional information on known cultural heritage resources and identifying potential new features of cultural heritage interest. The LiDAR captured for the proposed scheme was extended from Birnam Burn to Inver, approximately 5km along the A9 corridor, including the northern extent of Murthly Castle Inventory Garden and Designed Landscape (GDL) (GDL00292; HLT 14) (see Figure 1: Location and extent of the LiDAR captured for the proposed scheme).
- 1.1.2 The LiDAR analysis was undertaken based on the guidance provided by the following documents:
- Code of Conduct: professional ethics in archaeology (Chartered Institute for Archaeologists (CIfA), 2022);
  - Standard for archaeological field evaluation (CIfA, 2023a);
  - Universal guidance for archaeological field evaluation (CIfA, 2023b);
  - Processing and Working with LiDAR Data in ArcGIS: A Practical Guide for Archaeologists (Davis, 2012);
  - LiDAR-derived Local Relief Models – a new tool for archaeological prospection (Hesse, 2010);
  - Using Airbourne Lidar in Archaeological Survey: The Light Fantastic (Historic England, 2018); and
  - Applied Digital Documentation in the Historic Environment (Historic Environment Scotland, 2018).
- 1.1.3 This report presents the results of the analysis of the LiDAR data following its visualisation as single direction hillshade models, a slope model, and Simple Local Relief Model (LRM).
- 1.1.4 Section 1.2 of this report provides the background to the analysis of the LiDAR data. Section 1.3 outlines the methodology used for the analysis of the LiDAR data, including supplementary information consulted to verify the interpretations of potential cultural heritage resources. Section 1.4 presents a summary of the results of the analysis of the LiDAR data and Section 1.5 discusses the results, including key findings. A table identifying all potential cultural heritage resources identified during the analysis of the LiDAR data is also provided (Annex A). and an overview of the locations of potential cultural heritage resources is shown on Figure 2 (Locations of potential features of cultural heritage interest).

## 1.2 Aims and Objectives

- 1.2.1 The aim of the analysis of the LiDAR data was to inform the cultural heritage baseline for the proposed scheme by gathering information on known cultural heritage resources and identifying any potential new features of cultural heritage interest.

1.2.2 This was achieved through:

- processing and visualising the LiDAR data captured for the proposed scheme;
- undertaking a review of the visualisations to gather any additional information on the form, extent and condition of known cultural heritage resources;
- undertaking a review of the visualisations to identify, map and interpret any potential new features of cultural heritage interest;
- verifying the results of the analysis of the LiDAR data against other sources (see below); and
- presenting the results of the analysis of the LiDAR data through the production of this report.

## 1.3 Background

### Topography and Geology

#### Topography

- 1.3.1 The extent of LiDAR data captured for the proposed scheme is shown on Figure 1.
- 1.3.2 To the north-west of the gorge formed by the Birnam Burn, the terrain of the Pass of Birnam is characterised by gently undulating floodplain with localised areas of higher ground, with the River Tay to the north-east and steeply rising ground at the base of Birnam Hill to the south-west. Beyond the narrowest point of the Pass of Birnam, the River Tay floodplain widens before Torr Hill and rises to approximately 90m Above Ordnance Datum (AOD) from the southern bank of the river. Inchewan Burn crosses the floodplain passing between the conjoined settlements of Birnam and Little Dunkeld to join the River Tay. As the River Tay bends to the west the River Braan meanders across the floodplain to its confluence with the River Tay, north-east of Inver.
- 1.3.3 The south-east of the area covered by the LiDAR data is largely wooded, formed by plantation woodland, including those at Dalpowie Plantation, Ring Wood and Birnam Wood, located adjacent to the existing A9. The north-west of the area, north of the existing A9, is characterised by the urban settlements of Birnam and Little Dunkeld. To the north-west the village of Inver is located between the River Braan, to the south, and the River Tay, to the north. The area is bisected by the Highland Main Line railway and the existing A9 which run roughly parallel to each other.

#### Geology

- 1.3.4 The bedrock geology comprises low grade metamorphic bedrock of Dalradian age, belonging to the Southern Highland Group, with sedimentary bedrock of Devonian age belonging to the Craighall Conglomerate Formation of the Arbutnott-Garvock Group to the east at the Pass of Birnam (Transport Scotland, 2025). Superficial deposits are recorded as alluvium, alluvial fan deposits, river terrace deposits, glaciofluvial deposits and Devensian – Diamicton glacial till (Transport Scotland, 2025).

## Archaeological and Historical Background

- 1.3.5 An archaeological and historical background for the proposed scheme is presented in Section 1.4 of Appendix A9.2 (Cultural Heritage Baseline Information) and is not duplicated here. Further detailed information on individual cultural heritage resources can also be found in Annex B of Appendix A9.2 (Cultural Heritage Baseline Information).

## 1.4 Methodology

- 1.4.1 LiDAR is a remote sensing technique for determining three-dimensional data points through *'the use of laser light to determine distance to an object or surface'* (Historic Environment Scotland, 2018). LiDAR enables *'the capture of wide landscape scale data and the ability to filter out buildings and tree canopy'* providing accurate topographic information which can support the identification of archaeological remains (Historic Environment Scotland, 2018). While tree coverage obscures other data collection methods (i.e. aerial photography), the last return data from LiDAR can be used to create a Digital Elevation Model (DEM) of the forest floor aiding the identification of archaeological remains within woodland areas.
- 1.4.2 LiDAR data was acquired on behalf of Transport Scotland by Bluesky using a 2 MHz Leica Terrain Mapper scanner mounted to a Vulcanair P68 trin-prop fixed wing aircraft in May 2020 (Bluesky, 2020). The raw laser data was processed and refined to create a three-dimensional point cloud, this was then resampled as elevation grids at 0.25m<sup>2</sup> resolution, and 1km<sup>2</sup> DEMs were produced from the point cloud in ASCII format. Data were tied to the British National Grid ODN Height (Bluesky, 2020).
- 1.4.3 The DEMs were converted from ASCII to raster format using ArcGIS 10.6.1. A mosaic of the converted data was then created and used to produce visualisations using the ArcToolbox and the methodologies in *Processing and Working with LiDAR Data in ArcGIS: A Practical Guide for Archaeologists* (Davis, 2012) and *LiDAR-derived Local Relief Models – a new tool for archaeological prospection* (Hesse, 2010).
- 1.4.4 Complimentary visualisations were used to review the LiDAR data. These comprised:
- Single direction hillshade models – a technique based on the *'hypothetical illumination of a surface... to show subtle changes in the topography of DEMs with the use of shadow'* (Historic England, 2018, p.90). Hillshade models of the DEMs were produced using various azimuths (angle between north and the sun, measured clockwise) to allow for comparison and the identification of features which may be imperceptible when lit from certain angles (i.e. linear earthworks).
  - Slope analysis – a method of representing slope severity based on the *'maximum rate of change between each cell and its neighbours'* which can be presented as a percentage or degree of slope (Davis, 2012; Kokalj and Hesse, 2017).
  - Simple LRM – a technique that *'separates local small-scale features from large scale landscape forms'* which enhances the visibility of shallow topographic features irrespective of the illumination (Kokalj and Hesse, 2017, p. 77; Hesse, 2010). Local relief can be presented in simple colours which enhance the readability of the model.

- 1.4.5 To facilitate the analysis, a 0.5km grid was created and placed over the LiDAR data with a total of 29 grid squares (Figure 1: Location and extent of the LiDAR captured for the proposed scheme).
- 1.4.6 For each grid square the visualisations produced from the LiDAR data were reviewed and the locations of known cultural heritage resources were reviewed to gather additional information about the form, extent and condition of these cultural heritage resources, including digitising any visible features. In addition, the extents of potential new features of cultural heritage interest were also digitised.
- 1.4.7 Potential new features of cultural heritage interest were reviewed against a range of sources to verify their interpretation comprising:
- Existing baseline information gathered from previous stages;
  - Historic mapping available through the National Library of Scotland, including historic Ordnance Survey mapping;
  - Modern mapping available online; and
  - Aerial imagery available online, including images available through the National Collection of Aerial Photograph (NCAP), via GoogleEarth and aerial imagery captured by Bluesky in 2020 for the proposed scheme.
- 1.4.8 A shapefile of the results was created which included the following attribute data:
- unique reference number - the unique reference number ascribed to all potential new features of cultural heritage interest identified;
  - grid square reference - the unique reference given to the 0.5km<sup>2</sup> grid square(s) the potential new feature of cultural heritage interest is located within;
  - local and / or national reference number (if relevant) - the corresponding designation reference, or reference from national databases (e.g. Canmore) or HER reference number for the potential new features of cultural heritage interest;
  - cultural heritage asset number – asset number for known cultural heritage resources (if relevant);
  - easting and northing - for the centroid of any potential new features of cultural heritage interest;
  - monument type - (ascribed using the online FISH thesaurus<sup>1</sup>) based on the initial interpretation of any potential new features of cultural heritage interest; and
  - confidence rating:
    - high - strong possibility of the feature is as interpreted;
    - medium –the feature is tentatively interpreted; and
    - low – limited possibility of the feature is as interpreted.
- 1.4.9 Some potential new features of cultural heritage interest identified from the LiDAR data were found to be non-archaeological following review against other sources (see paragraph 3.1.7

<sup>1</sup>[https://heritage-standards.org.uk/2021/02/Mon\\_alpha.pdf](https://heritage-standards.org.uk/2021/02/Mon_alpha.pdf) [accessed November 2024].

above), such as the plantation scars associated with cultivated forestry and cultivation patterns (i.e. areas of evenly spaced parallel linear features resulting from methods of arable cultivation such as ploughing). These were not included in the shapefile of results (see paragraph 3.1.8 above) and are not discussed below.

### Limitations

- 1.4.10 While processing the LiDAR data in GIS enables the visualisation and analysis of the data, the use of raster surfaces can result in the loss of some original data during processing.
- 1.4.11 LiDAR provides topographic information which can aid the identification of new features of cultural heritage interest. However, many archaeological features do not have an above ground expression and therefore not all archaeological features that may be present can be identified from LiDAR and there is the potential for further previously unrecorded buried archaeological features to be present.
- 1.4.12 In addition, while LiDAR data enables the creation of a DEM of the ground surface in wooded areas using last return values, given the large number of trees and dense canopy cover, there may be gaps in the data coverage and smaller discrete features of cultural heritage interest may be obscured. However, when used in combination with other sources of information (see paragraph 3.1.7) archaeological prospection in woodland using LiDAR is an effective technique (Crow *et al.*, 2007).

## 1.5 Results

- 1.5.1 This section presents the results of the analysis of the LiDAR data. Further details for the cultural heritage resources identified are provided in Annex A (Inventory of potential features of cultural heritage interest identified from LiDAR Data). An overview of the locations of known cultural heritage resources and potential new features of cultural heritage interest is shown on Figure 2 (Locations of potential features of cultural heritage interest).

### Overview

- 1.5.2 The analysis of the LiDAR data for the proposed scheme has identified 99 potential features of cultural heritage interest (Table 4-1; see Figure 2: Locations of potential features of cultural heritage interest). Of these 52 were associated with known cultural heritage resources; however, and 47 new potential features of cultural heritage interest were also identified.

**Table A9.4-1: Summary of all potential cultural heritage features identified within the area covered by the LiDAR data.**

Type	Number	Reference Number(s)
Bank (Earthwork)	2	10, 15
Boundary	7	01, 03, 06, 66, 77, 78, 87
Building	10	13, 35, 40, 43, 45, 48, 55, 72, 79, 96
Curling Pond	2	31, 39

Type	Number	Reference Number(s)
Ditch	2	28, 54
Drive	7	11, 61, 71, 80, 83, 85, 86
Enclosure	1	07
Field	2	98, 99
Fire break	1	89
Gravel Pit	2	14, 44
Mill Race	1	52
Mineral Extraction Site	3	29, 49, 50
Mound	4	19, 20, 30, 51
Parkland	1	93
Quarry	11	02, 04, 08, 09, 21, 22, 25, 34, 36, 38, 47
Railway Transport Site	1	46
Road	4	16, 53, 41, 42
Road Transport Site	1	56
Saw Pit	8	17, 18, 23, 24, 27, 32, 33, 37
Trackway	6	05, 57, 70, 74, 88, 90
Tree	1	12
Walk	15	58, 59, 60, 62, 63, 64, 65, 67, 68, 69, 73, 75, 76, 81, 84
Watercourse	2	82, 91
Well	1	26
Woodland	4	92, 94, 95, 97

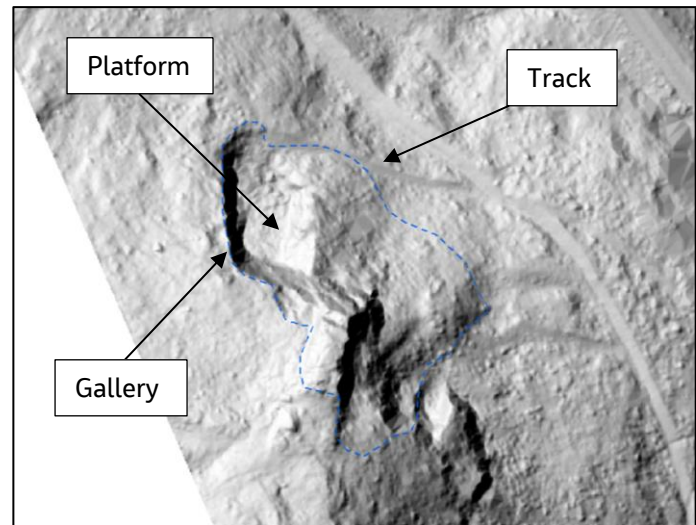
#### Quarrying, Gravel Pits and Mineral Extraction

- 1.5.3 A total of 16 irregular features, interpreted as quarries, gravel pits and mineral extraction sites, were identified from the LiDAR data (Reference Numbers: 02, 04, 08, 09, 14, 21, 22, 25, 29, 34, 36, 38, 44, 47, 49 and 50). Five of these (Reference Numbers: 14, 34 (Image A9.4-1), 38 (Image A9.4-2), 44 and 47) correspond with sites depicted on historic Ordnance Survey mapping, including Birnam Quarry, Quarry (Asset 855; Image A9.4-1) and Pass of Birnam, Old Quarry (Asset 856; Image A9.4-2). The remaining features (Reference Numbers: 02, 04, 08, 09, 21, 22 (Image A9.4-3), 25, 29, 36, 49 and 50) have been interpreted as possible quarries, gravel pits and mineral extraction sites given their characteristic irregular form, location cut into hills or slopes or within areas of known extraction, including the Birnam Slate area, and / or diagnostic features, including galleries, benches, spoil tips, drainage, and tracks and platforms (Historic Environment Scotland, 1997).



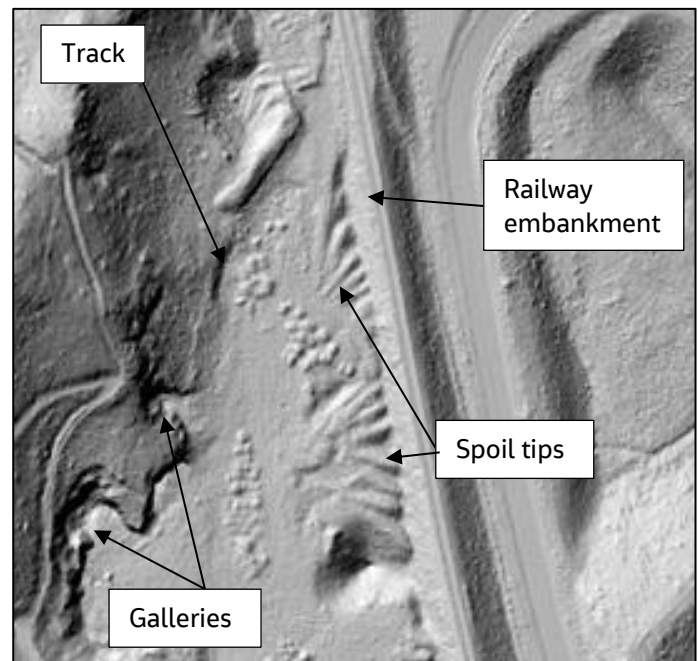
**Image A9.4-1: Birnam Quarry, Quarry (Reference Number 34; Asset 855) cut into the hillside, including gallery, track and platform, depicted on historic Ordnance Survey mapping (Ordnance Survey 25" (First Edition) Perth and Clackmannanshire sheet LXII.14, 1866).**

**Single Direction Hillshade model:  
DTM azimuth 315° and altitude 45°.**



**Image A9.4-2: Part of Pass of Birnam, Old Quarry (Reference Number 38; Asset 856), to the west of the Highland Main Line Railway embankment, comprising galleries, spoil tips and track, depicted on historic Ordnance Survey mapping (Ordnance Survey 25" (First Edition) Perth and Clackmannanshire sheet LXII.14, 1866).**

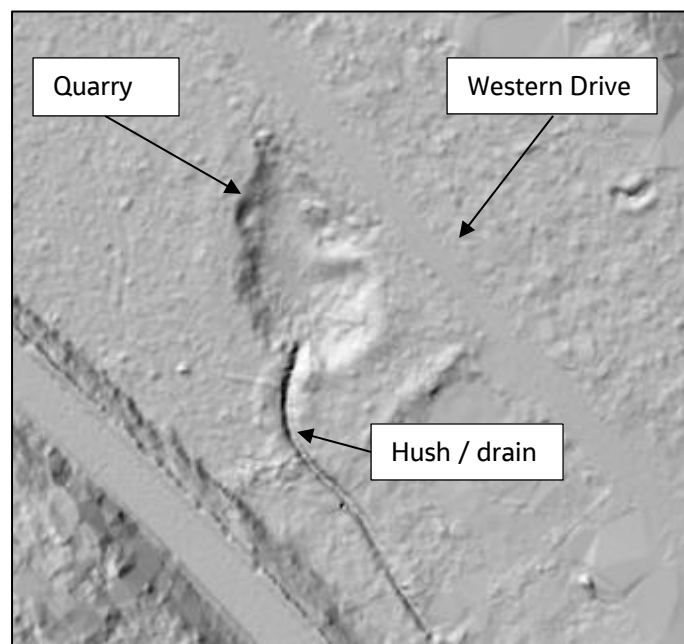
**Single Direction Hillshade model:  
DTM azimuth 315° and altitude 45°.**





**Image A9.4-3: Dalpowie Quarry (Reference Number 22) showing the possible shallow quarry, including irregular negative area of extraction and possible hush (a gully formed to flush an area with water to reveal or expose rock) or drain, next to the former alignment of the Western Drive of Murthly Castle GDL (HLT 14).**

**Single Direction Hillshade model:  
DTM azimuth 315° and altitude  
45°.**

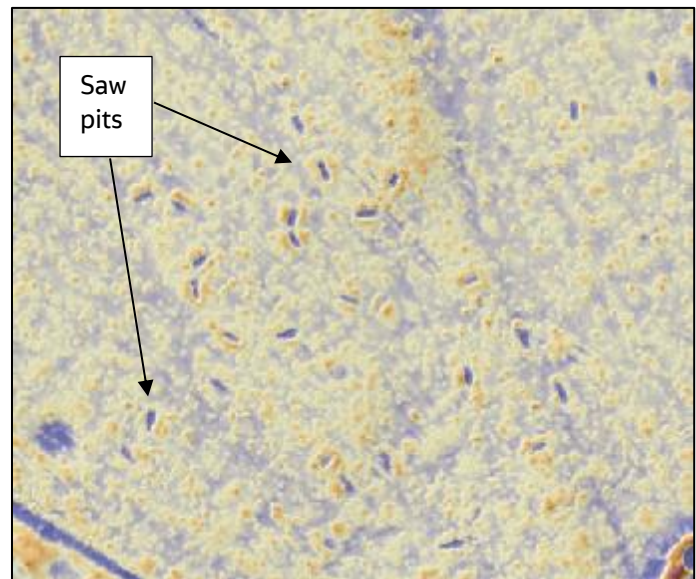


#### Timber Processing

- 1.5.4 A total of eight groups of possible saw pits have been identified in areas of woodland and former woodland (Reference Numbers: 17, 18 (Image A9.4-5), 23, 24, 27, 32, 33 (Image A9.4-4), and 37). These are negative sub-rectangular features measuring up to approximately 8m in length. In some instances these features have ephemeral banks noted adjacent (Image A9.4-5) which may comprise upcast from their excavation. Saw pits are a common feature in managed woodland and date to the period before the introduction of machinery for the extraction of large, felled trees. A rectangular 'saw pit' was dug near felled trees and used to process large tree trunks into more manageable sizes for removal, or into timber products such as planks. This is typically carried out by two forestry workers using a whipsaw, with one operating the saw within the saw pit and the other standing above on the tree truck itself.

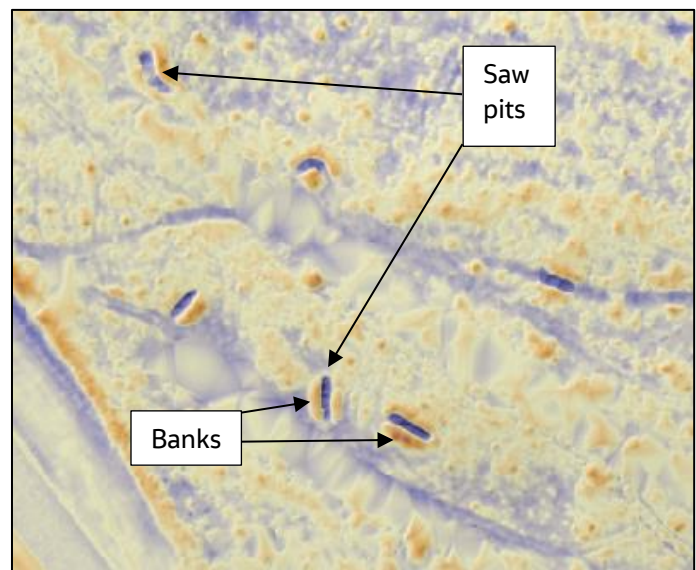
**Image A9.4-4: Sub-rectangular negative features interpreted as saw pits within Ring Wood (Reference Number 33).**

Simple LRM (40% transparency) over Single Direction Hillshade Model; DTM azimuth 315° and altitude 35°.



**Image A9.4-5: Sub-rectangular negative features interpreted as group of saw pits within Ring Wood (Reference Number 18), with associated banks.**

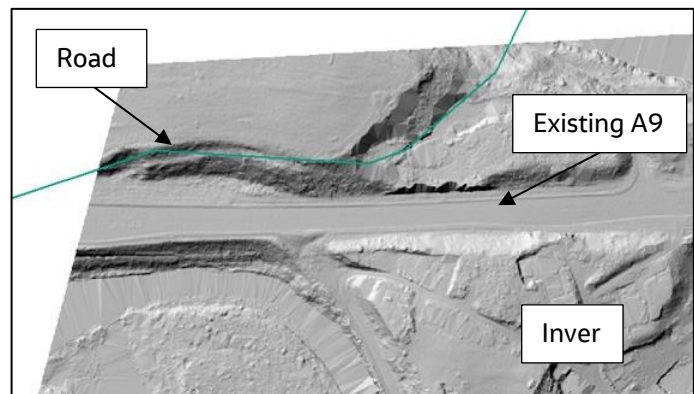
Simple LRM (40% transparency) over Single Direction Hillshade Model; DTM azimuth 315° and altitude 35°.



#### Transport Infrastructure and Communication

- 1.5.5 Seven features associated with the development of transport infrastructure and communication routes through the Pass of Birman and Strath Tay were identified (Reference Numbers: 16, 35 (Image A9.4-7), 41, 42, 46 (Image A9.4-8), 53 (Image A9.4-6) and 56).
- 1.5.6 These comprised the former alignments of three roads (Reference Numbers: 41, 42 and 53 (Image A9.4-6)), a pair of roadside bays (Reference Number: 16) and a retaining wall (Reference Number: 56). The roads comprise linear features and correspond with roads depicted on historic Ordnance Survey mapping, including a section of 18th century military road (52; Image A9.4-6). The roadside bays comprise rectangular features measuring approximately 12m in length by 7m in depth located adjacent to the B867 (Reference Number: 16). These features are first depicted on historic Ordnance Survey mapping dating to 1901.

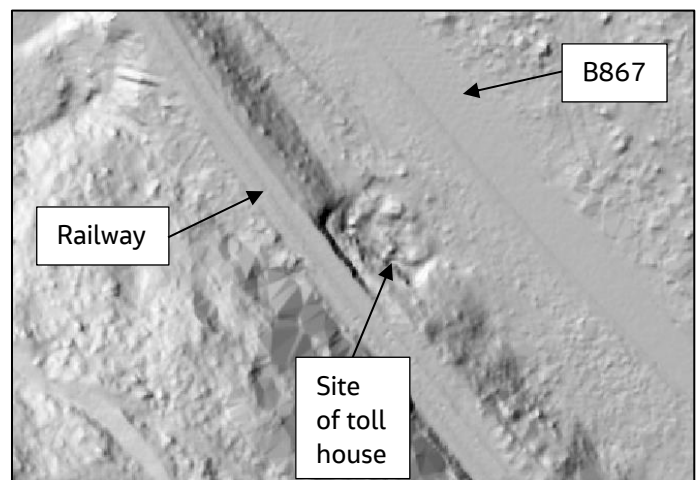
**Image A9.4-6: Linear feature, measuring approximately 146m in length, on the alignment of the Coupar Angus to Amulree Military Road (Site of) (Reference Number 53; Asset 101; shown in green) to the north of the embankment of the existing A9 and the settlement of Inver.**



**Single Direction Hillshade model:  
DTM azimuth 315° and altitude  
45°.**

- 1.5.7 A rectangular feature (Reference Number: 35 (Image A9.4-7)), measuring approximately 17m in length by 10m in depth, has been interpreted as the remains of a toll house depicted on historic Ordnance Survey mapping (1866; Birnam Pass, Toll House; Asset 799).
- 1.5.8 In addition, six trackways (Reference Numbers: 5, 57, 70, 74, 88 and 90) were identified. These largely correspond with trackways depicted on historic Ordnance Survey mapping and remain in used as local accesses and footpaths.

**Image A9.4-7: The site of a toll house (Reference Number 35; Asset 799) to the west of the B867 and adjacent to the Highland Main Line railway, depicted on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867).**



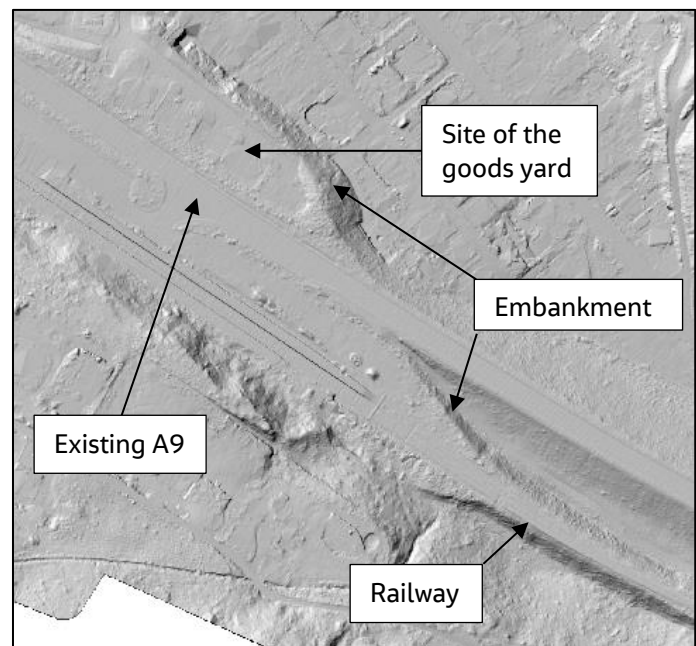
**Single Direction Hillshade model:  
DTM azimuth 315° and altitude  
45°.**

- 1.5.9 An embankment (Reference Number: 46 (Image A9.4-8)) was also identified and interpreted as the embankment for the sidings from the Highland Main Line railway to the former Dunkeld and Birnam Station, Goods Yard (Asset 832).



**Image A9.4-8: The embankment associated with the Highland Main Line railway and former Dunkeld and Birnam Station, Goods Yard (Reference Number 46; Asset 832). Bisected by the existing A9.**

**Single Direction Hillshade model:  
DTM azimuth 315° and altitude 45°.**

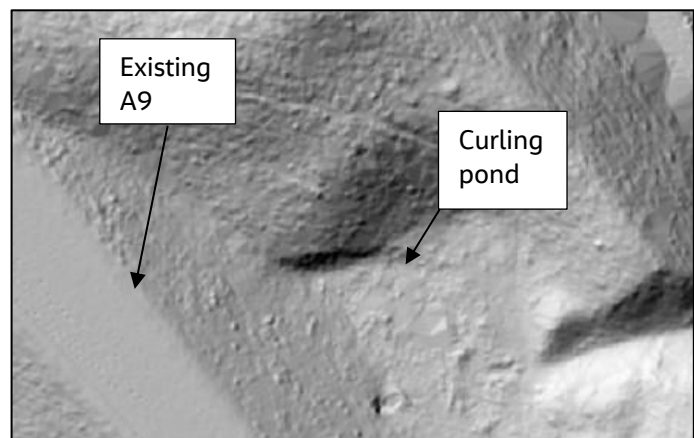


#### Curling Ponds

- 1.5.10 Two sub-rectangular features (Reference Numbers: 31 and 39 (Image A9.4-9)) were identified and interpreted as the possible remains of two curling ponds depicted on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867).

**Image A9.4-9: A sub-rectangular feature, truncated by the embankment of the existing A9, corresponding with the physical remains of Birnam, Curling Pond (Reference Number 39; Asset 834).**

**Single Direction Hillshade model:  
DTM azimuth 315° and altitude 45°.**



#### Water supply and Drainage

- 1.5.11 A linear feature measuring approximately 160m long and aligned north to south is crossed by the existing A9 (Reference Number: 52). It has the entrances to a culvert either side of the existing A9 and was identified as the Inver, Mill Lead (Asset 839), which carried spent water drawn from the River Braan to power the former mills to the south (Inver Mill Farm, Farmstead and Watermill (Asset 73) and Inver Saw Mill (Asset 840) to the River Tay.
- 1.5.12 A curvilinear feature with a linear feature running perpendicular was identified adjacent to the B867 (Reference Number: 26). A well accessed via footpaths shown crossing the field and along a drainage channel is depicted at this location on historic Ordnance Survey mapping.

### Mounds

- 1.5.13 A total of four mounds (Reference Numbers: 19, 20, 30 and 51) were identified. These are of unknown date and function.

### Individual Trees

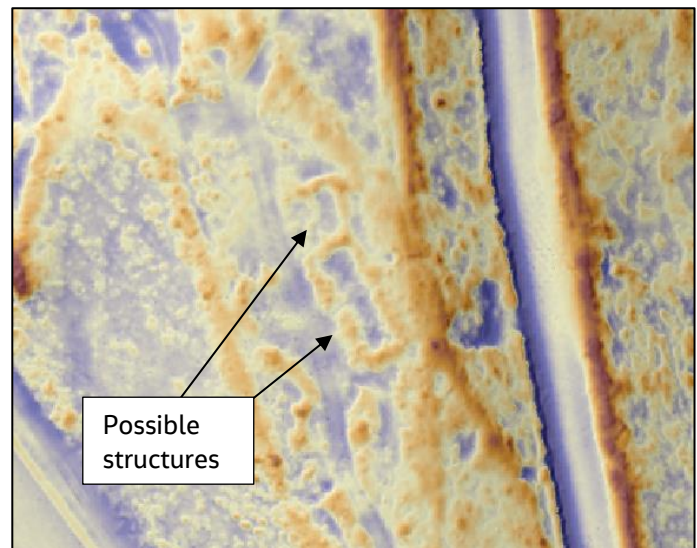
- 1.5.14 Hangedman's Tree (Asset 809) is reputedly a large oak which was used to hang criminals. It is labelled as '*Hangedman's Tree*' on both historic Ordnance Survey mapping dating to 1866 (Ordnance Survey 25" (First Edition) Perth and Clackmannanshire LXII.14 (Little Dunkeld), 1866) and on modern Ordnance Survey mapping. It is possible that a large individual tree (Reference Number: 12) identified from the LiDAR data in this location is Asset 809.

### Sites of Buildings

- 1.5.15 Features tentatively interpreted as the physical remains of buildings have been identified from the LiDAR data (Reference Numbers: 40, 43, 45, 55, 72 and 79). These include linear features which correspond with the locations of buildings depicted on historic Ordnance Survey mapping (1866; 1900) including Birnam, Torwood, Buildings (Site of) (Asset 859; Reference Number: 45) and Coach Works (Site of) (Asset 861; Reference Number: 48).
- 1.5.16 The possible remains of buildings identified from the LiDAR data that do not correspond to buildings or structures recorded on historic Ordnance Survey mapping, such as the two adjoining rectangular features, Perth Road Possible Structures (Reference Number: 40; Image A9.4-10), located to the south-east of the junction between the existing A9 and Perth Road, have also been identified.
- 1.5.17 While Dalpowie Lodge (site of) (Asset 5) itself has been demolished, the surviving remains of an ancillary building can be identified from the LiDAR data (Reference Number: 13; Image A9.4-11). In addition, several features identified from the LiDAR data correspond to garden recorded on historic Ordnance Survey mapping:
- a number of linear features interpreted as the remains of garden walls, including part of the walled garden depicted on historic Ordnance Survey mapping (1866) to the north of the site of Dalpowie Lodge;
  - a square feature, measuring approximately 30m by 30m, to the north-west of the remains of the ancillary building and interpreted as the remains of the sunken garden depicted on historic Ordnance Survey mapping (1901); and
  - a curvilinear feature, located between the remains of the ancillary building and the base of the embankment of the existing A9, and tentatively interpreted as the remains of a drive.

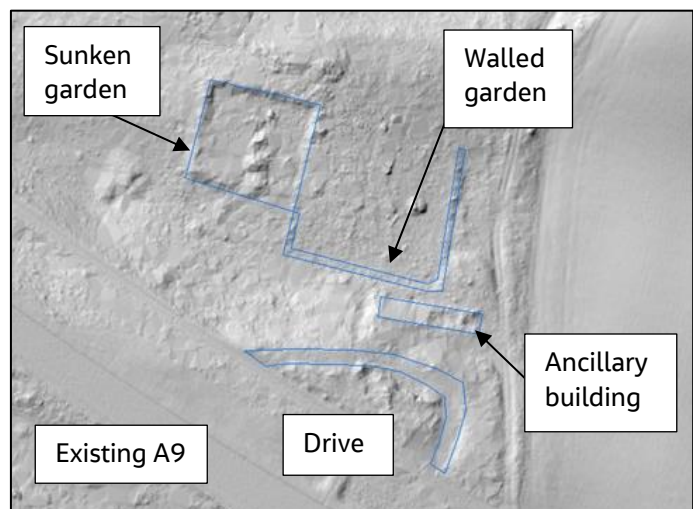
**Image A9.4-10: Rectangular features interpreted as the footings of two possible structures west of Perth Road (Reference Number 40).**

Simple LRM (40% transparency) over Single Direction Hillshade Model; DTM azimuth 315° and altitude 35°.



**Image A9.4-11: Features identified in blue interpreted as the remains of the ancillary building, possible sunken garden, the remains of the walled garden and drive truncated by the existing A9 at Dalpowie Lodge (site of) (Reference Number 13; Asset 5).**

Single Direction Hillshade model: DTM azimuth 315° and altitude 45°.

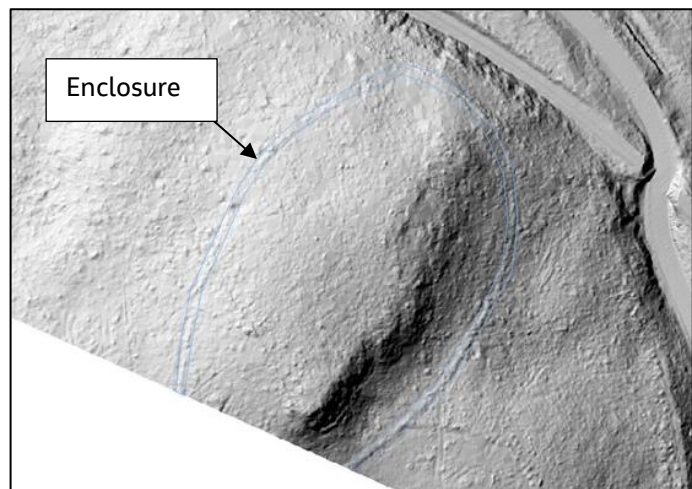


#### Enclosures, Boundaries and Ditches

- 1.5.18 Clune Hill Possible Enclosure (Reference Number: 7; Image A9.4-12) is the site of a possible enclosure defined by an ephemeral bank and measures approximately 100m by 150m. The enclosure is not shown on historic Ordnance Survey mapping.

**Image A9.4-12: Sub-circular feature outlined in blue interpreted as an enclosure (Reference Number 7).**

**Single Direction Hillshade model:  
DTM azimuth 315° and altitude  
45°.**



- 1.5.19 A total of eight earthwork banks interpreted as boundaries were also identified (Reference Numbers: 1, 3, 6, 10, 15, 66, 77 and 78). These largely correspond with boundaries depicted on historic Ordnance Survey mapping.
- 1.5.20 In addition, two negative linear features were identified (Reference Numbers: 28 and 54). No corresponding features were depicted on historic Ordnance Survey mapping in these locations and no diagnostic features. Therefore, these features interpreted as possible ditches of unknown date and function.

#### Murthly Castle Garden and Designed Landscape (HLT 14)

- 1.5.21 Key landscape features and special features of Murthly Castle GDL (HLT 14), were identified within the area covered by the LiDAR data<sup>2</sup>. These comprise:
- Key landscape features:
    - The River Tay and floodplain [KLF-5]. This forms the north-eastern boundary of the GDL. The southern bank of the River Tay is visible as steep slope which extends along the river to the north-west towards Birnam. A large flat terrace extends from the bank where the river curves to the north-west. Drives and walks constructed to exploit the river frontage (such as Reference Number: 75) are visible on the LiDAR. The locally undulating floodplain extends across the narrow valley base to the foot of the hills to the south-west [KLF-7] and is occupied by plantation woodland (Reference Numbers: 92, 94 and 95), large irregular agricultural fields (Reference Numbers: 96 and 97) and former parkland (Reference Number: 93).
    - The Pass of Birnam [KLF-6]. The south-western extent of the Pass of Birnam is visible as the steep, rugged lower slopes of the higher ground to the south-west as the valley narrows between the hills with the River Tay at its base. Evidence of quarrying (such as Reference Number: 38) is visible.

<sup>2</sup> Please note to provide a link to Appendix A9.3: (Historic Environment Desk-based Assessment of Murthly Castle Garden and Designed Landscape (The Jessop Consultancy, 2022)) where reference numbers have been ascribed to the Key Landscape Features and Special Features in Appendix A9.3 these have been included here in square brackets.



- Duncan's Hill and Birnam Hill [KLF-7]. Comprising the lower wooded slopes of both Duncan Hill and Birnam Hill, KLF-7 forms the south-western boundary of the GDL. Tracks follow the contours of the lower slopes of the hills through the dense plantation woodland.
- Keppie Wood, Byres Wood and other areas of ancient (of semi-natural origin) woodland [KLF-8]. Blocks of woodland identified from the LiDAR data include:
  - a small section of Byres Wood (Reference Number: 97; extends beyond LiDAR coverage) to the south-east of Birnam Burn [KLF-9] comprising dense trees with a linear break (the wayleave for an overhead line) running north-west to south-east;
  - Birnam Wood (Reference Number: 95; extends beyond LiDAR coverage) to the north-west of Birnam Burn [KLF-9] and south of the existing A9, includes more scattered trees on Clune Hill and Duncan's Hill and Birnam Hill more densely planted. The woodland is cut by the existing A9, B867 and railway along with a series of tracks; and
  - Ring Wood (Reference Numbers: 94 and 95) to the north of the existing A9 is a dense area of plantation woodland extending to the north-west along the River Tay. The area is cut by a linear fire break and the wayleave for an overhead line, as well as the existing A9.

These blocks of woodland have approximately the same layout as the woodland of woodland depicted on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire, Sheet LXII, 1867).

- Birnam Burn [KLF-9] – Comprising a deep rugged channel with steeply sloping sides and a watercourse at its base, extending beyond the railway in the south and running to the River Tay in the north. Birnam Burn is crossed by Western Drive (by three bridges (Assets 3, 4 and 951), the railway and existing A9. A walk was identified adjacent to the burn (Reference Number: 63) which was likely to exploit the natural rugged qualities of the gorge.
- Special features:
  - Built structures – lodges and estate cottages were identified from the LiDAR data (Reference Numbers: 55, 72 [F2.68], and 79 [F2.67]), along with the buffalo hut (Reference Number: 96 (Asset 6; a Category B Listed Building [F4.06]) and an ancillary building associated with Dalpowie Lodge (Reference Number: 13 (Asset 5 [F2.11])).
  - Gardens – the walled and sunken gardens associated with Dalpowie Lodge (Asset 5) were identified from the LiDAR data (Reference Number: 13).
  - Formal drives, avenues and paths – Sinuous, often winding, linear features were identified in area covered by the LiDAR acquired for the proposed scheme and interpreted as walks (Reference Numbers: 58, 59, 60, 62, 63, 64, 65, 67, 68, 69, 73, 75, 76, 81 and 84), trackways (Reference Numbers: 57, 70, 74, 88, and 90), and drives (Reference Numbers: 61 [F2.71], 71 [F2.69], 80, 83 [F2.70], 85 and 86).
  - Plantations – Blocks of plantation woodland dating to the 19th and 20th centuries including Byres Wood (Reference Number: 97 [F2.55]), Ring Wood (Reference Number: 92), and Birnam Wood (Reference Number: 95).

- Parkland – an area of parkland (Reference Number: 93) was identified as a lower lying, relatively flat area on the south bank of the River Tay, with scattered trees and plantation scaring. This area reflects the form of the parkland depicted on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire, Sheet LXII, 1867) in this location and may have the remains of a boundary along its southern edge (Reference Number: 87).
- Enclosures – Two large irregular agricultural fields were identified on the southern bank of the River Tay to the west of the Murthly Castle GDL (HLT 14) (Reference Numbers: 98 and 99). These comprise relatively flat, open fields in use as pasture and for arable crops. While a modern sewage works has been built in one of these areas (Reference Number 99), they largely reflect the areas depicted on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire, Sheet LXII, 1867).
- Other – the sites of two curling ponds (Reference Numbers: 31 [F4.20] and 39 [F2.32]) and quarries (Reference Numbers: 2, 4, 8, 9, 22, 25 and 38) were identified within the Murthly Castle GDL (HLT 14) (see above).

1.5.22 More information on Murthly Castle GDL (HLT 14) can be found in Appendix A9.3: (Historic Environment Desk-based Assessment of Murthly Castle Garden and Designed Landscape (The Jessop Consultancy, 2022)).

## 1.6 Discussion

- 1.6.1 As identified in Section 1.4, analysis of high-resolution LiDAR data captured for the proposed scheme has provided further information on 52 known cultural heritage resources and identified 47 new features of possible cultural heritage interest.
- 1.6.2 The majority of these are associated with quarrying and mineral extraction, timber processing, transport infrastructure and communication and are likely to date to the post-medieval period.

## 1.7 Recommendations

- 1.7.1 It is recommended ground truthing is undertaken to confirm the results of the analysis of LiDAR data, particularly for new features of possible cultural heritage interest where there may be a physical impact from the proposed scheme.

## 1.8 References

### Historic Mapping

Ordnance Survey 6" Perth and Clackmannan sheet LXII.SW, Revised 1899, Published 1901.

Ordnance Survey 25" Perth and Clackmannan sheet LXII.14, Revised 1899, Published 1901.

Ordnance Survey 25" Perth and Clackmannan sheet LXII.9, Revised 1898, Published 1900.

Ordnance Survey 25" Perth and Clackmannan sheet LXII.5, Revised 1899, Published 1900.

Ordnance Survey 6" (First Edition) Perthshire sheet LXII, Surveyed 1864, Published 1867.

Ordnance Survey 25" (First Edition) Perth and Clackmannanshire sheet LXII.5, Surveyed 1863, Published 1866.

Ordnance Survey 25" (First Edition) Perth and Clackmannan sheet LXII.9, Surveyed 1863, Published 1866.

Ordnance Survey 25" (First Edition) Perth and Clackmannan sheet LXII.14, Surveyed 1863, Published 1866.

Ordnance Survey 25" (First Edition) Perth and Clackmannan sheet LXII.10, Surveyed 1863, Published 1866.

Roy's Military Survey, 1745 – 52.

### **Bibliography**

Bluesky, 2020, *LiDAR Data Capture: Survey Report: A9 Pitlochry*. Unpublished survey report. 83802-1.

Chartered Institute for Archaeologists, 2022, *Code of Conduct: professional ethics in archaeology*.

Chartered Institute for Archaeologists, 2023a, *Standard for archaeological field evaluation*.

Chartered Institute for Archaeologists, 2023b, *Universal guidance for archaeological field evaluation*.

Crow, P., S. Benham, B. J. Devereux, and G.S. Amable, 2007, 'Woodland vegetation and its implications for archaeological survey using LiDAR', in *Forestry*, Vol. 80, No. 3, pp. 271 – 252.

Davis, O., 2012, *Processing and Working with LiDAR Data in ArcGIS: A Practical Guide for Archaeologists*.

Hesse, R., 2010, 'LiDAR-derived Local Relief Models – a new tool for archaeological prospection', in *Archaeological Prospection*, 17, pp. 67 – 72.

Historic England, 2018, *Using Airbourne Lidar in Archaeological Survey: The Light Fantastic*.

Historic Environment Scotland, 1997, *TAN 12 – Quarries of Scotland*. Available at: <https://issuu.com/hspubs/docs/tan-12---quarries-of-scotland-plu-7561> (Accessed April 2021).

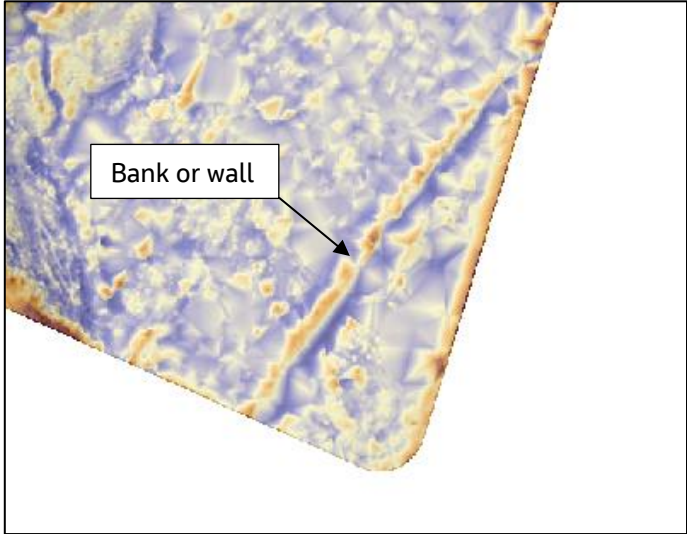
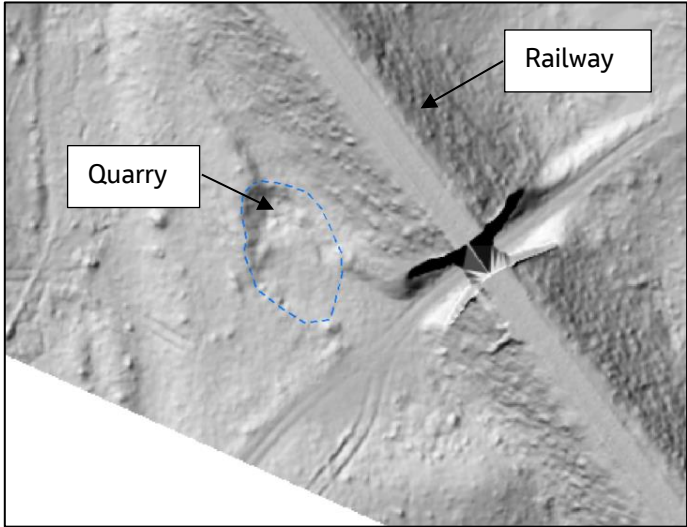
Historic Environment Scotland, 2018, *Applied Digital Documentation in the Historic Environment*.

Kokalj, Ž., and R. Hesse, 2017, *Airborne Laser Scanning Raster Data Visualisation: A Guide to Good Practice*. Založba ZRC.

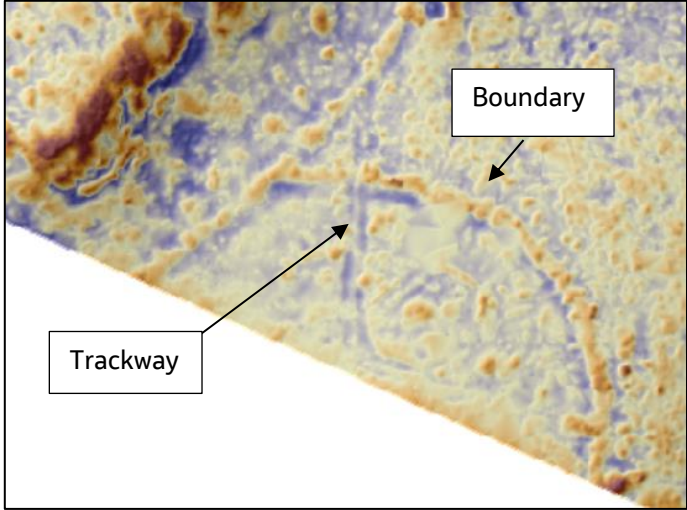
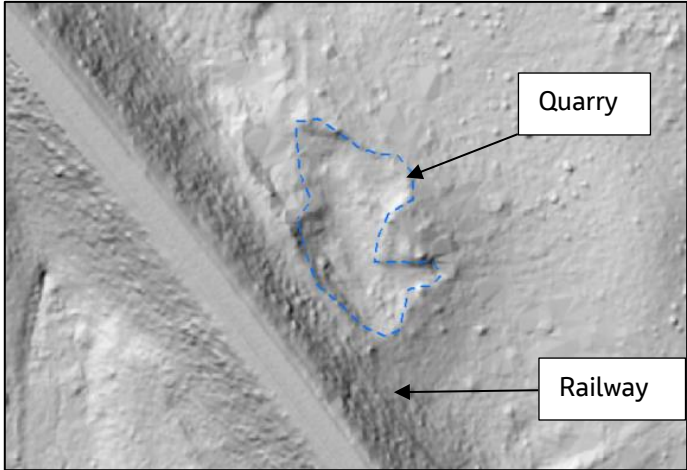
Transport Scotland (2023), Chapter 9 (Geology, Soils and Groundwater) of the A9 Dualling Programme: Pass of Birnam to Tay Crossing DMRB Stage 2 Scheme Assessment Report Volume 1 – Main Report and Appendices Part 3 – Environmental Assessment. Available at: <https://www.transport.gov.scot/publication/a9-dualling-pass-of-birnam-to-tay-crossing-design-manual-for-roads-and-bridges-dmr-b-stage-2-scheme-assessment-report/>

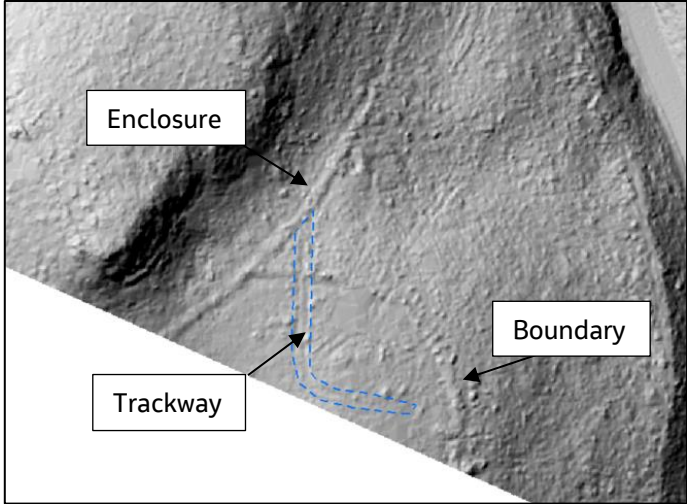
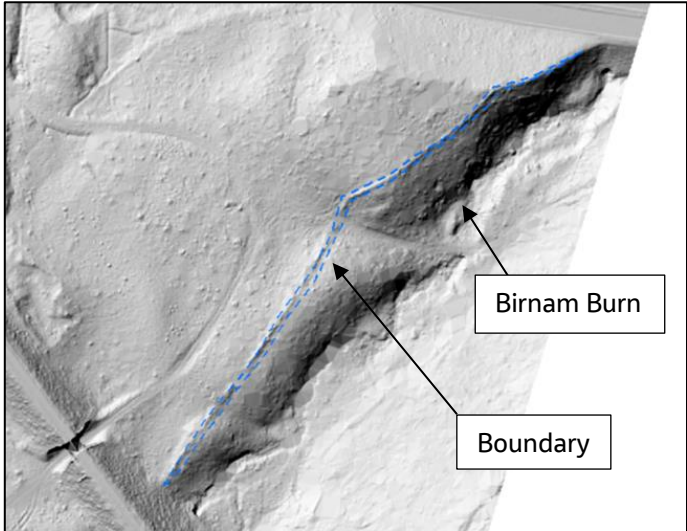
# Annex A: Inventory of Potential Features of Cultural Heritage Interest Identified from LiDAR Data

The table below presents information on the known cultural heritage resources and new features of possible cultural heritage interest identified during the LiDAR analysis.

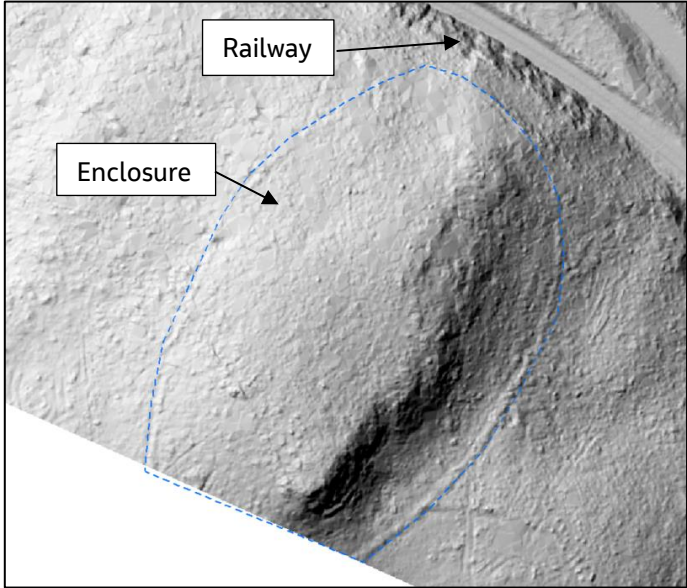
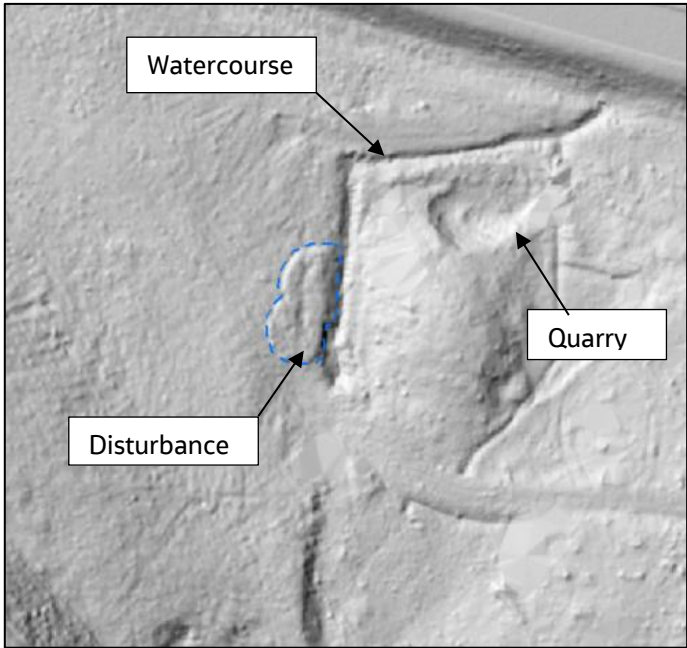
Unique Reference Number	Easting / Northing	Site Type	Known Cultural Heritage Asset Number	Local / National Reference Number(s)	Grid Square Reference(s)	Summary Description	Confidence Rating	Figure
01	305585 / 739220	Boundary	-	-	3	<p>A positive linear feature measuring approximately 108m in length (extends beyond LiDAR coverage), roughly orientated north to south. Located within an area of woodland.</p> <p>No corresponding features depicted on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867; Ordnance Survey 25" Perth and Clackmannan sheet LXII.14 1901) in this location.</p> <p>A possible boundary feature is visible on aerial imagery in this location (GoogleEarth, Dec 2010). Interpreted as a possible boundary bank, or wall, adjacent to Birnam Burn within Birnam Wood of unknown date.</p>	Medium	 <p>Simple LRM (40% transparency) over Single Direction Hillshade Model; DTM azimuth 315° and altitude 35°.</p>
02	305416 / 739279	Quarry	-	-	2	<p>A sub-circular feature measuring approximately 23m by 15m, at the base of the railway embankment (possibly earlier than the Highland Main Line railway).</p> <p>No corresponding features on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867; Ordnance Survey 25" Perth and Clackmannan sheet LXII.14 1901).</p> <p>Located in an area of trees adjacent to a railway underpass.</p> <p>Interpreted as a possible quarry of unknown date; however, could equally be modern disturbance.</p>	Medium	 <p>Single Direction Hillshade Model: DTM azimuth 315° and altitude 35°.</p>

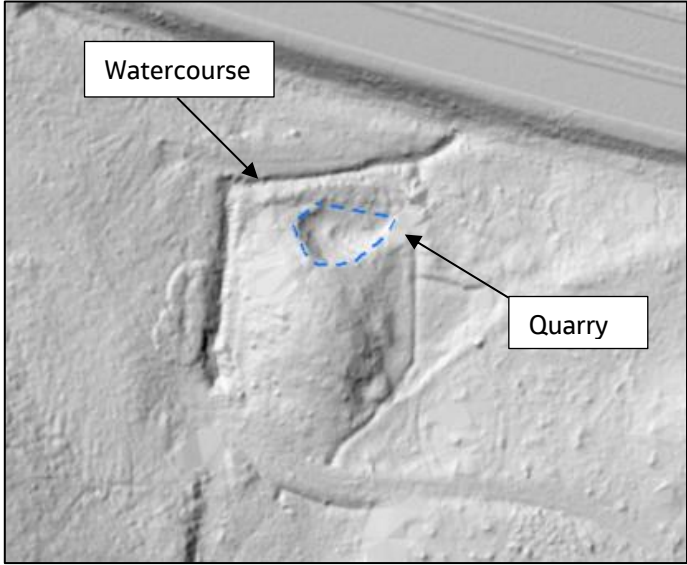
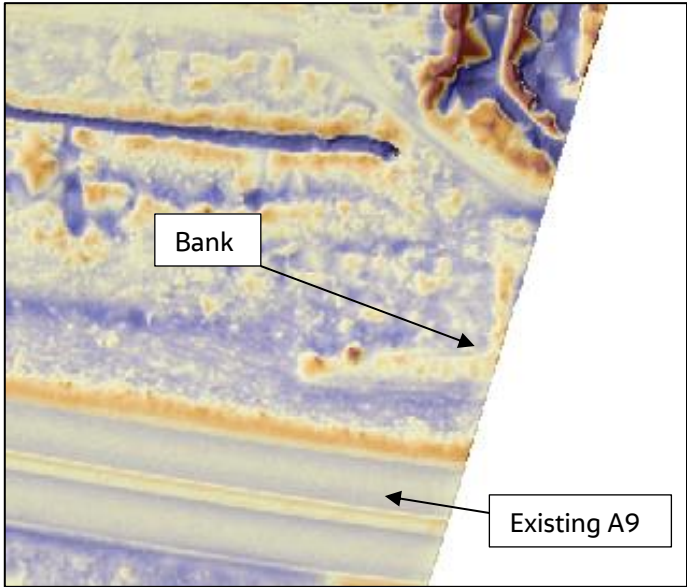



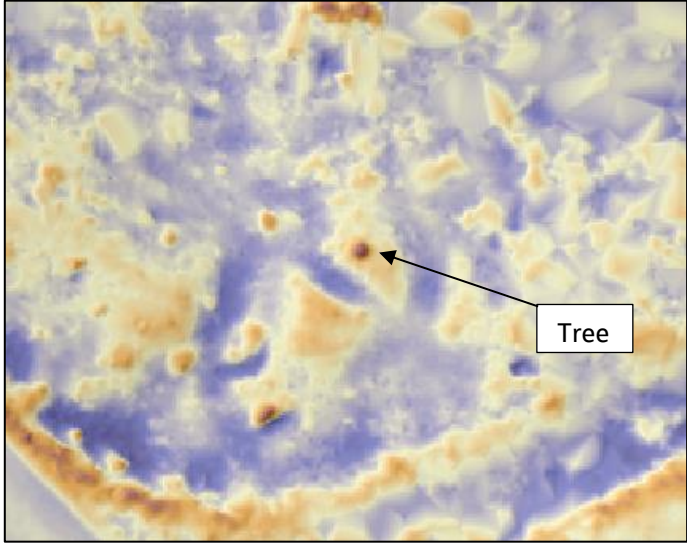
Unique Reference Number	Easting / Northing	Site Type	Known Cultural Heritage Asset Number	Local / National Reference Number(s)	Grid Square Reference(s)	Summary Description	Confidence Rating	Figure
03	305243 / 739334	Boundary	-	-	2	<p>A curvilinear or sub-circular feature within woodland located on Clune Hill (extends beyond LiDAR coverage).</p> <p>Roughly reflects a boundary depicted on historic Ordnance Survey mapping (Ordnance Survey 25" Perth and Clackmannan sheet LXII.14 1901) and mirrors the edge of trees visible on Google aerial imagery. A possible boundary feature is also visible on aerial imagery in this location (GoogleEarth, Dec 2010).</p> <p>Interpreted as a boundary feature, possibly a boundary wall, of unknown date. A possible trackway bisects the northern-most boundary.</p>	Low	 <p>Simple LRM (40% transparency) over Single Direction Hillshade Model; DTM azimuth 315° and altitude 35°.</p>
04	305431 / 739337	Quarry			2	<p>An irregular feature measuring approximately 38m by 20m at the base of the railway embankment within an area of trees.</p> <p>A dashed area is depicted in this location adjacent to the railway embankment on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867); however, no corresponding features are shown on later mapping (Ordnance Survey 25" Perth and Clackmannan sheet LXII.14 1901).</p> <p>No features are visible on aerial imagery in this location.</p> <p>Interpreted as a possible quarry of unknown date; however, could equally be modern disturbance.</p>	Medium	 <p>Single Direction Hillshade Model: DTM azimuth 315° and altitude 35°.</p>

Unique Reference Number	Easting / Northing	Site Type	Known Cultural Heritage Asset Number	Local / National Reference Number(s)	Grid Square Reference(s)	Summary Description	Confidence Rating	Figure
05	305239 / 739339	Trackway	-	-	2	<p>An 'L'-shaped feature orientated north-south and turning east, measuring approximately 37m by 13m within Birnam Wood.</p> <p>No corresponding features depicted on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867; Ordnance Survey 25" Perth and Clackmannan sheet LXII.14 1901) in this location and not visible on aerial imagery.</p> <p>Interpreted as a possible trackway, of unknown date, terminating at a possible enclosure to the north and bisecting a possible boundary – likely associated with forestry management.</p>	Medium	 <p>Single Direction Hillshade Model; DTM azimuth 315° and altitude 35°.</p>
06	305553 / 739355	Boundary	-	-	3	<p>A linear feature orientated roughly north-north-west to south-south-east, measuring approximately 250m in length.</p> <p>No corresponding features depicted on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867; Ordnance Survey 25" Perth and Clackmannan sheet LXII.14 1901) in this location.</p> <p>A possible boundary feature is also visible on aerial imagery in this location (GoogleEarth, Dec 2010).</p> <p>Interpreted as a possible boundary bank, or boundary wall, of unknown date, adjacent to Birnam Burn within Birnam Wood.</p>	Medium	 <p>Single Direction Hillshade Model; DTM azimuth 315° and altitude 35°.</p>

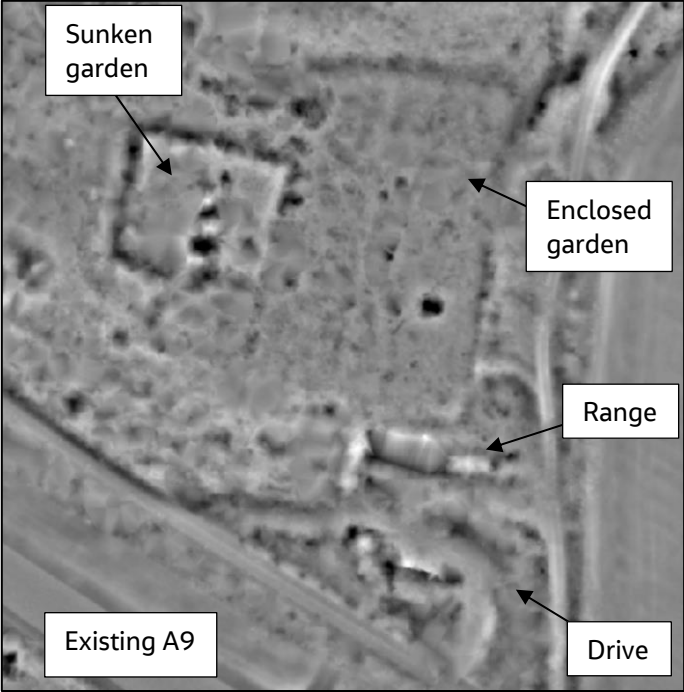


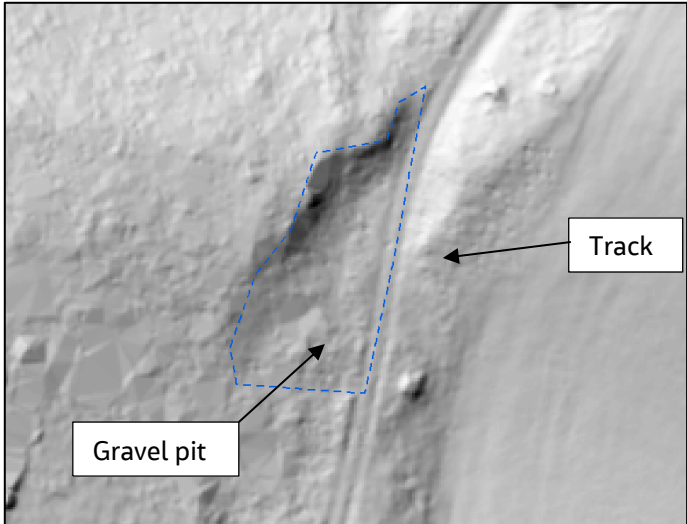
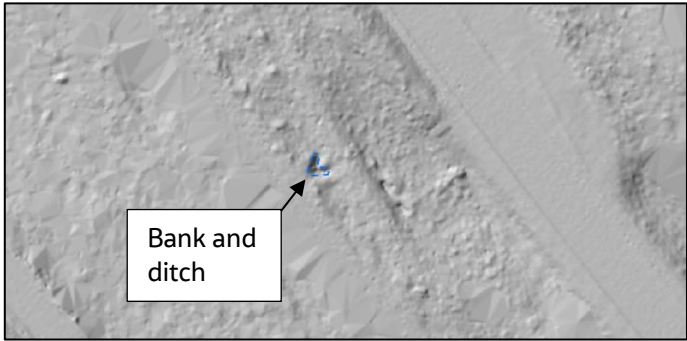
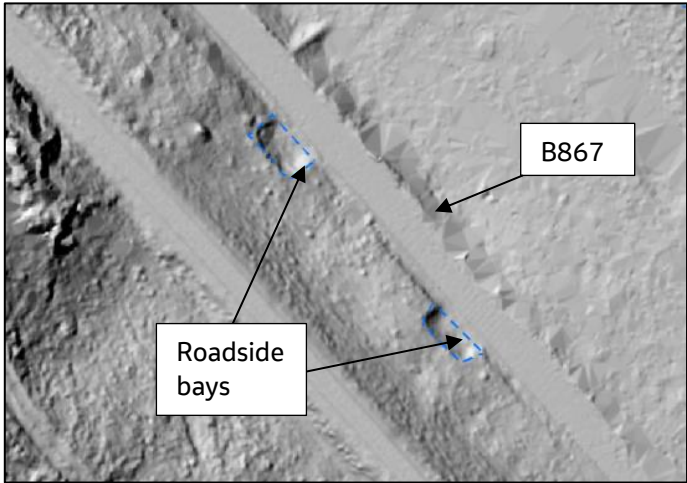
Unique Reference Number	Easting / Northing	Site Type	Known Cultural Heritage Asset Number	Local / National Reference Number(s)	Grid Square Reference(s)	Summary Description	Confidence Rating	Figure
07	305204 / 739407	Enclosure			2	<p>A sub-circular feature formed of an ephemeral bank, measuring approximately 100m by 150m within woodland on Clune Hill. Appears to reflect the form of the hill and is truncated by the cutting for the Highland Main Line railway to the north.</p> <p>No corresponding features depicted on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867; Ordnance Survey 25" Perth and Clackmannan sheet LXII.14 1901) in this location and not visible on aerial imagery.</p> <p>Tentatively interpreted as the possible boundary of an enclosure of unknown date and function.</p>	Low	 <p>Single Direction Hillshade Model; DTM azimuth 315° and altitude 35°.</p>
08	305416 / 739442	Quarry			2	<p>Two intersecting circular features measuring between approximately 10-14m in diameter adjacent to a watercourse (drainage associated with existing A9). Located approximately 15m to the south-west of a possible quarry which may be related.</p> <p>No corresponding features depicted on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867; Ordnance Survey 25" Perth and Clackmannan sheet LXII.14 1901) in this location and not visible on aerial imagery.</p> <p>Tentatively interpreted as evidence of local quarrying of unknown date.</p>	Low	 <p>Single Direction Hillshade Model; DTM azimuth 315° and altitude 35°.</p>

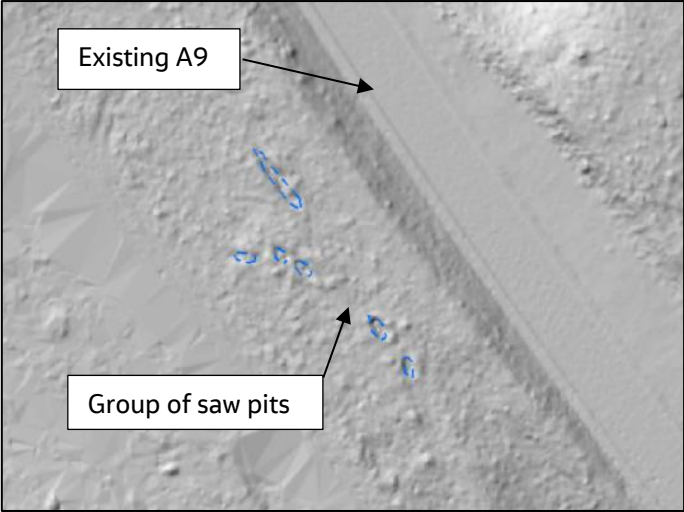
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09	305444 / 739457	Quarry			2	<p>A sub-circular feature measuring approximately 17m by 11m, cut into a small hill within Birnam Wood. Located adjacent to a watercourse (drainage associated with existing A9).</p> <p>No corresponding features depicted on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867; Ordnance Survey 25" Perth and Clackmannan sheet LXII.14 1901) in this location and not visible on aerial imagery.</p> <p>Interpreted as a possible quarry of unknown date.</p>	Medium	 <p>Single Direction Hillshade Model; DTM azimuth 315° and altitude 35°.</p>
10	305677 / 739486	Bank (Earthwork)	-		3	<p>A positive 'L'-shaped linear feature measuring approximately 34m by 14m within an area of woodland to the north of the existing A9.</p> <p>No corresponding features depicted on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867; Ordnance Survey 25" Perth and Clackmannan sheet LXII.14 1901) in this location and not visible on aerial imagery.</p> <p>Tentatively interpreted as a possible bank of unknown date; however, could equally be the result of modern disturbance or construction of the road.</p>	Low	 <p>Simple LRM (40% transparency) over Single Direction Hillshade Model; DTM azimuth 315° and altitude 35°.</p>

Unique Reference Number	Easting / Northing	Site Type	Known Cultural Heritage Asset Number	Local / National Reference Number(s)	Grid Square Reference(s)	Summary Description	Confidence Rating	Figure
11	305589 / 739547	Drive			3	<p>A linear feature measuring approximately 230m in length (extends beyond LiDAR coverage), comprising a tree-lined road/track.</p> <p>Depicted on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867; Ordnance Survey 25" Perth and Clackmannan sheet LXII.14 1901).</p> <p>Interpreted as the original tree-lined section of the Western Drive (Cedar Avenue).</p> <p>Associated with Murthly Castle GDL (HLT 14).</p>	High	 <p>Single Direction Hillshade Model; DSM azimuth 315° and altitude 45°.</p>
12	305050 / 739626	Named Tree	Asset 809		2	<p>A small circular feature measuring approximately 2m in diameter, on a slight rise (likely a tree trunk) within an area of woodland.</p> <p>The feature roughly corresponds with an individual tree depicted on historic Ordnance Survey mapping (Ordnance Survey 25" (First Edition) Perth and Clackmannanshire LXII.14 (Little Dunkeld), 1866) as '<i>Hangedmen's Tree</i>'; however, it is not possible to differentiate this tree with confidence from the surrounding woodland.</p> <p>A tree documented as a very large oak tree used to hang criminals (Ordnance Survey Name Book, 1859-1862).</p> <p>Tentatively interpreted as the '<i>Hangedmen's Tree</i>'.</p>	Medium	 <p>Simple LRM (40% transparency) over Single Direction Hillshade Model; DTM azimuth 315° and altitude 35°.</p>


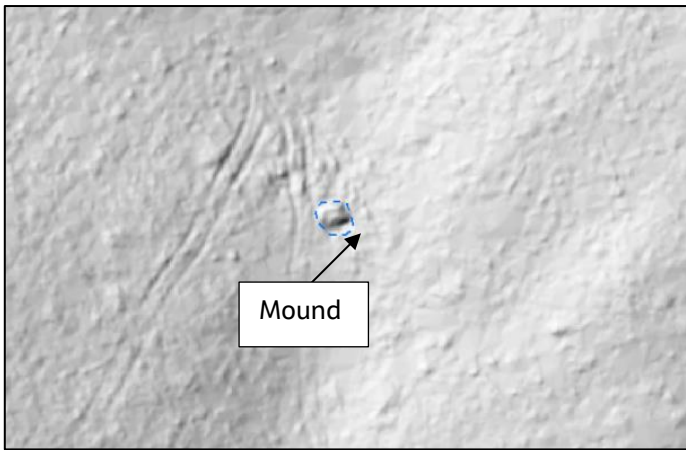
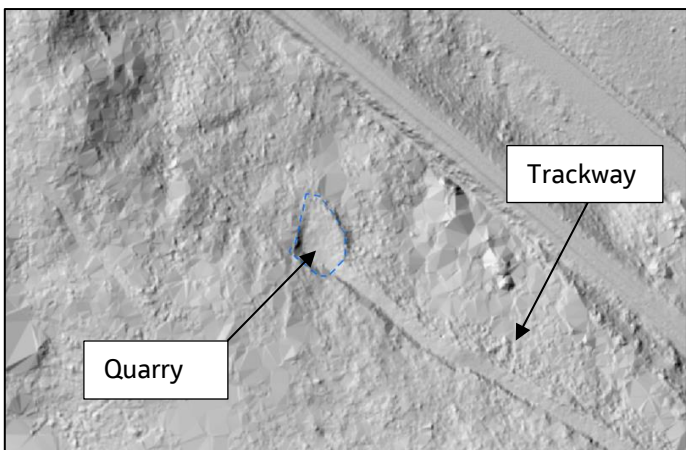


Unique Reference Number	Easting / Northing	Site Type	Known Cultural Heritage Asset Number	Local / National Reference Number(s)	Grid Square Reference(s)	Summary Description	Confidence Rating	Figure
13	305140 / 739660	Lodge	Asset 5		2; 6	<p>A complex of features comprising:</p> <ul style="list-style-type: none"><li>▪ a square feature measuring approximately 30m across within woodland to the north of the existing A9;</li><li>▪ two sides and a corner of another square feature, comprising two linear features orientated roughly north to south and east to west, measuring approximately 35m by 35m;</li><li>▪ a rectangular feature measuring approximately 17m by 5m and orientated east to west; and</li><li>▪ a curvilinear feature measuring approximately 73m and bisected by the existing A9.</li></ul> <p>Historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867) depicts a '<i>Hospital</i>' in this location which included a rectangular range and curvilinear drive to the south of the main building. In addition, an enclosed garden is also depicted to the north of the buildings. Later mapping (Ordnance Survey 25" Perth and Clackmannan sheet LXII.14 1901) depicts '<i>Dalpowie</i>' with the addition of a square sunken garden to the west of the enclosed garden.</p> <p>The line of a boundary feature is partially visible on aerial imagery (GoogleEarth, Dec 2010). Interpreted as features associated with the Dalpowie complex including the drive, enclosed and sunken gardens, and the remains of an ancillary building.</p>	Medium	 <p>Simple LRM (Greyscale).</p>

Unique Reference Number	Easting / Northing	Site Type	Known Cultural Heritage Asset Number	Local / National Reference Number(s)	Grid Square Reference(s)	Summary Description	Confidence Rating	Figure
14	305190 / 739765	Gravel Pit	Asset 854		6	<p>An irregular feature measuring approximately 34m in length located adjacent to a track within an area of woodland.</p> <p>Comprises the location of a gravel pit identified from historic Ordnance Survey mapping (Ordnance Survey 25" (First Edition) Perth and Clackmannanshire LXII.14 (Little Dunkeld), 1866).</p> <p>Interpreted as a former gravel pit to the north of Dalpowie.</p>	High	 <p>Single Direction Hillshade Model; DTM azimuth 315° and altitude 35°.</p>
15	304717 / 739974	Bank (Earthwork)			5	<p>An 'L'-shaped feature orientated north-south and turning east, measuring approximately 5m by 4m within an area of woodland.</p> <p>No corresponding features depicted on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867; Ordnance Survey 25" Perth and Clackmannan sheet LXII.14 1901) in this location and not visible on aerial imagery.</p> <p>Tentatively interpreted as a possible bank and ditch, of unknown date and function.</p>	Low	 <p>Single Direction Hillshade Model; DTM azimuth 315° and altitude 35°.</p>
16	304628 / 739977	Roadside Bay			5	<p>Two rectangular features measuring up to approximately 12m in length by 7m in depth adjacent to the B867.</p> <p>A roadside bay is depicted on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867) and a second is visible on later mapping (Ordnance Survey 25" Perth and Clackmannan sheet LXII.14 1901) in this location.</p> <p>Not visible on aerial imagery.</p> <p>Interpreted as roadside bays.</p>	Medium	 <p>Single Direction Hillshade Model; DTM azimuth 315° and altitude 35°.</p>

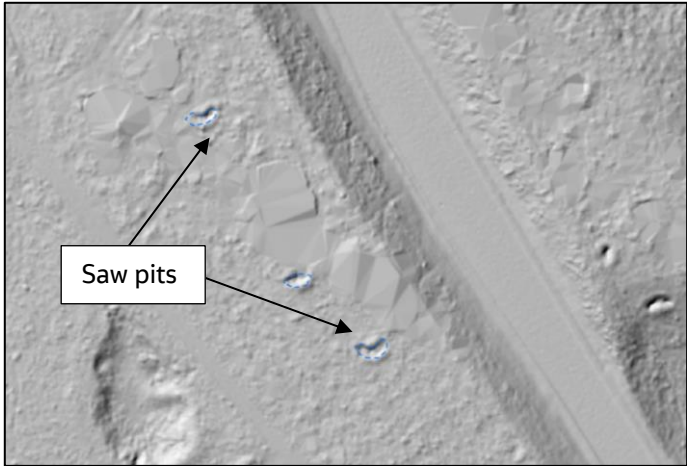
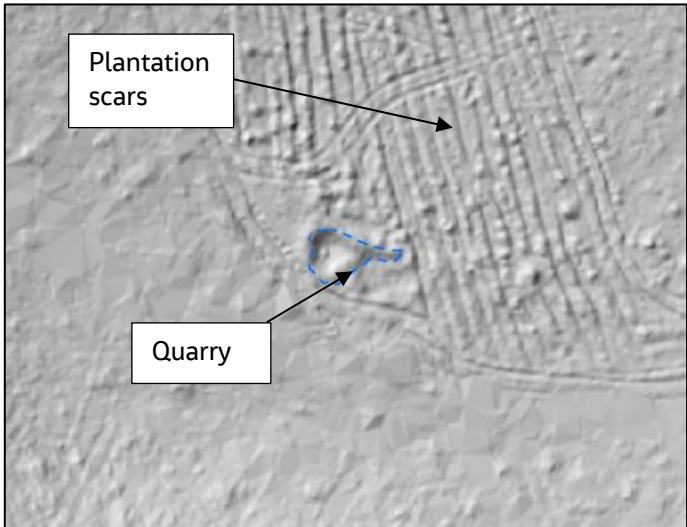
Unique Reference Number	Easting / Northing	Site Type	Known Cultural Heritage Asset Number	Local / National Reference Number(s)	Grid Square Reference(s)	Summary Description	Confidence Rating	Figure
17	304690 / 740024	Saw Pit			5	<p>Six linear features measuring up to approximately 11m in length identified within woodland to the east of the existing A9.</p> <p>No corresponding features on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867; Ordnance Survey 25" Perth and Clackmannan sheet LXII.14 1901) or aerial imagery.</p> <p>Tentatively interpreted as possible saw pits associated with timber processing of unknown date; however, equally likely to be disturbance.</p>	Low	 <p>Single Direction Hillshade Model: DTM azimuth 315° and altitude 35°.</p>
18	304794 / 740026	Saw Pit			5	<p>A group of six linear features measuring approximately 6-8m in length within a woodland ride to the east of the existing A9.</p> <p>No corresponding features depicted on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867; Ordnance Survey 25" Perth and Clackmannan sheet LXII.14 1901) in this location and not visible on aerial imagery.</p> <p>Tentatively interpreted as possible saw pits associated with timber processing of unknown date.</p>	Low	 <p>Single Direction Hillshade Model; DTM azimuth 315° and altitude 35°.</p>

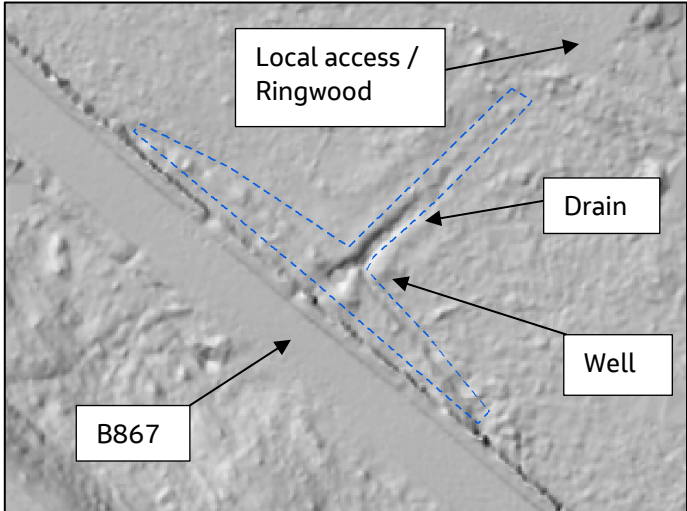
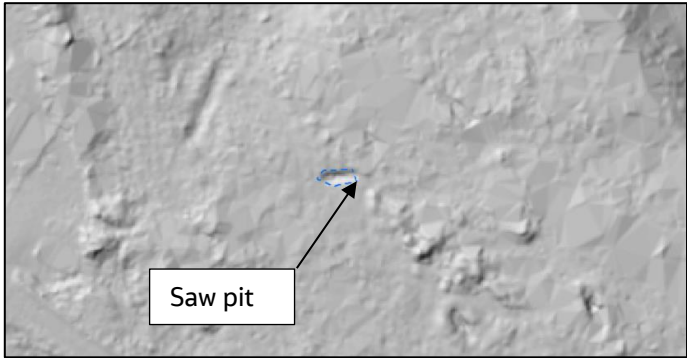


Unique Reference Number	Easting / Northing	Site Type	Known Cultural Heritage Asset Number	Local / National Reference Number(s)	Grid Square Reference(s)	Summary Description	Confidence Rating	Figure
19	305238 / 740048	Mound			6	<p>A circular feature measuring approximately 6m in diameter.</p> <p>No corresponding features on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867; Ordnance Survey 25" Perth and Clackmannan sheet LXII.14 1901) or aerial imagery.</p> <p>Interpreted as a mound of unknown date and function; however, this feature could equally be a natural mound or the results of modern disturbance.</p>	Low	 <p>Single Direction Hillshade Model; DTM azimuth 315° and altitude 35°.</p>
20	304882 / 740072	Mound			5	<p>A circular feature measuring approximately 5m in diameter.</p> <p>No corresponding features identified on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867; Ordnance Survey 25" Perth and Clackmannan sheet LXII.14 1901).</p> <p>Tentatively interpreted as a mound of unknown date and function; however, this feature could equally be a natural mound or the results of modern disturbance.</p>	Low	 <p>Single Direction Hillshade Model; DTM azimuth 315° and altitude 35°.</p>
21	304423 / 740077	Quarry			4	<p>An irregular feature at the north-west terminus of a track, measuring approximately 21m in width within an area of woodland.</p> <p>No corresponding features depicted on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867; Ordnance Survey 25" Perth and Clackmannan sheet LXII.14 1901) in this location.</p> <p>A section of the trackway is visible on aerial imagery in this location (GoogleEarth, Dec 2010). Located within an area of known slate quarrying (Historic Environment Scotland, 1997).</p>	Medium	 <p>Single Direction Hillshade Model; DTM azimuth 315° and altitude 35°.</p>

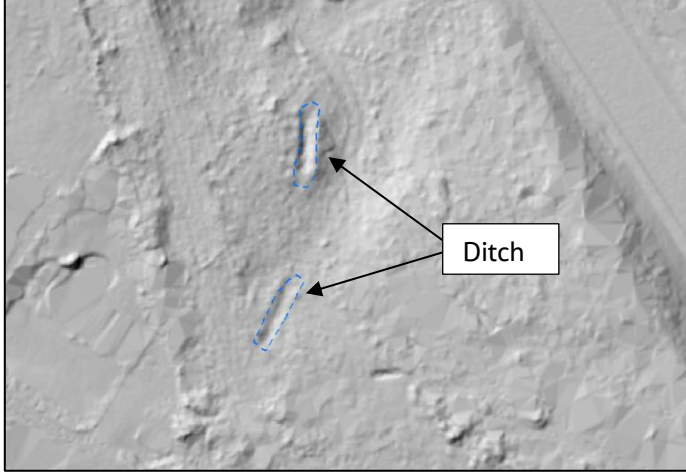
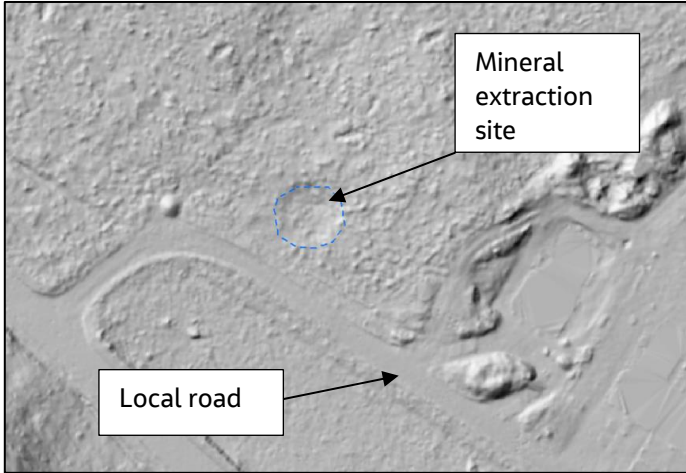
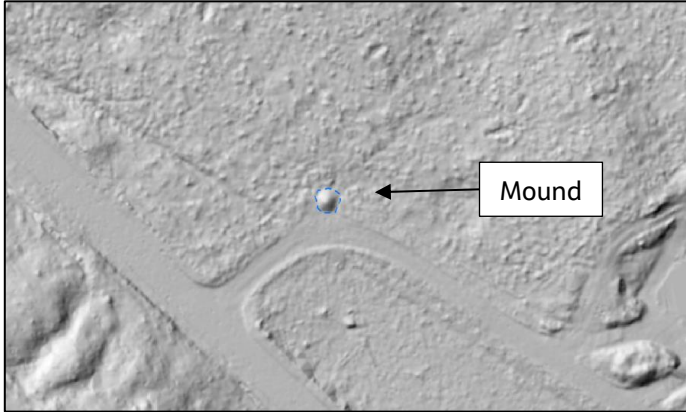


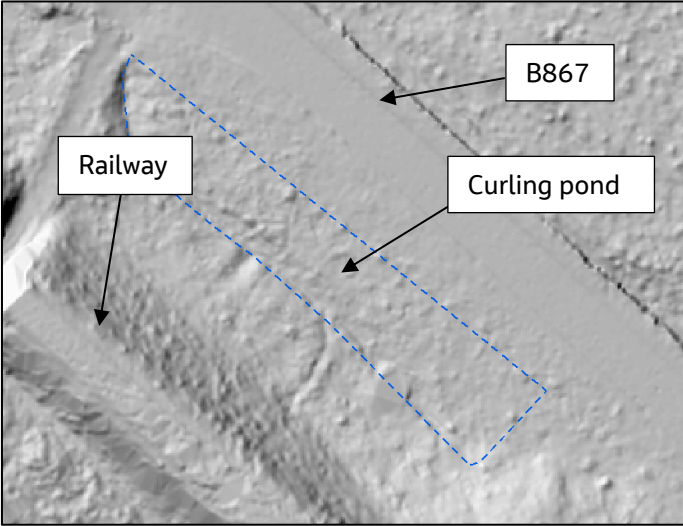
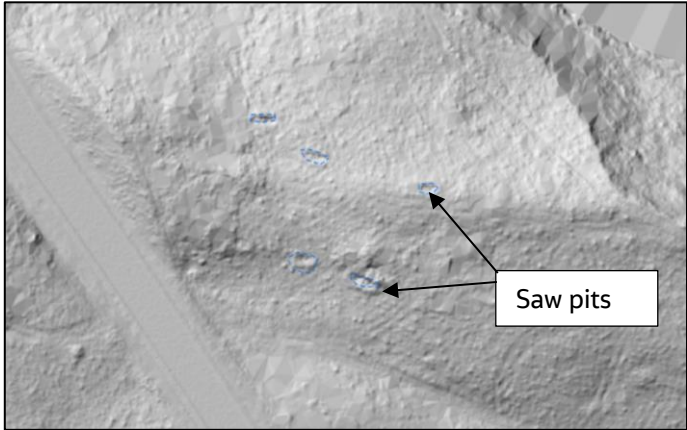
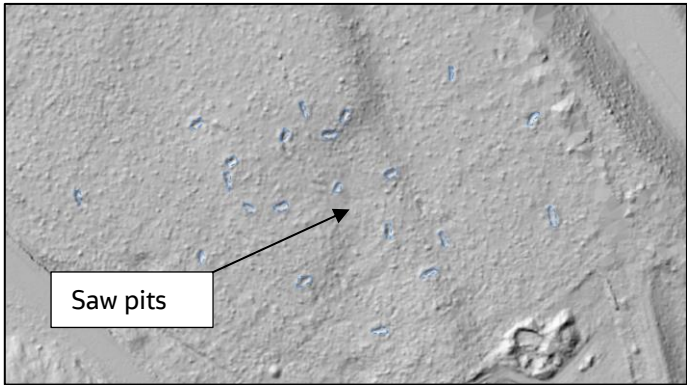
Unique Reference Number	Easting / Northing	Site Type	Known Cultural Heritage Asset Number	Local / National Reference Number(s)	Grid Square Reference(s)	Summary Description	Confidence Rating	Figure
						Interpreted as evidence of possible extraction (quarrying or gravel) of unknown date.		
22	304595 / 740078	Quarry			5	<p>An irregular feature identified to the north of a possible track or drainage feature, measuring approximately 30m in length and 18m in width within an area of woodland.</p> <p>No corresponding features depicted on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867; Ordnance Survey 25" Perth and Clackmannan sheet LXII.14 1901) in this location and not visible on aerial imagery.</p> <p>Interpreted as evidence of possible extraction (quarrying or gravel) of unknown date.</p>	Medium	 <p>Single Direction Hillshade Model; DTM azimuth 315° and altitude 35°.</p>
23	304693 / 740106	Saw Pit			5	<p>Two features measuring approximately 2m and 5m in length to the east of the existing A9.</p> <p>No corresponding features depicted on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867; Ordnance Survey 25" Perth and Clackmannan sheet LXII.14 1901) in this location and not visible on aerial imagery.</p> <p>Tentatively interpreted as possible saw pits associated with timber processing of unknown date.</p>	Low	 <p>Single Direction Hillshade Model; DTM azimuth 315° and altitude 35°.</p>

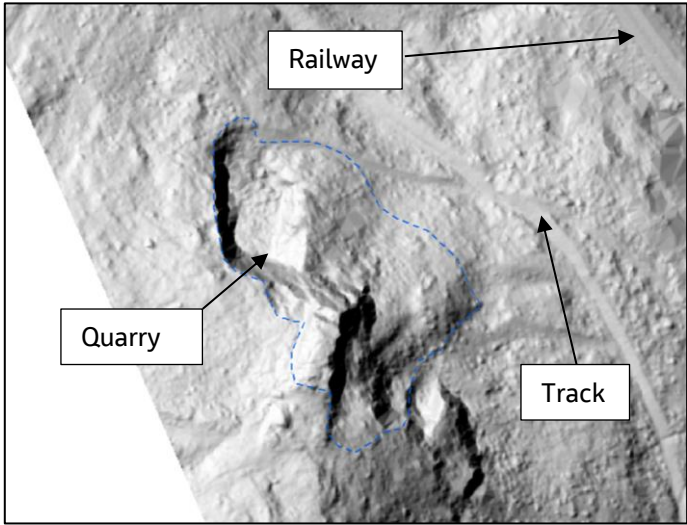
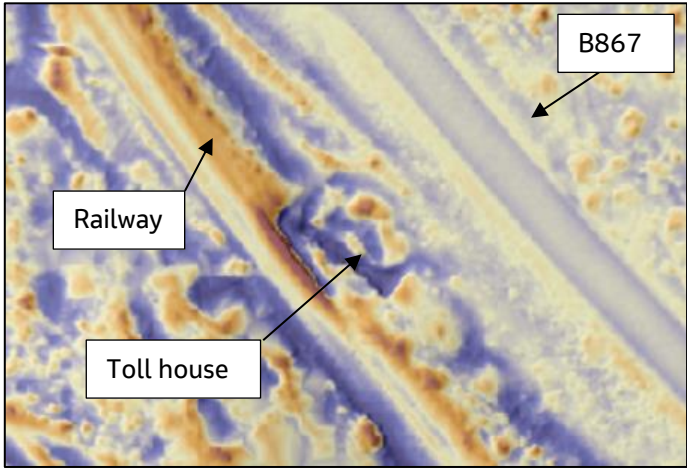
Unique Reference Number	Easting / Northing	Site Type	Known Cultural Heritage Asset Number	Local / National Reference Number(s)	Grid Square Reference(s)	Summary Description	Confidence Rating	Figure
24	304639 / 740094	Saw Pit			5	<p>Three curvilinear features measuring between 5m and 7m in length to the west of the existing A9 within an area of woodland.</p> <p>No corresponding features depicted on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867; Ordnance Survey 25" Perth and Clackmannan sheet LXII.14 1901) in this location and not visible on aerial imagery.</p> <p>Tentatively interpreted as a possible saw pit associated with timber processing of unknown date.</p>	Low	 <p>Single Direction Hillshade Model; DTM azimuth 315° and altitude 35°.</p>
25	304840 / 740133	Quarry			5	<p>An irregular feature (roughly circular with a short linear extending to the east) measuring approximately 12m by 7m.</p> <p>The regular parallel linear features visible to the north and east of the feature may be plantation scars resulting from cultivated forestry in the area.</p> <p>No corresponding features depicted on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867; Ordnance Survey 25" Perth and Clackmannan sheet LXII.14 1901) in this location and not visible on aerial imagery.</p> <p>Tentatively interpreted as a possible quarry, of unknown date.</p>	Low	 <p>Single Direction Hillshade Model; DTM azimuth 315° and altitude 35°.</p>

Unique Reference Number	Easting / Northing	Site Type	Known Cultural Heritage Asset Number	Local / National Reference Number(s)	Grid Square Reference(s)	Summary Description	Confidence Rating	Figure
26	304460 / 740156	Well			4; 5	<p>A curvilinear area adjacent to the B867, measuring approximately 54m in length, with a linear feature running perpendicular (approximately 29m in length) to the local access north of the road.</p> <p>A footpath from the local access across a field is depicted on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867) to a line of trees. Later mapping (Ordnance Survey 25" Perth and Clackmannan sheet LXII.14 1901) identifies a 'Well' with two footpaths from Ringwood either side of a drain in a line of trees.</p> <p>A drain is visible on aerial imagery in this location (GoogleEarth Dec 2010).</p> <p>Interpreted as a post-medieval well and drainage ditch.</p>	Medium	 <p>Single Direction Hillshade Model; DTM azimuth 315° and altitude 35°.</p>
27	304552 / 740191	Saw Pit			5	<p>A linear feature measuring approximately 6m in length identified to the west of the existing A9 within an area of woodland.</p> <p>No corresponding features depicted on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867; Ordnance Survey 25" Perth and Clackmannan sheet LXII.14 1901) in this location and not visible on aerial imagery.</p> <p>Tentatively interpreted as a possible saw pit associated with timber processing of unknown date.</p>	Low	 <p>Single Direction Hillshade Model; DTM azimuth 315° and altitude 35°.</p>

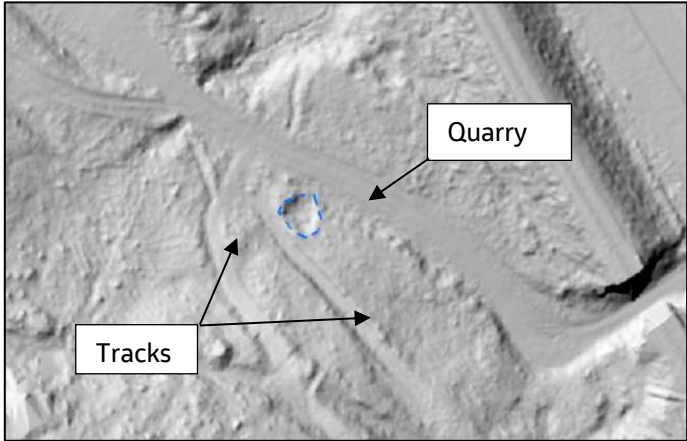
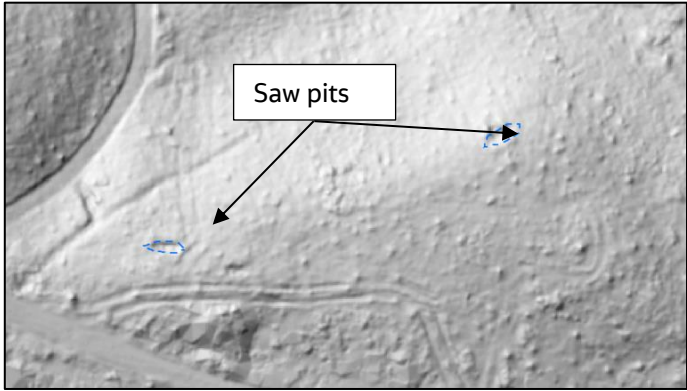


Unique Reference Number	Easting / Northing	Site Type	Known Cultural Heritage Asset Number	Local / National Reference Number(s)	Grid Square Reference(s)	Summary Description	Confidence Rating	Figure
28	304537 / 740215	Ditch			5; 10	<p>Two negative linear features measuring 14m and 11m respectively and possibly forming part of the same feature, to the south-east of Ringwood in an area of trees.</p> <p>No corresponding features depicted on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867; Ordnance Survey 25" Perth and Clackmannan sheet LXII.14 1901) in this location and not visible on aerial imagery.</p> <p>Tentatively interpreted as a possible ditch of unknown date or function.</p>	Low	 <p>Single Direction Hillshade Model; DTM azimuth 315° and altitude 35°.</p>
29	304416 / 740251	Mineral Extraction Site			9	<p>A circular feature measuring approximately 12m in diameter identified adjacent to a local road.</p> <p>No corresponding features depicted on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867; Ordnance Survey 25" Perth and Clackmannan sheet LXII.14 1901) in this location and not visible on aerial imagery.</p> <p>Tentatively interpreted as an area of localised disturbance possibly from extraction activities, or a natural depression.</p>	Low	 <p>Single Direction Hillshade Model; DTM azimuth 315° and altitude 35°.</p>
30	304391 / 740253	Mound			9	<p>A circular feature measuring approximately 4m in diameter.</p> <p>No corresponding features on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867; Ordnance Survey 25" Perth and Clackmannan sheet LXII.14 1901) or aerial imagery.</p> <p>Tentatively interpreted as an area of localised disturbance possibly from extraction activities, forestry or road building.</p>	Low	 <p>Single Direction Hillshade Model: DTM azimuth 315° and altitude 35°.</p>

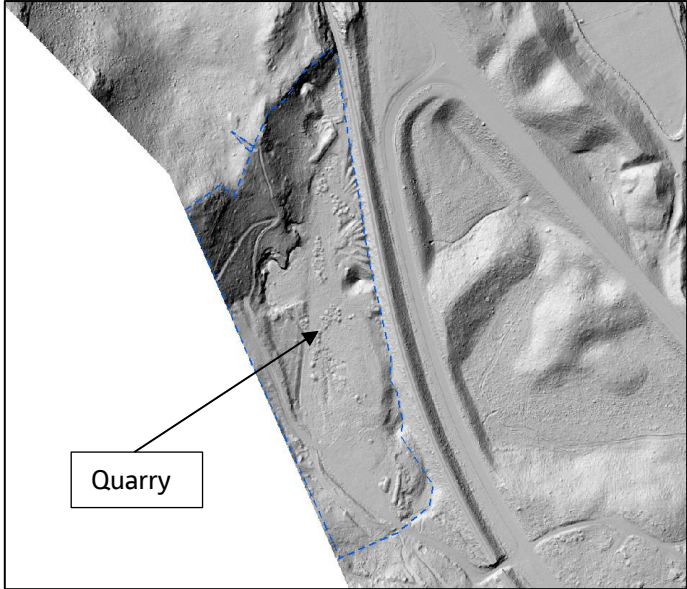
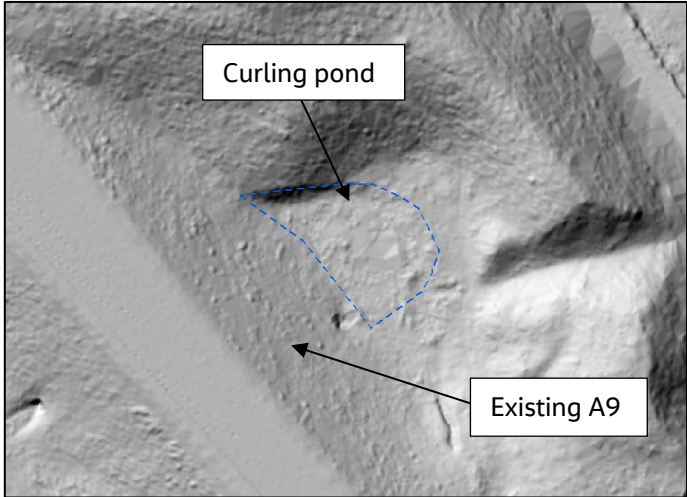
Unique Reference Number	Easting / Northing	Site Type	Known Cultural Heritage Asset Number	Local / National Reference Number(s)	Grid Square Reference(s)	Summary Description	Confidence Rating	Figure
31	304727 / 740294	Curling Pond	Asset 833		9	<p>A sub-rectangular pond identified from historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867). North-west and south-west edges of curling pond identified, measuring approximately 60m in length.</p> <p>Truncated by the B867. This could equally be an area of disturbance associated with later road building.</p>	Medium	 <p>Single Direction Hillshade Model: DTM azimuth 315° and altitude 35°.</p>
32	304606 / 740314	Saw Pit			10	<p>Five linear features measuring approximately 4-7m in length identified within woodland to the east of the existing A9.</p> <p>No corresponding features depicted on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867; Ordnance Survey 25" Perth and Clackmannan sheet LXII.14 1901) in this location and not visible on aerial imagery.</p> <p>Tentatively interpreted as possible saw pits associated with timber processing of unknown date.</p>	Low	 <p>Single Direction Hillshade Model; DTM azimuth 315° and altitude 35°.</p>
33	304402 / 740329	Saw Pit			9; 10	<p>A group of linear features of various lengths (approximately 5m) and orientations identified within an area of woodland clearance to the south of the existing A9.</p> <p>No corresponding features depicted on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867; Ordnance Survey 25" Perth and Clackmannan sheet LXII.14 1901) in this location and not visible on aerial imagery.</p> <p>Tentatively interpreted as possible saw pits associated with timber processing of unknown date.</p>	Low	 <p>Single Direction Hillshade Model; DTM azimuth 315° and altitude 35°.</p>

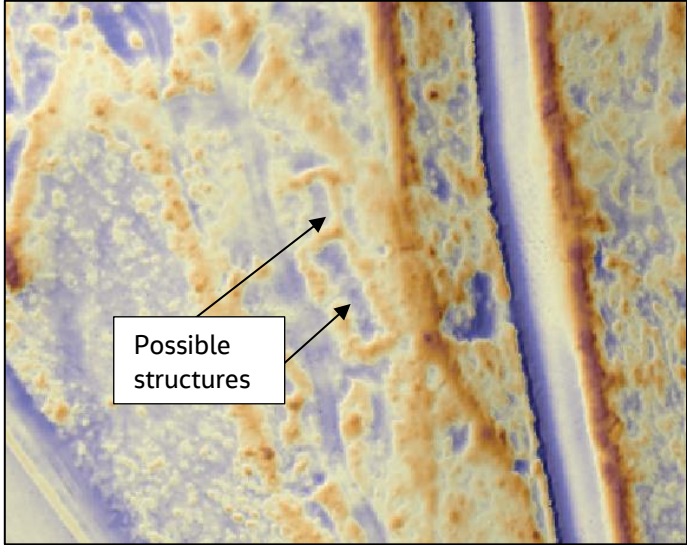
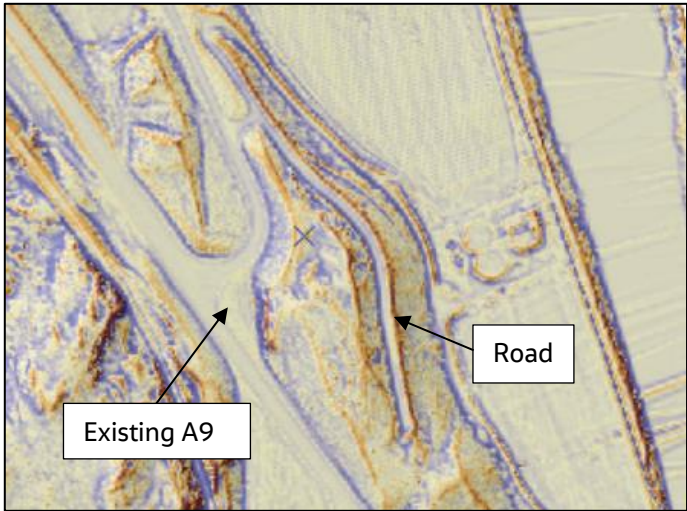
Unique Reference Number	Easting / Northing	Site Type	Known Cultural Heritage Asset Number	Local / National Reference Number(s)	Grid Square Reference(s)	Summary Description	Confidence Rating	Figure
34	304028 / 740397	Quarry	Asset 855		9	<p>An irregular feature, measuring approximately 30m across, cut into the hillside above a track and the Highland Main Line railway.</p> <p>A small quarry is depicted in this location on historic Ordnance Survey mapping (Ordnance Survey 25" (First Edition) Perth and Clackmannanshire sheet LXII.14, 1866).</p> <p>Interpreted as a quarry associated with Birnam Quarry.</p>	High	 <p>Single Direction Hillshade Model; DTM azimuth 315° and altitude 35°.</p>
35	304142 / 740420	Toll House	Asset 799		9	<p>A rectangular feature measuring approximately 17m by 10m, adjacent to the Highland Main Line railway and B867.</p> <p>'Birnam T.P.' and milestone are depicted in this location on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867). The railway embankment to the south-west appears to respect the rectangular feature interpreted as the toll house, suggesting a building was present before the construction of the Perth to Dunkeld Railway in the 1850s.</p> <p>No features are visible on aerial imagery.</p> <p>Interpreted as the remains of the post-medieval toll house.</p>	Medium	 <p>Simple LRM (40% transparency) over Single Direction Hillshade Model; DTM azimuth 315° and altitude 35°.</p>

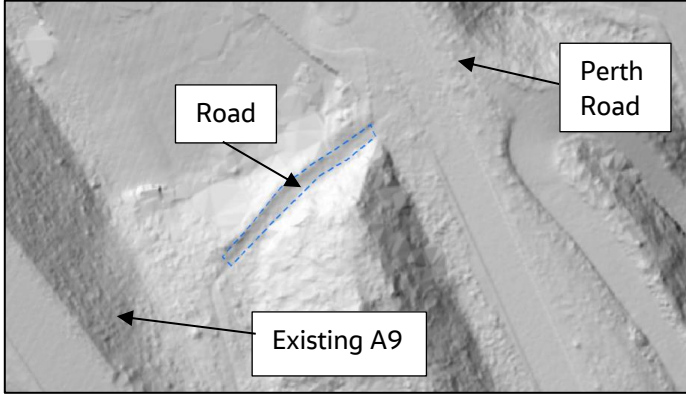
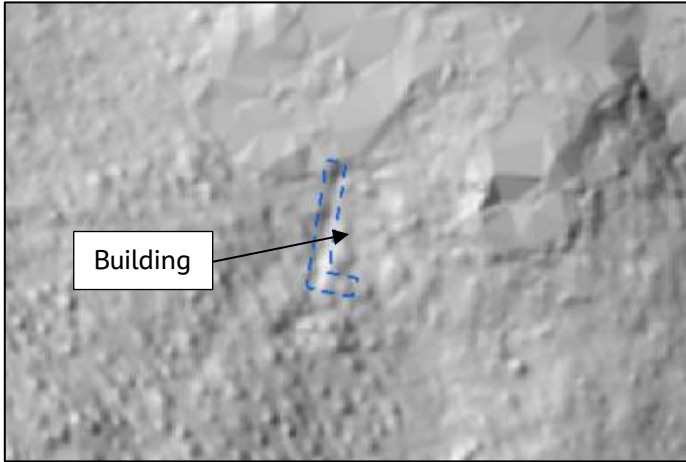
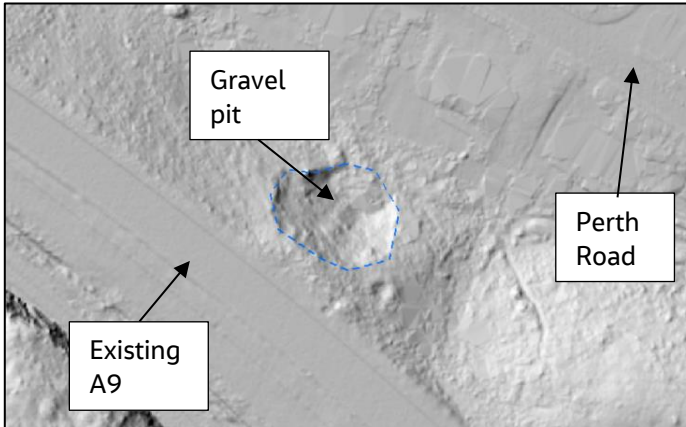


Unique Reference Number	Easting / Northing	Site Type	Known Cultural Heritage Asset Number	Local / National Reference Number(s)	Grid Square Reference(s)	Summary Description	Confidence Rating	Figure
36	304033 / 740474	Quarry			9	<p>An irregular feature at the junction of a number of tracks to the west of the B867, measuring approximately 7m in width.</p> <p>No corresponding features depicted on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867; Ordnance Survey 25" Perth and Clackmannan sheet LXII.14 1901) in this location; however, the tracks leading to Birnam Quarry are shown.</p> <p>No features visible on aerial imagery in this location.</p> <p>Interpreted as evidence of possible extraction (quarrying) of unknown date.</p>	Medium	 <p>Single Direction Hillshade Model; DTM azimuth 315° and altitude 35°.</p>
37	304280 / 740477	Saw Pit			9	<p>Two linear features measuring approximately 5m in length identified to the south-west of the existing A9.</p> <p>No corresponding features depicted on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867; Ordnance Survey 25" Perth and Clackmannan sheet LXII.14 1901) in this location and not visible on aerial imagery.</p> <p>Interpreted as possible saw pits associated with timber processing of unknown date.</p>	Low	 <p>Single Direction Hillshade Model; DTM azimuth 315° and altitude 35°.</p>

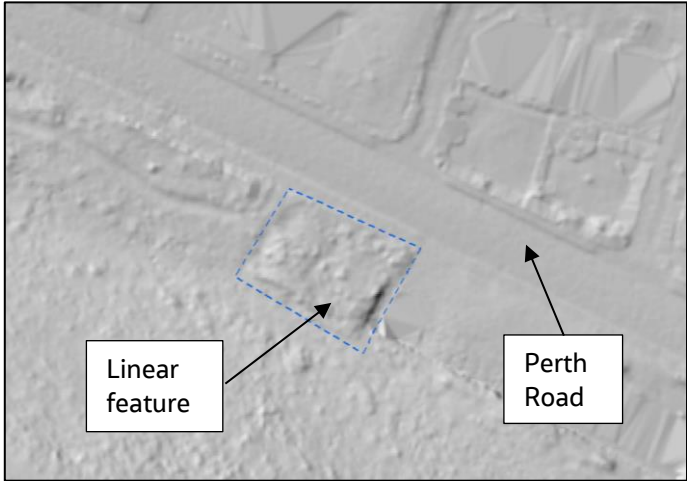
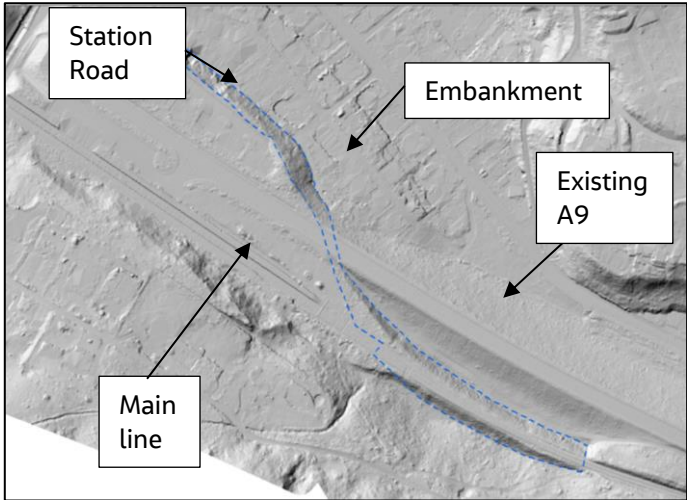


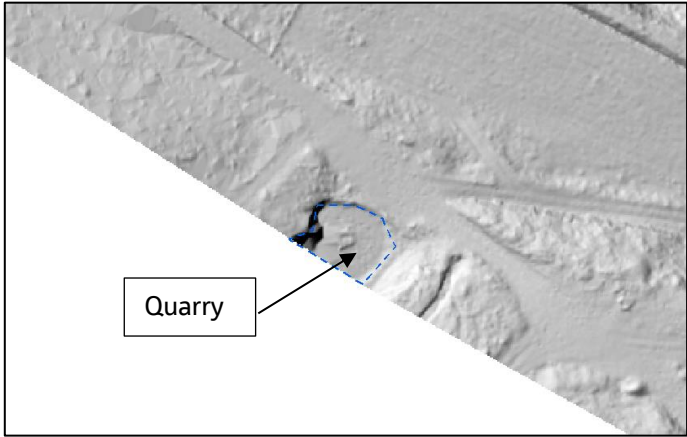
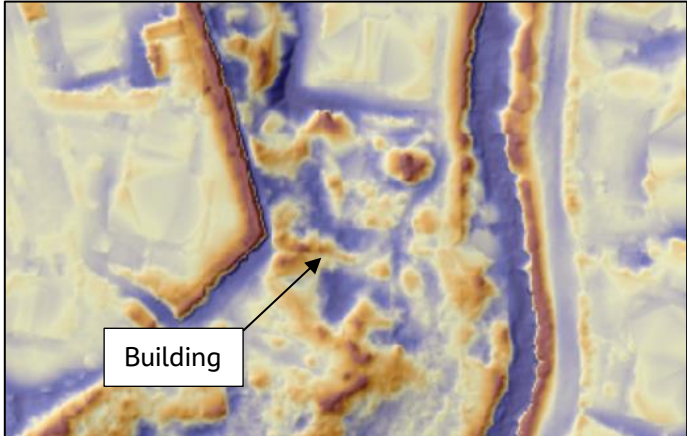
Unique Reference Number	Easting / Northing	Site Type	Known Cultural Heritage Asset Number	Local / National Reference Number(s)	Grid Square Reference(s)	Summary Description	Confidence Rating	Figure
38	303928 / 740716	Quarry	Asset 856		8-9; 12-13	<p>A large irregular area to the west of the existing A9, extending approximately 410m from south to north (extends beyond LiDAR coverage). Corresponds with the location of a quarry identified from historic Ordnance Survey mapping (Ordnance Survey 25" (First Edition) Perth and Clackmannanshire sheet LXII.14, 1866).</p> <p>The quarry is visible on aerial imagery (Google, 2022).</p> <p>Interpreted as extractive workings and trackways associated with Birnam Quarry.</p>	High	 <p>Single Direction Hillshade Model; DTM azimuth 315° and altitude 35°.</p>
39	304179 / 740794	Curling Pond	Asset 834		13	<p>A sub-rectangular feature, truncated by the existing A9. Measuring approximately 27m by 17m.</p> <p>A sub-rectangular pond is depicted on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867) in this location.</p> <p>Not visible on aerial imagery</p> <p>Interpreted as the northern edge of a post-medieval curling pond identified.</p>	Medium	 <p>Single Direction Hillshade Model; DTM azimuth 315° and altitude 35°.</p>

Unique Reference Number	Easting / Northing	Site Type	Known Cultural Heritage Asset Number	Local / National Reference Number(s)	Grid Square Reference(s)	Summary Description	Confidence Rating	Figure
40	304054 / 740991	Building			13	<p>Two adjoining ephemeral rectangular features measuring approximately 20m by 11m and 6m by 9m.</p> <p>No corresponding features depicted on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867; Ordnance Survey 25" Perth and Clackmannan sheet LXII.14 1901) in this location and not visible on aerial imagery.</p> <p>Tentatively interpreted as possible structures of unknown date or function.</p>	Medium	 <p>Simple LRM (40% transparency) over Single Direction Hillshade Model; DTM azimuth 315° and altitude 35°.</p>
41	304044 / 741072	Road			13	<p>A linear feature measuring approximately 400m long and 5m wide, orientated roughly north-west to south-east in an area of woodland.</p> <p>Corresponds with a section of the old A9 depicted on historic Ordnance Survey mapping (Ordnance Survey 25" (First Edition) Perth and Clackmannanshire sheet LXII.10, 1866) in this location. This section of the old A9 was severed from the (now) B867 by the existing A9.</p> <p>Interpreted as a section of the old A9.</p>	High	 <p>Simple LRM (40% transparency) over Single Direction Hillshade Model; DTM azimuth 315° and altitude 35°.</p>

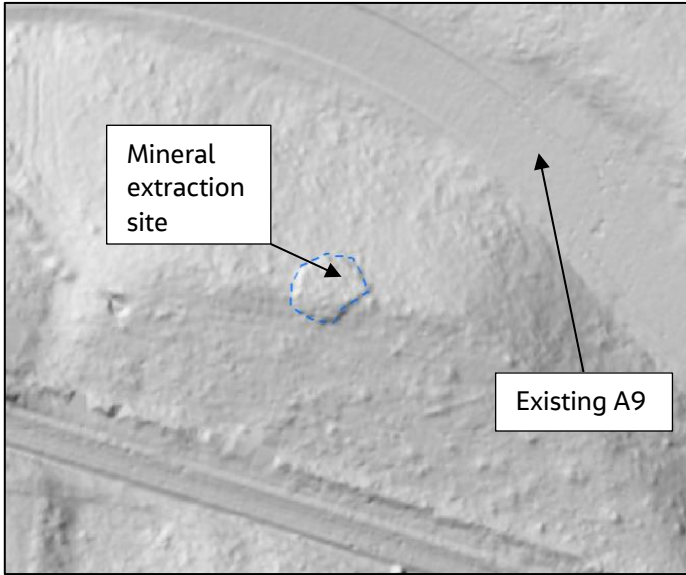
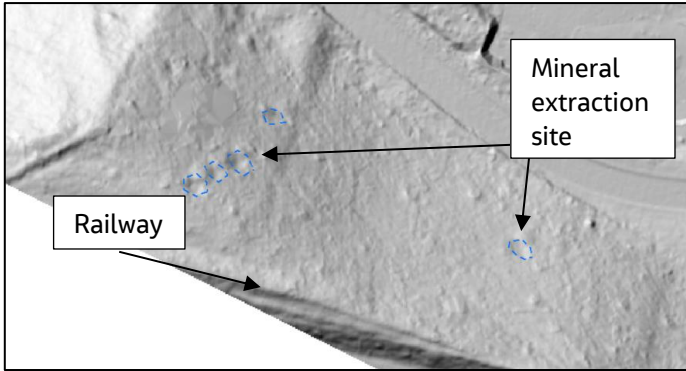
Unique Reference Number	Easting / Northing	Site Type	Known Cultural Heritage Asset Number	Local / National Reference Number(s)	Grid Square Reference(s)	Summary Description	Confidence Rating	Figure
42	303917 / 741194	Road			12	<p>Linear feature measuring approximately 44m running from Perth Road, west, towards the Highland Main Line railway. Truncated by the existing A9.</p> <p>Corresponds with a section of road depicted on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867).</p> <p>Interpreted as a former road adjacent to Arch Cottage (Asset 812).</p>	High	 <p>Single Direction Hillshade Model; DTM azimuth 315° and altitude 35°.</p>
43	303600 / 741231	Building	Asset 860		16	<p>An ephemeral linear feature comprising an 'L'-shaped feature, orientated north to south with return running from the southern corner to the south-east, measuring approximately 14m by 7m respectively.</p> <p>A building is depicted in this location on historic Ordnance Survey mapping (Ordnance Survey 25" (First Edition) Perth and Clackmannanshire sheet LXII.10, 1866).</p> <p>Tentatively interpreted as a possible post-medieval building.</p>	Low	 <p>Single Direction Hillshade Model; DTM azimuth 315° and altitude 35°.</p>
44	303722 / 741356	Gravel Pit	Asset 847		16	<p>An irregular feature identified at the south-west of Perth Road and adjacent to the existing A9, measuring approximately 26m in width.</p> <p>Corresponds to a gravel pit depicted on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867; Ordnance Survey 25" Perth and Clackmannan sheet LXII.10 1900).</p> <p>Interpreted as a post-medieval gravel pit.</p>	High	 <p>Single Direction Hillshade Model; DTM azimuth 315° and altitude 35°.</p>

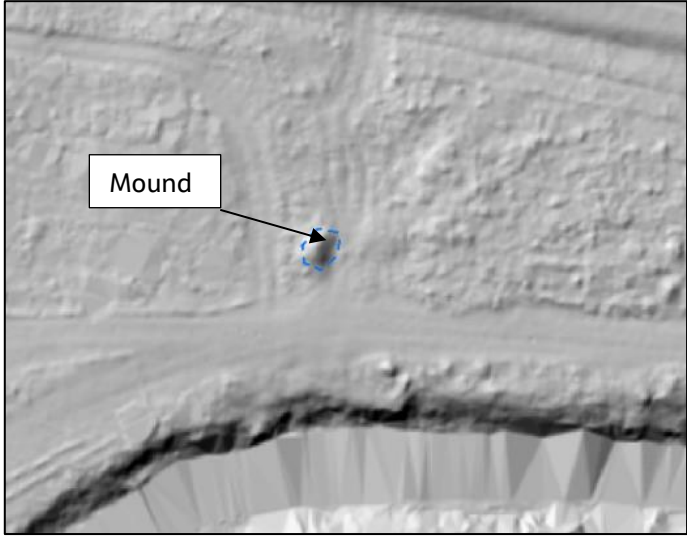
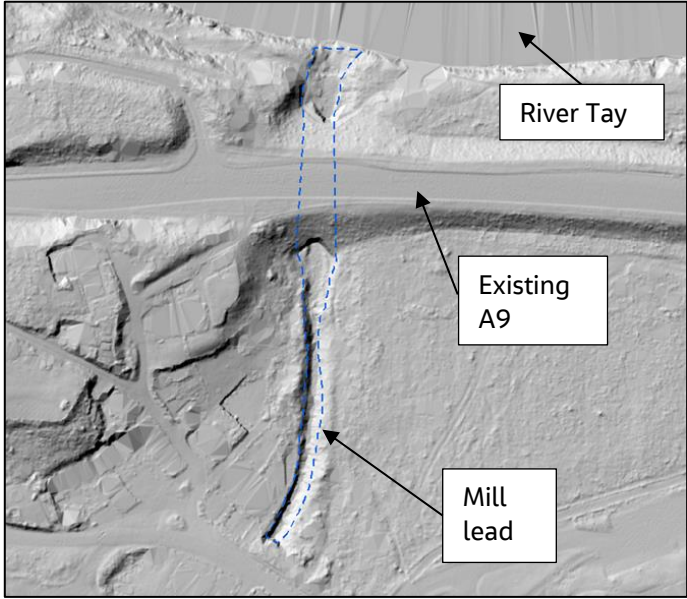


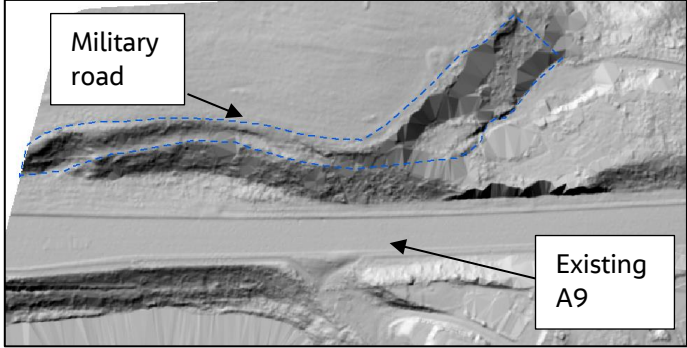
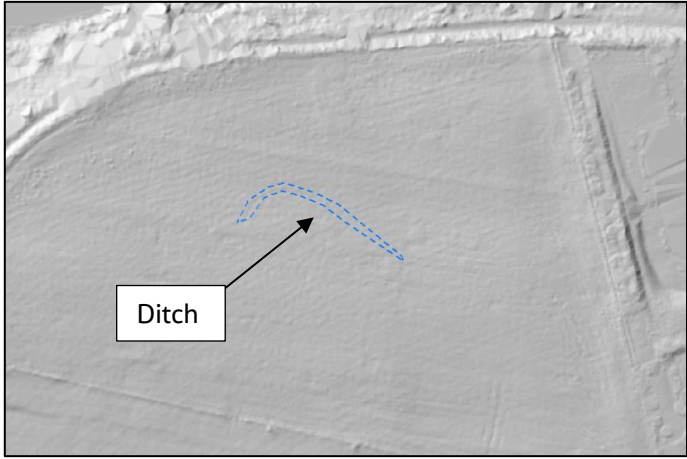
Unique Reference Number	Easting / Northing	Site Type	Known Cultural Heritage Asset Number	Local / National Reference Number(s)	Grid Square Reference(s)	Summary Description	Confidence Rating	Figure
45	303538 / 741493	Building	Asset 859		16	<p>A rectangular area of disturbance measuring approximately 12m by 17m on Perth Road, includes a possible linear feature, measuring approximately 15m in length.</p> <p>The location corresponds with a group of buildings depicted on historic Ordnance Survey mapping (Ordnance Survey 25" (First Edition) Perth and Clackmannanshire sheet LXII.10, 1866).</p> <p>Tentatively interpreted as the possible remains of this group of post-medieval buildings; however, this could equally be a modern boundary feature.</p>	Low	 <p>Single Direction Hillshade Model; DTM azimuth 315° and altitude 35°.</p>
46	303186 / 741657	Railway Embankment	Asset 832		15; 22	<p>A linear feature measuring approximately 400m in length extending from the Highland Main Line railway to Station Road. Bisected by the existing A9.</p> <p>A railway embankment extending from the main line to the 'Goods Yard' is depicted on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867; Ordnance Survey 25" Perth and Clackmannan sheet LXII.9 1900).</p> <p>The area has been redeveloped in the form of the existing A9, car park for Dunkeld and Birnam railway station, and Birnam Industrial Estate. The embankment enabling access from the mainline to the goods yard is still perceptible. Interpreted as the post-medieval railway embankment.</p>	Medium	 <p>Single Direction Hillshade Model; DTM azimuth 315° and altitude 35°.</p>

Unique Reference Number	Easting / Northing	Site Type	Known Cultural Heritage Asset Number	Local / National Reference Number(s)	Grid Square Reference(s)	Summary Description	Confidence Rating	Figure
47	302734 / 741801	Quarry	Asset 848		21	<p>An irregular feature measuring approximately 15m across (extends beyond LiDAR coverage). Corresponds with the location of a small quarry identified from historic Ordnance Survey mapping (Ordnance Survey 25" (First Edition) Perth and Clackmannanshire sheet LXII.9 (Little Dunkeld), 1866).</p> <p>Interpreted as a post-medieval quarry.</p>	High	 <p>Single Direction Hillshade Model; DTM azimuth 315° and altitude 35°.</p>
48	303052 / 741825	Coach Works	Asset 861		22	<p>A number of ephemeral linear features measuring up to approximately 10m in length adjacent to the river, including an 'L'-shaped linear.</p> <p>Corresponds with a building in this location depicted on historical Ordnance Survey mapping (Ordnance Survey 25" (First Edition) Perth and Clackmannanshire sheet LXII.9 (Little Dunkeld), 1866; Ordnance Survey 25" Perth and Clackmannan sheet LXII.9 1900) as the '<i>Coach Works</i>'.</p> <p>Tentatively interpreted as the possible remains of a post-medieval coach works.</p>	Low	 <p>Simple LRM (40% transparency) over Single Direction Hillshade Model; DTM azimuth 315° and altitude 35°.</p>

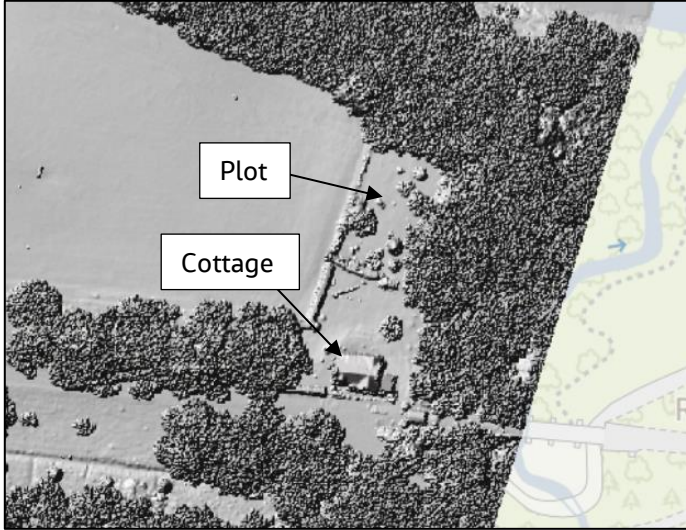
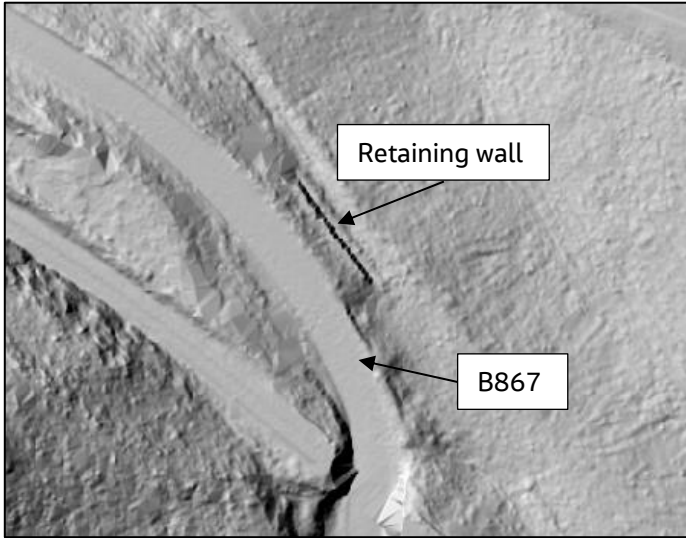


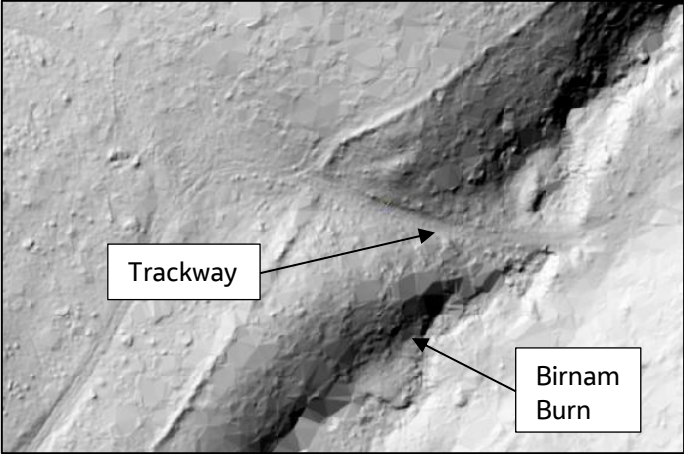
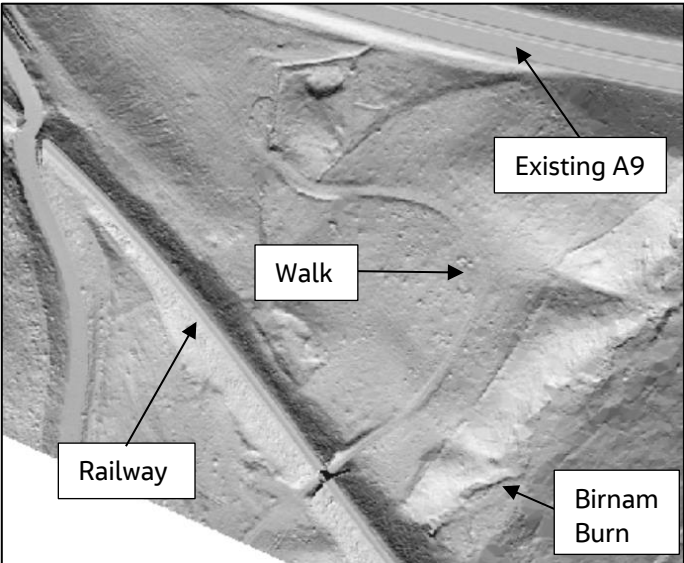
Unique Reference Number	Easting / Northing	Site Type	Known Cultural Heritage Asset Number	Local / National Reference Number(s)	Grid Square Reference(s)	Summary Description	Confidence Rating	Figure
49	302524 / 742006	Mineral Extraction Site			21	<p>A sub-circular feature measuring approximately 8m in diameter identified in woodland to the south of the existing A9.</p> <p>No corresponding features depicted on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867; Ordnance Survey 25" Perth and Clackmannan sheet LXII.9 1900) in this location and not visible on aerial imagery.</p> <p>Tentatively interpreted as an area of localised disturbance, possibly a mineral extraction site or associated with plantation of unknown date.</p>	Low	 <p>Single Direction Hillshade Model; DTM azimuth 90° and altitude 35°.</p>
50	302310 / 742068	Mineral Extraction Site			20	<p>A group of five circular feature measuring approximately 3-5m in diameter identified in woodland to the north of the Highland Main Line railway.</p> <p>No corresponding features depicted on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867; Ordnance Survey 25" Perth and Clackmannan sheet LXII.9 1900) in this location and not visible on aerial imagery.</p> <p>Tentatively interpreted as areas of localised disturbance, possibly associated with extraction or plantation.</p>	Low	 <p>Single Direction Hillshade Model; DTM azimuth 315° and altitude 35°.</p>

Unique Reference Number	Easting / Northing	Site Type	Known Cultural Heritage Asset Number	Local / National Reference Number(s)	Grid Square Reference(s)	Summary Description	Confidence Rating	Figure
51	301941 / 742231	Mound			26	<p>A sub-circular feature measuring approximately 5m in diameter.</p> <p>No corresponding features depicted on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867; Ordnance Survey 25" Perth and Clackmannan sheet LXII.9 1900) in this location and not visible on aerial imagery.</p> <p>Tentatively interpreted as an earth mound of unknown date or function; however, this feature is equally likely to be associated with modern development.</p>	Low	 <p>Single Direction Hillshade Model; DTM azimuth 315° and altitude 35°.</p>
52	301700 / 742248	Mill Race	Asset 839		19; 26	<p>A linear feature measuring approximately 160m in length, from Inver to the River Tay and passing under the existing A9 via a culvert.</p> <p>A mill lead is depicted in this location on historic Ordnance Survey mapping (Ordnance Survey 25" (First Edition) Perth and Clackmannanshire sheet LXII.5, 1866; Ordnance Survey 25" (First Edition) Perth and Clackmannanshire sheet LXII.9, 1866) associated with the water management system which served Inver Saw Mill (Asset 840) and Inver Mill Farm, Farmstead and Watermill (Asset 73).</p> <p>Interpreted as a post-medieval mill lead.</p>	Medium	 <p>Single Direction Hillshade Model; DTM azimuth 315° and altitude 35°.</p>

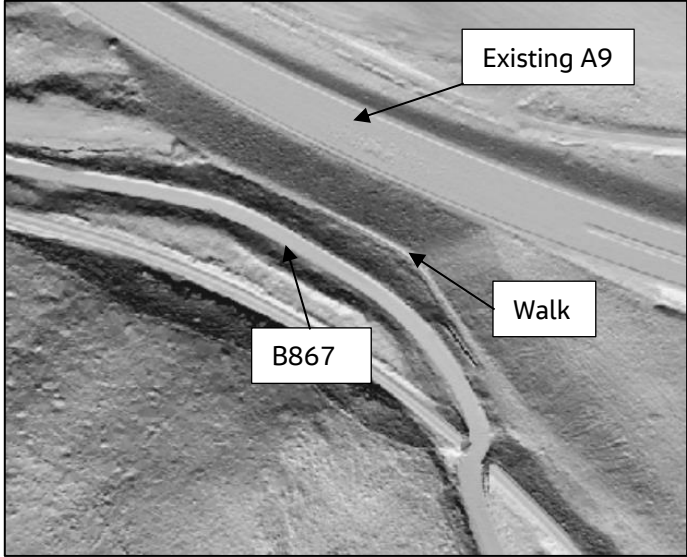
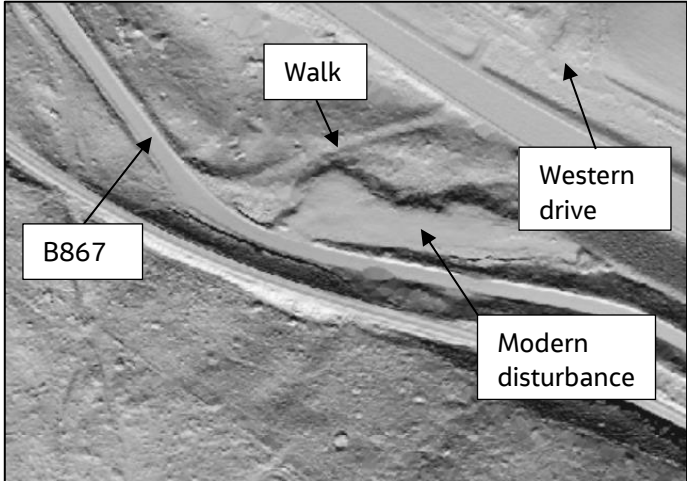
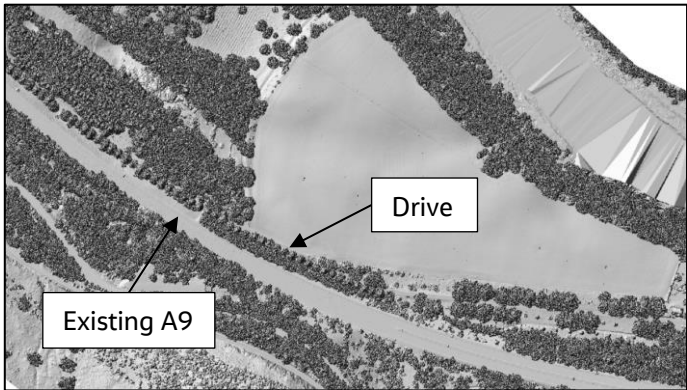
Unique Reference Number	Easting / Northing	Site Type	Known Cultural Heritage Asset Number	Local / National Reference Number(s)	Grid Square Reference(s)	Summary Description	Confidence Rating	Figure
53	302236 / 742473	Military Road	Asset 101		26	<p>A linear feature measuring approximately 146m in length was identified in an area of woodland. The feature runs parallel to the existing A9 for approximately 90m before turning north-east towards the river (extends beyond LiDAR coverage).</p> <p>Corresponds with a road depicted on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867) forming the northern extent of Inver, on the bank of the River Tay and alignment of the former military road.</p> <p>Interpreted as a section of post-medieval military road.</p>	Medium	 <p>Single Direction Hillshade Model; DTM azimuth 315° and altitude 35°.</p>
54	302457 / 742348	Ditch			27-28	<p>An ephemeral curvilinear feature orientated north-west to south-east (curving to the east at the northern end) identified in a pasture field, west of Little Dunkeld measuring approximately 45m in length.</p> <p>No corresponding features depicted on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867; Ordnance Survey 25" Perth and Clackmannan sheet LXII.5 1900) in this location and not visible on aerial imagery.</p> <p>Tentatively interpreted as a possible ditch of unknown date, or modern drainage.</p>	Low	 <p>Single Direction Hillshade Model; DTM azimuth 315° and altitude 35°.</p>

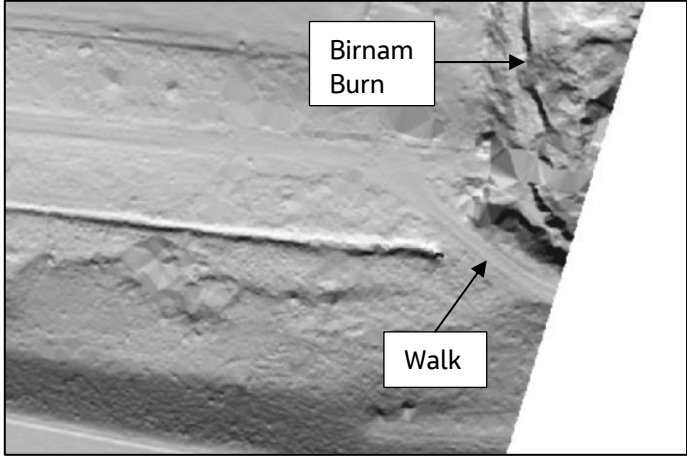
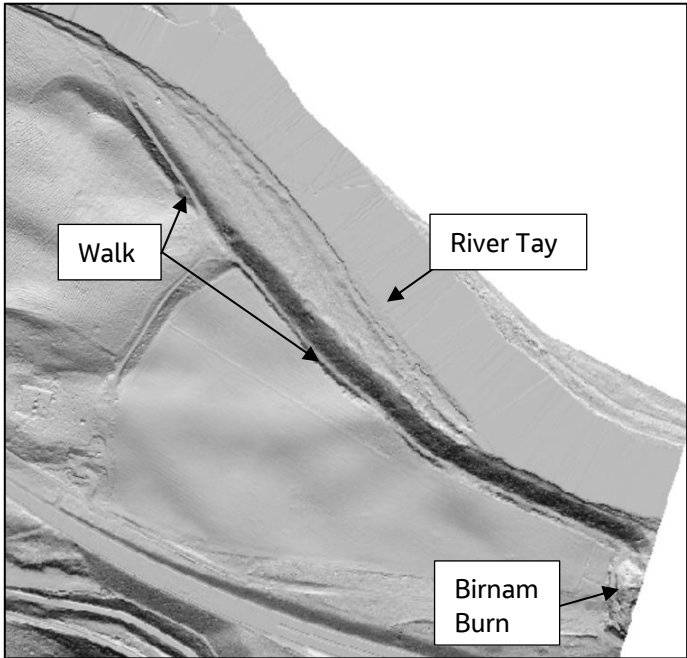


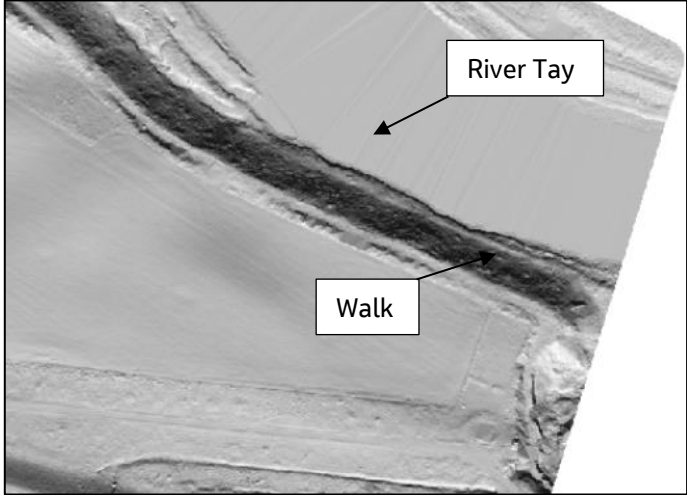
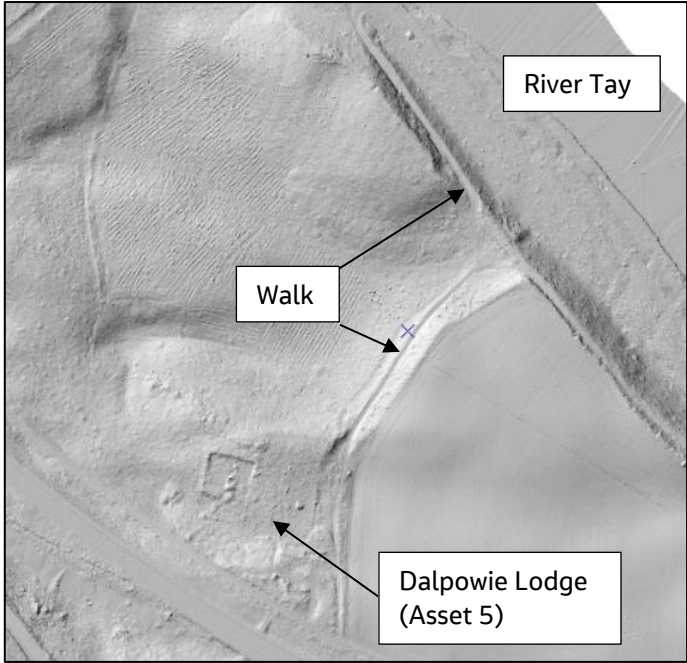
Unique Reference Number	Easting / Northing	Site Type	Known Cultural Heritage Asset Number	Local / National Reference Number(s)	Grid Square Reference(s)	Summary Description	Confidence Rating	Figure
55	305668 / 739573	Building	Asset 815		3	A sub-rectangular plot with an extant house (Roman Bridge Cottage) and garden (Asset 815) associated with Murthly Castle GDL (HLT 14). Not depicted on early Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867); however, appears on later editions (Ordnance Survey 25" Perth and Clackmannan sheet LXII.14 1901).	High	 <p>Single Direction Hillshade Model; DSM azimuth 315° and altitude 35°.</p>
56	305304 / 739481	Road Transport Site			2	A linear feature measuring approximately 22m in length, located adjacent to the B867. Interpreted as a retaining wall associated with the road. Possibly depicted on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867).	Medium	 <p>Single Direction Hillshade Model; DTM azimuth 315° and altitude 35°.</p>

Unique Reference Number	Easting / Northing	Site Type	Known Cultural Heritage Asset Number	Local / National Reference Number(s)	Grid Square Reference(s)	Summary Description	Confidence Rating	Figure
57	305565 / 739366	Trackway			2	<p>A linear feature measuring approximately 95m in length.</p> <p>Interpreted as a possible walk crossing Birnam Burn.</p> <p>No walks are depicted on historic Ordnance Survey mapping in this location (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867; Ordnance Survey 25" Perth and Clackmannan sheet LXII.14 1901) and therefore this feature is likely more recent in date.</p>	Medium	 <p>Single Direction Hillshade Model; DTM azimuth 315° and altitude 35°.</p>
58	305466 / 739353	Walk			3	<p>A linear feature measuring approximately 314m in length (extends beyond LiDAR coverage).</p> <p>Interpreted as a meandering walk through Birnam Wood passing under the Highland Railway and adjacent to Birnam Burn, depicted in this location on 1st Ed Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867).</p> <p>Associated with Murthly Castle GDL (HLT 14).</p>	High	 <p>Single Direction Hillshade Model; DTM azimuth 180° and altitude 35°.</p>

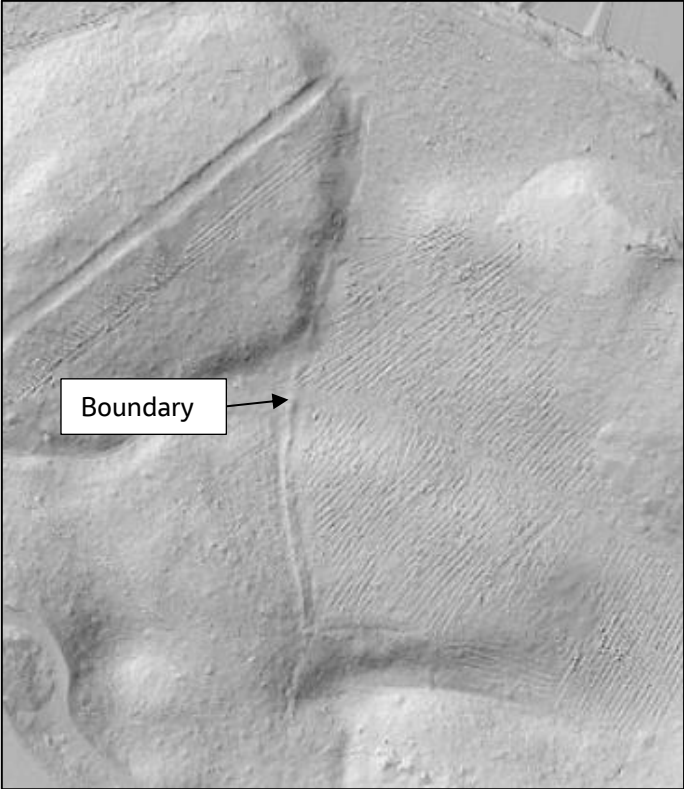
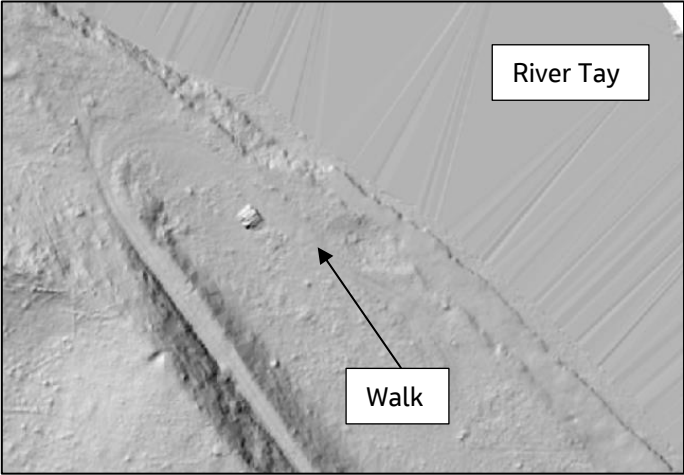


Unique Reference Number	Easting / Northing	Site Type	Known Cultural Heritage Asset Number	Local / National Reference Number(s)	Grid Square Reference(s)	Summary Description	Confidence Rating	Figure
59	305258 / 739527	Walk			2	<p>A curvi-linear feature measuring approximately 150m towards the base of Clune Hill, within woodland, located between the existing A9 and the B867.</p> <p>A walk is depicted in this location on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867) in Birnam Wood.</p> <p>Associated with Murthly Castle GDL (HLT 14).</p>	High	 <p>Single Direction Hillshade Model; DTM azimuth 180° and altitude 35°.</p>
60	305079 / 739610	Walk			2	<p>A linear feature measuring approximately 100m in length and orientated north-east to south-west.</p> <p>A walk is depicted in this location on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867) and on later mapping (Ordnance Survey 25" Perth and Clackmannan sheet LXII.14 1901), albeit on a slightly different alignment, between the B867 and the Western Drive of Murthly Castle GDL (HLT 14). The trackway passes to the east of the 'Hangedmen's Tree'.</p> <p>Associated with Murthly Castle GDL (HLT 14).</p>	High	 <p>Single Direction Hillshade Model; DTM azimuth 180° and altitude 35°.</p>
61	305193 / 739720	Drive			2; 6	<p>A linear feature measuring approximately 600m in length, comprising a tree-lined road/track. Interpreted as the realigned section of the Western Drive (Cedar Avenue) following the construction of the existing A9.</p> <p>Associated with Murthly Castle GDL (HLT 14).</p>	High	 <p>Single Direction Hillshade Model; DSM azimuth 315° and altitude 35°.</p>

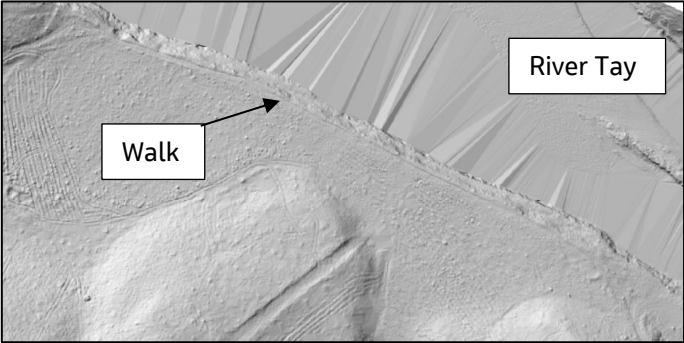
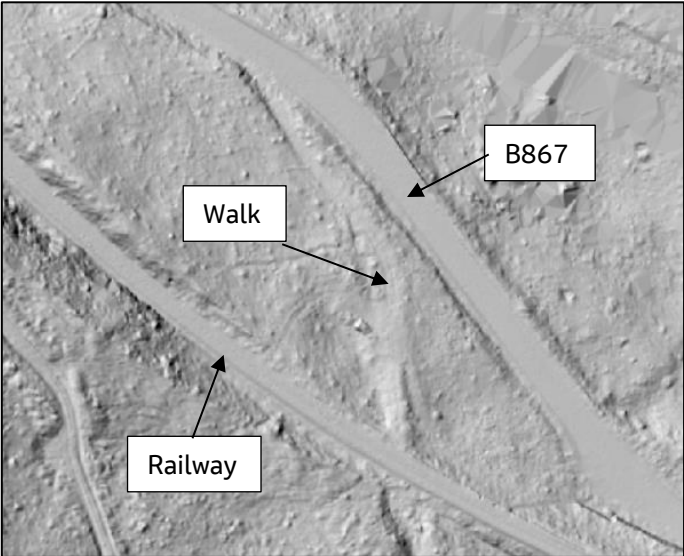
Unique Reference Number	Easting / Northing	Site Type	Known Cultural Heritage Asset Number	Local / National Reference Number(s)	Grid Square Reference(s)	Summary Description	Confidence Rating	Figure
62	305677 / 739524	Walk			3	<p>A linear feature measuring approximately 45m (extends beyond LiDAR coverage) and interpreted as a short section of a possible walk adjacent to Birnam Burn.</p> <p>Not depicted on First Edition Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867); however, visible on later editions (Ordnance Survey 25" Perth and Clackmannan sheet LXII.14 1901).</p> <p>Associated with Murthly Castle GDL (HLT 14).</p>	High	 <p>Single Direction Hillshade Model; DTM azimuth 180° and altitude 35°.</p>
63	305446 / 739783	Walk				<p>A linear feature measuring approximately 800m in length (extends beyond LiDAR coverage) adjacent to the River Tay, positioned along the top of the slope to the river, and adjacent to Birnam Burn.</p> <p>Not depicted on First Edition Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867); however, on later editions (Ordnance Survey 25" Perth and Clackmannan sheet LXII.14 1901).</p> <p>Associated with Murthly Castle GDL (HLT 14).</p>	High	 <p>Single Direction Hillshade Model; DTM azimuth 180° and altitude 35°.</p>

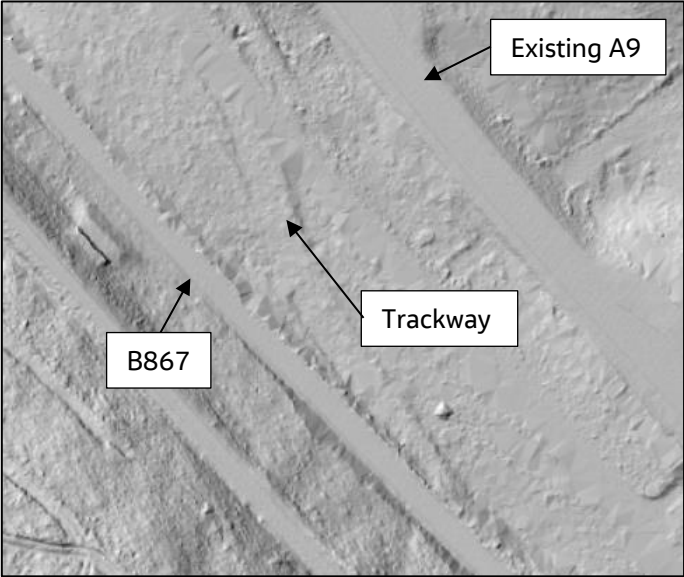
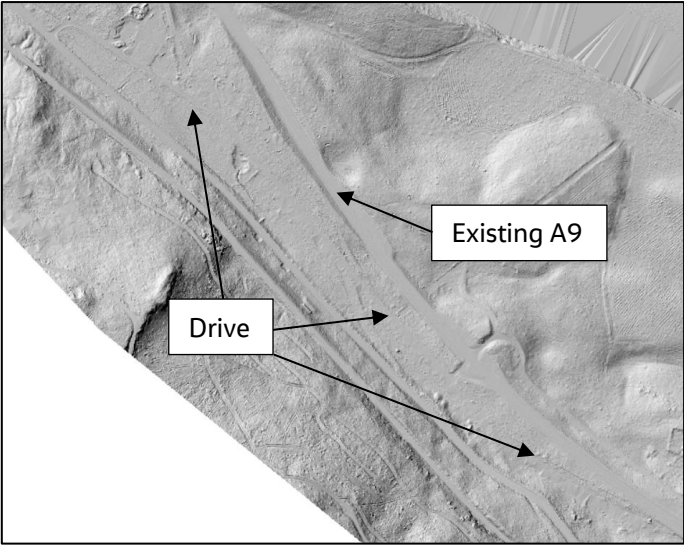
Unique Reference Number	Easting / Northing	Site Type	Known Cultural Heritage Asset Number	Local / National Reference Number(s)	Grid Square Reference(s)	Summary Description	Confidence Rating	Figure
64	305623 / 739667	Walk				<p>A linear feature measuring approximately 220m in length (extends beyond LiDAR coverage) and interpreted as a possible section of riverside walk.</p> <p>A wooded riverside walk is depicted in early Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867) in this location.</p> <p>Associated with Murthly Castle GDL (HLT 14).</p>	Medium	 <p>Single Direction Hillshade Model; DTM azimuth 180° and altitude 35°.</p>
65	305215 / 739781	Walk			6	<p>A linear feature measuring approximately 283m in length, orientated roughly north-south before turning to the north-west at the River Tay. Skirts an area of open pasture to the east of Dalpowie Lodge (Asset 5).</p> <p>A walk is depicted on historic Ordnance Survey mapping (Ordnance Survey 25" Perth and Clackmannan sheet LXII.14 1901) in this location.</p> <p>Associated with Murthly Castle GDL (HLT 14).</p>	High	 <p>Single Direction Hillshade Model; DTM azimuth 180° and altitude 35°.</p>

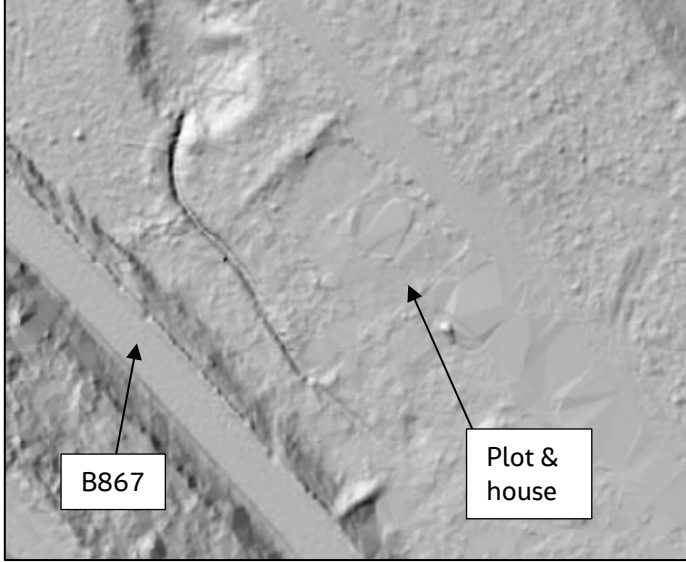
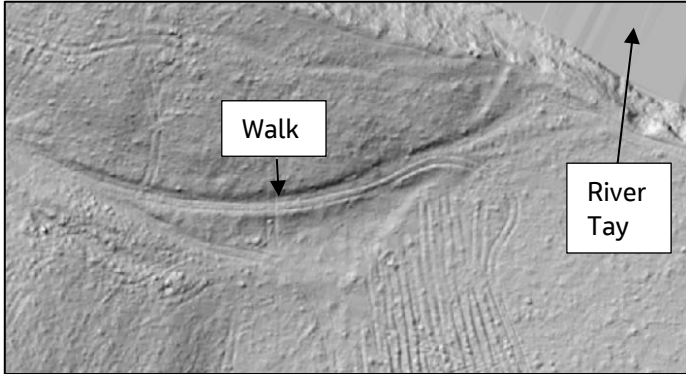
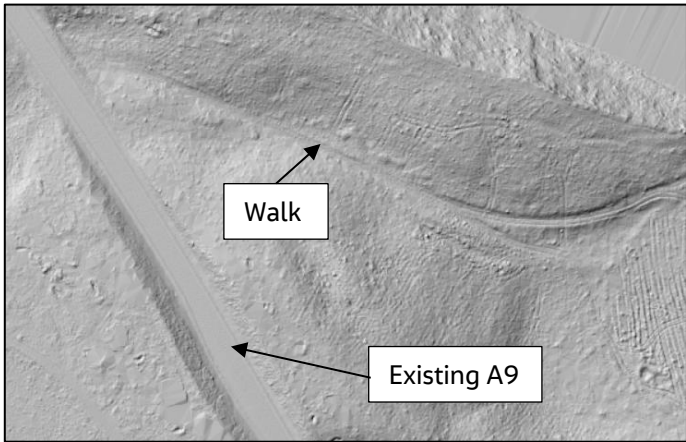


Unique Reference Number	Easting / Northing	Site Type	Known Cultural Heritage Asset Number	Local / National Reference Number(s)	Grid Square Reference(s)	Summary Description	Confidence Rating	Figure
66	305027 / 739910	Boundary			6	<p>A positive linear feature measuring approximately 270m in length running roughly south to north.</p> <p>Located within an area of plantation.</p> <p>Corresponds to the boundary of woodland depicted on historic Ordnance Survey mapping (Ordnance Survey 25" (First Edition) Perth and Clackmannanshire sheet LXII.14, 1866).</p>	Low	 <p>Single Direction Hillshade Model; DTM azimuth 180° and altitude 35°.</p>
67	305259 / 740039	Walk			6	<p>A short linear feature measuring approximately 85m along the flat bank of the River Tay.</p> <p>Extends from another section of riverside walk, higher up the bank [65].</p> <p>Corresponds with a section of a riverside walk depicted on First Edition Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867) in this location.</p> <p>Associated with Murthly Castle GDL (HLT 14).</p>	Medium	 <p>Single Direction Hillshade Model; DTM azimuth 180° and altitude 35°.</p>

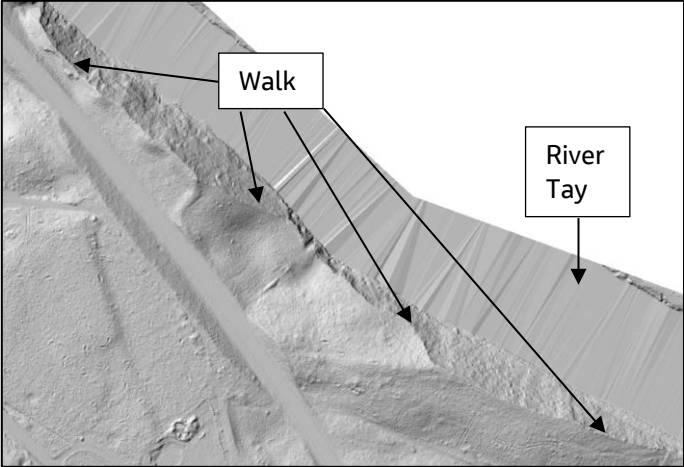
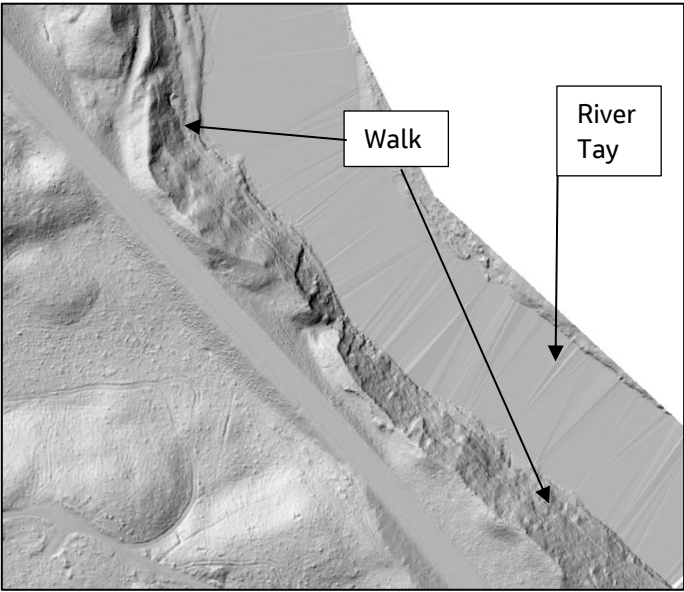


Unique Reference Number	Easting / Northing	Site Type	Known Cultural Heritage Asset Number	Local / National Reference Number(s)	Grid Square Reference(s)	Summary Description	Confidence Rating	Figure
68	305050 / 740159	Walk			6; 10	<p>A linear feature measuring approximately 360m in length and orientated roughly east-west, along the bank of the River Tay.</p> <p>A riverside walk is depicted in this location on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867; Ordnance Survey 25" Perth and Clackmannan sheet LXII.14 1901).</p> <p>Associated with Murthly Castle GDL (HLT 14).</p>	High	 <p>Single Direction Hillshade Model; DTM azimuth 180° and altitude 35°.</p>
69	304956 / 739644	Walk			1; 2	<p>A curvi-linear feature measuring approximately 100m in length in an area of woodland. Located between the B867 and the railway.</p> <p>A short walk within Birnam Wood is shown in this location on First Edition Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867).</p> <p>Associated with Murthly Castle GDL (HLT 14).</p>	High	 <p>Single Direction Hillshade Model; DTM azimuth 180° and altitude 35°.</p>

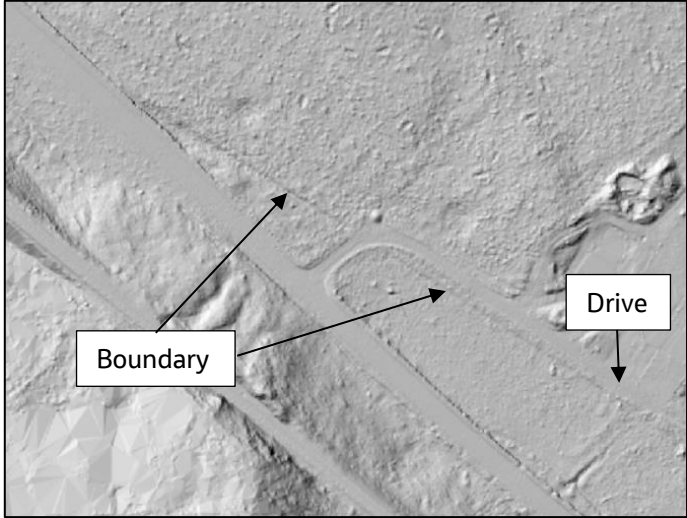
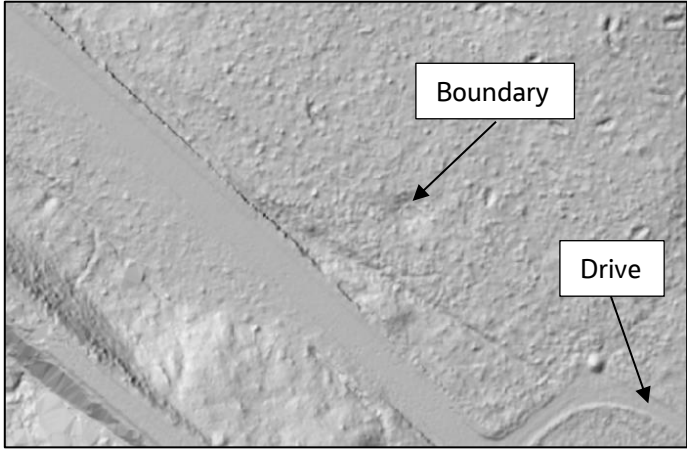
Unique Reference Number	Easting / Northing	Site Type	Known Cultural Heritage Asset Number	Local / National Reference Number(s)	Grid Square Reference(s)	Summary Description	Confidence Rating	Figure
70	304743 / 739895	Trackway			5	<p>A linear feature measuring approximately 80m in length, between the existing A9 and B867.</p> <p>No corresponding features are depicted on historic Ordnance Survey mapping in this location (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867).</p> <p>Interpreted as a possible section of trackway or footpath, likely more recent in date.</p>	Low	 <p>Single Direction Hillshade Model; DTM azimuth 180° and altitude 35°.</p>
71	304727 / 739957	Drive			5; 2	<p>A linear feature measuring approximately 890m in length running parallel to the existing A9 and B867.</p> <p>A drive is depicted on this alignment on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867; Ordnance Survey 25" Perth and Clackmannan sheet LXII.14 1901) and forms part of the Western Drive (conifers), bisected by the construction of the existing A9.</p> <p>Associated with Murthly Castle GDL (HLT 14).</p>	Medium	 <p>Single Direction Hillshade Model; DTM azimuth 180° and altitude 35°.</p>

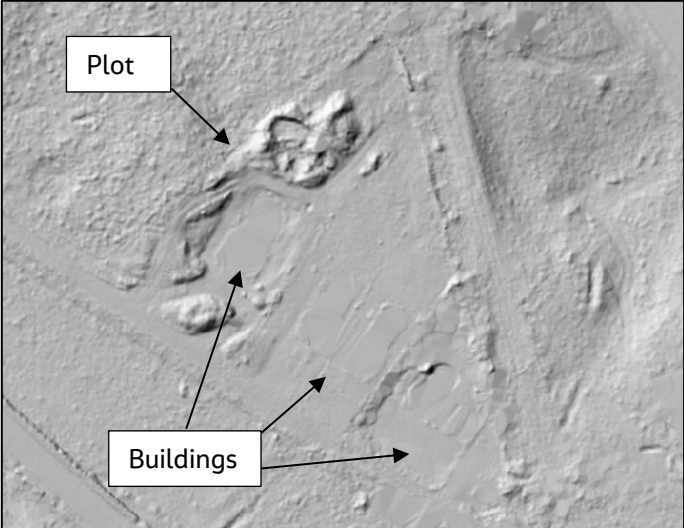
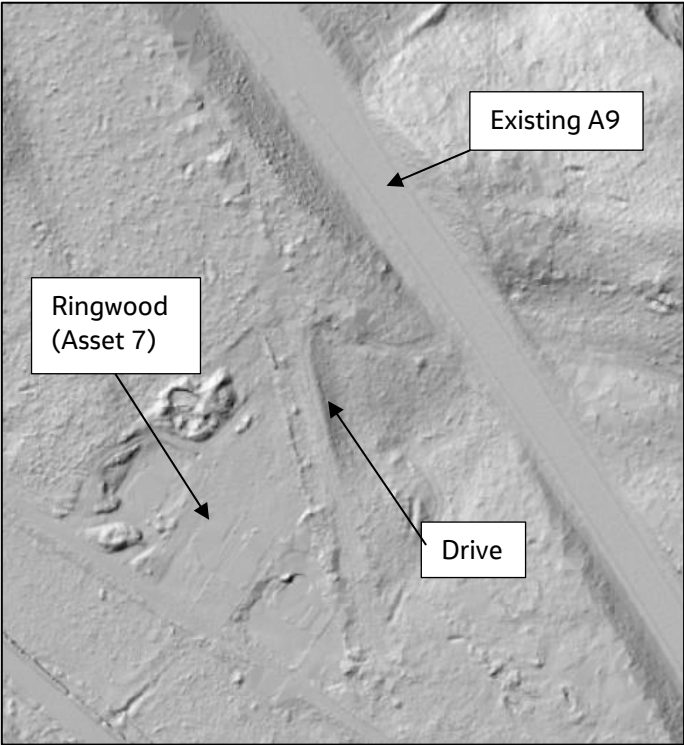
Unique Reference Number	Easting / Northing	Site Type	Known Cultural Heritage Asset Number	Local / National Reference Number(s)	Grid Square Reference(s)	Summary Description	Confidence Rating	Figure
72	304619 / 740041	Building	Asset 811		5	A square plot measuring approximately 45m by 34m, including a house and walled garden. Located between the existing A9 and B867. Depicted on First Edition Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867) as 'Dalpowie', an estate cottage (Asset 811). Associated with Murthly Castle GDL (HLT 14).	High	 <p>Single Direction Hillshade Model; DTM azimuth 180° and altitude 35°.</p>
73	304827 / 740217	Walk			10	A curvi-linear feature measuring approximately 115m in length skirting the base of a wooded localised high point and joins a riverside walk to the east [68]. No walks are depicted through Ring Wood in this location on First Edition Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867); however, one is shown on later editions (Ordnance Survey 25" Perth and Clackmannan sheet LXII.14 1901). Associated with Murthly Castle GDL (HLT 14).	Medium	 <p>Single Direction Hillshade Model; DTM azimuth 180° and altitude 35°.</p>
74	304703 / 740232	Trackway			5; 10	A linear feature measuring approximate 275m in length, orientated roughly east-west, skirting the base of a wooded localised high point. Joins another section of walk [73] to the east and is bisected by the existing A9 to the west. A walk is depicted on historic Ordnance Survey mapping in this location through Ring Wood (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867; Ordnance Survey 25" Perth and Clackmannan sheet LXII.14 1901); with the eastern most section likely a more recent extension into the area of open pasture. Associated with Murthly Castle GDL (HLT 14).	Medium	 <p>Single Direction Hillshade Model; DTM azimuth 180° and altitude 35°.</p>

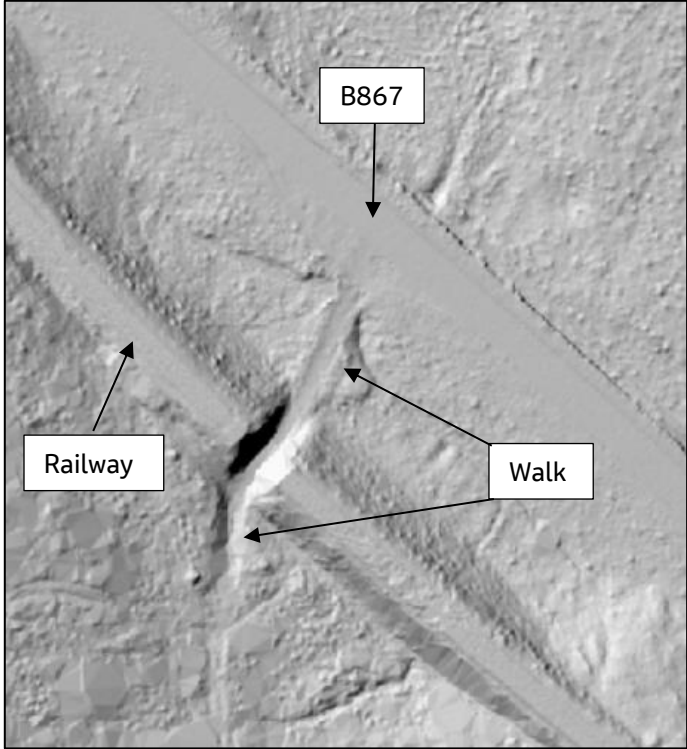
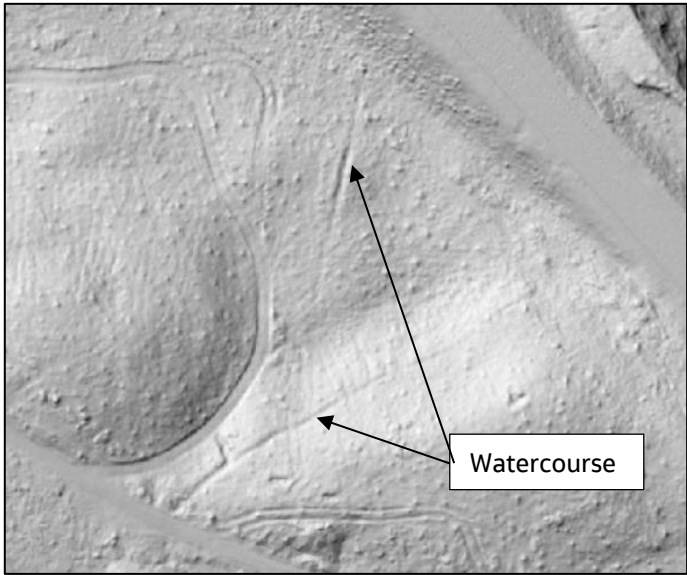


Unique Reference Number	Easting / Northing	Site Type	Known Cultural Heritage Asset Number	Local / National Reference Number(s)	Grid Square Reference(s)	Summary Description	Confidence Rating	Figure
75	304644 / 740338	Walk			9; 10	<p>A linear feature measuring approximately 680m in length and orientated roughly north-east to south-west, along the bank of the River Tay.</p> <p>A riverside walk is depicted in this location on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867).</p> <p>Associated with Murthly Castle GDL (HLT 14).</p>	Low	 <p>Single Direction Hillshade Model; DTM azimuth 180° and altitude 35°.</p>
76	304377 / 740598	Walk			9; 10; 13	<p>Two sinuous linear features forming a whole, totalling approximately 350m in length, running adjacent to the River Tay along the top of the steep riverbank.</p> <p>A riverside walk is depicted on First Edition Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867) within woodland in this location.</p> <p>Associated with Murthly Castle GDL (HLT 14).</p>		 <p>Single Direction Hillshade Model; DTM azimuth 180° and altitude 35°.</p>

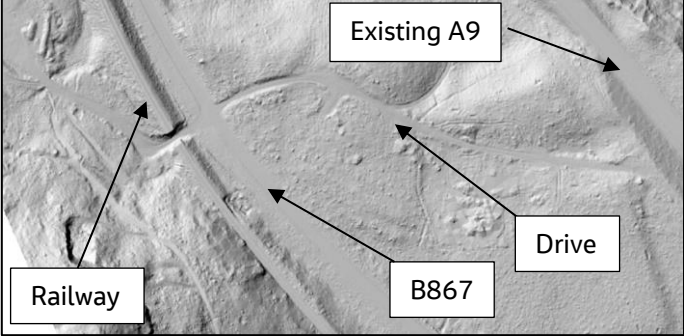
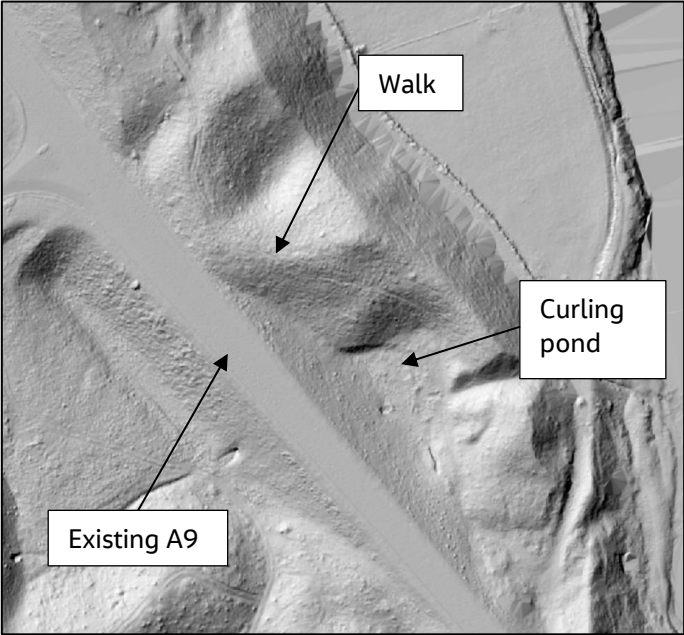


Unique Reference Number	Easting / Northing	Site Type	Known Cultural Heritage Asset Number	Local / National Reference Number(s)	Grid Square Reference(s)	Summary Description	Confidence Rating	Figure
77	304390 / 740243	Boundary			9	<p>Two linear features forming a whole, bisected by a drive, totalling approximately 340m in length (a parallel feature was also identified approximately 8m to the north of this feature; [78]).</p> <p>The drive continues along this alignment on First Edition Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867); however, is realigned on later mapping (Ordnance Survey 25" Perth and Clackmannan sheet LXII.14 1901).</p> <p>Interpreted as the remains of a boundary of the former drive associated with Murthly Castle GDL (HLT 14).</p>	Medium	 <p>Single Direction Hillshade Model; DTM azimuth 180° and altitude 35°.</p>
78	304343 / 740285	Boundary			9	<p>A linear feature measuring approximately 110m in length (a parallel feature was also identified approximately 8m to the south of this feature which could be a boundary; [77]).</p> <p>The drive continues along this alignment on First Edition Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867); however, is realigned on later mapping (Ordnance Survey 25" Perth and Clackmannan sheet LXII.14 1901).</p> <p>Interpreted as the remains of a boundary of the former drive.</p> <p>Associated with Murthly Castle GDL (HLT 14).</p>	Medium	 <p>Single Direction Hillshade Model; DTM azimuth 180° and altitude 35°.</p>

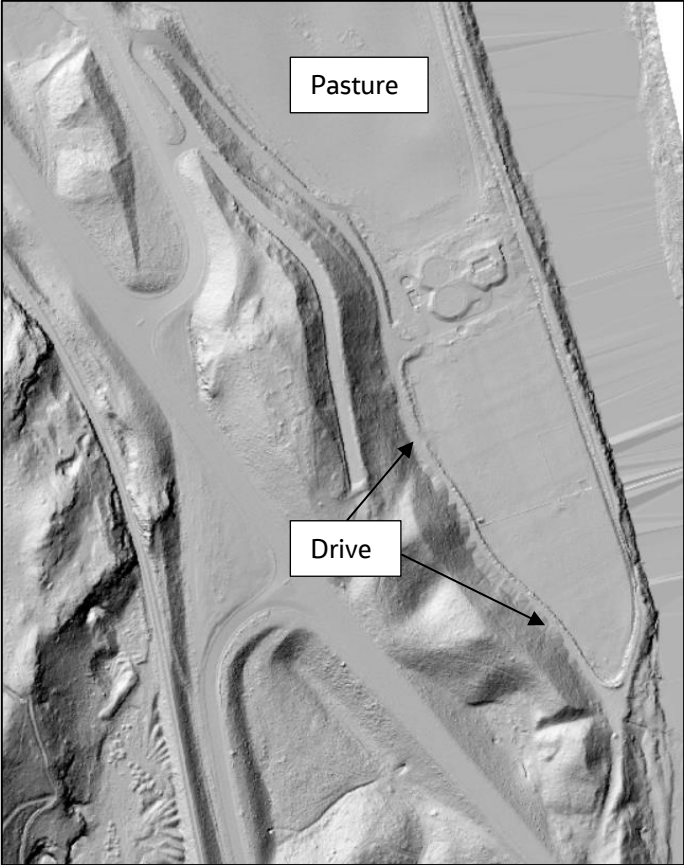
Unique Reference Number	Easting / Northing	Site Type	Known Cultural Heritage Asset Number	Local / National Reference Number(s)	Grid Square Reference(s)	Summary Description	Confidence Rating	Figure
79	304480 / 740231	Building	Asset 7		9; 10	<p>A wedge-shaped plot, bounded on two sides by local accesses, with several extant buildings located within it.</p> <p>Two buildings are depicted on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867) as 'Ringwood', estate cottages (Asset 7).</p> <p>Associated with Murthly Castle GDL (HLT 14).</p>	High	 <p>Single Direction Hillshade Model; DTM azimuth 180° and altitude 35°.</p>
80	304513 / 740246	Drive			9; 10	<p>A linear feature measuring approximately 144m adjacent to Ringwood (Asset 7). Bisected by the existing A9.</p> <p>A drive is depicted in this location on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867; Ordnance Survey 25" Perth and Clackmannan sheet LXII.14 1901).</p> <p>Associated with Murthly Castle GDL (HLT 14).</p>	High	 <p>Single Direction Hillshade Model; DTM azimuth 180° and altitude 35°.</p>

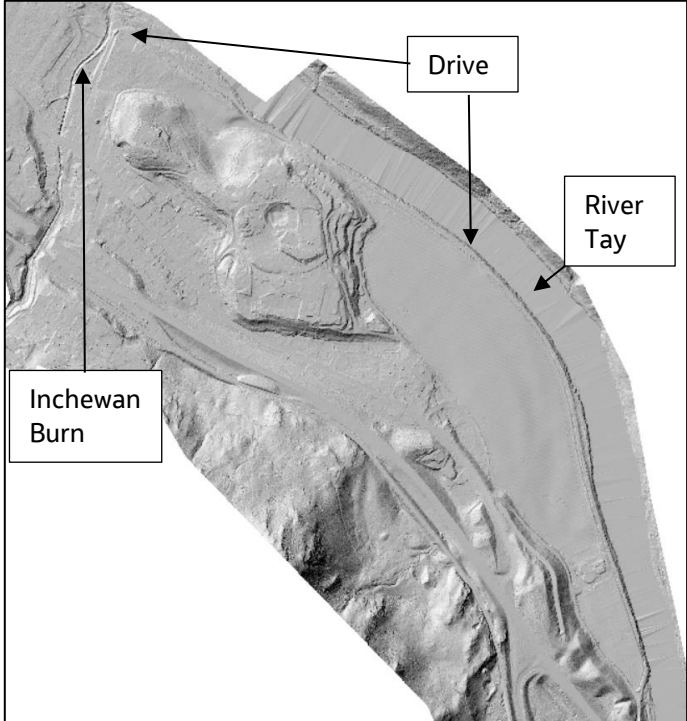
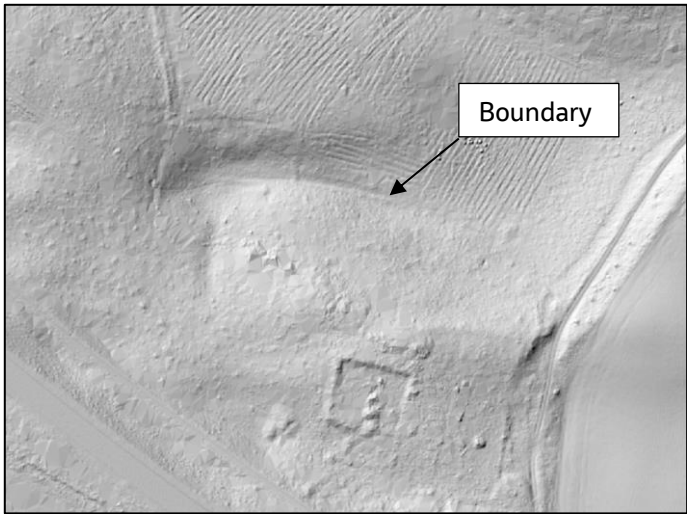
Unique Reference Number	Easting / Northing	Site Type	Known Cultural Heritage Asset Number	Local / National Reference Number(s)	Grid Square Reference(s)	Summary Description	Confidence Rating	Figure
81	304245 / 740294	Walk			9	<p>A linear feature measuring approximately 57m in length running under the Highland Railway. Continues to the north of the B867 for approximately 22m.</p> <p>A walk is depicted on First Edition Ordnance Survey mapping, adjacent to curling pond (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867), in this location.</p> <p>Associated with Murthly Castle GDL (HLT 14).</p>	Medium	 <p>Single Direction Hillshade Model; DTM azimuth 180° and altitude 35°.</p>
82	304264 / 740443	Watercourse			9	<p>A sinuous linear feature measuring approximately 166m in length.</p> <p>Interpreted as a watercourse depicted on First Edition Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867) running from/to the River Tay south and terminating near a curling pond.</p> <p>Later editions do not show the southern section of the watercourse (Ordnance Survey 25" Perth and Clackmannan sheet LXII.14 1901); however, a small pond is depicted in its place north of the B867.</p> <p>Associated with Murthly Castle GDL (HLT 14).</p>	Medium	 <p>Single Direction Hillshade Model; DTM azimuth 180° and altitude 35°.</p>

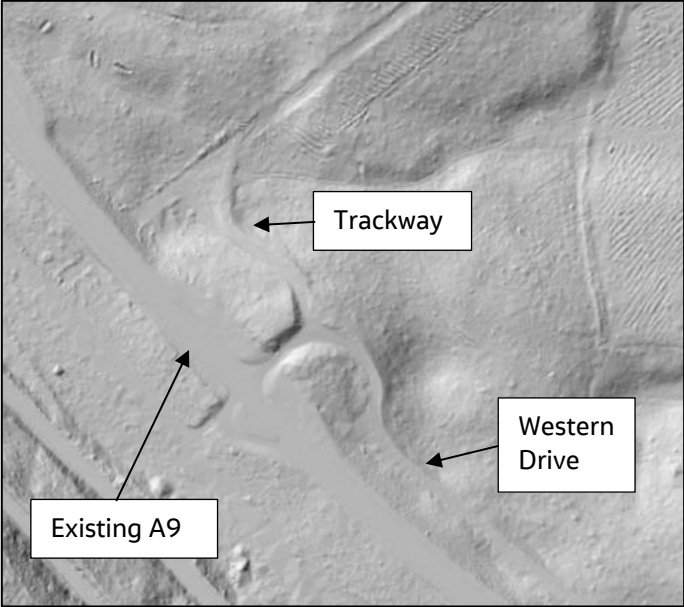
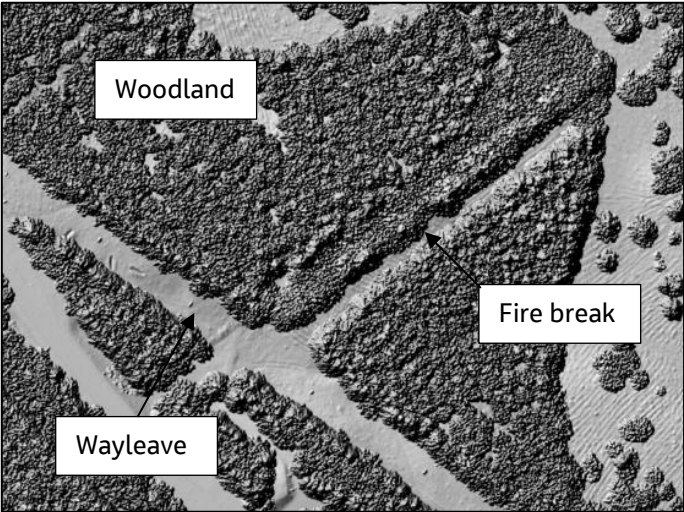


Unique Reference Number	Easting / Northing	Site Type	Known Cultural Heritage Asset Number	Local / National Reference Number(s)	Grid Square Reference(s)	Summary Description	Confidence Rating	Figure
83	304201 / 740468	Drive			9	<p>A linear feature measuring approximately 437m in length, running from the existing A9 to the Highland Railway, bisected by the B867, to the east of Birnam Quarry.</p> <p>Corresponds with a drive depicted on First Edition Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867).</p> <p>Copper Beech Avenue associated with Murthly Castle GDL (HLT 14).</p>	High	 <p>Single Direction Hillshade Model; DTM azimuth 180° and altitude 35°.</p>
84	304207 / 740759	Walk			13	<p>An ephemeral meandering linear feature measuring approximately 265m in length, following the contour mid-way up a localised high point.</p> <p>A walk is depicted in this location on First Edition Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867) skirting a curling pond [39].</p> <p>Associated with Murthly Castle GDL (HLT 14).</p>	Medium	 <p>Single Direction Hillshade Model; DTM azimuth 180° and altitude 35°.</p>

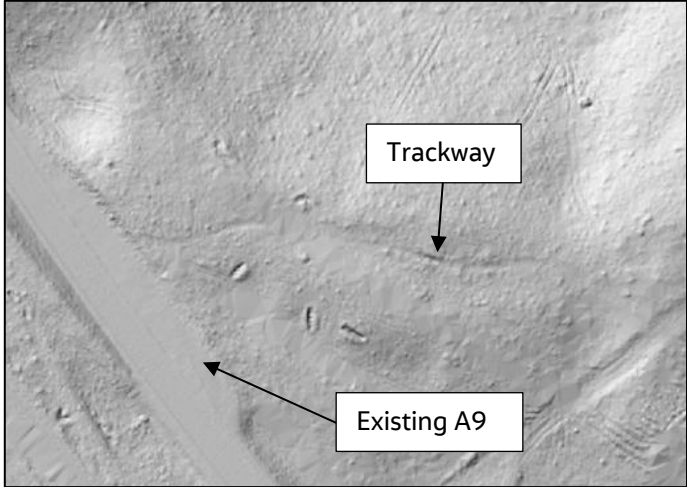
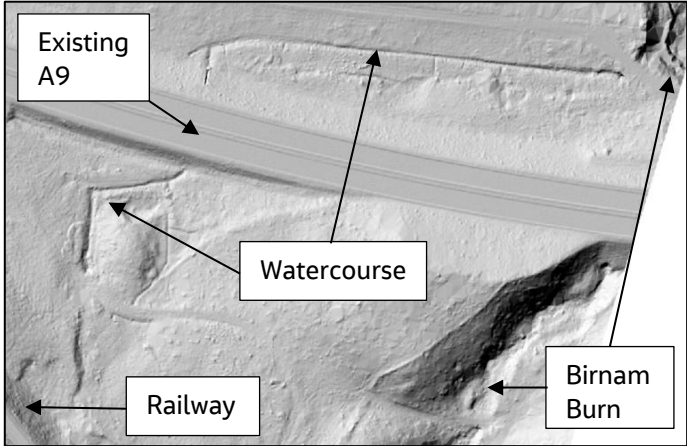


Unique Reference Number	Easting / Northing	Site Type	Known Cultural Heritage Asset Number	Local / National Reference Number(s)	Grid Square Reference(s)	Summary Description	Confidence Rating	Figure
85	304119 / 740997	Drive			13	<p>A linear feature measuring approximately 600m in length, aligned roughly north to south in woodland, running adjacent to an area of open pasture.</p> <p>A former section of drive from Perth Road is depicted on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867) in this location.</p> <p>Associated with Murthly Castle GDL (HLT 14).</p>	High	 <p>Single Direction Hillshade Model; DTM azimuth 180° and altitude 35°.</p>

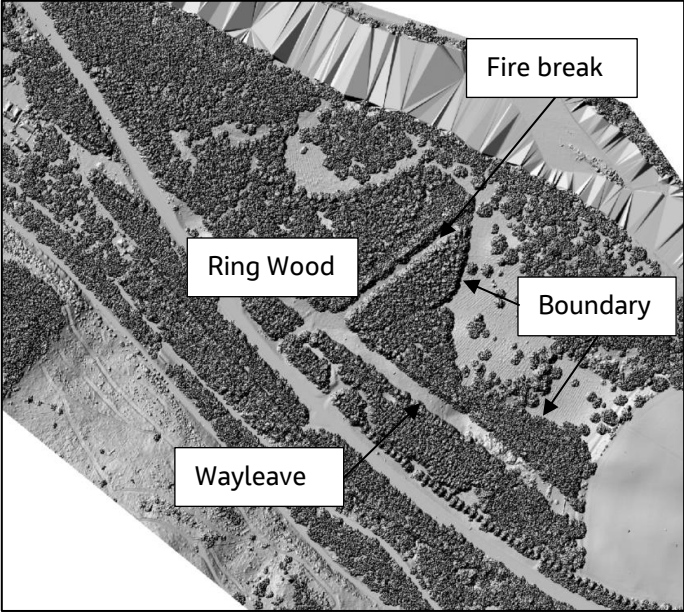
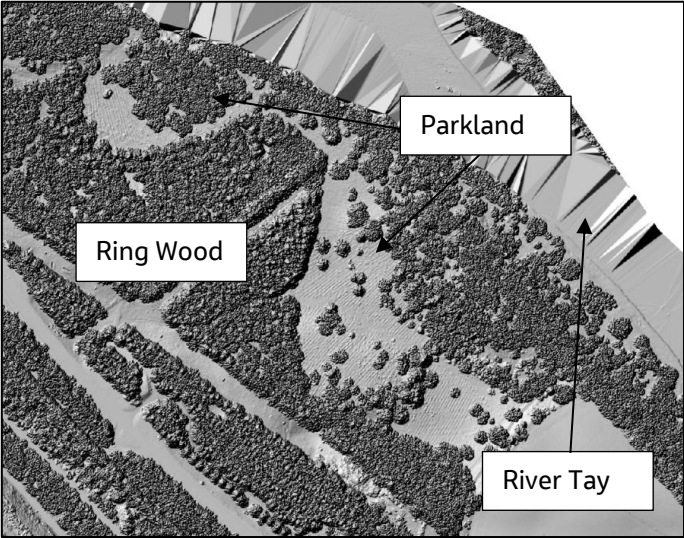
Unique Reference Number	Easting / Northing	Site Type	Known Cultural Heritage Asset Number	Local / National Reference Number(s)	Grid Square Reference(s)	Summary Description	Confidence Rating	Figure
86	303565 / 741904	Drive			13; 17; 16; 23; 22	<p>An 'L'-shaped linear feature measuring approximately 1.25km in length, running roughly south-west to north-east in Birnam before turning south-east towards the main GDL.</p> <p>A riverside drive, complete with curved bay (suggesting a wall lined the landward side of the drive), is depicted on First Edition Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire sheet LXII, 1867), along Inchewan Burn; however, the feature identified matches a slightly later iteration closer to Birnam Hotel (Ordnance Survey 6" (Perth and Clackmannan sheet LXII.SW, 1901).</p> <p>Associated with Murthly Castle GDL (HLT 14).</p>	High	 <p>Single Direction Hillshade Model; DTM azimuth 180° and altitude 35°.</p>
87	305130 / 739830	Boundary			6	<p>An ephemeral positive curvi-linear feature measuring approximately 190m in length running roughly east to west. May form part of Reference Number 66.</p> <p>Located within an area of plantation.</p> <p>Corresponds to the boundary of woodland depicted on historic Ordnance Survey mapping (Ordnance Survey 25" (First Edition) Perth and Clackmannanshire sheet LXII.14, 1866).</p> <p>Associated with Murthly Castle GDL (HLT 14).</p>	Low	 <p>Single Direction Hillshade Model; DTM azimuth 180° and altitude 45°.</p>

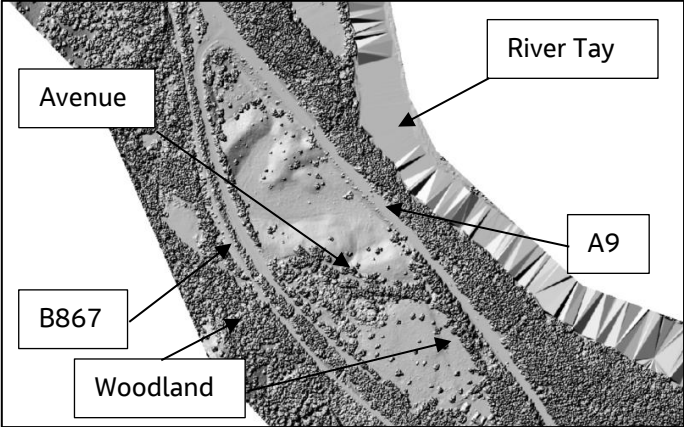

Unique Reference Number	Easting / Northing	Site Type	Known Cultural Heritage Asset Number	Local / National Reference Number(s)	Grid Square Reference(s)	Summary Description	Confidence Rating	Figure
88	304909 / 739915	Trackway			5; 6	<p>A negative curvi-linear feature that orientated roughly east to west; however, splits adjacent to the existing A9.</p> <p>Comprises the junction of the realigned Western Drive of Murthly Castle GDL (HLT 14) with the existing A9 and an access track leading into the plantation woodland to the north.</p> <p>Visible on modern aerial imagery (Bing, 2024). Associated with Murthly Castle GDL (HLT 14).</p>	High	 <p>Single Direction Hillshade Model; DTM azimuth 180° and altitude 45°.</p>
89	304933 / 740022	Fire break			5; 6	<p>A linear feature measuring approximately 280m in length, orientated roughly north-east to south-west, through an area of plantation woodland. Bisected by the wayleave of an overhead line.</p> <p>Visible on modern aerial imagery (Bing, 2024).</p>	High	 <p>Single Direction Hillshade Model; DSM azimuth 180° and altitude 45°.</p>



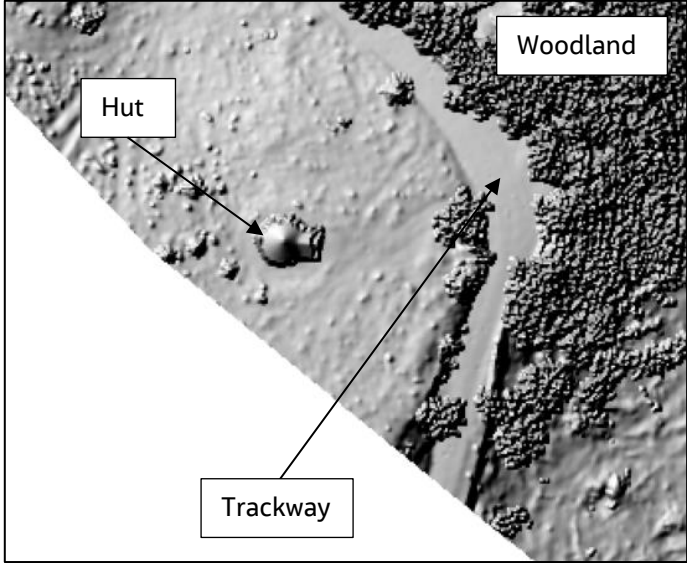
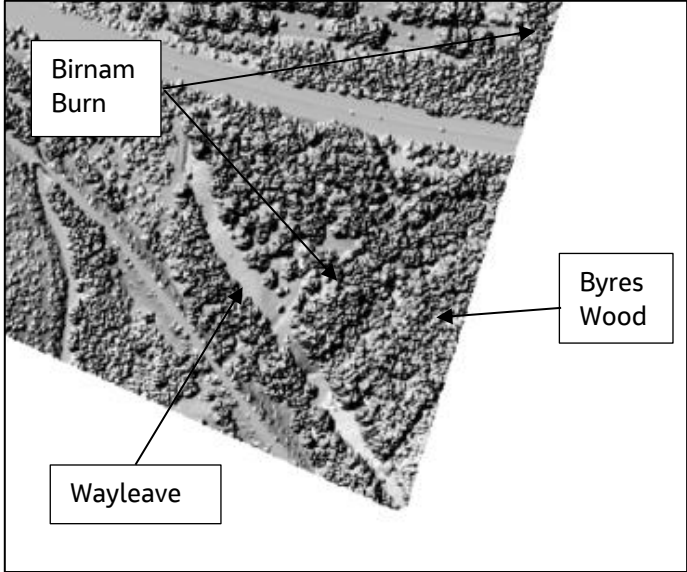
Unique Reference Number	Easting / Northing	Site Type	Known Cultural Heritage Asset Number	Local / National Reference Number(s)	Grid Square Reference(s)	Summary Description	Confidence Rating	Figure
90	304829 / 740023	Trackway			5	<p>A narrow negative linear feature measuring approximately 18m and orientated roughly east to west. Appears to be truncated by the existing A9 to the west. Not depicted on historic mapping.</p> <p>Interpreted as a possible trackway within plantation woodland.</p> <p>Associated with Murthly Castle GDL (HLT 14).</p>	Low	 <p>Single Direction Hillshade Model; DTM azimuth 180° and altitude 45°.</p>
91	305510 / 739492	Watercourse			2; 3	<p>A narrow linear channel that runs parallel to the existing A9 (east to west) from Birnam Burn, turns to the south crossing under the road, before continuing parallel to the exiting A9 to the south of the carriageway, before turning again to run south to the railway.</p> <p>A linear watercourse is depicted on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire, Sheet LXII, 1867) running from Birnam Burn and under the railway and may correspond with the southern section of this feature. However, it is likely the straight sections either side of the existing A9 have been realigned.</p> <p>Associated with Murthly Castle GDL (HLT 14).</p>	Medium	 <p>Single Direction Hillshade Model; DTM azimuth 180° and altitude 45°.</p>

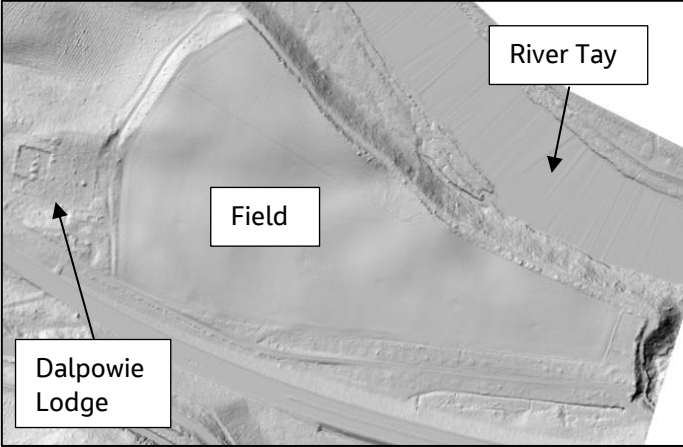
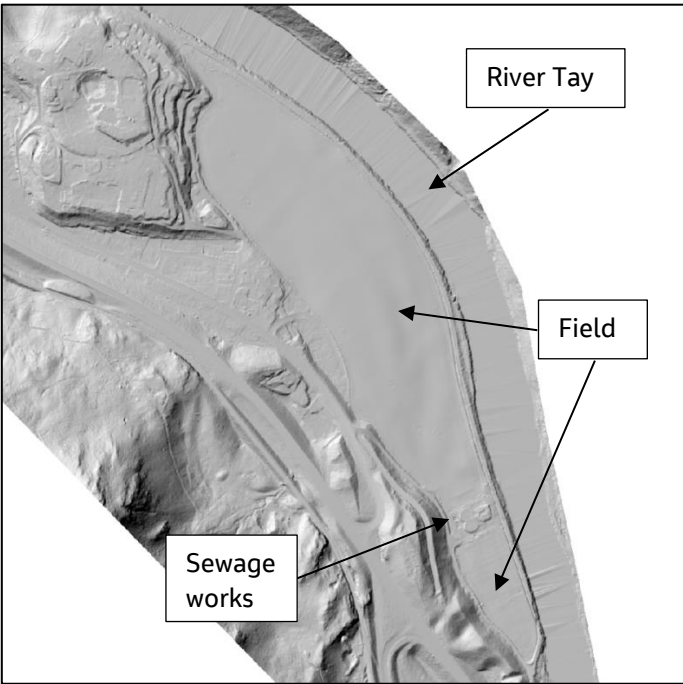


Unique Reference Number	Easting / Northing	Site Type	Known Cultural Heritage Asset Number	Local / National Reference Number(s)	Grid Square Reference(s)	Summary Description	Confidence Rating	Figure
92	304808 / 740055	Woodland			5; 6; 10	<p>An irregular area of higher ground, covered with dense plantation woodland on the south bank of the River Tay. A fire break (Reference Number: 89) and a wayleave for an overhead line cut through this area of woodland.</p> <p>The form of the woodland corresponds with 'Ring Wood' depicted on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire, Sheet LXII, 1867). A possible boundary was also identified edging the northern boundary of the woodland (Reference Numbers: 66 and 87).</p> <p>Associated with Murthly Castle GDL (HLT 14).</p>	High	 <p>Single Direction Hillshade Model; DSM azimuth 180° and altitude 45°.</p>
93	305086 / 740008	Parkland			5; 6; 10	<p>An irregular lower-lying area on the south bank of the River Tay, with scattered trees, adjacent to Ring Wood (Reference Number: 92).</p> <p>The form of the area corresponds with an area of riverside parkland depicted on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire, Sheet LXII, 1867).</p> <p>Associated with Murthly Castle GDL (HLT 14).</p>	High	 <p>Single Direction Hillshade Model; DSM azimuth 180° and altitude 45°.</p>

Unique Reference Number	Easting / Northing	Site Type	Known Cultural Heritage Asset Number	Local / National Reference Number(s)	Grid Square Reference(s)	Summary Description	Confidence Rating	Figure
94	304244 / 740546	Woodland			9; 10	<p>An area of ground, covered with scrub and woodland. Bounded by the B867 to the west and River Tay to the north-east. An avenue of trees was noted. The area is bisected by the existing A9.</p> <p>The form of this area corresponds with an area of woodland with irregular open areas, as well as an avenue, depicted on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire, Sheet LXII, 1867).</p> <p>Associated with Murthly Castle GDL (HLT 14).</p>	High	 <p>Single Direction Hillshade Model; DSM azimuth 180° and altitude 45°.</p>
95	304066 / 740913	Woodland			9; 13; 12	<p>An area of woodland bisected by the existing A9. While the A9 bounds the woodland to the west, the form corresponds with woodland depicted on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire, Sheet LXII, 1867).</p> <p>Associated with Murthly Castle GDL (HLT 14).</p>	High	 <p>Single Direction Hillshade Model; DSM azimuth 180° and altitude 45°.</p>



Unique Reference Number	Easting / Northing	Site Type	Known Cultural Heritage Asset Number	Local / National Reference Number(s)	Grid Square Reference(s)	Summary Description	Confidence Rating	Figure
96	304442 / 739886	Building	Asset 6	LB50775	4	<p>A circular structure with conical roof, measuring approximately 6m in diameter, with a projecting porch to the west of a trackway. Located in an elevated position on the side of a hill with plantation woodland to the east.</p> <p>Corresponds with a small building depicted on historic Ordnance Survey mapping (Ordnance Survey 25" (First Edition) Perth and Clackmannanshire, Sheet LXII.14 (Little Dunkeld), 1866) west of 'King's Rock'.</p> <p>Associated with Murthly Castle GDL (HLT 14).</p>	High	 <p>Single Direction Hillshade Model; DSM azimuth 180° and altitude 45°.</p>
97	305580 / 739278	Woodland			3	<p>An area of dense plantation woodland (extends beyond the LiDAR coverage), to the east of Birnam Burn, with a wayleave for an overhead line cut through it.</p> <p>The woodland corresponds with 'Byres Wood' depicted on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire, Sheet LXII, 1867).</p> <p>Associated with Murthly Castle GDL (HLT 14).</p>	High	 <p>Single Direction Hillshade Model; DSM azimuth 180° and altitude 45°.</p>

Unique Reference Number	Easting / Northing	Site Type	Known Cultural Heritage Asset Number	Local / National Reference Number(s)	Grid Square Reference(s)	Summary Description	Confidence Rating	Figure
98	305381 / 739690	Field			2; 3; 6; 7	<p>A large irregular, flat field to the south of the River Tay.</p> <p>The field corresponds with a field of this shape depicted on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire, Sheet LXII, 1867) to the east of Dalpowie Lodge (Reference Number: 13).</p> <p>Associated with Murthly Castle GDL (HLT 14).</p>	High	 <p>Single Direction Hillshade Model; DTM azimuth 180° and altitude 45°.</p>
99	303965 / 741413	Field			13; 16; 17; 23	<p>A large irregular, flat field to the west of the River Tay and south-east of Birnam. A modern sewage works is located in the southern half of the field.</p> <p>The field corresponds with a field of this shape depicted on historic Ordnance Survey mapping (Ordnance Survey 6" (First Edition) Perthshire, Sheet LXII, 1867).</p> <p>Associated with Murthly Castle GDL (HLT 14).</p>	High	 <p>Single Direction Hillshade Model; DTM azimuth 180° and altitude 45°.</p>



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