ROMAN·ROADS·RESEARCH ASSOCIATION

ISSN 2752-8235 NEWSLETTER NO.23 AUTUMN 2022

MILLE·VIAE·DUCUNT HOMINES PER·SECULA·ROMAM

FROM THE (FORMER) EDITOR

Well; I've passed editing the newsletter on to Hannah Collingridge (thanks Han), but, after constructing 99% of this newsletter, and really well too, Han's been laid low by covid. Best wishes Han and get well soon. I've stepped in to finish off the final percent and get this out to you the members. The Spring newsletter came out late behind all the effort that went into completing Volume 2 of *Itinera* so we decided to skip over a Summer edition - so it has been quite a while since the last newsletter came out. Hopefully as a consequence you'll enjoy this edition.

In this edition you'll find a new update on the roads of Cumbria from David Ratledge. And on top of that he has been intrigued by Paul Whitewick's Wiltshire blog on RR164 searching the available lidar to extend Paul's information on this road. Following on from the article in the Spring edition about Ryknild Street RR18b in Sutton Park, Paul Smith and Keith Hopkinson have postulated how drainage culverts under Roman roads would not only have been a necessary consideration but also how they may have been constructed and what surviving evidence there is. This edition is concluded with the usual round up of coming events and smaller snippets of news.

Speaking of coming events; our Associations AGM scheduling has been adjusted for later in November, Thursday the 27th. Please keep this evening free, we'll be issuing a Zoom invite to members soon with all the backing documents.

So; get well soon Han, thanks for taking on the editing and helping the Association. As ever, this newsletter wouldn't have been possible without the contributions from members. Please keep letting Han know of your latest research and findings.

Dave (contact Han on Mountainposture@gmail.com)

IN THIS EDITION

Latest Road Updates

Other Road News

Latest Road Updates

Cumbria Update Part 2

From David Ratledge

Introduction

The release of further National Lidar Programme data for Cumbria has enabled more of the missing pieces in the Roman Road network to be located. There are still some annoying gaps, such as Cleator to Ravenglass and Ambleside to Cockermouth via Keswick. Despite these it is now obvious Cumbria must have been of considerable importance to the Romans to justify such a comprehensive road network.

Fig. 1: The Roman roads of Cumbria. Unlike the impression given by the Ordnance Survey Roman Britain map it is becoming clear Cumbria had a comprehensive Roman road network. Base mapping is Opendata copyright Ordnance Survey.

Continued on p. 3

Cumbria Update Part 2

Continued from p.2

I have shown High Street RR74 (dashed) but following investigations by John Poulter, Historic England and my own recent lidar studies this "road" must now be regarded as most likely not Roman.

Also unlikely to be Roman in origin are the suggested Roman roads RR707 and RR731 – no convincing evidence has been forthcoming. In the latter's case no connection from Stennerskeugh to Kirkby Stephen is evident.

Carlisle to Papcastle Roman Road RR75

It has always been assumed that leaving Carlisle this road initially followed Wigton Road (A595) leaving Carlisle (Margary, 1957). However, lidar has shown that this was almost certainly not the case (fig. 2).

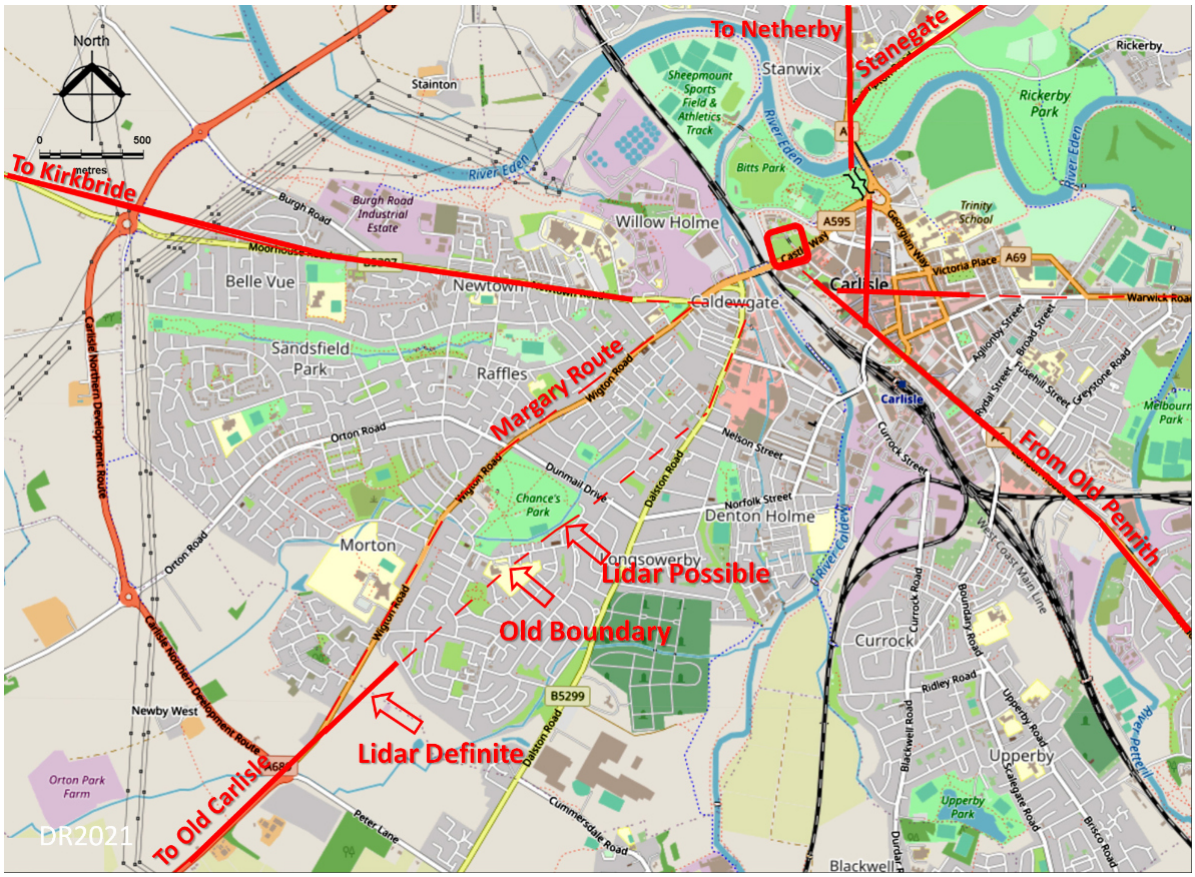


Fig. 2: The Roman Road network of Carlisle. The revised line of RR75 to Old Carlisle is shown. This road and the road to Kirkbride would most likely have shared a common bridge over the River Caldew Mapping is © OpenStreetMap contributors.

Continued on p. 4

Cumbria Update Part 2

Continued from p.3

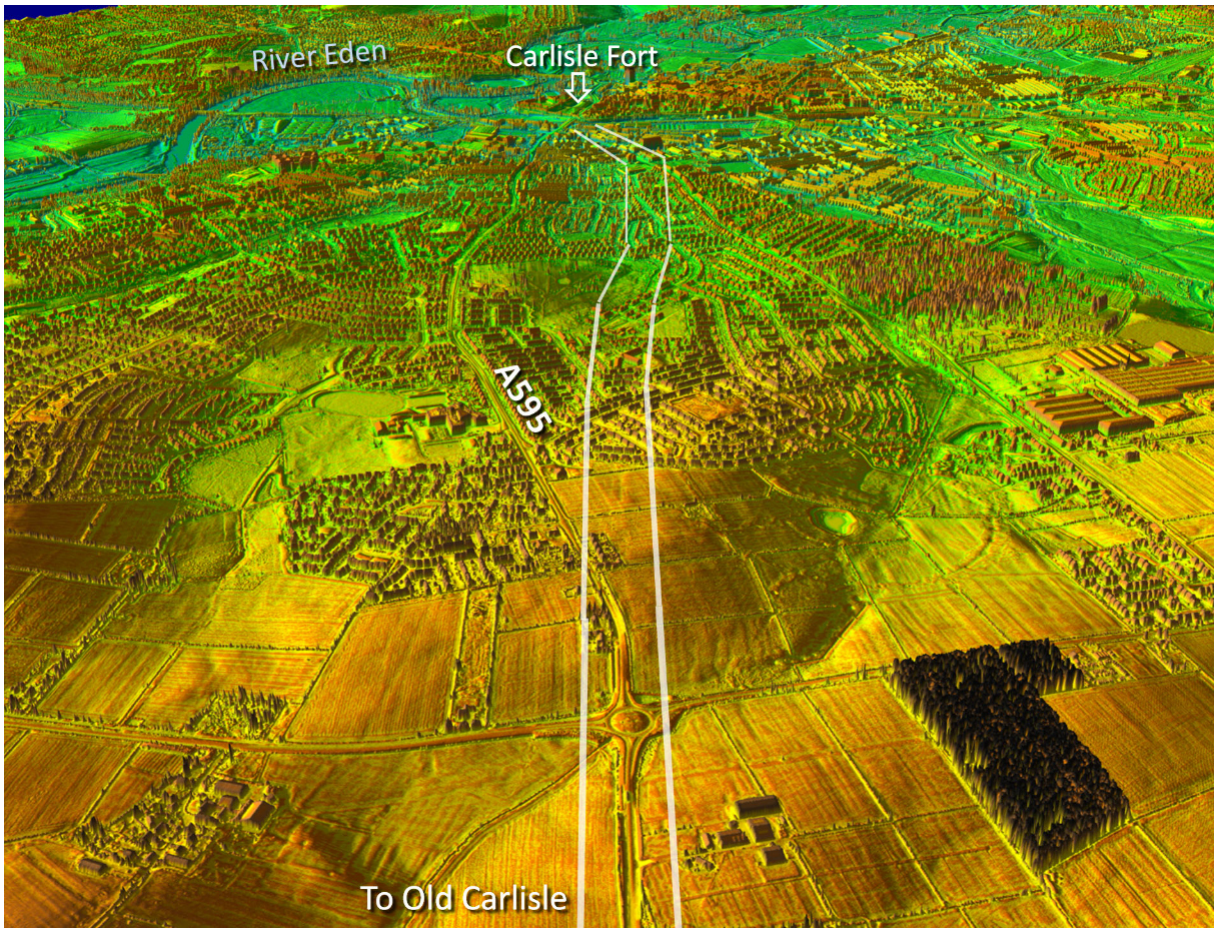


Fig. 3: Oblique 3D lidar Image looking back towards Carlisle. It can clearly be seen the agger *of the Roman road to Old Carlisle did not follow the modern A595 as previously assumed but took a more direct course for the city centre.*
Base lidar data is © Crown Copyright 2021

There are clear lidar indications (NY37736 54046) that the Roman line was more direct and aligned with the A595 south-west of the A689 roundabout. The 3D lidar model (fig. 3) also indicates a possible further trace at Chances Park (NY38588 54795). However, landscaping for the park may have created a false clue but supporting this line is that the Ordnance Survey first edition 6-inch map indicates an old boundary aligned between these two sections.

The evidence therefore suggests that the road was heading towards Shaddongate (B5299), which possibly then marks its course before it would need to cross the River Caldew for access to the Carlisle settlement and fort area. Precisely where the River Caldew was crossed is somewhat vague but the crossing (bridge) would no doubt have been shared with the road to Kirkbride. The latter's alignment would suggest a point south of the modern bridge.

Continued on p. 5

Cumbria Update Part 2

Continued from p.4

Kirkbride to Bowness Roman Road RR755(x)

This road is a logical extension of the roads from both Carlisle and Old Carlisle to Kirkbride. Kirkbride which pre-dated the Hadrian's Wall by almost 50 years. The extension can therefore be dated to the arrival of the Wall, c. AD122.

Lidar imagery also shows clearly an old course of the River Eden connecting into the Wampool Estuary. North-west of this is a low lying mossy area leaving little choice for the routing of a road to Bowness.

There are indications of a road passing the north west corner of Kirkbride fort and again just to the east of Whitrigg House there are signs of an *agger* (NY23110 58282). This stretch crossing that old course of the Eden is somewhat speculative.

From Whitrigg the modern road to Bowness overlies much of the Roman route. There is however, in the middle section, a stretch where the original Roman line becomes visible, first in fields to the east (NY23097 59817) and second alongside the modern road immediately to its west (NY23022 60259). There are a few faint clues approaching Bowness too.

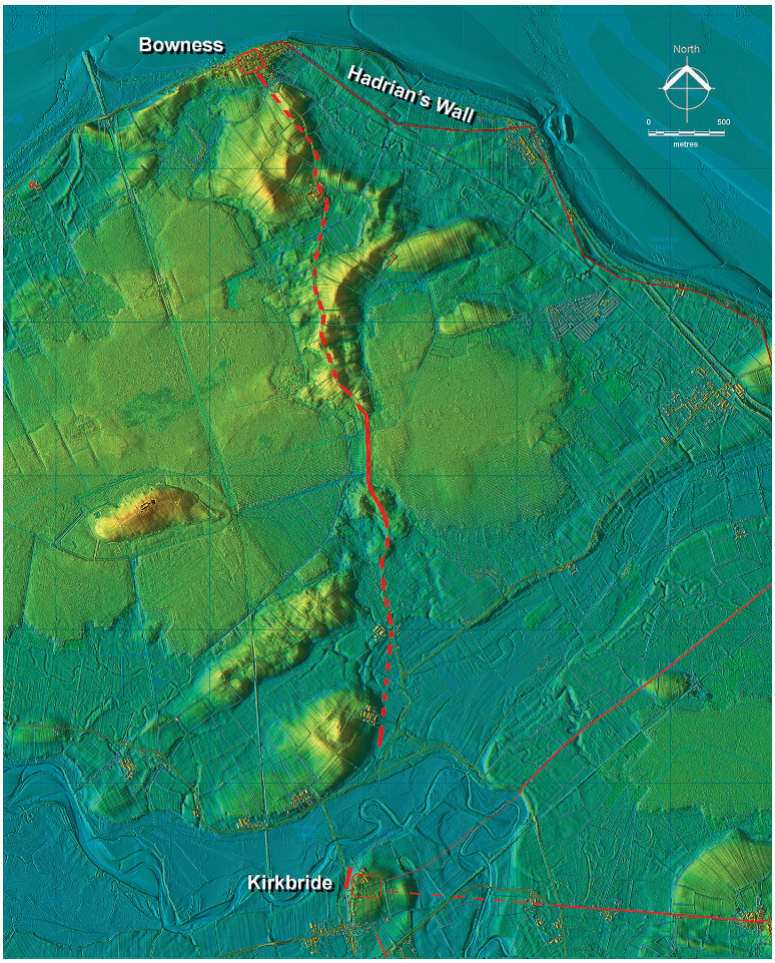


Fig. 4: North of Kirkbride the road has to cross an old course of the River Eden and evidence here is very vague. After this the road avoids the large moss areas and makes use of the few dry hillocks that there are. Base lidar data is © Crown Copyright 2021

Continued on p. 6

Cumbria Update Part 2

Continued from p.5

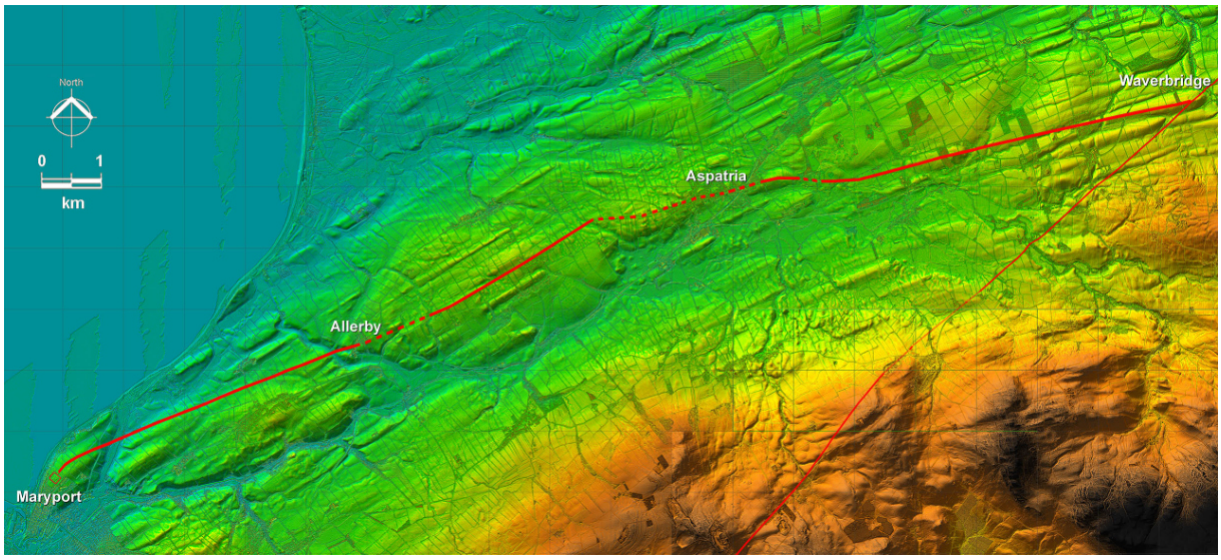
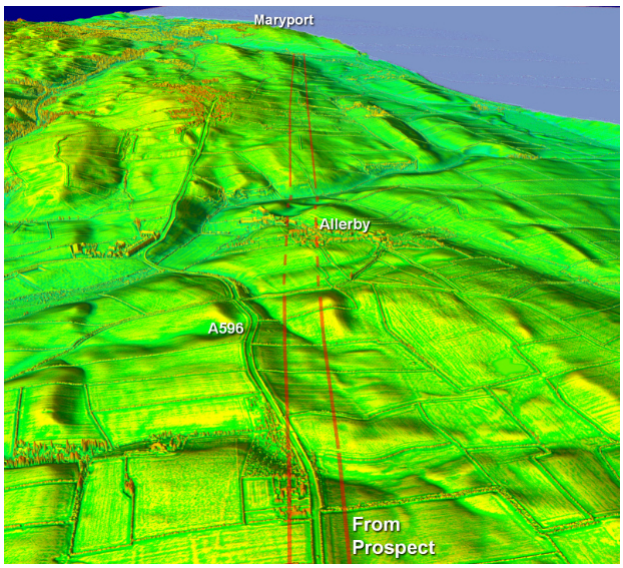


Fig. 5 (above): The road leaves the Carlisle to Cockermouth road at Wavertree and heads via the high ground of Aspatria and Prospect. Note how it cleverly makes use of the glacial striations.

Fig. 6 (below): Only faint clues at Allerby but as they align with the certain sections either side we can now be confident of the alignment here. Base lidar data is © Crown Copyright 2021

Old Carlisle to Maryport RR 754



The initial original Composite Lidar data, although incomplete, was sufficient to determine much of the course of the road. The full route lidar image (fig. 5) shows how the road cleverly followed high ground and kept out of the River Ellen valley. An exact straight course would not have been as practical. However, it would need National Lidar Programme data Lidar before the route at Allerby could be evaluated but the clues there are still very limited (fig. 6). East of the village then perhaps the parallel road ditches are visible (NY08505 39300) plus a short length of *agger* immediately east of Brunsow Beck (NY09944 39856). On their own perhaps insufficient but given that the alignments either side of the village are secure we can be reasonably confident that interpolation here will be very close to correct.

Continued on p. 7

Cumbria Update Part 2

Continued from p.6

Papcastle to Cleator(?) Roman Road RR75

This road was previously known from south of Ullock to Cleator. Its origin was obviously Papcastle but the 5 miles from Papcastle to Ullock were lost. With the release of National Lidar Programme data by Defra the connection to Papcastle has now been established (fig. 7).

The Roman road map adjacent to the Papcastle fort is derived from that by Eric Apperley. (Apperley, 2009) Eric located the bridge site and our road appears to be an extension of the road from Old Carlisle, which bypasses the fort on it southern sides and headed for the bridge.

Having crossed the bridge over the River Derwent (NY10950 30970), the road takes a direct line to Tendley Hill (fig. 8 – left). To reach the hill top the road made use of a natural valley (NY08783 29245) easing the climb - typically clever Roman surveying.

Having completed its climb the road turned south (fig 8-right) but due to quarrying on the hill its course only becomes apparent once the works are cleared (NY08660 28415). The route over the hill would have made for an excellent sighting point for the road.

There was another smaller change of direction north-east of Dean (NY08030 25800) and the

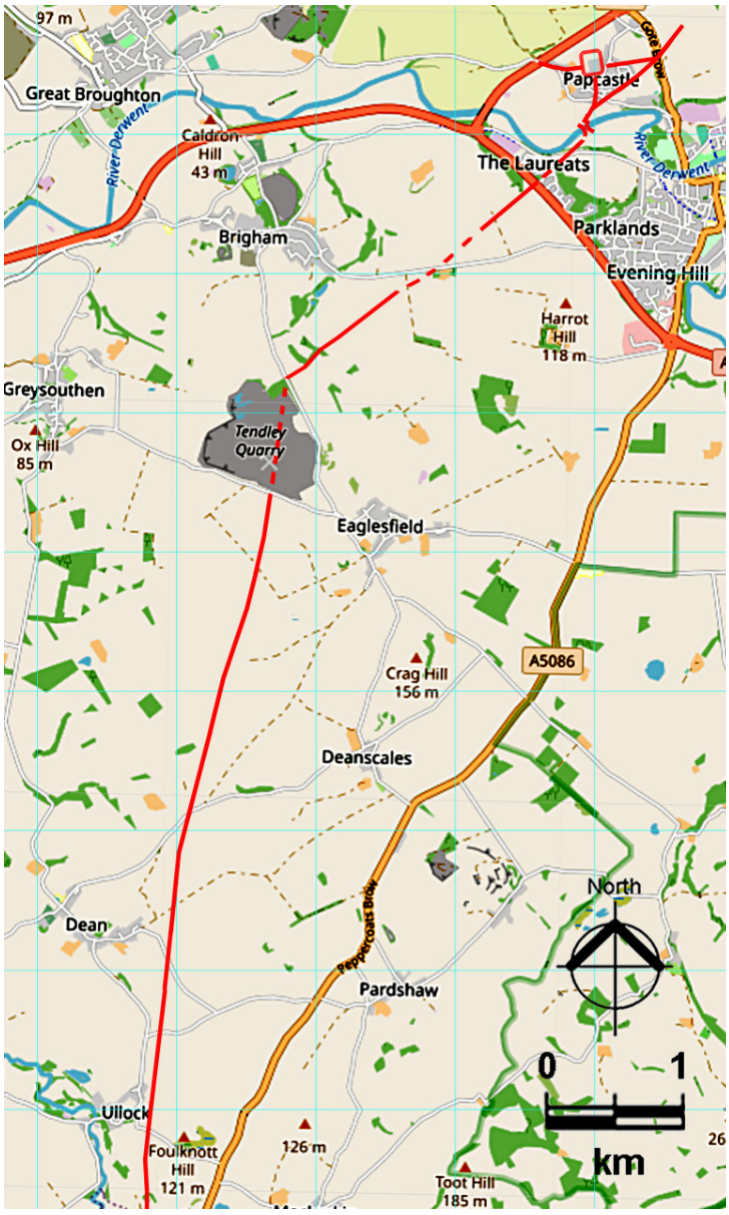


Figure 7: Tendley Hill clearly played a major role is the setting out of this road. A more direct line via Eaglesfield was rejected; presumably the high ground of Tendley Hill offered some strategic benefit. Mapping is © OpenStreetMap contributors.

Continued on p. 8

Cumbria Update Part 2

Continued from p.7

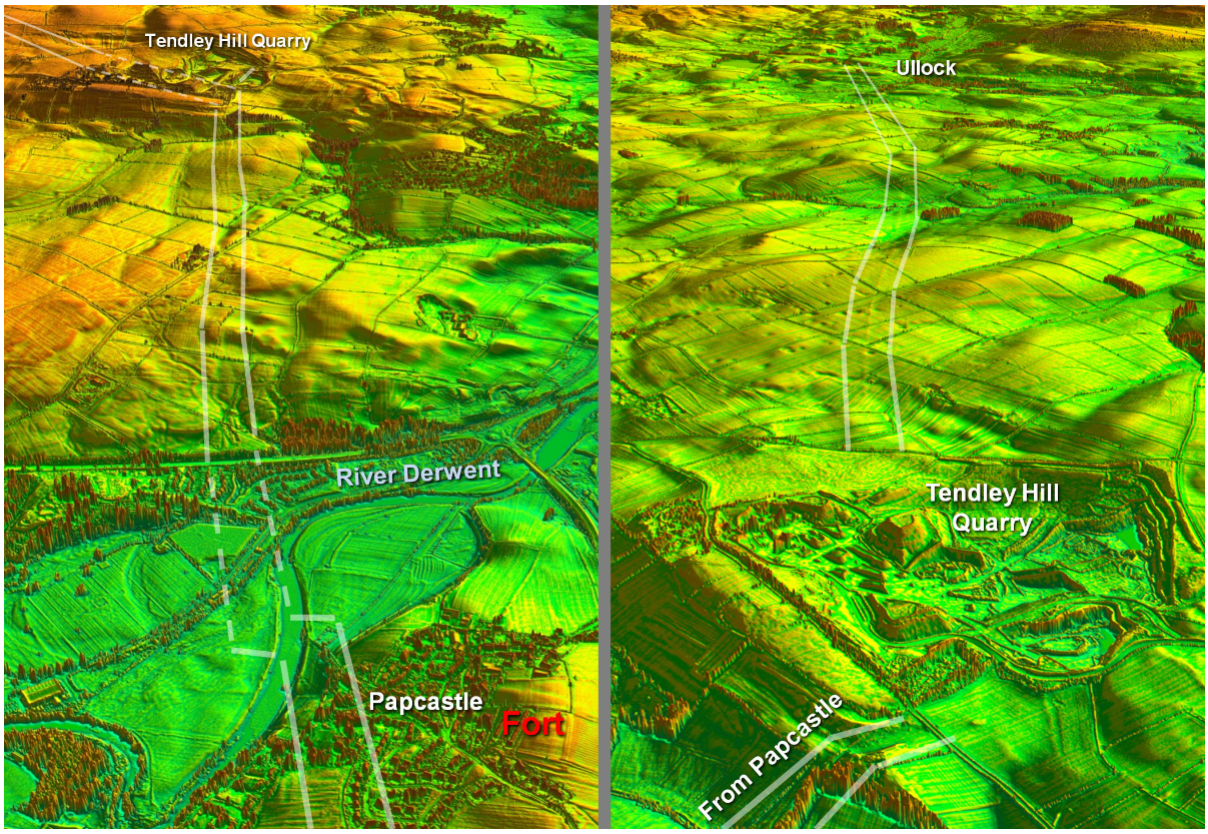


Fig. 8: left: Once across the bridge (recorded by Apperley) the road aims for a small valley on the side of Tendley Hill. This represents by far the easiest ascent of the hill.

Right: Having climbed up the small valley the road turns south and is clear once the quarry workings are passed. The ultimate southern destination of this road has still to be determined.

Base lidar data is © Crown Copyright 2021

road then headed to Smithy Bridge, Ullock (NY07775 23650). Beyond here the road is well recorded to Cleator.

Ambleside to Ravenglass Roman Road, Hardknott Fort, RR740

Not the easiest of terrain (fig. 9) to lay out a road system but both the fort and parade ground appear to have been served by connecting roads. The parade ground is an interesting shape with ramparts and rounded corners plus an entrance not unlike an external *clavicula*, somewhat similar to Troutbeck camp. Was it originally a temporary camp?

Continued on p. 9

Cumbria Update Part 2

Continued from p.8

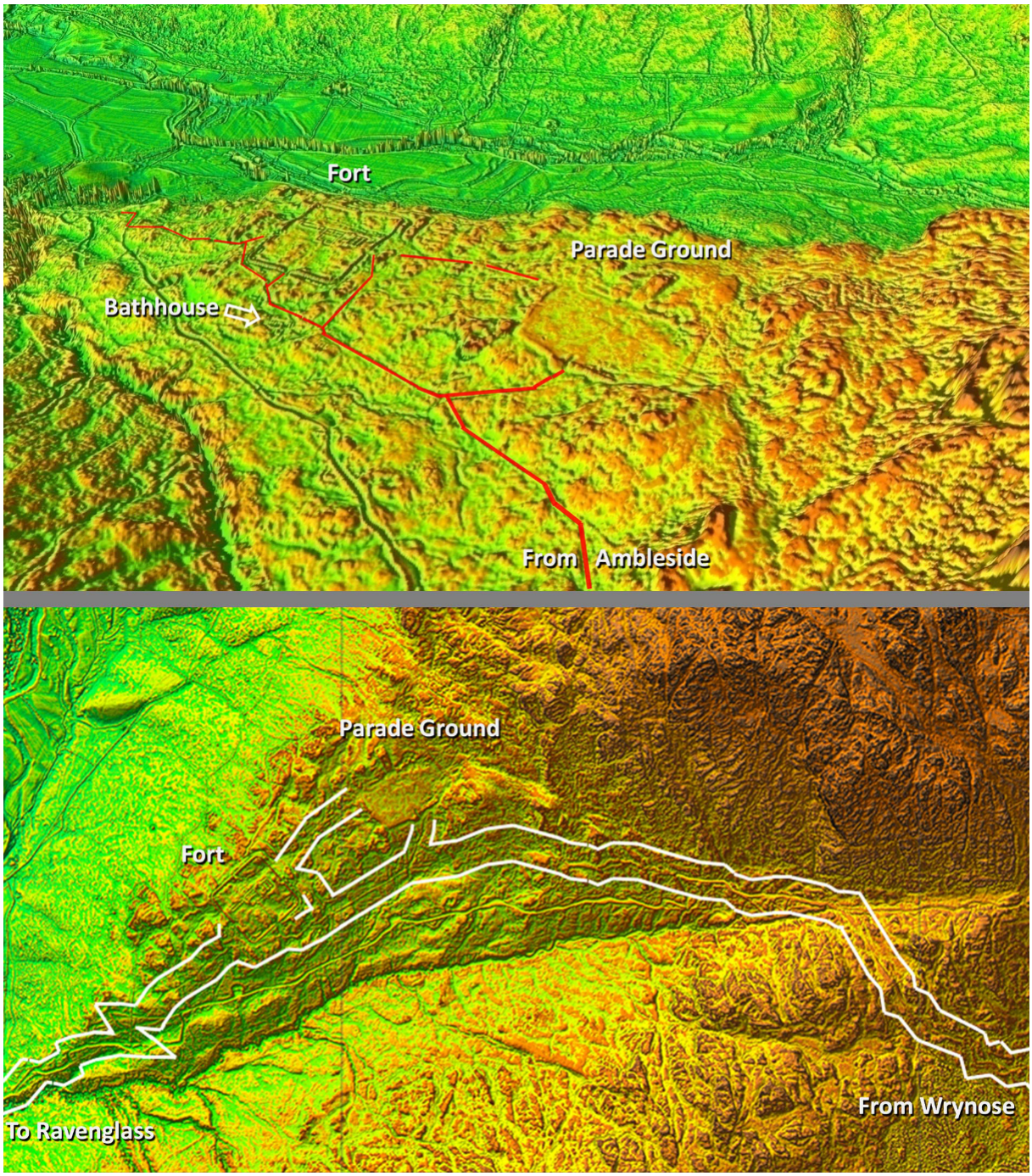


Figure 9: Oblique and plan lidar views of Hardknott Fort and Parade Ground. There was probably also a water supply (aqueduct) to the bathhouse, which possibly followed alongside the road. Base lidar data is © Crown Copyright 2021

Continued on p. 10

Cumbria Update Part 2

Continued from p.9

Lancaster to Ravenglass - Possible Roman Route across Morecambe Bay

The oversands route across Morecambe Bay is a long suggested route and one that in all probability predated the Roman era. To Ferguson this road was certain and he believed the invasion route too (R.S. Ferguson, CWAAS, 1877, 64-94). However, modern lidar imagery has added no conclusive proof. An oversands route would, of course, represent a huge short-cut for traffic heading for Furness and western Cumbria.

If the ultimate destination was the Roman fort at Ravenglass then, depending on the exact course, it represents a distance of at least 40 miles from Lancaster, probably slightly more. An intermediate station would therefore have been a necessity but no such site has yet been identified. This casts further doubt as to whether there was a

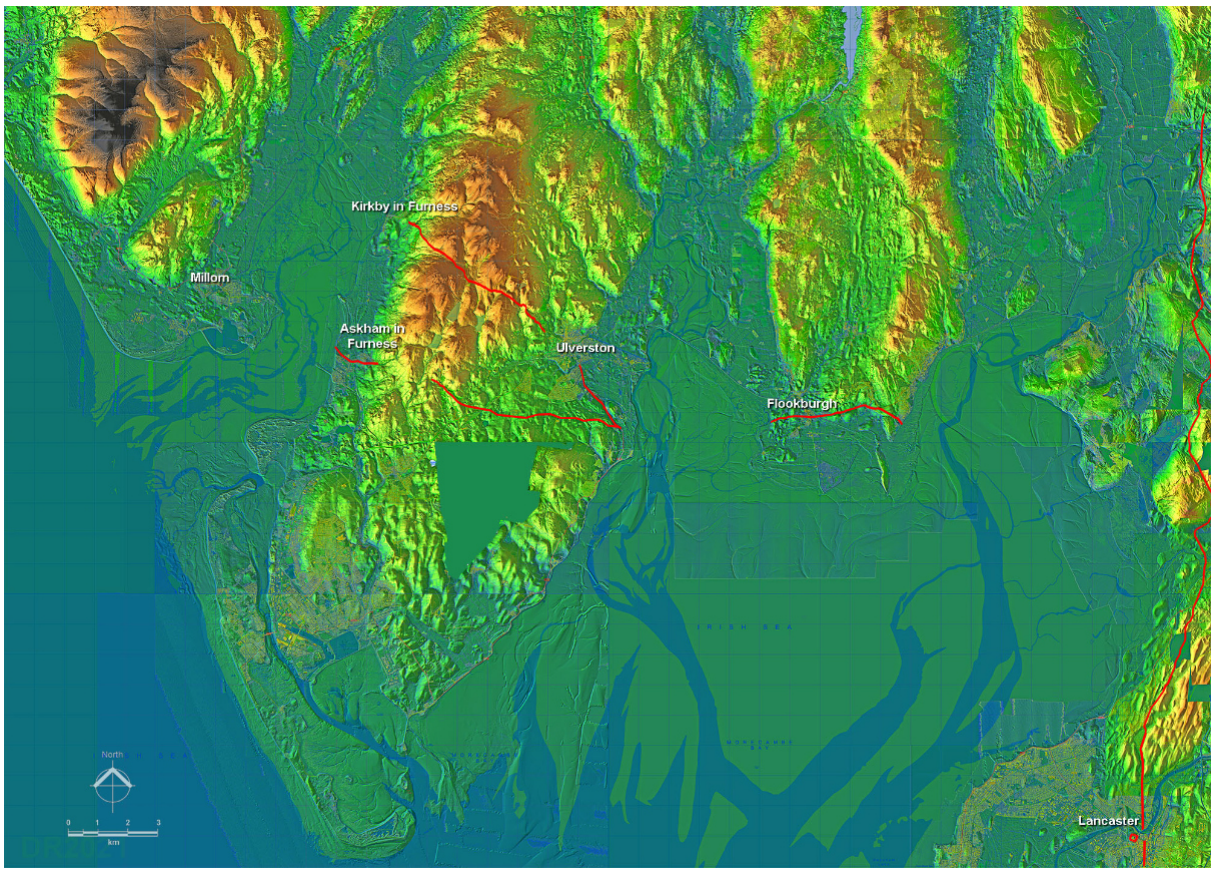


Fig. 10: lidar image of the Morecambe Bay area with the Roman site of Lancaster located at the bottom right. Possible routes across the Furness Peninsulas are shown in red but whether these were used by the Romans is very uncertain. Base lidar data is © Crown Copyright 2021.

Continued on p. 11

Cumbria Update Part 2

Continued from p.10

Roman road over the sands and on to Ravenglass. If Ferguson was correct on this being the (western) invasion route then perhaps it was never upgraded into a military road.

Conclusion

Thanks to the advent of new lidar data we now have a much better understanding of Cumbria's Roman road network. "New" roads have been located, many gaps filled and several errors corrected. The Ordnance Survey Roman Britain Map gives a very erroneous picture leading to the oft held belief that Cumbria was somewhat bypassed and therefore of marginal interest to the Romans. We now know this was far from the case and it must have been of great strategic importance to justify the investment in such an extensive road system.

References:

Apperley, E., *Roman Papcastle* (Little Bird Publishing, 2009)

Ferguson, R.S., 1878. An attempt at a Survey of Roman Cumberland and Westmorland, In CWAAS, Series 1, Volume 3. Available at https://archaeologydataservice.ac.uk/library/browse/details.xhtml?recordId=3194233 accessed Sept 2022

Margary, I. D., *Roman Roads in Britain* (London, 1967)

Culverts & flood management on the Roman roads of *Britannia*

From Paul Smith & Keith Hopkinson

Keith Hopkinson's article in the Spring 2022 RRRA Newsletter prompted an examination of the lidar data for the well-preserved section of *agger* of Icknield Street or Ryknild Street (RR18b) in Sutton Park, Birmingham. The Roman road from Alcester – Wall runs through the Park, from OS grid ref SP 083963 to SP 089988. Sutton Park was a Medieval deer park and the Roman landscape is well preserved with quarry pits, drainage channels and the *agger* of the road all clearly visible. Dr Michael Hodder (Hodder, 2013) described the *agger* as being:

> *…highest in the south of the Park at 0.6m (2ft), decreasing to about 0.4m in the north, but its width of about 8m (26ft) remained constant throughout…The discontinuous side ditches are 1.5—2.0m (5—6ft) wide, and 5m (16ft) away from each edge of the agger.*

The Ordnance Survey Roman Road file for RR18b (held by the Roman Roads Research Association) contains 2 large scale maps for the route through Sutton Park.

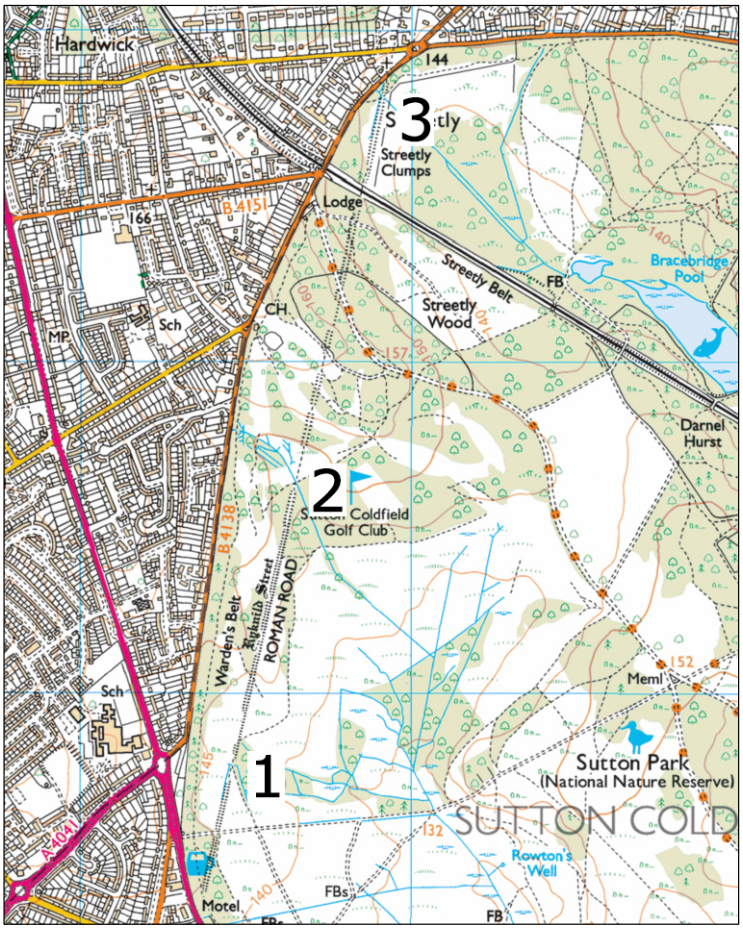


Fig 1. OS map of the west side of Sutton Park. The numbers 1, 2 & 3 show the locations where modern watercourses cross the agger.*(c) Ordnance Survey.*

Continued on p.13

Culverts and flood management

Continued from p.12

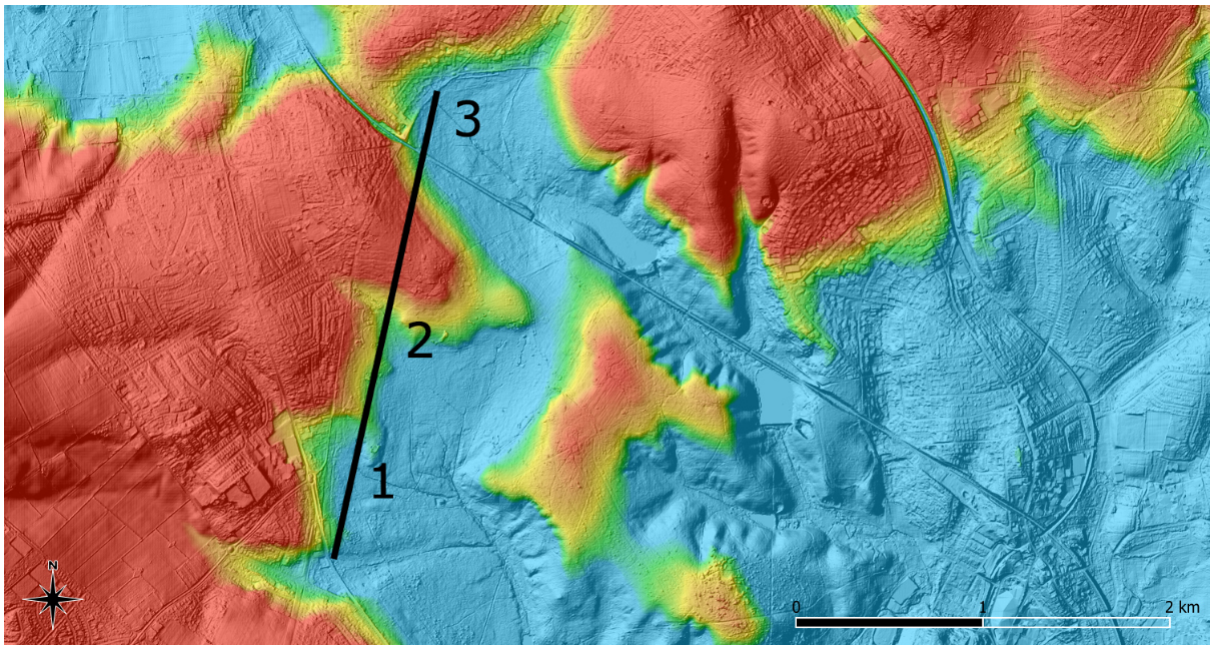


Fig 2. Lidar image of RR18b (the black line) in Sutton Park. As in fig 1the numbers 1, 2 and 3 show the locations where modern watercourses cross the agger. From south to north the watercourses cut through the agger *at OS grid ref (1) SP 084967, (2) SP 086976 and (3) SP 089988. Land below 144 meters above sea level (masl) is shown in blue, land above 154 masl is shown in red. © Paul Smith. Lidar data, © Crown Copyright 2019, Open Government Licence v3.0.*

These maps were annotated by OS Field Investigators and show heights for the *agger* ranging from 0.5m to 1m.

Whatever the actual height of the *agger* might have been when the road was originally built, figs 1 and 2 show three areas in Sutton Park where the *agger* of the road crosses a shallow valley while being surrounded by higher ground to the west. In each of these three locations the original *agger* would have had the potential for acting as a dam in times of heavy rainfall creating an area of standing water resting against the western side of the *agger*. (A typical cross section through the standing water and the *agger* is shown in Fig 4.)

Rather than describe in detail all three locations we will focus on the area to the southern end of RR18b as it comes into Sutton Park; as indicated by the number 1 on figs 1 and 2. However, it is important to emphasise that exactly the same circumstances – with the *agger* acting as a dam during heavy rainfall – would have existed at the other two places in the park indicated on figs 1 and 2. This is demonstrated in figs 4 and 7.

The *agger* might have been structurally capable of resisting the pressure of water but, if the level of the water continued to rise as it would during times of continued heavy rainfall, the water would have eventually reached the top of the *agger* and would then

Continued on p. 14

Culverts and flood management

Continued from p.12

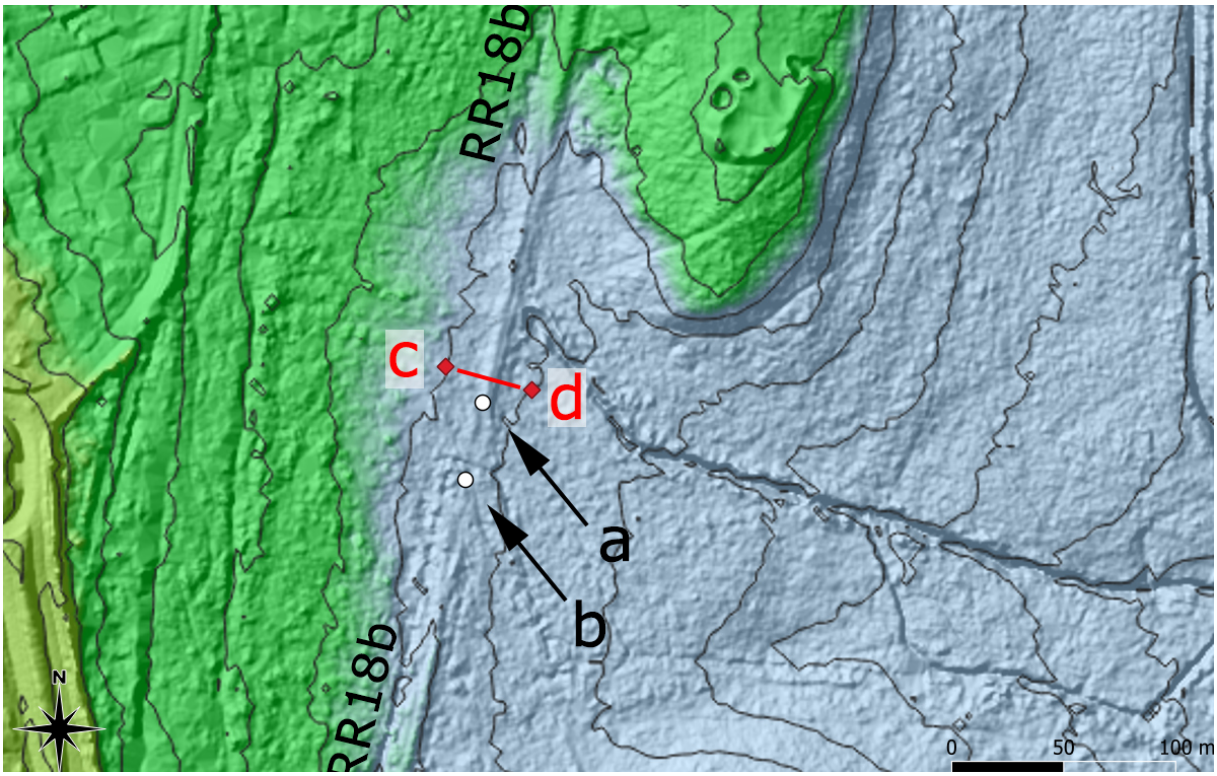


Fig 3. Lidar generated image showing location 1 (see figs 1 and 2) in close up. The location of the cross section across the agger *(see fig 4) is from (c) SP 08449683 to (d) SP 08489681. Point @ is 143 masl, (b) is at 142 masl. Between the two white dots labelled (a) SP 08469681 and (b) SP 08459677 there is no trace of* agger*, neither earth nor stone. © Paul Smith. Lidar data, © Crown Copyright 2019, Open Government Licence v3.0.*

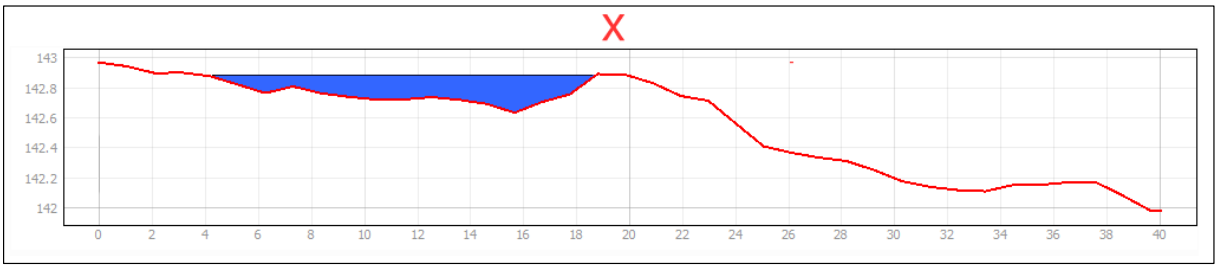


Fig 4. Close up view of cross section across the agger *between locations c and d indicated in fig 3 above. The area in blue shows the profile of water (18m wide x 0.3m deep max) which would have been held back by the* agger *at this point. The red letter* X *indicates the highest point of the* agger *as it is today. Note: It is entirely possible that the* agger *would have been higher when the road was first built. © Paul Smith*

Continued on p. 15

Culverts and flood management

Continued from p.14

have flowed over the surface of the road. This would have had the potential for washing material of the surface of the road. Continued flooding could then have eroded the surface until a hole was eventually 'punched' through the *agger*.

It is hard to imagine that potential flooding of the road and consequent damage to the surface would have been acceptable to Roman engineers. They had long experience of road building and would surely have identified an effective solution to this potential flooding problem. The problem could have been resolved with a roadside ditch to the west leading to one or more culverts to allow the water to flow under the *agger* to a place where it could drain away on the lower ground to the east of the road. Indeed, it is almost impossible to see how an engineered solution of this type could have been avoided.

To the south of location (a) (see fig 3) there is a distance of 35m from where there is no *agger* – neither earth nor stone. Using QGIS we have modelled the potential flood which would have been created in the absence of cross-*agger* drainage in Sutton Park

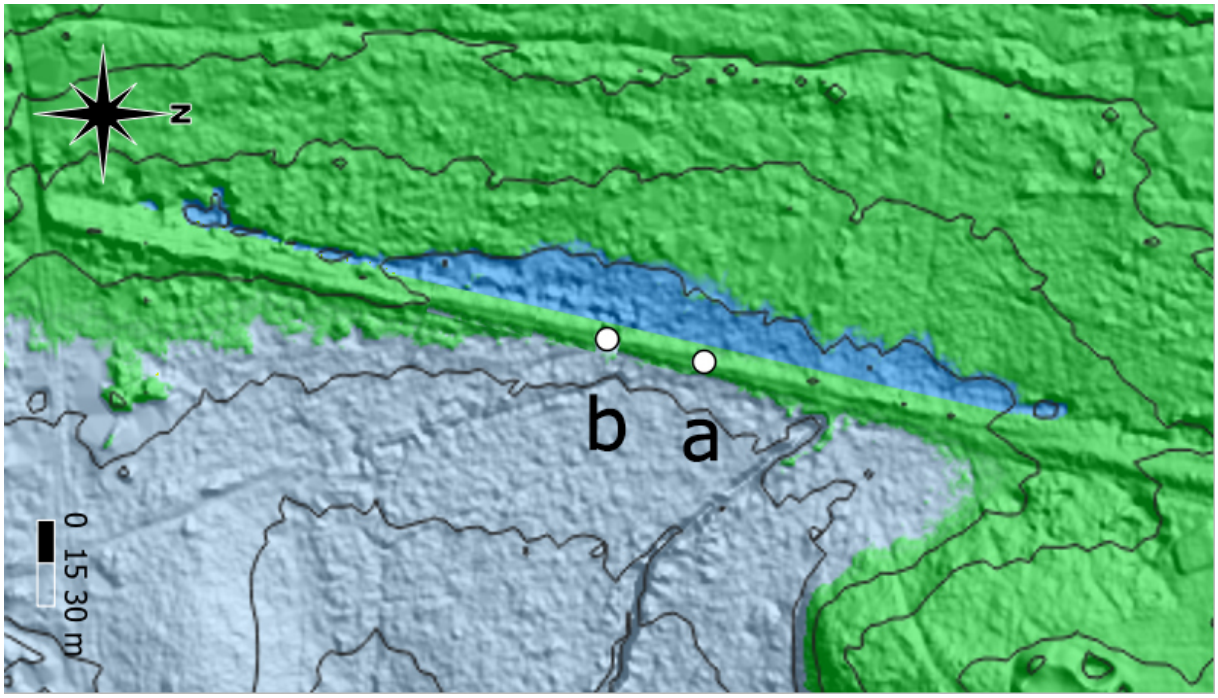


Fig 5. Lidar image of location 1 (see figs 1 and 2) rotated through 90° clockwise. The land shaded light blue-grey is 142.3 masl and below, the land shaded green is 142.4 masl and above. The agger *to the north of location a is 0.6m high. Thanks to Photoshop we are able to rebuild a 0.6m* agger *between locations a & b to show the extent of flooding (shown in blue) which would have been created to the west of the road by the* agger *acting as a dam. A 0.6 m deep flood would have measured approx. 223m x 22m. Contour lines are set at 0.25 masl. Note we have resisted the temptation to adjust the contour lines to match the 'rebuilt'* agger. *© Paul Smith & Keith Hopkinson. Lidar data, © Crown Copyright 2019, Open Government Licence v3.0.*

Continued on p. 16

Culverts and flood management

Continued from p.15

at Point 1 (see fig 5). We cannot state with complete certainty just how much water would have been held back because we cannot be certain how high the *agger* was when the road was built. However careful examination of the lidar (see fig 5) suggests that a 60 cm deep flood would have covered an area of approx. 223m x 22m.

Before we go any further we need to explain the quite nuanced difference between a culvert and a bridge. A search on Google offers the following:

> *A bridge is a passage of transportation (for people or vehicles) over a large body of water or physical obstruction. A culvert is generally a tunnel-like structure that allows water to pass under a roadway or railway. Culverts are usually embedded in the soil which bears the major portion of the culvert load.*

In addition to the above, culverts are described as being small (their length being typically not more than 6 meters) whereas bridges are larger.

Ivan D. Margary (Margary, 1973, p23) described the impact on the road system of the lack of maintenance following the departure of the Roman army:

> *The effect of this increasing disorganisation upon the road system can well be imagined. The wooden bridges would be the first to go, and if some local owner did not carry out the repair the road would be broken at that point unless a ford was available nearby; wash-outs would occur in hilly districts, severing the road at culverts and creating very awkward obstacles; trees would be blown down and block the road in forest districts. All these incidents would tend to break the roads into discontinuous sections, some of which could still be usefully employed for local traffic.*

It is surprising that Margary acknowledged the use of culverts by the Roman army but only mentions six locations in his book where culverts were known. The locations are:

- RR5c Foss Way. Bath – Cirencester. Near Grittleton.
- RR1f Watling Street. Towcester - High Cross. Close to the Rugby-Crick road
- RR7c Ribchester - Tebay (Low Borrow Bridge). Near the Crossdale Beck.
- RR7d Tebay (Low Borrow Bridge) – Penrith. At Blea Beck.
- RR81b Wade's Causeway. Malton (Amotherby) - Whitby (Aislaby). On Wheeldale Moor.
- RR88 High Rochester – Whittingham (Bridge of Aln). Near Sharperton Edge road.

Hugh Davies (Davies, 2013, p98) devotes a section of his book to a discussion of culverts and includes a table showing details of culverts in Roman Britain. The table includes details of nearly 30 known Roman culverts but most of these are either culverts under walls in forts or under streets in towns, very few relate to culverts

Continued on p. 17

Culverts and flood management

Continued from p.16

running under the Roman roads to which I.D. Margary allocated an RR number.

Nearly all the culverts Davies describes are constructed from stone and whilst Margary does not always mention the material with which a culvert is constructed, when a material is mentioned, it is always stone. Of the nine culverts mentioned in the two books mentioned above all but two are north or west of a line from The Wash to the Severn Estuary.

As discussed above, three locations have been identified on a 2.59 km length of RR18b where some type of culvert must have been constructed to provide cross drainage under the *agger*. We are entirely confident that Sutton Park is not unique; close to the point where HS2 crosses Watling Street there is a 1.8 mile section of

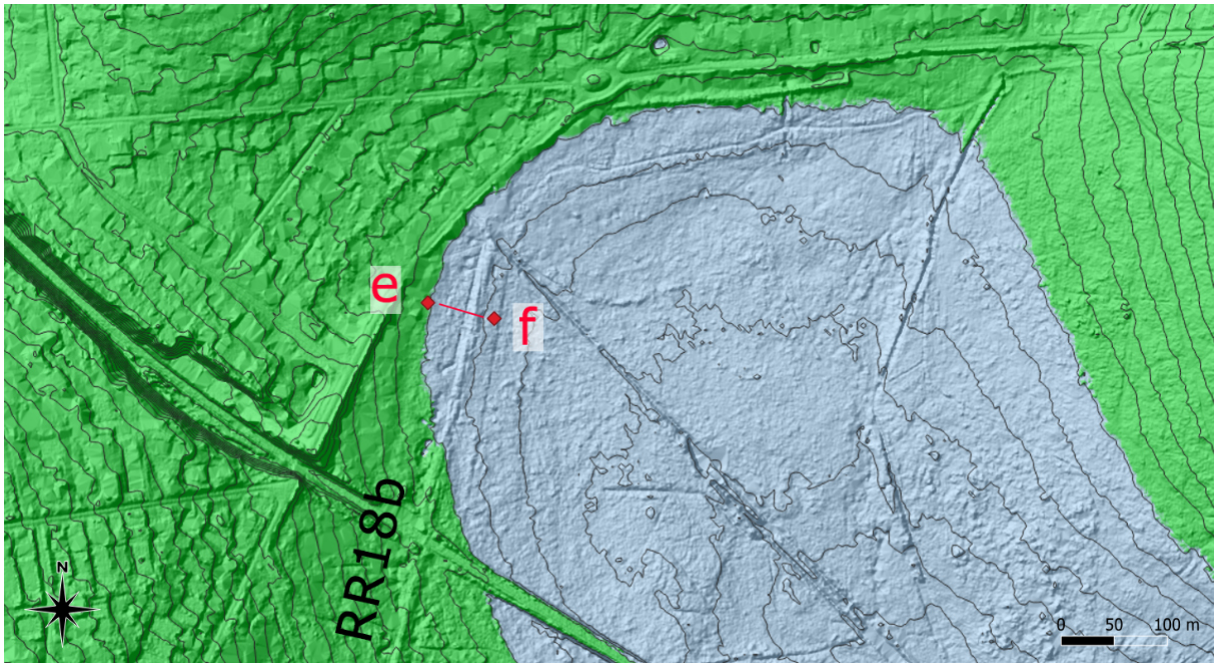


Fig 6. Close up of location 3 – see figs 1 and 2 above. A cross section across the agger *of RR18b from (e) SP 08879873 to (f) SP08919872 is shown in fig 7 below. E is 143 masl, F is at 142 masl. © Paul Smith. Lidar data, © Crown Copyright 2019, Open Government Licence v3.0.*

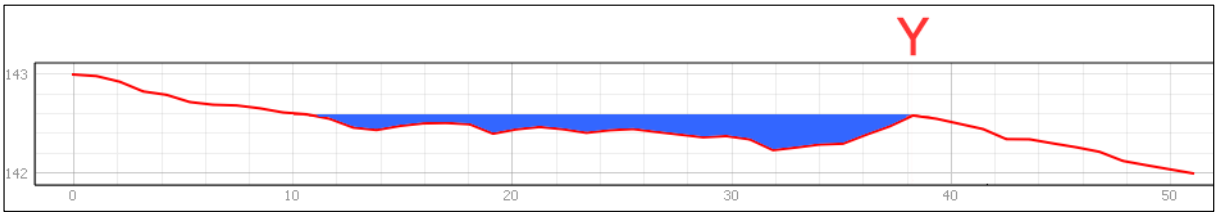


Fig 7. Close up view of lidar generated cross section across the agger *between e & f on Fig 6 above. The area in blue shows the profile of water (approx. 27m wide x 0.4m deep max) which would have held back by the* agger *at this point. The red letter* Y *indicates the highest point of the* agger. *© Paul Smith*

Continued on p. 18

Culverts and flood management

Continued from p.17

Roman road (between SK 137044 and SK 163031) where there are six places where either a bridge or a culvert would have been needed. If three locations can be identified on such a short length of road in Sutton Park and a further six places exist close by it follows that there must have been many other locations where cross-*agger* drainage would have been needed along our network of Roman roads. Margary calculated that he had described 7,500 miles of road in Roman Roads in Britain. If only one culvert had been required for every 2 miles of road the Roman army would have constructed over 3,750 culverts under the roads of Britannia. It can be concluded with almost complete certainty that culverts would have been required on many of the thousands of miles of engineered Roman road in Britannia.

The paper: "Rivers and Streams crossed by Hadrian's Wall and their possible surveillance at Bridges and Culverts" (Morgan, 2015, 43-51) catalogues all the points at which Hadrian's Wall crossed watercourses, ranging from major rivers such as the Eden or North Tyne to streams of various sizes. This demonstrates that Roman engineers understood the importance of culverts and knew how to construct them. These culverts were built from stone; it is easy to believe that culverts under roads in the north of *Britannia*, where stone is plentiful, were also built from stone.

There can be little doubt that stone would be an ideal material with which to construct a culvert. It is tempting to conclude therefore that all culverts on the course of Roman roads would also have been constructed from stone. However, stone is not readily available everywhere in the country. As an example, a walk across the fields on the North Downs in Kent would reveal flint nodules and a quarry might typically find large quantities of chalk. The Romans were skilled at using the material that was immediately to hand to construct their roads, but we would argue that the logistics of quarrying and transporting stone from a distance probably precluded the use of stone for culverts in many areas of the country. The logistical problem is well illustrated by this quote (MOLA) about the building of early *Londinium*:

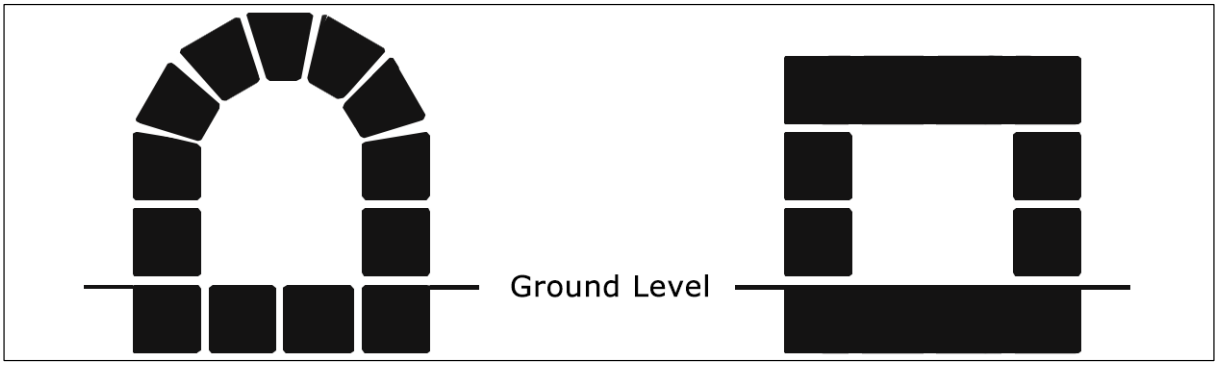


Fig 8. Two types of stone culvert each of which would provide a 2 foot by 2 foot opening. To the left a culvert built from 14 blocks of stone with an arch supporting the agger *above. To the right is a culvert using two 4 foot long pieces of stone, one for the foundation and a slabbed roof to support the* agger. *© Paul Smith 2022.*

Continued on p. 19

Culverts and flood management

Continued from p.18

> *Everything was built or made of timber - high quality oak was plentiful, while the nearest stone suitable for building had to be quarried in Kent, barged down the Medway and then up the Thames.*

The drawings in fig. 8 are not intended to show how the army might have constructed culverts in Sutton Park had stone been available; rather they are offered to illustrate the point about logistics. We have no way of knowing what sized culvert would have been required but the culvert illustrated on the left of fig 8 (which only provides a 2 foot square opening and might not have been considered to have enough capacity) would have needed 13 blocks of stone for every 1 foot length of culvert built. The *agger* of RR18b is 26 feet wide so 338 blocks of stone (26 x 13 = 338) would have been required, Each block weighs about 150lbs; 338 blocks would weigh 50,700lbs or 22.63 imperial tons. The Roman army would have had to transport all this stone from the nearest quarry and, in addition they would also have had to transport the materials needed to make mortar.

Members of the RRRA may struggle with the idea of the Romans building culverts from timber. However, we know that Roman roads were often laid over marshy ground using a raft of felled trees and the inclusion of a culvert using the same material would seem to be quite a simple process. Indeed, the logs of felled trees may have been the only material available in some parts of the country and were probably used extensively in large areas of the south and east.

One of the earliest, securely dated structures yet known from *Londinium* is a timber drain constructed beneath the major east-west route (*via decumanus*) within the town. The drain was discovered during excavations in the City of London at Number One, Poultry (Rowsome, 2000, p20 & MOLA). The earliest activities in *Londinium* were:

> *… associated with clearing and draining the land, and quarrying gravel for building the first streets. These quarries were dug without regard to the needs of later users, creating a pockmarked landscape that needed landscaping and consolidation before house-building could proceed. This was a lazy choice, since it would not have been difficult to relocate quarries into areas destined for back-plots. We can conclude that the road engineers were largely indifferent to the needs of the eventual owners of properties established along these streets, suggesting that engineering took place before property interests were fixed or by powers remote from the concerns of those who settled here.*

The dating evidence is provided via dendrochronology and shows that:

> *The earliest surface was laid over timber culverts that diverted water from springs rising in the Gresham Street area. These culverts were part of the primary road engineering and incorporated at least one timber felled in the winter of AD 47/48.*

Continued on p. 20

Culverts and flood management

Continued from p.19

Fig 9. Roman timber drain discovered near the Walbrook in London. © MOLA 2013.

Interestingly over 1,000 structural timbers from Roman London have been dated by measuring tree-ring growth and in many constructions:

> *… timbers were used in large numbers without trimming away sapwood and bark. Usually these show none of the 'shakes' that occur when timbers are allowed to dry out before use, the tool marks show no sign of the grain tearing that happens when seasoned timbers are reworked, and there is no evidence of woodworm or decay in the vulnerable sapwood. These features show that the oak was used 'green', most probably in the season after it was felled.*

The Walbrook timber culverts are not unique, similar timber culverts have been found at Colchester, Gloucester and York. These timber culverts are all of box shape in design but, in discussing these, the authors are not intending to imply that a similar construction technique would have been used in Sutton Park or elsewhere in the countryside where the need was to drain surface water from what might be quite large valleys. However, two important factors have now been proved; the first is that the Romans considered timber to be a suitable material to construct drains from and the second is that they did not consider it necessary to season the timber before use.

Continued on p. 21

Culverts and flood management

Continued from p.20

Talking on Time Team Teatime Francis Pryor (Time Team Teatime 7) said that the first thing Flag Fen showed people is:

> *. . . just how well timber (wood) survives if it's been waterlogged in peat. And I don't think people realise, when we pulled out, stakes, out of the ground they were massive, they were heavy, and you could see every single axe mark on them . . . when they chopped those timbers over 3,000 years ago. It was just the sheer state of preservation that completely amazed us.*

A potential clue for use of logs in the construction of culverts can be found in Canada where freshly felled logs are used to make a log culvert strong enough for a road with vehicular traffic.

Fig 10. Today in Canada freshly felled trees are used to create a log culvert structure. Copyright CIF-IFC All Rights Reserved © 2022

Continued on p. 22

Culverts and flood management

Continued from p.21

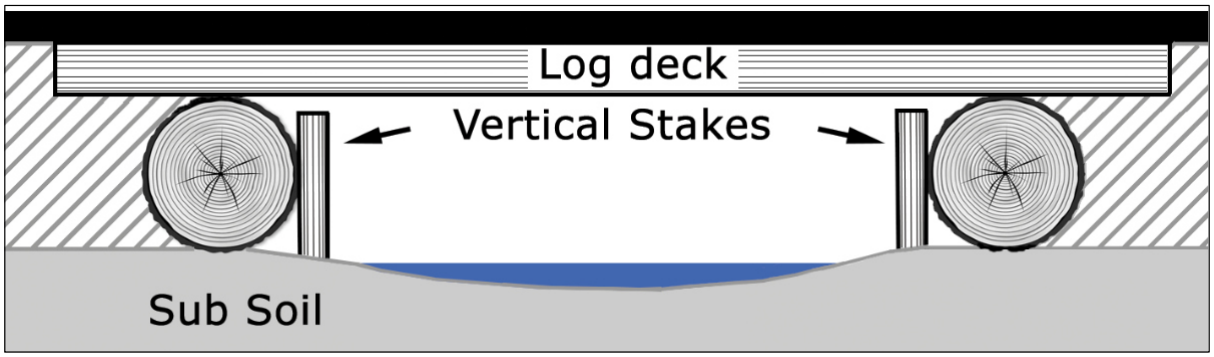


Fig 11. Cross section showing how the Roman army might have constructed a simple culvert using logs. The black line above the log deck represents the agger. *Although not shown in this image, vertical stakes would also have been needed to prevent the log deck from rolling off the two heavy tree trunks that had been used to create the main structure of the culvert. © Paul Smith & Keith Hopkinson.*

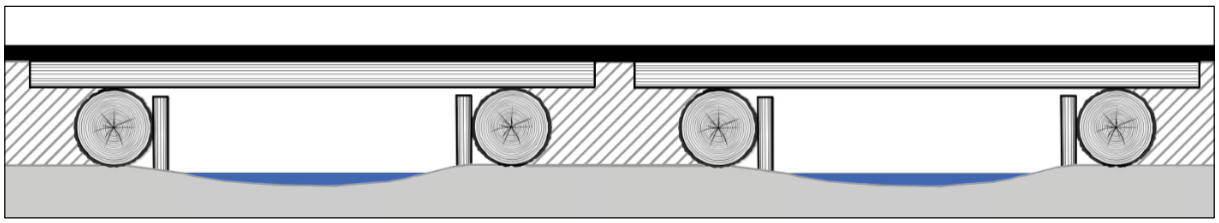


Fig 12. Two or more simple log culverts constructed as shown in Fig 10. could have been used to provide drainage for a wide area. © Paul Smith & Keith Hopkinson

The figures 11 and 12 show our best guess as to how the Roman army might well have constructed simple culverts using logs. We are certain that culverts were constructed across the length of the Roman road network, reasonably confident that timber would have been used in some parts of the country and fairly confident that fig 11 and fig 12 would have provided a workable solution. Certainly, the simple culvert using logs would seem to us to present an experimental archaeologist with a very acceptable staring point in an investigation into cross-*agger* drainage.

It is highly unlikely that we will find any further evidence to show how the Roman army chose to resolve the flooding problem they faced in Sutton Park.

We are confident that simple culverts would have been widespread across our Roman roads. However, the only way of finding out precisely how the Roman army resolved the problem of cross-*agger* drainage is through excavation. Fortunately, the likely location of a timber culvert can be described quite precisely. It would be:

- on the line of a known Roman road (obviously)
- in an area of the country where stone is not readily available
- in a position where the *agger* of the road would have required cross-*agger* drainage.
- in a location where any timber that might have been used by the Roman army might still be preserved

Continued on p. 23

Culverts and flood management

Continued from p.22

Finally, a word or two of warning. Francis Pryor writes that the Fens are continually being drained and buildings encroach. He suggests that within 30 years the 3,000-year-old timbers remaining in the ground around Flag Fen will all have dried out. With this in mind let's make a determined effort to locate and excavate at least one culvert along the route of one of our many Roman roads. Then, and only then, will we truly know how wide of the mark (or accurate) the authors of this paper have been.

References:

Davies H., 2013 edition, *Roads in Roman Britain*', Tempus Publishing

Hodder, M., 2103, *The Archaeology of Sutton Park,* Stroud, The History Press

Margary, I. D., 1973, *Roman Roads in Britain*, John Baker Publishers Ltd, Third Edition

Morgan, T., 2015, *crossed by Hadrian's Wall and their possible surveillance at bridges and culverts*, in Bidwell, P.T. (ed.), *The Arbeia Journal*, Volume 10, (Titus Wilson, Kendal).

Museum of London Archaeology (MOLA), 2013, Number 1 Poultry (ONE 94), York, ADS, available at https://archaeologydataservice.ac.uk/archives/view/no1poultry_molas_2007/ Accessed Sept 2022

Rowsome, P., 2000, *Heart of the City: Roman, Medieval and Modern London Revealed by Archaeology at 1 Poultry.* Museum of London Archaeology Service

Time Team Teatime 7. Francis Pryor. "*The wonderful Francis Pryor discusses his memories of Time Team at Flag Fen, the work he has done there over the years, and his thoughts on the future of archaeology*." Available here: https://www.youtube.com/watch?v=21ocg_4MQOE

Roman Road 164 – A YouTube Mystery

From David Ratledge

I must admit I am a YouTube addict and recently one caught my eye that I just had to watch – "The Roman Road that just Stopped" by Paul and Rebecca Whitewick (https://youtu.be/lHIV4q11s6w). It was in a part of the country I had never looked at before but Paul made several suggestions as to where the lost road could be. I couldn't resist checking them out for myself. There is a well established section of RR164 north of Wantage through the large Roman settlement of Frilford but north and south of this then the problems begin.

Considering south of Wantage first, then Paul spotted a potential *agger* connecting Green Road to Ickleton Road near the cricket ground (SU38232 87513). This looked convincing in lidar (fig.1 left) so well done Paul. This alignment continued pretty straight all the way up to the Ridge Way. From there onwards there were a couple of options for heading south towards Lambourn. The easterly one via Bockhampton Down looked most Roman like – it made excellent use of high ground. In addition, on that Down there are recorded Roman finds and burials alongside the road. Roman

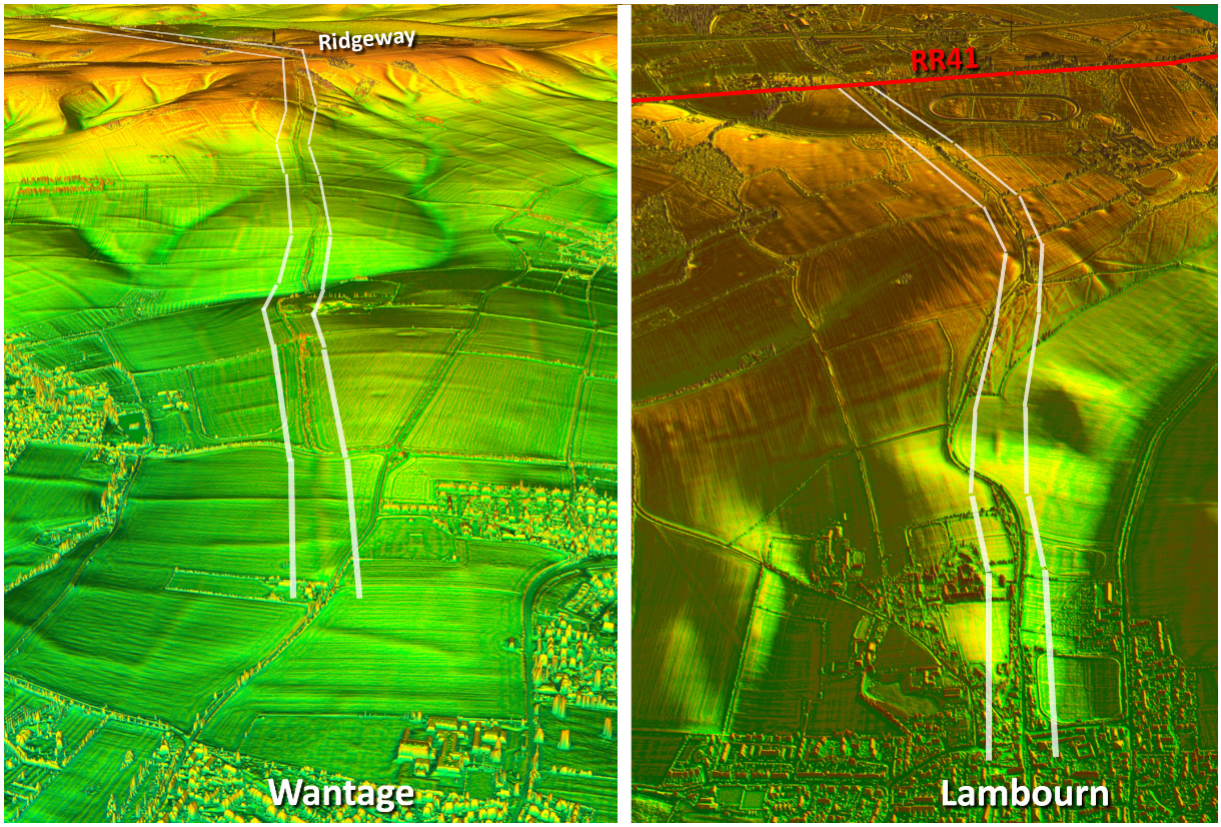


Fig. 1: Oblique lidar images of the possible route of RR164 south of Wantage (left) and south of Lambourn (right). Base lidar data is © Crown Copyright 2021

Continued on p. 25

Roman Road 164

Continued from p.24

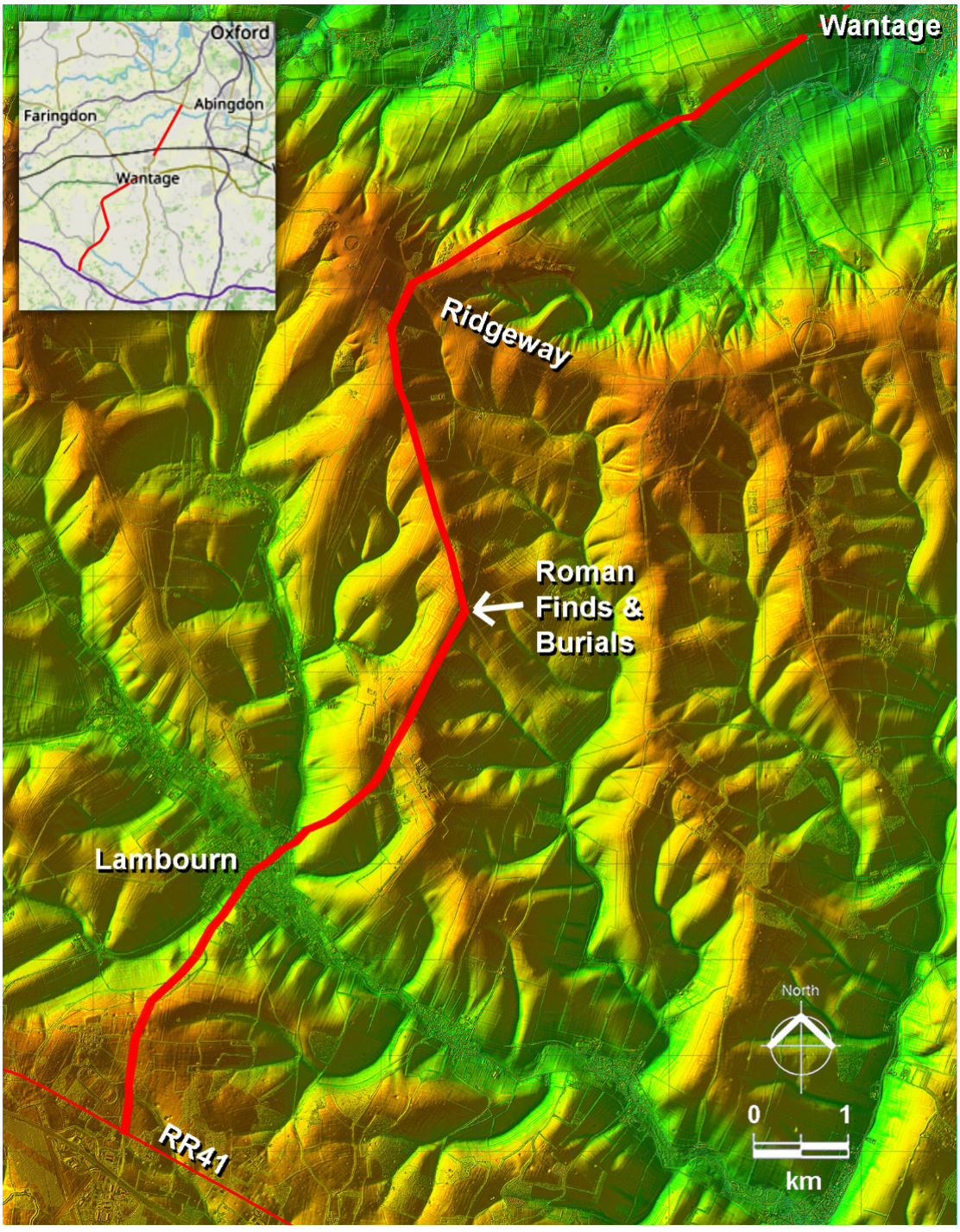


Fig. 2: Lidar image overlaid with the suggested route of RR164 south of Wantage. Inset map: © Openstreetmap contributors

Continued on p. 26

Roman Road 164

Continued from p.25

cemeteries were of course often located next to roads so on balance this was probably the most likely course for the road to Lambourn (fig. 2).

The road was evidently making for RR41 and Paul had another suggestion at Burgess's Farm based on an aerial photo. In lidar this looked to me like a field boundary with no visible connection northwards. However, I did spot south of Lambourn (fig.1 – right) a possible *agger* where the modern road had wandered off line (SU32045 78000). I would have liked more clues but none were evident. However, it is probably the best we have for RR164 heading for a junction with RR41.

North of Wantage then it is still work in progress. Did it turn right through Oxford or continue straight on? There are some clues it went straight on but where did it cross the Thames? There is always more research to do.

Henig, M. & Booth P., 2000. *Roman Oxfordshire,* Sutton Publishing

Other Road News

Sharperton Edge Excavation

From Des Kelly

In March 2022 James Lyall and other members of the RRRA conducted a geophysical survey to locate the RR88 at The Ladyship at Sharperton Edge in Northumberland. This survey was in association with the Holystone History & Archaeology Group (HHAG) who did excavations on the road West of Holystone in 2018.

The survey was also hoping to locate a Roman military installation which would be equidistant between High Rochester and Low Learchild. A camp had been mentioned in a letter of 1826 at this location.

The geophysics found no road but did find evidence of structures on The Ladyship hilltop.

In May 2022 HHAG, under the supervision of Richard Carlton of The Archaeology Practice, undertook archaeological excavations:

- on the line of RR88 to the East of Sharperton Edge where 3 trenches were opened.
- on The Ladyship where three trenches were opened. A deep rock cut ditch was located in two locations along with a cobbled area. Only a handful of finds were made. Currently this is being interpreted as either Iron Age or Romano-British settlement.

RR703, Ribchester to Kirkham, Lancashire

From Andy Jackson and David Ratledge

Ward's House Farm Excavation, Newton-with-Clifton, SD 478316, 25th June 2022

Wyre Archaeology carried out an excavation just to the east of the Springfield/Salwick complex. This spot was believed to be the furthest west the road had been excavated. The *agger* showed up sufficiently well in lidar to locate the road but indicated that it was probably not in pristine condition due to ploughing.A 6 x 1 metre trench was opened across the top surface of the road revealing a stony surface with a distinct camber. At the end of the dig the team dug a small pit down through the centre of the road but there was nothing substantial revealed. No larger foundation stones were present or *agger* layer structure. The construction was similar to the road excavated east of Preston at Redscar.

RR84, Maiden Way, a David Ratledge, 3D lidar 'flyover'

Also from David is one of his dramatic 3D flyovers for this mountain road from Kirkby Thore to Whitley Castle with a snow effect covering for the higher ground - anticipating a cold winter?You can view it here.

Other Road News

RRRA AGM Thursday 17th November

Save the date for the event of the year. It's the AGM on the evening of 17th November - not 27th October as previously advised. We will be issuing a Zoom invite to members along with an agenda and supporting documents nearer the time. It's your chance to get involved with the running of this incredible organisation as we try to spread the load of the Association a little further. It's also the opportunity to review the activities and progress we have made and consider where it will develop over the near future so if you have firm views on this then get involved. We hope you can attend. If you have particular skills, or just time and enthusiasm, you feel would help with the running of the Association please let Dave Armstrong know with an email before the meeting. dave.armstrong@romanroads.org

RRRA Talks: Autumn and Winter Schedule

We are delighted to announce that we have a schedule of talks to keep you entertained during the darker months ahead. Below is what has been confirmed so far:

October 13th, Chris Smart, *Beyond Isca: new evidence for Roman expansion in South West Britain*

November 24th, Andrew Tibbs, *Conquest: The Rivers and Roads of Flavian Scotland*

December 8th, Bronwen Riley, '*Journey to Britannia'*

January 26th, Ed Peveler and Nigel Rothwell, *Reinterpreting Roman Roads in the Chilterns - insights from lidar data*

February 23rd, Paul Bidwell, *Recent Research on the Bridges of Hadrian's Wall*

March 23rd, Andrew Birley (Director of *Vindolanda*), title and theme to be confirmed

And more to come!

We will be putting the bookings up in Eventbrite soon - there will be a general email to members when this is done.

Bedale Archaeology & History Society

Their next meeting, at 7.30 pm on Tuesday 4 October, will be held in person in Bedale Hall (DL8 1AA) and on Zoom. It will be the 6th annual Percival Turnbull Memorial Lecture and will be given by Revd Dr Martin Henig MA, DPhil, DLitt, FSA, Wolfson College, University of Oxford. Martin has published widely on Roman religion, Roman Britain and Roman sculpture but his main field of interest is Roman art, especially engraved gems, which are the subject of this talk. From 1985-2007 he was editor of the Journal of the British Archaeological Association. He was a good friend of Percival, the late president, and gave the homily at his funeral in 2016.

For more information, or if you wish to attend by Zoom please e-mail arch@phonecoop.coop.There will be no charge for non-members (but donations are always welcome).

Other Road News

Arbeia Conference 2022

Paul Bidwell reminds us that the annual conference of the Arbeia Society will be held on Saturday 29 October 2022, at the Customs House, South Shields. The theme for the day is 'Hadrian's Wall, the loss of the Ninth Legion, and conflict in the Hadrianic period'

Details here: https://www.arbsoc.org.uk/Conference

Dave Armstrong's Book in the Wild

As I'm sure you remember, our very own Dave Armstrong published a book last year on the Military Way RR86 running behind Hadrian's Wall and also gave us a talk about it which can be re-watched here. Part of the book is a guide to what can be seen on the ground. I had a look at the section between Walltown Crags and *Aesica* fort. It's a good section to have a nosy at - my plan was to walk out on the Hadrian's Wall Path and come back on the Military Way - about a 5 mile round trip. If you do this I strongly suggest going out on the Military Way as it is easier to spot from above. You also get to experience one of Dave's 1:6 sections first hand which makes a lot of the theories about the use or not of draught animals immediately clearer. There are some very fine examples of terracing along this section which are clear even to novices like me. I can also pretty much guarantee you will be the only one walking on the Military Way while the hoards stay up on the Wall line. I'll be back to do some more for certain.

Hannah Collingridge

Dave's book out in the wild on one of the terraced sections on the left, and on the right is one of his famed 1:6 sections hauling up the hill. Never underestimate how much flattening the camera does to a slope, nor how bad my photographs can be.

Other Road News

Friends of Castleshaw Dig

Norman Redhead and team have been back up at Castleshaw this summer. One of the aims was to find how the road, RR712, went around the fortlet when it was diverted. No spoilers but they didn't find it, although they did find lots of other things. The latest reports are here.

Recent Discoveries on Lindisfarne

A talk by David Petts of Durham University for the Huddersfield and District Archaeological Society in the Huddersfield University Campus has been rescheduled from the previously advertised date to 7:45pm 14th October. For more details contact Sandra Harling on hdas@btinternet.com

RRRA carry out geophysics at Low Learchild in Northumberland

Guided and tutored by James Lyall, aided by members of the Holystone History and Archaeology Group, our Association have deployed the Association's gradiometer cart outside of Yorkshire! Previous work on the Low Learchild site have left very sketchy details of the layout. The data is still being analysed and interpreted but it appears that the site had at least two phases; a double ditched fort with an annexe surrounded by a larger enclosure that has a single ditch. A survey of the expected location of the road junction of the Devil's Causeway, RR87 and RR88 from High Rochester did not reveal any indications. This work is to be fully reported by the Association and released to our members. Thank you to those who helped with the pushing!

Low Learchild survey team, final day, from left to right, Ann Hetherington, John Pearson, Wim Tommasson - all from the Holystone Group, James Lyall, Mike Haken, Dave Armstrong and Albert Hills - all from RRRA. Photo courtesy of Des Kelly from RRRA

Other Road News

RR53 and RR41

RRRA member Keith Abbot has been active with the Berkshire Archaeological Society tracing RR53 towards its expected junction with Ermin Street RR41. The Berks Summer newsletter contains a summary of this work acknowledging the previous work by one of our founders, Hugh Toller. It can be viewed here.

Itinera Volumes 2 and 3

Just a brief reminder that tactile paper copies of Volume 2 are still available for purchase for those of you who have not got round to it yet. Also it is not too late to consider reporting your work in Volume 3 to be published in 2023. For both go to the *Itinera* page on our site here.

Other things too random to have their own heading

On Thurs 19 Jan 2023 there is a RTTP Webinar based around the conquest of central areas of Britain by the Roman military and the role of roads with Dr Richard Hingley from Durham University. Email anne@jas-associates.co.uk for more details.

Simon Cains has created a number of walks that take in Roman roads and other interesting features. They can be accessed here through the Autumn newsletter of the Berkshire Archaeological Society.

David Brear has been surfing the internet a lot as usual and passes on several links to articles you may find of interest. It's like using Google but the hard work has already been done for you. Thanks, David.

- A commercial site on a roadway near Bishop's Stortford.
- A local news report from Swindon way about discoveries under a new building project including a road.
- A downloadable pdf of a paper about the *Via Augusta* in Spain here

In other news; A very rude graffiti drawing and message have been uncovered at *Vindolanda* in Northumberland. The explicitly carved phallus isn't that novel but the accompanying message *SECVNDINVS CACOR,* is a very personal insult, basically 'Secudinus, the sh**ter'. Who hasn't seen something similar on the back of the loo door at work about the boss? Human nature hasn't changed at all.

Also from those clever people at *Vindolanda* is a new interactive game, *Vindolanda Adventure*, targeted at 7 to 11 year old's to potentially get them interested in programming, history and archaeology. This brings the named characters from the *Vindolanda* tablets to life. They embark on a series of mini-games to get the two "sprites" Tagomas and Lepidina to achieve their quest to attend the birthday party mentioned on the *Vindolanda* writing tablets, which contains the earliest example of a woman's handwriting in Europe. During the games, players can access the online *Vindolanda* archives. The game can be accessed here.