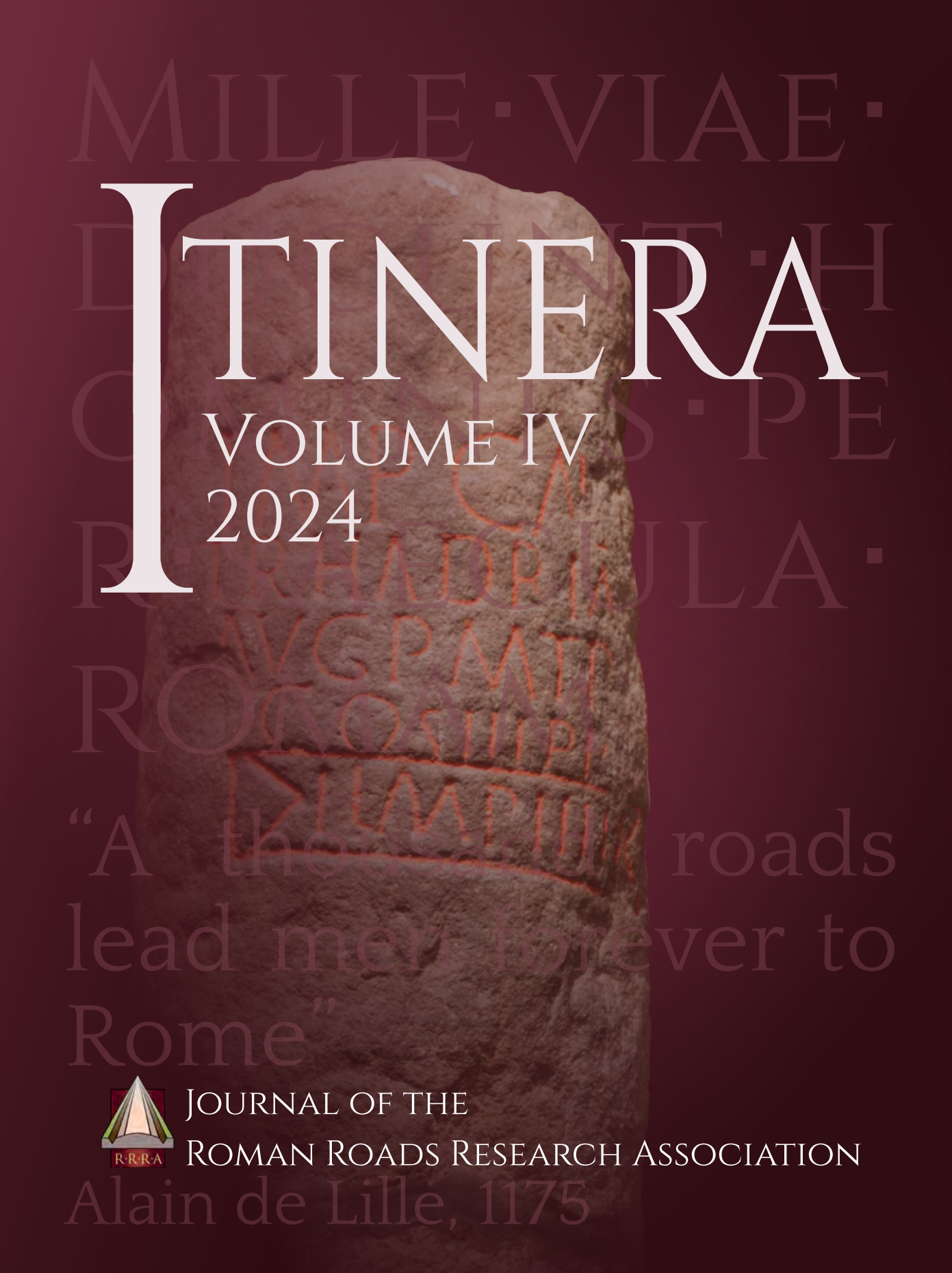


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About the Association

by Mike Haken



The late Hugh Toller and I founded the Roman Roads Research Association to provide a focal point for what we thought was a fairly small group of individuals with an interest in the study of Roman roads and connectivity throughout the former Roman province of Britannia. I'm not sure that Hugh, who sadly died in 2016, could have imagined that at the end of April 2024 we would have an international membership totalling 556, a figure that continues to grow. We are a very broad church, ranging from those with just a general interest in the Roman period, through to professional archaeologists from both commercial and academic sectors, not forgetting those those like myself who have had a lifelong passion for the subject (some might say obsession!). The Association welcomes all new members, whatever their background.

The continuing growth in membership may well have been fuelled, at least in part, by some of the things we have achieved. For example, we have just concluded the fourth season of our online lecture series, which we launched in 2021 during the pandemic. As part of our key policy of ensuring that our work is always made as accessible as possible, our talks are open to everyone, are always free of charge, and regularly attract audiences of 200 people or more from across the world. Another excellent programme for our fifth season is being prepared by our Secretary, Dave Armstrong, and details will be released soon. You can catch up with previous seasons on our YouTube channel.

Since 2018, we have conducted over 200 Ha of geophysical survey with our own gradiometer cart, accurately identifying the course of many roads and examining Roman period sites along them. Our most recent survey, assisted by a group of local volunteers from Southwell (SCAG), was near East Stoke (*Ad Pontem*) in Nottinghamshire. This confirmed the location of the junction of RR59(x) from Ancaster with the Fosse Way, making the existence of RR59(x) now beyond dispute. We always welcome suggestions for other potential survey sites, no matter where in the country they might be.

Above all, however, our greatest achievement is *Itinera*, the only journal in the world dedicated to the study of Roman roads and transportation infrastructure. Published entirely in house by our large team of volunteers, we are proud that our standards are as high as most academic publishing houses. Indeed, As Rob Entwistle points out in the following Editorial, it is a measure of our growing credibility that *Britannia*, a journal of the Roman Society, guides authors of reports on Roman roads that would have previously been published in *Britannia* towards *Itinera* instead.

Looking forwards, the wealth of new research and discoveries that have been reported by *Itinera* have, if nothing else, highlighted the urgent need for an accurate map that reflects the true state of knowledge of the Roman road network in Britain, and the sites it served, since the national maps that do exist are either decades out of date or simply inaccurate and misleading. To rectify this situation we will soon be recruiting volunteers to assist with a nationwide project which aims to accurately redraw the map. In line with our Open Access policy, the results will all be made freely available.

Finally, I am sure that our enthusiastic membership will enable us to continue to expand and develop our activities, ensuring that the next decade is even more productive than our first decade has been.

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Editorial

Robert Entwistle



The late Hugh Toller, co-founder of the RRRA with Mike Haken, was sadly lost to Roman road research when the Association was only a year old. Earlier I had become aware of his work through his part in identifying the long-sought line of the Lune valley Roman road out of Lancaster, my native town. Identifying it through Lidar and on foot, he followed its route up and over Lancaster Ridge towards Caton and the southern flank of the Lune valley.

It is therefore a pleasure to see David Ratledge's contribution to this volume of *Itinera*, a memorial to Hugh's work in the Exeter region, developed in the light of further studies. It is appropriate that this same volume contains a significant paper by Mike Haken identifying *viae vicinales* in the north-east Midlands which perhaps should no longer be regarded as somehow 'lesser' or 'minor'.

Itinera has a record of examining different aspects of Roman road studies, not necessarily restricted to our corner of the Roman empire. The 2024 volume sees a new contribution from the Spanish archaeologist and presenter, Isaac Moreno Gallo: the first publication in English of his work analysing road construction methods and transport development. His trenchant views provide a counterbalance to other accounts, reminding us that the evidence of the trowel is always subject to interpretation.

A new departure for this volume is the incorporation of a 'Focus' section with multiple papers exploring a single theme. The subject is the Devil's Causeway – a road which branches off Dere Street just north of Hadrian's Wall to head (via Learchild fort) determinedly towards modern-day Berwick and the mouth of the Tweed – where no Roman site is known. This theme originated in a 2023 conference held in Berwick-upon-Tweed and coordinated by Dr Lindsay Allason-Jones and the Border Archaeology Society with support from the RRRA, exploring the riddle of the road. Expert presentations have been developed into these papers. We would be happy to repeat, in future volumes, similar suites of papers focused upon a single theme or aspect: suggestions for themes and contributors would be welcomed by the Editor.

As always, this volume treats different geographical parts of Britannia, ranging from the south-west (Exeter) to the north-east (Berwick). Paul Booth explores aspects of the Roman road network in the Oxford area, Mike Holmes considers issues around the River Glynde in East Sussex, and Nigel Rothwell examines the possibilities for a Thames crossing linking St Albans and Silchester.

In a full volume, however, we regret the lack of papers on Wales and Scotland, even though these countries are represented in our annual round-up across Britain. Potential contributors suggesting interesting papers on these areas of would find us warmly receptive. *Itinera* continues to welcome every submission from contributors established or new, and if necessary, will endeavour to advise authors where further work is needed for key improvements. A short proposal to the Editor of what is intended, before making a full submission, is often helpful.

Editorial

We take pride in a professional standard of production maintained entirely through the work of volunteers: our editorial board (Mike Haken, Dave Armstrong, Mike Bishop and Paul Booth, all of whom contribute endless hours to the production of each volume); our academic advisor (Pete Wilson); our index compiler (Chester Forster); and postmaster (Chris Webb). Without the dedicated work of the whole team Roman studies would be the poorer.

We are greatly heartened by the respected position that *Itinera* has achieved in the short period of its existence. The long-established journal, Britannia, acknowledges this in specifying that submissions on Roman roads for their annual update section should be limited to brief summaries of the main points of interest if accounts are also published in *Itinera*, with our journal cited for those fuller reports.

An important part of our role, alongside publicising research, is (through the RRRA) the regulation and classification of new discoveries, as Margary's original system of nomenclature strains to adapt to an expanding known road network. This volume therefore contains a list of newly attributed numbers and a proposal from Mike Haken on the classification of non-standard Roman roads.

This year we have taken the decision to slightly reduce the font size to bring *Itinera* more into line with other similar journals and to control printing costs. Even so, readers will find that 2024 marks a bumper issue: the largest volume we have yet produced.

We trust that RRRA members and all readers will enjoy and profit from this 2024 volume of *Itinera*.

Robert Entwistle

(Hon Editor, *Itinera)*

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Verulamium to Calleva Atrebatum: RR163 and the River Thames Crossing

by Nigel R Rothwell
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Abstract

A substantial section of agger built Roman road was revealed in Hodgemoor Woods, Seer Green parish, Buckinghamshire, on lidar data obtained for the Chilterns Conservation Board in 2018/19. The orientation of this linear earthwork feature is aligned with Verulamium (St. Albans) and Calleva Atrebatum (Silchester), but some distance from the previously accepted Margary route RR163 between these two Roman centres. Subsequent investigations showed this to be the best-preserved section of Roman road within the Chilterns, and together with other remote sensing data have enabled the course for the road to be re-evaluated.

A revised route has now been convincingly traced from Verulamium through Hertfordshire and Buckinghamshire to the River Thames, replacing that previously described by Margary. However, the route still presents something of a conundrum, as there is no documentary evidence for its existence and little modern excavation evidence, and yet the road must make a significant crossing over the Thames. Remote sensing data have helped clarify the route(s) north of the Thames, and evidence is presented favouring a principal heavy traffic crossing point at Bourne End, Buckinghamshire, to Cock Marsh, Berkshire; with a new branch road RR163C(x) also identified leading to a plausible crossing point between Mill End, Buckinghamshire, and Remenham, Berkshire. Evidence of the probable continuation of the route(s) south of the Thames is also considered, however this road is just one part of a complex network of major and minor routeways intimately linked with the evolving use and development of the landscape, and full clarity on the continuation of the route(s) from the Thames through Berkshire to Calleva is still absent.

Introduction

A length of *agger*-built Roman road with roadside quarry ditches was identified as a linear earthwork feature in Hodgemoor Woods (SU 96839 93642), Seer Green, Buckinghamshire, visible in lidar data acquired by the Chilterns Conservation Board (CCB) 'Beacons of the Past' project (BotP) in 2018/19 (Figure 1). This is the best-preserved section of Roman road within the Chilterns Area of Outstanding Natural Beauty (AONB). Its orientation is aligned with a section through Pollards Wood (SU 99226 95508), Chalfont St. Giles, recognised on Environment Agency lidar data (Gover, 2017), thus forming an extended length of road on a direct alignment with *Verulamium* (St. Albans) to the northeast. The dimensions and *agger* built construction of this section are suggestive of a major road,

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typical of those Roman roads which provided rapid and efficient connections between major centres, setting an expectation for this road being of some significance. The route has therefore been investigated beyond the limits of the CCB data, in the directions of *Verulamium* and *Calleva Atrebatum* (Silchester). This paper examines the evidence and proposes a new route, with a new branch route, from *Verulamium* to the River Thames, with consideration of the continuation of these routes beyond the Thames. A location map and the dataset are illustrated in the following sections, covering previous studies (Figure 2), and the lidar data and interpretation (Figure 3).

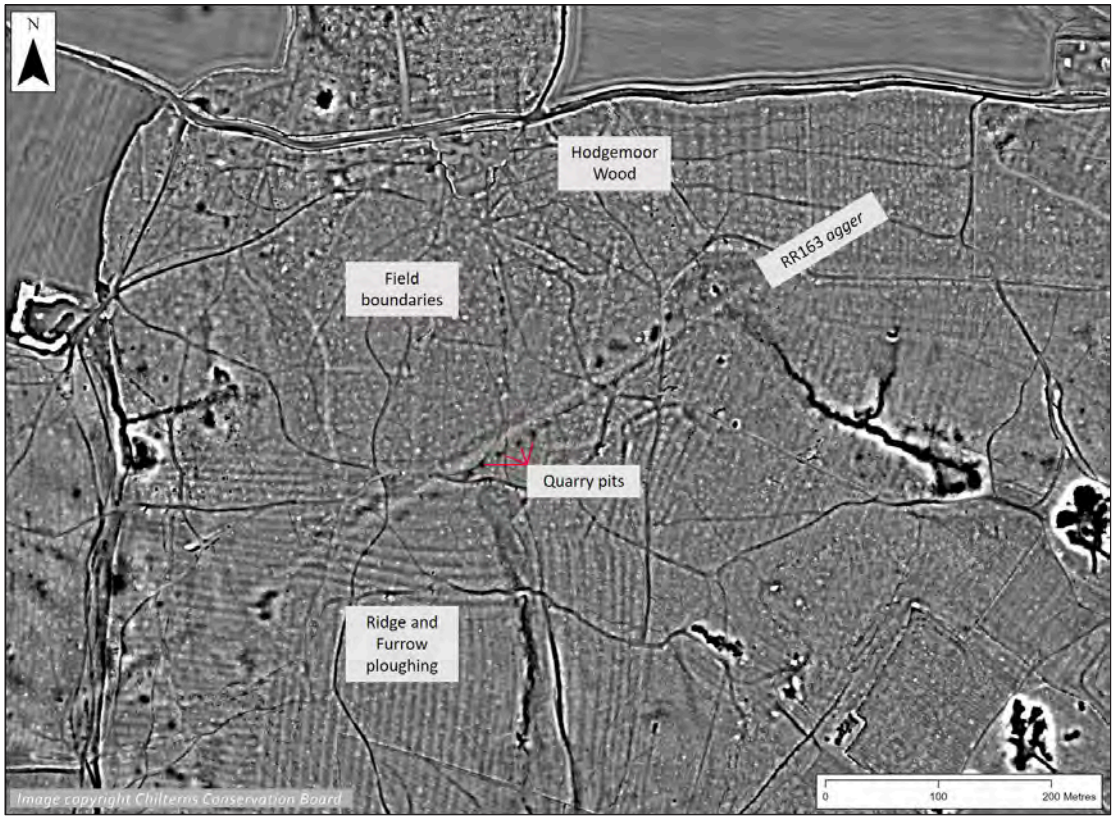


Figure 1. The RR163 linear earthwork through Hodgemoor Woods (see Figure 2 for location), CCB LiDAR data 'Local Relief Model' (LRM). (© Chilterns Conservation Board).

The course of a route between two such significant and neighbouring *civitas* capitals, in a part of the province of *Britannia* settled during the Early Roman period, has been speculated on by previous researchers, though there is an absence of any firm historical evidence for such a route. The northeast to southwest trend of an alignment between these two Roman *civitates* cuts orthogonally across the predominant drainage pattern of the Chiltern hills (see Figure 2), though mostly the river valleys are broad and shallow with gentle gradients. However, for heavy traffic several significant obstacles are presented, not least of which is the River Thames, but also numerous other river valleys, and several relatively steep chalk escarpments.

The departure and arrival destinations at *Verulamium* and *Calleva* have been the subject of much study and are well documented (see *e.g.* Niblett 2001; Fulford 2021), so the purpose of this paper is to

consider the connecting route, principally north of the Thames, and the location of the Thames crossing point(s). The Viatores (1964, 136-150, 375-377) *Roman Roads in the South-East Midlands* provides the baseline historical description of the route, with an assumed Thames crossing point at Hedsor Wharf. Margary (1973, 180-181) adopted this route description in his 3rd edition *Roman Roads in Britain,* though he had little confidence in tracing the continuance of the route south of the Thames. The newly identified section in Hodgemoor Woods lies 1.5 km northwest of their route, and its alignment suggests a River Thames crossing(s) is likely to be further upstream from theirs.

An extensive network of Roman routes through the Chilterns, and within the vicinity of the Middle Thames valley, is likely. There are few large Roman settlements, and very little evidence for military activity, but there are numerous known Roman villa sites, with additional potential sites being recognised in remote sensing data. There is also an emerging understanding of intensive Iron Age / Romano-British agricultural land-use throughout the region, and a network of roads and routeways would have been necessary to connect and service this. Evidence suggests that the entrances into *Calleva Atrebatum* were in use at different dates, which leaves open the possibility that different cross-country routes may also have been in use or preferred at different times. Whether one (or more) of these routes provided the principal route between these two major Roman centres has been an open question, the crux to determining the route(s) being the Thames crossing point(s). However, this cannot be considered without regard also to the route options south of the Thames, through Berkshire. This paper seeks to offer a view on the best solution fitting the evidence, whilst recognising the many remaining uncertainties. So extensive are the remnant mounded field boundaries and modified topography that many aligned earthwork and 'fossilised' landscape features of uncertain date can be identified in the lidar data, and these can be used to support alternative hypothesises, some of which are also examined here.

Research into the route north of the Thames, primarily through Buckinghamshire, was driven by the insights provided by the availability of the high-resolution CCB lidar data. This has been supplemented with aerial photographic (AP) evidence, Environment Agency (EA) lidar data, published documents and grey literature, and some ground investigations. Since the 1960s, very little excavation activity has taken place which could inform the route. Notably there is a dearth of development-led excavation work in the vicinity of the proposed route along most of its course. Using the available data, the route can be traced, with reasonable confidence but some interpretation gaps, southwest from the 'Silchester Gate' of *Verulamium* to the outskirts of Kings Langley, Hertfordshire. The new route proposed here then departs increasingly from the Margary / Viatores route, in the direction towards Beaconsfield, Buckinghamshire, and the valley of the River Wye.

A principal heavy traffic route continuing along the Wye valley, probably crossing the wide River Thames floodplain at Bourne End close to the confluence with the River Wye, is favoured in this account. However, there is no definitive evidence of this and having investigated all the likely crossing points between Hedsor Wharf upstream to Reading, it is probable that more than one crossing point existed. Indeed, it is quite possible that multiple Thames crossing points were in use from prehistoric times, when the Thames may have been more easily fordable, continuing through to the Middle Ages, but the focus here is on the principal crossings most likely to have been engineered to carry heavier traffic and for efficient Roman administration. Data are therefore also presented in support of a probable second major crossing point connected by a branch route off the proposed main route.

As indicated elsewhere in this volume, the label RR163C(x) has been reserved for this branch route following the protocol laid out in Armstrong (2021, 282). However, in documenting this it has become clear that the Margary naming convention is restrictive in the absence of a full description of the Roman route network. This newly assigned label provides a useful reference by which to locate the road, as it establishes a relationship with the primary road, but we cannot definitively know whether this is a segment of a separate road having a different origin and destination, though we can determine that it is part of a complex route network.

The lidar data support the Chilterns being cut by just a few strategically important Roman roads of national significance (Akeman Street, Watling Street, RR22, RR163), with other Roman roads being of minor local use, possibly reusing prehistoric routeways (Rothwell and Peveler, 2023). Booth (2011, 10) also observed a similar development of routeways from the late 1st and early 2nd centuries AD in the Upper Thames region, potentially in response to changes in land holding. By analogy it is probable that many minor routes also form an extensive network through Berkshire, south of the Thames, connecting to *Calleva,* and also through other settled parts of *Britannia*.

Travelling southwest from *Verulamium*, the onward routes for RR163, from a Thames crossing at Bourne End, probably continued via Knowl Hill; or for RR163C(x) from a crossing at Mill End, Hambleden, continued southwards, potentially joining up with RR163 to cross the River Loddon. There are two principal options from there: west towards Reading, then south to enter *Calleva* by the North Gate; or south via Fair Cross to join the 'Devil's Highway' (RR4a), then west to enter *Calleva* by the East Gate. The East and North Gates represent significant entrances, though Fulford *et al.* (1997, 167) record evidence for the temporary blocking of the road from the North Gate in the late 2nd century AD, which may indicate that they were in use at different times and that the East Gate was the more important entry point.

The proposed new route(s) for this road helps explain several significant features in the landscape. These include the engineered terrace-ways at Cock Marsh (see Figure 10) and Juniper Lane (Figure 11), the prominent raised earthwork feature and footpath crossing the floodplain at Hollands Farm, Bourne End (Figures 9 and 10), and potentially the siting of extensive Roman settlement complexes at Hambleden (Figures 12 and 13), Sarratt Bottom (Figure 5), and also Knowl Hill / Weycock Hill in Berkshire, though these all form part of a more complex interplay of Romano-British land-use and communication. It also highlights the absence of discovered evidence for Roman occupation in the vicinity of the confluence of the Rivers Wye and Thames. That a complicated picture emerges, with numerous possible interpretations, is not surprising given extensive human intervention in the management of the watercourses, intensive agricultural use and modification of the land, and the gradual 'fossilisation' of ancient trackways and field systems into the modern landscape.

The Romans in the Chilterns

The Chilterns AONB region lies broadly within the Late Iron-Age Catuvellauni tribal area. In the years following Caesar's campaigns in 55 and 54 BC this area grew progressively wealthy (Branigan 1985, 5), and by 20 BC it appears to have become a single federation having a consistent cultural and economic identity, centred around the Iron-Age *oppidum* of *Verlamion* (St. Albans). Caesar's actions had probably resulted in pledges of loyalty from beyond the immediate areas in which he had campaigned, establishing enduring and friendly relationships with influential local leaders, and drawing some into

Rome's sphere of patronage (Hingley 2022, 41, 47). There was also a substantial trading relationship between southeast *Britannia* and the Continent, which included the export of grain, livestock, gold, silver, iron, hides, slaves, and hunting dogs, and the import of a wide range of luxury goods, pottery and foodstuffs (Hingley 2022, 59-60). It is therefore likely that by the Claudian invasion of AD 43 the region already had an association with Roman culture. The *oppidum* became the Roman *municipium* of *Verulamium*, and several villa sites were established in the valleys to the west of the town from the mid-2nd century onwards, some occupying pre-conquest farmsteads. The readiness of such sites to develop quickly into high-status villas suggests the rapid assimilation of Roman ways and material culture by the native elite (Zeepvat and Radford 2007, 3, 12).

The tribal capital shifted to the *oppidum* of *Camulodunon*, which became the Roman *castrum* of *Camulodunum* (Colchester), though *Verulamium* remained an important political and economic centre. There were other Roman settlements close by, including at Wheathampstead and Braughing, but apart from Dorchester-on-Thames, none were of significant size. The recognition of abundant small Romano-British coaxial / accreted field systems in the BotP lidar data suggests an intensity of farming across the region, and settlement can be considered largely rural.

In AD 43 Roman occupation forces probably advanced from the south coast along the course of what became Watling Street (Webster 1980), as well as from other south coast landing sites. The main invasion force advanced towards the Thames, enroute to *Camulodunum*, where they waited for the arrival of Claudius. Claudius took over command, crossed the river and led his legions through pacified territory to the *oppidum*, where he received the submission of several British kings (Hingley 2022, 71-74). The ensuing treaties established friendly relations with several of the kingdoms in the south of *Britannia*, leaving the local rulers to continue to lead their people, but with the condition that when its ruler died the territory would be absorbed into the Roman province. This practice facilitated a largely peaceful transition to Roman rule and thus there is little evidence within the Chilterns of Roman military activity.

The main military base for the wider region was established at Alchester (near Bicester) by AD 44 (Sauer 2006, 14), strategically located at the approximate boundary between the Catuvellauni to the east and the Dobunni to the west, and at the intersection of what would become Akeman Street (*Verulamium* to *Corinium Dobunnorum*) and RR160 (*Calleva* to *Lactodorum*). This was the base of *legio* II *Augusta*. A fort may have been established at *Verulamium*, though Niblett and Thompson (2005, 147-149) cast doubt on this. There was probably a fort at Dorchester-on-Thames, and possibly one also at *Pontes,* although dating of these have led to suggestions that they may relate to the aftermath of the Boudican revolt (Booth *et al.* 2007, 36) of AD 60/61. By AD 47 the army had gained control of the region southeast of the Severn - Trent line (Branigan 1985, 37) approximately the line of the Fosse Way, and the army withdrew from Alchester between AD 50s and mid-AD 60s (Sauer *op cit*). The possible *Verulamium* fort was abandoned by AD 49, and in the years to AD 60 the town was transformed through broad social and administrative changes. Over the following century the town became one of the most important in the province.

The tribal territory of the Atrebates lay to the south, across the Thames. The tribal centre for the northern part of their territory was at the *oppidum* of *Calleva*, with a probable southern centre also at *Noviomagus,* in the vicinity of Chichester. Following the Roman occupation, *Calleva Atrebatum* developed into a major centre for trade and administration, also becoming one of the largest towns in *Britannia*, a communications hub with connections to the principal Roman centres across the southern part of the province.

Verlamion and *Calleva* were both probably established by about BC 20. Coin finds at *Calleva* demonstrate that in the Late Iron Age there were strong connections between the two kingdoms (Fulford 2021, 99). Fulford also advances the theory that the timing of their establishment, together with other similar *oppida* in the south of Britain, coincides with the intensive campaigning of the Roman army in *Germania* which would have required substantial procurement and logistical supply chains (Fulford 2021, 111). Both *oppida* were controlled by tribal kings with close Roman connections, and developed 'more or less directly' into Roman cities (Lambrick 2009, 373-375). The lack of evidence for military occupation suggests peaceful assimilation with little local resistance, the tribes being relatively easily incorporated into the Roman systems (Niblett 2001, 54-55). Consequently, there was probably little need to develop infrastructure to support significant military presence. However, Tacitus (*Annales* XIV 33) recorded that 'ruin fell on' Roman *Verulamium* during the Boudican revolt in AD 60/61, following which it was 15 years before reconstruction began in earnest. An inscription recording the building of the forum-basilica dates to when Agricola was governor (AD 78-85), and may record the earliest stone building, or to later rebuilding (Niblett 2001,73-77). Following the Boudican revolt, an efficient connection between these two major Roman centres may have become strategically more important, and there is evidence (Stead and Rigby 1989, 10) to date the southwest exit from *Verulamium* to around AD 60.

Previous studies

The Viatores group, chaired by Margary, investigated the major roads and 'lesser routes' in the South-East Midlands. The Viatores (1964, 136) describe the route between these two Roman centres as a major gap in 'modern' knowledge (Figure 2). The route is not documented in the Antonine Itinerary (Rivet and Smith 1979, 150-180), which describes some of the main Roman roads and stopping places, although the road must have been of some strategic importance. Margary's 3rd edition (1973) directly incorporated the Viatores' work.

Several antiquarian researchers refer to, and have described, elements of possible routes for the road. Within Roman *Verulamium* Watling Street forms the *cardo maximus*, running northwest to southeast alongside the basilica. Grover (1870, 48) described an intersecting road, from Watling Street towards the Southwest gate, as the 'famous... Camlet Way,' thus forming the *decumanus maximus*, alongside the basilica and the forum. Codrington (1903, 69) notes that 'nothing is known in either direction' of its route. Bannard (1926, 76-78; 1931, 65-67) described the Camlet Way as a route from *Camulodunum* to *Verulamium* to *Calleva*. At the *Calleva* terminus, Urban (1836, 535-537) outlined a route eastward towards *Londinium*, part of which was favoured by Margary as the southern end of RR163.

Branigan (1985, 64) noted a road leaving *Verulamium* and heading through the Chilterns. This would have exited the 'Silchester Gate' (Wheeler and Wheeler 1933, 176) which is described as substantial, about 22m wide and perhaps 11m high, comprising a single portal flanked by pedestrian entrances and protected by square towers, less lavish than those guarding the Watling Street entrances, but built in the same manner as the town walls (Branigan 1985, 70). Niblett and Thompson (2005, 78) consider the dating evidence for the town walls to be rather meagre, but suggest a possible date in the earlier part of the 3rd century AD.

From *Verulamium,* heading southwest, Margary (1973, 181) and the Viatores (1964, 147) targeted a River Thames crossing point at Hedsor Wharf, which lies on the line of the direct alignment, beyond

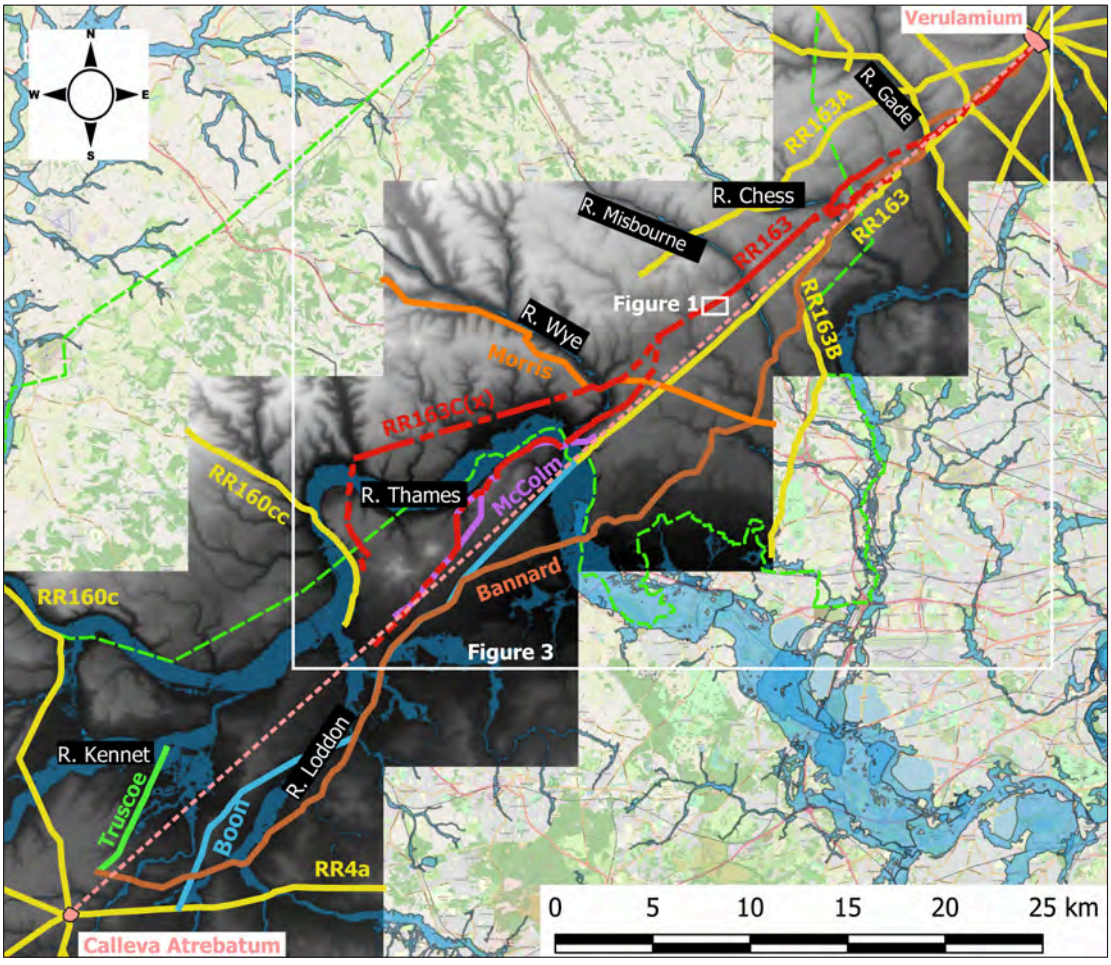


Figure 2. Location map and previous studies - Ordnance Survey Topography on a base map, with (pale blue) Environment Agency Flood Alert areas (as a proxy for the extent of the floodplains) overlain. Showing the Figures 1 (Hodgemoor Woods) and 3 (study area) locations, the Verulamium to Calleva direct alignment (pink dash), limit of the CCB BotP LiDAR data (green dash), and the historically documented routes (see text): brown - Bannard (1926, 1931); blue - Boon (1957); yellow - Viatores (1964) and Margary (1973); orange – Morris et al. (1970); purple - McColm (1980); green - Truscoe (2017); red - this study (2024). (© OpenStreetMap Contributors 2020, made available here under the Open Database License (ODbL) v1.0; © Contains OS data, reproduced under Open Government Licence v3.0; © Environment Agency copyright and/or database right 2020. All rights reserved).

which they could trace the route no further. The identification in Pollards Wood (Buckinghamshire Historic Environment record, BHER-07921) by Staveley (Gover 2017, 12-13) was the first indication of a different route north of the Thames. The identification of a possible Roman road (RRX021) crossing the Wye valley, by Morris *et al.* (1970, 367), also has relevance in considering alternative options to the southwest.

Viatores and Margary also documented two branch routes: RR163A (Viatores 1964, 210-215), via Nash Mills on the River Gade, then Flaunden, Latimer on the River Chess, and possibly on to Amersham and thence High Wycombe; and RR163B (Viatores 1964, 150-154), from Chorleywood, following the high

ground west of the River Colne to Langley Park. Neither of these branches are discussed any further here, though Rothwell and Peveler (2023, 156-157) argue for RR163B potentially being a pre-Roman route following what is now the Buckinghamshire / Hertfordshire county boundary, in which case it likely continues north of the Viatores junction with their RR163, continuing to follow the county boundary and descending into the Chess valley. Although these are not discussed any further here, the evidence for an additional branch route, RR163C(x), is presented.

Viatores (1964, 147) discuss the limitations surrounding a possible Hedsor Wharf crossing, particularly the marshy ground around Sashes Island. This has been recorded as the possible location of a Roman pile-building (BHER-01465) or possible fort (Berkshire Archaeology Historic Environment record, BAHER-00255), though there is no evidence to support this. Other possible Roman finds (*e.g.* Goolden 1893, 28-29) include 'an interesting but dubious' Roman cemetery (BHER-01472), but pottery and timber are now considered more likely Saxon / Medieval (BHER-01465). McColm (1980) was sceptical of the Viatores 'totally blinded approach to the river,' with their descent being via a narrow combe to Hedsor Wharf, preferring instead the descent from Harvest Hill to Hedsor, crossing the Middle Thames 'narrows' between Bourne End and Cock Marsh, then onwards ascending Winter Hill, and via Speen Hill to Knowl Hill and Hare Hatch.

Bannard (1926, 76-78; 1931, 65-67) and Seaby (1932, 34-35) outlined a possible route through Berkshire, from the Thames to *Calleva*. Bannard favoured a crossing downstream at Taplow Mills, then via Maidenhead Thicket, Woolley Green, Weycock Hill, Hurst, Sindlesham, Arborfield, crossing the River Loddon at Swallowfield Park, to Mortimer. Cotton (1956, 54-55) noted that 'there is no certain evidence' for the route through Weycock Hill.

South of the Thames was outside the Viatores area of interest, so they deferred to the onward route of Boon (1957, 208-209). Boon assumed a crossing at Hedsor Wharf / Cookham, based on the timber finds now thought likely to be Saxon / Medieval, then via Earley or Shinfield, to Spencers Wood, Clay Hill, Wood Lane, Beech Hill and Broad Way, joining the 'Devils Highway' (RR4a) at Fair Cross, 5.5km east of *Calleva*.

Margary (1973, 166-167) described RR160cc, an alternative to RR160c from Dorchester which enters *Calleva* by the North Gate. RR160cc crosses the Thames at Henley, then running via Wargrave, crosses the River Loddon near Twyford. Part of this route, between Wargrave and the River Loddon, was recorded by Climenson (1902, 120). Margary thought RR160cc, from Twyford, could be the southwest end of RR163, following a similar line to Boon, joining RR4a at Fair Cross; the section of RR160cc between Stanbury and Fair Cross was evaluated in detail by Whaley and Fairclough (2008, 35-38).

The National Mapping Programme documented archaeological features in the Thames Valley, identifying a section of Roman road between Burghfield and Reading (Fenner and Dyer 1994, 64), visible in 1947, but destroyed by gravel extraction by 1961. They considered it 'highly likely that it represents the course of the road linking *Calleva* with *Verulamium*,' with another section a short distance to its southwest. These are recorded in the documentation of the Silchester Iron-Age Environs project (Truscoe 2017, 111-112) as parallel ditches approximately 16m apart.

Humphreys (2019, 78) noted that many research projects on Roman roads in East Berkshire remain unpublished, with several postulated in the HER database, though observations have only been made in a 1920s excavation at Marsh Mill (BAHER-02883), and at Wargrave Church (BAHER-02883), possibly of RR160cc. Remote sensing data, investigated by the author in the vicinity of the possible routes

through Berkshire from the Thames crossing points to *Calleva,* show a number of interesting linear features. As well as lidar earthworks, these include probable roadside ditches identified from double cropmarks, at Waltham St. Lawrence, Ruscombe, Charvil, Sonning, and other localities. There are likely to be more and these would be worthy of further investigation. Recent excavation at the site of the Anglo-Saxon Cookham Abbey has revealed Roman building debris of unknown source to be incorporated into riverside trackways (Thomas *et al.* 2023, 5-6), interpreted to be part of the Abbey's infrastructure.

Dataset and lidar interpretation

The high-resolution CCB lidar data (16 data points per square metre) covers the Buckinghamshire area of interest, from Sarratt and the Chess valley to the River Thames. The latest (2021) Environment Agency lidar data (1 data point per square metre) now covers the whole of the region between St. Albans and Silchester. Much of the interpretation presented has been undertaken using the higher resolution data, but for reasons of data continuity, consistency and presentation, the EA data form the basis of most of the accompanying images. Figure 3 illustrates the dataset used for this study, with the earthwork linear features interpreted from lidar, AP and map regression marked. Such shallow relief features in the lidar data are generally 'positive' anomalies in the data, redolent of an *agger*, but sometimes they have a negative expression probably because of traffic-worn erosion. Typically, a 'Local Relief Model' (LRM) visualisation of the lidar data has been used, with contrast increased to highlight subtle relief features, though a 'Multidirectional Hillshade' (MDH or MHS) visualisation has been found useful for tracing features over long distance. The Relief Visualisation Toolbox (Kokalj and Somrak 2019, 747) has been used in QGIS to manipulate the data. Cropmarks and parch-marks show up in AP images generally as continuous narrow parallel features, but also rarely as parallel rows of pits.

Traditional data sources have been used where available, including aerial photographs (Historic England, Bing, Google Earth) , historical and antiquarian maps, and antiquarian and excavation 'grey literature' from the Archaeology Data Service (ADS). The British Geological Survey superficial geology map is important for understanding the nature of the Thames valley floodplain. Other data sources include the 'Rural Settlement of Roman Britain' (RSRB) project (Allen *et al.* 2018), Historic Environment Records (HER), and the Portable Antiquities Scheme (PAS) database (data extracted February 2021).

Early researchers focused on cropmarks, alignment of linear map features, and administrative boundaries, supported by field evidence for presumed *aggers,* and Roman finds. Lidar data has the benefit of showing the geographic extent of features, revealing previously interpreted '*aggers*' sometimes simply to be parts of field systems, and questioning administrative boundaries as diagnostic. However, interpretation of the lidar requires consideration of the lateral extent of features, their trends, and relationships with potential corroborative evidence. Some features are very subtle and are only recognised through consideration of their local and broader context, in conjunction with other evidence, or through increasing the contrast in the data visualisation. Sometimes laterally continuous linear features only become apparent through zooming out to view the data at small scale resolution and observing apparent 'discontinuities' across the data, and then ruling out potential data artifacts, modern utilities or infrastructure, and natural features. Thus piecing together the route of the road is an iterative process.

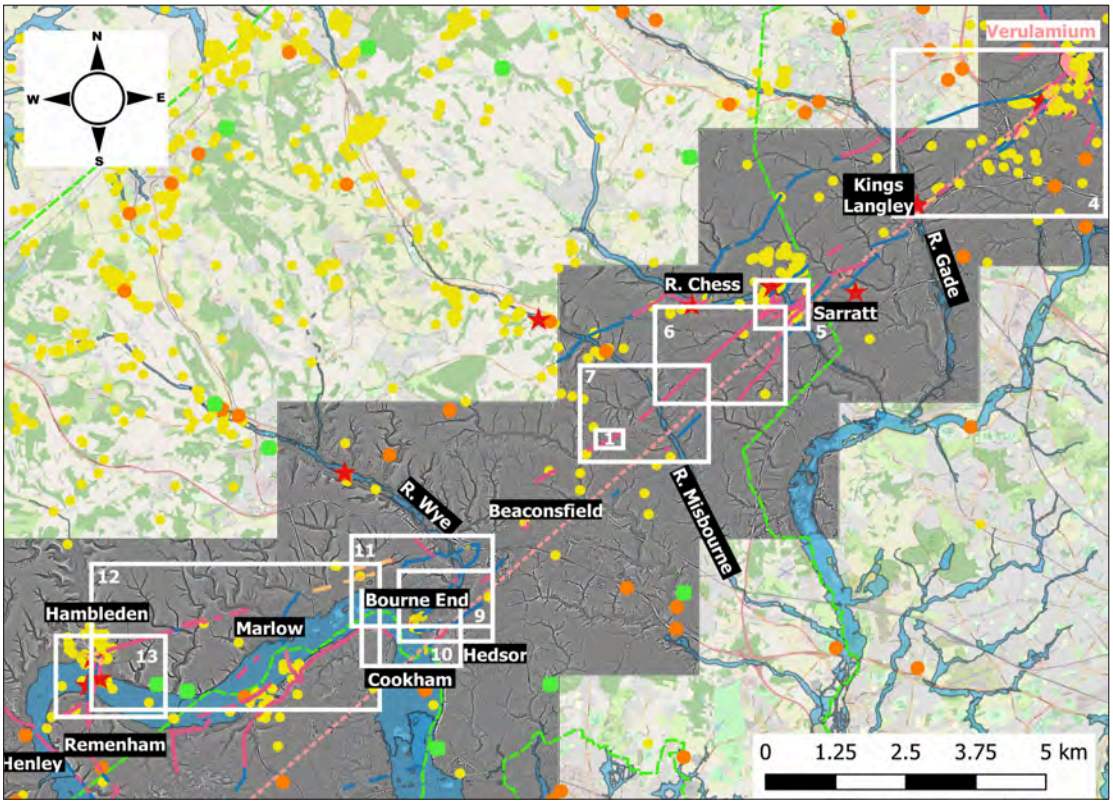


Figure 3. Study area database and index map. Environment Agency LiDAR data in LRM display, with selected interpreted LiDAR linear earthwork features. Limit of high resolution CCB LiDAR shown by green dash. Also showing EA Flood Alert areas and the direct alignment (as Figure 2). Linear features: yellow – geophysical trends, and excavations; orange – crop/parch-marks; pink – LiDAR trends; blue – map regression trends. Point data: red stars – 'villa' sites mentioned in the text; orange – Allen et al. 2018, Rural Settlement of Roman Britain (Farms, Villas, Settlements, Religious, Industrial sites); yellow – PAS Roman finds; green - hillforts. Numbered map locations correspond to the text figures. (© OpenStreetMap Contributors 2020, made available here under the Open Database License (ODbL) v1.0; © Environment Agency copyright and/or database right 2020. All rights reserved).

There is an inevitable sample bias within the dataset available, and that presented in Figure 3. Only those lidar and AP features considered relevant for consideration as part of this study have been included, whereas many possible linear trends can be interpreted. The RSRB data is a selective sample of sites not intended to be exhaustive (Allen *et al.* 2018), and the PAS data represent either serendipitous finds or localised systematic metal-detecting searches. However, with these caveats in mind, it is reasonably clear that there is a preponderance of Roman settlement activity within the river valleys, the 'upland' areas being sparser, and a clear concentration around known settlement sites (*e.g. Verulamium*, *Calleva*, Chess valley, Hambleden valley). If the earthwork linear features used for the study are taken as representative of the Roman transportation routes through the landscape, then there are a few focal points where these trends converge, notably in the vicinities of the crossings of the River Thames, and the valleys of the Rivers Chess, Loddon and the Hamble Brook.

The Middle Thames floodplain

The most significant obstacle to be negotiated between *Verulamium* and *Calleva Atrebatum* is the River Thames crossing, hitherto the biggest uncertainty in tracing the route. Understanding the nature of the superficial geology and the evolution of the floodplain is an important consideration for identifying likely crossing points.

Robinson (2011, 173) and Booth *et al.* (2007, 7) restrict use of the term 'floodplain' to describe the regions covered by alluvial silts and clays, deposited during the Holocene (post Ice-Age) by the river when in flood, rather than the more extensive superficial geological deposits of the glacial floodplain terraces which represent former, Palaeocene, floodplains.

During the Quaternary Ice-Ages the discharge of seasonal meltwaters eroded bedrock and reworked previously deposited river gravels, resulting in the repeated down-cutting of the River Thames. The most recent deposits result from the last glaciation (Devensian) 11,600 years ago. The river channels had their greatest extent in the early Holocene, thereafter, without spring meltwater feed, energy was insufficient for significant channel migration. Thus, the transition from braided river to restricted channelised flow, within broad incised channels (Robinson and Lambrick 1984: 809-810; Robinson 1992: 3), happened about 11-10,000 years ago, with a process of channel infilling and simplification, and little subsequent channel migration (Robinson 2011, 173, 177). This left an undulating gravel surface, covered with fine alluvium, some backswamp development, and with occasional gravel 'islands.'

The mapped distribution of alluvium is a good proxy for the extent of the Holocene river and indicates its confined nature (see the superficial geology on Figures 10 and 13). For most of the Middle Thames the modern river channel cuts through alluvial fill on top of Middle to Late Pleistocene gravels (Morigi *et al.* 2011, 1-40), which mostly form the river bed. The underlying Chalk only outcrops where the banks provide the steepest sides to the river valley (*e.g.* at Cliveden, Cookham Dean / Winter Hill, Danesfield). The Holocene river channel is at its narrowest (*c.* 200-250m) at Marlow, Hurley, Mill End and Henley, and at its widest (*c.* 1200-1400m) in the vicinity of Hedsor Wharf, Sashes Island and Cookham. It has its tightest meanders, and therefore swiftest flow, in the vicinities of the Bourne End marina upstream of the Wye confluence, and Greenlands upstream of Mill End, Hambleden.

Remaining paleochannels carried river overspill when water levels were high, which would have made traversing the floodplain more difficult, but the valley floor was probably deforested by the Middle Iron Age, and by Late Iron Age the course of the river was approximately that of today. Evidence from the Upper Thames Valley show that the Late Iron Age to Early Roman period saw agricultural intensification, with alluvial accumulation at its maximum rate (Robinson 1992, 7) due to greater land runoff and erosion, and with no evidence of reversion to woodland (Lambrick *et al.* 2009, 34, 49, 51). There is less evidence available for Middle Thames settlement but it is likely that the region saw a similar level of agricultural intensification with floodplain grasslands being ploughed and given over to cereal cultivation.

The Middle Thames may have served as a boundary between administrative *civitates* (Booth *et al.* 2007, 37, 366, 374; Lambrick *et al.* 2009, 373) for the Romans, as it may also have done for the Iron Age tribal groups over long periods, with the Atrebates to the south and Catuvellauni to the north.

The well-preserved section of road in Hodgemoor Woods suggests that RR163 was intended to carry significant traffic. Assuming it formed part of a link between the two Roman centres, then a Thames crossing would have been an important part of the transport infrastructure. Should an approximate straight direct-line route have been favoured between the two centres, then this is most clearly traceable from *Verulamium* southwest to the outskirts of Beaconsfield, with some drift, and some data gaps (the direct alignment has been incorporated on the accompanying text figures to provide a consistent point of reference). To avoid either the complexity of multiple crossing points, or an extended detour to enable connection with the established documented Roman road network, then the Reading to Bray meander of the River Thames forces at least a minor deviation from this direct alignment (see Figure 2). Crossing the narrower channel(s) of the Late Iron Age / Roman river and its floodplain could potentially have been by ford, causeway, bridge, or ferry, though the latter was probably less likely for mass transportation. Before the 19th century dredging, the river would have been more fordable, though Haken (2021, 304) notes that proven Roman fords are 'almost unknown' in Britain. There is evidence for Later Prehistoric routes crossing tributaries and channels within the floodplain, using causeways and bridges (Lambrick *et al.* 2009, 232).

The importance of the River Thames for water transport remains contentious and uncertain. Fulford (2014, 172) considered reliable navigability would have been important to reach Dorchester and Abingdon; and the rise of *Calleva* as an important centre is difficult to explain unless a link with the Thames played a major role in carrying trade goods (Fulford 2021, 106). Reading, at the confluence of the River Kennet with the Thames, has been suggested as the port serving *Calleva* (Sargent 2009, 83; Greenaway 2006, 7), though there is little supporting evidence. It may have been seasonally navigable to Oxford (Greenaway 2006, 7), though an opposing view (Booth 2009, 17) is that the Middle Thames was unimportant, given the absence of settlement evidence at road and river intersections, except for the known villa sites at Mill End and Yewden, Hambleden; and the absence of evidence for Roman river improvements which would have been required to negotiate several rapids (Booth *et al.* 2007, 313). A settlement at Henley, at an apparent road / river crossing, where a Roman building was identified 250m from the river (Moloney 1997, 129-130), is little more than speculative (Booth 2009, 8). Peberdy (1996, 312) notes that by the 14th century Henley was described as the highest point to which the Thames was 'ordinarily navigable,' probably because of the presence of so many weirs, though there is no evidence to suggest such impediments existed during the Roman period.

Straight river sections normally result in a level riverbed, whereas meanders tend to create asymmetric flow with deeper and faster water on the outside of the bend. A river is therefore usually shallower in straight reaches or at the cross-over between adjacent bends (Grayson 2010, 4). A maximum water depth of *c.* 0.6m is necessary for the year-round useability of a fording point by foot traffic (Grayson 2010, 3), possibly favouring the river at its widest or where it dissipated through braided channels, and with an approach over firm ground or a causeway. Bridges ideally had short spans, crossing narrow channels, and may have replaced pre-existing fords (Bond *et al.* 2019, 37), ideally with solid ground present on both banks. Sargent (2009, 66) records that the Romans built only two (known) Thames bridge crossings, at *Londinium* and *Pontes* (Staines), where they used islands in the river. A ferry might cross deeper, swifter water, but would have limited carrying capacity. An approach across the floodplain where it was relatively wide might make roads seasonally impassable without substantial engineered solutions, and any crossing points would inevitably be 'bottle-necks' in the transport infrastructure. No evidence of Roman river-side infrastructure, as might be expected to support either a bridge, floodplain causeway or ferry terminus, has been proven.

Potential River Thames crossing points

This account is primarily concerned with the route from *Verulamium* to the River Thames, but this cannot be considered in isolation, requiring consideration also of the possible Thames crossing point(s), the possible onward route(s) through Berkshire, and the wider transport infrastructure. There are no proven Roman (or earlier) crossing points within the section of the Middle Thames that is of interest. For this study, eighteen potential crossing points between Maidenhead upstream to Caversham, have been considered, based on modern routes, medieval ferry and bridge crossings, settlement and mill sites potentially indicative of the presence of river shallows. The evidence for the seven most likely locations, between Hedsor, upstream to Henley-on-Thames, is evaluated here, with the data favouring two of them.

Hedsor Wharf / Sashes Island (SU 90323 85991) (Figures 3, 10)

This is the location of the Viatores / Margary crossing (BAHER-15733). However, their route through South Buckinghamshire, and their proposed crossing point, lack evidence. They were unable to determine continuation of their route on the Berkshire side, noting the 'notoriously' marshy Sashes Island, and suggested the river may have changed course. The Holocene river is at its widest hereabouts, so they may be correct in assuming shifting of shallow braided channels. The Cookham lock was cut in 1830 leading to significant changes to the floodplain and drainage. Evidence of timbers (Goolden 1893, 28-29) are now thought (BHER-01465) probably Saxon or Medieval. Champness (2009) conducted a borehole survey over the western end of Sashes Island with no evidence for Roman settlement being identified. A resistivity survey conducted in 2012, and an augur survey in 2013 (Berks, unpublished), revealed a 6-8m wide buried gravel surface trending directly north-south across the island (see Figure 10), potentially related to the Saxon fortification of Sceaftesege (BAHER-00255; Brooks 1964, 79-81). The lidar evidence, north of the Thames, suggests that the approach route lies further to the north.

Cookham (SU 89789 85628) (Figures 3, 10)

The village is situated on a Late Pleistocene gravel 'island,' in a wide part of the floodplain southwest of Sashes Island. There are some finds and excavation evidence for Roman occupation, but no indication of any extensive settlement (Booth *et al.* 2007, 60). Thomas *et al.* (2023, 5-6) record the reworking of Roman building material into a trackway associated with the Anglo-Saxon monastery, but note that it could have been transported in. Historically, Cookham had two ferries (Tucker 2013) to enable the running of the 1830 lock, but the 8th century monastery and Saxon royal estate (Ditchfield and Page 1923, 125) suggest a probable older crossing.

Bourne End / Cock Marsh (SU 89362 86645) (Figures 3, 10)

McColm (1980) described a route descending from Hedsor village to Bourne End, crossing the Thames 'narrows' upstream of its confluence with the Wye, with a convincing route continuing along a prominent engineered terrace-way around Cock Marsh in Berkshire. McColm considered that this approach to the river avoided the confined Viatores / Margary descent down a narrow combe to Hedsor Wharf. A positive lidar linear earthwork feature, and magnetic anomaly, crossing the floodplain at Hollands Farm to the north of McColm's proposed route, reveals a more convincing line

of approach along the floor of the Wye valley. Such a route would cross marshy ground in the vicinity of the confluence of the two rivers, and where the Thames would have lost much of its energy. Roman metalwork finds are recorded in the vicinity (PAS and BHER-06672).

Marlow (SU 85210 86149) (Figures 3, 12)

This has been a significant crossing point since at least medieval times, with repair to a medieval bridge at the end of St. Peters Street being recorded in 1227 (Philips 1981, 99). There is only a little evidence of Roman remains in the vicinity (BHER-117805, -08026), and no physical evidence of a Roman road near to Marlow (Green and Beckley 2014, 27). However, there are clear cropmarks visible on Google Earth (Google Earth, 2003 and 2021, see Figure 12) northeast of the town (SU 86351 88117) showing parallel lines of pits probably marking the east to west orientation of a road. There are also lidar linear earthwork features trending northeast to southwest across the Lower Pound area (see below) towards Harleyford. On the south bank, opposite Marlow, a subtle linear feature evident on the lidar and on APs from 1924 (Britain from Above), crosses Late Pleistocene gravels, roughly aligned with the medieval St. Peters Street to the north, and the valley ascending through Quarry Wood towards Cookham Dean to the south. However, this possible onward ascent up the chalk escarpment shows no evidence of being an engineered route, or of the extensive hollow-ways that would be expected indicative of heavy use.

Hurley / Harleyford (SU 82554 84330) (Figure 12)

The location provides toponymic evidence suggestive of a crossing point having existed here at some stage. Hurley Priory, on the south bank, founded in 1086, had grounds extending to the river, with a ford and ferry (Tucker 2013). Excavation beneath the Priory dormitory block (Rivers-Moore 1930, 28) revealed a floor with associated Roman pottery. There are lidar linear earthwork features trending sub-parallel to the river, along Devensian gravels on both banks, but they do not convincingly join up with other features on the north or south bank to support a major cross-county route, and there is scant evidence to suggest a crossing existed in Roman times. Evaluation trenches sampled the gravel 'islands' within the floodplain on the north bank in 2005 (Pocock 2005) and 2009 (Thacker 2010), cutting across some of the apparent lidar features in Harleyford Field and Yela Bina Field, off Lower Pound Lane, but recorded nothing to correlate these with any archaeology and identified only Neolithic and Bronze Age features.

Mill End, Hambleden / Remenham (SU 78370 84988) (Figures 3, 12, 13)

There are Roman villa sites (Mays 2008) in the Hambleden valley on the north bank, at Yewden (National Heritage List England, NHLE-1014606) possibly with an associated settlement, and at Mill End (NHLE-1014601). There are also Roman building remains at Remenham on the south bank (BAHER-1042, -1043, -1047, -1049), which could potentially be part of another villa complex. Historic England Research Record (HERR-245349) suggests that the river may have shifted its course substantially such that the Remenham site may originally have been on the north bank. However, the Remenham site is on Devensian gravels, to the south of two Holocene channels which are themselves separated by a Devensian gravel 'island' (see Figure 13). Although the modern stabilised river only follows the course of the northern channel, this suggests that there has been no substantial reworking of the fluvial deposits, consistent with the lack of firm evidence anywhere else in the

Middle Thames for any significant post-glacial shifting of the main channel. Thus, Roman occupation sites most likely existed on both banks of the river and it is probable that there would have been some sort of communication link between them. A weir is recorded at Hambleden in 1376 (Peberdy 1996, 336).

Henley-on-Thames (SU 76384 83008) (Figure 3)

A Roman crossing point may have existed here. A buried road is thought to have been observed under the lawns of Phyllis Court (BAHER-02883), leading to the river at a point where piles had been observed. Margary (1973, 167) considered these suggestive of a bridge, though Malpas (1987, 29) thought they were more likely to be markers indicating the location of a ford. This crossing would have carried RR160cc from Dorchester to Wargrave, and probably onwards to *Calleva* via Fair Cross. Margary considered the latter part of this route as potentially constituting the southwestern extremity of RR163. A Roman crossing here would also have enabled a road on the north bank, coming from the east, to cross and continue along the line of RR160cc to the south. However, this would have been an inefficient crossing point for the principal road from *Verulamium* as it requires an extended journey around the north side of the Thames meander.

Having critically examined these options, and the associated Thames approach routes on both banks, the evidence suggests two most likely Thames crossing points. The principal route of RR163, following a line closest to the direct alignment between the two centres, and demonstrating the most significant engineering, is a crossing from Bourne End to Cock Marsh, with a branch route RR163C(x) also crossing from Mill End to Remenham.

RR163 route: North of the River Thames

The following describes the proposed new course of RR163 from *Verulamium* to the River Thames, and where relevant compares this with the route historically described by Viatores (1964) / Margary (1973). Much of this new route is supported by the remote sensing evidence, though there are gaps, and some uncertainties where the landscape around Roman settlement is complex and where multiple sub-parallel routes may exist. Figure 2 provides an interpretation of the overall route, and Figure 3 provides an index to the location of the maps accompanying the following text, together with an overview illustration of the data distribution.

Verulamium to the River Gade at Kings Langley (TL 13604 07250 to TL 07791 02207)

From *Verulamium* RR163 initially closely follows the route of Viatores / Margary (Figure 4). There are several apparent routeways leaving from the southwest side of the Roman town, some of which appear to inter-connect within the immediate vicinity. Here the simplest route option is taken, the 'Camlet Way' (Grover 1870, 48), being the *decumanus maximus* starting at its junction with Watling Street, beside the site of the basilica, heading southwest alongside the forum, and exiting through the Silchester Gate (Hertfordshire Historic Environment Record, HHER-14322). In excavations Stead and Rigby (1989, 4) identified 'the Roman Road to Silchester ... some 90m outside the South-West Gate,' 7.5m wide, constructed of gravel 0.25m deep, with a cambered surface. On the southeast side a 3m width sloped to a ditch 1.5m wide and 0.75m deep, and on the northwest side a 2m width sloped to a

sharp edge without a ditch. Thus, the road complex exiting *Verulamium* is approximately 14m wide. Two more surfaces of cambered road were found on the southeast side. These road sections overlay a cemetery (HHER-14145), whose use had probably been terminated by construction of the road *c.* AD 60. Dating was further constrained by early Flavian (AD 69-96) settlement, extending some 180-460m beyond the city.

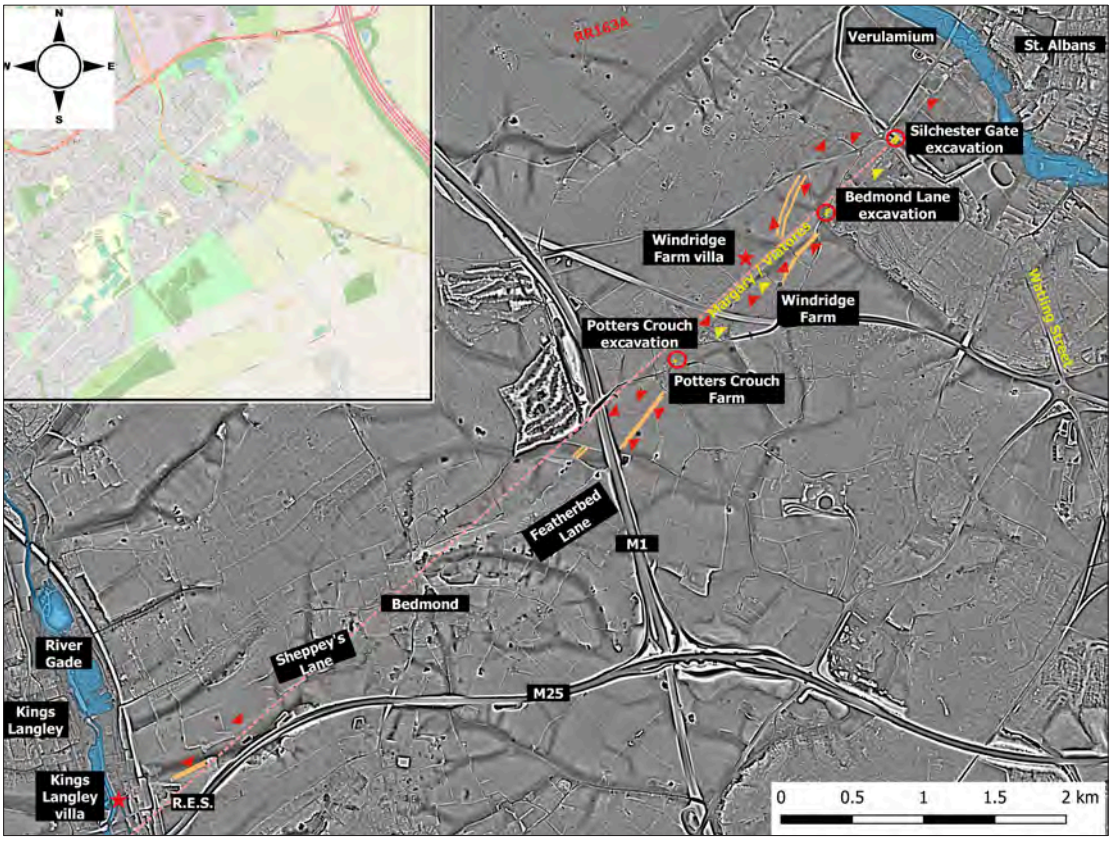


Figure 4. Verulamium, the 'Silchester Gate' and the start of the route towards the southwest. Routes shown on LiDAR LRM, marked by red triangles. Excavation sites (red circles highlighting yellow trench locations) at Silchester Gate, Bedmond Lane and Potters Crouch Lane; cropmarks (orange) help illustrate a complexity of routeways in the near vicinity to Verulamium; villa sites marked as red stars. Evidence for the route is lost through Bedmond but reappears descending to the valley of the River Gade approaching the Kings Langley villa site. Margary / Viatores route (yellow triangles) included for reference. Also showing Flood Alert areas and the direct alignment (as Figure 2). (© OpenStreetMap Contributors 2020, made available here under the Open Database License (ODbL) v1.0; © Environment Agency copyright and/or database right 2020. All rights reserved).

Further southwest, a short stretch of road excavated in 1965 (HHER-14039) is cut by Bedmond Lane. Linear earthworks in the lidar data support the Viatores / Margary route north of Windridge Farm, Potters Crouch Lane (east of the Windridge Farm villa site, HHER-31342), with two possible routes within 120m of each other. The south-eastern one of these linear features is also evident in parallel cropmarks (Google Earth, imagery 2009; 2018), however the more direct line is the option adopted here, along the Viatores route. Both sub-parallel routes appear viable options, continuing some 100-150m apart for about 3km. Another excavated road surface (TL 11704 05286) was recorded (Morris,

undated, 1960s) northeast of Potters Crouch, though there is some scepticism in the Ordnance Survey's (OS undated) field notes. Beyond here the new route departs from the traditional Viatores / Margary line.

Cropmarks suggest the south-eastern of the two sub-parallel routes continues, southwest of Potters Crouch Farm, most clearly seen on a National Collection of Aerial Photography (NCAP) image from 1987 (TL 11451 04844), aligned to the trend of Featherbed Lane (TL 11053 04426) west of the M1. The route then probably goes through or south of Bedmond, but there is no evidence for it. Sheppey's Lane (TL 09218 03117) and its continuation as a positive lidar linear earthwork feature, along the north side of a shallow valley descending to Kings Langley is taken as the line, with the route then crossing the valley to follow cropmarks (TL 08261 02420) (Google Earth, 2005 and 2017) northeast of Renewable Energy Systems (R.E.S., Egg Farm Lane) at Kings Langley. These features are directly in line with the Kings Langley villa site (HHER-0510), with the route heading to cross the River Gade close to the villa and near the medieval (and modern) river crossing point.

River Gade to the River Chess (TL 07791 02207 to TQ 03027 98952)

Most of the Viatores / Margary route from here on to the Thames was inferred by them from aligned features, and flint scatter assumed to be indicative of an *agger*. The newly proposed route from here to the vicinity of Sarratt, Hertfordshire, is indistinct and at best ambiguous (so no accompanying text figure has been presented here, until Sarratt), barring some very subtle linear earthwork features in the lidar, which are not aligned.

There is a hint in the lidar that the route could turn southwards, clipping the edge of the 13th Century 'Little London' moated hunting lodge (TL 07611 01773). If it does, then it would join the Viatores / Margary route along the northern edge of Berrybushes Wood (TL 06592 00863). If this line were correct then it would be one of the very few places where the route would coincide with a significant administrative boundary, this being the boundary of the medieval deer park surrounding the Kings Langley royal palace, and of the modern parish. However, whilst Viatores (1964, 141) record an *agger* visible running along the northern edge of the wood, the Ordnance Survey's (OS undated) field notes record no trace of an *agger* but rather possible confusion with a spread woodland boundary bank. From the western end of the wood a deviation of their route to the south (Viatores 1964, 141-142) reduces the gradient along the valley side (TL 06233 00606), though the OS field notes consider such a diversion unnecessary. If it were necessary, then a faint lidar linear feature (TQ 05177 99831) trending west-southwest might correct for this dog-leg, crossing fields south of Bucks Hill where Roman finds have been recorded (HHER-2284, -897, -899). The Viatores route is then from Bucks Hill via the potential Newhall Farm villa (HHER-993, -16177), where they record (1964, 143) that an *agger* is 'plainly visible,' but Gover (2017, 12) recorded that excavations revealed only a poorly paved trackway, then along a line of hedgerows and footpaths to Church End (TQ 04116 98416) at Sarratt.

However, although there is an absence of clear evidence between Kings Langley on the River Gade, and Sarratt above the Chess valley, the route favoured here is a more direct line. This continues from Kings Langley, via the top of the shallow ridge of Bucks Hill, connecting with a faint lidar linear feature (TL 04884 00582) which then aligns with a descent down Moor Lane to the River Chess at Sarratt Bottom (TQ 03085 99053). This seems a much simpler and more straight-forward route.

The Chess valley landscape has abundant evidence of Roman activity around Sarratt Bottom (Edwards *et al.* 2020, 87-113), including: a farmstead in Mount Wood (Buckinghamshire Historic Environment Record, BHER-01416, -09903); the possible Valley Farm villa (HHER-893, -898, -2718); and the Latimer

villa (HHER-0400) 3km upstream to the west (Figure 6). However, a single definitive or preferred route across the valley and the river remains unclear, with several possibilities for ascending the valley sides in both directions (Figure 5). The multiple alignments, apparent in the continuity of boundaries across the river valley, are suggestive of the existence of multiple crossing points over this shallow,

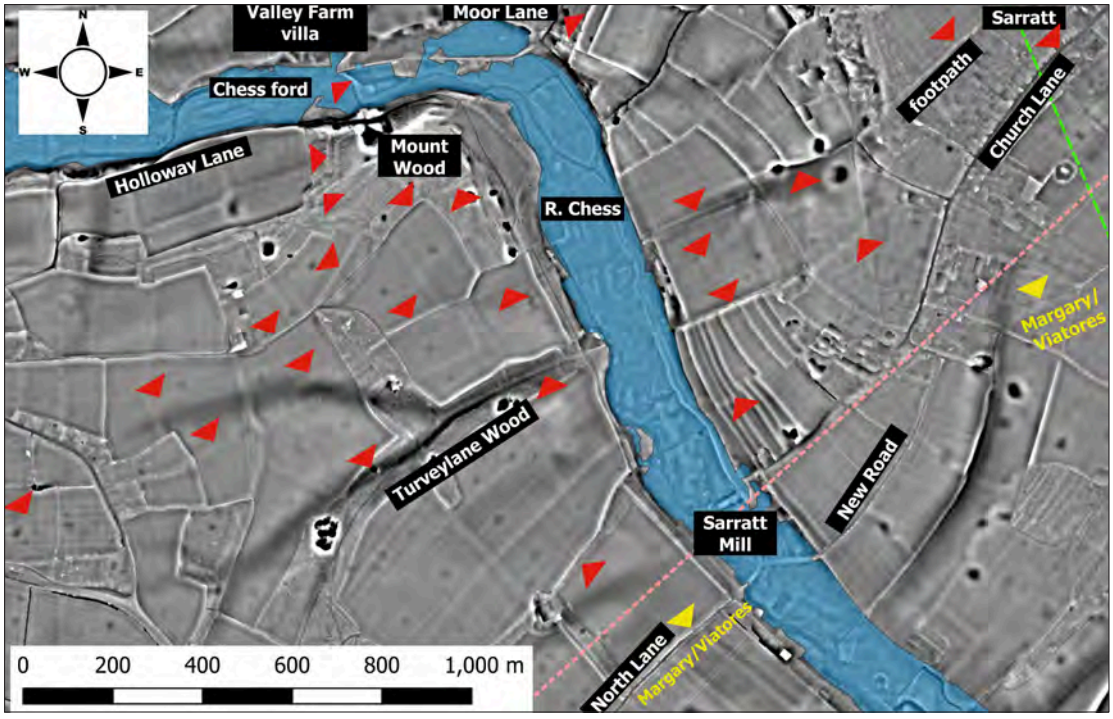


Figure 5. The complexity of multiple possible Chess Valley crossing routes shown on LiDAR LRM, marked by red triangles: Valley Farm / Chess ford; Moor Lane, via Mount Wood; southwest from Sarratt; Turveylane Wood. Margary / Viatores route (yellow triangles) included for reference. Also showing EA Flood Alert areas and the direct alignment (as Figure 2). (© Environment Agency copyright and/or database right 2020. All rights reserved).

fordable, chalk stream.

As well as the descent down Moor Lane, two other routes through Sarratt appear viable, along Church Lane (TQ 04176 98955), and along the parallel footpath 160m to the northwest (TQ 04055 99085). The former then follows a shallow elevated lidar feature across the field (TQ 03797 98621) behind the church, and descends a mounded hedge line to the present-day River Chess crossing (TQ 03354 98403); whilst the alternative descends either straight, or deviates more southwards diagonally across the field (TQ 03489 98591), to cross the river a short distance further upstream (TQ 03284 98461) of the Church Lane route. The Viatores route lies further to the southeast, descending New Road, crossing the river (TQ 03572 97863) by Sarratt Mill House, and then ascending North Lane to Chorleywood (TQ 02973 97288).

River Chess to Beaconsfield (TQ 03027 98952 to SU 94173 92123)

The continuation of the Viatores / Margary route, from their crossing of the River Chess towards the Thames, becomes increasingly unclear and less defendable as it connects various linear features

heading in the direction of Hedsor Wharf. However, from the plateau above Mount Wood, the lidar data now demonstrate convincing evidence for a direct route lying to the northwest of the Viatores route, and on a similar trend to the line of the well-preserved *agger* in Hodgemoor Woods (SU 96839 93642).

The similarity in orientation of Holloway Lane (TQ 02376 98849) and the ford (TQ 02630 98980) crossing the River Chess by Valley Farm (Figure 5), with the linear lidar feature through Pollards Wood, was suggested by Gover (2017, 15) to be indicative of the direct route from Sarratt. However, the lidar shows a subtle but consistent alignment of positive linear earthwork features trending southwest from the escarpment top (TQ 02689 98624), immediately above Mount Wood, continuing in a faint but almost unbroken line through Chenies (TQ 01787 97809) and Little Chalfont (TQ 00368 96568) to Pollards Wood (SU 99226 95508) and beyond (Figure 6), extending almost ruler straight for some 10km. There is a possible ascent through Mount Wood where the lidar shows parallel linear north-south trending banks either side of a negative feature about 12m wide (TQ 02631 98805), running for 100m at a gradient of about 17% (*c.* 10° angle). Davies (2008, 39) states that such gradients are acceptable over short distances, and Armstrong (2023: 56-57) suggests that this incline would fit within the Romans' apparent preferred maximum ruling gradient of 11° slope angle (*c* 19%; 1 in 5.1). However, this route option seems an unnecessarily steep choice for this location in the landscape. The most obvious line of ascent from the river, from the modern footbridge downstream of the ford, is through the valley of Turveylane Wood (TQ 02907 98219) (Figure 5), but there is no evidence for

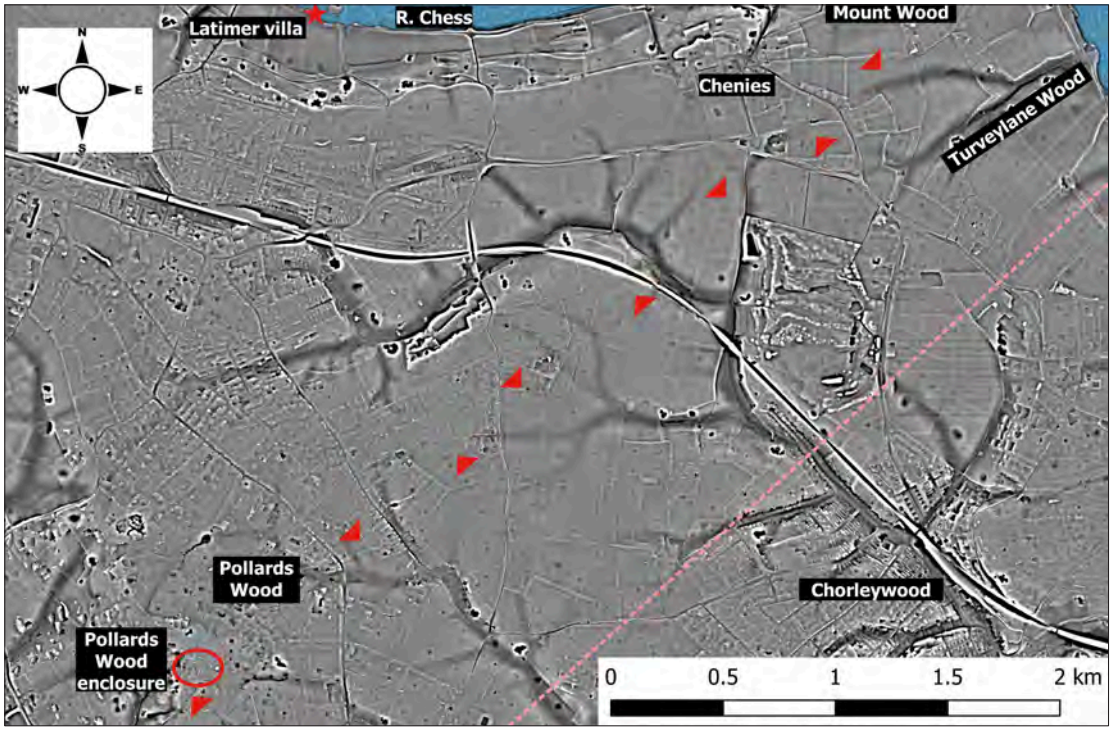


Figure 6. Long distance continuation of the alignment of the linear earthwork on the LiDAR LRM (marked by red triangles), from Mount Wood southwest to Pollards Wood. Also showing Pollards Wood rectilinear enclosure of unknown date, EA Flood Alert areas and the direct alignment (as Figure 2). (© Environment Agency copyright and/or database right 2020. All rights reserved).

this being the route. It therefore seems that the Chess crossings, and network of routes around here, are far more complex with multiple possibilities, hinting at a possible settlement complexity which is as yet unknown, and although a crossing cannot be definitively identified it is probably in the vicinity of the modern ford in the proximity of the Valley Farm and Mount Wood building complexes (see also Conclusions).

Southwest of Mount Wood, the line is faint but ruler straight in the lidar (Figure 6), past Chenies, joining the Pollards Wood linear feature (SU 99226 95508) (Gover 2017, 12-13), and continuing the same trend to the Hodgemoor Woods feature (Figure 7). Gover (2017, 14-15) also recorded an undated rectilinear enclosure (SU 99198 95626) within Pollards Wood as potentially Roman (BHER-07920).

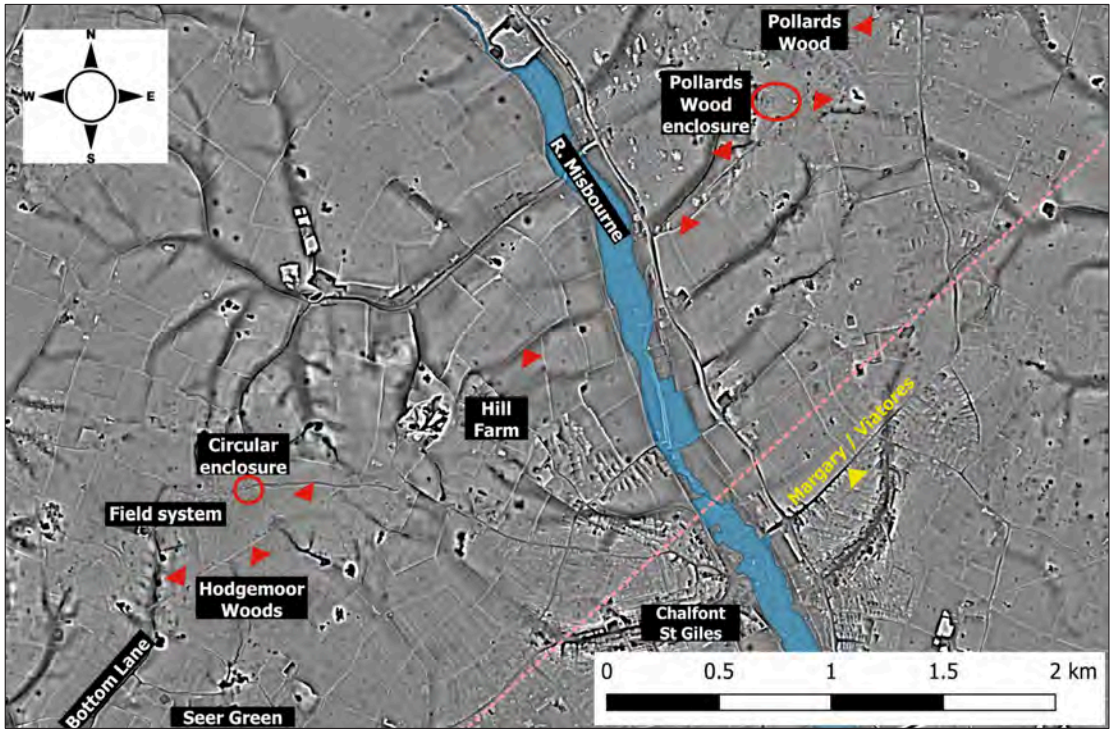


Figure 7. Pollards Wood to Hodgemoor Woods linear earthwork alignment on LiDAR LRM (marked by red triangles). Margary / Viatores route (yellow triangles) included for reference. Also showing Pollards Wood rectilinear enclosure of unknown date, Hodgemoor Woods enclosure and adjacent accreted field system, EA Flood Alert areas and the direct alignment (as Figure 2). (© Environment Agency copyright and/or database right 2020. All rights reserved).

Between Pollards Wood and Hodgemoor Woods the route crosses the River Misbourne, near to the modern foot-crossing point (SU 98602 94933), though it is difficult to determine the precise route across the valley floor. However, the alignment can then be followed as a hedge line, along the footpath to Hill Farm (SU 97897 94345), ascending a shallow depression from the Misbourne Valley.

Hodgemoor Woods (SU 96839 93642) (Figures 1 and 7) exhibit the best-preserved section of engineered Roman road within the Chilterns, extending for about 1km (Rothwell and Peveler 2023, 153-154). The lidar data show that the road appears to overlie, or at least be contemporaneous with,

a rectilinear grid of accreted fields (SU 96762 93726), and is in turn cut by ridge and furrow (see Figure 1). Adjacent to the early field system, and proximal to the *agger*, is an undated circular earthwork enclosure (SU 96898 93909), possibly Romano-British.

This section of road is flanked by 'quarry' pits, typically spaced 12-14m apart. The *agger* is approximately 12m wide (*cf* average 10.1m for Watling Street, 8.6m for Ermine Street (Davies 2008: 42)) and the width between the flanking ditches is 20-24m (*cf* approximately 20m for Ermine Street at Ware), suggestive of a road of some importance. On the ground the road is subtle (Figure 8), the *agger* is comprised of quartzose pebbles and cobbles, but there is little to distinguish it from the surrounding Pleistocene gravels. To the southwest, it loses definition as it comes off the Pleistocene, making a shallow, presumably traffic-worn, cutting (SU 96540 93455) through the underlying Palaeogene Lambeth Group sand and gravel deposits, and then a shallow *agger* again across the dry chalk valley floor (SU 96465 93402) north of Bottom Lane, before it disappears southwest.



Figure 8. Hodgemoor Woods, a hump in the modern north-south bridleway (SU 96971 93720) marks where it crosses the east-west line of the agger of RR163. (© the author).

A faint linear lidar feature, having the same trend, is seen again 1.8km to the southwest (SU 94733 92440), and can be traced into Brown's Wood (SU 94555 92325) by Wilton Place, on the outskirts of Beaconsfield. The trend, and its location approximately 1.5km to the northwest of the Viatores / Margary route, puts a Thames crossing at Hedsor Wharf in doubt. There is no clear evidence for the

route through the urban environment of Beaconsfield, but to cross the Thames it must either continue its southwest trend or swing to the south.

To pick up the Viatores / Margary route to head for their crossing point at Hedsor Wharf, and to avoid having to negotiate the valley of the River Wye, a deviation to the south would be required, but there is no evidence for a continuation in that direction.

There is little evidence for Roman settlement in the immediate vicinity of Beaconsfield, though recent excavation along the A355 Eastern Relief Road (Allen *et al.* 2021, 73-82), 1-1.5km southeast of the proposed route has shown evidence of Late Iron Age and Early Roman settlement. However, within the adjacent Wilton Park housing development, Klemenic (2021, 11) records that trenches were specifically sited to test the Margary / Viatores route through the estate but found no Roman material, concluding that it is 'most likely that the road did not run along this conjectured route.' The PAS database records a few scattered coins having been recovered in the wider area, and an antiquarian Roman coin hoard is reported from the vicinity of the former Gregories estate house in Beaconsfield. Here, south of Burkes Crescent, an elevated lidar linear earthwork feature, and parallel parch-marks, best seen on a Cambridge Air Photos (CUCAP) image from 1985 (also Bing 2021), can be seen trending north-south (SU 93804 90591) and extending onto the playing fields of neighbouring Butlers Court School. These may be significant, given the dearth of evidence, but they also happen to be aligned with features on John Rocque's 1761 map associated with Gregories house, so may be part of its landscape features.

Beaconsfield via the Wye Valley to the River Thames at Bourne End (SU 94173 92123 to SU 89362 86645)

To reach any of the potential Thames crossing points upstream of Hedsor Wharf, descent into the valley of the River Wye is necessary. The preferred route for this can be seen initially, south of Beaconsfield and the M40, on the plateau east of the valley where the footpath from Over's Farm to Mill Wood runs northeast-southwest along a subtle positive lidar earthwork feature (SU 92417 88547) (Figure 9). A track continues the same line in the Beaconsfield direction to the northeast, but gravel extraction at the Springfield Farm Quarry has removed part of this track and any further possible evidence. South of here, closer to Berghers Hill, cropmarks of a possible Iron Age or Romano-British farmstead are recorded (BHER-08501).

Continuing southwest, to the south of Windsor Lane a line of descent down the valley side is seen in the lidar traversing southwest across the slope, first as a negative, and then as a positive, linear earthwork feature (SU 91438 88023). There is some additional landscape complexity on the flank of the valley at this location, being directly adjacent to the site of the extensive grounds of the moated Bishops (of Lincoln) medieval Wooburn Manor (BHER-01943), where a northwest - southeast trackway connecting former Lodges on Berghers Hill with the manor house cuts across the lidar features. However, the lidar features align directly with the road of Wooburn Town (SU 90962 87762), on the south side of St. Peter's churchyard at Wooburn. Roman pottery shards, a tegula and metal slag have been found here (BHER-01474), and to the east on the slopes of Wash Hill (BHER-06244; -05749). The route probably then follows the line of the modern roads of Town Lane and Brook Bank (SU 90613 87489) besides the heavily culverted River Wye, and continues the same alignment along Princes Road (SU 90208 87231) at Cores End, which becomes a track and then a footpath along a positive linear earthwork feature on the lidar (SU 89983 87064), trending southwest across Hollands Farm (Field F7).

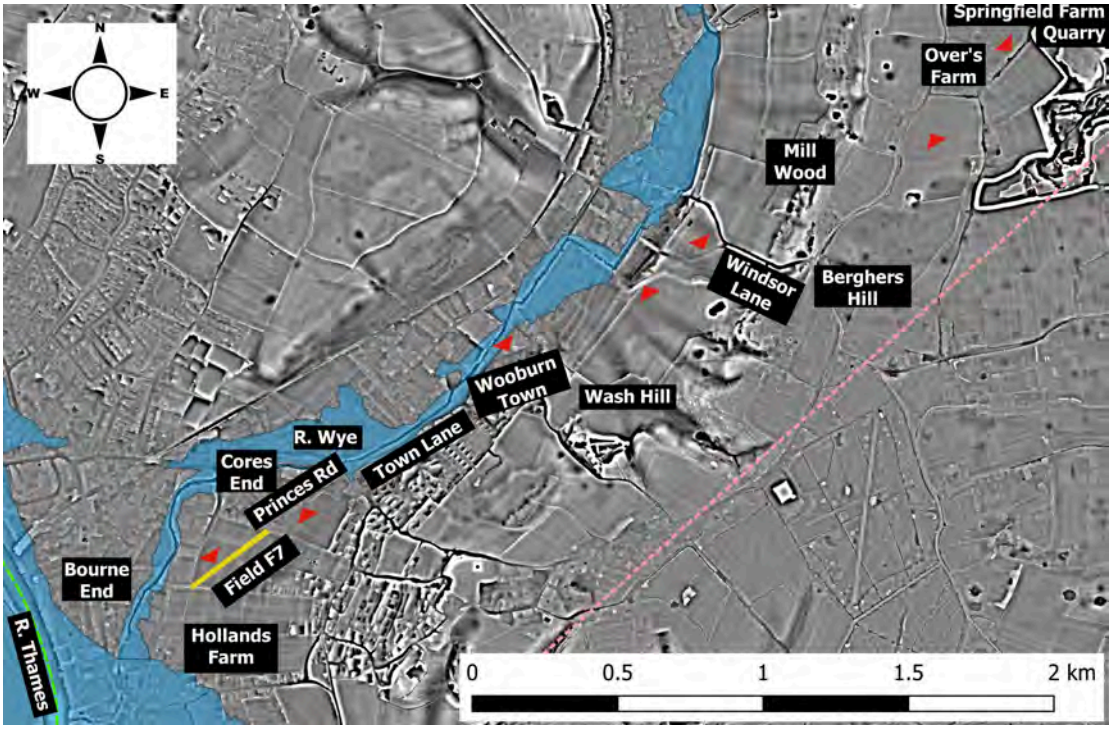


Figure 9. Alignment of linear features, running from Over's Farm to Hollands Farm, on LiDAR LRM (marked by red triangles). Magnetic anomaly (yellow) highlighted across Field F7, coinciding with an elevated LiDAR feature and the modern footpath. Also showing EA Flood Alert areas and the direct alignment (as Figure 2). (© Environment Agency copyright and/or database right 2020. All rights reserved).

A geophysical survey (Harrison 2019a, 4; 2019b, Illus. 6, 7) shows a corresponding northeast-southwest linear magnetic anomaly along the same line. This is the line of the modern footpath, which, although regularly ploughed, remains as a subtle positive topographic feature. Harrison (2019a, 4) recorded that this 'clear north-east/south-west linear anomaly crossing [field] F7' is 'likely caused by a buried metalled surface.' Roman metalwork finds have been recorded in the vicinity (BHER-06672). This field sits on Holocene alluvial deposits (Figure 10), indicative of repeated flooding close to the Wye and Thames confluence, and to facilitate its traverse a built-up 'causeway' would have been necessary.

This alignment of linear lidar features, from Over's Farm to Mill Wood, continuing south of Windsor Lane, and crossing Hollands Farm (Field F7), and the orientation of the lane of Wooburn Town, are suggestive of a continuous route (Figure 9). This proposed route for RR163, where the floodplain is at its widest, approaches what would probably have been a significant Thames crossing point. It is also an area heavily modified in industrial and post-industrial times, to drain the land, stabilise the River Wye, support several paper mills and a gunpowder mill, improve navigability of the Thames along the reach upstream of Cookham Lock, and for riverside residential development. Therefore, it is perhaps unsurprising that there is no proven physical evidence for crossing related infrastructure. It also happens to align with the engineered terrace-way (SU 88788 86653) around Cock Marsh, at the foot of Winter Hill in Berkshire, proposed by McColm (1980), where this area has also been extensively

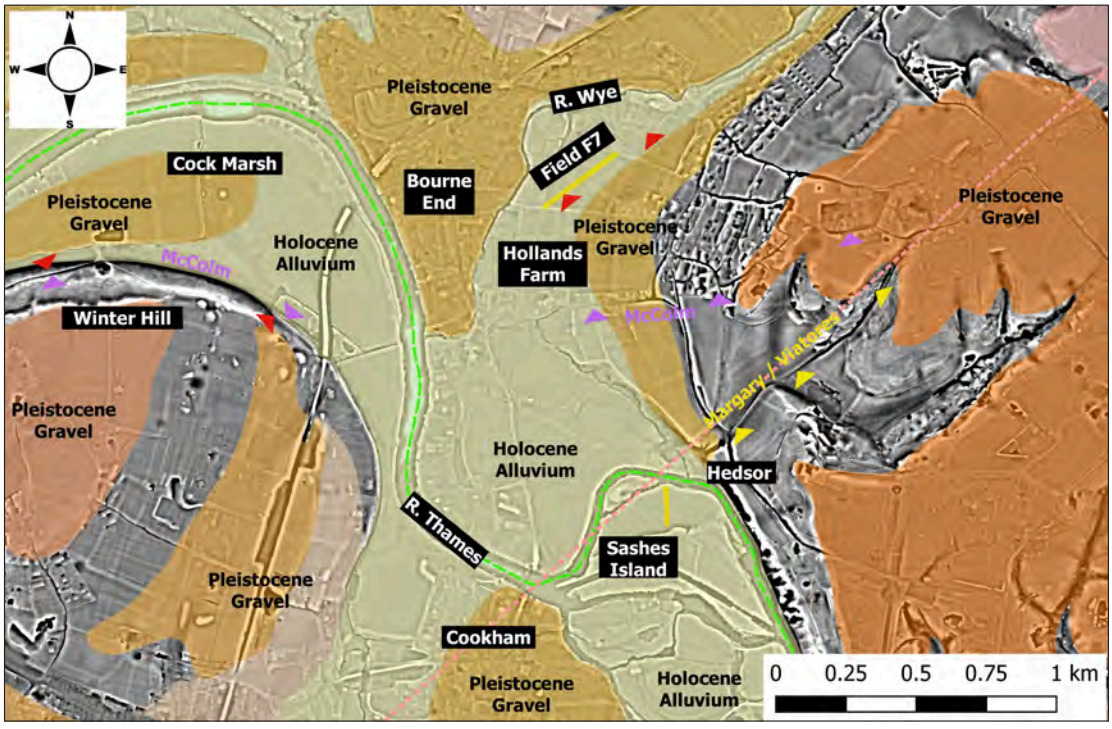


Figure 10. Superficial surface geology (i.e. excluding bedrock geology, for clarity) at the confluence of the River Wye and River Thames, illustrating the Holocene river channels and floodplain (straw yellow) and Pleistocene gravel islands, overlain on the LiDAR LRM. Showing the Wye valley route across Hollands Farm with the Field F7 magnetic anomaly (yellow), the vicinity of the River Thames crossing, and continuation (red triangles) at Cock Marsh / Winter Hill along McColm's (1980) (purple triangles) route. The location of the north-south feature on Sashes Island is also shown (yellow). Margary / Viatores route (yellow triangles) and the direct alignment (pink dash) included for reference. (Contains British Geological Survey materials © UKRI 2020. Reproduced under Open Government Licence v3.0; © Environment Agency copyright and/or database right 2020. All rights reserved).

modified through drainage, and for the embankment and bridge supporting Brunel's Marlow branch of the Great Western Railway in 1854, rebuilt in 1895.

There is a potential alternative descent into the Wye valley from Beaconsfield, along Wooburn Green Lane (SU 92093 89398) from the A40, and down Holtspur Lane (Figure 11), a former footpath. This route would follow the faint positive linear lidar feature continuing the line of the lane directly crossing the green at Wooburn Green (SU 91344 88510), and then paralleling the modern River Wye, to join the Cores End to Hollands Farm (Field F7) feature.

RR163C(x) branch route: North of the River Thames

An alternative branch route is now also proposed, continuing to the River Thames from the vicinity of Beaconsfield. There is sufficient evidence in the remote sensing data to see this as a convincing Roman route to the Hambleden valley, where there is significant evidence of Roman settlement, including two villas. The location of these villas and settlement could have been at the intersection of

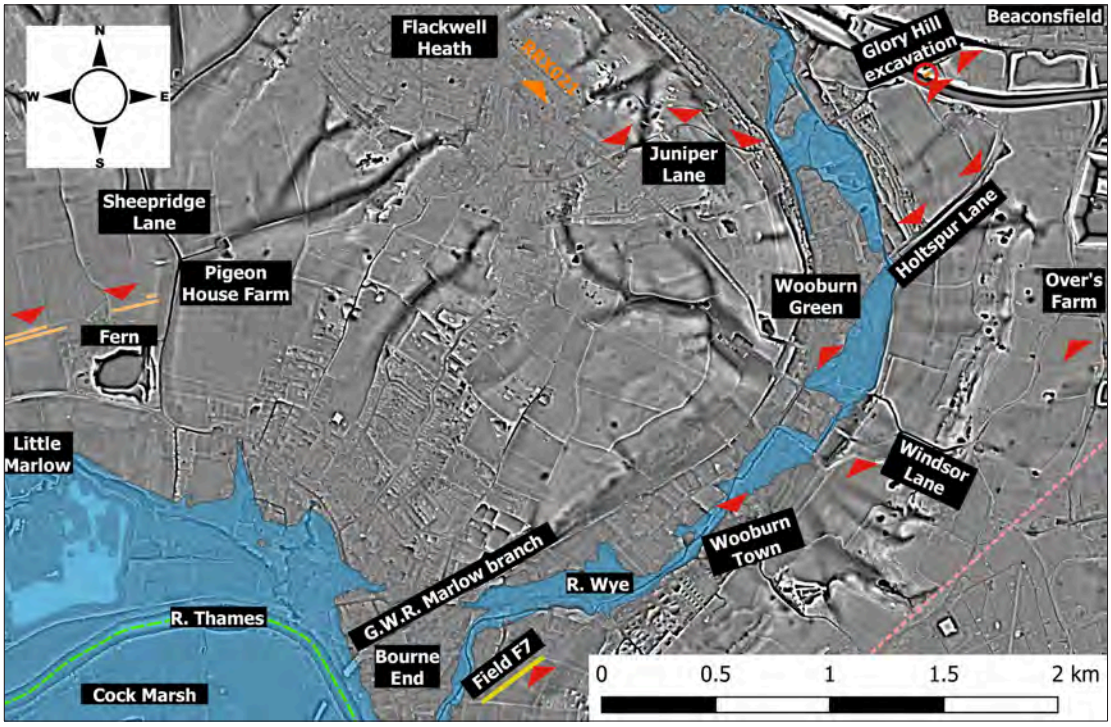


Figure 11. Alternative possible Wye valley traverse routes on the LiDAR LRM (marked by red triangles): Glory Hill (red circle highlighting excavation trench) to the Juniper Lane terrace-way, heading west-southwest towards the crop-mark pit alignments at Fern (orange, see also Figure 12); Holtspur Lane descent into the Wye valley; and the preferred Over's Farm to Hollands Farm Field F7 route, with magnetometry trend (yellow) (see Figures 9 and 10). Also showing Morris et al. (1970) RRX021 route across Flackwell Heath, EA Flood Alert areas and the direct alignment (as Figure 2). (© Environment Agency copyright and/or database right 2020. All rights reserved).

several routeways. Their juxtaposition with Roman buildings at Remenham on the south bank of the Thames is strongly suggestive of a potential crossing point. This branch route, around the north of the Middle Thames meander, deviates significantly from the *Verulamium* to *Calleva* direct line and is described here as a subsidiary or spur off the principal route, however it could also be a segment of an entirely separate road having origin and destination points which are as yet undefined.

Beaconsfield via the Wye Valley to the River Thames at Hambleden: branch route RR163C(x) (SU 94173 92123 to SU 78370 84988)

To the northeast of Beaconsfield, RR163 is last seen in the lidar data entering Brown's Wood (SU 94555 92325). If the most direct route was then taken, it might follow the line of Burgess Wood Road (SU 92951 90573) descending the shallow northeast-southwest trending valley through the former Burgess Wood, then through Holtspur, to the top of Glory Hill (SU 92061 89807) (Figure 11).

Morris *et al.* (1970, 367-385) proposed route RRX021, along the A40 corridor from Denham to High Wycombe, describing the descent down Glory Hill from this point. This A40 corridor is an obvious valley route, from the west of London, possibly *Pontes*, in the direction of Alchester, in part following the valley of the River Wye. Head (1974) suggests that, with its connectivity to the River Thames and

the valley routes through the Chilterns towards Princes Risborough, a Wye valley route may have been in prehistoric use. The only strong evidence for an engineered Roman route along the A40 corridor appears as a positive linear earthwork feature in lidar data further to the east (SU 98713 87801), southwest of the Bulstrode Camp Iron Age hillfort (Rothwell and Peveler 2023, 154-155). Morris *et al.* considered the route of RRX021 to leave the A40 corridor at Holtspur, descending Glory Hill into the valley of the Wye, and then ascend the west bank, before turning northwest across Flackwell Heath golf course towards High Wycombe (and also the Rye villa, BHER-00380). In so doing, it partially follows the engineered cutting at Glory Hill Lane (Figure 11), noted by them as 'obviously of great antiquity,' then along an *agger* parallel and south of the lane 'for about 150 yards.' A small excavation was carried out in 1966 (*c.* SU91788 89705) which did 'not reach the standard of completeness that is archaeologically desirable' (Morris *et al.* 1970: 379, 381). This recorded flint, pebble, and gravel in a hard clay matrix, on top of a yellow-clay subsoil with 'a small amount of burnt matter.' Across the valley floor their route ascended the terrace-way of Juniper Lane (BHER-04399), which traverses obliquely up the opposite valley side. Unfortunately, the length of identified *agger* and metalled surface on Glory Hill were destroyed by the construction of the M40.

Juniper Lane (SU 90855 89424) is an engineered terrace-way, 4-6m wide, incised 1-3m on the south flank, dropping away to the north. The juxtaposition, on the opposite side of the valley to the cutting of a potential pre-turnpike road on Glory Hill (SU 91584 89648), is suggestive of an important River Wye crossing point, with the oblique traversing line of Juniper Lane reducing the steep ascent of the southwest flank of the valley from a native *c.* 20% to *c.* 17% (the less steep northeast flank at Glory Hill is *c.* 12%). In the absence of any other obvious reason for such an engineered terrace it is probably Roman in origin, and it aligns with the Morris *et al.* excavated Roman road section on Glory Hill. A positive lidar linear earthwork feature can be traced following the Morris *et al.* RRX021 route, from Juniper Lane across Flackwell Heath golf course (SU 89902 89983), heading northwest along the crest of the Wye valley towards High Wycombe. However, the proposal here is that the primary purpose of the engineered Juniper Lane was to connect to the Roman road section evidenced from the pit alignments in cropmarks at Fern and Little Marlow (see below and Figure 12).

There is some faint lidar and cropmark evidence for linear earthwork features (SU 88908 89197) along the north side of the shallow valley north of Pigeon House Farm at Flackwell Heath. However, far more compelling are the faint cropmarks of two extended lines of parallel pits (Google Earth, 2003, 2021, 2022; Bing, 2021) approximately 24m apart, variably spaced, but which can be traced for over 2km from Sheepridge Lane, north of Fern, to Pump Farm on Pump Lane (Figure 12, see inset images), northeast of Marlow (SU 88414 88714 to SU 86330 88118). These can reasonably be taken as diagnostic of a Roman road (Hopewell 2013: 10). North of Fern, Late Iron Age-Early Roman postholes and ditches, with Roman pottery (BHER-08389), indicating a possible small settlement, have been recorded (Anon. 2003, 10).

From Pump Farm, a route to cross the River Thames in the immediate vicinity of Marlow becomes speculative. A possible route option being down Wycombe Road and along Chapel Street (SU 85098 86905), then turning sharply south to cross the river in the vicinity of the medieval crossing point at the end of St. Peters Street (SU 85210 86149), or continuing further southwest, following linear lidar earthwork features (SU 84201 85581) on the Devensian gravel 'islands' in the Thames floodplain, to cross in the vicinity of Harleyford (SU 82554 84330). However, there is a clearer route north of Marlow where a faint discontinuous lidar linear earthwork trend continues west, immediately north of Blount's Farm (SU 83438 87272), crossing Marlow Common, where a short line of probable roadside

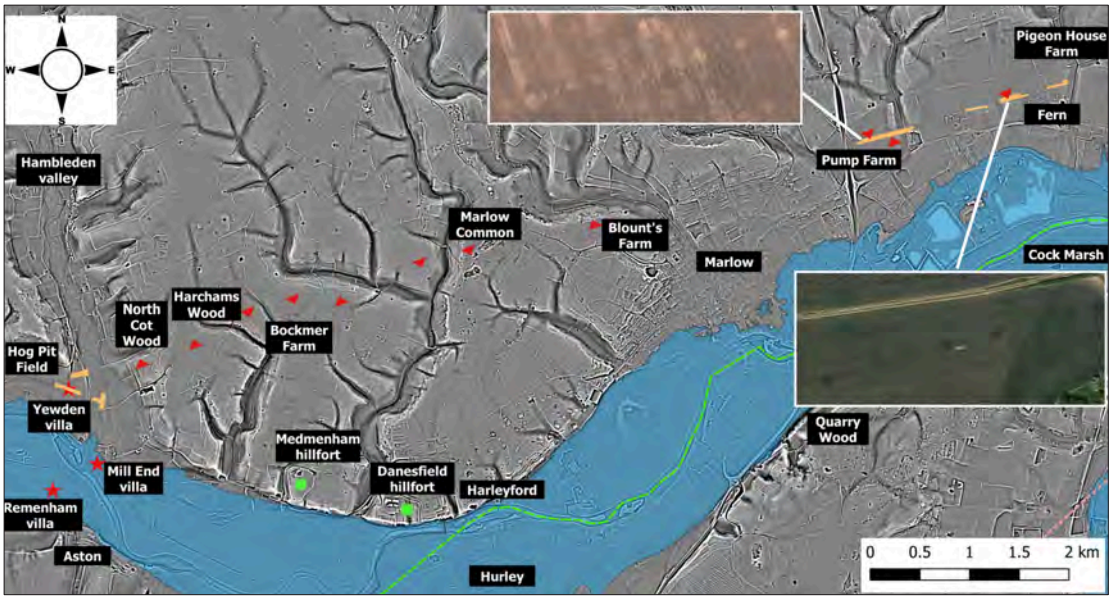


Figure 12. LiDAR trend of the linear earthwork of the branch route (marked by red triangles), passing north of Marlow, to the Hambleden valley and an alternative Thames crossing (see also Figure 13). Cropmarks (orange, see also inset images), the location of the hillforts (green spots) and villa sites (red stars) marked. Also showing the southern limit of the BotP LiDAR area (green dash). Flood Alert areas and the direct alignment (as Figure 2). (© Environment Agency copyright and/or database right 2020. Inset images: Map data © Google 2003, 2021. All rights reserved).

pits can again be seen in the lidar data (SU 82394 86963), passing north of Bockmer Farm (SU 80759 86477) and through Harchams Wood (SU 80021 86261), about 2km to the north of the hillforts at Danesfield and Medmenham. The lidar linear earthwork feature can then be followed to the north of Burrow Farm (SU 79657 86156), descending through North Cot Wood (SU 79312 8048), into the Hambleden valley just north of the Yewden villa (NHLE-1014606; Mays 2008; Eyers 2011) where parallel cropmarks (SU 78454 85777) (Google Earth imagery, 2003, 2010, 2020) show a route crossing the modern Hambleden road.

A route could continue further to the west from here, either on to Henley-on-Thames directly, or in the direction of the Bix villa (Oxfordshire Historic Environment, OHER2866) to connect with the Fair Mile section of the RR160cc route to Dorchester. The large amount of Oxfordshire ware pottery excavated at the Yewden villa site, with subsidiary amounts of *Verulamium* ware, is typical of assemblages across the region and attests to trade in both of those directions (Eyers 2011, 160, 264), also with wares from further afield. A 2010 magnetometry survey showed a narrower trackway trending west-northwest across Hog Pit Field (SU 78325 85641) (see Figure 13), just south of here, alongside the Yewden villa complex, with another trackway joining from the south (Eyers 2011, 18-19), and this can also be seen as cropmarks (Google Earth imagery, 2018, 2020, 2021).

It also seems likely that a Roman route would probably have existed, following the Hambleden valley northwards, to provide connections to Alchester and Fleet Marston, though there is no clear evidence for this. However, for the route to *Calleva*, a turn south down the Hambleden valley towards the Mill End villa (NHLE 1014601; Farley 1983), crossing the Thames close to here seems likely (Figure 13), and again multiple options are possible. As well as providing a route towards *Calleva*, a Thames crossing

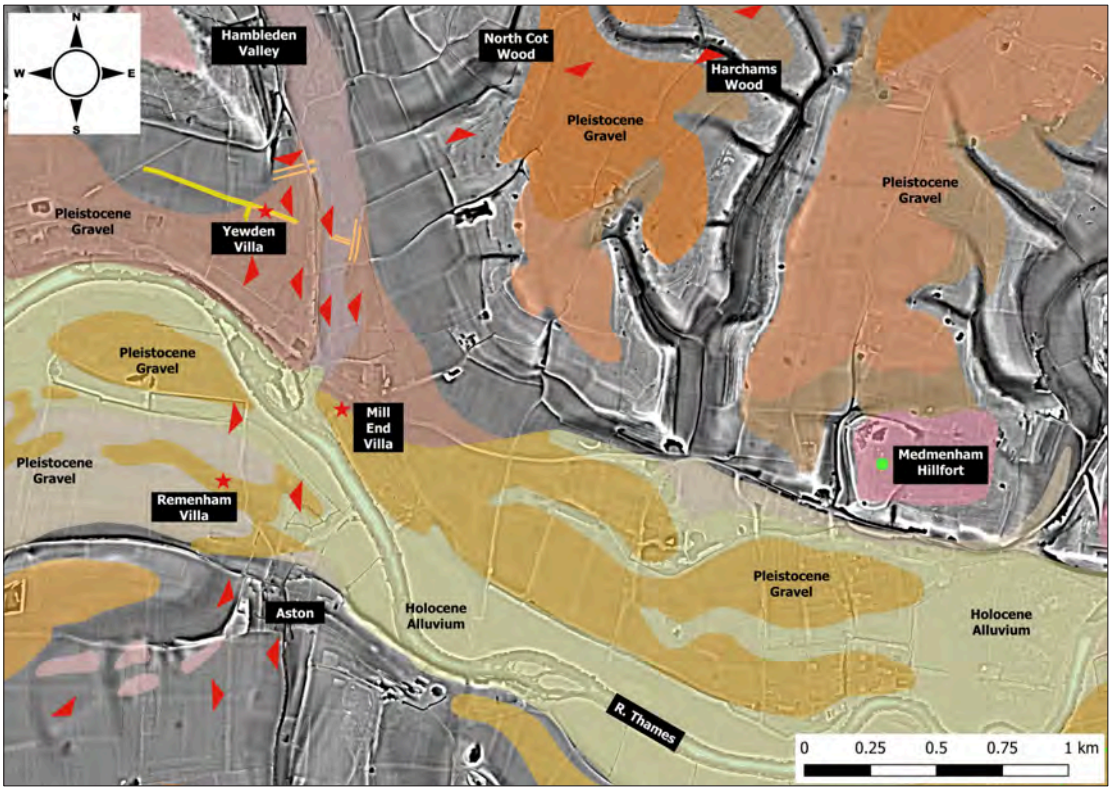


Figure 13. Superficial surface geology (i.e. excluding bedrock geology for clarity) at the confluence of the Hamble Brook and the River Thames, illustrating the Holocene river channels and floodplain (straw yellow) and Pleistocene gravel islands, overlain on the LiDAR LRM, also crop-mark alignments (orange) and the Hog Pit Field magnetometry trend (yellow). Showing the LiDAR linear earthwork trends (red triangles) in the vicinity of the proposed RR163C(x) branch route River Thames crossing. (Contains British Geological Survey materials © UKRI 2020. Reproduced under Open Government Licence v3.0; © Environment Agency copyright and/or database right 2020. All rights reserved).

here also opens the speculative possibility of a longer distance route connecting to the south coast in the direction of *Noviomagus*.

Farley (1983, 257) notes that the identified building footprint at Mill End is unlikely to have stood alone, there being indistinct traces of other structures between it and the river. He also questions, with the Yewden and Mill End villas being in close proximity, whether they may have had different functions, with the Mill End villa being less well sited and possibly prone to flooding, though well placed to exploit the river as a resource. The Mill End Villa has never been excavated.

Both Farley (1983, 258) and Eyers (2011, 278) make much of the assemblage of finds at Yewden, comprising an unusually large number of *stili* for writing, as well as a rare Samian inkwell, suggestive of some literate or recording function possibly related to trading; and an exceptional number of mostly perinatal infant burials for which evidence of infanticide is interpreted (Eyers 2011, 276; Mays and Eyers 2011). This latter interpretation, first advanced by Cocks (1921), is regarded as controversial and is not universally supported (Gowland 2016, 311-312; Moore 2016, 325). Nonetheless, clearly there must have been significant female presence here at some time, and Eyers suggests that one of the

ancillary buildings to the villa could have functioned as a brothel. Eyers further suggests the possibility of river traffic having to unload or reload at this point, and states (2011, 265, 278) that exploratory dives during high water periods demonstrated that parts of the Thames hereabouts were 'exceptionally shallow' at 1.2-2.2m in mid-channel (though the modern Middle Thames navigable channel has a minimum depth of 1.3m below Standard Head Water level, SHWL (Anon. 2016, 5-36)), and suggests it 'may even have become fordable' during Roman times. Whatever, the archaeological evidence seems to point to the significant presence and movement of people, and probably goods, through this location, raising the possibility of this being a candidate for the location of a *mansio* (overnight stay). Such a location, whether or not associated with a *lupanaria* (institutional brothel), is likely to have had prostitutes, and there are other examples of similar institutions where large numbers of neonatal deaths have been discovered (Dauphin 1996, 63-64).

The probable landing of the crossing on the south bank (SU 78296 84927), near to the Berkshire village of Aston, is close to the Roman building remains at Remenham (BAHER-1042, -1043, -1047, -1049). In contrast with Bourne End / Cookham, this crossing point coincides with a more confined expanse of floodplain where Palaeocene gravel 'islands' constrain the Holocene channels. A plausible route then continues, heading south on the Berkshire bank, on the west side of the village of Aston, following one of several sub-parallel lidar linear earthwork features (SU 78218 83598) along the valley side parallel and west of Aston Lane, or (and ?) potentially deviating to the southwest (SU 77684 83740) towards Henley-on-Thames. A line of lidar linear earthwork features (SU 78319 82063; SU 78593 81694) can be traced heading south, suggesting that the route continues over Remenham Hill, where there is evidence of Romano-British settlement activity recorded close to Park Place (BAHER-17511, -15781, -15984), heading towards Wargrave.

Strategically, it might have made sense to maintain more than one significant Thames crossing point to support heavy traffic transportation between *Verulamium* and *Calleva*, either for reasons of security, seasonal access, or simply direction of onwards travel or preference. Or, as at *Calleva Atrebatum*, different routes may have been favoured at different time periods during the Roman occupation.

South of the River Thames

This account is primarily concerned with the RR163 route north of the Thames, proposing a most likely principal crossing point at Bourne End, with a branch route leading to a second crossing point at Mill End. As has already been discussed, other crossings may be plausible, but it is the Berkshire evidence supporting a principal crossing point, from Bourne End to Cock Marsh, that is considered here.

A review of the lidar evidence for the Roman roads through the Chilterns (Rothwell and Peveler 2023) supported the conclusion of earlier researchers, that most of the historically documented routes were likely of local, rather than national, importance. A similar, extensive, local network, probably also exists through Berkshire (and elsewhere within the settled parts of the Roman province), with minor routes connecting to major roads, connecting to *Calleva,* and other significant centres. One (or more) of these routes in Berkshire may be the principal continuation of RR163.

Considering the *Calleva* terminus of the road, there are four main gates, all were built of masonry and were earlier than the construction of the town wall. For routes heading northeast in the direction of

the River Thames and towards *Verulamium* (see Figure 2), the two entry / exit gates of primary relevance are the North Gate and the East Gate. RR160c exits the *Calleva* single carriageway North Gate, heading towards Dorchester, and a route (Truscoe 2017, 100) then divides off (SU 63836 62920), following a line of lidar linear earthwork features and parallel cropmarks, via Mortimer Fairground (SU 65565 64785) to Burghfield (SU 68025 69068) in the direction of Reading, possibly then via Sonning towards Wargrave or / and via Earley / Woodley towards Twyford. RR4a exits the double carriageway East Gate towards *Londinium,* and a route (Boon 1957, 208-209) then branches off at Fair Cross (SU 69752 63085), via Beech Hill (SU 70228 64430) to Spencers Wood (SU 70866 6192). The North Gate may have been temporarily blocked during the late 2nd century AD (Fulford *et al.* 1997, 167) to limit a potential defensive weak point during a security emergency (Fulford 2021, 249), so the East Gate presented an alternative route which would still have facilitated a direct connection with *Verulamium,* and given the importance of this gate for traffic to and from *Londinium* then this might also have been the principal access for RR163.

McColm's (1980) crossing of the Thames from Bourne End to Cock Marsh uses the engineered terraced ways (National Trust, NTHBSMR-150059) on the northern flank of Winter Hill. With varying levels of confidence, his route can be traced to Knowl Hill. He described two 'military' routeways on Winter Hill: a 'high-level' route (SU 88410 86635), providing vision splays to command the route and river crossing, for use by lighter traffic; and the substantially engineered low-level trackway (SU 88724 86682) along the edge of Cock Marsh (Figure 14), which gently ascends the steep flank of the escarpment on a series of ramps, never exceeding a gradient of 10%, and flats, graded to suit 'heavy traffic.' The higher track, along the escarpment, does not present compelling evidence for being Roman and it may be of pre-historic origin. McColm acknowledges that it could have been an early route superseded by the need for a route more robust to heavy traffic.



Figure 14. Looking east to west along the substantially engineered terrace-way of McColm's 'heavy traffic' route (SU 88724 86682), between Cock Marsh to the right and Winter Hill to the left (marked McColm on Figure 10). (© the author).

McColm's route continues via Speen Hill (SU 84202 83029), then Burchett's Green (SU 83803 81206) to Knowl Hill. Here, in the vicinity of Knowl Hill and Waltham St. Lawrence there is significant evidence of extensive Roman occupation, including: a temple (BAHER-00420; Neville 1849, 114); a settlement complex with 'several villas' at Weycock Hill (BAHER-00420; Cotton 1956, 48-68); a possible villa at Canhurst Farm (BAHER-18228, -00429; Seaby 1932, 28-36; Seaby and Pollen 1934, 75-84); and a possible kiln (Over 1974, 65-66). The route then appears to continue via Ruscombe (SU 80224 76975) to cross the River Loddon in the vicinity of Twyford.

The RR163C(x) branch route crossing from Mill End to Remenham / Aston can be traced through lidar linear earthwork features and aerial photographs over Remenham Hill, through Park Place (SU 78319 82063), descending from Crazies Hill (SU 79172 79777) to the outskirts of Wargrave.

The continuation from here is beyond the scope of this account, but the remote sensing evidence suggests a crossing of the valley of the River Loddon in the vicinity of Twyford to Woodley / Earley (SU 74948 73162), and / or from Wargrave to Charvil (SU 76973 76123) continuing via Sonning (SU 75222 74691). Both options would enable connections to the routes into *Calleva* via both the North and East Gates. It is also plausible that a route could have continued southwards in the direction of *Noviomagus.*

Onward routes to *Calleva* are possible from the other alternative Thames crossings considered. At Marlow, although there is no evidence for it, a route could possibly ascend Bisham Hill through Quarry Wood (SU 85599 85086), which could then join McColm's route and continue southwest along the escarpment to Speen Hill. At Harleyford, again there is no evidence, but a route could turn south (SU 81281 82304) towards Warren Row, to also join McColm's route at Knowl Hill.

Conclusions

The section of a Roman road of some significance in Hodgemoor Woods, first recognised as a positive earthwork feature in CCB high-resolution lidar data, has a similar orientation to, but is displaced from, Margary's documented RR163, suggesting a relationship with *Verulamium*. Lidar data have demonstrated that this section can be traced as an almost continuous feature for some 10km, northeast through Pollards Wood to the valley of the River Chess, and southwest to Beaconsfield, providing a high degree of confidence for this being the actual route of RR163. Interpretation of the likely continuation of this route, on to *Verulamium*, and in the direction of *Calleva Atrebatum* to the River Thames, has enabled a new route to be proposed. This replaces the traditionally accepted route described by Margary and the Viatores, for which there is no real evidence between Kings Langley and Hedsor Wharf.

The road leaving the southwest 'Silchester' Gate of *Verulamium* cannot be followed in an unbroken line, but evidence from remote sensing data suggest that it links to the Hodgemoor Woods – Pollards Wood lidar alignment in the vicinity of Sarratt Bottom on the River Chess. It is remarkedly consistent in broadly following the direct straight-line between *Verulamium* and *Calleva,* as far as the outskirts of Beaconsfield. However, it must cross the Thames, and the new evidence sheds doubt on the Viatores / Margary crossing at Hedsor Wharf, and indicates a deviation from the direct line is required in order to navigate the Henley to Maidenhead meander. Although the crossing point(s) remains unproven, the body of evidence indicates two prime candidates for heavy traffic, both of which were likely in use.

In considering the continuation of the RR163 route through Berkshire, it is most likely that the route from Beaconsfield descends to the River Wye and follows it to a Thames crossing point at Bourne End to Cock Marsh. A branch road, RR163C(x), provided an alternative route from Beaconsfield, crossing the valley of the River Wye via Glory Hill and Juniper Lane and passing north of Marlow, to Hambleden, then crossing the Thames from Mill End to Aston / Remenham. However, we do not know whether this is actually a segment of a separate intersecting road, having a different origin and destination, though we can be sure that it is part of a complex route network.

After crossing the Thames, the next major obstacle for the route to *Calleva* is the ascent of the chalk escarpment above the south bank of this stretch of the Middle Thames, extending from Winter Hill to Remenham Hill. The most obviously engineered solution to this appears to be McColm's 'heavy traffic' graded ramp and flat route up Winter Hill from Cock Marsh. The RR163C(x) branch crossing at Mill End ascends the gentler gradient of Remenham Hill directly. The other possible route alternatives, from Marlow or Hurley, though considered less likely, would converge on the proposed route in the vicinity of Knowl Hill.

The Bourne End / Cock Marsh crossing is taken as the primary route for RR163, based on the substantial engineering undertaken at Cock Marsh / Winter Hill to negotiate the steep Winter Hill escarpment, and this route adheres closest to the direct-line between *Verulamium* and *Calleva*.

Black (1995) provides a description of the *cursus publicus* (state courier service) in *Britannia*, including the 1st and 2nd century *mansiones* (overnight quarters), and their link with the army and the wider administrative infrastructure. The route from *Verulamium* to *Calleva* is about 70-75km, roughly a three-day Roman march or a one to two-day ride. Although no definite sites for *mansiones* have been identified within the Thames valley (Booth *et al*. 2007, 375), these would typically be spaced 25 Roman miles (*c.* 37km) apart, probably with one or two *mutationes* (change of mount / posting-stations) between (Ramsay 1925, 68). The Knowl Hill / Weycock Hill area is approximately 25km from *Calleva*, and the Mill End / Yewden villa complexes are about 30km from *Calleva*, both suitably placed as stopping points, and apparently significant centres of Roman activity. A further 25-30km distant, and approximately 20km from *Verulamium*, is an undated rectilinear enclosure identified on lidar in Pollards Wood (Gover, 2017), which could also be of significance, and probably the Sarratt Bottom villa complexes in the valley of the River Chess could also have provided significant stopping points.

The proposed revised route(s) of RR163 is just one element of the history of movement through this landscape, with this road forming part of a probable network of major and minor routeways intimately linked with the evolving pre- and post-invasion use and development of the land. The remote sensing data have provided an additional level of insight, but the full complexity and the relationship of the routes to the land-use, settlement and the rural economy requires more in-depth study.

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THE CONSTRUCTION OF ROMAN ROADS

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ABSTRACT

This paper uses the Roman roads of Spain as its evidence base, but considers also antecedents known from earlier civilisations. The focus throughout is upon constructional methods evidenced through excavation, and the engineering principles and project management skills that they display. An argument is put forward for the extensive use of machinery in building the roads. Common misconceptions about construction methods are examined, as is the impact of these highways upon later road builders. Finally, consideration is given to the planning, funding and organisation of these works.

HISTORICAL BACKGROUND OF ROMAN ROADS

Rome was not the first civilisation to build roads. They inherited the technique from previous civilisations, of whose achievements we have limited knowledge or detail. As true forerunners, we can see early roads in the Persian world that differed little from Roman ones. Probably not even the Persians invented them. Although they possessed the largest territorial empire hitherto in existence, other pre-existing cultures had needed to transport goods by means of carts and roads, including the Egyptians, Babylonians and Assyrians.

In the 6th century BC, the Royal Persian Road was built, the remains of which are confused in many places with Roman roads superimposed upon or mistakenly identified with it. We know that it was not the only road in the Persian Empire, but little or nothing is known about others. The royal roads of the Achaemenid state were described by classical sources as 'chariot roads' (*Hamaxitos*), mainly because they were frequently used by these vehicles (Velázquez, 2012, 49-69).

The few remains discovered in connection with the Persian Royal Road correspond well with Roman construction techniques, a factor clearly indicating a common source for both, or at least techniques copied from earlier to later. The roadbed consisted of coarse aggregates laid between kerbs, the whole covered over with gravel. The road surface excavated in Gordion (Turkey) in the 1950s, is 6.25 m wide and has a kind of central spine in the coarse stones of the foundation (Young 1958, 139-140). Remains of the same type, with a total width of between 5 and 7m, are known from a road near Kuh-i Shahrak.

Embankments were built in the same way as the Romans at a later stage, and rock cuttings were also similar, constructed by pickaxe with the slope of the sides carefully managed. The Romans may be said to have imitated their predecessors in terms of quality and care in the final product.

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The best rock cuttings found on this road are located in the Pulvar river gorge in Tang-i Bolaghi, Iran (Atai & Boucharlat, 2009, 1-33). Although here the narrow space is a limiting factor for the road, similar techniques were used in a cutting found about 30 km northwest of Persepolis where the road is about 5 m wide.



Figure 1. Excavation of the Persian 'Royal Road' in Gordion (Turkey).



Figure 2. Rock-hewn path in the Pulvar river gorge in Tang-i Bolaghi. Photo by Remy Boucharlat.



Figure 3. Rock-hewn path in the Pulvar river gorge in Tang-i Bolaghi . Photo by Remy Boucharlat.

Techniques and effort required for construction

Roads built according to engineering criteria are characterised by a planned layout that reduces gradients and shortens distances, the former taking precedence over the latter. Design will also demonstrate good planning, taking account of appropriate available materials for construction. Roman roads are typified by all these factors, something which did not happen again in the road building of later periods until the application of modern engineering techniques.

An old road possessing a metalled surface, demonstrating an engineered response to topography, is likely to be Roman. However, it will still be necessary to analyse the layers under the surface. It is only by studying the whole that we can know if the structure is appropriate, suitable to the nature of the ground with rational use of available materials, achieving good load-bearing capacity.

By experience, or more probably by well-established method, Roman engineers applied a knowledge of soil mechanics to road design. My analyses show they made a systematic approach to road structure that took account of the resistance of the underlying ground, whether good or bad. Such

analysis of the road structure, taking account of the factors discussed, allows us to identify Roman work, the characteristics of which differentiate it from that of other periods.

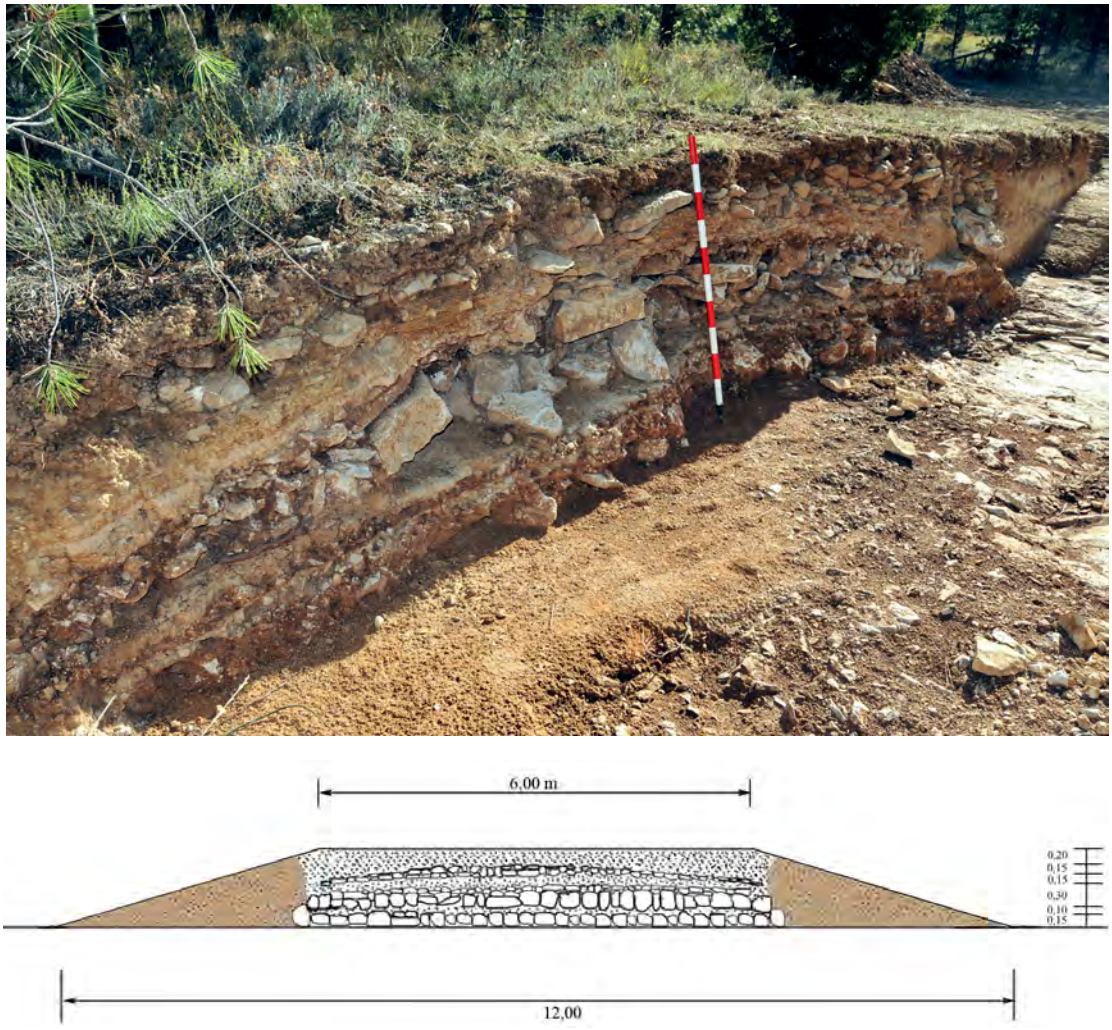


Figure 4. Roman road from Clunia to Sasamón in Pinilla-Trasmonte (Burgos), revealing a deep roadbed of 3 Roman feet (90 cm) with multiple layers. The foundations are formed of a double layer of bedded stones, then intermediate layers, and a gravel surface. Bergier, in 1617, described a similar section close to Reims.

Where we find that constructional materials were transported over significant distances in order to ensure appropriate quality and good loadbearing characteristics, that confirms a level of planning and quality of work that remained unsurpassed until recent times, giving us greater confidence in identification of the work.

We must nevertheless bear in mind that Roman construction methods were deliberately imitated during the European Enlightenment period of the 17th and 18th centuries – important to remember if we are correctly to identify roads of that period and differentiate them from Roman ones.



Figure 5. Uniform layer of natural gravel 90 cm deep with coarse stone foundations upon natural clay soil. This longitudinal section on the Carretera de los Moros de Alcubilla de Avellaneda (Soria) was cleaned up after having been cut through the road for agricultural drainage.



Figure 6. Shallow roadbed laid directly upon the bedrock. Roman road from Numancia to Osma in La Cuenca (Soria).

At the end of the Middle Ages roads had been built of stone and earth, intended merely to support passage of the mule trains that carried most of the limited commerce of the period. Their technological level was very mediocre, far removed from that of Roman roads, especially in the engineering criteria evident in their foundations.

The first scientific observations of Roman construction methods may be found in the writings of Bergier (Bergier, 1736). He records three excavations carried out by himself on Roman roads in and around Reims. The first was in the courtyard of a convent, probably located on a habitation site, which is why he found ceramic remains there. The other two were carried out in areas well away from habitation, and here the structural results entirely match what we now know of the way in which Roman roads were built.

However, Bergier, wishing to demonstrate his learning, named each road layer he found using the terms given by Vitruvius for the pavement layers used in house floors, which bear no relation to Roman roads. Although Vitruvius is clear about things, what was handed down and distorted over time created a belief that the Romans called the different constructional road layers by such names as *statumen*, *rudus*, and *suma crusta*, each being assigned a structural make up very different from what had actually been observed by Bergier.



Figure 7. A Roman urban road, the principal thoroughfare or cardo extending out of the Roman city of Sessa Aurunca (Italy). The remains of funerary monuments can be seen by the side of the road.



Figure 8. Street paving in the Roman city of Ambrosium (Lunel-France)

Fortunately, Bergier's work, once inaccessible other than in very old editions, is now easy to consult in digitised form on the Internet, allowing today's researchers to analyse its contents at first hand. Nevertheless, Grenier was no doubt right in concluding that: '*...road construction was complicated and good old Bergier, a novice archaeologist, bewilderedly used the names inculcated in him by the literature for labelling the various levels he found. We believe he was simply muddled*' (Grenier 1934, 4).

Most scholars of the past were well acquainted with, and frequently referred to, classical texts relating to the construction of Roman roads. One of the most complete is that of Statius, referring to the construction of the Via Domitiana, in which he describes the layout of the road, creation of the furrow (*sulcus*), excavation of the trench (*fossa*), the laying of the foundation (*gremium*) with coarse stones (*saxa*) embedded between kerbs (*umbos*), the filling of the whole (*gomphis*) and the laying of the upper layers (*summum dorsum*) (*Silvae* 4.3.40-55).

Hyginus Gromaticus, in his *De limitibus constituendi,* gives us some clues about the width of public roads when he talks about the lanes dividing agricultural plots, saying: '*Some of these are more than twelve feet wide, like the military Public Road, because they have the same width as the Public Road*'.

Finally, Titus Livy in *Ab Urbe Condita* (Book 2) mentions administrative construction procedures and clearly distinguishes between urban roads and interurban roads, saying that the praetors Fulvius

Flacco and Aulus Postumius Albinus were the first to contract out the paving of roads, using cobblestones in the cities (*silice in urbe*) and gravel outside the cities (*extra urbem glarea*).

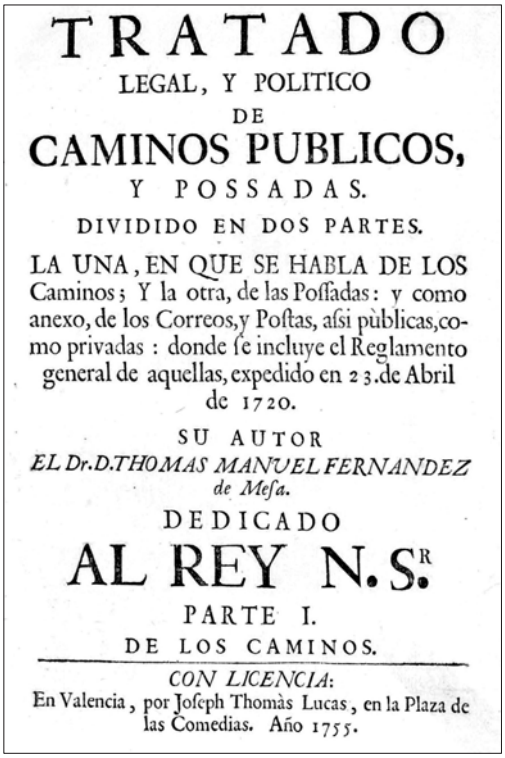

TRATADO
LEGAL, Y POLITICO
DE
CAMINOS PUBLICOS,
Y POSSADAS.
DIVIDIDO EN DOS PARTES.
LA UNA, EN QUE SE HABLA DE LOS Caminos; Y la otra, de las Posſadas: y como anexo, de los Correos, y Poſtas, aſsi pùblicas, como privadas: donde ſe incluye el Reglamento general de aquellas, expedido en 23. de Abril de 1720.
SU AUTOR
EL Dr. D. THOMAS MANUEL FERNANDEZ de Meſa.
DEDICADO
AL REY N. Sr.
PARTE I.
DE LOS CAMINOS.
CON LICENCIA:
En Valencia, por Joſeph Thomàs Lucas, en la Plaza de las Comedias. Año 1755.

Figure 9. Cover of the book by Fernández de Mesa published in Valencia in 1755.

When road planning started in Europe (which in Spain occurred in the reign of Carlos III under the guidance of the Count of Floridablanca) attention turned to design and quality. This was the moment when all eyes turned to Roman roads.

In the more advanced countries of Europe, treatises on road construction came to be published. In almost all of them, Nicolas Bergier, a pioneer in this work, is repeatedly cited as an example. In 1617, he wrote a study on the construction system of Roman roads which came to the notice of King Louis XIII himself.

For example, in 1778 Gautier published his *Traité de la construction des chemins*, relying on Bergier's account of how the Romans made their roads, clearly urging imitation of their construction methods.

These authors were preceded in Spain by Fernández de Mesa, who published his interesting treatise in 1755, using Bergier as his guide on how Roman roads were made. His vehemence in recommending imitation of the Roman model for constructing modern roads reflects the advice being given by other scholars in their own countries

He devotes entire pages to lamenting the deficiency of the Spanish roads in his time. Thus in Chapter IX of 'the Building of the Ways' he says:

> *'... The law does not lay down the means by which roads are made strong, but it is prudent to take note of them, imitating the Romans.'*
>
> *'... One of the most necessary things for the public utility of roads is their strength and durability. This is partly because of the excessive expense of frequent repair, often so great that it might be better to use precious marble for durability rather than earth, thus saving the expense of having to repair them every day. Also, because of the delays in achieving repairs: travellers' warnings and complaints have first to be made, then they must be received by the relevant judicial body, and finally the lazy country workforce has to take action. In the meantime, travellers must struggle through fields and estates, with a thousand other inconveniences and misfortunes, until a hindrance becomes significant enough to start the whole slow, cumbrous process.'*

He notes that although in France the roads are better than in Spain, they are also not to be compared to those of the Romans.

'Even of the roads of France, so greatly superior to our own, the Abbot M. Pluche says the following: 'The road we are on is one of the best we have and one of the best built, but even so, after ten or twelve years we see that it starts to decay, whereas the Roman road which it crosses has been there for more than 15 centuries. The cause of this difference is quite clear: the roads that are made in these times are made on unevenly solid and firm ground, which gradually sinks and loses its level depending on the mobility of the soil serving as foundation. As soon as one stone or pebble sinks and becomes uneven, the angles and corners of those around it are broken by the repeated rattling of horses and carriages. If only two stones are dislocated, reduced to dust or merely diminished in volume, the surrounding ones become loose and move and break away, losing their order and line. Everything breaks down and starts to decay: ruts and holes left by wheels get deeper and deeper at every moment. Carts and travellers open up other paths at the expense of crops and neighbouring fields, and the road that the Province had built with sweat and tears, becomes useless, or requires highly expensive repairs.

When one compares the admirable comfort of those magnificent Roads of old with the troubles of travellers and muleteers, so often stuck and held up on our broken roads, I am astonished that we do not imitate their workmanship'.

Fernández de Mesa ends his reasoning by adding: *'And if I am astonished that we have not imitated them, it will surprise no-one for me to say that we would do well to take them as our example'.*

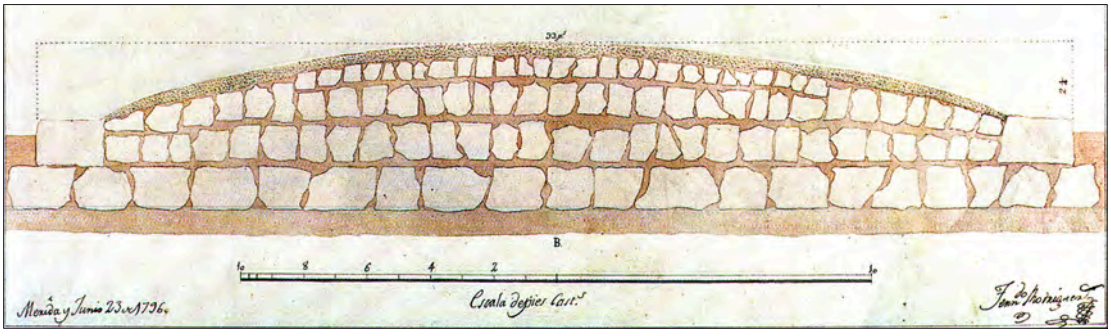


Figure 10. Cross section drawn by Fernando Rodríguez in 1796 of the Vía de la Plata, near the bridge of Albarregas

In this period of 'the Enlightenment' many authors made studies of Roman antiquities. Thus in 1796, the Master Builder Fernando Rodríguez included a well-drawn cross-section of the Roman road near the Albarregas bridge among the many other drawings he made of the Roman ruins of Mérida.

Faced with this advice, the first roads built in Spain (at a time when no engineering profession existed) tended to imitate the Roman construction model directly. The case of the construction of the current N1 in 1796 by Manuel de Echanove, architect, is well known. His intentions are clear from his plans in which he drew the intended cross section for his new road, together with that of the Roman road of which he found many parts, and whose layout he traced along almost the entire line of the new work. His proposed road structure was almost identical, the only difference being the width of the new road, which he claimed to be slightly wider than the Roman road.

Road structures from this period imitate the Roman model, as described by various authors. Sections of old road dating to the end of the 18th or the beginning of the 19th century that I have observed

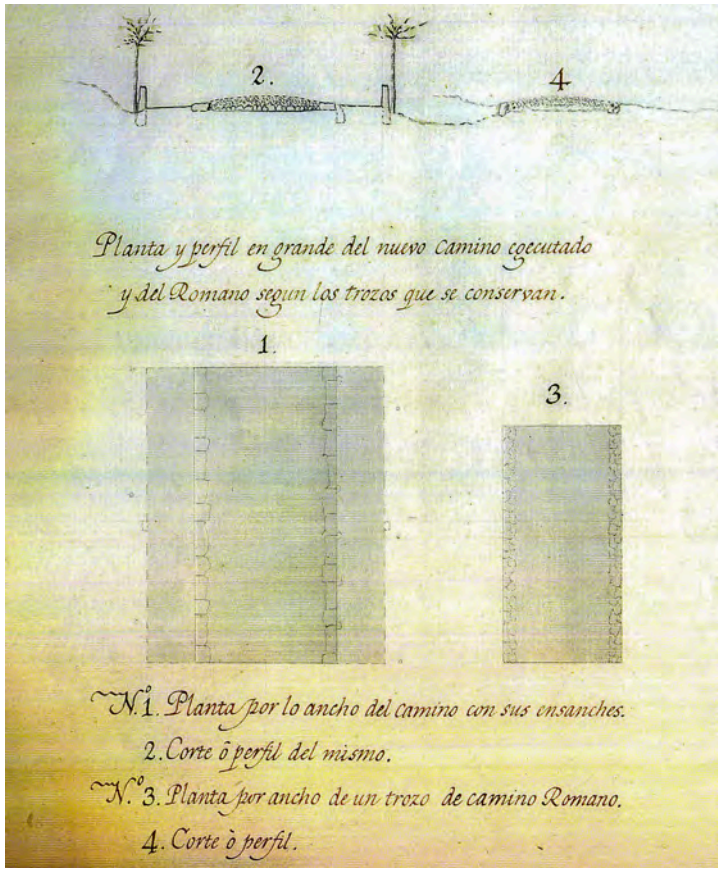


Figure 10a, above. Cross sections of the road built by Echanove (2), and that of the Roman road he found and fortunately preserved (4), parallel to the new road (the current N1). Today only a small part of this ancient Roman road survives, (Figure 10b, below), visible in this 2008 excavation at Santa María Ribarredonda (Burgos).



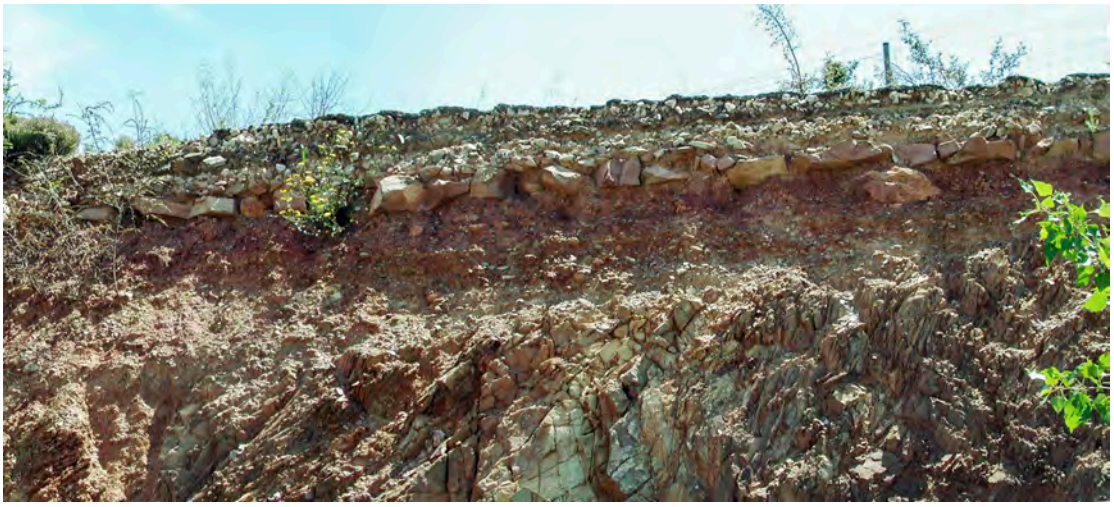


Figure 11. An 18th century roadbed, under a macadamised surface and asphalt drain, on part of the old N-II highway in Frasno (Zaragoza).



Figure 12. Very deep stone foundation structures, visible wherever the old road has been abandoned and its foundations exposed. Here its line coincides with that of the Roman road from Celsa to Lérida, on the N-II, in Peñalba (Huesca)

under modern roads, demonstrate this Roman construction style, requiring caution in concluding how old they are, unless we have access to documentation proving modern construction.

The Macadam system of surfacing, invented by the Scottish engineer John Loudon McAdam, had not yet become fashionable. That model became the norm in Europe from 1820 onwards, coinciding with the explosion in construction that created the modern road network we enjoy today.

The Macadam system was an inferior model in that it had a lower bearing capacity than Roman roads, or indeed than subsequent modern roads. It consisted basically of a layer of crushed limestone with a uniform grain of a maximum size of 10 cm, topped with clean sand. Although it was a worthy response to the needs of its time, the design was gradually abandoned after the Second World War.

Roads in later years were designed to be surface-finished with an asphalt mix, based on mixtures of loose aggregate such as had been used immediately before Macadam (and indeed by the Romans) primarily reliant for load-bearing resistance on a deep layer of natural gravel or similar, obtained directly from the quarry.

Roman roadbeds, as observed, most often have a depth of two to three feet thick (60-90 cm). Ground preparation was usually a matter of clearing the route, then digging out and cleaning the road line to access sufficiently consolidated ground. Specific arrangements for the roadbed, using greater or lesser thickness of stone, depended on the type of ground.

On hard soils, including rock, the roadbed might be quite shallow – normally not less than 40 cm. for Roman roads. The greatest depth of roadbed is found where soils are soft: up to (or even exceeding) 90 cm.

In some cases where ground resistance varies over a given length of road, the roadbed seems to have been designed for the worst conditions to be met along the way, leading to a depth greater than required in places where natural ground resistance was high. The presumed implication is that



Figure 13. A road maintaining a constant depth of foundations, despite the rocky substrate existing in such places as this. Roman road from Clunia to Sasamón, in Solarana (Burgos)



Figure 14. A section of Roman road raised on an embankment formed of good quality stony materials. Nevertheless, the road maintains the same depth of roadbed as found in adjacent areas. Roman road from Numancia to Osma, in Calatañazor (Soria)

construction of Roman roads was carried out in accordance with specifications subjecting the contractor to certain minimum requirements for the construction of a section, independent of the actual soil conditions found once the ground had been cleared and cleaned in preparation for the roadbed.

Where aggregate for some layers has clearly been transported from a distant source, we are seeing evidence of good planning and project management.



Figure 15. A surface layer one-foot-deep, made up of natural pebble gravel. This material is not common in the area, although the limestone foundation blocks are local. Roman road from Clunia to Sasamón, in Arauzo de Torre (Burgos)

Natural gravels formed of hard, fine aggregate were used almost universally for surface layers, except in areas where granite occurs. There it was replaced by the unbeatable *jabre*: coarse granite sand. This was in such demand that when its use is found outside such areas it is particularly important to check how far it may have been transported. Such practice would have increased the cost of the final work, per linear metre, far more than the volumes of aggregate used in sections of deeper construction observed elsewhere. Therefore, for sections where materials were transported over long distances it is far more necessary to make accurate calculations than for sections where materials were accessed on site, if we are to evaluate and estimate the effort taken to construct a Roman road.

Features recording construction methods

Archaeological excavation allows us to observe traces of methods used to construct the different road layers, if carried out with due care where conditions allow.

Thus, we may readily find traces of wheel marks in the layers of sand or aggregate making up the roadbed, left behind by the carts used for spreading each successive foundation layer. In materials capable of retaining these traces, tracks from the wagons used for spreading a layer become visible once the fine compacted material from the next layer above has been carefully removed.

Measurements between identified wheels tracks show a standard width identical to that previously measured in the streets of many Roman cities (Moreno 2004, 166-170). The span between wheels is always around 1.40m.

In addition to finding traces of the way in which materials were laid, we can also often find traces of how layers were compacted. Where natural gravels were used, a slurry was created from dust in the material by water being sprinkled upon each layer. When a layer was compacted using a roller of the

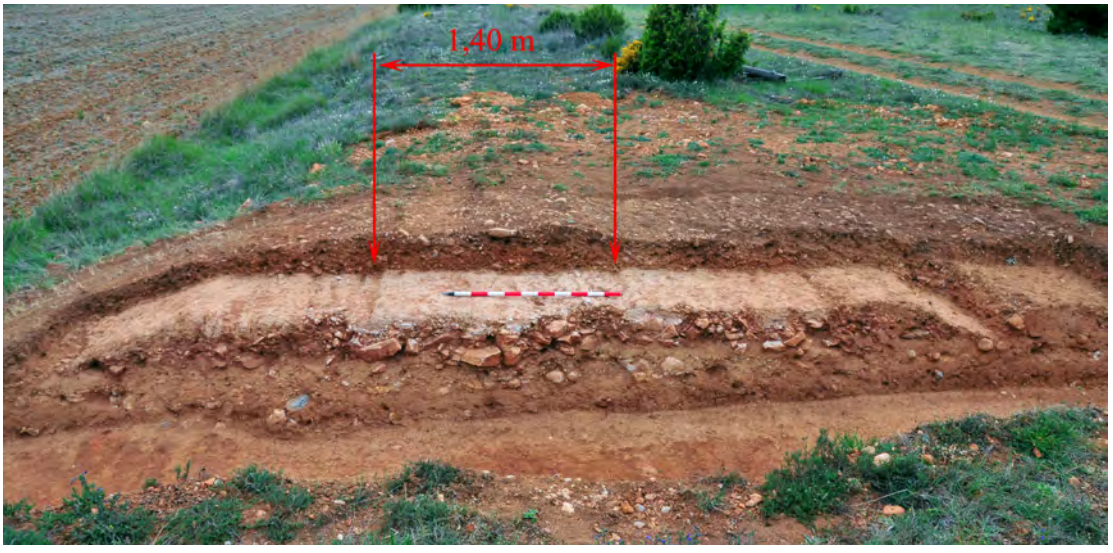


Figure 16. Excavation on the Roman road from Numancia to Uxama in Calatañazor. Good layer differentiation between the foundation, intermediate layers, and surface gravel. Wagon wheel tracks are evident on the layer immediately below the surface gravel. The span between wheel tracks (1.40m) is the same as that found in Roman town streets.



Figure 17. Detail of a road section cut by a ravine, showing its layers (15cm deep). At the base a first row of slightly larger pebbles separates the natural clay from the stone roadbed. Route from Italy to Hispania in Pradejón (La Rioja).



Figure 18. A succession of well-compacted, fine-grained shallow layers. Roman road from Italy to Hispania, in Cortes de Navarra (Navarre). Excavation carried out by the Trama company in March 2008

period, the slurry of fine material rose upwards in the water forced out of the compacted matrix. Once dried, it became a film of sand and silt trapped permanently between road layers. These thin sheets of silt produced by the effects of compaction, barely a millimetre thick, are quite visible between layers, especially those composed of natural aggregate containing a significant silty element. The depth of each roadbed layer is around 15 cm, or half a Roman foot. That is what measurement generally shows, so it can be deduced to have been standard practice at the time.

I have dealt elsewhere with how road layers were laid down, and more generally with the whole system of Roman road construction (Moreno 2004, 160). We must presume that machinery was normally used as other methods cannot compare. Roman engineers demonstrated impressive knowledge in all areas of public works, not least in the use of machinery. We cannot imagine that they failed to make use of tipping wagons to distribute materials, transverse beams pulled by mules to spread the layers, irrigation vehicles, and stone rollers for compaction. All the evidence and traces of construction that I have analysed point to the existence of this type of machinery for road construction.

Manual labour would have been required of course, especially in quarries, for loading construction materials onto transport wagons. In most cases these quarries are found along the margins of the roads. Normally they are small holes regularly distributed along the road line, but sometimes they are larger quarry pits alternating with other more numerous small ones. These remains are, as I have said, readily detectable from the ground when passing along a Roman road. When filled with water they become very visible from the air.



Figure 19. Granite kerbstones on the Via de la Plata forming a true embankment. Garrovillas de Alconetar (Cáceres).

The kerbs, placed in the slots at the edge of a Roman road, must have been laid out by hand. The straight way they are aligned, frequently observed, is evidence that they were laid out precisely at an early stage, set in the ground along a rope staked to the ground.



Figure 20. Well-aligned kerbstones with the Roman road to the right. To the left, there are no stone materials present. Roman road from Tiermes to Medinaceli in Retortillo de Soria.



Kerb of the Roman road from Tarragona to Lérida in Campo de Tarragona. The raised roadbed may be seen to the left.

Laying coarse stones in the foundation layer, filling in the gaps with smaller stones, and sanding the final layer, would have required manual labour. However, other layers made extensive use of machinery as tracks from the wagons used to spread the upper layers of gravel can be seen on top of the foundation layer.

We can therefore be in no doubt that use was made of tipping carts which immediately covered their own tracks (thus preserving them), as well as of spreader beams, watering machinery and compaction rollers. These produced the fine slurry which in turn allowed new cart tracks to be recorded.



Figure 21. Different types of animal-drawn machinery such as we presume to have been used in the construction of Roman roads. Surviving construction traces indicate tools of this sort being used, as seem to us essential in building structures with loose materials.

The continued use of a Roman road over the centuries brought a need for repairs, traces of which can also be observed with some frequency. This is not easy to identify when repair materials used are the same as those making up the final layer of the Roman road, as will surely have been the aim when there was good understanding of the importance and value of the original road design. However, it is common to find cases of crude repairs that took no account of the engineering criteria used in the construction of Roman roads. Thus, we find coarse cobblestones being used, entirely inadequate for a Roman road surface. Cobbles made up of broken pebbles up to 15 cm in size were sometims thrown, as an intended repair, over the remains of the natural gravel that had made up the original top layer of the road.

This type of repair work, carried out especially in the 18th and 19th centuries, was not aimed at wheeled road traffic, but at the less demanding needs of mule trains. Mules by then had been using



Figure 22. A scene from the construction of a Roman road, representing machinery used and fundamental aspects of construction. We see a quarry ditch, the excavated base (fossa), the foundation layer (gremium) formed of large stones (saxa) laid between kerbs (umbos), and the surface layer (summum dorsum), all mentioned by Statius.

horseshoes for centuries, a device not used by the Romans as it was unnecessary on their excellent roads. The existence of a Roman road on a line needed for later communication, even when it had suffered and deteriorated after abandonment and erosion, would still have offered a tempting platform to those seeking the cheapest method of consolidating a new road.

Roman roads had aspects appreciated by later peoples, even if they did not understand the design of the roadbed or the intended purpose of each structural layer. Their remains were undoubtedly attractive to those seeking to create new roads due to the multiple technical advantages and economic savings which they offered. It was not logical to disregard a long, elevated causeway running straight across moorland for kilometres, raised above otherwise soft and impassable natural terrain. A design that remained protected against waterlogging and even snow drifts, thanks to the raised embankment, could hardly go unnoticed.

These were certainly factors which encouraged the repair of embankments on the moors of Quintanapalla, in Burgos, to form the Camino Real, the Royal Road from Burgos to Bilbao. Archaeological excavation has shown the traces of those repairs.

Embankments over the moors of Calatañazor were similarly repaired in 1812, a date we know from Saavedra's report (Saavedra, 1861, 24). The traces of those repairs remain visible today, both on the Roman road and on the poorly made bridges built at the time to ensure continuous through passage. At least two bridges constructed in the same fashion are known, one at La Mallona over the river Viejo, and another tiny one over the stream of Ciudad de Osma, both of the same poor workmanship and previously believed to be Roman. They remain standing because they are relatively recent.



Figure 23. Effects of a blizzard, showing an elevated embankment clear of lying slow after the extraordinary snowfall of December 28, 2004. The surrounding terrain carries snow to a depth of more than half a metre. The road from Italy to Hispania in Quintanapalla.



Figure 24. Roman road from Numancia to Uxama in the Páramo de Villaciervos. Clear evidence of repair using large stones on the top layer, reflecting the restoration work documented by Saavedra in 1812.



Figure 25. The bridge of la Mallona (Soria), modern and quite poorly made, but on the line of the Roman road. This, along with another similar one in Ciudad de Osma, dates from the restoration of 1812.



Figure 26. Schist rock near Torre del Bierzo, hewn by pick in Roman times into a well-graded slope, during construction of the Roman road from Astorga to Braga through Valdehorras. Carlos Lemaur (1768) took advantage of the Roman base to build the modern road upon it, as reported by the engineer Ricaud in 1769.

One of the first engineers who worked in Spain for Carlos III, the Frenchman Charles Lemaur, while aware of the value of these remains, had, as I discovered, no qualms about using material excavated from the Roman road to construct the entire new road between the Manzanal pass and Torre del Bierzo. This, however, resulted in an official investigation, as he was accused of not declaring the cost savings that had resulted and of diverting the funds to other private businesses. His colleague commissioner Balthasar Ricaud recorded these points when he reported on the matter (Moreno 2006, 23).

In short, we believe it is crucial to correctly identify the phases of modern repairs on Roman roads, differentiating those from original work. A correct reading of the layers in a roadbed and the phases of its construction, based on a knowledge of techniques used in different intervening periods, is crucial if we are to avoid errors in dating the different works, whether superimposed or not. Only in this way can we differentiate Roman work from modern work imitating or repairing the original.

THE ROAD BUILDERS

As in all other fields of science, the Roman world excelled in the area of transport; and, as in other fields of science, improvements came to an end after the fall of that civilisation. Roman roads were truly roads designed by engineers, and although the Romans did not invent roads, they expanded them to the ends of the earth. They were able to do so, because it was a world they had conquered, and communication was vital. Never had there been so much travel, never so much transport, and consequently never so much evolution in roads and transport-related factors.

Horses were not shod in Roman times. The practice did not occur to anyone in a civilisation where road surfaces were entirely suited to animal hooves. Coarse granular material was best for this purpose and was always used on Roman roads as the surface wear course. The first horseshoes nailed to hooves appeared well into the 5th century, probably first used by the Franks. One was found in the tomb of their king Childeric, who died in 481, but their adoption did not become widespread in the West until the 9th century.

Nor was the stirrup used by the Romans. Horse riding was little used as a method of travel, let alone for long journeys. The horse's function in warfare was well known, including its importance in certain forms of skirmishing, but the horse was not a crucial weapon of the Roman armies, and the elementary device of the stirrup was not employed by a people who never needed to remain on horseback for long. It was the barbarian peoples who moved about Europe on horseback, even 'living' in the saddle, that used this support. It is, after all, so unsophisticated a device that it could have been invented by anyone, many centuries before.

In fact, Rome was the civilisation of the chariot. The horseshoe and stirrup became widespread in the Old World when Roman roads deteriorated to unimaginable limits. Bridges disappeared and unmaintained road surfaces exposed the coarse foundation stones. Road traffic became a thing of the past: people travelled over bedrock, off-road and cross-country. Horseshoe and stirrup became a necessity and a symbol of the technological and administrative misery of the post-Roman world.

The Romans built their roads mainly for commercial and economic purposes. Although Roman cultural impact on the territories of the Empire is undeniable, that was only a collateral effect, even if one never ignored by the Roman administration. The main roads were established at a time when

Romanised territories were under full control and when quality communications for their vehicles were vital.

In considering who created this infrastructure, it has long been claimed that the roads were physically built by legionaries. The use in some texts of the adjective *militaris* to designate these roads, together with the mention of certain legions on milestones, has led to the belief that this was so. However, I have elsewhere made the point that 'military' means much the same as 'public' in reference to these roads, as other authors had previously concluded. Meanwhile the allusion to certain legions in milestones, which always occurs at the time when towns are first linked by road, only confirms that the works were under military administration and need not refer to their physical construction (Moreno, 2004: 31-35).

As we have seen, the greater part of the materials used in road construction was composed of loose, granular material, small in size, not readily handled without specific tools or machinery, nor transportable in simple panniers. The operations for these works would have required large numbers of loading wagons and necessary draught animals. Neither of these were part of legionary combat elements or available to the legions on a regular basis, although that is not to say that under certain circumstances their strategists, engineers and technical specialists might not have intervened if the area lacked other civilian elements.

As proof that the legionaries were not trained in road building, nor in carrying out works other than those necessary for military purposes (a hackneyed assertion of historical romanticism), we need



Figure 27. Milestone on the Chaves bridge referring to the Legio VII Gemina: the road from Asturica to Bracara.

only refer to the *Epitoma rei militaris* of Flavius Vegetius: a compendium of military technique from the end of the 4th century. He lists all the tasks that soldiers had to carry out as part of their military life and the training to which they were subjected – without ever, at any time, mentioning duties related to the construction of public works.

We know that at an administrative level civilian bodies contracted out works to specialised construction companies; there was nothing to prevent the military administration from doing the same. This is similarly true for modern armies, which contract out works for which they are responsible to civilian companies when the opportunity arises, even in times of war.

Livy tells us in his *Ab Urbe Condita* (41, 27): *Q. Fulvius Flaccus and A. Postumius Albinus were elected censors this year (174 BC) .... These censors were the first to grant contracts to pave the roads with stone in the city and pebbles outside it, laying kerbs and also building bridges in many places.*

An analysis of all the preserved works of Titus Livy reveals seven references to the construction of roads by civil magistrates, while only one mentions the construction of a road by the army (Chevalier, 1997: 40). In that case the army was probably just the administrative body contracting out the work.

With regard to the workers and labourers who built Roman roads, there is nothing to indicate that slaves were used in public works: no classical source mentions this. On the contrary, contracting out such works to specialised companies required resources being sought amongst the neighbouring populations. It was there that wagons, mules and personnel could be found to satisfy the need for machinery and labour for road construction.

Thus, the findings of the excavations carried out on the Roman road from Numancia to Osma (ARECO, 2019) revealed not only tools used in the construction of the road, but also typical Celtic-Iberian horse harnesses, as well as hundreds of studs used to protect the soles of the workers' shoes. Such studs were found in the lower levels of the roadbed of the Roman road, and even under the road surface.



Figure 28. Cavalry harness consisting of a double anchoriform hook of Celtic-Iberian form, used as a strap distributor joining the snaffle and the horse's head. The Roman road from Numancia to Osma in Blacos (Soria).

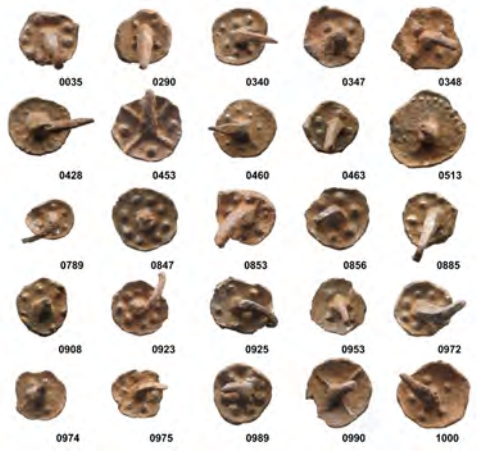


Figure 29. Protective studs from the soles of the boots of the workers who built the Roman road from Numancia to Osma, found in Blacos (Soria).



Figure 30. Scene from the construction of a typical Roman road. Construction machinery can be seen, as well as a surveyor with a dioptra *working on alignment and levelling, and a worker tightening an alignment rope for the kerbstones. Workers are well protected for this type of work with sturdy clothing and footwear. The sole of the worker's boot shows the studs typical of Roman footwear, many of which are found in archaeological work on Roman roads.*

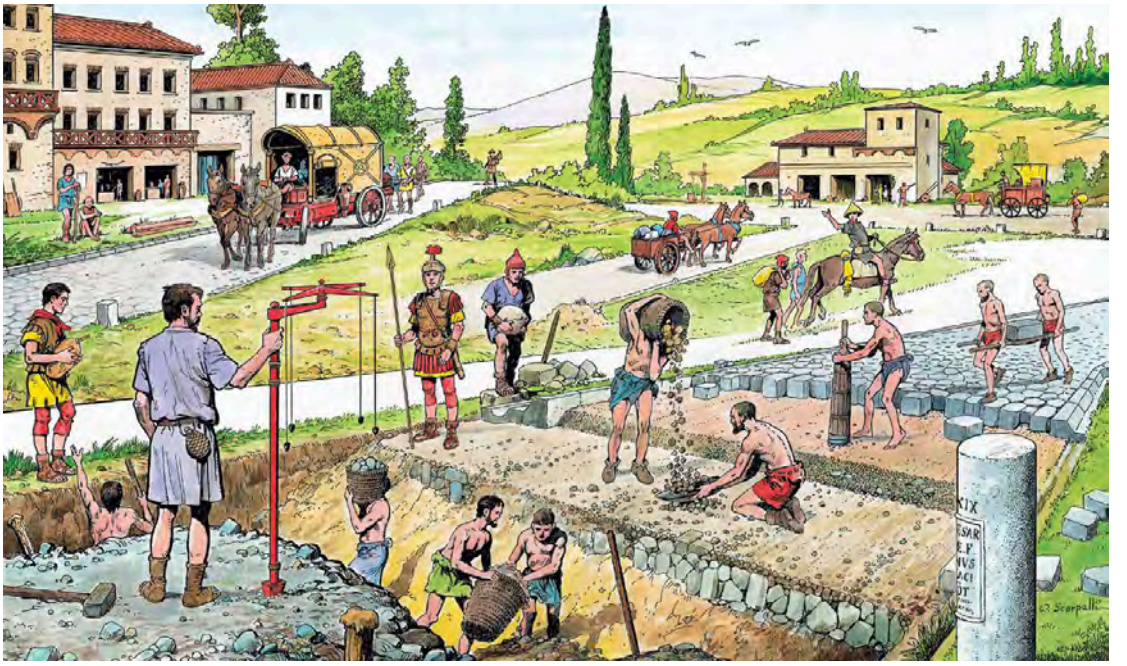


Figure 31. On the internet, hundreds of explanatory drawings for Roman roads can be found, all quite wrong, supposedly explaining construction methods, surface structure, workforce, and tools used.

Local authorities would have been most aware of needs arising in their own territory, and they perhaps played a major role in the maintenance and operation of the roads. However, planning and commissioning was in the hands of the authorities in Rome. There had to be a centralising team to ensure the balance of communications in the Empire and the favouring of the most important or most strategically valuable cities.

An analysis of classical texts shows that in the time of the Republic it was the consuls, proconsuls, praetors and censors, in order of importance, who were involved in the decision-making process of road planning. However, in the Empire this task was taken over by the emperor himself, sometimes delegated to provincial governors, proconsuls or procurators, or even to a particular legion (Chevalier, 1997: 274). As for the financing of construction, this was mainly at the expense of the public treasury (Pekary, 1968, 91 and Chevalier, 1997, 275), with the patronage of an emperor or wealthy individuals upon certain stretches. We know of private individuals who financed certain stretches of road, as witnessed by the tombstone found in Cazlona (Jaen), CIL nº 3270, which reads:

> *'To Quintus Torio Culleon, son of Quintus, Augustan proconsul of the province of Baetica, who remade from his own money the walls collapsed from old age, granted land to build baths, and opened, in the midst of continuous rains, a road leading through the port of Castulo to Sisapo. He placed statues of Venus the mother and Cupid in the theatre. The sum of ten million sesterces owed to him was returned to the people by offering a banquet. The councillors of Castulon gave the public circus games for two days. By decree of the decurions.'*

We can deduce from this that Q. Torio must have been a rich landowner who, under adverse conditions, had a road built from Despeñaperros to Almadén, across the fields of the Alcudia Valley.

Numerous examples are known of private individuals making monetary contributions such as this, something typical of Roman culture. It was sometimes part of a publicity strategy within the political career of persons aspiring to the Senate or other important posts, but it also reflected a feeling, with significant religious overtones, that glory in life could be gained as a benefactor of public works important to the citizens.

The final case is that of the emperors themselves who, having made their political careers, invested in immortality by ensuring a place in their people's collective memory. Thus Augustus repaired the Via Flaminia between Rome and Rimini (*Ariminum*) at his own expense; Caracalla and Hadrian did the same elsewhere. Sometimes they contributed substantial sums, topping up the funds collected in taxes from large landowners in the relevant communities.

However, the percentage of contributions from private individuals and wealthy local landowners must have been small in comparison to the state contribution, which was, after all, a universal collection administered by Rome through the taxes in force at any one time. It was this that ensured the completion of the long road corridors based upon relevant centralised planning.

We also know of the existence of neighbourhood roads (*vicinales*), relating to the connection of small places (*vici*) and others of a more private nature (*privata*). Both formed a very extensive network, most of the time related to organised land holdings (*centuriatio*) generally intended for agricultural and local use, with little in the way of foundations. These would be the earthen roads mentioned in a legal text of Ulpian (*Edict* book 68) in his commentaries on a praetor's edict:

> *'If under the pretext of repairing it anyone damages the road, let him be punished. For he who avails himself of the edict intended for repairs may not make the road wider, or longer, or higher or lower, or throw gravel on a dirt road, or pave a road that is earthen, or, on the contrary, convert a road paved with stone into a dirt road.'* (*Dig.* 43.11.1.2).

These roads, by their nature, cannot possibly have left physical traces and nothing relevant can be said about their foundations as they did not possess any. It can only be said that they did exist, as is logical within organised landholdings. However we should not call them roads because, as pointed out, a road should be built in such a way as to permanently allow transit of loads of all sorts, whereas these roads did not at times allow safe transit in wet conditions. But there were exceptions, as some private roads were no worse than those built by the state. Where they served large estates we may assume that the only limitation would be the owner's financial resources. Thus, we should note Cicero's comments in Ad Quintum Fratri (III, 1-3 and 4):

> *'I have driven straight along the Via Vitularia, on the land that I bought in Laterium. I inspected the road. I found it so beautiful that I would have taken it as a public road, save for 150 paces by Satricum, which I have personally measured and where I was given earth instead of gravel. That will need to be fixed.'*

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Aspects of the Roman Road Network in the Oxford Region

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Abstract

Recent work has provided evidence that helps to clarify aspects of the evolution of the road networks around Alchester and Dorchester-on-Thames in the Oxford region. This relates mainly to Akeman Street at and north of Alchester and to parts of RR160 which connects Alchester and Dorchester and then continues south from the latter to Silchester. The exact course of the approach of RR160c to Dorchester from the south is confirmed but problems of alignments and other relationships remain within the area of the walled settlement. At Alchester a tentative scheme for the development of the route of Akeman Street is proposed. The line of Akeman Street west of Alchester certainly postdated the north-south road RR160a, the latter related to a probable early Long-Distance Alignment from the north. Whether this also predated Akeman Street reaching Alchester from the east is, however, much less certain.

Introduction

The principal components of the Roman road network in the Oxford region, particularly east and north of Oxford, have been well-known for many years, but many points of detail concerning these roads have remained uncertain, if not problematic. Recent work, particularly around Alchester (near present-day Bicester) and Dorchester-on-Thames (hereafter simply Dorchester), has helped to clarify some of these problems, though some remain unresolved and new questions arise. The present contribution attempts to summarise the main points resulting from this recent work and discuss the new evidence in a regional context. (Fig, 1)

This is an area of considerable significance in the early Roman period since the two sites already mentioned have produced almost the only direct evidence for early Roman military installations found in this part of central Southern England. The two principal roads that concern us, and which meet at Alchester, are Akeman Street (Margary RR16), running in a broad east-west arc from *Verulamium* (with some uncertainties) to Cirencester (at a junction with the Fosse Way) with Alchester at its most northerly point, and a south-north road, the local components of which (RR160c from Silchester to Dorchester, RR160b from Dorchester to Alchester) form part of a more extensive route from the south coast (eg via RR155 from Chichester) running (as RR160a) north from Alchester as far as Towcester on the line of Watling Street.

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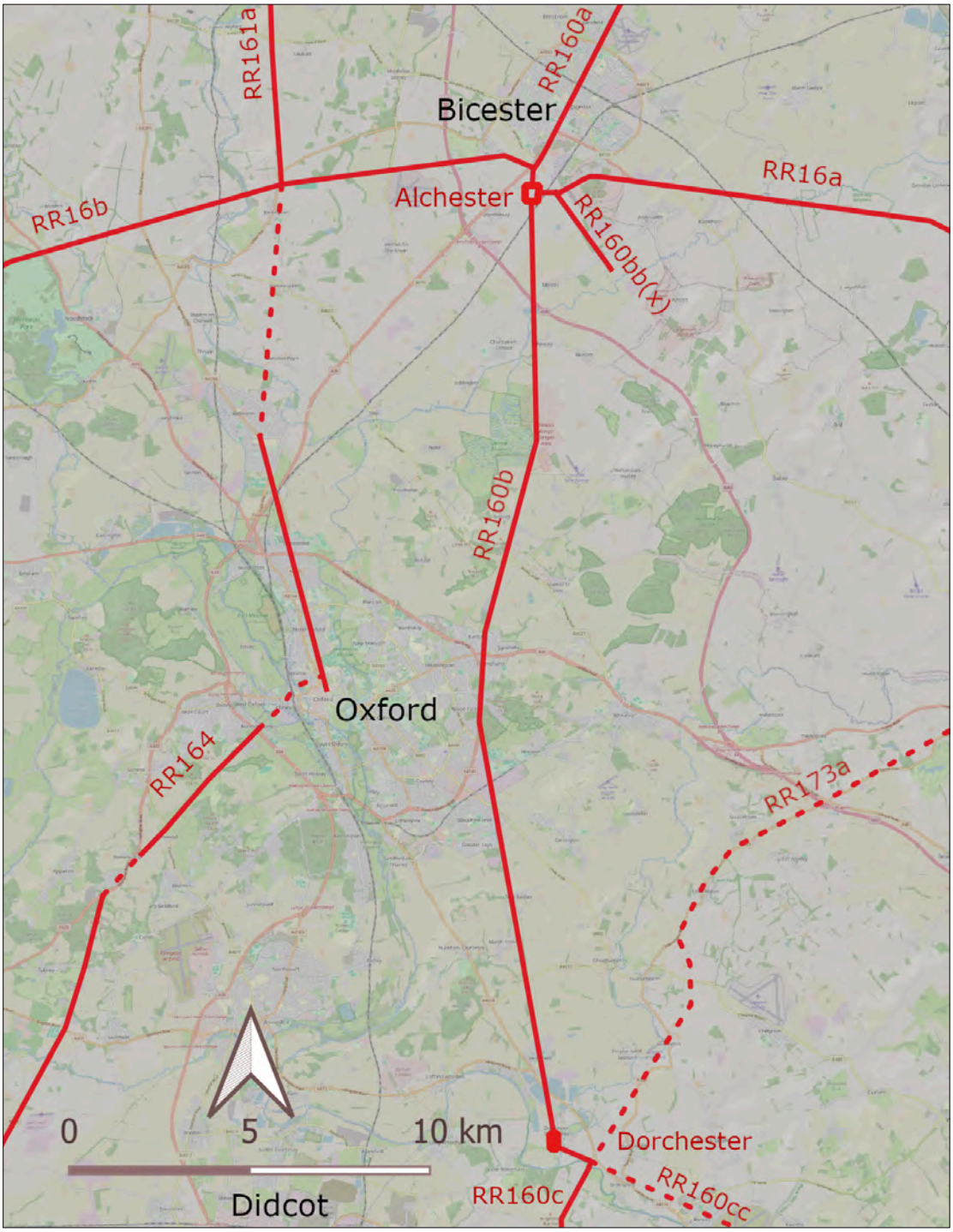


Figure 1. Location of principal road alignments around and between Alchester and Dorchester-on-Thames. Map data © OpenStreetMap Contributors 2020, made available here under the Open Database License (ODbL) v1.0

Alchester and Akeman Street

At Alchester, as is now well known, there is unequivocal (and rare) evidence for a substantial very early Conquest-period military presence, revealed in excavations from 1998 to 2004. Immediately west of the later Roman walled settlement were features that probably belonged to an annexe to a fort or fortress, the latter interpreted as underlying the walled 'small town' (Sauer 2000; 2002). The generic term 'fort' will be used here; if the unusual approximately square configuration of the later walls can be used as a guide to the form of the early establishment, which is plausible, it is notable that they enclose an area of *c* 10.5 ha, very roughly half the size of a typical 1st-century legionary fortress (e.g. Manning 2000, 74; Fischer 2019, 250) and very similar to the size of the early 'vexillation fortress' at Longthorpe (10.9 ha, Frere and St Joseph 1974, 6). Waterlogged timbers associated with the gateway into the annexe enclosure produced a dendrochronological date indicating felling in the period autumn AD 44-spring 45, though Sauer (Sauer 2001, 72) opted for a construction date at the end of AD 44. On the basis that this gated enclosure, which included structures including possible barracks (Copeland (2009, 81-83) notes the rapidly changing interpretation of some of these structures), was in fact an annexe to a (probable) legionary 'fortress', it was suggested that the latter was potentially earlier in date and might perhaps be assigned to the initial Conquest year, AD 43 (Sauer 2002, 84; 2006, 11). However that may be, the presence of the fort by AD 45 at the latest seems fairly certain. Moreover, it can potentially be attributed to the Second legion Augusta, since the fragmented tombstone (RIB 3121) of a veteran of that legion was found incorporated in the foundations of the later west wall of the 'small town' (Sauer 2005). While not absolutely conclusive evidence, and while perhaps not quite as early as claimed (Tomlin *et al.* 2009, 128 suggest that the pre-Flavian date proposed for the tombstone by Sauer is '*unlikely*'), the presence of this tombstone supports the suggestion that Alchester was a base of the Second legion. It does not necessarily follow that this was the case as early as AD 43/44/45, but there is no clear hint of modification to the military structures that would likely have followed a change of garrison, so it is more likely than not that the Second was garrisoned at Alchester from the beginning. It may not have been resident for long, as it is generally supposed to have been deployed in South-West England from an early stage (e.g. Russell *et al.* 2021; Stewart *et al.* 2020), but that is less important here. The point is that Alchester was apparently home to the largest military force in this part of Britain in the immediate Conquest period. This would have been very significant for the population of the immediate area (a couple of sites in the vicinity of Alchester are amongst the very few in the region where the occupation sequence seems to have been disrupted in the mid-1st century (Henig and Booth 2000, 106; Simmonds *et al.* 2018, 264)) but this presence must also have been felt 26 km south at Dorchester, where the late Iron Age 'enclosed *oppidum*' of Dyke Hills at the confluence of the rivers Thames and Thame was probably one of the most important centres of power in the region (see further below).

Given the early date of the Alchester fort, clarification of its relationships with the adjacent roads is key to understanding the development of the regional infrastructure in the 1st century. Can we establish the absolute and relative chronologies of the two principal roads? It is notable that the line of RR160b directly references one of the principal axes of the 'small town', and therefore probably of the earlier fort, though the fact that this particular part of the road line south of Alchester was probably not achieved in physical form until the end of the 1st century (see below) raises a number of questions. By contrast, the line of Akeman Street, conventionally considered to be the primary major route in the region (e.g. Henig and Booth 2000, 49) is not aligned closely on the early military complex but passes north of it. This must be a consequence of the geographically determined road

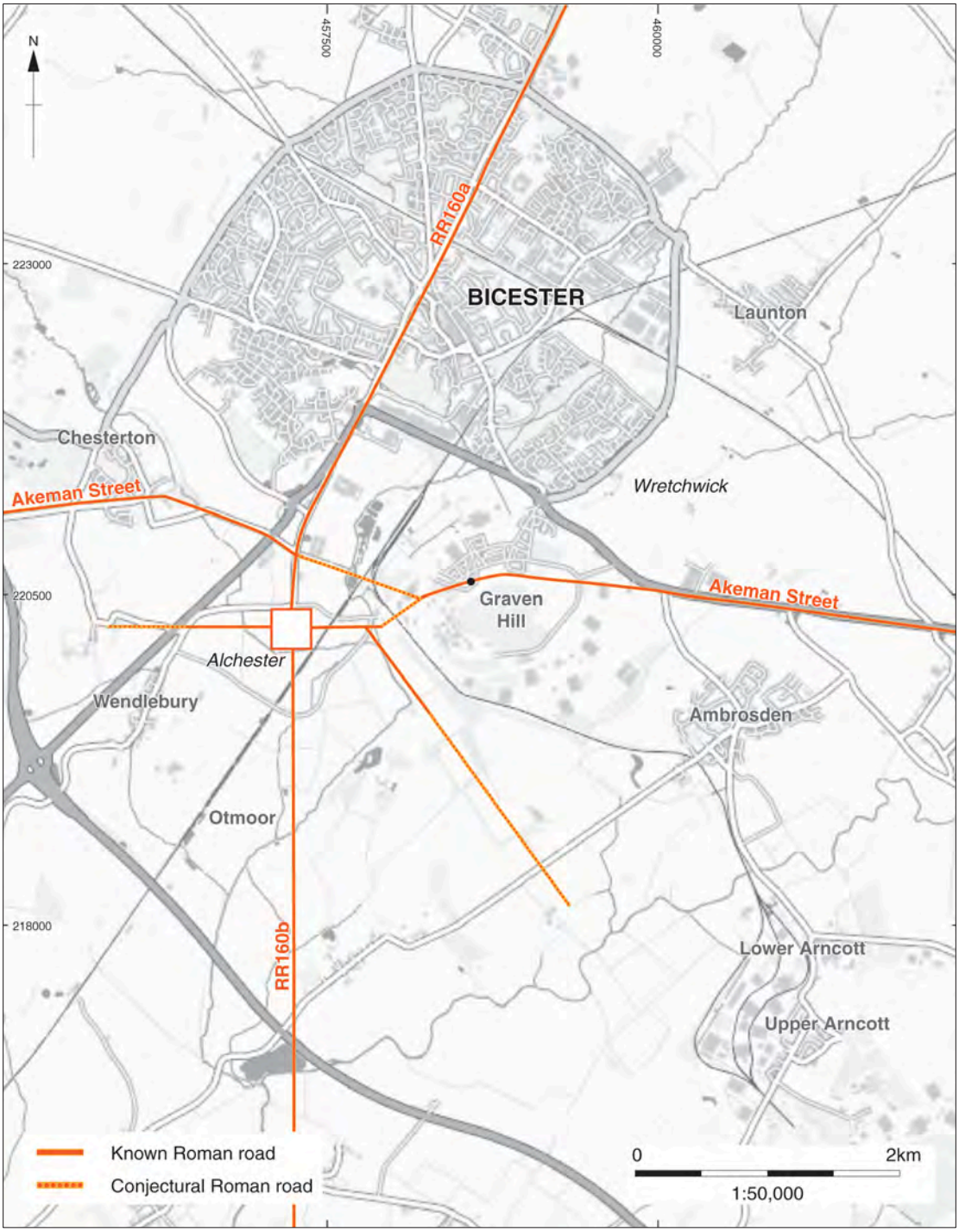


Figure 2. Main elements of the Roman road network around Alchester. The dot on the line of Akeman Street at Graven Hill is the location of the 2015 excavation. Based on Allen et al 2023 fig. 1.1 with additions. Base OS mapping © Crown Copyright, AL 100005569.

line which bends round the north side of Graven Hill, a significant local landmark immediately south of Bicester (not Arncott Hill, as given by Copeland (2009, 7), which lies further south), before turning westwards in the direction of Cirencester. The overall course of Akeman Street here may have combined geographical considerations, such as avoidance of low-lying Otmoor and the Thames valley, with arguably more important socio-political ones, perhaps illustrated most clearly west of Alchester by the routing of the direct line of the road through the middle of the important North Oxfordshire Grims Ditch complex, almost certainly a significant focus of high status activity in the late Iron Age and also later (e.g. Copeland 1988; 2021; Blair 2021). However, the course of Akeman Street to the north of Alchester is not straightforward, and it now seems most unlikely that there was a single line which, once established, was maintained throughout the Roman period.

Access from Akeman Street to the site of Alchester itself was achieved via a turn to the south-west from the north side of Graven Hill (Fig. 2) leading to an east-west line leading into the east gate of the walled settlement and presumed earlier fort (this road lies beneath part of the present-day Langford Lane and so has not been examined archaeologically). The south-westerly turn towards Langford Lane has been considered to represent a spur road from the principal Akeman Street alignment, but this leaves unresolved the question of where that principal (and primary) alignment lay. Put another way, why did the line of Akeman Street north of Alchester, uncertain in detail, apparently run in a WNW direction from a point half way along the south-westerly 'spur' alignment (as e.g. Booth *et al.* 2001, 3, fig. 1.2)? Such a line might perhaps have been determined by specific drainage problems in the area of the roughly north-south aligned Langford Brook and related lesser streams north-west of Graven Hill, but even so it would have been odd for the principal Akeman Street alignment to have assumed a flattened-S plan from which the 'spur' road to the east-west Langford Lane alignment was a branch.

Excavation in 2015 and 2016 in advance of development demonstrated the exact line of Akeman Street on the north flank of Graven Hill (Allen *et al.* 2023, 42-45). In Area A of this excavation it was confirmed that the road line did indeed curve towards the south-west (ibid., figs 3.1 and 3.2), thus forming the start of the 'spur' into the fort and 'small town' complex; the existence of the proposed WNW alignment passing north of the settlement remained '*conjectural*' (e.g. Allen *et al.* 2023, fig. 1.1). More recent work, however, has shown a more complicated picture. Lidar now reveals paired roadside ditches on an alignment just north of west surviving to the west of the Langford Brook in an area not impacted by modern development (Fig. 3; Richard Oram pers. comm.). The eastward projection of this alignment (unfortunately through an area obscured by 20th-century features) would have met the line of Akeman Street precisely at the top of its curve round the north side of Graven Hill in an unexamined area just east of the 2016 Area A excavation. At their west end the ditches shown in the lidar align exactly with features revealed in a 2021 excavation by Cotswold Archaeology (CA) on the site of the former Faccenda Chicken Farm (Figs 3 and 4; CA 2023a; for earlier small-scale work on this site see Foreman and Rahtz 1984). The possibility that these ditches, which are approximately 25m apart, might represent a primary alignment of Akeman Street is intriguing but does not seem to be supported by the stratigraphic evidence at the Faccenda site, which suggests that they post-date a number of earlier Roman features on this site and are assigned to a phase dated at least to the 2nd century AD.

It is notable that the line taken by the parallel ditches heads towards the south-west corner of the Faccenda site, very close to the point where the previously projected line of Akeman Street (suggested in the Faccenda site by a dominant ESE-WNW ditch alignment encountered both here, by



Figure 3. Alchester roads and other features. Based on Simmonds and Lawrence 2018 fig. 6.1 with additions. Base OS mapping © Crown copyright 2018 OS 93526924.

CA and Foreman and Rahtz, and in the more extensive A421 excavations of 1991 a short distance to the west, see further below) would have met with the line of RR160a heading north from Alchester towards Towcester.

The convergence of different alignments of Akeman Street at the same point can be argued to suggest chronological primacy for the alignment of RR160a north of Alchester. Such a case has been made recently in the identification of a probable 'Long Distance Alignment' (LDA) represented by part of RR160a north of Alchester and also incorporating parts of RR164 south-west of Oxford and defined as a 'Littlecote to Fringford' alignment (Poulter 2022, 38-39; see Fig. 5 below, where this is shown as alignment 1). This alignment was probably integral with (and may have been set out from) a survey line from Colchester to Leicester (Entwistle 2019, 52; Poulter 2022, 37-39) that was noted long ago (e.g. Jones and Mattingly 1990, 94-95). The 'Littlecote to Fringford' alignment is strikingly parallel to the line of the Fosse Way from Leicester to Cirencester shown to have been another early LDA (Entwistle 2019, 49-52; Poulter 2022, 35-36). The exact chronology of any of these alignments is of course uncertain, and the establishment of an alignment will not necessarily have been followed by the rapid construction of roads (if at all, as the apparent absence of related road alignments between Towcester and the line of RR57a (Gartree Road, part of the Colchester-Leicester road) to the north seems to suggest). Putting the question of detailed chronology to one side, however, we may note that the ESE-WNW alignment of Akeman Street indicated by multiple ditches at the southern margin of the Faccenda site (features which can again be shown to belong to the middle and later part of the site sequence) — and by indications of an apparent *agger* in the hedgerow immediately to the south — were surely secondary to the line of RR160a). This point is supported by the evidence from the A421 site to the west. Here there were complex arrangements of ESE-WNW aligned ditches, exactly as in the Faccenda site, but none of the ditches lined up precisely, suggesting that they were laid out in relation to the pre-existing line of RR160a, which separated the two sites (Fig. 4). At the A421 site this alignment was in place by the Flavian period at the latest but interpretation at the time of excavation was based on the premise that the ESE-WNW features represented the primary alignment of Akeman Street and were therefore potentially of the mid-1st century rather than later (Booth *et al.* 2001, 425-426). While the association of these ditches with 'primary' Akeman Street can perhaps be discounted (but see below), an early chronology remains possible. Figure 4 does suggest, however, that at a later stage Akeman Street did run continuously across the line of RR160a, indicated by the correspondence of the (admittedly estimated) alignment reconstructed from the A421 (1991) excavations to the west and the raised feature surviving just south of the Cotswold Archaeology excavations to the east. This correspondence forms the basis of the stage 4/6 alignment shown on Figure 5.

There have been few opportunities for detailed examination of RR160a as it lies beneath the modern lane (Wendlebury Lane, in fact the main road from Oxford to Bicester up to *c* 1940). Two small trenches were excavated within the road line just over 300m apart in 2010 (Milbank 2010; Lewis 2010) but the associated dating material was all of late Roman date. More importantly, work by Cotswold Archaeology at the western margin of the Hybrid Application Site, Catalyst Bicester (adjoining the north side of the Faccenda site) in 2020-2021 revealed part of the road surface and a complex sequence of ditches on its eastern margin extending over a distance of *c* 130 m from a point roughly 200m north of the potential junction between RR160a and Akeman Street. The ditches indicate use of the road line through the post-medieval period and perhaps continuously from the Roman period to the present day. There appears to be no close dating evidence for the earliest road surface and ditch, but detailed analysis has still to be undertaken (CA 2023b).

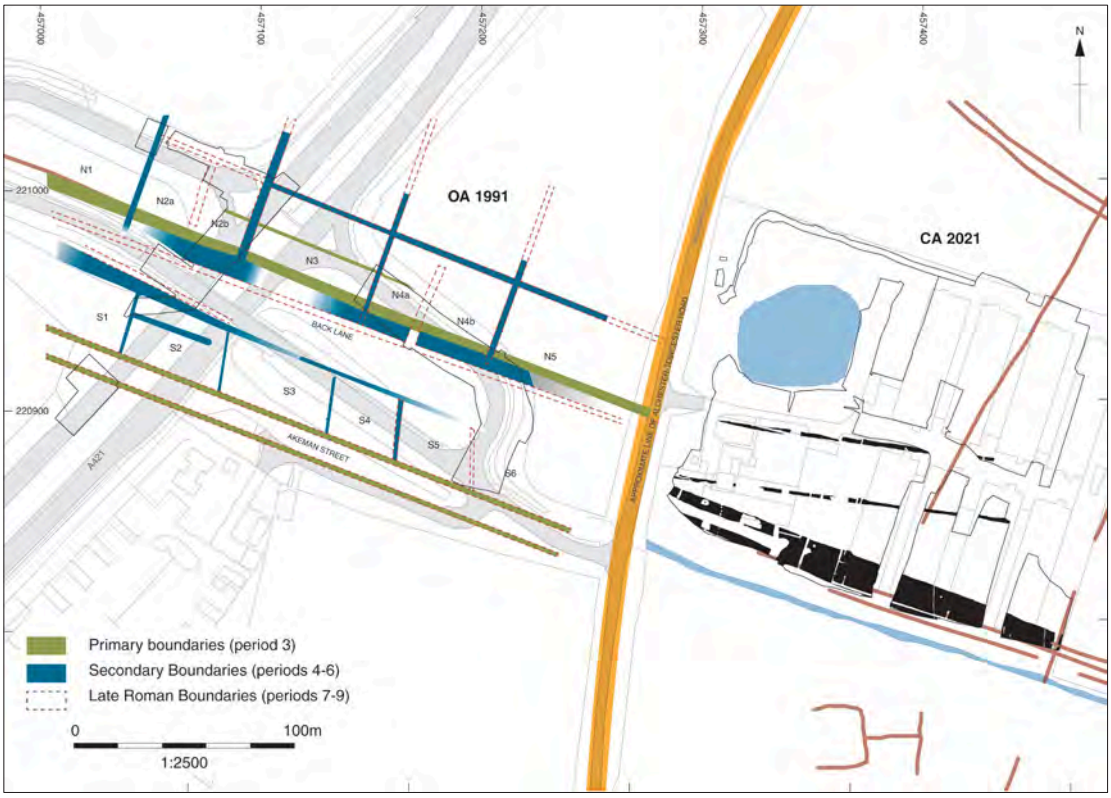


Figure 4. The RR160a and Akeman Street junction north of Alchester showing the mismatch in alignments between features west and of RR160a. The former are extrapolated from evidence from the A421 (1991) excavation (Booth et al. 2001 fig. 5.2), the latter based on CA 2023a fig. 3. In the CA site the key roadside ditches are shaded black. The blue line at the south of the CA site lies outside the excavated area and is the estimated line of Akeman Street based on surface indications. Base OS mapping © Crown Copyright, AL 100005569.

Collectively this evidence suggests a speculative revised interpretation of the sequence of roads immediately north of Alchester: (Fig. 5)

1. The establishment of the NE-SW LDA reflected in part by sections of the lines of RR160a north of Alchester and RR164 further south-west. The fort may have been established in relation to this alignment (in which case a very early date for the latter is essential) but did not lie directly upon it. The LDA appears to pass by the north-west corner of the civilian defences (and the presumed underlying fort) and is only joined by the known line of RR160a at a location very roughly 600m north of the north gate of the 'small town'. The significance of these points remains unclear. It is unlikely that any part of the LDA was developed as a road in this early stage.
2. The laying out (and primary construction?) of Akeman Street from the east. The fort is already in place and is the primary objective of this road, which curves round the north side of Graven Hill, turns south-westwards and then due west to access the fort (See Figure 2). At this stage there is no 'bypass route' north of Alchester, though the construction of a westerly extension of the line of Akeman Street towards Cirencester might already have been anticipated.

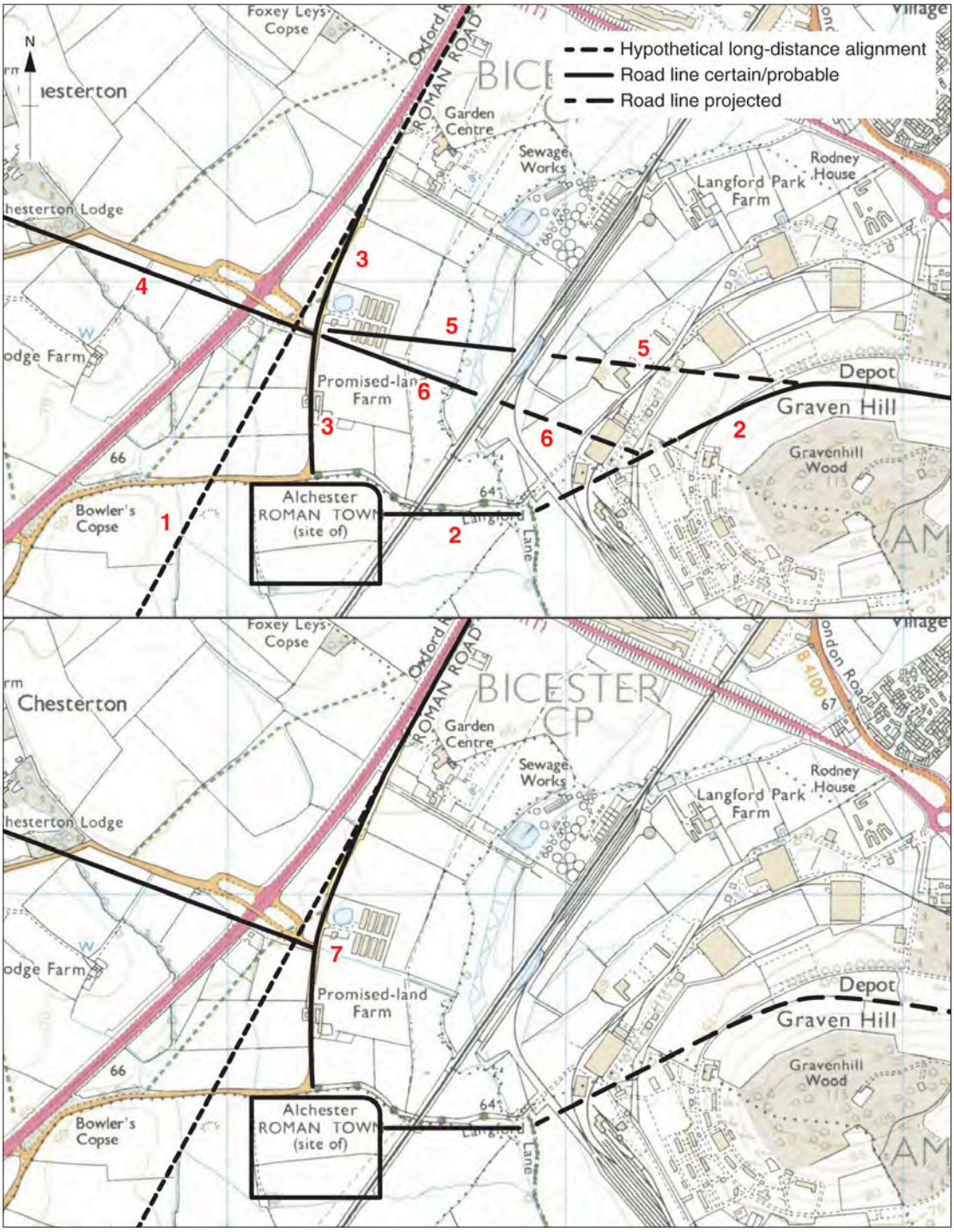


Figure 5. Schematic development of the Roman road sequence north of Alchester. Base OS mapping © Crown Copyright, AL 100005569.

3. The establishment of a road (RR160a) using the primary LDA. This road diverges from the alignment to enter the north gate of the later walled town (and, by implication, the north gate of the underlying fort).

4. The establishment of a western section of Akeman Street. This may have taken the line of RR160a as its starting point, possibly on the ESE-WNW alignment projected at the A421 site. The implication of this is that the proposed stage 3 construction had already taken place. Alternatively, the use of the LDA as the point of origin for the westerly extension of Akeman Street would mean that stages 3 and 4 could be reversed. The exact course of Akeman Street between this junction and Chesterton to the north-west is unknown at this time. There might still have been no through 'bypass route' north-east of Alchester. This stage is essentially hypothetical.

5. A probable fairly early northern line for Akeman Street may be represented by the double ditched alignment (see Figure 3) running almost due west from the northernmost point of Akeman Street on the north flank of Graven Hill (this part of the line is lost) and forming a junction with RR160a in the position of the modern road junction at the south-west corner of the Faccenda site. By this stage a westerly continuation of Akeman Street towards Cirencester should already have been in place.

6. The stage 5 road (of which no surfaces survived, suggesting only a short period of use, though the reason for its abandonment is unknown) is replaced between RR160a and the direct approach of Akeman Street to Alchester from the north-east by a road on the ESE-WNW alignment seen at the southern margin of the Faccenda site. The eastern part of this line, crossing the Langford Brook, is unknown, but the projected alignment would have branched off the south-west trending length of Akeman Street as it approached Alchester from the east. On reaching the line of RR160a the line of Akeman Street becomes continuous with the westward alignment established in stage 4.

7. The lines of both RR160a and Akeman Street remain in use throughout the rest of the Roman period, and beyond in the case of RR160a. The stage 6 bypass alignment of Akeman Street is lost east of the line of RR160a, perhaps owing to difficulties with drainage near Langford Brook. West of RR160a a version of the Akeman Street alignment survives as Chesterton Lane. Its more directly westerly alignment (towards Cirencester) survives in the modern road alignment from c SP 561 212 and has been confirmed archaeologically 200m west of here, with surfaces having a combined depth of 0.51m and a minimum width of 6.50m (Parkinson 1993). Elements of Langford Lane and Akeman Street round the north side of Graven Hill appear to survive as local trackways.

There may have been other as yet undetected stages in this scheme, required inter alia by the chronological tensions between stages 2 and 5, where it still seems unlikely that the chronology of the double ditched (stage 5) alignment can be reconciled with an early westerly projection of Akeman Street and therefore prompts the addition of the hypothetical stage 4 to the sequence. Questions of absolute chronology remain: 'early' dates are required for stages 1 and 2 of this scheme, and presumably also for stages 3 and 4. It is not clear if any of the stages should be linked to the abandonment of the fort site, which probably took place '*no later than the first half of the A.D. 60s at the latest*' (Sauer 2005, 124), but stages 1-4 should have been long completed by this time, even if the proposed date of *c* AD 47 for the appearance of Akeman Street at Wilcote well west of Alchester (Hands 1993, 11) is, as Copeland (2009, 78) remarks, '*hopelessly optimistic*'. One question raised by any

scheme concerns the passage of east-west 'through' traffic in and around Alchester. In the (likely) absence of a primary alignment of Akeman Street north of Alchester did this require, from stage 4 (and perhaps even stage 3) onwards, traffic to pass through the fort?

As for the approach to Alchester from the south, the early 'East Otmoor road' (see below) could perhaps have followed closely on stage 2, though a slightly later date is also possible. The dating evidence for the main route of RR160b puts its construction not before the end of the 1st century. This was clearly subsequent to stage 4, but its relative chronology in relation to later stages is uncertain.

Alchester to Dorchester

The Alchester to Dorchester road, RR160b, was the subject of a classic study by Hussey, *An account of the Roman road from Alchester to Dorchester*, published in 1841 (albeit that he was diverted at times by *The description of Britain*, attributed to Richard of Cirencester and not yet known to be a forgery). Much of the detail of the route as recorded by Hussey is uncontroversial and does not require review. He could not know that the sequence of development of the road was not quite straightforward. The straight south-north course of the road carried across the low-lying ground of Otmoor on a causeway formed the central axis of the Roman settlement of Alchester as noted above, but it now seems that this was not an original feature across Otmoor. The key evidence comes from timbers belonging to a bridge structure across the River Ray examined on the line of the road at Fencott with Murcott, 3 km south of Alchester, in 1979, which produced a dendrochronology date of '*soon after 95 A.D.*' (Chambers 1986a, 35). The bridge, estimated to be some 4.5m wide (ibid.), was considered to be a primary feature in the road line and thus to indicate a date at the end of the 1st century or a little later for its construction. Evidence from excavation of the road between Fencott and Alchester is not completely conclusive but a lack of clearly associated 1st-century material (e.g. Chambers 1987) may support this date. The most recent excavation in this area was in 2014 at Langford Lane South, an East West Rail project site. Here the presence of stream channels prevented the excavation of a straightforward section across the road, but again 1st-century material was scarce and the initial road, between ditches 16-20m apart, was assigned to a late 1st-early 2nd-century phase (Simmonds *et al.* 2018, 40). This site lay within a zone of rectilinear enclosures and other boundaries (mostly) perpendicular to the line of the road extending for over a kilometre south of the south gate of Alchester. At Langford Lane South these features may have been integrated with the primary roadside ditches, but this was not certain. The limited associated dating evidence was comparable with that already mentioned. Altogether this evidence is potentially consistent with the view that the road here was not in place before the end of the 1st century, but it is not absolutely conclusive.

The poorly-drained ground of Otmoor was a substantial obstacle to road construction on the direct line south from Alchester and the dating evidence reviewed above strongly suggests that it must have been bypassed in the early Roman period. The northern end of what seems most likely to be such a bypass route to the east of Otmoor, close to the line of present-day Langford Lane, is now well-established. This was even suggested as the line of Roman road by Hussey (1841, 25), though without understanding that it was probably a predecessor of the road to Dorchester. What has now been termed the 'East Otmoor road', RR160bb(x), was examined close to its northern end in 2015 in work relating to the East West Rail project at the Langford Lane East site (see Fig. 3). Here the road, running south-south-eastwards from the east-west approach to Alchester, had a metalled surface 9.5m wide closely flanked by ditches (and fronted by structures on the west side) (Simmonds *et al.* 2018, 21-35).

Slightly further to the south two further trenches were excavated in 1998 (Sauer 1999, 295). In the more northerly of these, closely adjacent to the 2015 excavation (see Simmonds *et al.* 2018, 247, fig. 6.1 for location), metalling was still in place, but in the second trench, some 400m further SSE, Sauer noted that the road surface had been '*removed in antiquity*' (Sauer 1999, 295). This rather unusual characteristic is supported by aerial photographic evidence which shows a substantial linear 'negative' feature (centred *c* SP 580199; e.g. HE (2015) AP references 29761_035, 036 and 042).

Dating evidence for the 'East Otmoor road' indicates an early origin, as would be expected, with mid-1st-century pottery in associated ditches towards its northern end (e.g. Sauer 1999, 295; Simmonds *et al.* 2018, 22). '*No evidence was found to indicate that the road continued in use beyond the early 3rd century*' (Simmonds *et al.* 2018, 34). The date *'in antiquity*' at which the road material was thought to have been removed further south has not been specified. The full course of the 'East Otmoor road' is not known. The SSE alignment can be projected for a further 3km beyond the point at which it was seen to have been dug out but there is no certainty beyond this point (see Fig. 2); its route to rejoin the main alignment, presumably in the vicinity of Beckley, is a matter of speculation. Nevertheless, the clear evidence for both an early origin and early disuse is consistent with the interpretation of this road as the primary iteration of the north-south route that was actively, though not necessarily immediately, decommissioned once the direct road across Otmoor was in place.

Cheetham (1995) suggested that there might have been a Roman route around at least part of the western side of Otmoor, based in part on pre-Roman trackways, but of the various lines he discussed none has direct evidence of a Roman date. This does not necessarily exclude a Roman origin for some, and the existence of local trackways here is plausible, but it seems less likely that there was a second formally laid out alternative to the early 'East Otmoor road'. The question of whether any of Cheetham's routes could have formed part of a road running between Alchester and the Oxford area to the south-west, perhaps related to the 'Littlecote to Fringford' LDA (Poulter 2022, 38-39, and see above) is beyond the scope of this paper, and there is little evidence that the LDA was used as a road line in the area immediately west and south-west of Alchester. The question of the Roman approach to Oxford itself from the south-west has been revisited recently (Crossley 2018; Booth 2021). Further aspects of a route south-west from Alchester have also been discussed by Brewer (2022).

The main route of RR160b south of Otmoor has seen relatively little recent work. Much of the line is obscured where it runs through the eastern margins of Oxford, but it has been encountered close to its crossing of the Bayswater Brook in Barton (Pine 2003) and some 500m further south at Bayards Hill Primary School (Lewis 2009). Two km further south, however, geophysical survey evidence for the road line at Brasenose Wood was equivocal (Harrison *et al.* 2020, 93-95). Approaching Dorchester the road line is quite well-established but has only been confirmed in intrusive work at one point about 1km north of the village (Chambers 1986b).

Late Iron Age and Early Roman Dorchester

Two factors have long been understood as of particular significance in explaining why the Roman settlement at Dorchester was situated where it is. First is its relationship to the enclosed site of Dyke Hills, and the second is its location close to the crossing of the Thames by a major Roman road. The Dyke Hills consist of two very substantial earthwork banks with an intervening ditch defining an area of approximately 40 hectares bounded on the west and south by the River Thames and on the east by

the River Thame, the earthworks themselves lying barely 500m south of the centre of the later Roman settlement (for a short summary, Lambrick *et al*. 2009 361-364). Dating of the Dyke Hills to the late Iron Age is based almost entirely on the form of earthworks as there has been no excavation of any part of the interior. The site is typically categorised as an 'enclosed *oppidum*' (e.g. Allen 2000, 22-25; Lambrick *et al*. 2009, 361-362); such sites characteristically occupy low lying locations where communication is an important factor. The contrast with the closely adjacent early and middle Iron Age hilltop fort of Castle Hill, Little Wittenham (Allen *et al*. 2010), is striking, but the proximity underlines the continued focal significance of this special landscape, expressed in different ways in successive periods. Enclosed *oppida* are usually seen as local centres of power, perhaps with significant numbers of inhabitants. Functions related to trade, industry/craft production and religious ritual are likely but not demonstrable in the case of Dyke Hills, although Cunliffe (2005, 192) described the site as a '*possible border market*' for the Dobunni, a late Iron Age tribal group whose territory probably lay entirely west of Dorchester. The earthworks could have served a strictly defensive purpose, but it is much more likely that they were equally important as a statement of power and authority. Even this is not certain, however, and as Moore (2020, 583) has pointed out '*While Dyke Hills [and analogous sites], Salmonsbury [Glos] and Abingdon can all be argued to have been major settlements and social foci, their socio-political roles remain unclear*.'

At Dyke Hills, aerial photographs and a partial geophysical survey carried out in 2016 show numerous but unevenly distributed internal features on the gravel subsoil in the northern part of the enclosed area. It is likely that these features represent activity of several different periods and that only some were broadly contemporary with the period of use of the earthworks.

Features that can be dated to the very late Iron Age, almost certainly within the 1st century AD rather than earlier, and therefore on the conventional chronology contemporary with the Dyke Hills, have been found north of that complex within Dorchester itself. They occur both in excavations carried out by Sheppard Frere in 1962, particularly in his trenches on the western and southern defences of the Roman settlement (Frere 1962, 117, 128-129, 132-134), and at the Discovering Dorchester Project (hereafter DDP) site at the north end of the allotments in the south-west part of the village and within which Frere's 1962 and 1963 excavations were also located (unpublished training excavation from 2008-2018, post-excavation analysis by the present writer is ongoing). The combined evidence is far too fragmentary to allow meaningful speculation about the extent and detailed character of activity represented here, but the quantity of finds indicates domestic occupation, and the pottery includes relatively high-status components such as cups and dishes in Gallo-Belgic wares (*terra nigra* and *terra rubra*) and fine white ware beakers. Gallo-Belgic wares are generally rare in this region, but the DDP pottery includes three potters' stamps from *terra nigra* dishes or platters of pre-Conquest date. Such material is consistent with the adjacent presence of the major Dyke Hills complex, but in the absence of direct evidence from the latter contemporaneity of pre-Conquest sites in the village and the Dyke Hills earthworks and related activity is not absolutely certain, nor is the nature of the relationship between activity within and outwith the earthworks if they were contemporary.

Silchester to Dorchester

Having discussed some of the evidence relating to the evolution of the northern end of RR160b near Alchester we shift the focus to the approaches to Dorchester from the south on RR160c. As already

mentioned, proximity to a Thames crossing was a significant factor determining the location of Roman Dorchester. The proximity of river crossings was presumably also fundamental for the position of the Dyke Hills complex in the late Iron Age (and was likely important earlier), but there is no direct evidence of this. In the early Roman period a Thames crossing was bound to be a key point for access between Silchester to the south and Alchester to the north. Within this framework the likely contemporary importance of the Dyke Hills complex made it almost inevitable that the crossing should be at Dorchester.

Silchester, documented as the *civitas* centre of the Atrebates from the early 3rd century AD and probably assigned that status in the later 1st (Fulford *et al.* 2020, 3-4) lay just over 30km south of Dorchester and was the nearest major late Iron Age settlement to Dorchester in that direction. Recent work suggests that Silchester was established about 20 BC and, remarkably, was primarily occupied largely if not entirely by an immigrant community from Gaul (Fulford 2021, 33-39), based within a very substantial ditched enclosure (the 'inner earthwork') of about 38ha. By about AD 25, however, the territory associated with Silchester seems to have been absorbed by the late Iron Age 'Eastern Kingdom' of the Catuvellauni (ibid., 31-32, 50). As a component of that kingdom Fulford speculates that Silchester, perhaps under the control of Caratacus (possibly a son of Cunobelinus) by the AD 40s, was occupied by the Roman army in AD 44 after the capture of *Camulodunum* (Colchester) and that the unit responsible was the Second legion Augusta (ibid., 54). A Roman military presence of some sort is attested by finds of equipment, but no certain military structures are known, though a substantial early timber courtyard building beneath the later forum might have had military associations (Fulford *et al.* 2020, 570). Given that the Alchester fort only accommodated part of (more probably) the Second legion the presence of a further detachment of that legion at Silchester is possible.

In view of this early activity the direct dating evidence from Silchester itself relating to RR160c is indicative but inevitably not as precise as might be wished. Within the later Roman town the road forms the principal north-south axis, defining the west side of Insula IV (containing the forum) and also the east side of Insula IX, the subject of the most extensive recent excavations. The north-south/east-west street grid of Silchester succeeded lanes on a very different orientation and was not established until the Flavian period, but the two principal axes, including the line of RR160c, are suggested to have been laid out '*in the later 40s onwards*' (Fulford 2021, 76). Such an early date seems to be required by the regional context. More particularly, it is implied by the north-south alignment of the closely adjacent pre-forum 'courtyard building' mentioned above – regardless of the precise interpretation of the function of this building (e.g. Fulford 2021, 55-57) it is now dated to the mid-late 40s (ibid., 55), though the original assessment was of '*a Claudian date, perhaps in the later 40s rather than the 50s for the initial construction*' (Fulford and Timby 2000, 43). The early date for RR160c is also implied in relation to Insula IX (Fulford *et al.* 2020, 571), though the earliest extant surface here might be as late as early Flavian in date (ibid., 156-158). Equally the earliest road surface and a roadside gully at the north gate were dated to the late first/early second century (Fulford *et al.* 1997, 91), though the broad dating probably reflects the accumulation of material over time rather than the specific date of the inception of construction. Just to the north, pottery underlying the road recorded in a pipe trench was dated '*to the first half and middle of the first century A.D.*' and was considered to give '*a reasonably secure terminus post quem*' for the construction of the road (ibid., 158) and combined with the North Gate evidence indicated a (rather broad) date '*in the second half of the first century*' for the laying-out of the road (ibid., 161). Davies (2002, 148) reads this as a mid-first-century date for the road; he may well be right, but this is not strictly what Fulford said.

Parts of the southern course of RR160c north from Silchester towards Dorchester are not very clearly understood, but have been considerably clarified in lidar-based analysis by Hugh Toller (Watson 2017, 412-414). The generally accepted course of the road up to Dorchester lies consistently west of the Thames but an alternative route, running east of the Thames northward from a postulated crossing of the Thames near Pangbourne, has also been suggested (Davies 2018, 60). Further north, the line of the westerly route is clear enough beyond the Goring gap and then northwards to Dorchester (Malpas 1987, 23-26; Coombs 2011; but see further remarks below). The direct course of the road to Dorchester, if projected from the very straight alignment seen west of Wallingford near Brightwell-cum-Sotwell, would have run across the ridge extending east of Castle Hill and descended a fairly steep slope to the bank of the Thames at a point very close to its confluence with the Thame. (. 6) This was clearly a highly unsuitable option on topographical grounds. Instead, therefore, on cresting the rise just north of Brightwell-cum-Sotwell the road turned to the NNE and crossed the Thames above Shillingford, perhaps by way of a ford (Margary 1973, 165; Grayson 2010, 6), documented in a Saxon charter as 'old street ford' (Grundy 1918, 133-134 – charter Birch 810/Kemble 1154). The documentary reference, however, need not tell us anything conclusive about the physical character of the Roman crossing (for which no direct evidence survives), and it is thought that important crossings of major rivers are more likely to have been achieved with bridges (e.g. Bishop 2014, 35). The NNE-aligned road was encountered south of the Thames at SU 58260 92071 during work on the Chalgrove to East Ilsley gas pipeline in 2003 and is described as a thin gravel surface 6.2m wide with no clear evidence for roadside ditches (Wilson 2008, 288). Work by Borders Archaeology in September 2023 in an area some 700-800m further NNE along this line produced no clear indications of the Roman road, but the trenches involved were rather short and absence is by no means conclusive. More broadly it can be noted that detection of roads on linear interventions (such as pipe trenches) does not always seem to be guaranteed, instances relevant in the present case (south of Brightwell-cum-Sotwell) including an absence of references in work on pipelines from Cleeve to Didcot and Fyfield (Ford 1990; Hart *et al.* 2012); while concealment beneath modern features can be an explanation this is not always made clear (Timby *et al.* 2005, 208 is a partial exception). Near Cholsey, Catherall et. al (1984, 47) note the absence of evidence for the road at the expected point, but the linear features which they suggest as possibly relevant are not convincing as indicating a different alignment.

About 150m beyond the Thames crossing the road turned through slightly more than a right angle to approach Dorchester from the south-east. This junction may have been a crossroads, with the NNE-ward alignment carried beyond this point, perhaps as the start of a road (RR173a) to a settlement on Akeman Street at Fleet Marston (Malpas 1987, 26-29; for Fleet Marston see Biddulph *et al.* 2019, and Biddulph 2023 on more recent work for HS2). The somewhat hypothetical RR160cc, on a WNW-ESE alignment heading towards Henley and perhaps beyond, might perhaps have had its starting point at the same junction. Recent (unpublished) work by Oxford Archaeology at Hale Road, Benson has located part of a surface and a potential roadside ditch at a point 3km east of the putative crossroads and in a location approximately consistent with the ESE alignment from that feature.

From the probable crossroads the approach of RR160c to Dorchester from the south-east was conclusively identified in the Meadside area on a geophysical survey carried out in 2010 (Ainslie 2021) (Fig. 7). This confirms that having crossed the Thames the Roman road headed to a crossing point of the Thame close to that of the location of the medieval bridge (as suggested for example by Frere 1962, 115 fig. 1), rather than the current Thame crossing, which was built in 1813-1815 (Bond 1985). The slightly more northerly line of this particular stretch of road suggested by Hargreaves *et al.* (1978) and also by Malpas (1987, 27, fig. 3, 33) and subsequently widely used is clearly incorrect. A notable



Figure 6. Principal road alignments in the vicinity of Dorchester. Base OS mapping © Crown Copyright, AL 100005569.

feature of the geophysical survey is a previously unsuspected road running east-north-eastwards from the line of RR160c defined by ditches roughly 16-18m apart. This can be traced for at least 500m from the point of junction with RR160c. The role of this road within the settlement complex is unclear but its width suggests that this is more than just a minor lane; perhaps it simply served as a short-cut between RR160c leaving Dorchester towards the south-east and the northward line of RR173a (see Fig. 6).

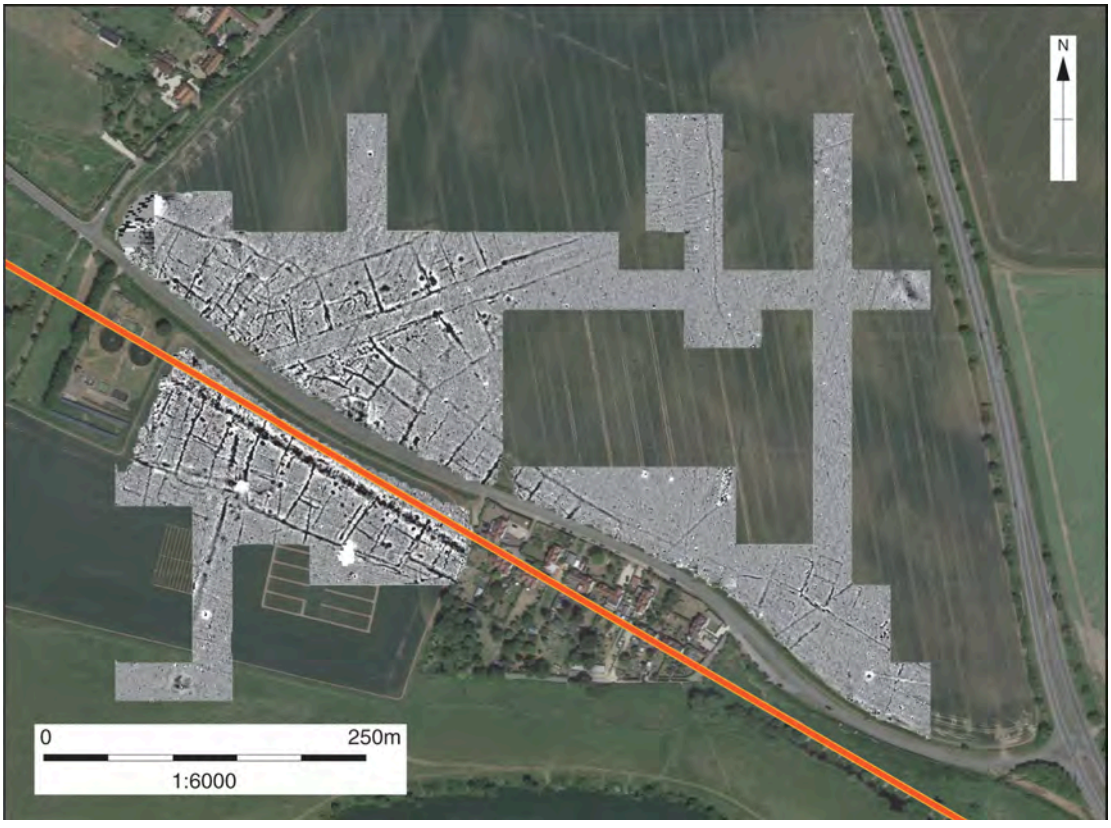


Figure 7. Detail of geophysical survey south-east of Dorchester at Overy/Meadside, showing north-west route of RR160c (in red) from near the crossing of the Thames, with a subsidiary road/track and roadside plots. For location see Fig. 6. Survey by Abingdon Archaeological Geophysics, 2010. Original image from GoogleEarth 12/2010, image © 2023 Getmapping plc.

Once across the Thame the course of RR160c in Dorchester is obscured by later buildings, but there are hints to its position. It is notable that there is a very slight but perceptible difference between the alignment of RR160c as it runs northward through Brightwell-cum-Sotwell (south of Dorchester) and the extant alignment of its continuation, RR160b, as it approaches Dorchester from the north, from Alchester. This is just one of a number of (mostly) minor adjustments to the broadly straight north-south line that connects Alchester and Silchester, adjustments that north of Dorchester represent responses to aspects of topography and drainage. At Dorchester the longer projected alignments, of RR160b from the north and RR160c from the south, neither of which referenced the Dyke Hills complex, intersect somewhere close to what would later be the south-east corner of the defences.

This location appears to correspond closely with the likely arrival point of the diverted road RR160c as revealed by the Meadside geophysical survey once it had crossed the Thames and Thame. Margary (1973, 165) realised that the basic alignments of RR160b and RR160c were continuous, but placed the incoming course of the diverted RR160c rather vaguely '*near the present bridge*' rather than close to the medieval bridge location. Identifying this point as the meeting of two relatively long alignments and one short one seems to be significant, but raises a number of questions. The most problematic aspect is in the location itself: it is relatively low lying and presumably not an ideal position for a survey point. In addition, at a later date the notional line of RR160b within the Roman settlement would have lain close and at a very oblique angle to that of the east side of the defences (see further below). If the road was ever constructed on that line it must have been significantly adjusted to accommodate the defences, and the exact configuration of its turn eastwards towards the crossing point of the Thame remains unknown (see Fig. 8 below). These are substantial but not necessarily insuperable difficulties. If this interpretation of the alignments of road RR160b/160c is accepted it explains some features of the axial north-south street through the settlement nucleus as revealed by Frere and in the DDP excavation. It is now clear that this was never a part of the main road alignment, as has tended to be generally assumed (though the distinction was made in a passing comment by Frere (1962, 121) who remarked that 'if produced northwards, this street [the axial north-south street] reaches the north gate *to intercept the Alchester road*.'; my italics; see also Frere 1962, 115 fig. 1).).

The Dorchester Fort and Internal Street Network

The axial street within the Dorchester settlement is of minor importance compared to the questions raised in relation to the main roads in the region, but it is not without interest. Its existence and likely significance were established in Frere's excavations in the allotments in 1962 and 1963, but with a focus on issues concerning the relationship of the street to the defences, to a number of roadside structures and to early military features; detailed questions of chronology were not given extensive treatment. Frere's conclusion, however, in the account of his 1963 Sites B and F, was that the street was '*probably laid down in the military period*' (Frere 1984, 113). The fort was considered to have been established in the aftermath of the rebellion of Boudica, with its terminal date perhaps in the late 80s (ibid. 105-106).

By contrast with the postulated course of the through road, the military features had roughly followed the more nearly north-south/east-west alignment of some of the late Iron Age and earliest Roman features. The DDP excavation partly overlapped with Frere's 1963 Site E, the area where he located military features. Further features of military character were identified within the DDP excavation. These were not primary in the DDP excavation sequence, and while dating evidence was scarce it is potentially consistent with Frere's suggestion that they perhaps related to a Boudican period foundation. Frere's proposed terminal date for the military phase potentially in the mid-late AD 80s, however, was ultimately based on analysis of the overall coin loss pattern from Frere's excavations by Richard Reece (1984) whereas the much larger assemblage from DDP suggests that on numismatic grounds there is no reason to date the end of the military phase later than *c* AD 80 (based on the known coin associations with military features), while associated pottery also appears to have an early Flavian emphasis.

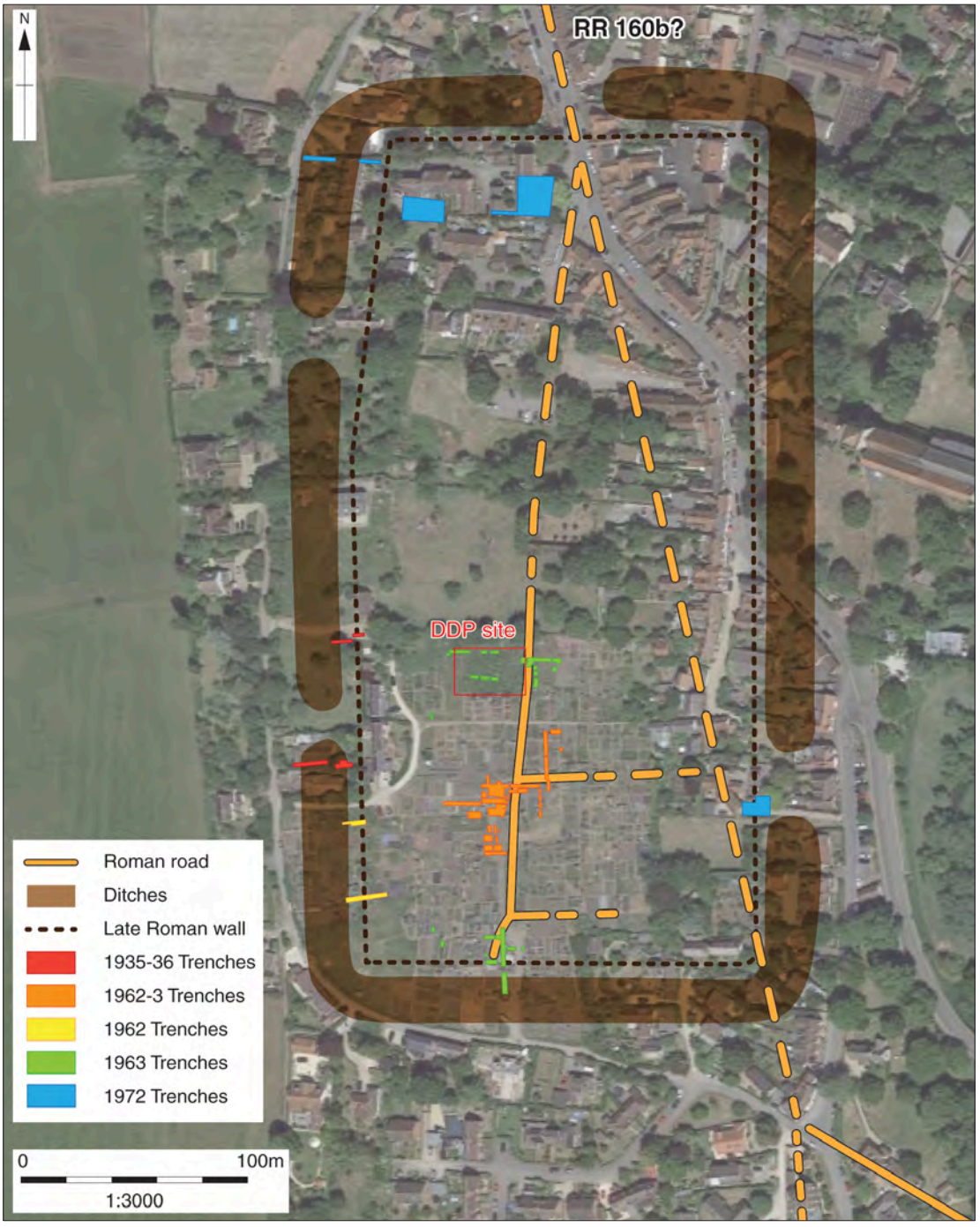


Figure 8. Dorchester: the defended area showing locations of excavated areas, main elements of internal road layout as currently understood and hypothetical alignments of RR160 in relation to the outline of the settlement defences. Original image from GoogleEarth 12/2010, image © 2023 Getmapping plc.

This is relevant to the axial street since in the DDP site levelling layers above the remains of demolished military-type structures were closely overlaid by gravel spreads relating to the primary form of the street; it is likely that road building commenced soon after the demolition (Fig. 9). The DDP site also included a series of very large pits occupying a north-south zone roughly parallel to the line of the road and set back approximately 10m from its western edge. Four pits in a northern group, of which three were dug sequentially, were from 2.75-3.85m across and ranged in depth from 1.35-2.0m. Their lower fills, at least, are consistently dated to the Flavian period, and in some cases specifically to the earlier Flavian. Each of the sequentially-dug pits must have been fairly substantially filled before its successor was dug, but the similarity of dating suggests that infilling was rapid. South of these pits was a larger roughly oval pit or pit group, up to 6.5m north-south by 3.5m east-west and again up to 2.0m deep. Although its primary fills were probably also of later 1st-century date the overall sequence of filling of this feature took place over a much longer period.

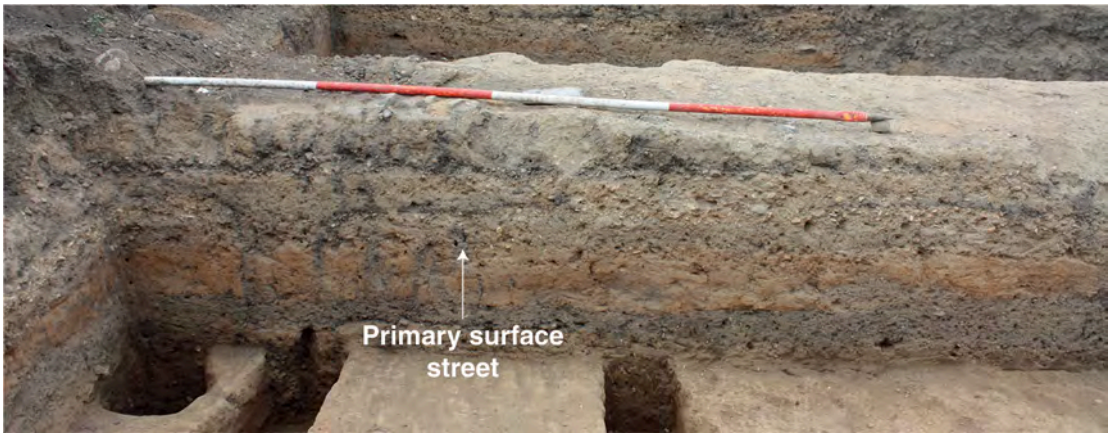


Figure 9. Dorchester, early military features at base of sequence overlaid by destruction and levelling deposits with axial street surfaces above. Dorchester Allotments excavation 2018, view south.

The depth of these pits strongly suggests that they were dug for extraction of natural materials, both gravel and the overlying brickearth, the latter potentially for use in clay or cob walling or as infilling in timber framed structures. The principal use of the gravel is likely to have been for the construction of the street close by to the east; a very rough estimate suggests that these pits might have yielded about 48 cubic metres of gravel. This would have been sufficient to surface almost a 70m length of 7m-wide street (based on the street width recorded further south, e.g. Frere 1962, 120, fig. 5; only the western half of the street was revealed in the DDP site) to a notional depth of about 0.10m and would thus have made a substantial contribution to the primary construction of the street. Additional material could have come from further pits in Frere's excavation (Frere 1962, fig. 4; 1984, 108-9, 121, 124 fig. 19, 127 fig. 21).

The evidence of the likely quarry pits is thus consistent with the stratigraphic record for the axial street itself in suggesting that the first surface of the latter was probably not laid before *c* AD 80. There may have been local variation in the details of street construction. In Frere's Site B, '*The earliest metalling of the north-south street ... was c. 6 in. (0.15 m) thick and was probably laid down in the military period. It lay directly on the natural brickearth, from which the topsoil had been stripped.*' (Frere 1984, 113). This

situation apparently contrasts markedly with the evidence from the DDP site. Amongst possible explanations one is that this part of the street lay outside the fort and, if correctly interpreted by Frere, was perhaps earlier in date than in the form excavated in DDP, and built specifically in relation to the fort, though this seems unlikely. A second point concerns levels. In the recorded section on which Frere's observation was based (Frere 1984, 117, fig. 14 section D-E) the base of the street surface, and therefore the top of the 'natural brickearth', was at about 48.30-48.35m aOD. This is a good 0.30-0.35m higher than the level consistently recorded for brickearth in the DDP site. Given that Frere's section lay some 50m south of the DDP site such variation is of course possible (though it is notable that the level on the top of the first street surface was almost identical in the two locations), but in parts of the DDP site there were widespread redeposited layers (including some, perhaps not coincidentally, of early Flavian date) which could easily have been mistaken for the 'natural', particularly in a narrow intervention. Perhaps Frere's street was laid upon such a deposit.

Much of the detail of the subsequent development and continued use of the axial north-south street is irrelevant here but a few points are worthy of note. There was no clear evidence for a ditch at the western margin of the street (though limitations on the extent of excavation and the presence of later features mean that in the DDP site this absence is not completely certain). The earliest gravel surface in the DDP site incorporated two narrow parallel voids extending at least 2.3m westward from the east baulk of the site aligned east-west. These are likely to have been the positions of wooden planks forming the sides of a narrow drain running across the line of the street. The drain was relatively short-lived, being completely sealed by later compacted street surfaces (a fact that allowed the *in situ* decomposition of the drain sides without the consequent voids becoming infilled). There was considerable variation of detail in the sequences recorded in a series of sections along a 12m length of the street in the DDP site, suggesting a rather piecemeal approach to construction and maintenance. Typically there were three principal surfaces, all of gravel, the overall sequence of surfaces and makeup layers ranging from *c* 0.45-0.55m in depth. It is likely that localised patching was a frequent occurrence. The latest surface has a *terminus post quem* of 388-402 (more likely 388-395) provided by a coin from its immediately underlying makeup layer. The street would presumably have been in continuous use from the time of its construction through to the end of the Roman period, and arguably beyond.

As already noted, it is assumed that the axial street extended through the northern part of the settlement to a junction with the line of the through road. This assumption is entirely reasonable, but it is important to note that at the most northerly point where the 'street' has been located it takes the form of a much more extensive spread of gravel, (see e.g. Frere 1984, 94 fig. 2). The western edge of the 'street', on the projected alignment, was traced through the DDP site, but the evidence of Frere's Site E trenches to the east suggests that gravelled surfaces, although possibly discontinuous, extended up to at least *c* 20m eastward from that line. Further north, gravel surfaces seem to have covered an area at least *c* 35m east-west, with a possible kerb on the western edge, which here lay west of the line of the street as seen in the DDP site and further south. Gravel surfaces more extensive than the likely width of the street were estimated by Frere (1984, 100) to have a north-south measurement of at least 37.5m. Interpretation of this area as a likely market place is plausible (e.g. Burnham and Wacher 1990, 120). It is uncertain whether the sequence and life-span of the 'market place' surfaces were comparable to those of the 'street'; though survival of the open area throughout the Roman period is implied. This would be consistent with the evidence from the 'street' sequence as seen in the DDP site, where continuity of use throughout the Roman period seems certain. Overall, it is most likely that the street simply ran through the 'market place' and beyond it up to the

postulated junction with the through road, but since this junction could have been some 200m distant there is much room for uncertainty; the line is therefore shown as such on Fig. 8.

Frere was concerned about his failure to find evidence for a gate at the southern end of the axial street where it met the southern side of the defences, the first (earthwork) phase of which can be assigned a *terminus post quem* of AD 160 on pottery evidence. It is likely, but not certain, that the axial street had originally continued south of the line of the defences; it is more certain that there is no trace of an opening in the rampart in this area. If the street was just an element of the internal layout of the settlement, albeit the most important one, it might have been considered expendable when it came to the construction of a defensive circuit, in a way that a through road could not have been. It is also likely that this street alignment had been more significant in its southern part in the early Roman period, perhaps providing a line of access to the Dyke Hills area, and was therefore of much reduced if not minimal importance by the second half of the 2nd century when the first (earthwork) defences were built, by which time the Dyke Hills complex was probably long out of use, but this is more speculative.

Apart from uncertain indications of east-west metalling in the area where the axial street met the line of the southern defences there is only evidence for one further street within the settlement, although this must reflect the overall paucity of excavation. A road ran east from the axial street from a point just north of the location in Frere's Site B mentioned above. Where examined in Site G this street was at least 2.28m wide and had three successive surfaces. The earliest of these overlay deposits which suggested a date of *c* AD 115-130 for its construction (Frere 1984, 107). The road was only traced for some 15m east of the axial street and its extent beyond this point is unknown, but its further line might be indicated by a likely (later) gate position in the eastern defences. This was located in a 1972 excavation behind the Old Castle Inn. Here a very large feature intruding into the south side of the excavation (Bradley 1978, 20-21, phase 4 feature 88, note that Bradley's plan has north at the bottom) might have been the northern terminal of the defensive ditch just outside a gate and therefore adjacent to a road at this point (Henig and Booth 2000, 59, 61). In parentheses it should be noted that the location of the east side of Dorchester's defensive circuit has been debated (e.g. Hogg and Stevens 1937, 44-45; Aston 1974, 4; Rowley 1985, 24; Rodwell 2009, 18-20), but there is no real reason to doubt the general line as shown for example by Hogg and Stevens (1937, 43), though their indicated 'gate' locations are much less certain and some of the detail of the east side can be regarded as uncertain. While their relative chronology is unknown, the roughly west-east side street seen in Frere's Sites B and G might have been aligned on the potential gate position seen in Bradley's excavation (or alternatively, have been on an alignment that subsequently helped determine the location of the latter). Furthermore, beyond the defences it is notable that the south-west projected alignment of a trackway identified on aerial photographs some distance to the north-east of the village coming from the direction of Queenford Farm could have run precisely to this location (e.g. Henig and Booth 2000, 60, fig. 3.4), but too much of the line of this feature is lost in the area north of and adjacent to the Abbey for this to be certain.

In summary, the locations of a north and perhaps an east gate at Dorchester can be suggested with varying degrees of confidence, with clear relevance for the position of roads but not necessarily for their primary alignments. The existence of other gates might reasonably be expected but the present lack of evidence leaves several unresolved questions. Most obvious is the question of the alignment of RR160c from the ESE once it had crossed the Thame. Did it turn north at the point of junction of the projected ideal line from Brightwell-cum-Sotwell with the projected line of RR160b from the north (as

described above), or was its WNW line continued further before turning north through what would later be the heart of the nucleated settlement, or did it follow some other course? Similarly, was the line of RR160b from the north simply projected through the area of the later settlement core, or was it modified in some way? Fig. 8 makes it clear that the imposition of a defensive circuit, not before *c* AD 160 at the earliest, renders this alignment completely unviable and would have required significant adjustments to the through road routes, but what form did these take? In an earlier period none of the principal alignments of RR160b or RR160c is reflected in the orientation of the Neronian-early Flavian military features, leaving questions of their spatial relationships (and perhaps chronological ones too, though primacy for the principal road lines is assumed) completely unresolved.

General Discussion

The broad courses of the two principal Roman roads in the region, Akeman Street (RR16a/16b) and the Alchester-Silchester road (RR160b/160c) are clear, but recent work has refined understanding of the routes of both. At the same time the complexity of the detailed evolution of these routes through time has been underlined, especially in relation to the two major sites with which they were connected. Both of these saw early Roman military occupation, that at Alchester being of particular importance because of its scale and initial Conquest-period chronology.

The dating of the roads themselves lacks precision, and arguments about a sequence of development based on strategic military considerations are inevitably speculative (wider consideration of the socio-political context of the early development of these roads is beyond the scope of this paper, see inter alia Copeland 2009; Entwistle 2019, 48-75; 2022, 55-60; Hingley 2022, 66-107). The time lag between establishment of a surveyed line and completion of a surfaced road may also have been variable depending on a variety of circumstances. Some chronological fixed points are provided by the occupation sequences at both Alchester and Dorchester. At the former, a substantial garrison was in place, on what may have been largely a greenfield site, by AD 45 at the latest (and probably earlier) while the associated Akeman Street may have initially been routed into/through the fort prior to the establishment of a 'bypass' road. At Dorchester, the major late Iron Age centre of Dyke Hills was bypassed, but obviously referenced, by the north-south road, the course of which may have directly impacted unenclosed settlement contemporary with and north of the Dyke Hills complex. Neronian-early Flavian military features in the same area must have lain very close to the through route of RR160b/160c, whatever the precise line that this took in what became the core of the subsequent nucleated settlement.

At the south end of RR160c Silchester was already a major settlement before the Conquest period and was accessed directly by that road. In view of the strategic importance of both Alchester and Silchester a very early date might be expected for the establishment of a direct road line between them. This seems to be borne out by the material associated with the 'East Otmoor road' discussed above, and is supported at Silchester by the association of the alignment of RR160c with the 'courtyard building', perhaps of the later AD 40s.

Silchester is thought to have been a significant focus for the network of Roman roads in southern England west of London perhaps from as early as the mid AD 40s (Fulford *et al.* 2020, 7). Alchester was arguably another key road junction by the same period, as discussed above, though despite its evident

importance, it (and Akeman Street) never appeared in any of the known routes of the Antonine Itinerary, whereas Silchester features in four – as the terminal point in three cases (ibid.; Rivet and Smith 1979, 166-7, 175-180, Itinera VII and XIII-XV; Davies 2002, 20 fig. 5 for a convenient graphical representation). Perhaps the particular importance of Akeman Street in the Conquest period was not sustained. While remaining a significant through road it had no special long term strategic significance resulting in incorporation within the Itineraries. This suggestion may be supported by the apparent absence of Alchester from name lists such as the Ravenna Cosmography (an identification with *Alauna* has occasionally been proposed, but this seems much more likely to be Alcester in Warwickshire; Rivet and Smith 1979, 244).

Questions remain about the early stages of the Alchester to Silchester road. Which 'end' was the starting point for the purposes of surveying the route? Given that both were important places by *c* AD 45, either is possible. As with the case of Akeman Street and the Alchester fort the fact that the road did not head directly to the intermediate Dyke Hills complex, though this could have been easily achieved from the north (in fact a direct southward projection of the north-south line across Otmoor from the south gate of Alchester would have run into the western part of the Dyke Hills complex, but it is not clear if this was at all significant) is probably to be explained in terms of topographical factors; it was close enough to allow ready access. It is indeed possible that the Dyke Hills complex had already been abandoned, or cleared by the Roman army, by the time that the road was built, but it is perhaps unlikely that this would have been the case when the route was surveyed, unless such clearance took place immediately in AD 43 or 44.

Although both Akeman Street and RR160c/160b must have been early roads the question of their relative chronology remains open. There is no indication that either formed part of a LDA (though see above for RR160a, the continuation of RR160 north of Alchester, possibly predating both the other roads). One sequential relationship that is fairly clear and potentially relevant, however, is that between the western end of Akeman Street and the Fosse Way at Cirencester, the latter being part of an early LDA (see above). Although the complex arrangement of roads around Cirencester has proved difficult to disentangle (e.g. Hargreaves 1998; Davies 2002, 146-147; Reece 2003; Holbrook 2008, 308-310; Entwistle 2021) the identification of the Leicester-Cirencester LDA should indicate primacy for the Fosse Way in this sequence, at least as far as establishment of surveyed lines was concerned, regardless of the sequence of later adjustments to the surviving roads. On this basis, the line of Akeman Street at Cirencester must have been secondary to that of the Fosse Way, though this leaves open the question of whether Akeman Street was surveyed as a single operation or in multiple stages. Copeland (2009, 83, 98) has suggested that the section of Akeman Street west of Alchester was later in date than the *Verulamium* to Alchester section. On slightly different criteria this suggestion has been adopted in the projected development scheme set out above, although in absolute terms the gap was probably very short.

John Blair (2020) has suggested that the development of Akeman Street west of Alchester was more complicated than has been thought, proposing evidence for two approximately parallel alignments over a distance of some 23km mainly between the rivers Glyme and Windrush, with the more southerly of the two lines, which he terms the 'lost road', closely related to a postulated 'surveyed baseline' of this part of Akeman Street (Blair 2020, 47; this road has been accepted as 'probable' and assigned the number RR16aa(x) (Armstrong 2021, 378)). Just east of the Glyme, Blair identifies the roadside settlement of Sansom's Platt as the place where the two road lines diverge, but the road layout in this settlement has been shown in recent geophysical survey by Magnitude Surveys (2022)

to be more complex than previously appreciated, to an extent that calls the argument about the divergence of the roads here into question. Rather than placing the eastern end of Blair's proposed 'baseline' at Sansom's Platt it might be better seen to lie slightly further east in the vicinity of Sturdy's Castle (c SP 4625 1935), the location of a very slight change in the developed line of Akeman Street. The relative chronology of these roads, which may have been in contemporary use over an extended period, is unclear, but Blair suggests that the 'lost road' may have been the primary course of the road, albeit that the more commonly accepted line was clearly established well before the end of the 1st century AD (Blair 2020, 64).

This body of evidence adds nothing substantive to the discussion of the date of Akeman Street west of Alchester vis-à-vis its eastern section. Identification of the possible function of the road may not help either. An old idea, still occasionally referenced, that it may have formed a frontier in the early Conquest period can be disregarded (e.g. Henig and Booth 2000, 35; Ainslie 2005; Copeland 2009, 95; Blair 2020, 47; with regard to the last of these (see Blair's fn 11) the present writer never thought this hypothesis likely, but it was accepted by his co-author! See Henig and Booth 2000, 47, fn 6). Davies (2002, 117, fig. 55) mapped Akeman Street as a 'penetration road' and both RR160 and the Fosse Way between Leicester and Cirencester as 'territory-holding roads', by definition built a little later. The identification of the Fosse Way and RR160a as elements of LDA of primary character would appear to invalidate this characterisation of Akeman Street.

As so often happens, the accumulation of new evidence, has raised more questions than it answers. At Alchester questions remain about the evolution of the line of Akeman Street and about its relationship to RR160, particularly just north of the main settlement focus, though the development scheme presented above attempts to make the best use of the evidence currently available. Clarification of the significance of the 'Fringford to Littlecote' LDA will be important here. At Dorchester the outstanding questions are of a more local nature, principally concerning the details of the alignments of the different elements of RR160 within the area of the Roman settlement and how these must have changed through time, particularly in response to the construction of defences in the later 2nd century AD. These are questions that can be addressed primarily only with more data from excavation.

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The Network of Local Roman Roads Centred on the Glynde River Crossings in East Sussex

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Abstract

The area of the South Downs which includes the tidal rivers the Sussex Ouse and the tributary called the Glynde Reach was extensively studied by Margary in the 1930s after his remarkable discovery of the Roman road which he called the London to Lewes road. In particular, he described two crossings of the Glynde Reach. He called these the South Ford and the South-east Ford. Connecting to these crossings, he described a network of Roman roads stretching over the Downs to the sea and east to Arlington and Pevensey. The nature of the fords is discussed and the status of the Roman roads that he described is accessed. Evidence for the nature of the suggested fords is considered. Previous discoveries and recent Roman finds are reviewed. In addition, the case for sea level rise in the third century will be made and its impact on the Roman road system considered. It will be shown that the lower Ouse valley was a thriving iron industry, farming and trading centre from early in the 1st century and that this area developed without Roman military presence.

The Glynde River Crossings

The village of Glynde lies to the east of Lewes, the County Town of East Sussex. It is bounded to the south by the parish of Beddingham and to the south-east by West Firle. The southern boundary is formed by a tidal tributary of the Sussex Ouse called the Glynde Reach. The village lies on the eastern slopes of an isolated chalk downland outcrop called the Caburn Massif, which contains the Iron Age Caburn Hillfort and the apparently unfinished Ranscombe Camp. Glynde lies about 10km north of the English Channel at Seaford Bay and 2km north of the steep northern scarp of the main ridge of the South Downs (Fig. 1).

Two Roman roads are believed to have crossed the Glynde Reach in a north-west to south-east direction. They had separate river crossings some 500m apart. These crossings were first identified by Allcroft (1915, 200-232). He published a map of the Glynde fords and connecting roads (Fig. 2).

Margary (1933, 17-44) identified what he called, "A New Roman Road to the Coast" (RR14). He subsequently published an account of the Roman roads in the Glynde area (Margary 1939, 29-61). In the Roman period, the Reach would have been a wide muddy inlet covered in water at high tide. He described both of the crossings as fords and revised Allcroft's map. Margary (1939, 52) shows a new

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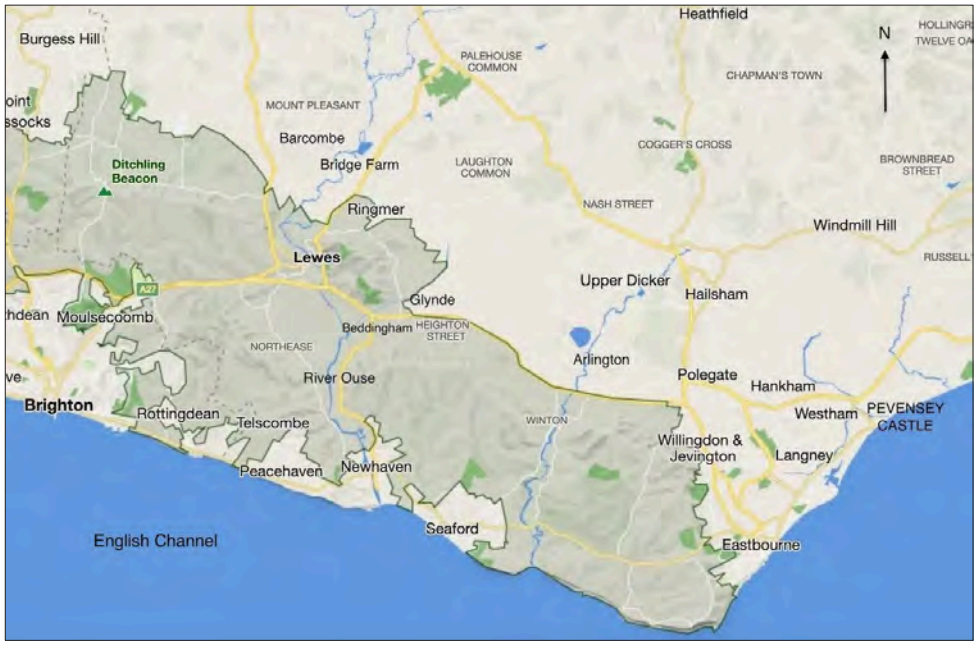


Figure 1. East Sussex between Brighton and Pevensey showing the river valleys of the Ouse and Cuckmere. © OpenStreetMap Contributors 2020, made available here under the Open Database License (ODbL) v1.0

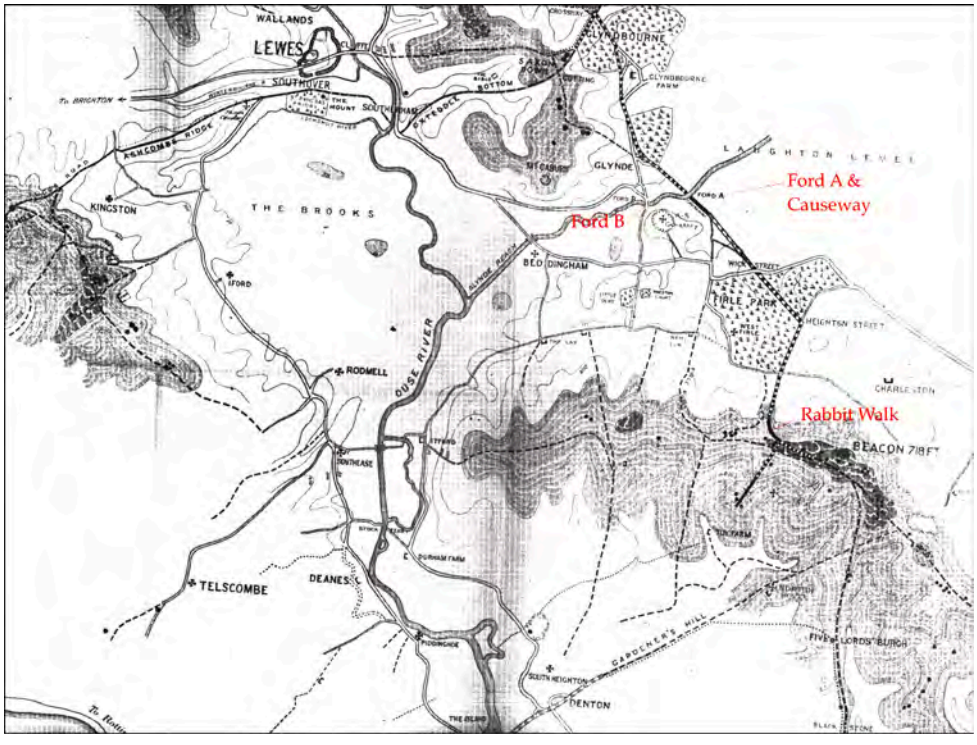


Figure 2. Allcroft's (1915) map of the Glynde Fords and supposed Roman Roads.

map of the Glynde crossings (Fig. 3). He named the two crossings the South Ford and the South-east Ford. The reason for the existence of two substantial engineered river crossings so close together was not and never has been satisfactorily explained. Although he gave details of two Roman roads which used these crossings, he did not specify which one was used by which road. The present paper reviews the evidence for these supposedly Roman roads and their associated river crossings. A suggestion is made about how changes in sea level in the 3rd century can have affected tidal estuaries like the Sussex Ouse and caused the road network to be modified. The roads connecting to the crossings are reviewed and re-interpreted in the light of discoveries made since Margary wrote. In particular it will be proposed that the so-called South-east ford was, in fact, a bridge.

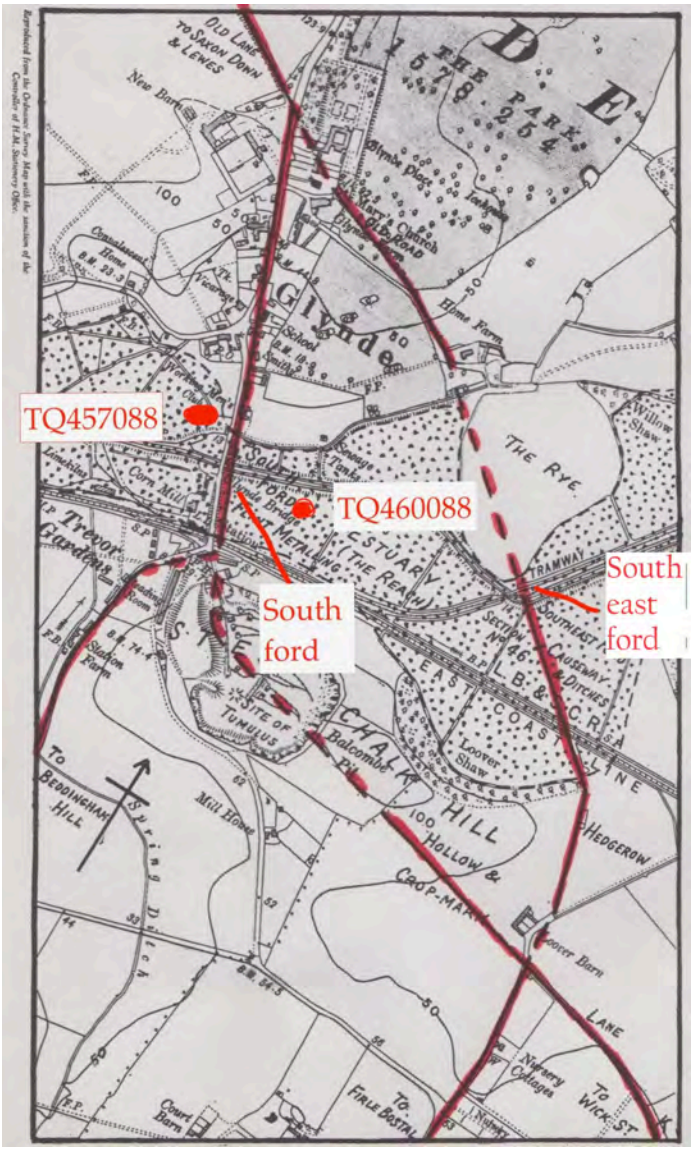


Figure 3. Margary (1939,52) map of the Glynde Crossings.

The South Ford

The South Ford (Ford B) lies directly south of the village of Glynde and, according to reports made in the late 18th century, was composed of a substantial stone roadway. The stones which formed the carriageway for the South Ford were deliberately removed at the end of the 18th century. An account of the removal comes from the notes of the volume of parish memoranda compiled by the Glynde carpenter William Wisdom (1756-1843) (Lusted, 1992). In Horsfield (1828, footnote p.114) an account is given of the removal of the stones based on the written report of an important gentleman, but without giving his name. This account appears to be based on the original notes of Mr. Wisdom. This has been confirmed by Andrew Lusted (pers. comm. 2020) who has inspected Wisdom's notes in the Glynde Place archive. The account as given by Horsfield is as follows.

> *'The road crossing the marsh at Glynde Bridge, was discovered in making a new cut across two brooks, a little eastward of the bridge, in 1794. It was 2 1/2 ft under the surface, 30 feet wide and covered with large flints about two feet thick with here and there a sand stone. I measured the work and remember paying the men something extra for removing 15 tons of flint from the road. There were no piles near it, but at the other end of the brook, where there was no road, we discovered some. I found an Antoninus on the side of the road.'*

According to this account, the Ford was substantial work, 9m wide. In 1794 it was 0.76m below the river bed. The construction is similar to that of the Roman road uncovered at Arlington (Clutterbuck and Massey 2020, 87). Antoninus Pius (presumably the emperor meant in Horsfield's account) was Roman Emperor from AD 138 to 161. The finding of a coin of Antoninus suggests that the river crossing was in use in the mid 2nd century and it may be of late 1st or early 2nd century construction.

It may be significant that the description above does not call the stones part of a ford. It refers to a road. Roman fords are unusual but when they do occur, according to Chevallier (1989, 220, footnote 130), they are formed with rectangular stone blocks. This is seen in the known Roman ford on RR13 at Benenden, Kent (HER: TQ83 SW6), where the ford was composed of substantial stones between 125 and 175mm thick and measuring from 425 x 275mm up to 800 x 550mm. Many of these stones had been removed and re-used as building material. The report of the removal of the stones in Glynde does say '*here and there a sandstone*' which may be a reference to paving which had long since disappeared. The substantial road surface may have been a Roman road built across low lying tidal wetland.

The South-east 'Ford'

The crossing which Margary called the South-east Ford lies 500m east of the South Ford along the Glynde Reach. No traces of stonework or piles are known at this position, apart from the rather vague reference in the above quotation. But it is associated with a substantial causeway with side ditches, which are still visible (Margary 1948, 197). The causeway that he saw, was 30 feet (9m) wide with side ditches 130 feet (40m) apart. The causeway crosses an area of low-lying land to the south of the Glynde Reach in a south-easterly direction and is 300m long. The causeway does not connect with any known roads or trackways on the southern side. It does not align with medieval field boundaries.

Opposite the causeway on the north-western side of the river is a small hill called The Rye. On both sides of the river there was elevated ground, either naturally occurring or constructed. This suggests that this crossing took the form of a bridge. From The Rye a track leads north-westwards. It is aligned

with a hollow way, which climbs Caburn Down towards Lewes. It is doubtful if any evidence of bridge construction can now be found, as a mineral railway was built along the river bank in the 19th century when the river was straightened.

Roman Roads associated with the Glynde Crossings



Figure 4. The Roman Roads between Glynde and Arlington. The black lines are according to Margary while the red ones are recent discoveries. Base Map: Ordnance Survey web site.

The Iron Road, RR14

RR14 is a major road which Margary (1973, 59) named 'London – Lewes (44 miles)'. It was part of a very early plan for a network of roads radiating from London (Entwistle 2023, 89). The final alignment runs from the high ground at Camp Hill in the Ashdown Forest to Malling Down immediately north of Lewes. It was very likely that its original purpose was to make connection with the iron foundry sites of the Sussex Weald and the rich agricultural land of the greensand belt, the chalk downland and the sea. Although it did not connect directly with the Glynde Fords, it was central to the development of the economy of the South Downs area between the Ouse and Cuckmere rivers. South of Malling Hill, Margary suggested that it led via Downland trackways to the Glynde fords and a network of Roman roads further south to the coast. The object of this paper is to examine the evidence for this network (see Fig. 4).

Where Margary was able to identify the *agger* of RR14 in an undamaged form, he measured it to be 18 feet (6m) wide. However, when the road needed to climb a steep hill by a terrace-way, the width was reduced to 12 feet (4m) The usual road width for two vehicles to pass side by side was 18 feet (6m) according to Chevallier (1989, 66). Presumably terrace-ways were assumed to be suitable for one way operation of vehicles. This is pertinent to the terrace-ways on the Downs which are possibly Roman work.

Recent geophysical work and excavation at Bridge Farm near Barcombe Mills has revealed an important and previously unknown Roman settlement (Galloway, 2023). The geophysics suggested that the Iron Road apparently terminated there. There was evidence for another Roman road leaving the settlement in a south-eastern direction. This has been shown by geophysics and lidar to lead to Arlington via the Ripe Land Settlement. In addition, a previously unknown Roman road was discovered on the opposite western bank of the river together with a villa and an industrial area (Wallace 2022, 227-229).

The alignment point for the southern section of RR14 from Camp Hill is Malling Hill. A terrace-way exists on Malling Hill which Margary identified as Roman. It commences on the alignment and ends in line with the known Roman Road RR147 (see Fig. 5). Margary inspected the terrace-way and described it as 12 feet wide (3.6m) cut into the chalk without any metalling. He states that it is similar to the escarpment at Glatting Down, where Stane Street (RR15) climbs the Down above Bignor Roman villa (Margary 1933, 41). It is typical of Roman terrace-ways, which are cambered towards the outer edge, to avoid rainwater damage. They also tend to have a constant gradient and width. Mediaeval and modern terrace-ways do not, in general, have these regular features.

It is possible that RR14 was planned as far as Malling Down to link with the short section of road leading to the River Ouse (and a port?) at South Malling (RR147). The section of RR14 south of Bridge Farm, however, was not completed or was abandoned, possibly because of flooding. An alternative road on the west bank of the Ouse and on higher ground may then have been used as the alternative southern continuation of the Iron Road.

RR141 Newhaven-Selmeston-The Dicker (HER MES4816)

Margary (1973, 70-73) mapped this road from Meeching (modern Newhaven), where an extensive waterside site including a bath house was discovered in Newhaven town centre (see below). Substantial quantities of early period Roman ceramics have been found on Castle Hill, Newhaven (Hawkes 1939, 292).

The road crossed the Ouse at the island near to the waterfront buildings and continued on a straight north-easterly course. The route is followed by a downland track (see Fig. 4). About 2km from the river, a pipeline was constructed in a north south direction in 2008. Where the pipeline trench crossed the line of the supposed Roman road, an excavation trench was cut by Archaeology South-East through a 'wide linear feature'. The approximate position of this cut is shown on figure 13 by an X. According to the interim report (Grant 2008, 4), the fill was composed of '*...silty gravel...,potsherds, worked flints and iron dross/ore fragments....*'

It is difficult to suggest any period other than Roman when iron slag would have been introduced into the foundation of a downland track. Iron ore does not occur naturally on the South Downs. This

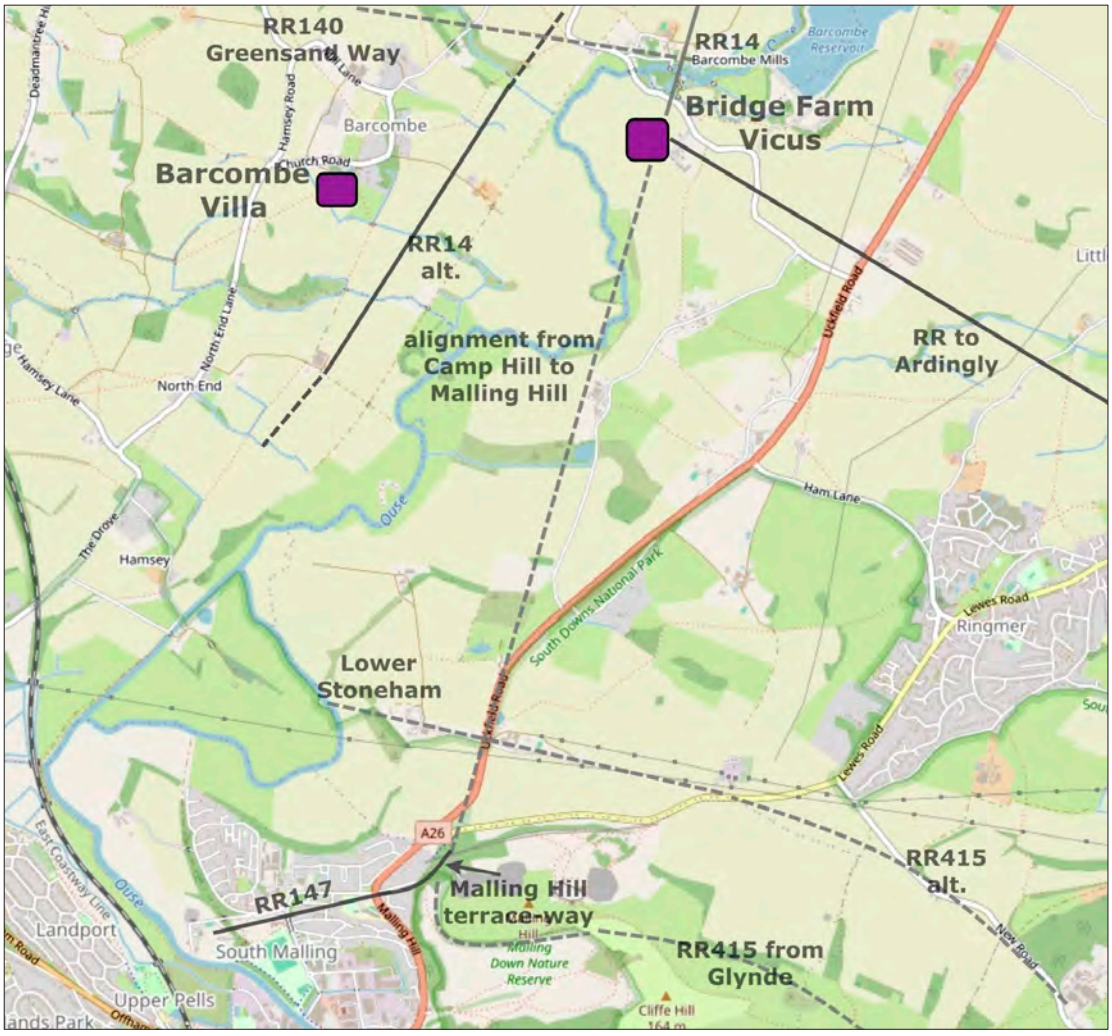


Figure 5. The roads of the Ouse valley between Bridge Farm and Malling Hill, Lewes. Map data © OpenStreetMap Contributors 2020, made available here under the Open Database License (ODbL) v1.0

appears to suggest that the downland track had been improved in Roman times by inserting a mixture of iron/cinder into the chalk bedrock.

Where it descended the northern escarpment quarrying has obliterated the route, but it is seen again in Selmeston where it forms the eastern boundary of the Ripe Land Settlement.

RR142 Pevensey-Polegate-Selmeston-Glynde (HER MES4753)

Margary (1939, 29-61) proposed that this road left the Glynde Fords in an easterly direction and ran via Selmeston and Arlington to Pevensey. The eastern section of this road between Arlington and



Figure 6. The Roman roads and Roman features around Arlington. Map data © OpenStreetMap Contributors 2020, made available here under the Open Database License (ODbL) v1.0

Pevensey has been identified and confirmed by excavation. The road does not follow exactly the line proposed by Margary (see Fig. 6). At Wilbees Farm, Arlington, a series of excavations have revealed the true course of the road, together with an early roadside settlement and a possible villa. For a summary of the various excavations at Wilbees Farm, east of the River Cuckmere, see Clutterbuck and Massey (2020, 71-106). The Roman road as revealed by excavation was 10m wide. When the Arlington reservoir was being constructed, evidence of industrial activity including pottery kilns was discovered near Pohills Farm (Holden 1979, 63-84; 1985, 85-94). This site of Roman occupation is now covered by the reservoir. The position of the crossing point of the River Cuckmere is now suspected to be south-east of Pohills Farm, based on projecting the known alignment in a westerly direction.

West of Pohills Farm, it is believed that the road divided with a north-west branch heading towards the Ripe centuriation. This road leads towards the Bridge Farm, Barcombe Mills Roman settlement and has been traced by geophysics (MES17111).

The other branch would be Margary's road RR142 which led to the east via Stonery Farm. He reported that in the field to the west of Berwick railway station there was a wide *agger* with a hollow or ditch on either side. At this point he cut a section through the roadway (Margary 1939, 58, section 44) and found a shallow layer of road metal 15 feet (5m) wide with a hollow on both sides, but a resistivity survey of the field to east of the railway station, found no sign of the road to Glynde (Chuter 2007, 21). However, Chuter (2007, 12) reported a sighting of a 10m wide *agger*-like earthwork with a flint metalled surface aligned in an east-west direction at Ludlay Farm (TQ 5210 0760). This find is not on a known or projected route of a road from Arlington to the Ouse Valley (see Fig. 6).

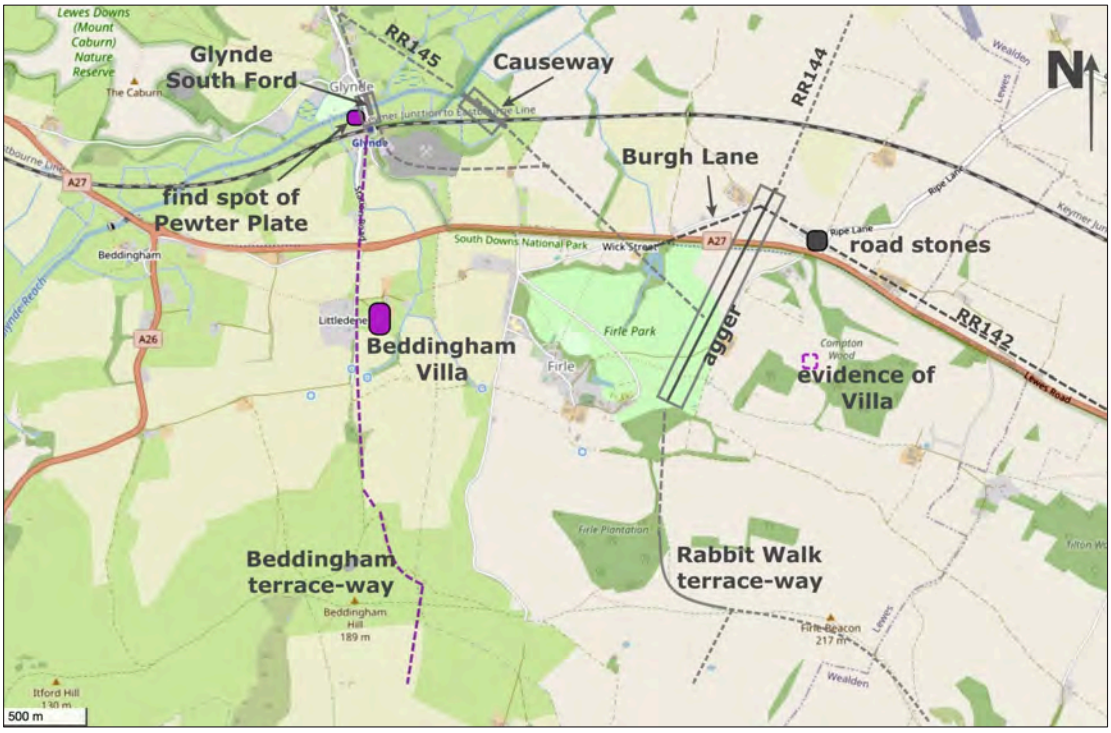


Figure 7. Margary's roads south of the Glynde crossings. Map data © OpenStreetMap Contributors 2020, made available here under the Open Database License (ODbL) v1.0

Further east, nearer to Glynde, Margary (1948, 192) showed, on a 6 inch map, a flint layer in a bank at Stamford Buildings. Further, he reported that a 'member' (presumably of the Sussex Archaeological Society) had found a flint layer buried beneath a drainage ditch, a little to the west of the Stamford Buildings at TQ 4825 0825 (Margary 1967, 281).

At Firle, Margary (1948, 195) suggests that the road makes a pronounced turn to the south-west following the line of a by-way called Burgh Lane (see Fig. 7) to Wick Street, where it would meet RR145. The name 'burgh' often indicates a fortification. There is no evidence of any known fortification here in the Roman period. Burgh Lane suggests the possibility of a mediaeval boundary embankment. A nearby lost village is called Croteberge. The Mount Caburn hillfort, which overlooks Glynde and Firle, was re-fortified as an Adulterine Castle (one built without royal permission) in the 12th century (MES 1456). If Burgh Lane refers to a 12th-century fortification, there is no reason to suggest that the Roman road followed that line. If an eastbound connection existed from Arlington to Glynde, its alignment is not certain.

RR144 Seaford - Firle Beacon (the Rabbit Walk) - Heighton Street - Ripe

There is extensive evidence of an early Roman settlement in Seaford (Gerard Smith 1939, 293-305) and evidence of habitation along the coast to the west towards Bishopstone and Newhaven. An early period Roman cemetery was excavated at Fitzgerald Avenue, Seaford by Pitt-Rivers in 1876. A large

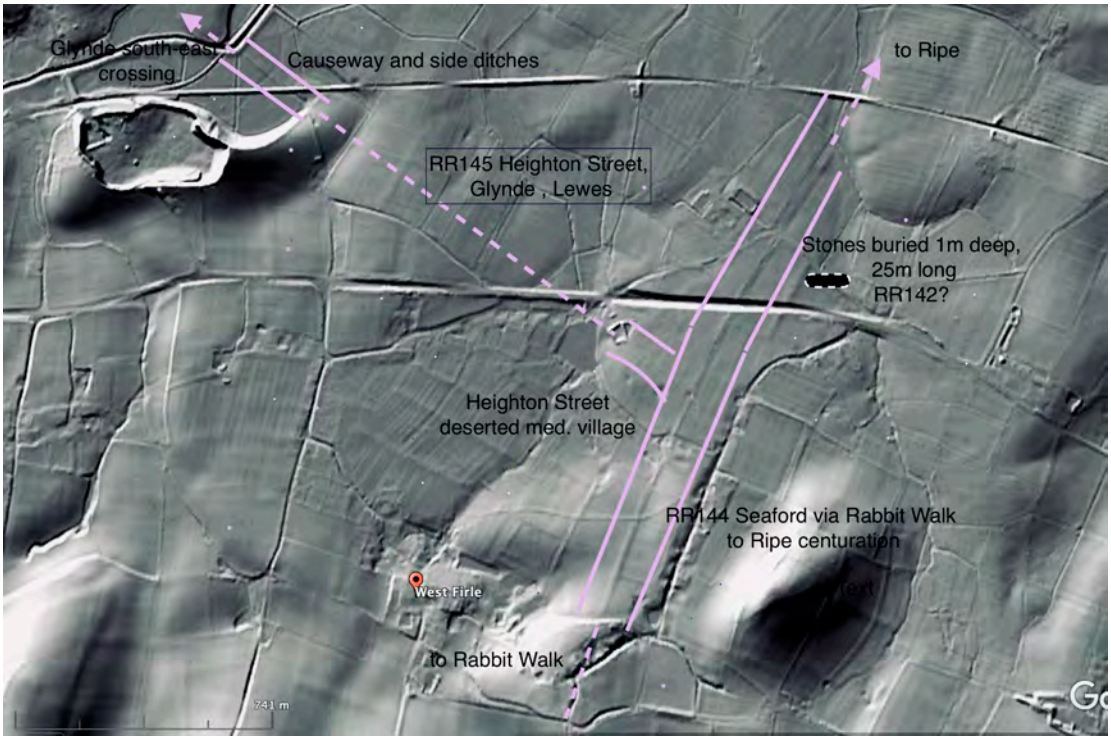


Figure 8. lidar image of the Roman Road in Firle Park. Base Lidar data © Environment Agency copyright and/or database right 2020. All rights reserved

quantity of Romano-British sherds and Samian ware was found (Hawkes 1939, 269-292). The settlement itself is not known and the area has now been subject to extensive development.

It is highly probable that Seaford was connected to the national Roman road network. Margary (1948, 193-196) proposed a road, which followed a downland track northward. He suggested that the downland track connected to the top of the terrace-way which is called the Rabbit Walk. Margary's map (Margary 1948, 195) shows the road proceeding northwards across Firle Park with labels stating '*Agger* along hedgerow with Flint Metalling'. In Firle Park the *agger* is clearly visible. The lidar image (figure 8) shows that the *agger,* allocated the number RR144 by Margary, continued north-eastwards outside the park boundary and beyond Burgh Lane in the direction of Mark Cross on the western edge of the Ripe centuriation. At Mark Cross considerable finds of ceramic sherds and Roman tiles have been found suggesting a possible Roman villa (MES4506).

There is further evidence of Roman roads in the Seaford area. A report was made of metalling being found at TV 476 997 (MES1707) and on the same alignment as at TV 482 999. This might suggest a Roman road along the coast between Seaford and Bishopstone. These sites have now been built over.

RR145 Heighton Street- Glynde-Lewes

Margary (1948, 196-198), describes this road as a branch of RR144 (see Fig. 8). It starts at the abandoned medieval village of Heighton St. Clere in Firle Park, passes Wick Street and crosses the



Figure 9. a coin of Empress Faustina (reign 161-180), one of a number of Roman coins found by metal detectorists at Lower Stoneham in 2003.

Glynde Reach by the two crossings: Margary does not specify which one of the two. According to Margary (1973, 72), north of the Glynde Reach RR145 goes to Lewes (where evidence of Roman occupation is known; Bleach (1997, 131-142), follows a sunken lane from Glynde Place in a north-west direction, and proceeds over the Caburn Massif. However, it is more likely that it led to Malling Down rather than Lewes. The old sunken lane referred to by Margary is a deeply hollowed way, which in early modern times served a chalk pit. After 450m the hollow way bends sharply to the left. At this point there is a disused ramp going straight ahead into the grass downland. On the same line, after another 200m, there is a terrace-way curving around the head of a valley called Glynde Holt. The 1947 1:25,000 O.S. map shows this track continuing in the direction of the summit of Malling Down, which is the sighting point for the final alignment of RR14 from Camp Hill (see Fig 5).

Margary (1948, 197) suggested that at a later date, another road around the north of the Caburn Massif was probable (see Fig. 4). This alternative route starts at the South Ford and follows approximately the present road past Glynde Place but some 100m east. At a point north of Glynde Place, the modern road bends sharply to the right. Here the possible Roman road continues straight ahead, until it reaches a steep downward hill slope that is descended by a zig-zag which is shown in the 18th-century Tithe Map of Glynde. When the road crosses the ridge and descends to flat land it is marked by a line of hedgerows and trackways to Lower Stoneham on the River Ouse north of Lewes. Numerous early Roman finds, including Republican coins, have been collected at Lower Stoneham by metal detectorists (see Fig. 9).

Malling Down to South Malling RR147

This short section of Roman road runs from Malling Down on an alignment which continues that of the south-western end of the Malling Down terrace-way, see Figure 5 (Norris 1956, 10-12). It leads towards the River Ouse near the site of South Malling church. It was traced in a school playing field to the west of Malling Hill and according to the excavtors accounts was seen when the foundations were prepared for a block of flats at The Martlets, Lewes. Twenty meters south of the metalled road, Norris excavated a group of Roman-British cremation burials which contained a variety of coarse wares and Samian forms. These were catalogued and deposited with the Barbican House Museum in Lewes. In the road surface and in the neighbouring ditch were two early Saxon burials with an iron knife and gilt bronze saucer similar to the ones found at Alfriston. The road is securely dated to the Roman period, as a Saxon burial was inserted into the carriageway, presumably after it had gone out

of use. Its alignment with the terrace-way on Malling Down is evidence that the terrace-way also reflects Roman engineering. It may have connected to a port on the River Ouse at South Malling.

Top of Rabbit Walk to Lords Burgh.

Hadrian Allcroft found traces of a metalled road on the downland at a group of round barrows called Lord's Burghs at Toy Farm. The road he described, runs south-east from the top of the Rabbit Walk (Allcroft 1915, 200-232). He excavated at the southernmost of the burghs and described the finds as follows:

> *'The Agger now turf grown of a Roman Road of the first class overlies the southerly of these [tumuli]. From this point it is intact for a distance of 230 paces, running in a line 27^0 east of north, perfectly smooth except where the material has been grubbed in parts... The relief is 12 inches, the crown 25feet in width....The road was built of smallish flints laid to a depth of 12 to 15 inches upon a bed of chalk rubble....when the turf was removed were found scraps of common Romano-British pottery.....'*

Margary (1948, 195) included a description of this road, but omitted it in his later work. There is no doubt that he was sceptical of Allcroft's finds, some of which were probably not Roman at all. Nevertheless, this appears to be something which merits further investigation.

Recent discoveries in the Glynde Area

Since Margary wrote his comprehensive account of the Roman roads of Britain, a number of significant discoveries have been made in or near the downland region between the Rivers Ouse and Cuckmere. These include the settlements at Wilbees Farm in Arlington, the settlement at Barcombe Mills as well as the villas at Beddingham, Barcombe, Mark Cross and Firle. How these fit into the economic structure of the area will be discussed.

The Bridge Farm (Barcombe Mills) Roman Settlement.

This significant site was initially discovered through a metal detectorist's finds. These included a range of coins from the Republican period through to the 4th century. Subsequent geophysics and excavation revealed a multi-period settlement and industrial site (Millum, 2013). The settlement is clearly central to understanding the economy of the region and probably had connections to the iron industry (Best, 2015, 63)

The geophysics revealed evidence of a previously unknown Roman road leading from the settlement in a south easterly direction towards Ardingly and probably joining with RR142 to provide a route to Pevensey. Subsequently, evidence of this road has been identified at Laughton Place. It has been suggested that it is a continuation of the Greensand Way (RR140) in an easterly direction and that the whole route from Hardham on Stane Street RR15 to Pevensey was constructed as one road (Staveley 2022, 2). However, it is not established that RR140 does connect directly to the new Ardingly - Pevensey road. Therefore, it is preferable to consider this new road as an alternative route to RR145. As indicated elsewhere in this volume, the label RR142aa(x) has been reserved for this branch route following the protocol laid out in Armstrong (2021: 282).



Figure 10. The Beddingham Hill terrace-way which has the characteristics of Roman work. The modern track-way can be seen on the right.



Figure 11. The Rabbit Walk terrace-way which is believed to be Roman Road RR144 climbing the 150m. escarpment above Firle.

Road past Beddingham villa

Between the South Ford and the escarpment of the South Downs, a multi period Roman villa has been discovered and excavated at Beddingham (Rudling, 2003, 118). This lay about 1km south of the Glynde Ford and is linked by a straight by-way which passes the villa on its western side. The by-way continues as a track, which climbs Beddingham Hill by a terrace-way which is remarkably similar to the Rabbit Walk (see Figs. 10 & 11). Both terrace-ways have gradients of 1:5 which are maintained over most of their rise. Their width is 2.5m and there is evidence of a sloping surface, which allows rainwater to run off. The terrace leaves the modern by-way and climbs the hill towards the south-east. Unlike the Rabbit Walk, the Beddingham terrace is not a public right of way; because of this, it is in remarkably good state of preservation. Margary was aware of the Beddingham Hill terrace and considered that it could be Roman work (Margary 1939, 51). He included a brief description of the road from the South Ford and the climb of Beddingham Hill. He was, of course, unaware that a substantial early Roman villa lay alongside the road, one kilometre south of the South Ford.

There is no direct evidence that the track continued southwards from the top of the terrace. If the alignment was resumed, it would have led to the Roman settlement of Rookery Hill, (Bell 1977, 131-191) above the tidal inlet of Bishopstone. The road may have served a possible port at the estuary of the River Ouse. As indicated elsewhere in this volume, the label RR145aa(x) has been reserved for this branch route following the protocol laid out in Armstrong (2021: 282)

The possibilities of ports and harbours on the River Ouse.

Near the western bank of the River Ouse, in the present-day Newhaven town centre, was an early Roman group of five buildings, including a bath house at TQ 44604 01304. The structures were interpreted by the excavator as the outhouses of a Villa (Bell 1976, 250-251). The associated villa was not found. The site was dated from the middle of the 1st century and continued throughout the 2nd. At the end of the 2nd century, the buildings were deliberately demolished and the site was levelled.

Traces of a villa were found in Newhaven in an upland meadow belonging to W. Elphick in the 19th century (Spurell 1852, 262-266). The exact position of the Upland Meadow was not recorded, but on the evidence of finds made during house building the suspected villa is believed to be centred on TQ 441 012 (HER 1793), around 250m west of the waterfront site. That is too distant for the riverside bath and outhouses to belong to the Upland villa. However, it is improbable that two villas would have existed so close together. Therefore, it is possible that the waterfront buildings had another function and were not part of any villa. They may have been customs or administrative buildings for a port or river traffic on the River Ouse. A similar building existed on the inlet to Fishbourne and was later interpreted as a possible customs house (Rudkin 1986, 51-77).

A coastal Roman settlement has been discovered and partially excavated on Rookery Hill above Bishopstone (Bedwin 1978, 241-255). Near to the site, a Roman period field system and ditch was found on high land overlooking the Ouse estuary. To the east of Rookery Hill, the Bishopstone valley was a tidal inlet until the 14th century (Bell 1977, 4). When the land to the south of Bishopstone was drained for farming in the 16th century, it is recorded that numerous anchors were found. According to the account, these were in a field called ‘New Lands’. Unfortunately these artifacts have not been preserved (Brandon 1971, 102-104). Anchors of various types were in use in Roman times, but there is no known record of the Bishopstone inlet or the adjoining New Lands being used as a harbour. In the

Medieval period, the Ouse harbour was at Seaford, which was an associate of the Cinque Ports. Subsequently, when the new channel was dug, the harbour was moved to Newhaven.

North of the Alps, flat bottomed boats called 'prams' were in widespread use for river transport. Vessels have been found in the Netherlands and along the Rhine which were capable of carrying loads up to 50 tons. A flat bottom cargo vessel of this type apparently capsized and sank on the River Thames near what later became Blackfriars Bridge. It was carrying 25 tons of building stone. The find and rescue of this vessel called Blackfriars 1 has been described by Marsden (1994). Such vessels would have been ideal on the tidal rivers such as the Ouse and the Glynde Reach (Bockius and Iserhardt 2013, 24). Jones (2012) states that water transport had a significant role in the movement of troops and supplies of equipment in Roman Britain.

As a drying tidal inlet, Bishopstone would have been ideal for both sea-going and river vessels. Additionally it would have been a sheltered place for goods to be transferred to or from flat bottomed vessels for journeys on the River Ouse and the Glynde Reach.

In the pottery report of the Beddingham villa excavation, Lyne (2003, 146) states '*the sheer variety of German fine-ware imports at the Beddingham villa suggests that one of the ports dealing with shipping from the Rhine and Meuse ... was at the mouth of the Ouse*'.

Coates (1990, 7-8) has suggested on the basis of field-name evidence that there was a possible wharf or quay for flat bottomed river boats on the Ouse near Beddingham villa. The Glynde South Ford may have been such a loading point, where flat bottomed vessels could be taken up-river on the flood, grounded at low tide for unloading or loading before returning to Newhaven on the ebb. This process required no external power source and was used on the Glynde Reach until the 19th century.

Wallace (2022, 237) states that a large aisled building excavated in the south-west of the Bridge Farm site could have been a warehouse close to a possible port on the River Ouse. See Galloway (2023) for a discussion of the large ailed buildings at Bridge Farm.

The connection of Beddingham villa with the iron industry of the Weald is strong. Best (2015, 63) states that ironstone was used as a construction material for the villas at Beddingham and Barcombe as well as in the Roman settlement at Bridge Farm. Ironstone, and very probably iron objects, could have been transported by the Iron Road to be used in Roman buildings in the lower Ouse and no doubt beyond, using both water transport and the local Roman roads as appropriate.

It appears that the estuary of the Ouse into Seaford bay was settled early in the Roman period and may well have been a place where ceramic goods were imported and iron and farm products were exported. It is very probable that the tidal Ouse and Glynde Reach were used for water transport.

The Glynde Pewter Plate.

In 1974, workmen digging a trial trench on flat land between Glynde railway station and the Glynde Reach found, by chance, a late Roman pewter plate (Fig. 12). This artefact was presented to Sussex Archaeological Society and a short account of its discovery was published by Marsden 'Roman pewter plate from Glynde (TQ 460 088)' (1979, 229-230). At the time of writing, the plate may be seen in the Barbican House Museum in Lewes.



Figure 12. The Glynde Pewter Plate, found on a bed of stones south of the Glynde Reach near to the South Ford.

Unfortunately, the description of the find spot is ambiguous. The grid reference included in title leads to an area somewhat to the east of the Glynde railway station. The report states, however, that the trench was dug to the west of the railway station. With the kind permission of the curator of the Museum, the author consulted the original notes that were left with the artefact deposit. These notes clearly state the find spot as being TQ 457 088. This defines an area to the west of the railway station yard in line with the description of the position of the trench. However, it creates a problem because it is also west (i.e. downstream) of the bridge over the Glynde Reach. Marsden records that workmen

digging a trial trench found the pewter plate on top of a bed of flints and that the trench was west of the Railway Station as implied by the grid reference in the notes. However, William Wisdom's account, above, states that stones of the ford were removed a little eastward (upstream) of the bridge; but not of course, the same bridge. He would have been standing on the bridge, where the Turnpike from Lewes crossed the Glynde Reach on its way to Firle and the east of the County. The 1795 Map of Sussex shows the Turnpike Bridge in approximately the same place as its successor, the existing railway-era bridge, but the map is not detailed enough to say that the two bridges were in exactly the same place. Despite this ambiguity about the position of the trench, Marsden's account is clear that the workmen found the plate on top of a layer of flints. It is unfortunate that the find spot of the pewter plate was not recorded more accurately. If the find spot was west of the railway station as the account and the original grid reference suggest, it may have been on top of the stones of a road approaching the South Ford from the south. This would be consistent with a Roman road from the South Ford leading past Beddingham villa.

Marsden suggested that the pewter plate was lost in transit while a vehicle was crossing the South Ford, a statement that needs to be considered. Pewter plates of this sort were of high value and are rare as finds in rural Sussex. They are more commonly associated with trading families in London (Lee 2009, 81). In the 3rd century, a time of considerable political instability, they were deposited in the Walbrook River in London in considerable numbers, presumably as votive offerings. It seems unlikely that an unusual and valuable item would have been casually lost and remained for so long lying on a roadway that it became covered in mud and forgotten.

In the 1st century the sea level around the south coast of Britannia is believed to have been quite similar to that of the present day. However, during the 2nd and 3rd centuries AD, the Mean High Water (MHW) of the English Channel and the North Sea rose steadily. This is known as the Dunkirk II transgression. According to detailed work based on the movement of habitation sites in the German and Dutch coastal regions and the evidence from deposition of soils on the seabed, the transgression between AD 50 and AD 300 resulted in more than a one metre increase in MHW (Behre 2007, 82-102). Although his work was based on the southern North Sea coast, a similar increase in sea levels occurred in southern Britain. Cracknell (2005, 130-133) has given evidence of abandonment of coastal habitation along the low-lying parts of the Sussex coast by AD 260. For example, the bath house at Newhaven, which was on low ground close to the sea level was apparently abandoned around this time and demolished as above. The gradient of the river Ouse between the sea and Lewes is very slight, being only 0.1m per kilometre (Robinson and Williams 1983, 50-66), so changes in MHW at the coast would have affected water level in the Glynde tributary and the whole of the River Ouse as far as the tidal limit at Barcombe.

In addition to the effects of sea level rise, the Glynde Reach was affected by the shingle barrier at the mouth of the Ouse. Woodcock (2003, 2) states that the shingle barrier caused by eastward drift of shingle along the south coast periodically builds up and impedes the flow of water from the Ouse and other Sussex rivers, then at some point the barrier is breached and the river water can flow unimpeded into the sea again until the next build-up of shingle and blockage occurs. This process leads to changes in the water level of the low-lying lands of the Ouse valley. We cannot know at what stage this process was at in the 3rd century but an increase in MHW would certainly have had an impact on the Glynde South Ford and could have made it impassable at all states of the tide. Shingle build-up would make the situation worse. The combination of these two effects could have led to a

situation in the 3rd century in which the South Ford or roadway was no longer usable because it was under deep water at all states of the tide.

The pewter plate may have been deliberately discarded into the Glynde Reach at a time when the South Ford or its approach road was under deep water at all states of the tide. It may have been, like the ones found in the Walbrook, a votive offering. Deposition of valuable objects typically occurred in the 3rd century.

Discussion

Margary's network of Roman Roads centered on the river Glynde Reach crossings has been summarised. The question remains as to what extent were these roads and river crossings actually Roman?

Margary based his observations on the study of landscapes, maps and in some cases aerial photography. He visited personally many of the places he described and in some cases saw details which are no longer available. We should be careful about dismissing his work which was thorough and based on careful assessment of evidence. However, we now know that some of his suggested roads were not exactly where he proposed. It is instructive to consult his original papers on these roads as they contain a wealth of detail which is not included in his later writing.

To put the whole scheme into context, it is necessary to understand the nature of this Downland region in the 1st century. It appears that the chalk downland region between the Ouse and Cuckmere rivers, including the Greensand and Wealden forests, was a thriving and well populated area in the late Iron Age and early Roman periods. It encompassed iron smelting, ceramic manufacturing and valuable farmland with trading routes to the European mainland via the rivers and the sea. There were a number of significant, certain and possible, 1st century nucleated settlements including Bridge Farm, Arlington, Newhaven, Bishopstone and Seaford. In addition, there were a number of small settlements and several villas. The villa at Beddingham showed continuity of occupation from the Iron Age into the early Roman period. There is no evidence at all of Roman military activity in this region. The *Classis Britannia* had ports and facilities further east beyond the Pevensey wetlands. In West Sussex evidence has been discovered of possible pre-Claudian military activity at the site that later became Fishbourne palace (Manley 2002, 112-115). However, there is no evidence of military activity in this area under consideration. This, together with the widespread early Roman artefacts at many of the sites, suggest that the Lewes to Ardingly region in the 1st and 2nd centuries originated as part of a British client state allied to Rome and that the roads were civil and focused on trade. This is supported by the large variety of early Roman European mainland ceramics found at all the settlements.

Many writers have referred to Roman roads as military ways on the assumption that they were built by the legions and used primarily for military purposes. This has led to the Glynde fords and other roads in the area being linked to Pevensey, the site of the Saxon Shore Fort *Anderitum,* for example, Staveley (2022, 2). However, in understanding the context of the Glynde crossings, this is misleading. *Anderitum* is a 3rd century creation while the South Ford and much of the surrounding landscape and roads probably predates it by two centuries. Knott (2022, 151-180) has discussed the typical use of roads in the non-military parts of the Empire. Many such roads show evidence of being re-surfaced

many times. The wear and tear, from trader's wagons, was clearly substantial. Further evidence for the volume of trade using roads is given by the variety of ceramics found in excavations. Sites in the Ouse Valley, even remote ones like Highdole Hill (Hollyman 1936, 202-222), show sherds of typical Iron Age East Sussex wares as well as New Forest and continental types including Central Gaulish (Lezoux) samian ware sherds. The roadside settlement at Arlington also saw many examples of continental wares. Rather than military ways, the river and the roads of the Glynde district seem to have been serving trade and communication, connecting the region to the iron works of mid-Sussex, to London and the sea. The evidence is that there was a vibrant network of Roman and Romano-British roads and water transport connecting London, the iron industry, the settlements at Barcombe Mills, Arlington, Seaford and Newhaven.

The Glynde river crossings may have been Roman work. The so-called South Ford, rather than a ford, could have been a road which crossed a wetland area which sometimes flooded at high tide. The account of the removal of the stones and the finding of a 2nd century coin suggests Roman work. Furthermore a road, heading south from the South Ford, which passed the Beddingham villa and climbed the escarpment by a terrace-way, has characteristics which look Roman. The potentially votive deposition of the pewter plate suggests that by the 3rd century the Glynde Reach was under deep water at all states of the tide. The place where the pewter plate was found would be consistent with the location of a road south past the Beddingham villa. The causeway and so called South East ford may have been a replacement for the South Ford when sea level rise caused the low lying lands of the Glynde Reach to become impassable.

RR144 which runs from the Rabbit Walk north across Firle Park looks like a good possibility for a Roman road. The visible *agger* and lidar show that it continued beyond Burgh Lane, which is probably a medieval feature. It appears to head toward Mark Cross which has been identified as a probable villa site and would connect with the newly discovered road from Barcombe Mills to Arlington. However, the southern part towards Seaford rests entirely on accepting that downland tracks are part of the road.

The buildings with bath house at Newhaven and the discovery of iron slag in the make-up of RR141 suggest a probability that this is an improved Iron Age track made up to Roman standards. There were early Roman settlements at Seaford and Newhaven, about which very little is known, but they both indicate transport and trade activity in the lower Ouse valley and the possibility of a port at the mouth of the Ouse. The use of ironstone in the construction of Beddingham villa suggests that transport for such heavy materials was possible, either via the river Ouse or the Glynde crossings and a connection with the Iron Road.

The western section of RR142 from Glynde to Arlington is not established but parts of it may have been built. The find of an *agger* at Ludlay Farm (TQ 5210 0760) is not easily explained, as it does not correspond with either of the roads which are believed to run west from Arlington. It suggests that the Roman road layout in the Selmeston to Arlington region is not yet known.

It is clear that the area of the South Downs between Barcombe Mills and the sea was a thriving and populous area in the late Iron Age and early Roman period which had strong connections to the Wealden iron industry and the European mainland via the sea. The Roman roads may not be exactly as Margary proposed, but it is likely that a network of local roads existed in this area making connections to London, the Wealden Iron bloomeries, Gaul and the Rhine. It is to be hoped that in the

future geophysics and excavation will reveal more detail about this hitherto little studied region of the early Roman Empire.

SUMMARY

The roads proposed by Margary as branches from RR14 with their status based on present knowledge are given in Table 1 (except RR148 which is north of this region and outside of the scope) together with the recent discoveries. The roads and the main Roman period features are shown schematically on Figure 13. Smaller sites and coin finds etc. are not shown. Some possible investigations which might throw light onto the network are suggested.

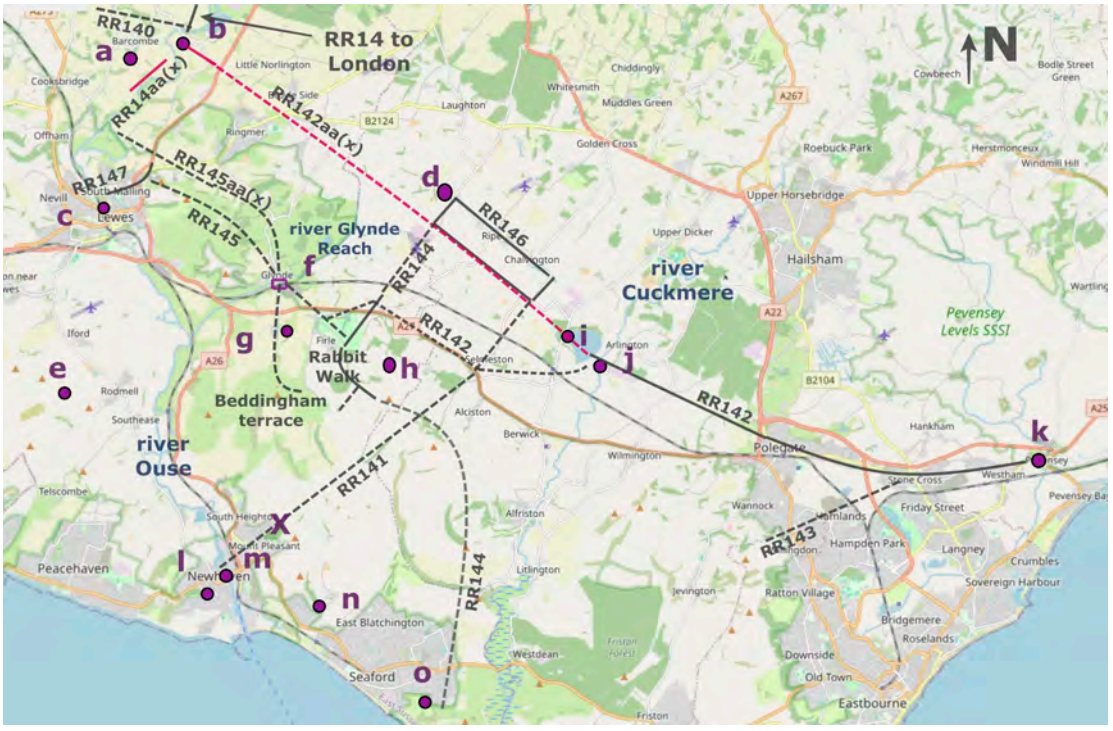


Figure 13. Map showing relative positions of Margary's roads (in black) and recent discoveries (in red). The dotted lines show roads which are not yet confirmed as known. Map data © OpenStreetMap Contributors 2020, made available here under the Open Database License (ODbL) v1.0.

Key to Figure 13

a; Barcombe, Villa and industrial area on RR14aa(x), **b**; Barcombe Mills, Bridge Farm, multi-period Vicus. **c**; Lewes, votive deposits and possible port on river Ouse. **d**; Mark Cross- scatter of building material -possible Villa. **e**; High Dole Hill, Telscombe, Romano-British settlement. **f**; Glynde river crossings - stone roadway/ford and causeway, find spot of the Pewter Plate. **g**; Beddingham multi-period Villa. **h**; Firle - scatter of building material -possible Villa. **i**; Pohills Farm - industrial site now under reservoir. **j**; Ardingly, Vicus and road excavated , possible Villa. **k**; Pevensey, *Anderitum* Shore

Fort. **l**; Newhaven, scatter of building material -possible Villa. **m**; Newhaven, waterside buildings and bath house excavated. **n**; Rookery Hill, Bishopstone, Romano-British settlement excavated. **o**; Roman cemetery- settlement not known. **X**; Excavation reveals iron slag in make up of RR141.

Road	Route (letters in brackets refer to figure 13)	Status	Possible investigations
RR14	The Iron Road, London - junction with RR1c to Barcombe Mills (**b**)	Known	
RR14aa(x)	Alternative route to RR14 on west bank of river Ouse	Known	
RR140	The Greensand Way, Hardham on RR15 to Barcombe Mills (**b**).	Known except for eastern segment- junction with RR14	
RR141	Newhaven (**m**) to Selmeston and RR146, excavation found slag at point **X**	Possible	Magnetometer survey of road
RR142	Western segment - Glynde (**f**) to Ardingly (**j**)	Unrated - Margary's route cannot be confirmed	
RR142	Eastern segment - Ardingly (**j**) to Pevensey (**k**)	Known but with variations to Margary's route	Ongoing excavations
RR142aa(x)	Alternative route to eastern segment of RR142, from Pohills Farm (**i**) to Barcombe Mills (**b**).	Probable	
RR143	Stone Cross to Levington	Pending ongoing excavations	
RR144	Seaford (**o**) to Mark Cross (**d**) via Rabbit Walk and Firle (**h**).	Partly known, downland tracks hard to date	
RR145	Lewes (**c**) to Firle.	Possible	Geophysics in field south-east end of causeway could establish if it led to a Roman road.
RR145aa(x)	Alternative route connecting Lower Stoneham to Beddingham (**g**) via the Glynde crossings.	Possible	
RR146	Ripe land settlement -possible centuration or field system associated with Mark Cross Villa(**d**).	Possible	
RR147	Lewes (**c**), South Malling to Malling Hill terrace-way.	Known	

Table 1. The current understanding of the status of the Roman roads in the Glynde area.

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Abbreviations:

BAR: British Archaeological Reports.

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SNQ: *Sussex Notes and Queries*, published by the Sussex Archaeological Society, Lewes.

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Some Roman Roads around Exeter: a Tribute to the Late Hugh Toller

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Abstract

The renowned Roman road researcher, the late Hugh Toller, had actively been investigating Roman roads in the South-West of England for many years before his untimely death in 2016. Around Exeter he is perhaps best known for his early lidar research, along with Bryn Gethin, on the North Tawton Roman site and the roads around it. His road research on the Exeter to North Tawton Roman road was very rightly recognized posthumously (Salvatore et al., 2019). He was also though able to publish in his own right, before his death, details of the Dorchester to Exeter Roman road (Toller, 2014). For details of that road then his paper should be consulted. He did not though resolve the approach to Exeter so an attempt to include that section will be considered here.

However, the extent of his research around Exeter was very comprehensive (Fig. 1). His records show he was perhaps the first to recognise the existence of a continuous Exeter to Watchet Roman Road. Other roads he was actively pursuing were, one from Exeter to the north-west, Exeter to Tiverton and roads around Rainsbury. When it became obvious that Hugh would no longer be able to continue I agreed with him to try and complete his work generally and hereabouts specifically.

Whilst concluding the studies of this and Hugh's other potential roads around Exeter I was unaware that Dr. Chris Smart (Exeter University) had recently been undertaking a wider archaeological study of Cornwall and Devon. This project, "Understanding Landscapes", too had identified several known and potential Roman roads. It is reassuring when independent research, i.e. Dr. Chris Smart and his team plus Hugh and myself, identify common Roman roads. Reassuring to us and hopefully to Dr. Smart as well. However, I take responsibility for the less obvious stretches identified and should any prove incorrect then these errors would be solely down to myself.

The Hugh Toller Archive

Hugh left an extensive paper archive which is now held by the RRRA, although most of his handwritten notes, maps, and non-digital photographs remain uncatalogued. However, he also had an extremely extensive and well organised digital archive which he passed on to several researchers prior to his death, including myself.

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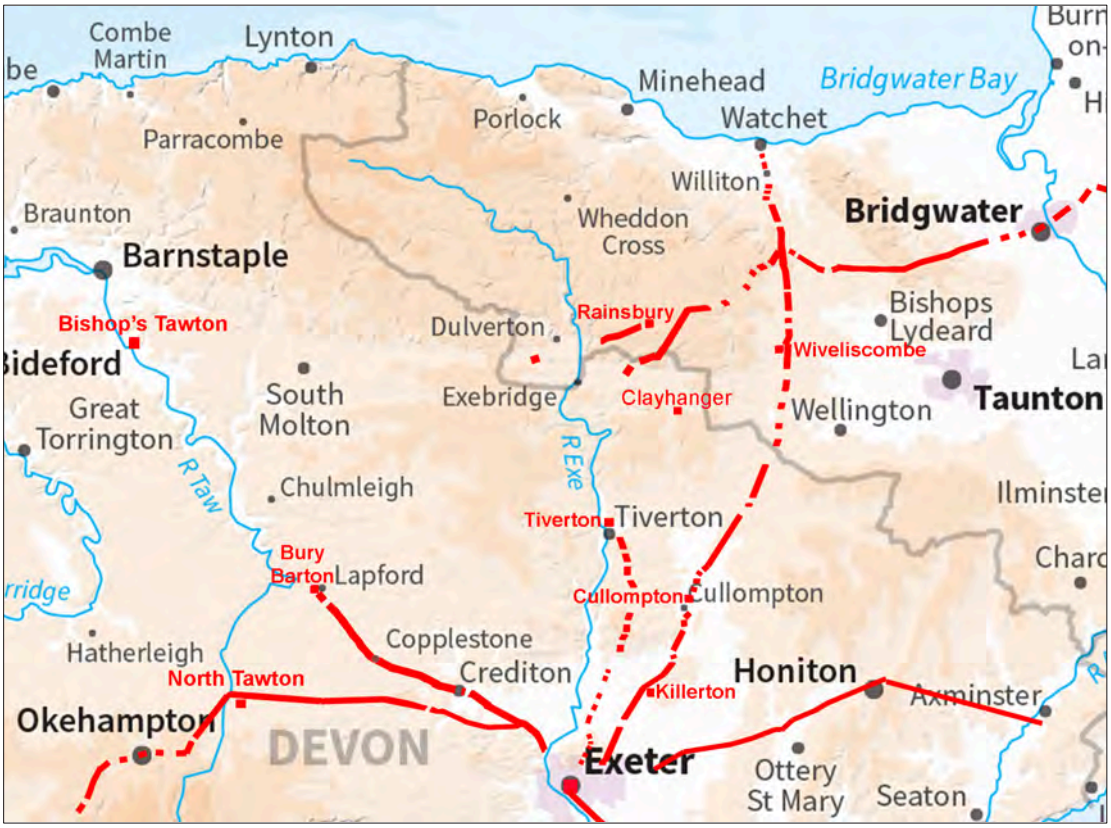


Figure 1. Location map for the Roman roads around Exeter that were researched by Hugh Toller and are covered in the text. Contains Ordnance Survey data © Crown Copyright and database right, 2023.

This is an extremely extensive digital archive covering not just Britain but 11 other countries as well giving some indications of Hugh's wide and many years long interest in Roman roads. The British section is very comprehensive with Hugh especially prolific in Wales. The arrangement of the archive is divided into district areas rather than counties. Relevant to here is the section labelled South-West. For each of these areas there are sub-divisions devoted to each road with its own collection of (generally) aerial photos, lidar images, mapping and sources. The latter included many antiquarian reports and had obviously been extensively researched. The routes he recorded were generally plotted on modern Ordnance Survey mapping so for copyright reasons have not been included here but, where relevant, they have been transferred to the OpenData mapping used here.

Hugh was an early adopter of lidar and was one of the first to recognise its huge importance in Roman road research. He was clearly using lidar around 2011, an era when lidar was very much in its infancy, especially for Roman road research in Britain. It was also then not freely available and generally Hugh would have needed to purchase it. He soon became a strong advocate of the technique and encouraged its widespread use. As experience built up his confidence clearly increased to the point where from only lidar imagery the existence of a particular Roman road could be inferred almost without doubt. He would go on to discover many Roman roads not just in the south-west but all over England and Wales.

However, the impression that Hugh's research was solely desk-based would be far from the truth. His archive includes the detection of many Roman road traces using traditional field-work, complete with on-site photographs. He was very adept at being able to obtain landowner permissions to inspect sections well out of reach of public footpaths. Although London based he would think nothing of travelling the length and breadth of the country to inspect a new discovery, even on occasions flying. My own experience of Hugh fully confirms this. When I told him of a road I had found in Lancashire he immediately travelled to see it for himself and as a result offered a correction to my route. A remarkable man who is much missed.

The Roman Road from Exeter to Watchet, RR494(x)

Background

For convenience the road will be referred as having Watchet as its destination. However, it should be pointed out the actual destination of this road is unproven and the assumption that this was actually the port of Watchet is really only based on the road's direction and last visible location. There is no known Roman presence at Watchet although it was to become an important port and settlement with its own mint in Saxon times.

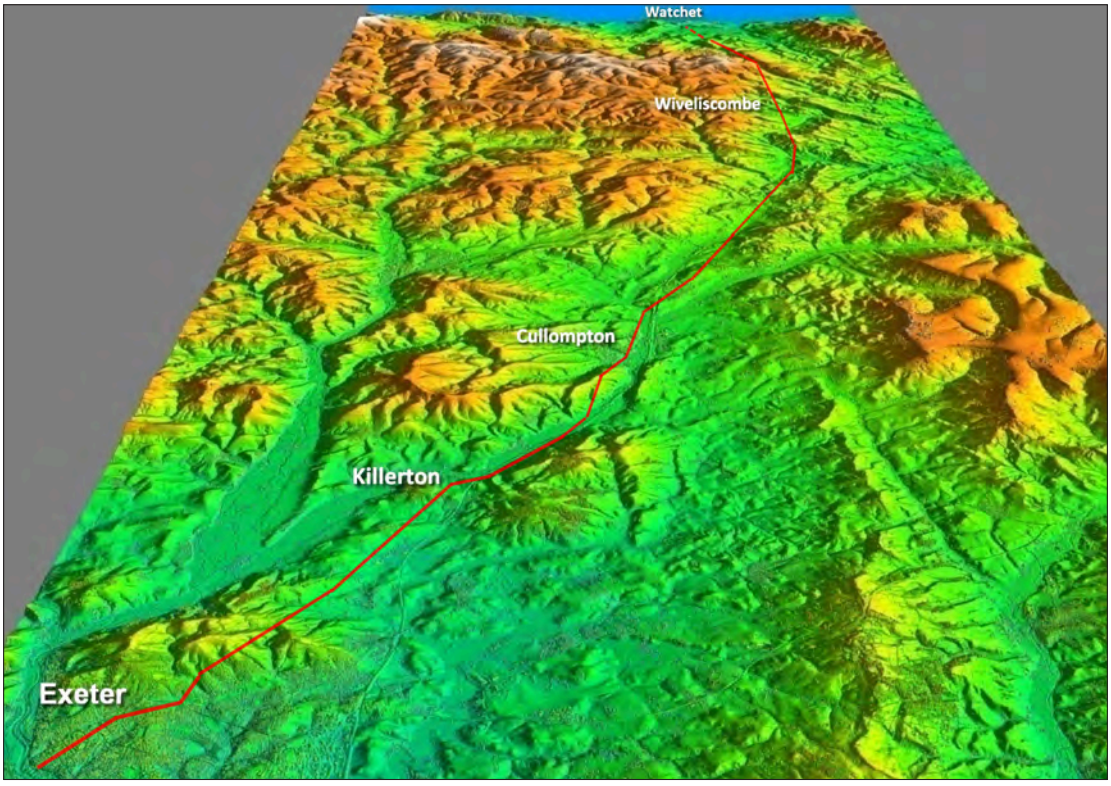


Figure 2. Oblique Lidar image showing the route for the Roman road from Exeter heading to the north Somerset coast somewhere at or very near Watchet. Base Lidar data is © Environment Agency copyright and/or database right 2023. All rights reserved.

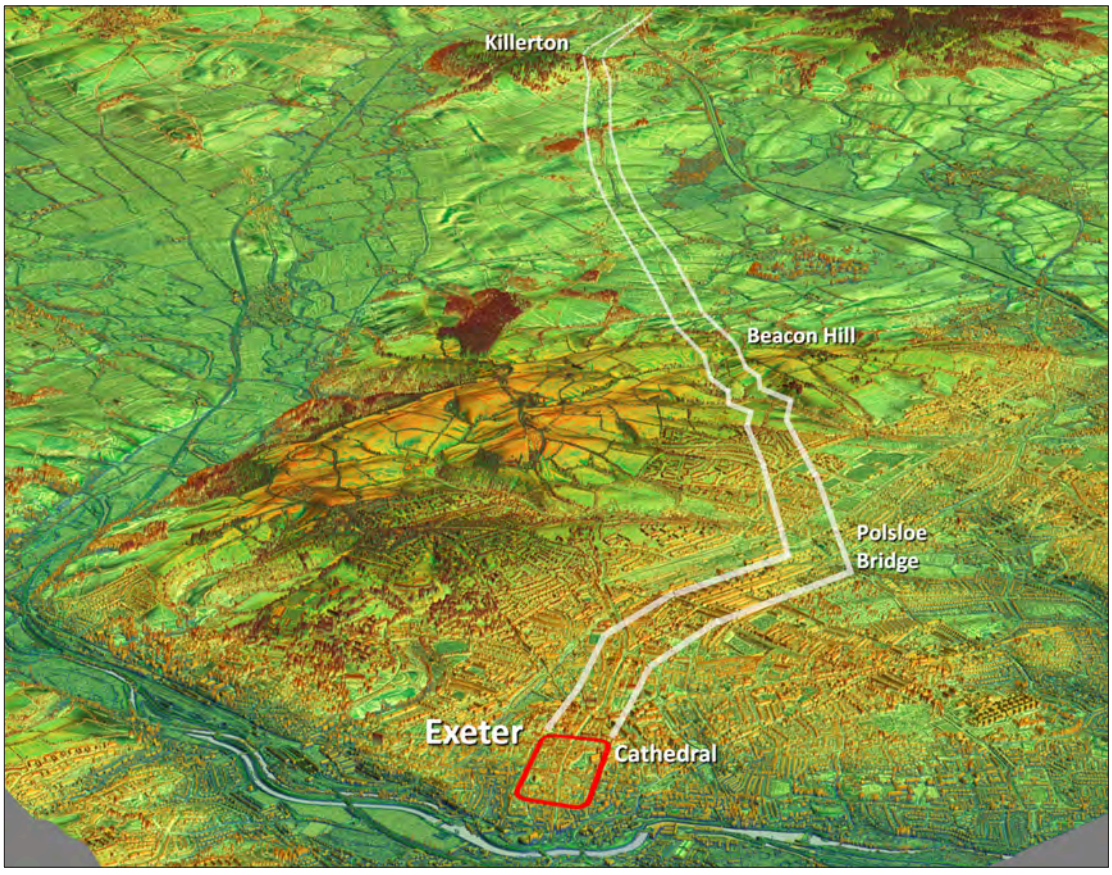


Figure 3. Leaving the fortress's east gate the route the road takes is best explained by sharing a common course with the Dorchester Roman road as far as Polsloe Bridge (see later). The road then adopted the easiest route through the ridge at Beacon Hill towards Killerton. Base Lidar data is © Environment Agency copyright and/or database right 2023. All rights reserved.

His surviving records (Toller, 2016) clearly show that he had recorded several sections of this road all the way to the north of Wiveliscombe plus strong circumstantial evidence that he had probably worked out the remainder of the route to Watchet as well. He allocated himself the number RR495 to this road and most surely deserves primary credit for its recognition. Also to be credited with independently and subsequently recognising several sections of this road should be Steve Kaye (Kaye, 2021). This work achieved the more formal allocation of the number RR494(x) and that will be used here. The route depicted in the Somerset HER is no doubt in part derived from his research (Somerset HER 39966). However for both these later sources their findings were referred to as "unclear" but now with considerably more supporting evidence visible in the latest lidar data we can be confident that this is no longer the case and Hugh's route was, in the main, close to that confirmed by modern lidar.

The Route

A study of the topography revealed by lidar (Fig. 2) shows the Roman road surveyor chose a very sensible and practical route to link Exeter to (probably) a port on the north Somerset coast at or very

near Watchet. A more direct route would have involved negotiating much more difficult and higher terrain across Exmoor. Exmoor winters are notorious so by avoiding most of that moor a much more all-seasons route was devised.

Initially the route targeted the Culm and Spratford Stream valleys enabling a relatively low level route to Wiveliscombe to be achieved. Beyond Wiveliscombe the route swung more northerly and crossed through the easterly extremity of the Exmoor hills. Here the course exploited the Rook's Nest to Elworthy valley so in reality only needed to climb to a height of 240 metres. A more direct line would have involved at least an extra 100 metres of climbing with a considerable amount of that at high level. Evidence for the route is somewhat intermittent around Williton but its direction would strongly suggest Watchet was the ultimate destination.

The spacing of the forts, with a long gap between Cullompton and Wiveliscombe, would perhaps suggest a missing fort somewhere near the Devon-Somerset border (see later and Fig.15).

Section 1: Exeter to Killerton

The route left the Legionary Fortress by its East Gate along today's High Street (ref Allan, 2005). This was initially probably a shared route with Roman roads to Tiverton and Dorchester. The former probably diverged along Old Tiverton Road with the latter and the road to Watchet most likely continued together as far as Polsloe Bridge (SX 94142 93515). It makes sense that the roads would have shared a common bridge, a standard Roman strategy, and once across this our road could now branch off (Fig. 3).

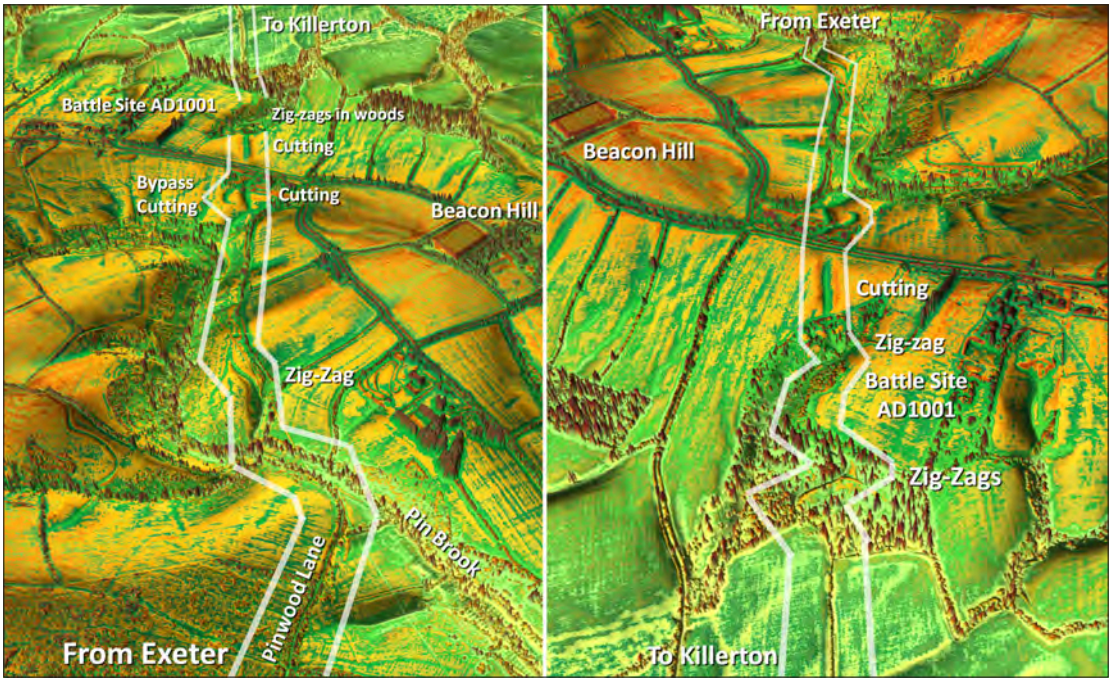


Figure 4. Roman engineering at its finest crossing the ridge of high ground near Beacon Hill. Left: looking at the ascent from Exeter. Right: reverse view looking back towards Exeter showing the descent on the Killerton side and the site of the battle of AD1001. Base Lidar data is © Environment Agency copyright and/or database right 2023. All rights reserved.



Figure 5. Looking ahead from above Beacon Hill towards Killerton. Ploughing has removed some the Roman agger but sufficient survives to confirm its general course. Base Lidar data is © Environment Agency copyright and/or database right 2023. All rights reserved.

The Devon HER then plots a rather circuitous route along existing roads to Pinwood Lane but based on ground levels there seems no logical reason that a direct course was not taken from Polsloe Bridge to Pinwood Lane (SX 94683 94543). This is supported by the central section of Beacon Lane aligning with Pinwood Lane (see later). From the latter lane the route becomes now much more certain and demonstrates Roman engineering at its finest with a zig-zag ascent and descent plus several cuttings including a bypass or relief one typically employed to reduce the gradient.

The line chosen by the Roman surveyors needed to cross a ridge of high ground just to the north of Beacon Hill. The first real signs of the road are along Pinwood Lane, which is today a footpath through

the Beacon Heath Estate and then into open countryside (Fig. 4 – left). The road curves to the north alongside Pin Brook in order to reach a small valley that it utilised for the start of an ascent (SX 94941 95194) before the road swings off along a prominent zig-zag terrace. For its final ascent to the top of the ridge twin cuttings were adopted, one direct and one curving. These have been recorded elsewhere, e.g. The Street in Derbyshire (Ratledge, 2021), and provide a steeper straight route and an easier indirect route with a more gradual climb and descent (SX 95161 95649 & SX 95127 95661).

Over the ridge (SX 95191 95713) the road then descends through a large cutting and small dog-leg down to a small stream (Fig. 4 - right). Across the stream the road now is a terrace on side sloping ground. Alongside here was the medieval battle of Pinhoe, AD1001. The association of medieval battle sites to Roman roads has been pointed out by Mike Bishop (Bishop, 2014). In essence, even 600 years after the Romans had departed their roads were often still the best way to mobilise an army. Bishop records this battle as being close to RR4 (Dorchester to Exeter) but we now know it was within metres of RR494(x). Another pair of zig-zags follows before easier terrain meant a straight alignment to Killerton was able to be followed (Fig. 5).



Figure 6. Lidar image of the Killerton estate with the Roman road from Exeter aligned well to the west of the fort site. There are also indications of a possible link road west to the Tiverton Roman road and also perhaps a link road to the fort itself. Beyond the fort the road turns to merge in with the B3181. There are some agger indications in support of this (arrowed). Base Lidar data is © Environment Agency copyright and/or database right 2023. All rights reserved. Inset: aerial photograph showing the triple ditches of the fort. Image © 2023 Google.

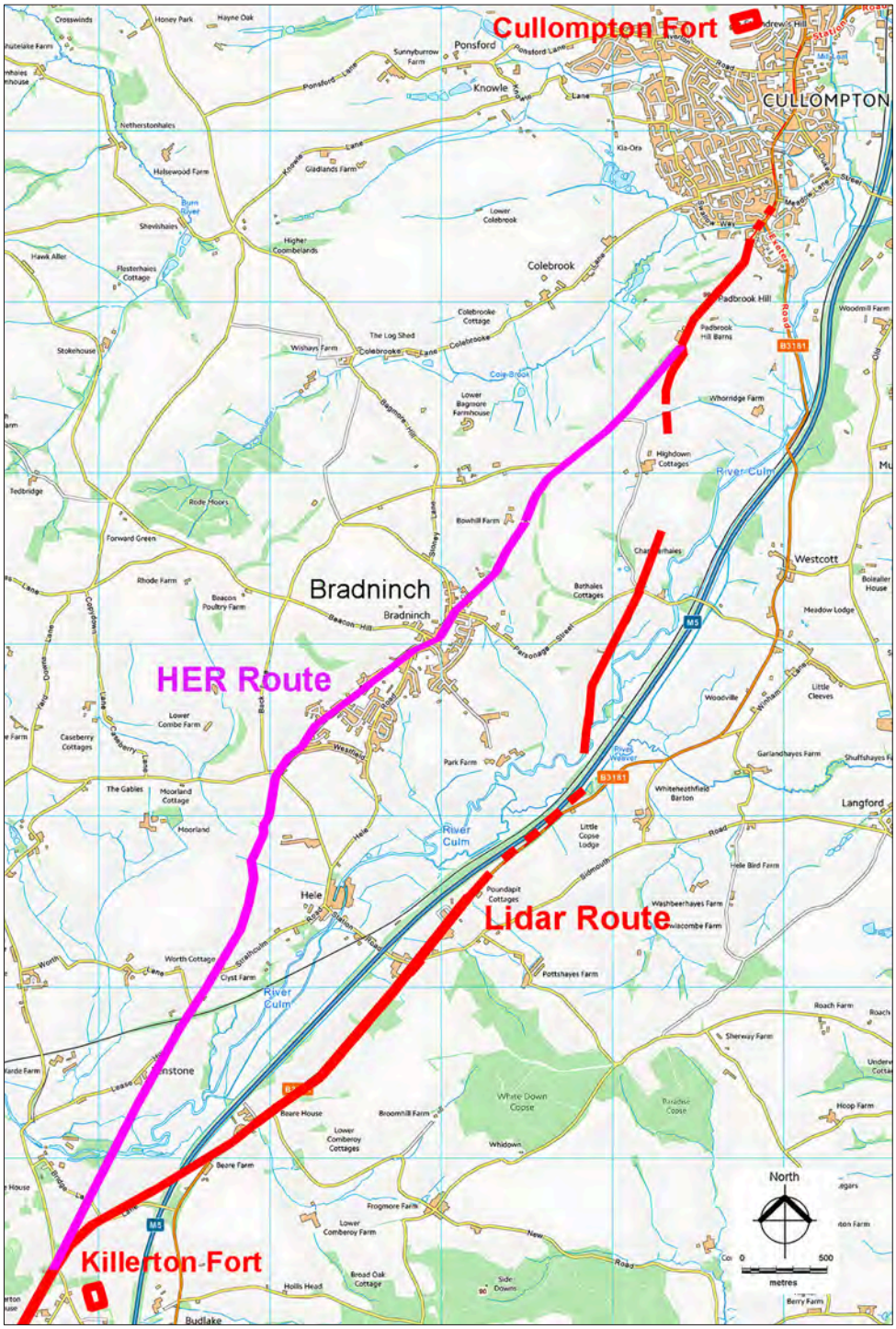


Figure 7. The route recorded in the Devon HER (magenta) via Bradninch and the suggested Lidar route (red). Contains Ordnance Survey data © Crown Copyright and database right, 2023.

Proceeding into the Killerton House estate (National Trust) the road is very obvious as a shallow cutting or perhaps a worn down hollow-way (Fig. 6). Also evident here is a branch road (SX 97443 99890), again as a shallow cutting, heading off initially north-west then turning westerly. This is most likely a connecting link to the Exeter to Tiverton Roman road, where it could join it at around SS 98711 01045. The main road continues and passes the fort site to its north-west but there is some sign of a possible branch road to the fort. There has been some uncertainty about the fort, which original solely relied on aerial photographs showing a playing-card shape with triple ditches and round corners. Recent excavations and a geophysical survey by the National Trust would appear to have confirmed its authenticity (Papworth, 2019).

The route to Killerton was well recorded by Hugh Toller and the latest lidar has only served to confirm this. However, beyond Killerton the road becomes much more uncertain with two alternative options. One crosses the River Culm almost immediately and heads through Bradninch with the second keeping east of the River Culm until crossing it around 300 metres upstream of Kensham House and then angling up the hill slope to join the first option at Padbrook Hill.

The Devon HER at the time of writing shows the former route via Bradninch. Much of this route is covered by modern roads so it is difficult to prove or disprove. Only the first kilometre or so is uncovered but nothing appears visible in the lidar imagery supporting this option. Hugh Toller seemed to have had doubts saying the first option was very faint.

The lidar route (Fig. 7) on the other hand is supported by at least some intermittent lidar evidence. The unambiguous route passing Killerton clearly turns to merge with Exeter Road, B3181 (Figs. 6 & 8). There is more evidence supporting this beyond a crossing of the River Culm (ST 00883 03664 & ST 01205 04406) and again on Bradninch Common (ST 01405 05684), where it joins the modern road (Fig. 9). However it must be admitted there is a short gap between these spots near Highdown Farm and the clues are faint. There is the alternative that the road could have climbed up from the Culm

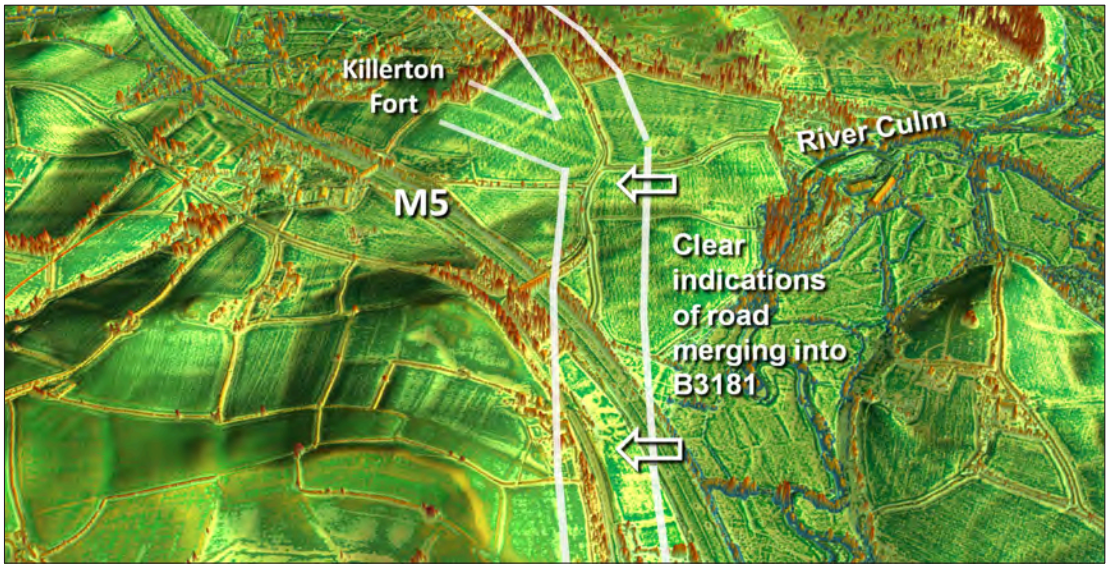


Figure 8. Leaving Killerton the Lidar indications, although faint, imply the road turned and merged into the B3181, Exeter Road. There does not appear to be any indication that the road crossed the River Culm here towards Bradninch. Base Lidar data is © Environment Agency copyright and/or database right 2023. All rights reserved.

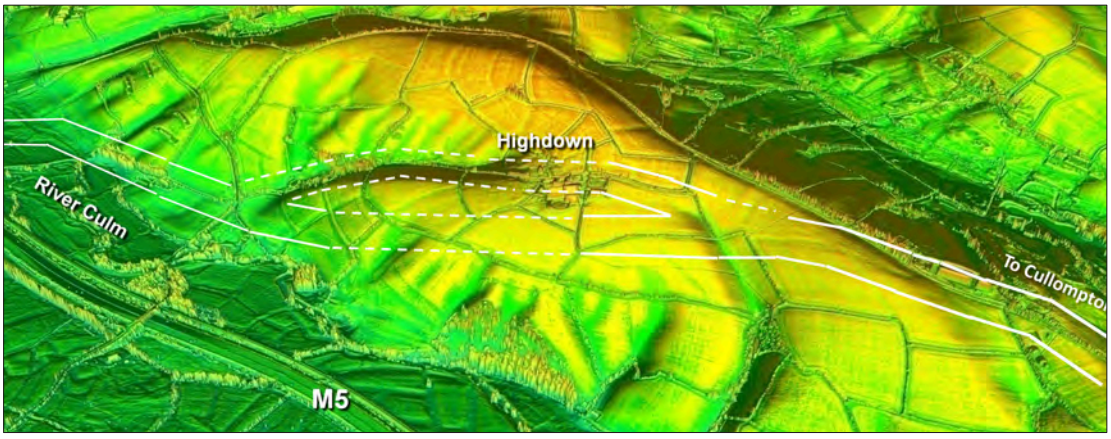


Figure 9, above. Oblique Lidar image showing the traces of the Roman road from the River Culm crossing and then the two options for passing Highdown, before merging with the modern road to Cullompton. The nearer option is the more direct but the further one has an easier ascent via a natural valley. Base Lidar data is © Environment Agency copyright and/or database right 2023. All rights reserved

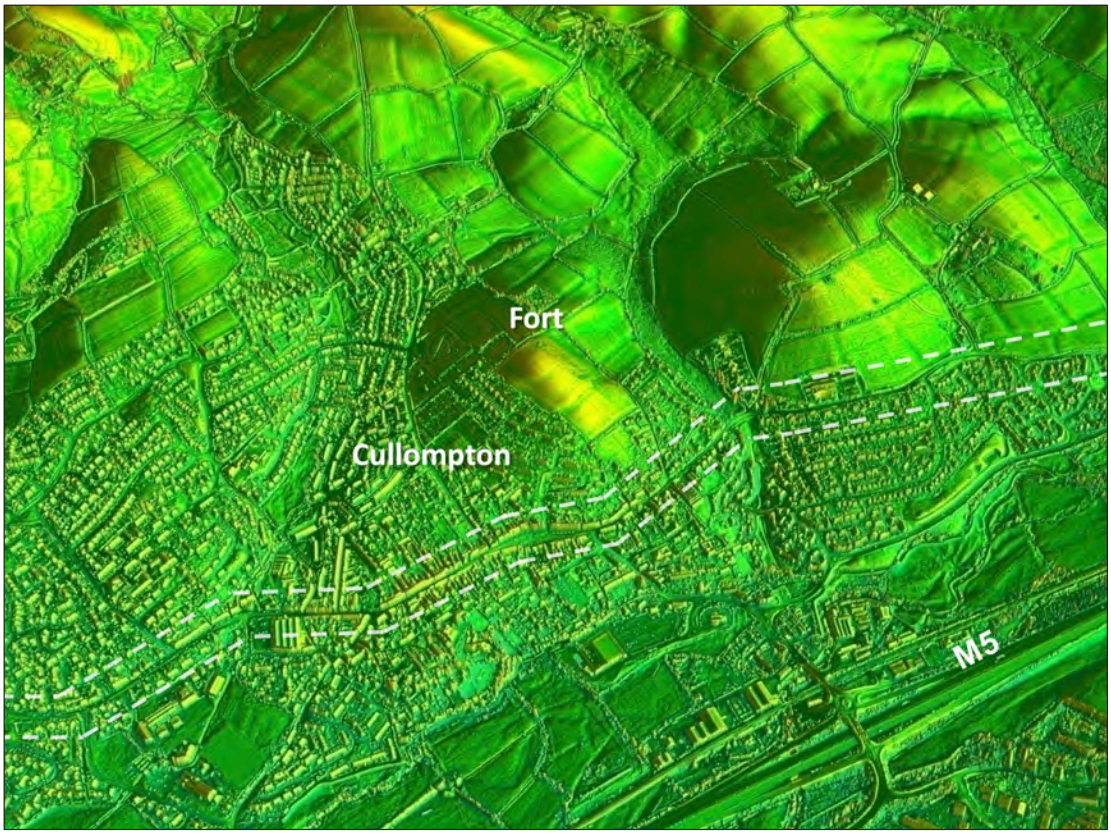


Figure 10, below. The route through Cullompton and passing the fort is very subjective and can only be regarded as a best guess . Base Lidar data is © Environment Agency copyright and/or database right 2023. All rights reserved.

bottoms via the little valley that heads up to Highdown Farm itself. However, there is at least some visible evidence for the general "lidar" route and on balance it could be regarded as the more likely in principle if not in precise detail around Highdown.

Through Cullompton there is little alternative to assuming the modern road represents the Roman line at least approximately but it was probably a little more direct (Fig. 10). Modern developments make finding a link road(s) to the fort on St Andrew's Hill problematical. Hugh Toller's maps do show a road heading out the west gate of the fort, i.e. the opposite direction for a link road so this is perhaps best regarded as a local road.

Historic England record two forts and two camps on St Andrew's Hill (Scheduled Monument: 1019543). These were early forts but there is evidence for continued occupation of a Roman settlement at Cullompton from the 2nd century through to the 4th century (South West Archaeology Ltd, 2009).

Section 3: Cullompton to Wiveliscombe

The uncertainty continues through Cullompton and visible lidar evidence only resumes on the north-north-east side of Spratford Stream, a tributary of the River Culm (ST 02737 09490). Here an alignment

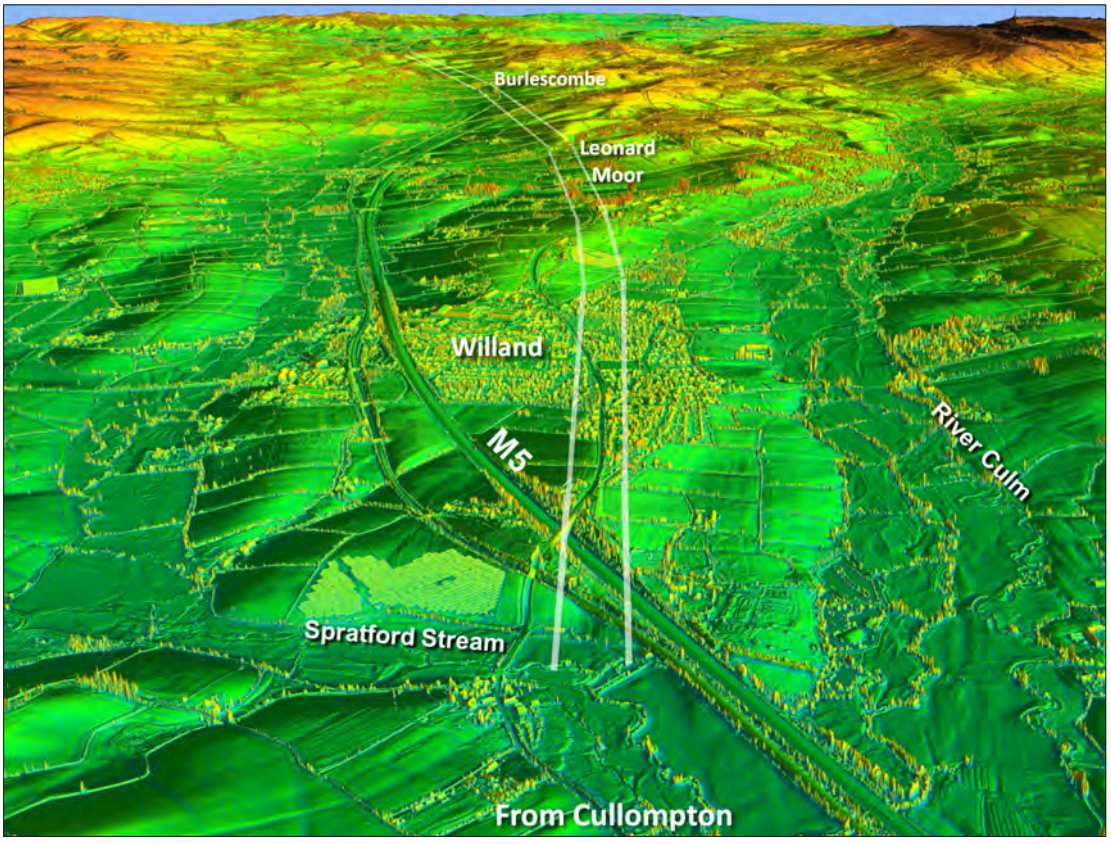


Figure 11. The first indications of the road north-east of Cullompton appear after the crossing of the Spratford Stream. Beyond Willand evidence becomes clearer and almost continuous all the way to the Somerset border. Base Lidar data is © Environment Agency copyright and/or database right 2023. All rights reserved.

begins, which crosses the railway and the M5 motorway, follows part of Silver Street (B3181) and continues across open fields to a hill crest near a new industrial estate (Fig.11). Part of the latter section of is now masked by a solar farm. Hugh Toller's maps indicated he must have spotted or at least suspected this latter section, which would have been long before the solar farm appeared (Fig.12). There must have been a slight change of direction at Willand. Interpolation would suggest this ocurred on its north-eastern extremity of the settlement (ST 04145 11304).



Figure 12. North is to the top right in this slightly oblique Lidar image, which has been orientated to best show the very subtle indications of the road north-east of Willand. A solar farm now masks part the route. Base Lidar data is © Environment Agency copyright and/or database right 2023. All rights reserved.

From that slight direction change a straight course is followed across the hill crest and heads over Leonard Moor. This line diverges from the straight B3181, which perhaps surprisingly does not represent the Roman line. This divergence Hugh Toller had identified with what must have been some of the earliest lidar data (Fig.13).

From Leonard Moor the line of the road crosses the A38 where for a short stretch clues are indistinct. However, the route would appear to have been targeting a natural valley (combe) to the west of Appledore (ST 06169 14816). Here the first of two prominent alignments begin with their *agger*s showing clearly almost all the way to the Somerset border at Wiseburrow (Fig.14). The first of these heads towards the railway and Grand Western Canal, where there was a small change of direction (ST 06795 16404).

The second of these alignments appears to have been set-out from the top of Wiseburrow. However, for the last kilometre towards the latter there do not appear to be any lidar features suggesting it actually went over the top of the hill. This is not unusual for the Roman surveyor to have used a high



Figure 13. This was the section on Leonard Moor identified by Hugh Toller. Surprisingly the very straight B3181 does not represent the Roman line. Base Lidar data is © Environment Agency copyright and/or database right 2016. All rights reserved.

point for setting out the primary alignment but often, in the vicinity of the summit, the road would skirt around it. There are some visible signs for a route around the hill (ST 08024 19164) but it must be admitted these are best regarded as probable rather than definite. Adjacent to Wiseburrow are what appears to be a possible Roman fort/fortlet (Fig. 15). The road now leaves Devon and enters Somerset.

The Somerset HER (unlike Devon HER up to the border) does show a course for the road no doubt derived from Steve Kaye's research (Kaye, 2021). This appears to be based on a straight line from

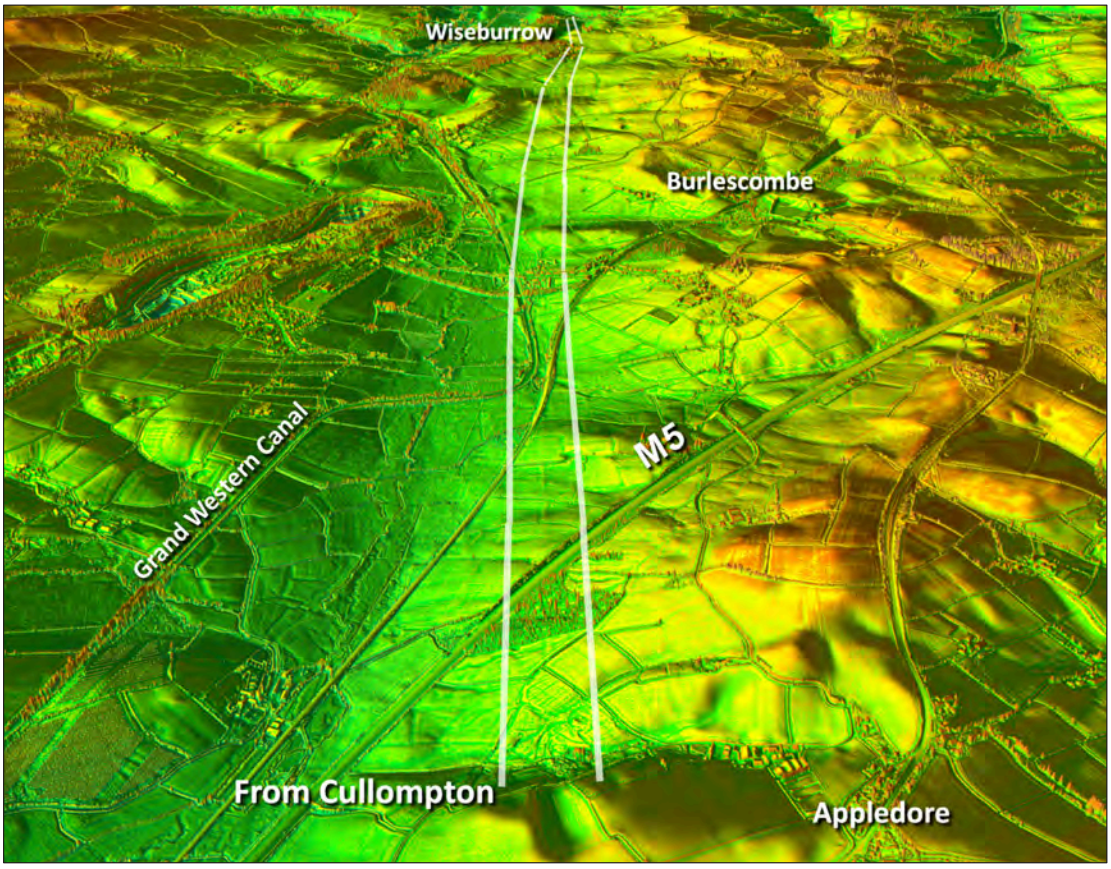


Figure 14. From Leonard Moor the Roman route and the Grand Western Canal both targeted the same natural valley towards Wiseburrow. The two straight alignments visible here are some of the best surviving of this road in Devon. Base Lidar data is © Environment Agency copyright and/or database right 2023. All rights reserved.

Cothay Manor to Wiseburrow (Fig.16). Whilst this might be typical of Roman engineering there is nothing obvious in the lidar imagery to support this. Rather a less direct route appears to have been followed which would have been able to exploit a natural valley north-north-east of Wiseburrow Farm (ST 08511 20495).

Beyond Wiseburrow Farm and that natural valley then visual clues are intermittent to Cothay Manor (ST 08584 21356). Generally these indications are somewhat further east than the line depicted in the Somerset HER line. More likely is the field boundary about 400 metres north of Lower Cothay Farm. This has *agger* like features and is followed by a parish boundary. This heads towards Poleshill and Carrier's Lane which climbs up to Stone Hill (Fig. 17). There can be little doubt that this represents the Roman route and there is a pronounced *agger* visible nearing the top supporting this (ST 08958 23610).

From the top of Stone Hill the fort of Wiveliscombe becomes visible. Again the Somerset HER draws a straight line to the accepted straight alignment passing the fort. However, there is little if anything

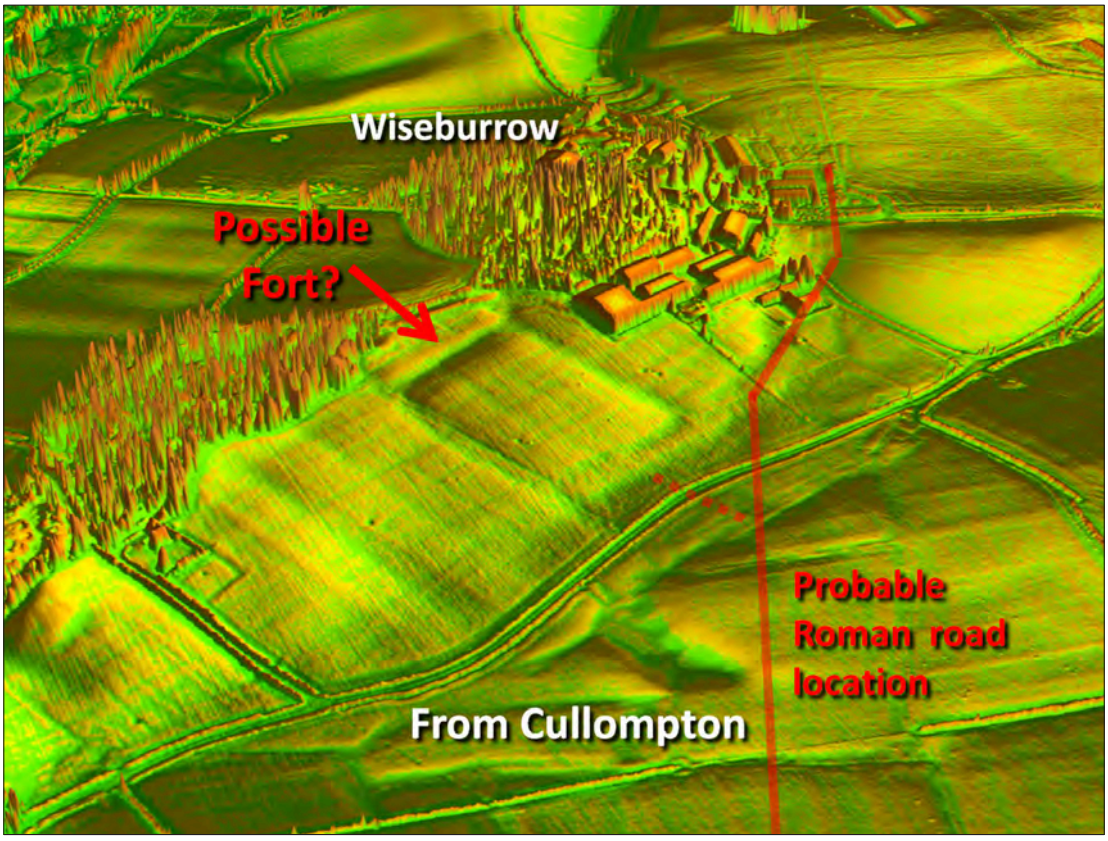


Figure 15. The possible Roman fort site alongside the road near Wiseburrow. This would be at the correct spacing for an intermediate fort. Base Lidar data is © Environment Agency copyright and/or database right 2023. All rights reserved. Lidar data is © Environment Agency copyright and/or database right 2023. All rights reserved.

supporting this in the lidar imagery whereas what clues are visible strongly suggests a route again adapting more to the contours. The most obvious feature supporting this is a substantial cutting climbing a small hillock to the west of Screedy (bottom of Fig. 18, ST 09091 25592). The north end of this cutting matches the (definite) straight alignment passing the fort so is strongly suggestive of it being Roman. This cutting is angled compared to the fort alignment so effectively discounts that alignment continuing further to the south. In addition, the fact that some lidar traces, admittedly faint, to the south of here would connect to this cutting strongly suggests the lidar route via the cutting as being most likely correct.

From the small hillock the straight alignment passing Wiveliscombe fort on it eastern side begins (Fig.18). This length was correctly recognised by Hugh Toller 10 years ago and is marked up on his maps. This alignment has several well surviving *agger* sections but perhaps surprisingly its direction is around 200 metres to the east of the fort. Perhaps there was an annex or vicus present on the fort's eastern side that the road needed to avoid. There is some evidence for a possible link road branching west and heading along the north side of the fort.

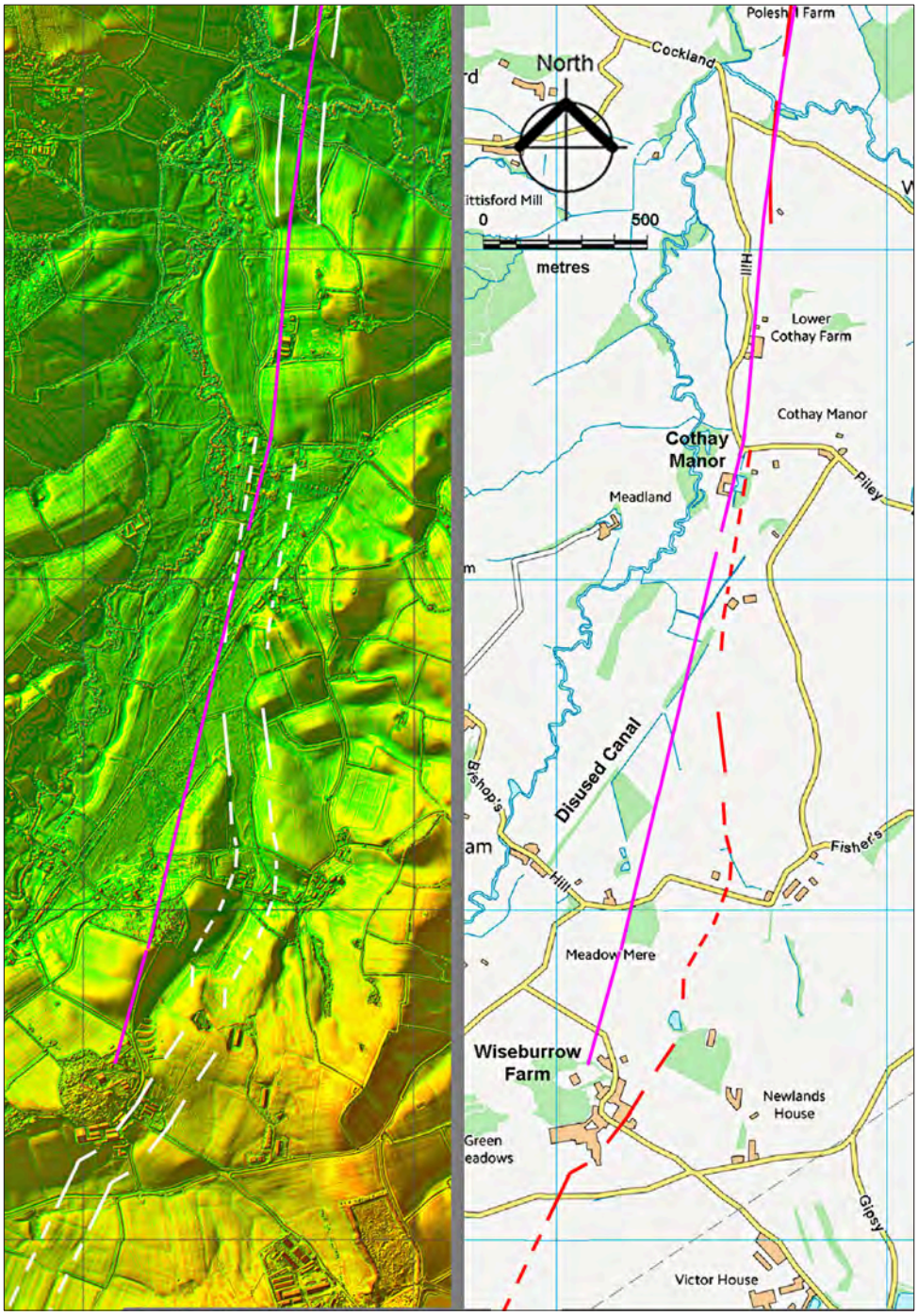


Figure 16. The Somerset HER route (magenta) assumes a straight alignment from Wiseburrow but what evidence there is suggests a route adapting more to the contours and keeping to drier ground. Base Lidar data is © Environment Agency copyright and/or database right 2023. All rights reserved.. Contains Ordnance Survey data © Crown Copyright and/or database right, 2023.

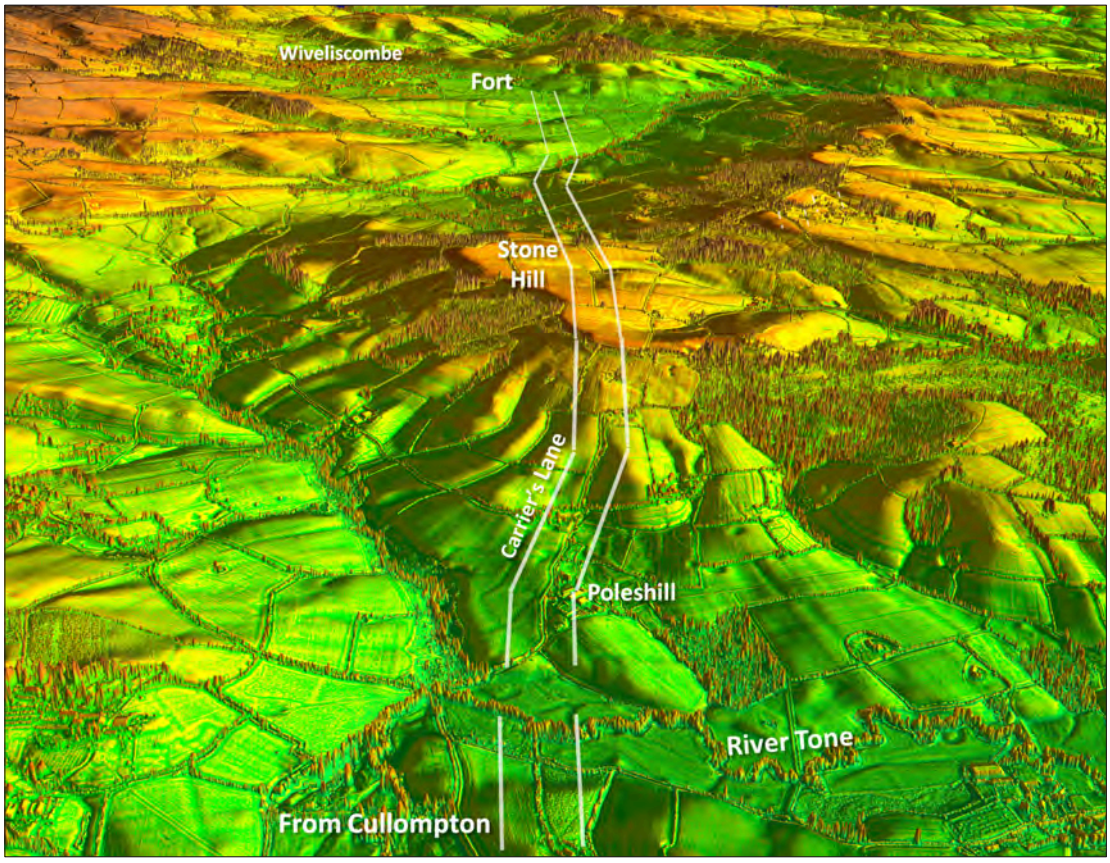


Figure 17. The climb up from the River Tone via Poleshill to and over Stone Hill is very clear in this oblique Lidar image. Base Lidar data is © Environment Agency copyright and/or database right 2023. All rights reserved. Lidar data is © Crown Copyright 2023.

Section 4: Wiveliscombe towards Watchet

The straight alignment passing the fort would take the road up a relatively steep escarpment to the north of the B3227 near Manor Farm (Fig. 19). Again the Somerset HER line depicts the Roman road as a continuing straight line towards the vllage of Ford directly up that escarpment. However, on steep slopes the Romans typically angled or zig-zagged up the slope to lessen the gradient. There is clear evidence that they did just that i.e. angled across the slope with a small zig-zag cutting at the top (ST 09180 27845). A possible (second) link road from the fort probably joined the incline (Fig 19, left) Having climbed the escarpment, the road angled back to rejoin an extension of the main Wiveliscombe alignment - a not uncommon feature of Roman road surveying. Heading into the village of Ford is a prominent terrace which fixes the line (Fig.19 – right, bottom edge, ST 09290 28687). There is a short gap across Ford but evidence of *aggers* resumes just before and after a small stream was crossed near a modern footbridge (ST 09266 29294).

The route now becomes relatively direct and easy to trace all the way to the Elworthy valley near Rook's Nest (Fig. 19, right). The climb from the stream at Ford angles across the slope and passes to the west of Oakhampton Farm (ST 09272 30267). Approaching Middle Stone Farm then there is a

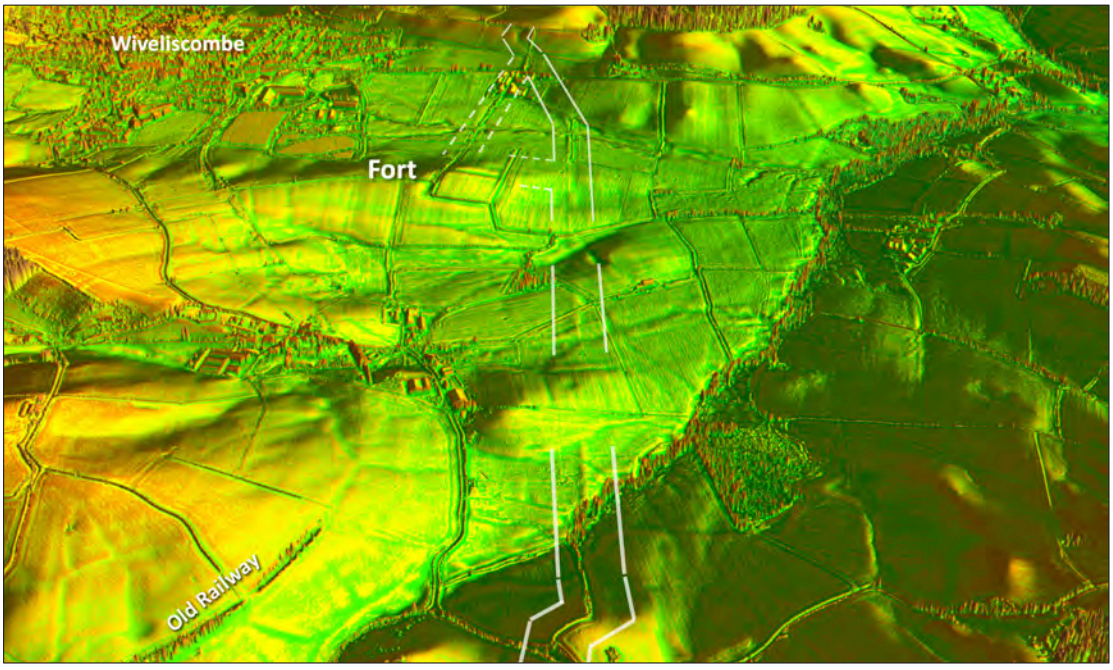


Figure 18. The alignment passing Wiveliscombe fort is set out from the small hillock towards the bottom of this Lidar image. To climb the hillock an angled cutting was employed (towards bottom edge).

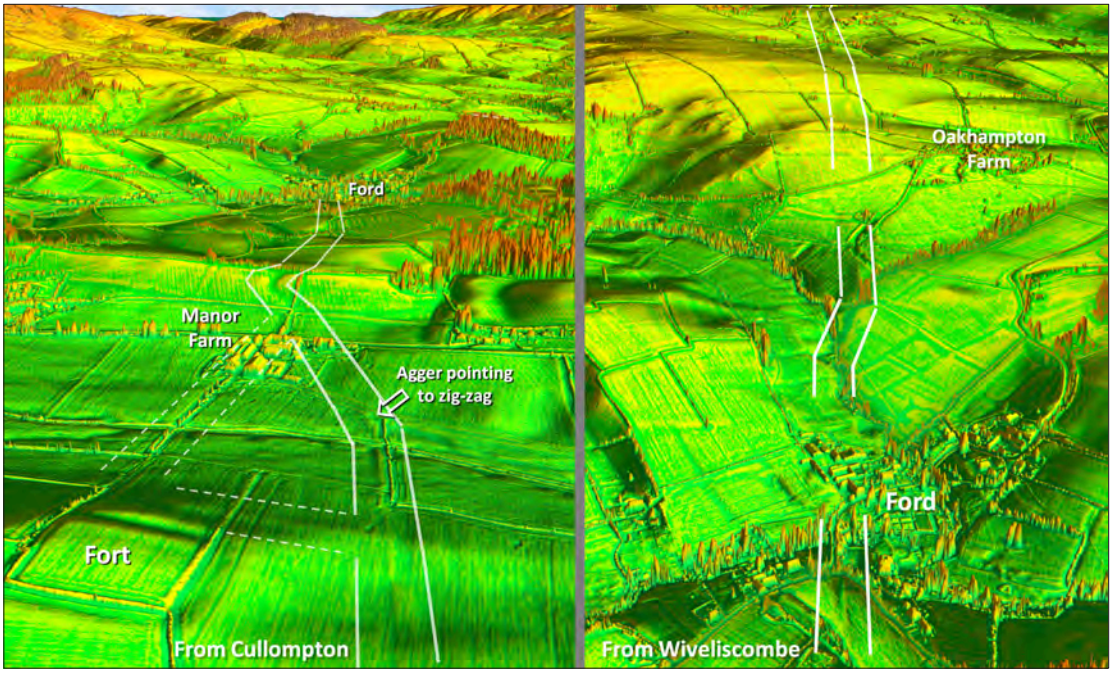


Figure 19. Oblique Lidar images depicting the route from the fort at Wiveliscombe to Ford (left) and carrying on to the north beyond the village of Ford (right). Base Lidar data is © Environment Agency copyright and/or database right 2023. All rights reserved.

particular prominent *agger* (ST 09213 30972) and at the next stream crossing the road becomes a shallow hollow-way. The line will eventually merge into the B3188 (Fig.20 – left) just to the north of a modern footpath (ST 09104 33049).

From Rook's Farm then the B3188 undoubtedly overlays the Roman road as it is really the only practical route through the valley. The Somerset HER line, rather than following the modern road, is again depicted as a single straight line between the two ends of the valley. There is nothing visible supporting this and in reality it makes little sense as it would involve traversing across two hill sides. Only when the Roman road climbs out of the valley does its course become evident again (Fig. 20 – right). However, exactly where the Roman road diverged from the modern road can only be estimated by projecting the visible section southwards. It was most likely where the old road, now a footpath, diverges from the B3188 (ST 08766 34316).

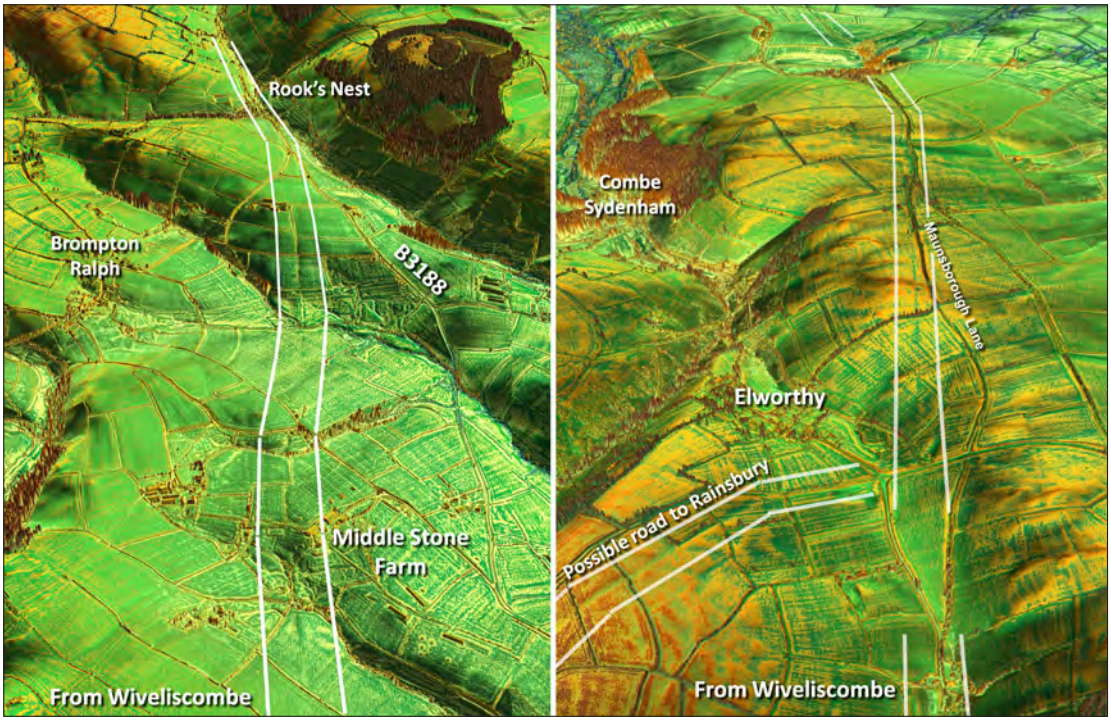


Figure 20. Oblique Lidar images of the approach to the Rook's Nest to Elworthy valley (left) and the road then climbing out of the valley (right). Also visible is a possible Roman road to Rainsbury. The modern road coming in from the east (right) here could mark a Roman road from Bridgwater – see later. Base Lidar data is © Environment Agency copyright and/or database right 2023. All rights reserved.

This route therefore crosses the B2334 about 200 metres east of Elworthy Cross (ST 08735 34730). This spot was likely an important Roman road junction (Fig. 1) with a road possibly coming in from the east from Bridgwater and one heading south-westwards to Rainsbury (see later). Beyond the B2334 the road becomes obvious (ST 08730 34917) as it heads up towards a footpath known as Maunsborough Lane, initially to the west of the footpath but eventually merging into it (ST 08693 35767). Surprisingly this rather obvious section is missing from the Somerset HER.

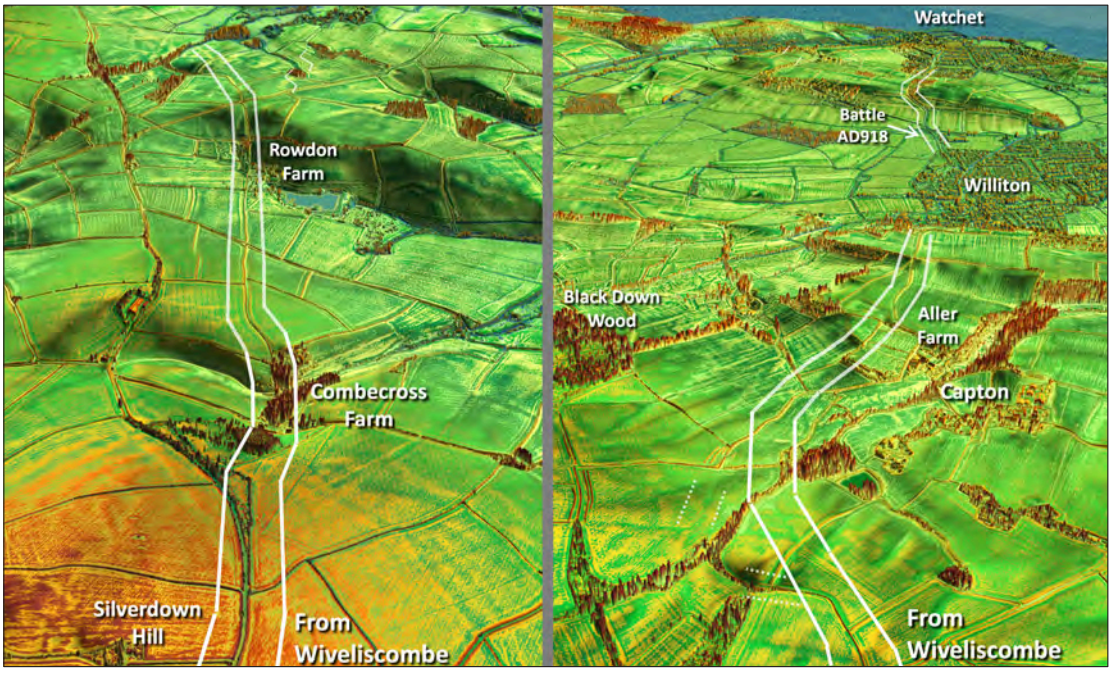


Figure 21. Left- the straight alignment to Rowdon Farm and beyond is interrupted by a detour at Combecross Farm. Right- at the stream beyond Rowdon Farm there are perhaps two routes, second option shown dotted, before the approach to Williton. Beyond Williton the route climbs diagonally up a hillside before heading down into Watchet (right). Base Lidar data is © Environment Agency copyright and/or database right 2023. All rights reserved.

Maunsborough Lane itself eventually merges into a modern road with which the Roman line shares for around 500 metres to Silverdown Hill. The modern and Roman routes then diverge with the Roman line, as would be expected, carrying straight on (Fig.21 – left, ST 08659 36456). The road drops down to cross a small valley and adapts to the contours with a sideways step to the east at Combecross Farm/Silverdown Cottage. The straight alignment is soon regained and continues past Rowdon Farm (*agger* at ST 08108 38122) to the crest of a hill where a modern road crosses it (ST 07978 38471). As well as being very prominent this length is accompanied by a parish boundary giving more support that it is indeed the Roman line. A slight turn to the west then occurs as the road has to drop down to negotiate another stream. There appear to be two options for the stream crossing both with visible lidar evidence. One is direct and one more indirect but having a more gradual climb on the north side of the stream (Fig.21 – right). The Somerset HER line finishes at the steam with no route depicted any further to the north.

Evidence does now become more intermittent but the Roman road clearly must have carried on and is initially supported by a very prominent section of *agger* near Aller Farm (ST07594 39556) heading towards Williton. There is a clear logic to this route as it targets a low point in an escarpment as it approaches Williton (ST 07684 40257). Through Williton then we should not expect to find any visible sign in the lidar imagery but the alignment of Fore Street and North Street would fit with the evidence either side of the village.

Between Williton and Watchet there is a transverse hill and the first stretch of North Street is aligned towards the best practical point to climb it. This is a small valley that provides an angled easy ascent

(ST 07332 41998), typical of what we would expect of Roman surveying to follow, so in all likelihood does represent the Roman route. This is today marked by a very minor road as far a Grove Copse where a footpath and later Woodland Road/South Road continues a straight alignment into Watchet. Before the ascent, alongside the road is Battle Gore, which was probably named after the site of a battle in AD 918.

Full strip route maps for the road are included in Appendix A.

The Roman Road from Exeter to North Tawton, RR492a

Introduction

Hugh's archive clearly demonstrates he was the first to correctly trace virtually all this road from North Tawton to Half Moon Village, although the first three miles east of North Tawton were previously well recorded (Fig. 22). Salvatore et al. (2019), with Hugh credited posthumously as one of the authors, comprehensively described the western half of this road with the last kilometre or so taking the road to Gunstone Cross (SX 80609 99204). Hugh's suggested line did not take the route via Gunstone Cross and his route there, as we shall see, was much closer to the course indicated by the latest lidar imagery, well to the south of Gunstone Cross. Hugh had, as referred to above, also located

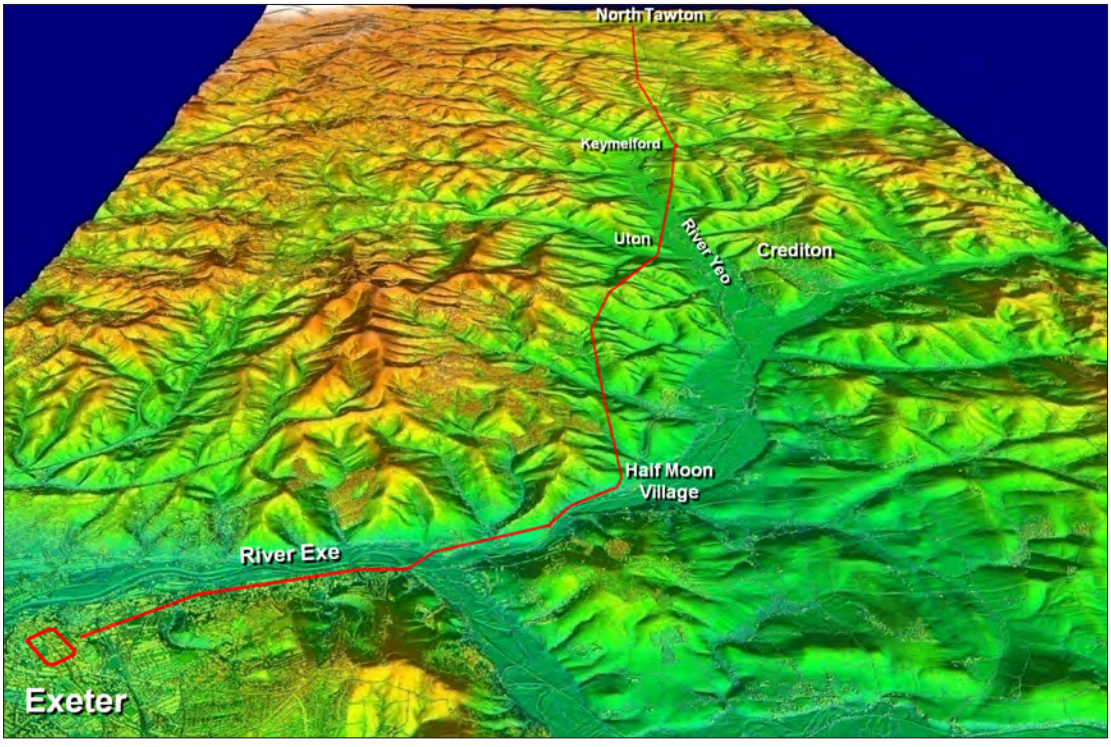


Figure 22. Oblique Lidar view showing the route of Roman Road RR492a largely as determined by Hugh Toller. Key locations mentioned in the text are also depicted. The route from Exeter to Half Moon Village is covered by modern roads so is somewhat subjective. Base Lidar data is © Environment Agency copyright and/or database right 2023. All rights reserved.

the route onward to Half Moon Village. However, Hugh's onward route was rejected in that paper but has since been confirmed as largely correct (Kaye, 2023). The latter references an unpublished paper (Salvatore et al., 2022) but strangely perpetuates the erroneous Gunstone Cross location referring to the route as from Gunstone Cross to Half Moon Village.

However, as this road is covered in two separate papers with some apparent inconsistencies it is felt an overall strategic look at the full route first identified by Hugh, with only some minor adjustments, is fully justified. Plus, I am sure the authors of the first paper would agree, that paper featured early lidar data of very low quality. It is surely opportune therefore to use the latest lidar data to give an updated view of this important road in its entirety. The route is mostly shown in the Devon HER (MDV132948).

The Route

Heading north from Exeter the course of the route only becomes extant around Half Moon Village when it turns off the A377 and heads westerly into open countryside (Fig. 23, SX 89390 97426). To reach this point it is probably safe to assume the road left the fortress's north gate and merged in with the A377 before crossing the River Exe at or near the modern Cowley Bridge. The straight alignment through Cowley is strongly suggestive of this and the Devon HER adopts the same course. As far as Half Moon Village then it is very likely the A377 overlies the Roman road. The westwards turn at Half Moon Village is perhaps suggestive that the Roman road to North Tawton was a branch off, and therefore later, than the road to Credition – see later.

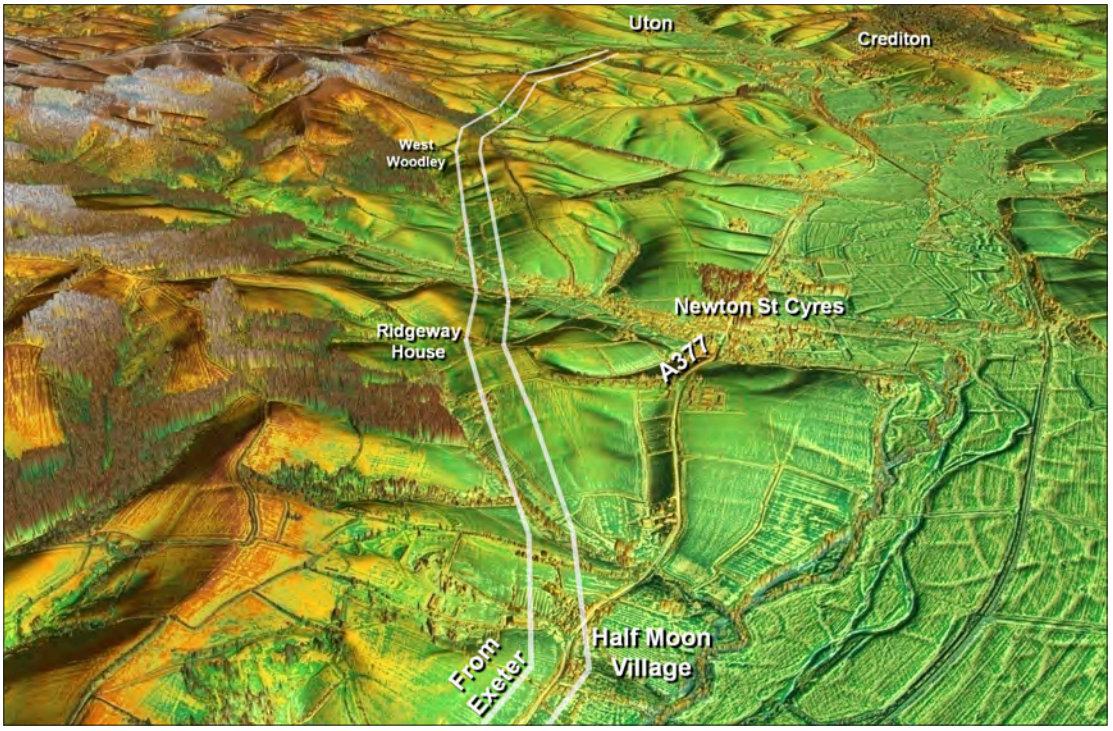


Figure 23. Oblique Lidar view showing the start of the visible section from Half Moon Village to Uton. Base Lidar data is © Environment Agency copyright and/or database right 2023. All rights reserved.

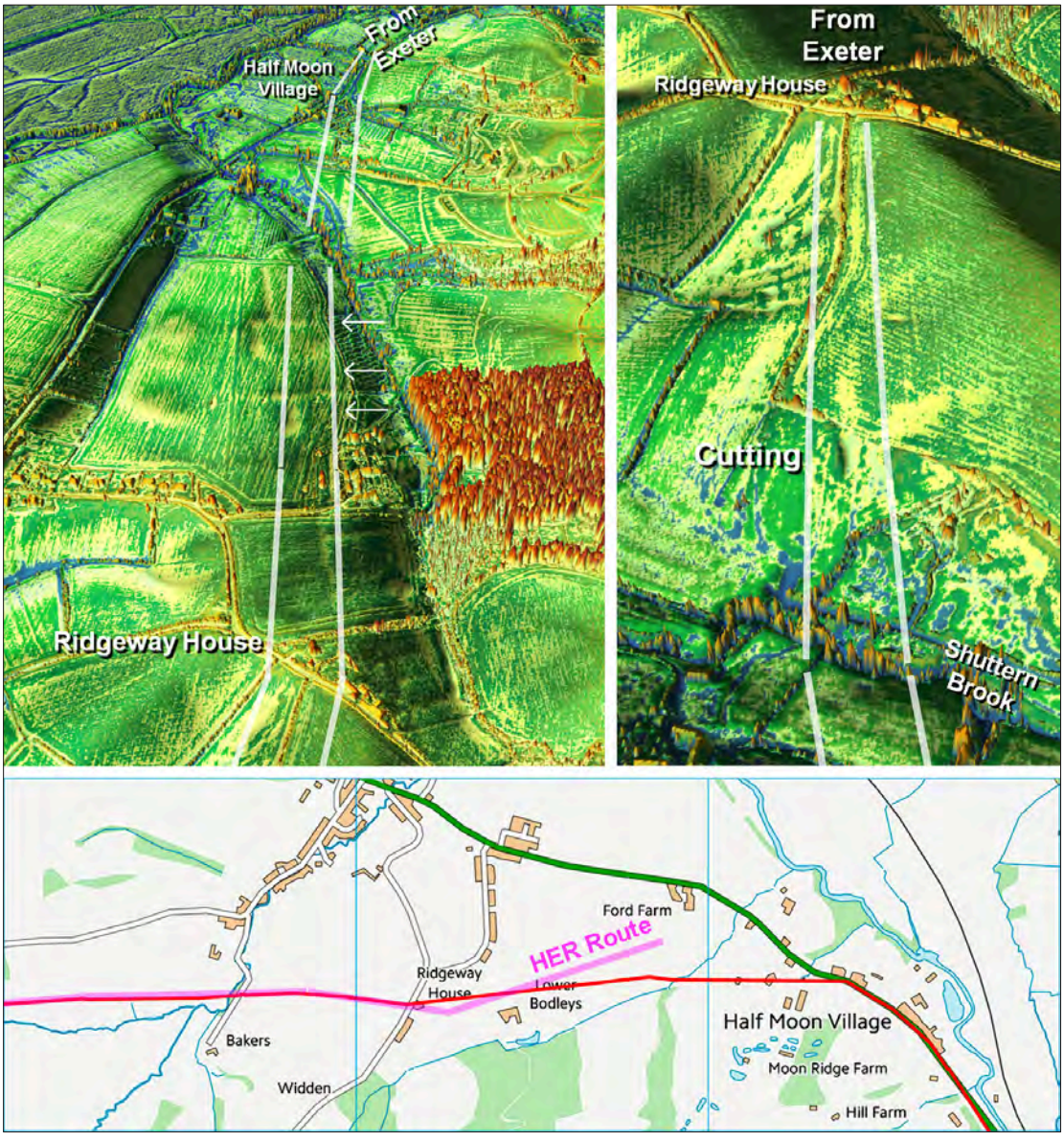


Figure 24. Top Left – looking back from Ridgeway House to Half Moon village where faint traces of the road (white arrows) are evident. Top Right – the descent from Ridgeway House to Shuttern Brook features a little cutting. Bottom – route plan west from Half Moon Village with the suggested route in red and that depicted in the Devon HER shown in magenta. Base Lidar data is © Environment Agency copyright and/or database right 2023. All rights reserved. Contains Ordnance Survey data © Crown copyright and database right, 2023.

The initial westerly section referred to above takes the road down to a little stream (SX 88926 97435). Across the stream then the lidar evidence is faint (Fig. 24 - top left) but it is sufficient to confirm the line to Ridgeway House – a very suggestive name of course (SX 88150 97351). The Devon HER adopts a dog-leg alignment (Fig. 24, bottom) and whilst there are two (disconnected) features on this line

they appear to be old field boundaries and in reality would not provide a very logical route. The alignment to Ridgeway House depicted in red (Fig. 24, bottom) is strongly suggested as the more likely to be correct. The descent from Ridgeway House is clear and features a little cutting, presumably to even the gradient (Fig. 24 – top right).

Beyond Ridgeway House the lidar evidence becomes clearer and broadly confirms Hugh's route to Uton as plotted in his archive. Comparing his route to that revealed on the latest lidar imagery it is rarely further off line more than a few tens of metres and generally much closer.

There was a fractional alignment change passing Ridgeway House and another at Shuttern Brook (Fig. 24 right, SX 87642 97377). The next alignment continues until a more substantial turn is made near

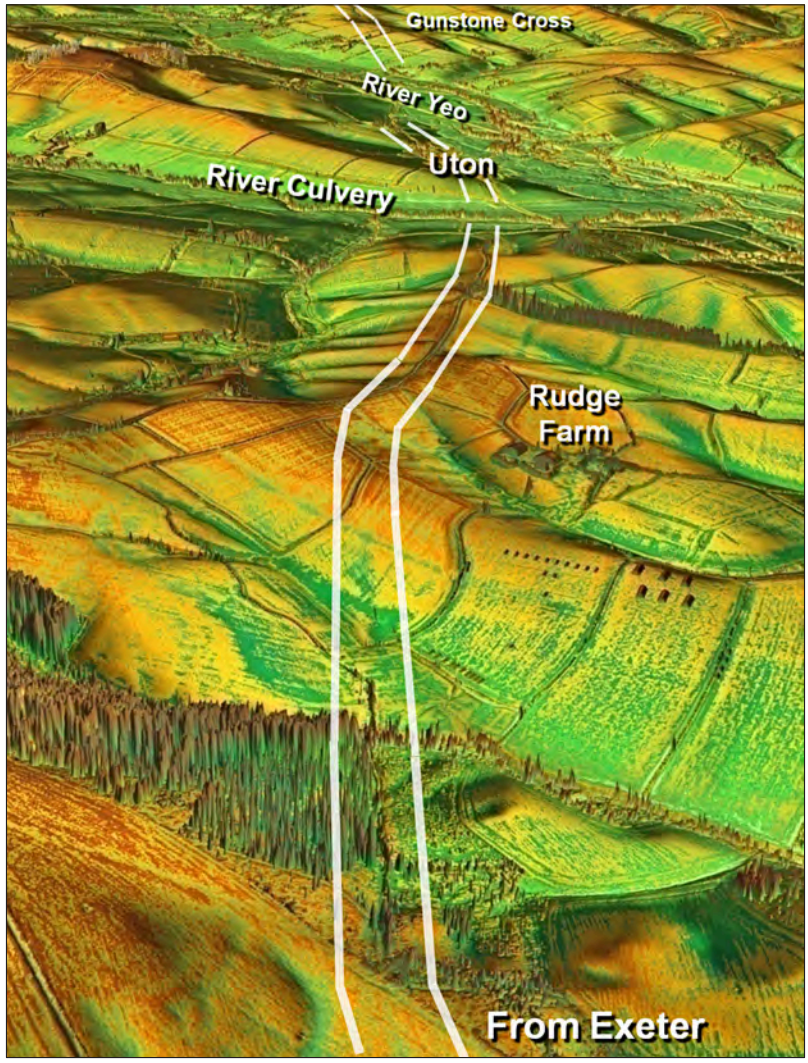


Figure 25. Oblique Lidar image from above West Woodley looking along the line of the Roman road heading to Uton. Base Lidar data is © Environment Agency copyright and/or database right 2023. All rights reserved.

West Woodley (SX 86004 97347). There follows an excellently surviving stretch (Fig. 25), first angling down the slope to cross stream (SX 85566 97480) and again angling up the slope to another ridge, where a short length of *agger* is visible (SX 84886 97703). Here another turn takes place although the exact point is not evident. There then follows a stretch along a ridge of high ground before the descent towards Uton.

That descent towards Uton is partly overlain by a modern road, which when it swings off at Broomfield is continued by field boundaries, at least initially. After approximately 200 metres the field boundary and the Roman line diverge. This divergence is evident in the lidar imagery (Fig. 26) but the course onward in actually clearer in aerial photographs (Fig. 26 inset). Across the River Culvery there is another trace visible in both lidar and aerial photographs (SX 83210 98460), which would align well. Beyond Uton the modern road marks the Roman line approximately, which though would most likely have been somewhat straighter.



Figure 26. The descent and crossing of the River Culvery. A combination of Lidar and aerial photography is able to reveal the Roman road's course here. Base Lidar data is © Environment Agency copyright and/or database right 2023. All rights reserved. Inset: Aerial photo confirming the route across the River Carvery. Aerial Photograph © 2023 Google.

Approaching the River Yeo on its south bank there is only the slightest of possible traces of the Roman line in the valley bottom (Fig. 27, SX 81577 98832). Fortunately though, on the north bank

there is a much more definite *agger* marking the start of a new alignment (SX 81212 98933). Hugh's original line from here is similar to what the current lidar has revealed although not exactly – see later. However, despite Hugh being credited as one of the authors, the published Roman line (Salvatore et al., 2019) took a different line, away from Hugh's, and headed to Gunstone Cross (Fig. 27 - right). We now know this was not the case.

The Devon HER, at the time of writing, appears to have adopted Hugh's line (not the 2019 suggestion), which is shown merging into the modern road adjacent to Stockydown/Holwell Barton (Fig. 27 right). However, the alignment from the River Yeo crossing aims to the west of the modern road there and lidar imagery does suggest the Roman road is in the fields (Fig. 27 left, SX 80024 99177 & SX 79661 99240). This would provide a typically straight section that would eventually merge into the modern road at Potshop Cross heading towards Brandise Cross.

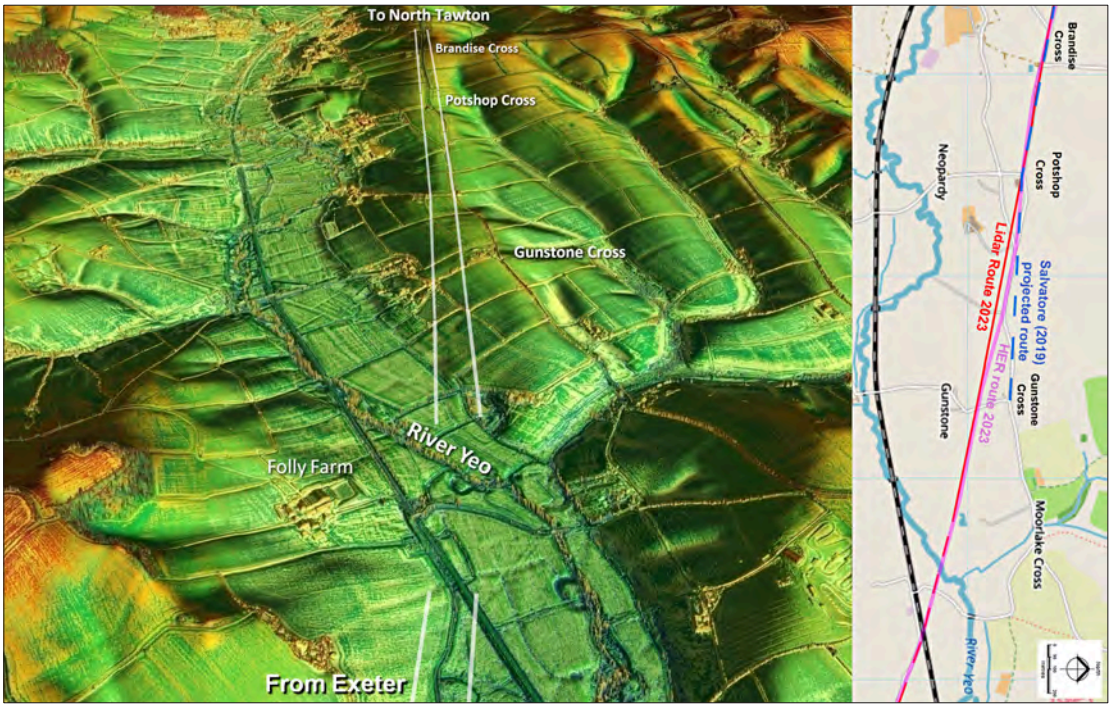


Figure 27. Oblique Lidar view showing the road crossing the River Yeo and heading onwards via Brandise Cross. The various routes suggested over the years are plotted on the map to the right. This has been orientated to better match the Lidar view. Base Lidar data is © Environment Agency copyright and/or database right 2023. All rights reserved. Mapping is Openstreetmap © Contributors.

The road is now running along a ridge but eventually has to drop down 30 metres in height for a crossing of the river at Keymelford, today a ford. For the descent, the Roman surveyor angled the road across the slope and utilised a dog-leg to reduce the gradient (Fig. 28 - left) – a fairly typical solution. From here to North Tawton there are basically now just two alignments with the slight change of direction near Hilldown Farm. The first alignment from Keymelford initially follows a valley route but eventually climbs to the more usual higher ground. A feature of this stretch is the number of long cuttings/terrace-ways both before and after Horwell Wood (Fig. 28 - left & right). Several of these were previously labelled as *aggers* (Salvatore et al., 2019) but as lidar (3D) now shows were not upstanding features, very much the reverse.

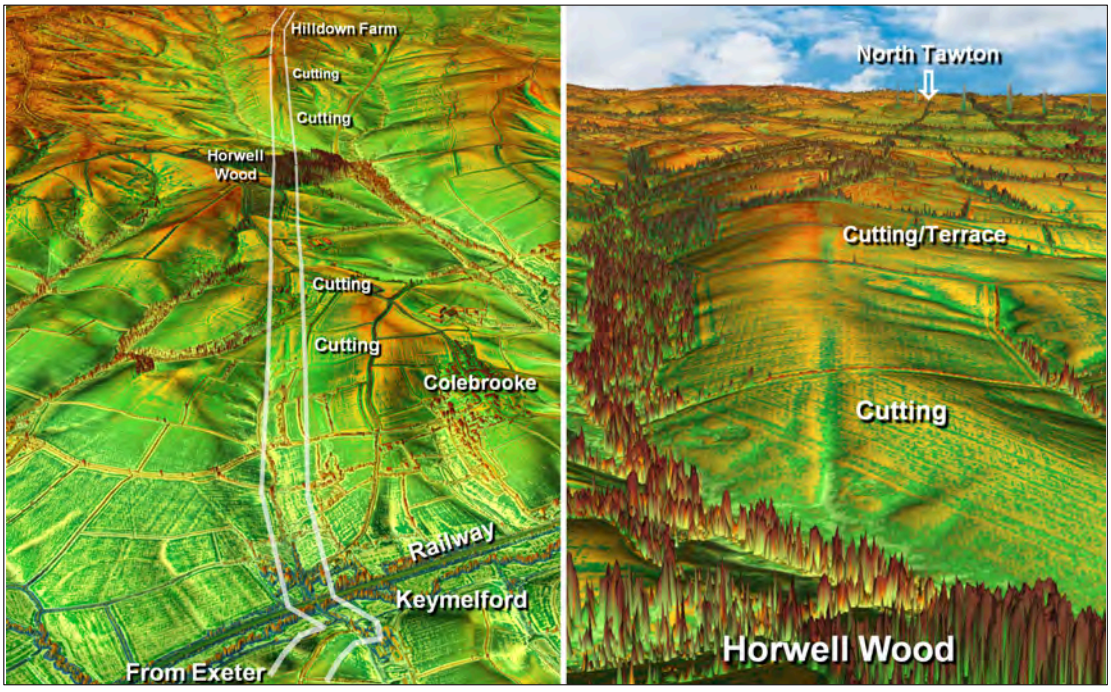


Figure 28. Left - The descent at Keymelford utilises a typical zig-zag and there follows a long alignment to Hilldown Farm featuring prominent cuttings/terraces. Right – close up of the cuttings/terraces beyond Harwell Wood. Base Lidar data is © Environment Agency copyright and/or database right 2023. All rights reserved.

The change of direction at Hilldown Farm (SX 73117 99379) is only a few degrees but the road now is clearly aiming directly for the North Tawton Roman site (Fig. 29). It has a slight sideways step at Brownsland to ease the climb up the slope there (Fig. 29 – inset) but from then on there are no major diversions. This last alignment is followed by parish boundaries and is marked as Roman Road on modern Ordnance Survey mapping. Observations of the road construction at Den Brook, about 1 mile east of the North Tawton site, have been recorded (Salvatore & Knight, 1991) with perhaps a surprisingly narrow road width of 5 metres.

The Roman road from Exeter heads directly into and across the site (Fig. 30). The site at North Tawton is extremely complex and extensive. The late Paul Bidwell was one of the first to evaluate the site in 1979 but subsequently wrote (November 2019) in an email to John Poulter: "*....the sequence at North Tawton is much more complicated than was apparent in 1979*". It was studied intensively by Hugh Toller and his colleague Bryn Gethin in the very early days of lidar. I was only involved on the periphery then as they tried to make sense of what was evident and there were many discussions and debates on whether the circular feature, known as Bathe Pool, was indeed an amphitheatre.

This was what Hugh wrote in 2011:

> *'Bathe Pool survives as a nearly circular earthwork with a central hollow transacted by an east-west hedgerow. Approx one sixth of the circumference lies in the field to the north. The internal slopes descend to a central circular area a few metres across. The whole earthwork is approx 100m in diameter to the base of the external bank. The hollow is excavated into the natural bank north-east of the WNW to ESE stream across the north side of the fortress site, and the excavated material has been*

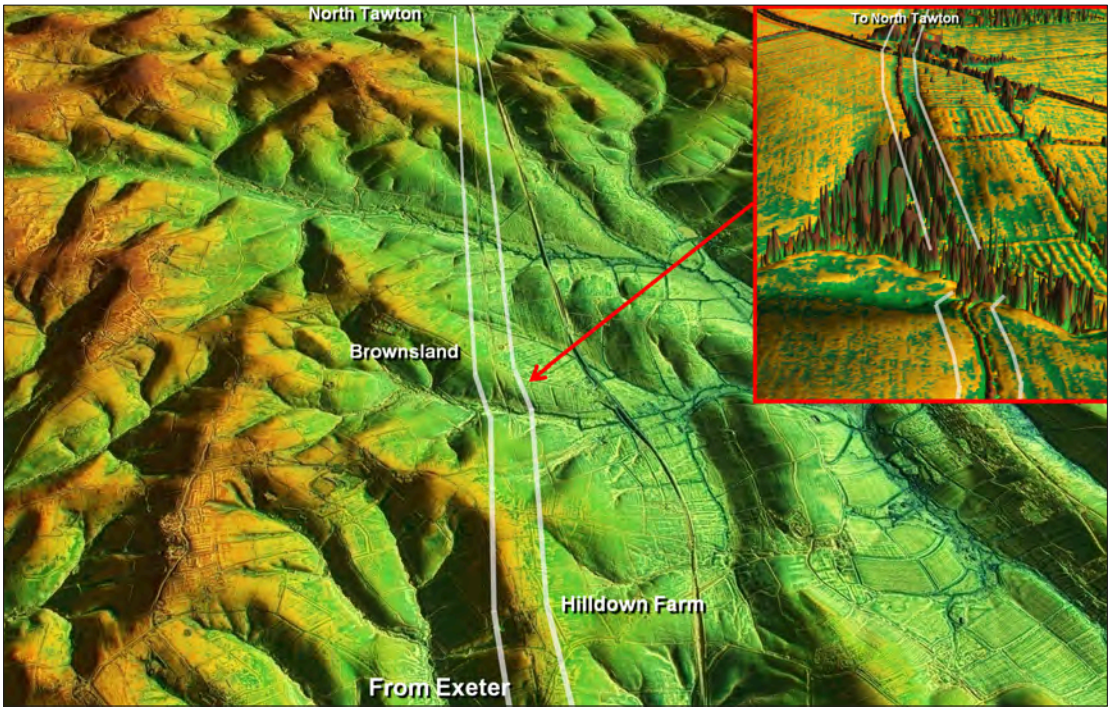


Figure 29. Above. Oblique DTM Lidar image of the final alignment to North Tawton from Hilldown. The straight alignment is interrupted by the road having to angle across the slope at Brownsland. Inset: close up view of the incline at Brownsland (DSM imagery). Base Lidar data is © Environment Agency copyright and/or database right 2023. All rights reserved.

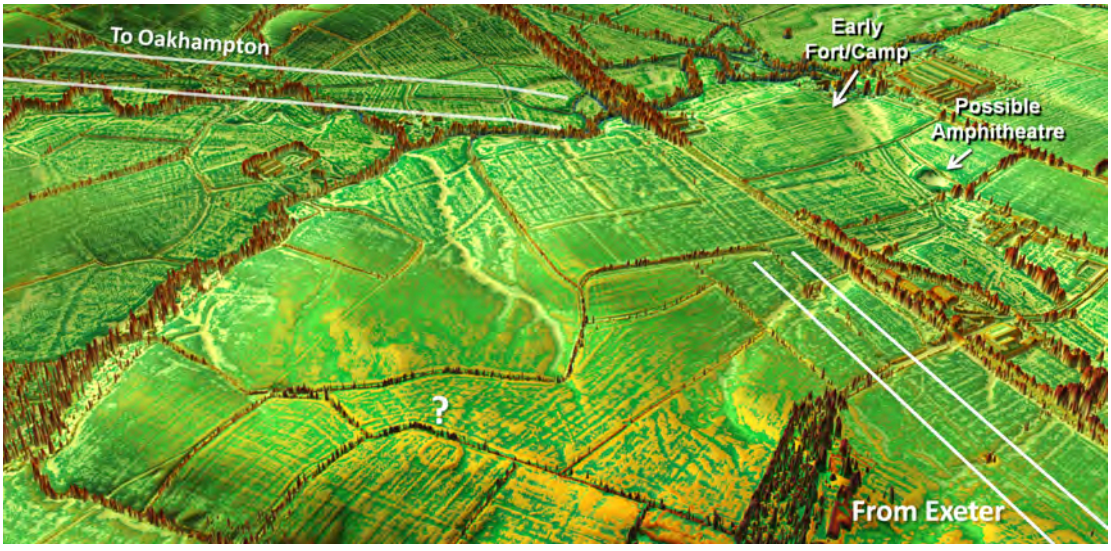


Figure 30. Below. The complex North Tawton Roman site. Variously described as a fortress and/or town it covers a large area and appears to extend in an L-shape to what may have been an amphitheatre. The function of the ring feature, marked with a '?', is uncertain but possibly could be a watch or signal tower. Base Lidar data is © Environment Agency copyright and/or database right 2023. All rights reserved.

used to build up the south-west part of the bank The eastern internal downslope is approx 46m and the western approx 28m. This differential may arise because the western side has denuded over time. This earthwork has every appearance of being a Roman amphitheatre'.

North Tawton as a whole is clearly unlike any of the other Devon area forts and has since been described as more likely a town by Dr. Chris Smart in his lecture to the Roman Roads Research Association (2023). Such a large 'town', perhaps within an earlier fortress, could well have warranted an amphitheatre.

Having passed through the North Tawton site the road immediately crossed the River Taw and then made a turn to the south-west of approximately 50 degrees towards Oakhampton. As regards a strategic road to the far south-west this arrangement via North Tawton is far from being direct and is perhaps a little odd. It could have suggested the connection onward to Oakhampton was a branch off a road that possibly continued straight on and headed further to the west. However, despite extensive searching, no indication of such a road heading further west was detected.

Hugh did plot the road onward via Oakhampton but his records indicate he had not completed his research much beyond there. Full strips maps of the road from Exeter to North Tawton plus the alignment onwards towards Oakhampton are included in Appendix B.

The Roman Road from Exeter to the North-West, RR493

This road has been included for completeness but in reality it would appear from Hugh's archive that although he had a section devoted to it he had not documented much progress. His section was entitled Exeter to Bideford so he clearly anticipated a long distant route. His primary record was his photocopy of the OS File (Mike Haken, personal comment), no doubt supplemented by Margary (p123).

The OS File and the Margary description both appear to be based on a letter Frere wrote describing a series of straight roads from Crediton (note no mention of an Exeter connection) via Copplestone, Down St Mary, Aller Bridge, Wembworthy, Stable Green and Ashreigny to Burrington Moor (Fig. 31). Beyond the latter Frere suggested either Bideford or Barnstaple could be the road's destination. The letter was dated April 1966.

Unknown at that time to both Margary and Frere were the Roman forts at Bury Barton and Bishop's Tawton, Great Westacott Farm. The latter was only recognised in 2011 by Bryn Gethin. These two sites however, are more supportive of a Roman route along the Taw valley rather than Frere's alignment of modern straight roads further to the west via Wembworthy/Burrington Moor. The forts are also equally spaced from Exeter so an Exeter to Bishop's Tawton Roman road would make perfect sense and we can now be reasonably confident it did exist, almost certainly as far as Bury Barton (Fig. 31). The Devon HER depicts the "route" via Burrington Moor.

The Route

The initial route from Exeter would be that shared with the road to North Tawton. As mentioned earlier a good case can be made for this road being the original with the North Tawton a branch off it. The A377 undoubtedly masks the Roman line from Half Moon Village to Newton St Cyres, although at the former it probably took a more direct line across the little stream (SX 89314 97478, see



Figure 31. The probable Roman road north-west from Exeter showing the location of the forts at Bury Barton and Bishop's Tawton. The route suggested by Frere branched off just north of Copplestone and headed via Wembworthy and Burrington Moor. Contains Ordnance Survey data © Crown Copyright and database, 2023.

Appendix C). There is a very straight alignment of around a mile approaching Broadgate (a very suggestive name). At Smallbrook, the A377 then swings off but signs of an older route carrying straight on are evident towards Dunscombe (SX 86363 98822). An old abandoned stretch of the A377

(SX 86057 99019) almost certainly marks the Roman line as we shall see it matches the alignment crossing the river (Fig. 32 - left).

The road now has to cross the River Yeo flood plain. Normally flood plains are notorious for washing away any Roman road evidence but in this instance we are fortunate that three *agger* traces have survived heading towards Downes Head Farm. Confidence in these being our road is increased by all three lying on same line (SX 85752 99220, SX 85288 99528 & SX 84971 99751). Beyond the farm the road made a turn and a faint trace of the former Downeshead Lane (SS 84294 00012), now long abandoned, suggests the road is an alignment that would fit well with a continuation via Western Road through Crediton.

Beyond Crediton the next clue is at Spence Combe. Here the modern A377 takes a wide meander to navigate the combe but on the inside of the bend, on a more direct and typical Roman route, there are the signs of a prominent *agger* (Fig. 32, right, SS 79293 01621). The A377 undoubtedly covers the rest of the route to Bury Barton. Supporting this is that the modern road features long straights from Copplestone to Water Bridge and then onwards to within about half a mile from Bury Barton (see

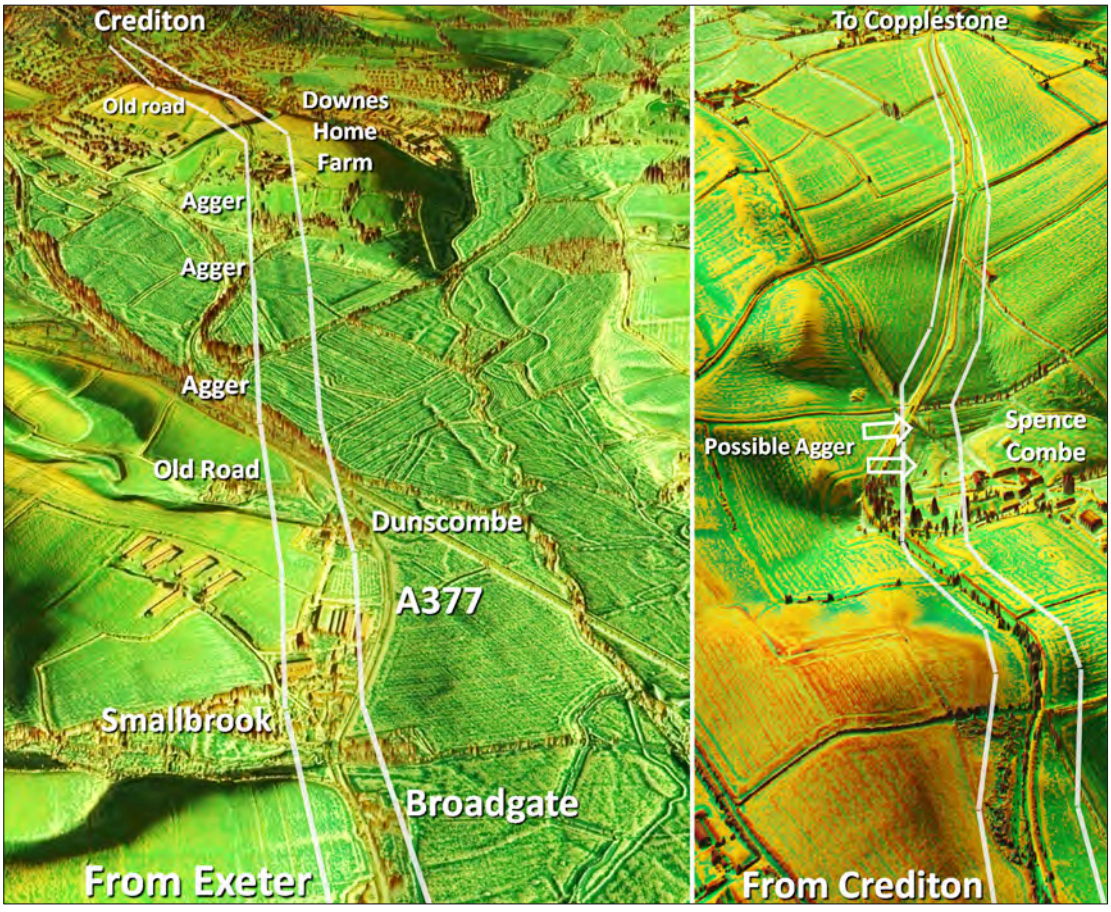


Figure 32. Left: Looking north-west from Broadgate towards Crediton. Several extant surviving features all align supporting this as being the route of the Roman road from Exeter to Bury Barton. Right: The possible agger traces on the inside of the bend of the A377 at Spence Combe. Base Lidar data is © Environment Agency copyright and/or database right 2023. All rights reserved.

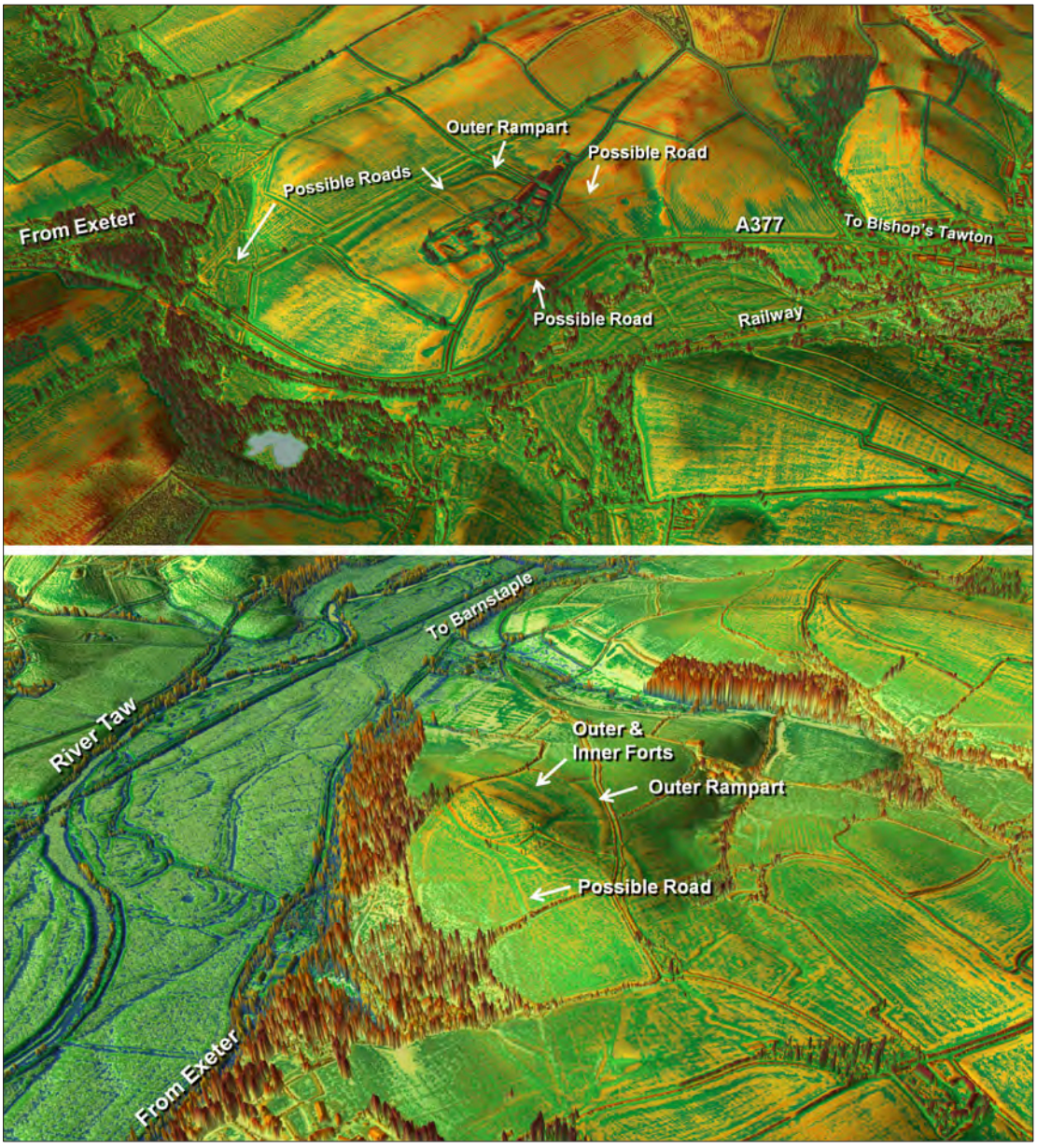


Figure 33. Top - the Roman fort sites of Bury Barton. Bottom – the Bishop's Tawton fort site. In both instances there some indications of possible Roman roads accessing the forts. Base Lidar data is © Environment Agency copyright and/or database right 2023. All rights reserved.

Appendix C). There is some evidence of connecting roads at Bury Barton (Fig. 33, top) It would be logical for the road to have continued on to Bishop's Tawton (Fig. 33, bottom) but again the A377 probably masks any evidence. The ultimate destination is unknown.

Strip route maps of the section from Half Moon Village to Spence Combe are included in Appendix C.

The Roman Road from Exeter to Tiverton, RR496(x)

Again this was clearly work in progress for Hugh and was far from complete with only early progress up to 2011 recorded in the archive. However, it did consist of two important, but disconnected sections, strongly hinting as to this road's existence (Fig. 34). The first was in the vicinity of Exeter heading north-east whilst the second, just south of Tiverton, was remarkable for the plethora of causeway names recorded there – a sure indication of an old road and often one of Roman origin. Hugh allocated himself the number RR494 to this road and most surely deserves primary credit for its recognition. This work achieved the more formal allocation of the number RR496(x) and that will be used here.

The Route

In assessing the evidence for a Roman road leaving Exeter in a north-easterly direction Hugh had written:-

> *'Possible Roman roads north-east of Exeter: Two possible SSW to NNE routes are under examination, both of which show features within woodland on lidar imagery that could represent structural remains of a Roman road. One runs past Stoke hill and down towards Stoke Canon through Stoke woods. Unfortunately this woodland is used for a paint ball centre called S[kirmish] and owned by Martin Collins. Fieldwork will have to be undertaken here in the winter.*
>
> *The second runs 1km to the east through Stoke Post and Huxham Brake towards Huxham. Lidar imagery shows traces within Huxham Brake. South of the woodland a length of 6m wide road terrace survives climbing across an arable field up the slope towards Stoke Post. This may well be part of a Roman road but is not sufficient evidence on its own.'*

It is confusing that there are two roads and two Stoke Hills! Both these roads are clearly older roads to Stoke Canon for where there is a crossing of the River Exe. Today the modern road, A396, takes a much longer lower route. The first of Hugh's suggestions passes the known Roman Signal Station but is somewhat indirect. The second, perhaps aptly called Tiverton Old Road, is more direct and would therefore seem the more likely to be the Roman route (Fig. 35). Supporting this is its engineering employing typical Roman zig-zags for its descent and subsequent ascent from Mincinglake Bridge (SX 93398 94521). At the top of the ascent (of Stoke Hill) the modern road swings off line but there is clear evidence in the lidar imagery for an older direct route (SX 93599 95186). However, it must be admitted there are several braided routes here confusing the issue but the one quoted is the most direct and therefore the most Roman-like. On the basis of these two clues it is thought the second of Hugh's routes is the much more likely.

Turning next to the evidence just to the south of Tiverton, i.e. those causeway names, Hugh had clearly recognised the significance of an article by Nicolson (1995), which included a map of the many causeway names alongside the Long Causeway road (Fig. 36). This road is a ridge route, well out of the valley, and is reasonably well aligned on Tiverton Roman fort. The existence of so many causeway names is generally suggestive of a Roman origin. A theory agreed with by Dr. Chris Smart when this was brought to his attention (personal email). In addition, there is a short section where the Long Causeway appears perhaps to have wandered off to one side revealing possibly an older more direct *agger* (SS 96462 11078). The southerly direction of the Long Causeway is fully commensurate with its origin being Exeter.

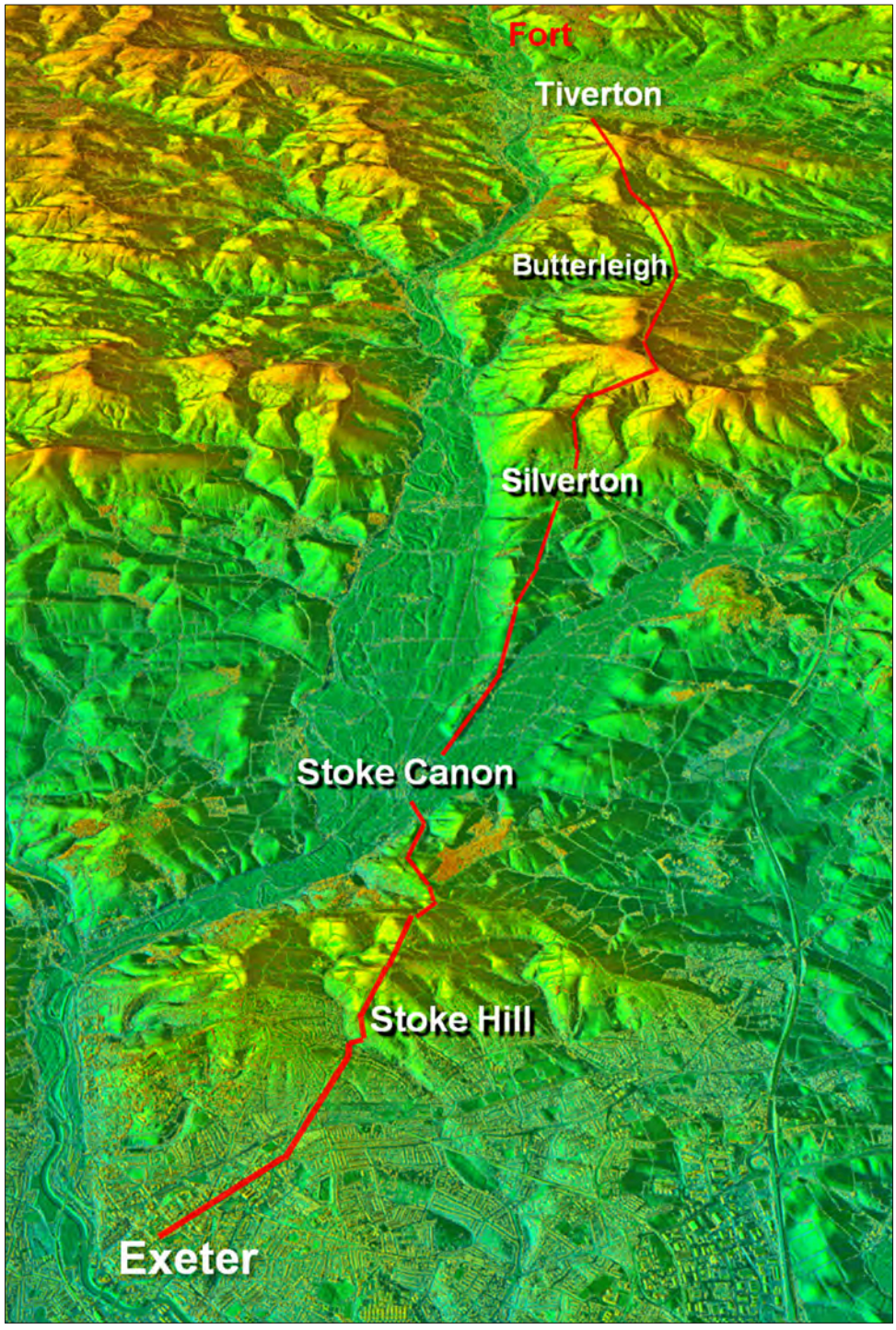


Figure 34. The full route of the possible Roman road from Exeter to Tiverton. Base Lidar data is © Environment Agency copyright and/or database right 2023. All rights reserved.

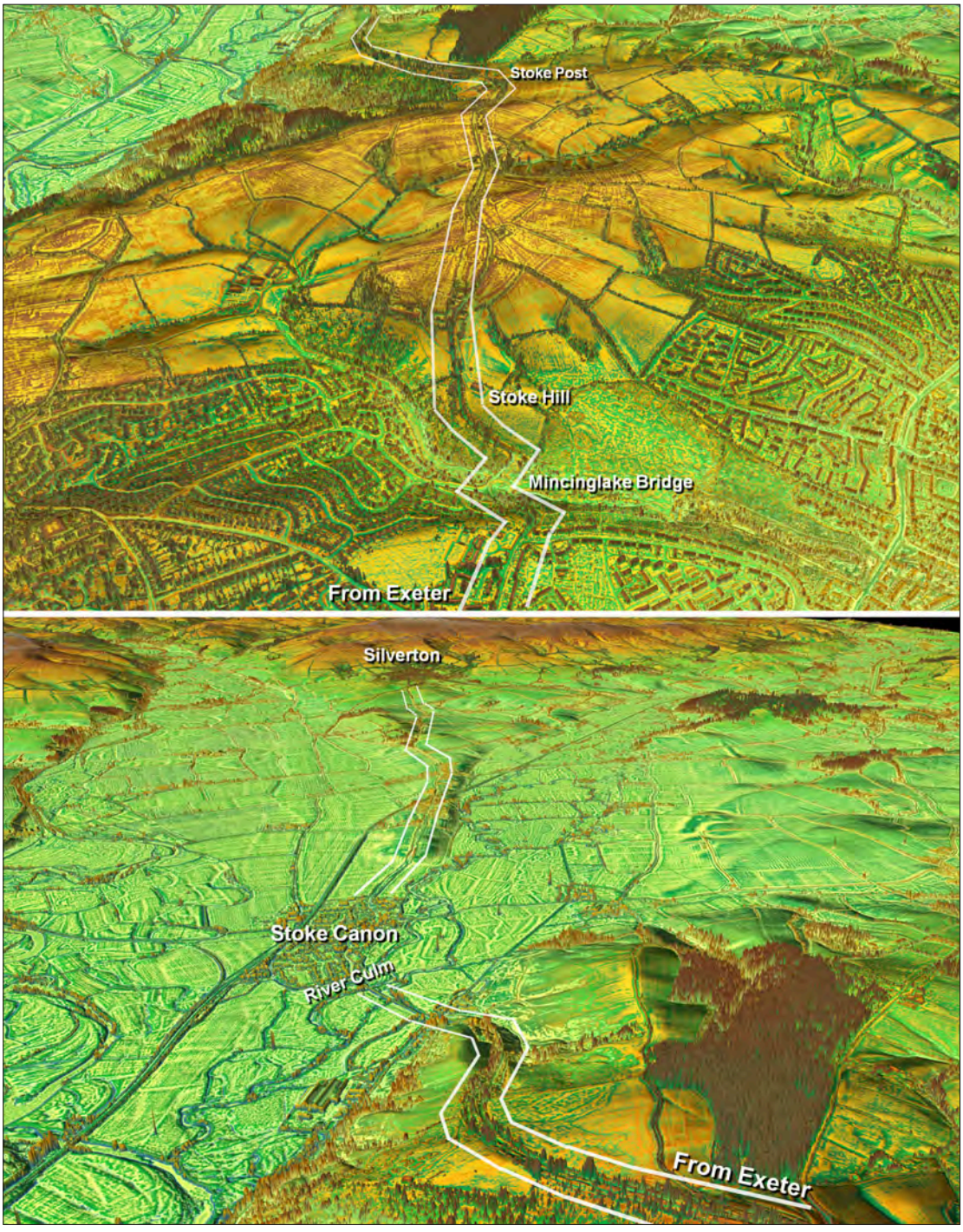


Figure 35. Oblique Lidar views showing the probable southern section of a Roman road to Tiverton. The Mincinglake zig-zags are typical Roman engineering and the abandoned old road beyond Stoke Hill are supportive of this suggestion. Base Lidar data is © Environment Agency copyright and/or database right 2023. All rights reserved.

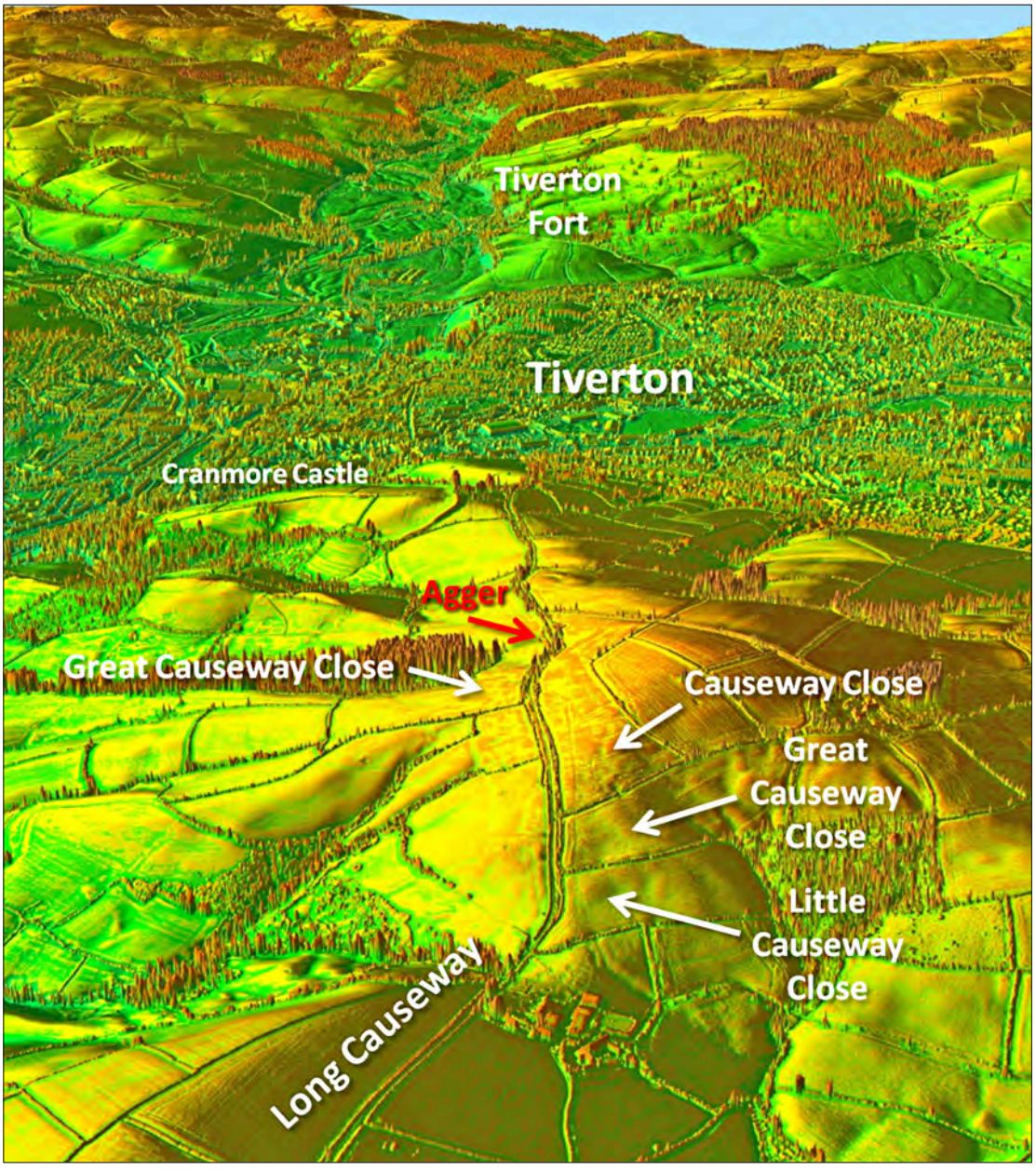


Figure 36. The Long Causeway approaching Tiverton. The road is clearly aligned on the fort there and the numerous 'Causeway' field names lend strong support for a Roman origin for the road. Base Lidar data is © Environment Agency copyright and/or database right 2023. All rights reserved.

Connecting these separated sections is relatively straight forward and a fairly direct route using modern roads is reasonably obvious plus it does have some Roman characteristics. This would be via Silverton – Christ Cross – Butterleigh, with the latter segment followed by parish boundaries. However, confirmatory evidence is somewhat lacking. A search was undertaken therefore to see if the

modern roads had wandered offline leaving any traces of an older road. The best example found was for the crossing of the Burn River at Butterleigh (Fig. 37). Here, either side of the river, were perhaps the remains of a pair of Roman zig-zags, descending and ascending. On their own certainly not enough to prove this as the Roman road but perhaps with the other evidence at each end of the road now sufficient to put this road in the 'very probable' category.

The Roman Roads around Rainsbury, RR513b(x) & RR514(x)

Rainsbury fort is only 10 kilometres to the west of Wiveliscombe fort so a connecting road between the two could be a possibility (Fig. 38). Hugh was clearly working on this theory as part of an east-west route, which he would continue on to the west of Rainsbury. On the east side of Rainsbury his maps identified several suggested sections around Huish Champflower. However, using the latest lidar imagery these do not seem to form a coherent Roman route and are more suggestive, in parts, of an underground pipeline. A viable road with a connection into Wiveliscombe has not been located.

However, in looking for an east-west road it appears Hugh was perhaps on the right lines as there could well be just such a Roman road from Bridgwater to Rainsbury and onwards further west. This road can be traced confidently through the Quantock Hills and at least as far as Crowcombe

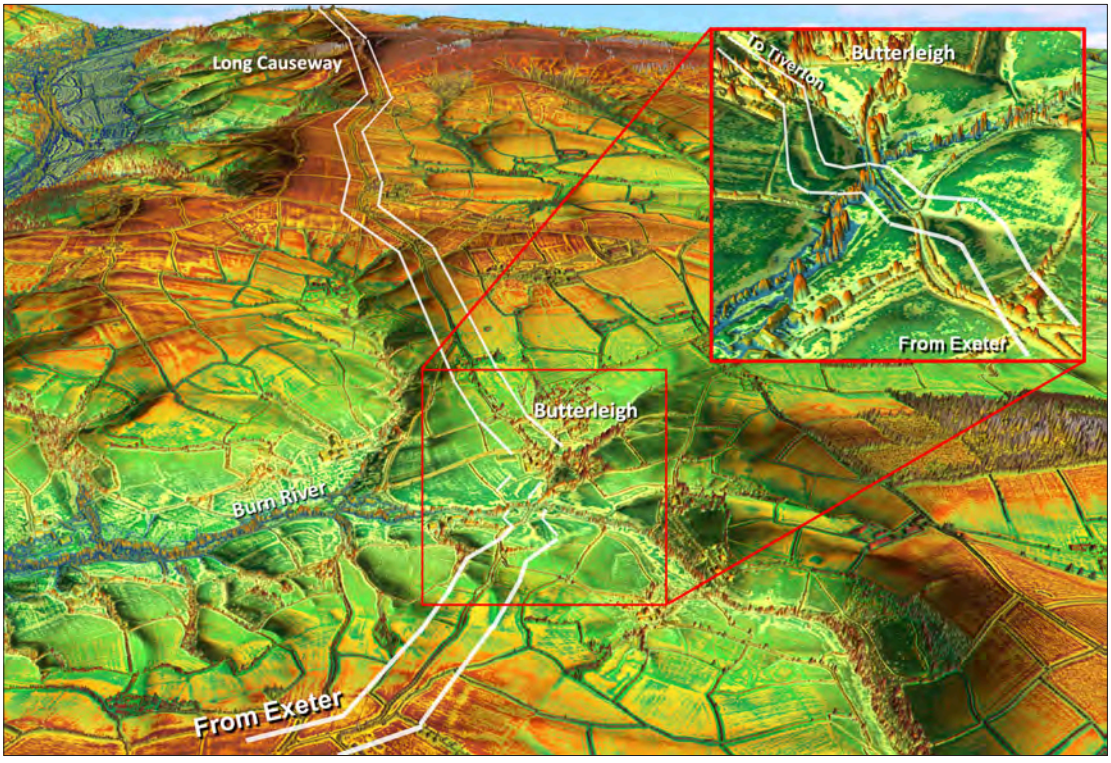


Figure 37. The possible route of the road descending to and ascending from the Burn River at Butterleigh. Inset – detail view of the river crossing (at a slightly different angle to the main image) showing possible Roman road-type dog-legs. Base Lidar data is © Environment Agency copyright and/or database right 2023. All rights reserved.

Heathfield (Fig. 39, ST13232 33547). The section from Enmore to Cothelstone was first spotted by Dr. Chris Smart (Smart, 2021) and has been allocated the Margary number RR513a(x). There are clear



Figure 38. Rainsbury's location is perhaps best explained by it being on an east-west Roman route and perhaps a Tiverton to Watchet road. Contains Ordnance Survey data © Crown Copyright and database, 2023.

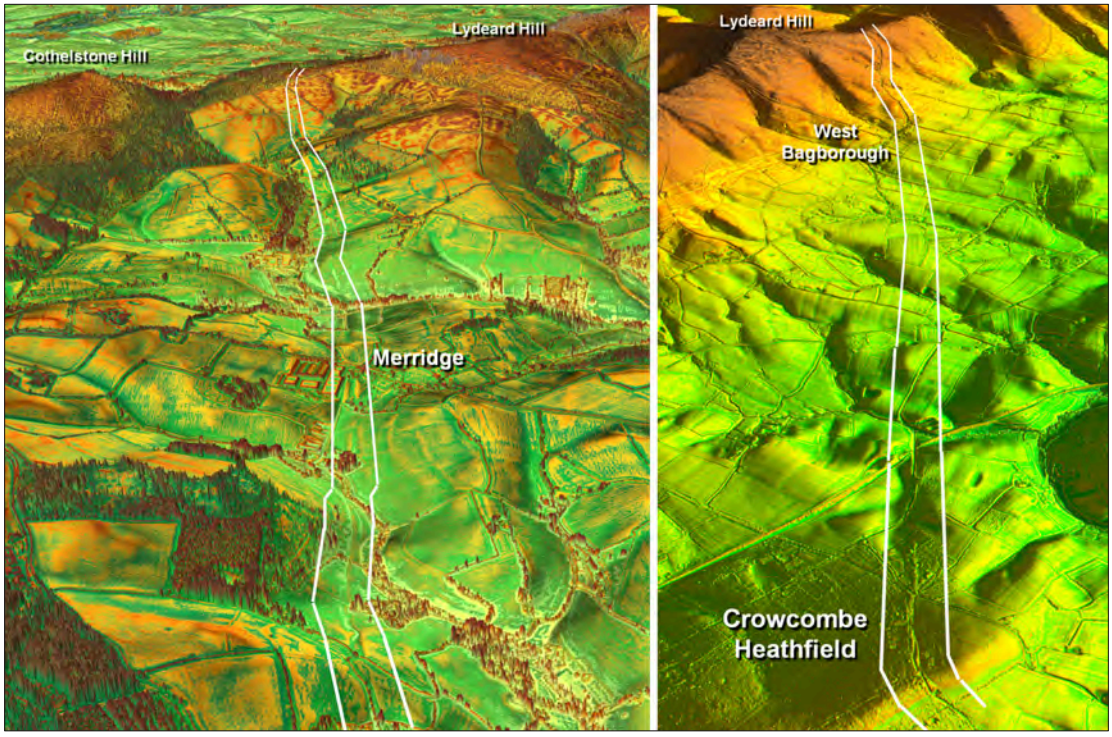


Figure 39. Evidence for the Roman road coming from Bridgwater through the Quantocks (left) and on to Crowcombe Heathfield (right) is very obvious. Beyond the latter then visible indications are much more intermittent. Base Lidar data is © Environment Agency copyright and/or database right 2023. All rights reserved.

traces extending this on to Crowcombe Heathfield (Fig. 39 below – right). Beyond there evidence is very intermittent and of lower confidence but it would appear the road is heading towards the probable road junction, previously mentioned, near Elworthy (Fig. 20 – right & fig. 40). This point is actually the watershed of the valley so is the optimum position for a road to cross it. It must be accepted though whilst this might be the logical location for a junction evidence confirming this is very limited.

Heading west from Elworthy then there are much clearer indications of a Roman road heading south-west in the general direction of Rainsbury. Initially the evidence is strong but then becomes somewhat intermittent the nearer it gets to Clatworthy Reservoir. However, to the east of Clatworthy Reservoir there begins a remarkable continuous section, which from its format can surely only be really interpreted as Roman (Fig. 41).

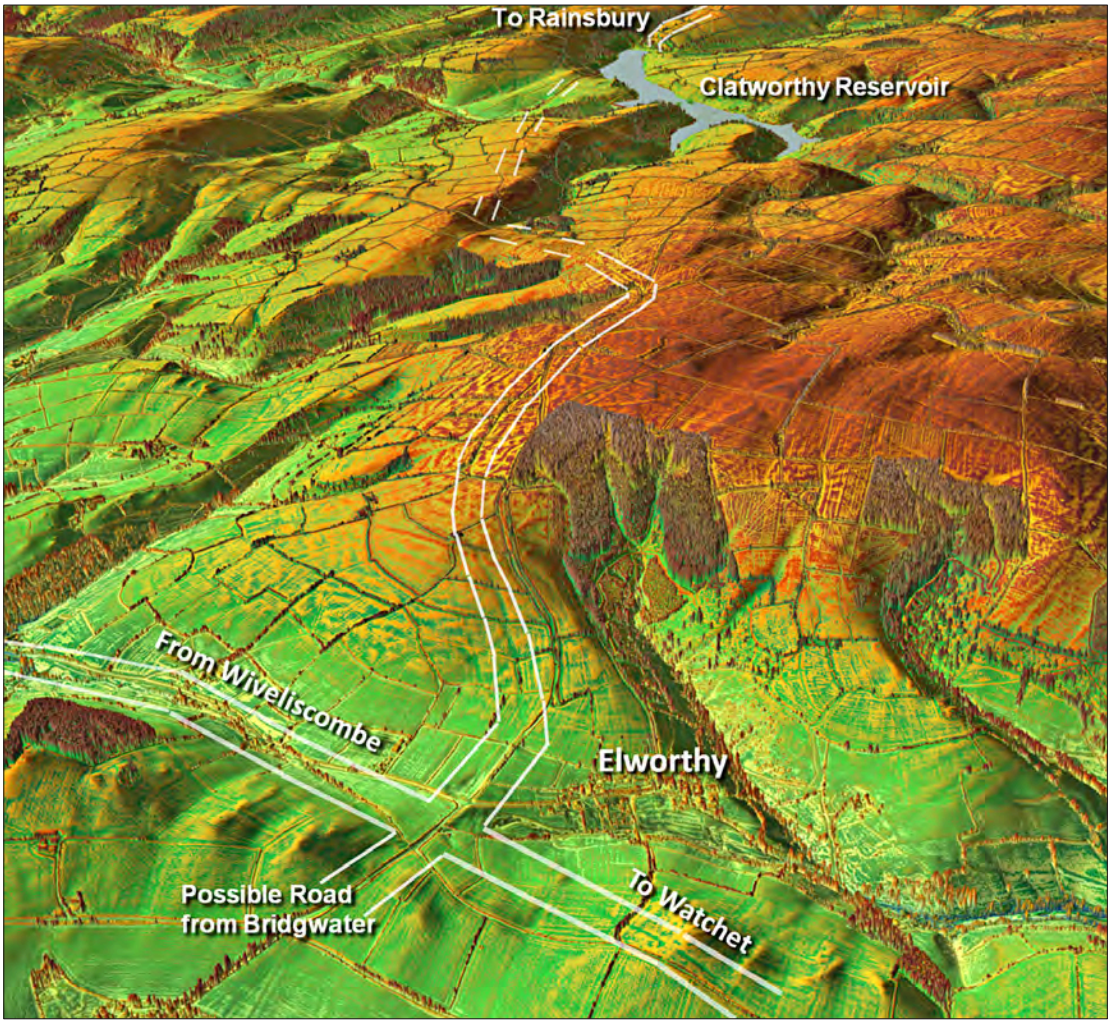


Figure 40. The Roman road junction where the Wiveliscombe to Watchet road could have been crossed by a possible road from Bridgwater heading onwards towards Rainsbury. This is the logical point for an east-west road to cross the valley as it is the natural watershed. Base Lidar data is © Environment Agency copyright and/or database right 2023. All rights reserved.

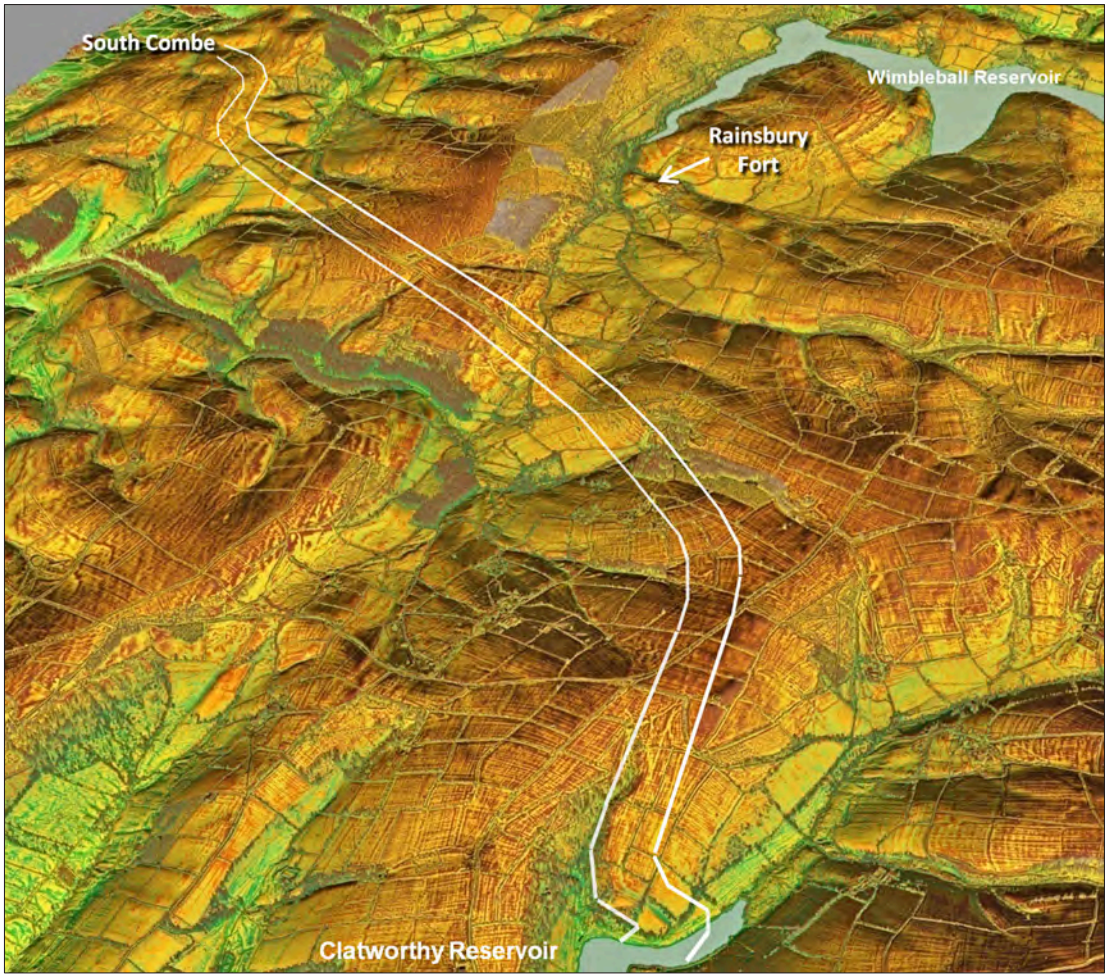


Figure 41. Oblique Lidar view showing a magnificent stretch of Roman road. There can be little doubt that the evidence here does indeed represent a Roman Road. There are clear indications that the road eventually swings off the modern road and drops down towards South Combe. This is strongly indicative of it continuing via Bampton. Base Lidar data is © Environment Agency copyright and/or database right 2023. All rights reserved.

It begins with a classic zig-zag climb from the valley (now flooded by Clatworthy reservoir) and is followed by a series of continuous *agger* features of around 5 miles (Fig. 41). They pass about a mile away from the Rainsbury fort site but this is not unusual in Roman road planning. There is a possible link road to the fort marked by the modern B3190 through Upton, which comprises ostensibly of two straights. The minor road via Bridge End would complete the link (Fig. 42 – bottom left).

Having passed by the fort the road swings off the modern road and drops down towards South Combe, where the evidence somewhat dries up. This direction though could indicate a route via Bampton and there are some straight modern roads supporting this, i.e. that passing Hukeley Farm and the B3227 into Bampton. An ultimate destination of Tiverton would seem most likely.

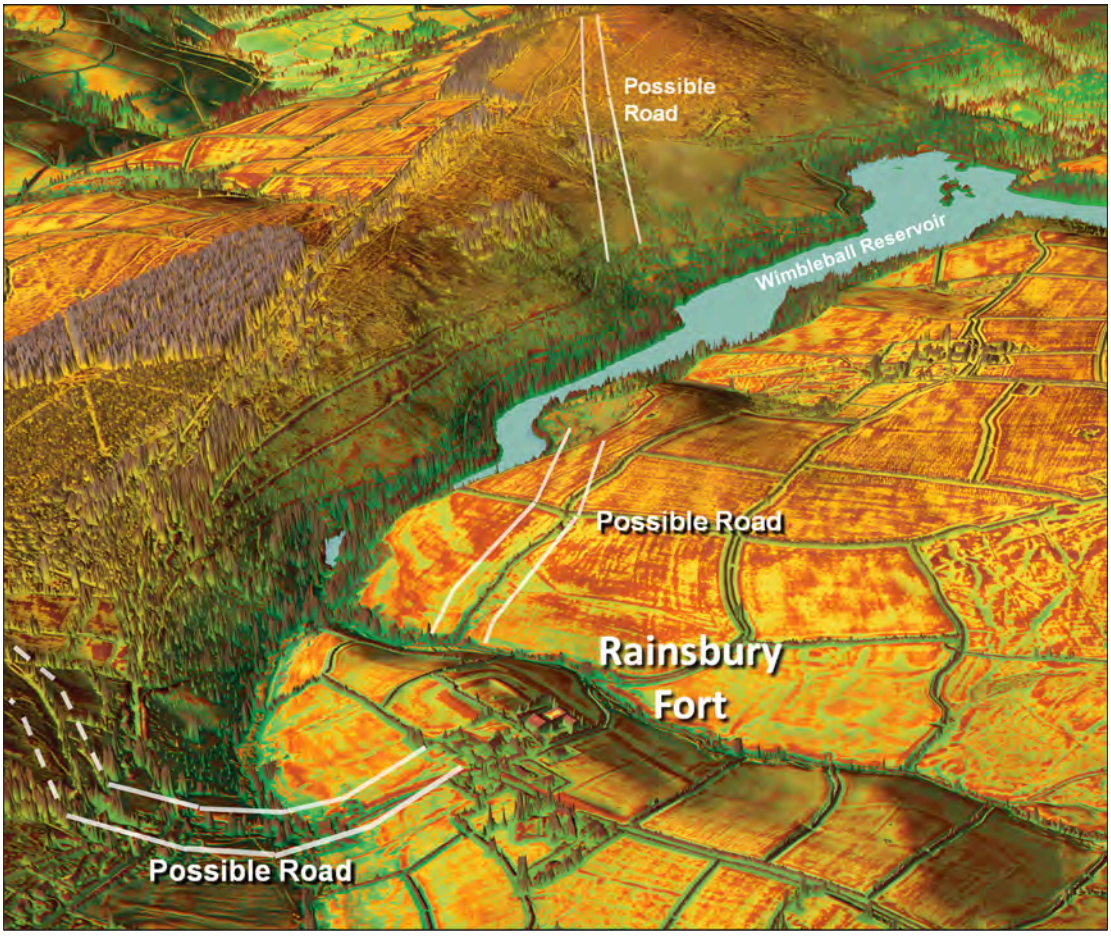


Figure 42. Oblique Lidar view looking towards the west from over Rainsbury Fort. Possible Roman roads are indicated. The two roads either side of the reservoir were those first identified by Hugh Toller. Base Lidar data is © Environment Agency copyright and/or database right 2023. All rights reserved.

There appears, however, to be another road from Rainsbury to the west. Hugh's maps continued to the west of Rainsbury fort and he recorded a straight *agger*-like feature from the west side of the reservoir heading over Haddon Hill (SS 97320 28904, SS 96799 28637 & SS 96407 28443). This is faint but does have the hallmarks of a Roman road *agger*. Its alignment is directed on the fort site and Hugh also showed a continuation on the east side of the reservoir connecting to the fort. All this is supported by the latest lidar imagery (Fig. 42) which also suggests a possible continuation of this road to the south-west of Dulverton (SS 90093 26500). This direction would imply a destination to the west, which could be perhaps the same one as that of the likely Exeter to Bishop's Tawton road. The location of the various probable/possible Roman roads around Rainsbury are shown in figure 43. Hugh allocated himself the number RR496 the road heading to Bampton and RR496a for the branch past Rainsbury. He most surely deserves primary credit for their recognition. This work achieved the more formal allocation of the numbers RR513b(x) and RR514(x) that will be used here.

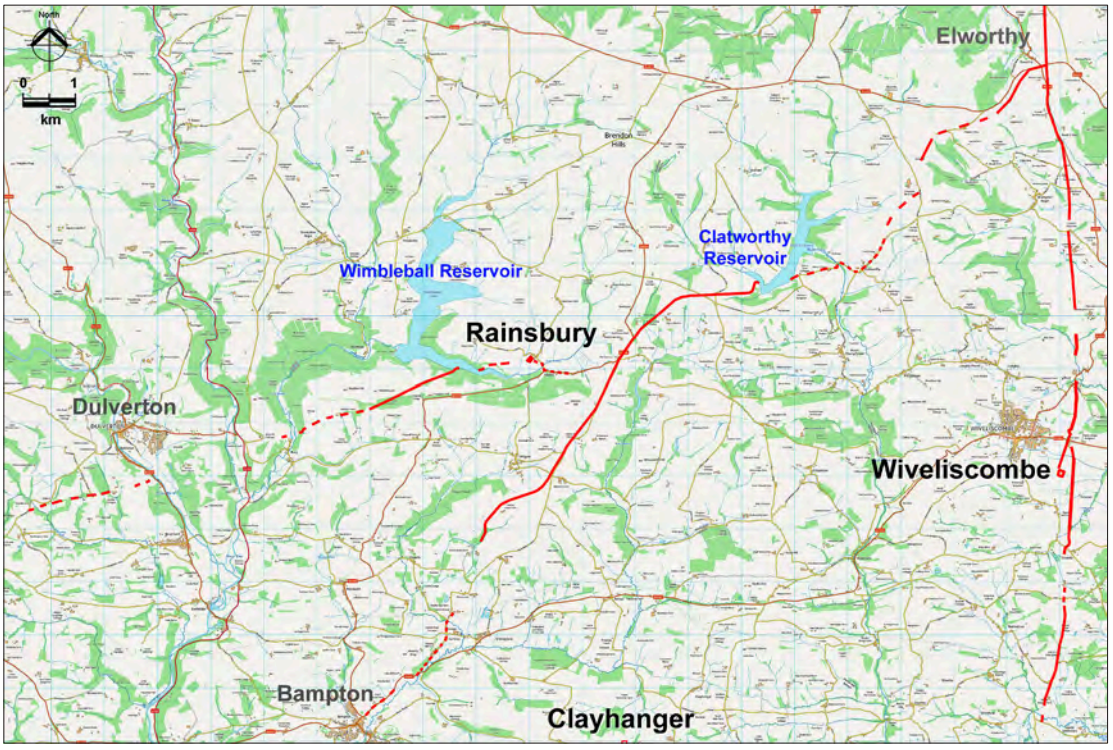


Figure 43. The probable (solid red lines) and possible (dashed red lines) of the Roman road network around Rainsbury fort. Contains Ordnance Survey data © Crown Copyright and database, 2023.

The Roman Road from Dorchester to Exeter, RR4f

As mentioned in the introduction a comprehensive review of this road was published by Hugh in his own right (Toller, 2014). However, the section from its last known point near Clyst Honiton to the Exeter fortress was uncertain and Hugh had written:

> *"Beyond Rockbeare the course of the Roman road is unknown. It may have continued on a direct alignment to Exeter or it may have followed the line of the A30 to avoid low ground. It would have entered the Roman city by either the north-east or south-east gates but unfortunately the layout of the various Roman roads approaching Exeter is not yet known with certainty".*

Rockbeare is adjacent to Cranbrook but examining the contour mapping and lidar imagery (Fig. 44 - top & middle) there can be little doubt the A30 would most likely mark the Roman line to around Clyst Honiton. Other clues to the line of the road are:

1. The Roman road to Killerton/Cullompton appears to be a branch off an existing Roman road to Polsloe Bridge. Logically this could only be a road to the east i.e. Honiton/Dorchester.
2. The alignment of the road to Polsloe Bridge when extended points towards a crossing of the River Clyst near Clyst Honiton, which would be commensurate with the suggested A30 route on the east bank.

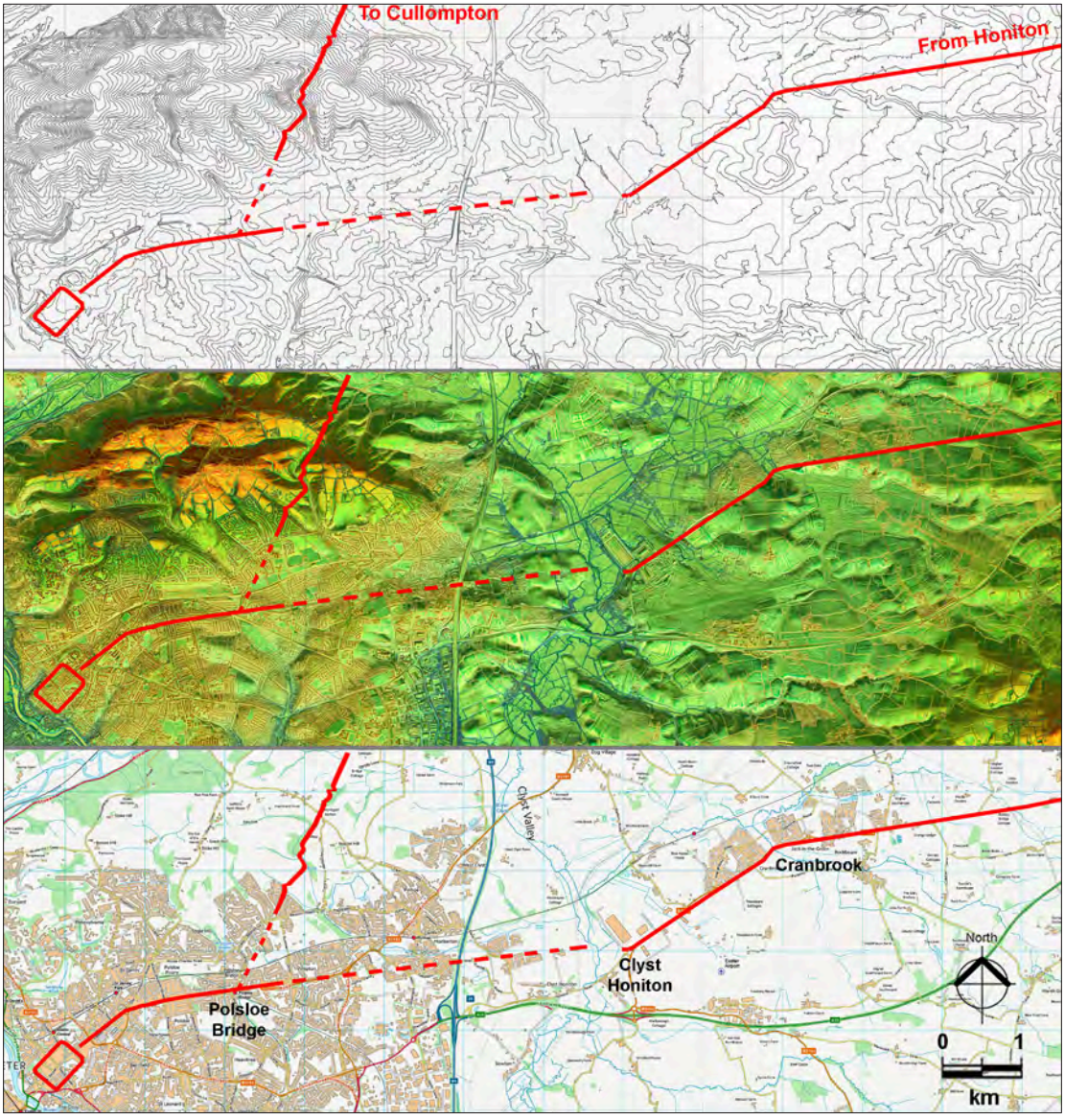


Figure 44. The possible route of the Roman road from Dorchester approaching Exeter. Top - contour map derived from Lidar data. Centre - Lidar image. Bottom - route map. Base Lidar data is © Environment Agency copyright and/or database right 2023. All rights reserved. Contains Ordnance Survey data © Crown Copyright and database, 2023.

3. The alignment of the Polsloe Bridge road is parallel to that of the Roman road east of Cranbook. This is a common feature of Roman road surveying.
4. The route is approximated by the old Blackhorse Lane & Hollow Lane (OS first edition mapping).
5. This route is very direct, keeps to dry ground and avoids having to cross the valley through Heavitree (Fig. 44).

The suggested route appears extremely logical from an engineering perspective with a typical series of straight and parallel alignments. It does not, of course, prove that the Romans actually routed their road this way. However, a route such as this, or one very similar, to Exeter's north-east gate would seem to be the most likely course.

Acknowledgements

Of course I have to start with a personal acknowledgement of the guidance, help and wisdom that Hugh Toller gave to a raw beginner (myself) in the use of lidar over 10 years ago. Always positive even when I was on the wrong track - he had a way of still being encouraging even when he had to rein me back. He maintained that understanding all the way to the end and generously forwarded his digital archive when it became apparent that he would not be able to complete what he had begun. His wisdom and advice is greatly missed.

It is essential in any research, and lidar is no different, that a wise head is needed to bounce off findings and ideas – a second opinion. John Poulter was just that person and was involved in much of the early work reported here. His local knowledge was greater than mine which again was a big help. Of course any errors or miss-identifications are solely down to me.

Also my thanks are due to someone with incredible local knowledge is Professor Val Maxfield. She provided much local information and also agreed to look through an early version of this paper.

Next the Roman Roads Research Association team of Rob Entwistle, Dave Armstrong and Mike Haken for their constructive suggestions. Mike Haken did an excellent job reading through and offering many improvements including one route correction. Initially I had only contemplated covering just one of Hugh's roads but it was the team's suggestion that a broader and fuller paper was fully justified. Rob Entwistle as journal editor deserves my extra gratitude.

As mentioned in the introduction Dr. Chris Smart (Exeter University) had recently been undertaking a wider archaeological study "Understanding Landscapes" of Cornwall and Devon. He shared his result with the Roman Roads Research Association in an online Zoom presentation. This was a useful confirmation of what Hugh and I were finding. He also confirmed that Long Causeway and all those causeway field names approaching Tiverton was a rarity for Devon and Cornwall so therefore most likely to be Roman. Finally, he was kind enough to find time to read through this paper and forward his suggestions. I should also like to thank John Salvatore for his encouragement to publish.

Last, but not least, my thanks are due to Mike Aerts, who developed the bespoke lidar software much tailored for Roman road research plus the ability to view it all in extensive 3D models. I cannot emphasis the importance of the three dimensions when it comes to unraveling the clues for a potential Roman road alignment. This software has proved invaluable in finding Roman roads around the country.

The lidar imagery has been derived from raw data provided by the Department for Environment, Food and Rural Affairs (Defra) and managed by the Environment Agency. It is made available under the Open Government licence v3.0. © Crown Copyright 2022.

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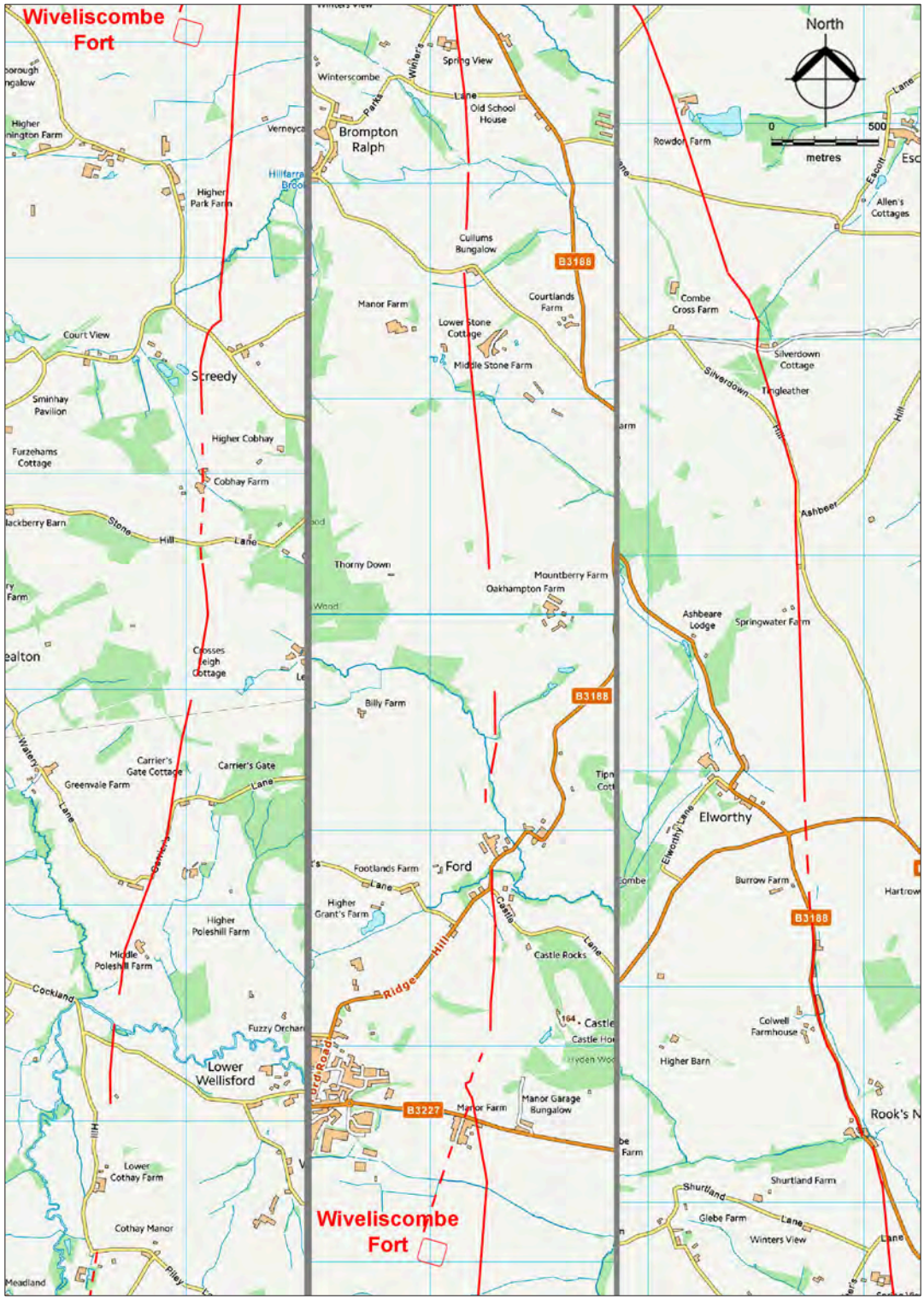
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Appendix A – Route Maps for Exeter to Watchet

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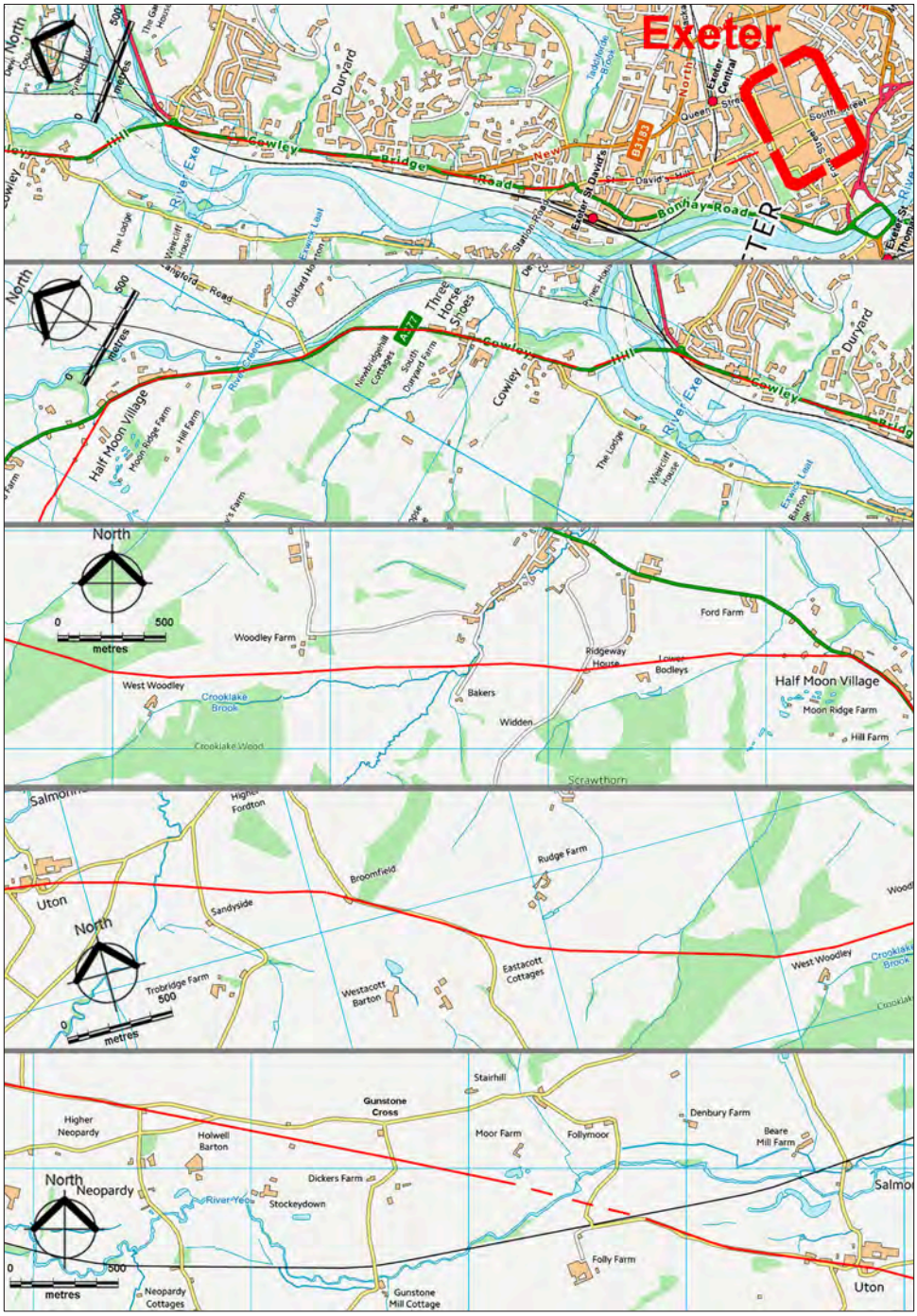

North
0
500
metres
Willand
Silver Street
Station Road
Gables Road
Meadow Park
Old Village
Tanyard Farm
Verbeer Manor
M5
Bridges
Fir Tree Cross
B3181
River Culm
Herrons Bank
Venn Farm
Corner Close
Waterloo Cross Cottages
Higher Houndaller Farm
Jersey Farm
Leonard Moor
Flat Cottage
Leonard Moor Cottage
No Man's Land
The Bungalow
Bridwell
Bridwell House
Pitt Farm
Little Mountstephen
Hitchcock's Farm
Langlands
Beggars Bush Cottage
Quick's Farm
B3440
Uffculme
A373
Fort
St Andrew's Hill
Station Road
CULLOMPTON
Duke Street
Meadow Lane
Swallow Way
Exeter Road
Padbrook Hill
Greenham
Meadland
Pound Farm
Meadow Mere
Wiseburrow Farm
Green Meadows
Beacon Hill
Whipcott
Fenacre Farm
Shrubbery Cottage
Great Fossend
Longwood
Eastbrook Farm


Wiveliscombe Fort
Brompton Ralph
Winterscombe
Spring View
Old School House
Cullums Bungalow
B3188
Manor Farm
Courtlands Farm
Lower Stone Cottage
Middle Stone Farm
Screedy
Court View
Sminhay Pavilion
Higher Cobhay
Furzehams Cottage
Cobhay Farm
Stone Hill Lane
Thorny Down
Mountberry Farm
Oakhampton Farm
Billy Farm
Carrier's Gate Cottage
Carrier's Gate
Greenvale Farm
Higher Poleshill Farm
Middle Poleshill Farm
Cockland
Fuzzy Orchard
Lower Wellisford
Lower Cothay Farm
Cothay Manor
Meadland
Footlands Farm
Ford
Higher Grant's Farm
Castle Hill
Castle Rocks
Ridge
Castle
Manor Farm
Manor Garage Bungalow
B3227
Wiveliscombe Fort
North
0
500
metres
Rowdon Farm
Allen's Cottages
Combe Cross Farm
Silverdown Cottage
Tingleather
Ashbeare Lodge
Springwater Farm
Elworthy
Burrow Farm
Colwell Farmhouse
Higher Barn
Shurtland Farm
Glebe Farm
Winters View
Rook's N

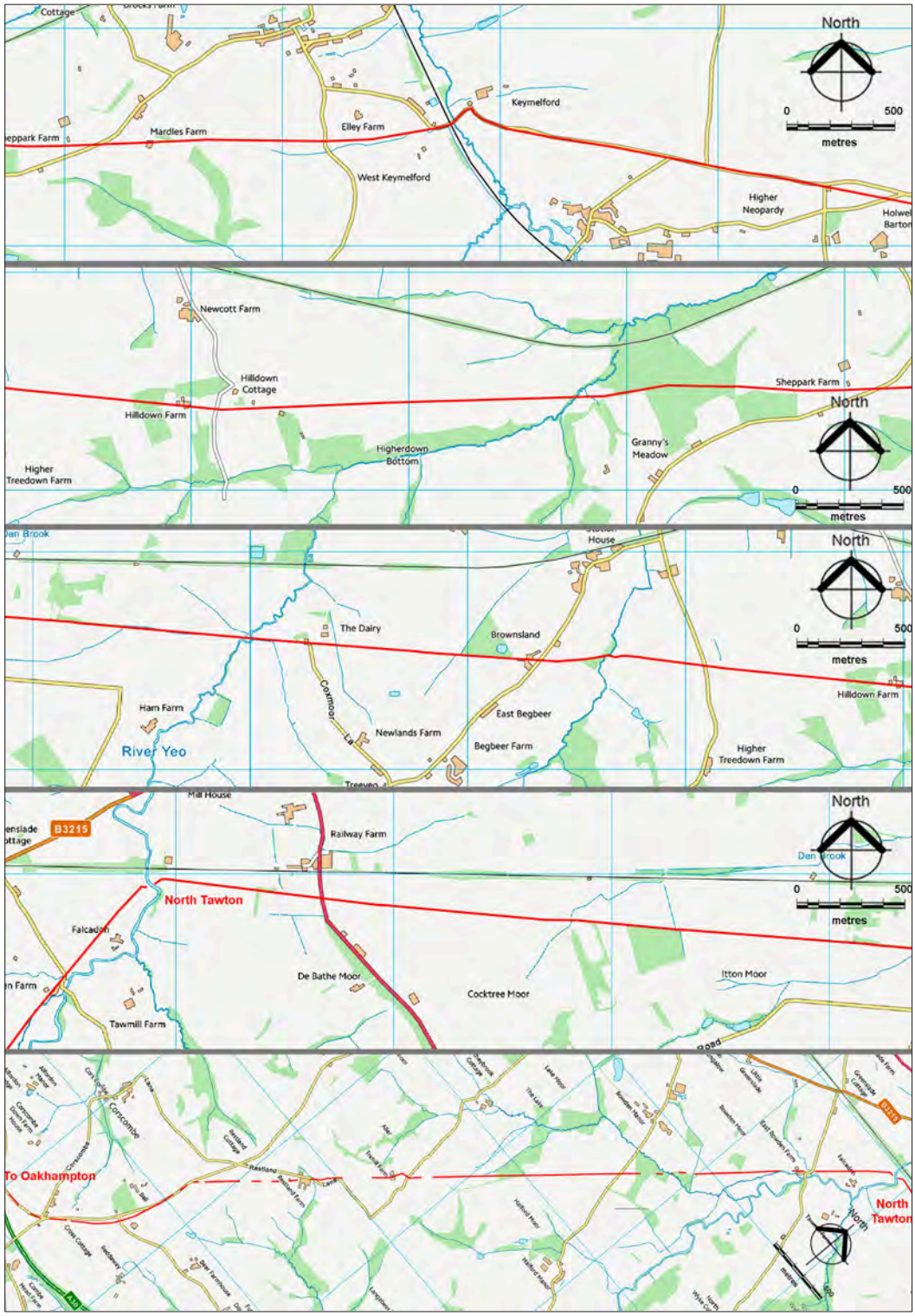

Watchet
WATCHET
Bells
B3191
North Roads
Long Street
Williton
Lower Stream
Tower
Orchard Wyndham
Aller Farm
Capton
North
0
500
metres
Inglewood

Appendix B – Route Maps for Exeter to North Tawton

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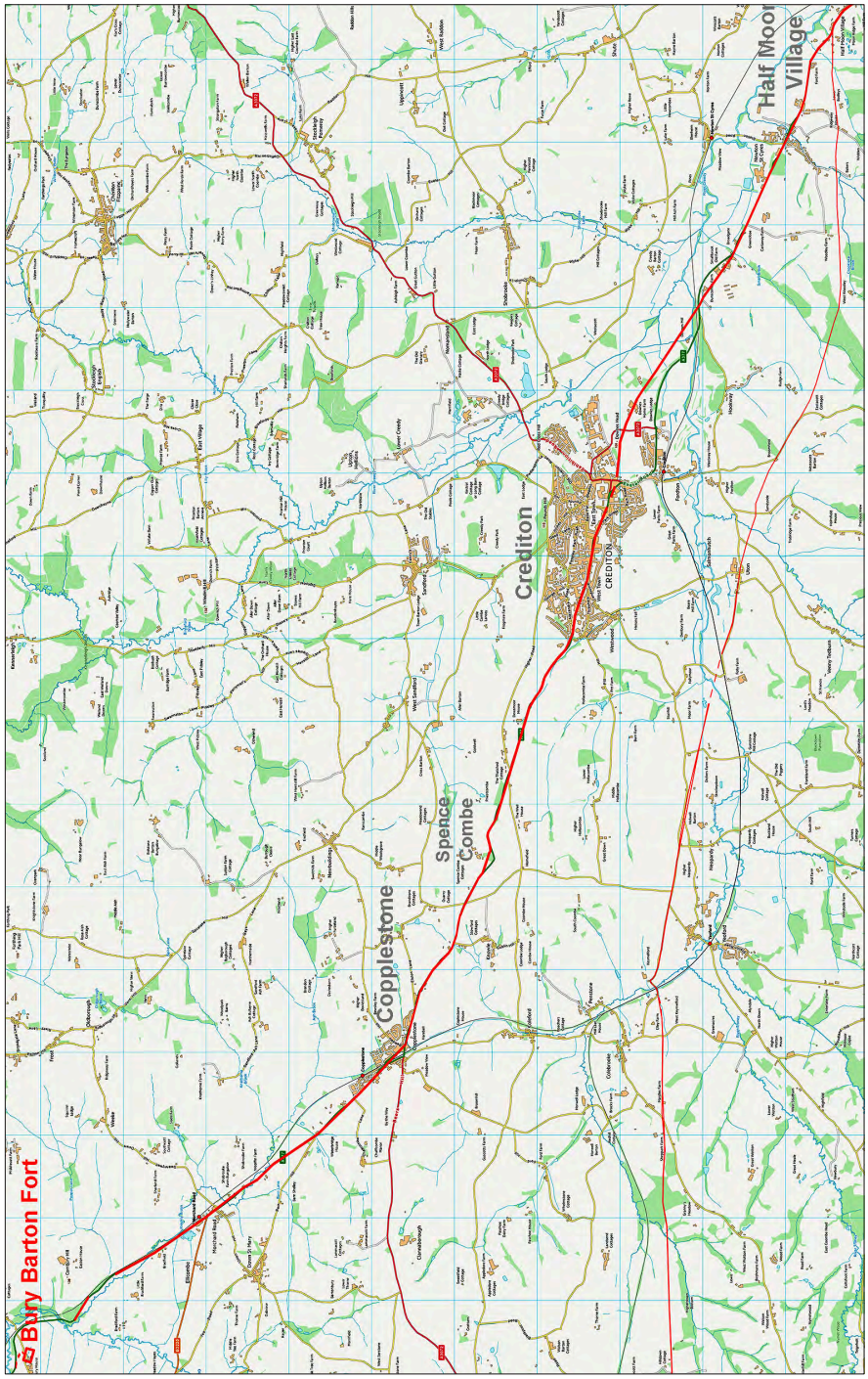


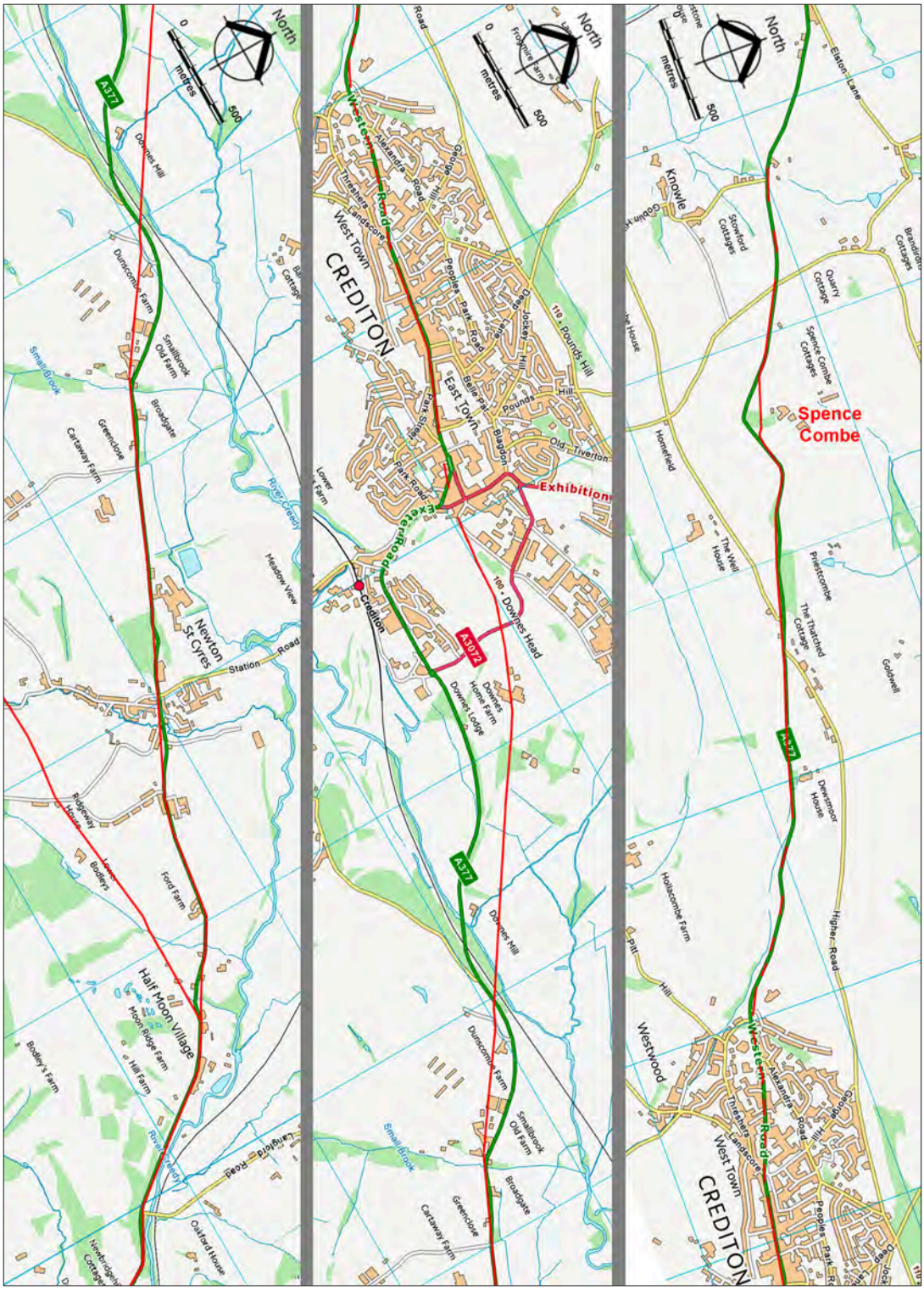
Some Roman Roads around Exeter



Appendix C – Route Maps for Exeter to Bury Barton

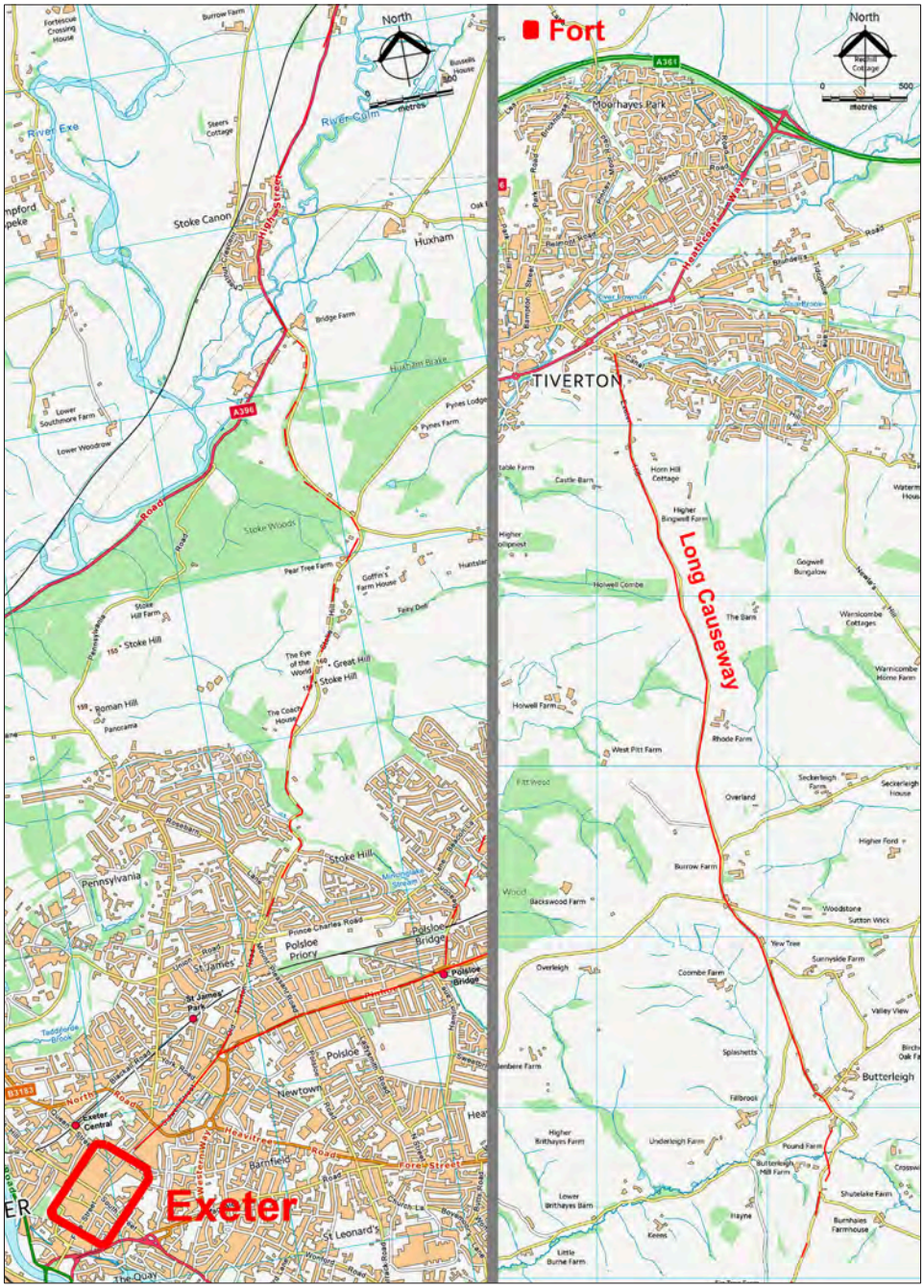
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North
0
metres
500
A377
Downes Hill
Duncombe Farm
Smallbrook Old Farm
Broadgate
Greenclose
Cartaway Farm
Small Brook
River Creedy
Meadow View
Newton St Cyres
Station Road
Ridgeway House
Lower Bodleys
Ford Farm
Half Moon Village
Moon Ridge Farm
Hill Farm
Bodley's Farm
Langford Road
Outlard House
Western Road
Alexandra Road
Threshers Landscore
West Town
CREDITON
People's Park Road
Deer Park
Jockey Hill
Belle Pair
East Town
Park Street
Blagdon
Old Tiverton
110 - Pounds Hill
Exhibition
Exeter Road
Lower Farm
Creedy
100 - Downes Head
A1072
Downes Home Farm
Downes Lodge
Frobrine Farm
Elston Lane
Knowle
Stowford Cottages
Quarry Cottage
Spence Combe Cottages
Spence Combe
Homefield
The Well House
Priestcombe
The Thatched Cottage
Goldwell
Devonmor House
Higher Road
Hollacombe Farm
Pitt Hill
Westwood

Appendix D – Route Maps, Exeter to Tiverton (South and North sections)

Contains Ordnance Survey data © Crown copyright and database right, 2023.


Exeter
TIVERTON
Long Causeway
Fort
Stoke Canon
Huxham
Stoke Hill
Pennsylvania
Polsloe Priory
Polsloe Bridge
Newtown
St James
St Leonard's
Barnfield
Forest Street
Moorhayes Park
Butterleigh
Woodstone
Sutton Wick
Overland
Higher Ford
Burrow Farm
Rhode Farm
West Pitt Farm
Holwell Farm
Holwell Combe
Higher Bingwell Farm
Castle Barn
Horn Hill Cottage
Warnicombe Cottages
Warnicombe Mome Farm
Gogwell Bungalow
Seckerleigh Farm
Seckerleigh House
Coombe Farm
Sunnyside Farm
Valley View
Splashetts
Fillbrook
Higher Brithayes Farm
Lower Brithayes Barn
Underleigh Farm
Pound Farm
Butterleigh Mill Farm
Shutelake Farm
Burnhayes Farmhouse
Little Burne Farm
Keens
Inayne
Backswood Farm
Yew Tree
Pitt Wood
Wood
Stoke Woods
Pear Tree Farm
Goffin's Farm House
Fairy Dell
Great Hill
Roman Hill
Stoke Hill Farm
Lower Southmore Farm
Lower Woodrow
Bridge Farm
Pynes Farm
Pynes Lodge
Huxham Brake
Steers Cottage
Russells House
Fortescue Crossing House
Burrow Farm
River Exe
River Culm
Oak Tree
Table Farm
Higher Collipriest
Waterm House
The Barn
Overleigh
Higher Ford
Woodstone
Sutton Wick
Yew Tree
Sunnyside Farm
Valley View
Splashetts
Fillbrook
Pound Farm
Shutelake Farm
Burnhayes Farmhouse
Inayne
Keens
Little Burne Farm
Lower Brithayes Barn
Higher Brithayes Farm
Underleigh Farm
Butterleigh Mill Farm

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Viae Vicinales in the Northeast Midlands

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Abstract

This paper presents the results of a study which reassessed Roman roads in part of the northeast Midlands, primarily in Lincolnshire and eastern Leicestershire. Its purpose is not to merely create a revised and accurate map of the road network in that region but primarily to assess whether some commonly held perceptions about Roman roads and who built and maintained them are actually correct. In particular, it will attempt to identify the viae vicinales, the local roads, and in so doing challenges the way scholars in Britain have tended to regard all the straight and engineered Roman roads as being a single homogeneous network. The results suggest that the picture is probably much more complex, and if analysed in a different way is one that can potentially reveal much about the administration of Roman Britain.

Abbreviations used in the text

CIL : Corpus Inscriptionum Latinorum

CTh.: Codex Theodosianus

dig.: Digest of Justinian

Liv.: Titus Livius (Livy), History of Rome

PAS: Portable Antiquities Scheme

RIB: Roman Inscriptions of Britain

Introduction

When we use the term "Roman road", what exactly do we mean? Whilst readers of this journal may have a slightly more nuanced view than others, it remains likely that 'Roman road' conjures an image of an engineered and surveyed road built in straight lengths on a cambered agger with at least one pair of ditches. This acceptance of a common morphology is fairly universal, although many scholars have acknowledged the probability that some Roman roads are versions of Late Iron Age roads and trackways and therefore do not always display the expected regularity of planning and straight construction (e.g. Margary 1973, 18-19). Indeed, whilst accepting the notion of

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a common morphology, Margary's numbering system did of course attempt to rank roads in order of perceived importance, with main routes, principal branches and minor branches (1973, 32-3), although it must be said that his ranking is entirely subjective without taking into account potential differences in function, legal status, or administrating body. In any case, it is unlikely to accurately reflect any perceptions of relative importance that existed two millennia ago, if indeed any really did exist.

When it comes to considering who built, maintained and used these roads, M.C. Bishop's view that "By and large, roads were built by the army, maintained by civil authorities, and used by everybody" (2014, 45), is a brief but eloquent summary of received wisdom. Whilst they may have started life as military roads (*viae militares*), there is a general assumption amongst scholars, usually implicit but occasional explicit (e.g. Kolb 2019) that all Roman roads, including *viae militares*, were regarded as public (*viae publicae*). Whilst it has always been recognised that there was a further network of roads and tracks beyond the *viae publicae* which served local needs, i.e. the *viae vicinales*, which were also public (Ulpian, Sabinus bk.33, dig. 43.7.3), these have generally been assumed to have been secondary, in terms of their planning, construction, and significance.

There is, therefore, a perceived homogeneity both of morphology and legal status, which is well represented by the maps with which we are so familiar; those of Codrington (1903), Margary (1973) and the Ordnance Survey (2016), such maps presenting all Roman roads as the same. It could be argued that this perception of homogeneity has had a divisive effect, with those roads assumed to be *viae publicae* being represented as true Roman roads, and all others as less important, something 'else' and variously described as local, secondary, tertiary, minor, indigenous or Romanised prehistoric tracks.

In recent years though, a few studies have been published that emphasise the importance of local networks (e.g. Knott 2021; Rothwell and Peveler 2023; Holmes, this volume), and could be seen to begin to challenge the received wisdom of a primary and superior network of engineered Roman roads based on former *viae militares* dominating rather crude local networks of trackways. Indeed, it has been suggested that we may be seeing, at least in some parts of Britain, a unified system which integrated pre-existing late Iron Age routeways (some formalised into roads, some not), Roman campaign and military roads which became *viae publicae*, and those roads built later in an entirely civilian context to support and connect nucleated settlements, not necessarily just major towns (e.g. Parcero-Oubina et al., 2023).

In the new model, it is suggested that local roads (*viae vicinales*) may have played as important a role as those roads perceived today as principal or major, and some may well have been constructed to the same standards as a 'typical' *via publica*, although perhaps with less traffic.

This leaves us with two important questions about the Roman road network as we usually perceive it.

1. Are all the roads currently simply described as 'Roman roads' actually *viae publicae*, or could some be *viae vicinales*?
2. Do all public roads of the Roman period, particularly *viae vicinales*, actually comply with the 'accepted' notion of a common morphology?

In order to attempt to find answers, a study area was sought which was controlled by the Roman army for a short time in the early years of occupation, before a civil administration was imposed. It was also necessary that both the road network and the distribution of Roman period settlement be reasonably

well understood. For ease of mapping, a rectangular area was selected which is mainly the eastern part of the territory of the Corieltauvi; in modern terms Lincolnshire and eastern Leicestershire, with small parts of Nottinghamshire, Northamptonshire and South Yorkshire. Roads that extend beyond the rectangular study area were not considered in the study

The Roman Understanding of Different Types of Road

Clearly though, in order to conduct a study designed to identify potential v*iae vicinales*, we must first understand what that term may have meant to Rome and how Rome's understanding of the various different classes of road, *viae militares, viae publicae, viae vicinales* and *viae privatae/agrariae* relates to the modern perceptions of homogeneity. To do this, we need to go back to the surviving sources, in order to understand how roads were perceived, classified, and administered.

With regard to the modern notion of morphology helping to define a Roman road, there is no evidence at all to suggest that the same was true in the Roman world. Indeed, constructional methods are not mentioned once in any of the juridical works that survive, other than references to road surfacing. Despite this, several modern works suggest, perhaps unintentionally, that there was some sort of classification of roads according to their type of surface (e.g. Laurence 1999, 67; Staccioli 2003, 105-6, van Tilburg 2007, 15; Rodriguez Morales 2010, 119), specifically *viae terrenae* (earth roads), *viae glarea stratae* (roads surfaced with gravel) and *viae silice stratae* (roads surfaced with stone). In reality, the original source had no intention of giving this impression, he was merely stipulating that whatever material was used to surface a road must also be used for its repair (Ulpian, Edict Book 68, *dig.* 43.11.1). Roman law applied equally to all *viae publicae*, with no distinctions made according to a road's perceived importance or its mode of construction or surfacing. Despite that fact, some writers (e.g. Martinez 2018) have taken this further, observing that only *viae glarea stratae* and *viae silice stratae* were what most scholars consider Roman roads today, which is generally true. There is, however, nothing in surviving juridical works that suggests a *via terrana*, an earth or surface road, could not also be a *via publica*. The real question is whether or not that was ever the case? In Britannia at least, it probably was, since we have occasional archaeological evidence for unmetalled roads beneath fully engineered Roman roads for example the road heading southwest from Richborough, Kent (Hicks, 1998), suggesting that roads may have existed as temporary *viae terranae* until such a time as they could be constructed. John Poulter has observed lapses in time of up to 30 years between the initial long-distance planning and the actual construction of Dere Street (2010, 45-6), yet it is inconceivable that such a strategically important route would have remained unused in the interim. A temporary *via terrana*, which would presumably have incorporated pre-existing trackways in places, would leave little trace in the archaeological record.

All this is not to say that roads weren't classified, they certainly were, although this was primarily to determine the responsibilities of repair and maintenance, and to an extent the rights to use them. It is well understood that Roman law recognised four main categories of road; *viae militares*, *viae publicae*, *viae vicinales* and *viae privatae* attested by two primary sources; the 2nd century jurist Ulpian (Edict *dig.* 43.8.2.22), and the land surveyor Siculus Flaccus (*Corpus Agrimensorum Romanorum*).

Viae militares and viae publicae

The difference between *viae militares* and *viae publicae* is not exactly clear. It is generally accepted that military roads were public (Chevallier 1976, 65; Bishop 2014, 45), although this belief is challenged by a letter from Constantine (in AD326) to the Praetorian Prefect Acindynus. The letter suggests, quite

surprisingly, that even the *cursus publicus* may not have been allowed to use military roads without a permit, at least not in the 4th century. The letter grants Acindynus permission when using the cursus publicus to move from a public road to a military road, even though he had no permit in place for the latter (*CTh.* 8.5.3.2). Perhaps, therefore, it may be more accurate to say that roads became public once the military had passed responsibility on to a civil administration. In Britannia, especially in the north and in Wales, it is likely that that the main roads were originally built primarily for military use. Whilst a few may have remained *viae militares* throughout much of the Roman period (e.g. the Military Way, RR86), most are thought to have become *viae publicae* quite quickly, and open to use by all. Ulpian makes it clear that '...military roads terminate at the seashore, in cities, public rivers, or another military road.' (Sabinus Bk.33 *dig.* 43.7.3), giving the clear impression that they were perceived as part of a long-distance network, as, by extension, public roads would have been.

Beyond Rome, the responsibility for maintaining *viae publicae* seems to have fallen to the towns and cities, most commonly the *civitas*; more specifically the *ordo* (town council) of each *civitas* centre. In Britain we have only scraps of evidence for this, provided by milestones; for example the stone dedicated to Severus Alexander (AD222-223) found in Langwathby, Cumbria in 1993, whose inscription ends .... C(ivitas) CAR(vetiorvm) LVG(vvalio) M(ilia) P(assvvm) - '...the Civitas of the Carvetii (set this up), from Carlisle 19 miles' (Edwards and Shotter 2005; RIB3526). As far as we know, the town councils of *municipi*a and *coloniae*, despite being towns of higher status, were only responsible for the roads within their respective territories, although if the city laws of Urso in Spain were similar to those of all *coloniae* and *municipia*, all roads and paths within their *territorium* were public; 'Respecting public roads and footpaths within the boundaries assigned to the colony, all such thoroughfares, roads, and footpaths, which exist or shall exist or have existed in the said territories, shall be public property.' (Lex Coloniae Genetivae Juliae [CIL I2 594] LXXIIX). In Britain, only one *municipium* is recorded, Verulamium (St. Albans), with four *coloniae* known at Colchester, Gloucester, Lincoln and York: the extents of the *territoria* of all these towns remain unknown.

Viae vicinales

Viae vicinales on the other hand, are quite different and decidedly local, since some of them 'lead into military roads, and others trail off with no way out.' (Ulpian, Sabinus Bk.33 *dig*. 43.7.3). Ulpian also describes local roads as those that "are in villages (*vici*) or lead to villages" and were public if the land they are on was public (Edict. *dig.* 43.8.2.22). They derive their name from *vicus*, a village or small town dependent on a town of civitas status or higher, a word which often described the main settlement of a *pagus* (Mattingly 2006, 287), a rural district forming the smallest administrative unit of empire. The word *vicus* has become extensively used (particularly in Britain) to describe a civilian settlement outside a Roman fortification, which has unfortunately led to a tendency to ignore the fact that every settlement of lesser status than a *civita*s was also a *vicus*.

Siculus Flaccus (in the *Corpus Agrimensorum Romanorum*) provides similar detail as Ulpian, stating that *viae vicinales* '...turn off the public highways into the fields and often lead back to other public highways...' (L. 145.8; Campbell 2000, 113). Crucially, he also tells us that they '...are maintained in a different way, by *pagi*, that is, by the officials (*magistri*) of the *pagi*, who normally demand labour from the landholders for their upkeep.' These descriptions suggest, therefore, that roads leading from a *via publica*/*via militaris* to another *via publica* or to a *vicus*, or linking one *vicus* to another, or leading from a *vicus* or *via publica*/*via militaris* and apparently going nowhere, were all considered *viae vicinales* and the responsibility of the local rural district. This will become very pertinent later in this paper.

Viae privatae

Viae privatae, sometimes described as *viae agrariae* (Ulpian Edict *dig.* 43.8.2.22) were, as both names together suggest, private roads that often ran over fields of one owner to reach those of another. Too many modern scholars have assumed that their name implies that their use was private and restricted, but this was not always so; rather they were defined as private solely because they passed over private land. According to Ulpian (Edict. *dig.* 43.8.2.21), the use of private roads was open to all, although this was clearly at a user's own risk (Paul, Sabinus Book 10, *dig.* 9,2,31).

Methodology

Before any analysis of potential road classification could take place, it was necessary to ensure that the map being used was as accurate and up to date as possible, not only in the mapping of Roman roads but also of the Roman military installations and nucleated Romano-British settlement (*vici*) that the roads served. To this end, new mapping was created using QGIS. In order to be able to accurately assess the likelihood that previously claimed roads, or road-like features identified on lidar were real, and to appreciate where and previously unidentified roads were likely to be, it was essential to understand the distribution of settlement and Roman military installations first.

Base data for settlement and military sites was drawn mainly from the relevant Historic Environment Records (HERs) within the study area, specifically Leicestershire and Rutland, Lincolnshire, North Lincolnshire, North East Lincolnshire, Northamptonshire and Nottinghamshire, along with Historic England research material such as results of the National Mapping Programme, and aerial imagery from Google Earth and Bing. The Portable Antiquities Scheme was also consulted in order to identify major concentrations of Romano-British finds, potentially indicative of settlement.

Only sites where evidence suggested nucleated or agglomerated settlement over an area in excess of three hectares were plotted in an attempt to eliminate small farmsteads or villa complexes. The only exception was South Ferriby /Ferriby Cliffs, where a combination of coastal erosion and modern housing has made determination of the size of settlement impossible. All available literature related to sites identified was also consulted. This provided a list of sites that (with the exception of Perlethorpe) had all previously been recorded as either probable Romano-British small towns or roadside settlement, although many have never been properly investigated or published. It is important to understand that apart from *Lindum* (Lincoln), *Ratae* (Leicester) and *Petuaria* (Brough, East Yorkshire), every settlement mapped here would have been described as a *vicus*.

Base data for the Roman road network was drawn from two primary sources; the HERs and the Ordnance Survey's linear files of Roman roads. The latter, whilst 40 years old or more, remain an invaluable resource and the RRRA hold digital copies (England only). As with settlement, all available literature relating to the Roman roads was also consulted, as were the various sources of aerial photography. These were then compared with evidence of linear features from lidar imagery, using data from the Environment Agency's 1m DTM Composite 2022 processed using QGIS. Traditional 'hillshade' visualisation was combined with a Local Relief Model overlay, which provided excellent results, with the many linear features being more readily visible than by using hillshade alone. The results, including any segments of 'new' roads identified, were then plotted as individual layers on QGIS (alongside the settlements), using the rating system previously proposed by the current author (Haken 2021), which is itself based upon that developed by the Welsh archaeological trusts.

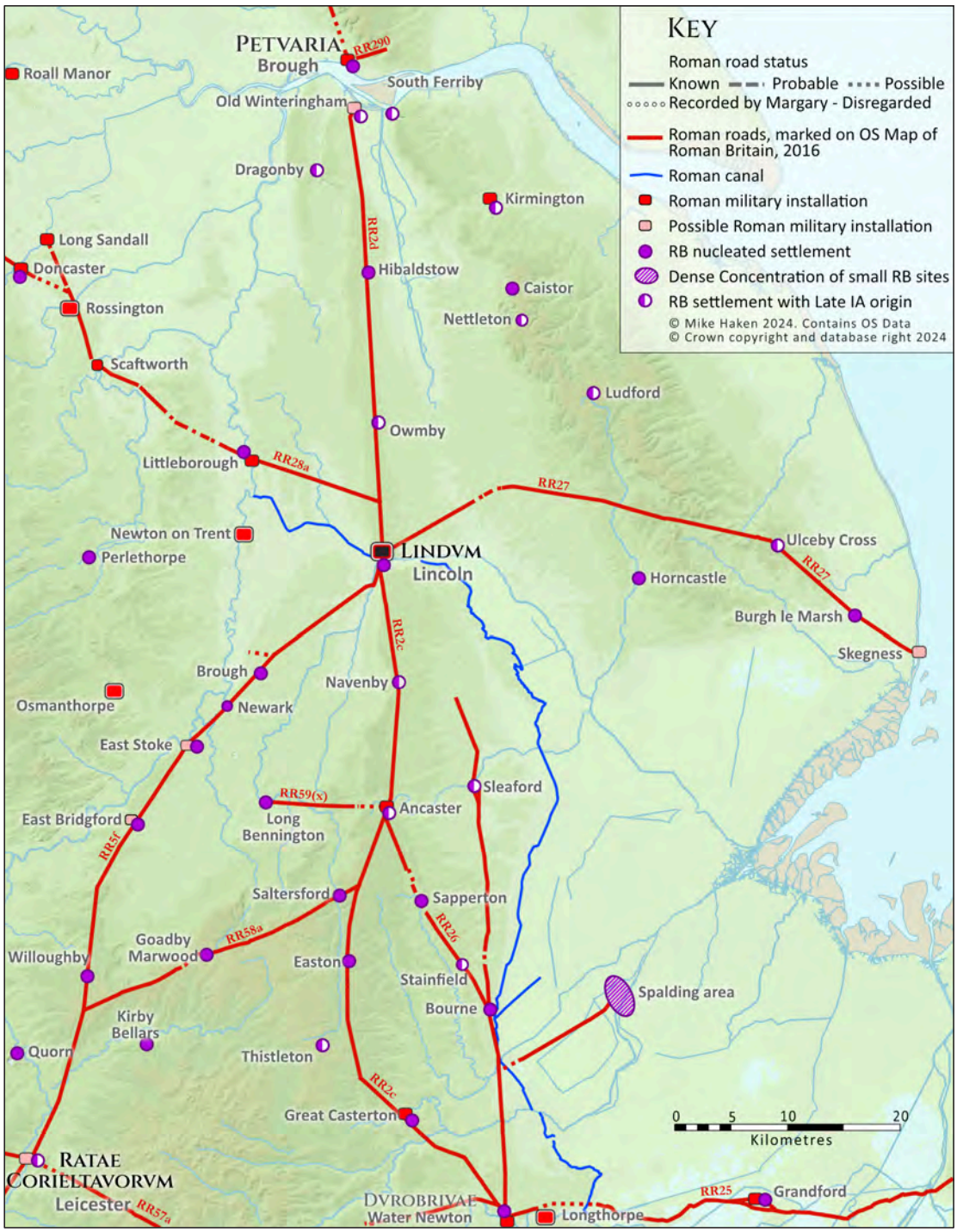


Figure 1. Roman roads marked on the Ordnance Survey's map of Roman Britain (6th edition), last revised 2010. Known and highly probable Romano-British nucleated settlement has been added, mainly from HER & PAS data.

In addition, roads or tracks not displaying classic characteristics of Roman roads but which have previously been claimed to have been either 'Romanised' prehistoric trackways, or prehistoric routes that remained in use during the Roman period, were all re-examined and compared with evidence from lidar imagery to confirm their routes. Assessment was then made as to their likely use during the Roman period based mainly on their relationship (or lack of) with Romano-British settlement. Those sinuous roads/tracks that appeared to run for long distances from nucleated/agglomerated settlements were then mapped as layers in the QGIS project. In order to distinguish these sinuous routes from more typical Roman roads, they have been awarded with numbers according to Margary's system, but with a new prefix – RBW, for Romano-British Way (Haken, this volume).

Since it is impossible to know how long these routeways remained in use, any sinuous branches from either type of road which appear to lead only to medieval settlement were not recorded. Similarly, no attempt was made to plot every potential trackway that related to a Romano-British site, since lidar imagery (especially on the Wolds) reveals a complex web of linear features, many as likely to be boundary features as they are routeways. As Steve Malone observed regarding the palimpsest of routeways in the Lincolnshire fens, 'Short contemplation of the maze of lanes, trackways and droves evident within the cropmark evidence for the fenland, is sufficient to reinforce the point that the full pattern of local communication can hardly ever be known to us' (Malone 2010, 4).

The Roads

It is beyond the scope of this paper to discuss every road in the study area in detail, however those roads whose existence has previously been questioned, or where crucial new evidence has emerged, are described below with sufficent detail to establish their routes and status. Readers who have little interest in these details may wish to skip this section and move on to the Discussion.

Roads which appear on the current 6th edition of the Ordnance Survey's Map of Roman Britain (2016) (within this specific study area) are already very well recorded and their existence beyond doubt. Lidar analysis has resulted in the odd minor amendment here and there but these have no impact on the results of the study and the roads are not discussed here. These fourteen roads are illustrated in Figure 1, as are all the known Roman military sites (excluding temporary camps) and Roman period nucleated or linear settlement within the study area, some of which are also not marked on the current OS map, such as the possible fort at Kirmington and several settlements. There is a single exception, RR590. This road is less than 3 km long, and is supposed to branch from the Fosse Way north of Newark to a Roman bridge discovered in the 19th century, over the R. Trent near Collingham, although there is no known physical evidence for the road itself. Timber recovered from the bridge piers in 1884 has been dated by dendrochronology not to the Roman period, but to the early 8th century (Salisbury 1995). Whilst it remains possible that the timber was from Mercian repairs to a Roman structure, the location of the bridge and supposed road makes little sense in a Roman context and whilst shown on Figure 1, it is therefore disregarded in all subsequent mapping.

It is immediately apparent that most of the roads illustrated by the Ordnance Survey were originally *viae militares*, since only three have no known military installations along them; RR58a linking the Fosse Way to Ermine Street, RR260 from Bourne through Sleaford, and RR290 east of *Petuaria*. However, it is equally apparent that four Roman *castra* and no fewer than ten settlements have no road leading to them, which seems highly improbable. As will be shown, this lack of connectivity can

be resolved when further roads are added to the map. These 'new' roads fall broadly into three categories:

- recently discovered Roman roads
- previously recognised Roman roads rejected by the Ordnance Survey and others due to a perceived lack of evidence, but which can now be reinstated due to clear evidence from lidar imagery.
- roads of the Roman period which do not conform to typical Roman road morphology

Each of those roads will be briefly discussed, with sufficient evidence presented to justify their inclusion, however these are not intended to be full accounts. The descriptions will only be illustrated if the work has not been published elsewhere.

Recently discovered roads

Some of this lack of connection is immediately resolved when seven recently discovered roads or extensions to known roads are added to the map. In reality, all bar two of these have been known or suspected for some time, but without the evidence needed to gain general acceptance. A possible eighth identified from lidar imagery on the MOD firing range near Beckingham on a line between *Crococalana* (Brough, near Newark) and Ancaster is not mapped, since fieldwork is required to exclude a possibility that it is actually a natural gravel deposit.

RR282(x) Osmanthorpe – Rossington

The existence of a Roman road heading north through Ollerton (Nottinghamshire) to Blyth and into Yorkshire, essentially the Roman A1, had been suspected for a century or more, part of this supposed route being given the number RRX104 by the Ordnance Survey. Several scraps of potential evidence had been recorded over the years, especially near its southern end, however, the first firm evidence over any distance was the identification of cropmarks indicative of a Roman road running south for over three kilometres from Rossington (S. Yorks) (Roberts *et al.* 2010, 68). A decade earlier, part of the road had actually been excavated over 35 kilometres (22 miles) to the south at Belle Eau Park, Bilsthorpe (Challis *et al.* 2002), but no-one joined the dots (the current author included).

The release of National Lidar Programme data by the Environment Agency changed everything, and the road was soon spotted by Tim Jeffery and the current author (Jeffery and Haken 2021a), and independently by Steve Malone (Malone, 2021). The full length of the road could be traced with confidence heading NNW from the so-called vexillation fortress at Osmanthorpe, then changing alignment near Bilsthorpe church to head north through Ollerton, past Perlethorpe, Clumber Park and Ranby, then through Blyth to Rossington and probably further north, though the route is lost in modern Doncaster.

The road almost certainly forms part of the earliest Roman route north into Yorkshire, providing a clear link from Ermine Street without the need to go as far north as Lincoln. Indeed, it seems the road remained in use throughout the Roman period, judging from the dates of the 233 Roman period finds reported to the PAS where the road crosses the R. Meden near Perlethorpe, clearly indicating a substantial settlement (Portable Antiquities Scheme data).

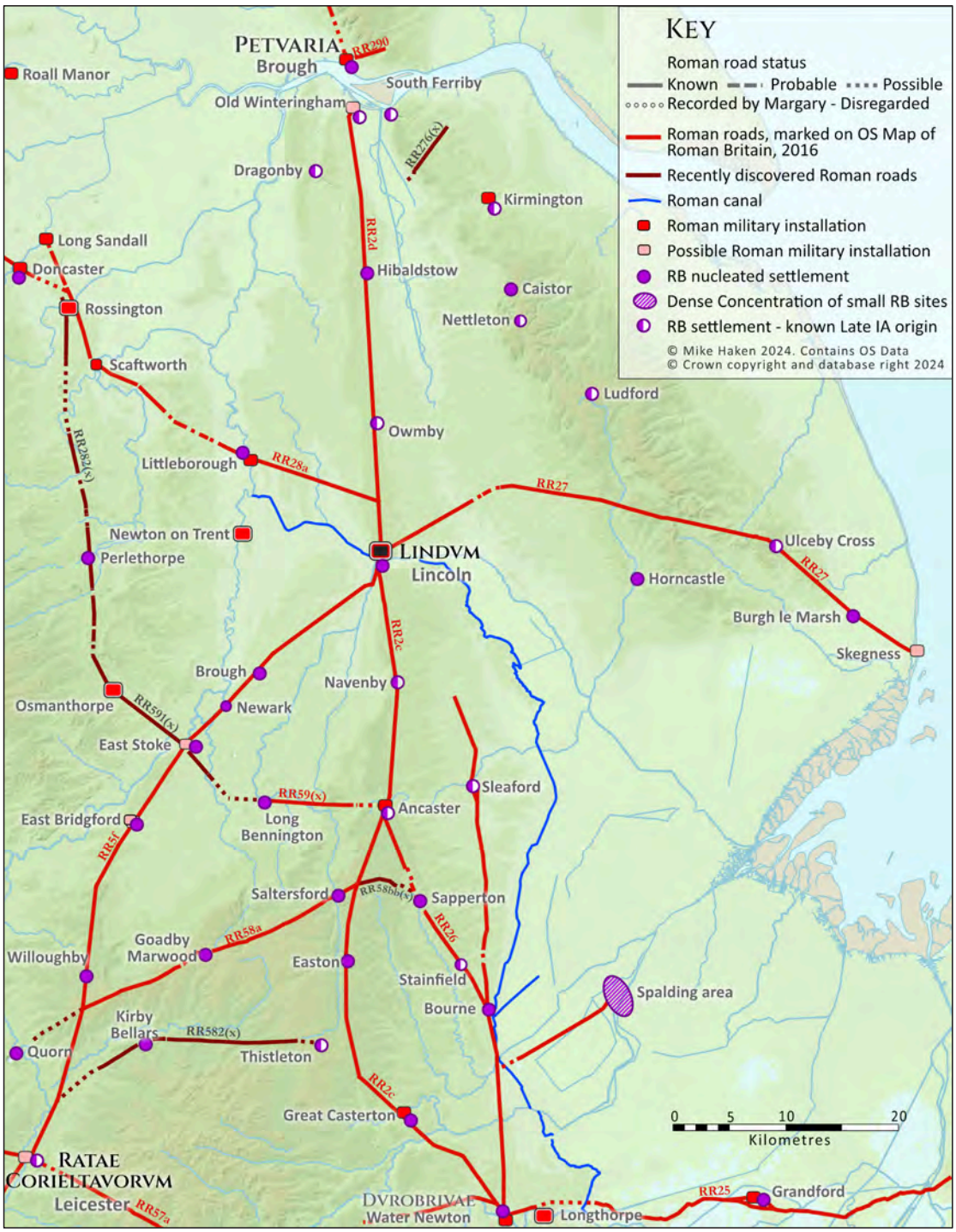


Figure 2. The same map as Figure 1, with the addition of six roads (marked in brown) established by analysis of lidar imagery and recent aerial photography.

RR591(x) East Stoke (Ad Pontem) – *Osmanthorpe*

The name *Ad Pontem*, meaning 'at the bridge', confirms the former presence of a road crossing the Trent and heading roughly northwest up the Greet valley (Bishop and Freeman 1993, 163). The route of the road is thought to be followed by Newark Road through the centre of Southwell, and then broadly represented by Lower Kirklington Road northwest of the town, which has drifted a little south-west of the Roman line. The road was traced as a clear linear band of gravel across five fields north of the modern road in 1963 (Notts. HER no. M2767).

The confirmation of RR282(x) from Osmanthorpe to Rossington makes the existence of this road certain, although it must be stressed that despite forming parts of the same route, the two roads either side of Osmanthorpe do not exhibit any common planning and should be considered as different roads, despite clearly forming part of the same route.

RR59(x) Ancaster - East Stoke (Ad Pontem)

The OS Roman Britain map shows this road running west from Ancaster as far as the roadside ribbon settlement at Long Bennington and lidar imagery has confirmed the route in a few places, notably as a broad spread *agger* between SK 9048 4369 and SK 8965 4375 immediately east of Marston (Jeffery and Haken, 2021b; Walas 2022, 438-440). However, it was always clear that the road cannot simply stop at what is, after all, a roadside settlement. Whilst there is no trace on lidar imagery on the same alignment west of Long Bennington, there is no reason to think that any deviation from the alignment was made, especially as a barrow at SK 8063 4433 appears to have been used as a sighting point. The barrow was also used to sight the road to *Ad Pontem*. Several features have been recognised on the alignment over the years (see Nottinghamshire HER M1437), but none is completely conclusive, however recent lidar imagery and Google Earth Pro aerial imagery from October 2021 leave no doubt (Fig. 3, opposite).

RR58a – western extension Six Hills – Barrow/Quorn

Margary recognised that this road could be traced as a trackway at least from Barrow-on-Soar, although he suggested that formal Roman layout only ran east from Six Hills, on the Fosse Way (Margary 1973, 222-3). However, it is likely that in fact Roman construction extended south west of the Fosse Way, not as a track but along a single straight alignment fossilised in places by the modern Paudy Lane, heading not just to Barrow-on-Soar but crossing the river to reach the large probable Roman small town between Barrow and Quorn (Leicestershire and Rutland HER MLE8775; Liddle 2004, 64). It may even have continued on further as has often been suggested (e.g. Bellairs 1901, 273-4), although there is currently no evidence of this. Unfortunately, neither aerial photography nor lidar imagery is particularly helpful, suggesting the road may be entirely ploughed away here. Whilst the route was almost certainly part of a medieval saltway, this characterisation has created much confusion, masking a Roman origin and as will be shown later in this paper, creating the illusion that it continued east of Ermine Street. Phillips' claim of a prehistoric origin for the entire Salt Way (1933, 147) has no evidential basis, but remains generally repeated. No major late Iron Age settlements are known along the route and claims for Iron Age ironworking at Goadby Marwood are similarly without evidential foundation.

RR58bb(x) Junction of RR58 & Ermine Street – Ropsley – Sapperton(?)

RR58 climbs from Saltersford, on the R. Witham just south of Grantham to meet Ermine Street at Cold Harbour (SK 9505 3477). Using lidar imagery, a 'new' Roman road has been identified during this study

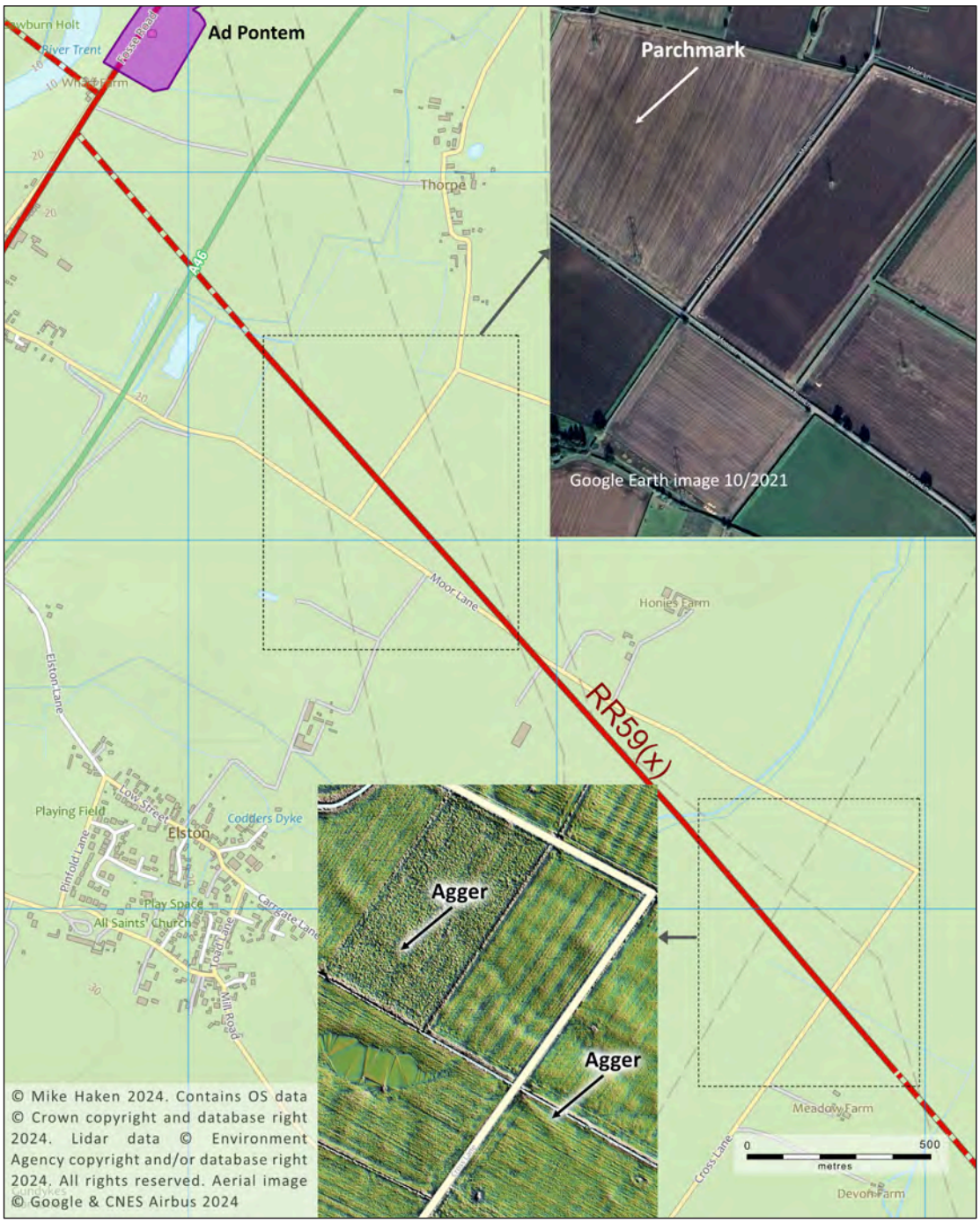


Figure 3. Map showing RR59(x) approaching Ad Pontem*, with inset details of a clear parchmark created by ploughed out road material visible on aerial photography from 2021, where there is no visible trace on lidar imagery. A second inset illustrates evidence of badly truncated agger surviving to the south-east.*



Figure 4. Lidar visualisation showing the newly discovered road (RR58bb(x)) which can be traced between Cold Harbour (the junction of Ermine Street and RR58) and Ropsley.

heading east from the junction, possibly to the small town at Sapperton, on King Street (Fig. 4). Close to its first change of alignment, immediately east of Ropsley Rise Wood, there is a dense concentration of Roman finds indicative of settlement (at SK 972 352, Lincolnshire HER 11579). The road turns again at what seems to be a Romano-British farmstead (SK 985 348) near Ropsley. It cannot be traced east of Ropsley, although it is presumably heading to a third known site east of Ropsley (Lincolnshire HER 34936) and then potentially onwards to King Street. Whilst the road's planning in a series of straight lengths is clearly Roman, if it were simply heading towards the settlement at Sapperton, it could have taken an almost straight course. It seems conceivable therefore that it may have been designed to join several farmsteads or land holdings, and whilst it seems improbable that this was ever a *via publica*, whether the road was legally a *via vicinalis* or a *via privata* is unclear. The first 4 km (2.5 miles) of this road seems well preserved, although the possible route to Sapperton is quite speculative (see Fig. 2). Certainly, from the junction on Ermine Street a further probable *via privata* heads north-west towards modern Grantham, although its destination is currently unknown.

RR276(x) Worlaby

This rather curious road was discovered during the course of this study and seems to be one of just two typical 'Roman roads' in the northern Lincolnshire Wolds. It can be traced on lidar imagery (Fig. 5) as a raised straight linear feature from TA 0155 1458 at the top of the scarp above Worlaby, northeast for 3.5 km to TA 0362 1739, where it merges on the same alignment with the modern road (B1206) for a further 1200 m. The line then runs along the bottom of the valley (which almost certainly rules out a military origin) represented today by modern access roads past Deepdale Farm and cannot be traced beyond a point just northeast of Burnham Road. It may well have continued as far as the area of Romano-British settlement near Barrow Water Treatment works (North Lincolnshire. HER 22024). Returning to the scarp above Worlaby, it seems likely that the road



Figure 5. Map and lidar inset showing the single alignment of RR276(x). The feature is hard to see and is not visible without the aid of lidar. Known areas of Romano-British settlement, some of which have a clear relationship with the road, are marked in purple.

descended to the south-west past the area of Romano-British settlement although the precise route is unknown. A linear feature visible on lidar imagery just south of Carr Lane may represent it, and if so it would seem probable that it is heading to a wharf on a former inlet (now a roddon) of the R. Ancholme,.

The road has no clear relationship with any other road of the period (see Fig. 7), however it does appear to have a relationship with at least four Romano-British settlements northeast of Worlaby (Fig. 5). Worlaby itself has evidence of Romano-British settlement over quite an area, although it is unclear whether this represents a few farmsteads fairly close together or a true nucleated settlement.

R582(x) – Thistleton - Kirby Bellars – Leicester

The idea that the general line of Kirby Lane (south of Melton Mowbray) and Sawgate Lane a little further to the east might represent a Roman road from the Late Iron Age/Romano-British settlement near Thistleton to the settlement at Kirby Bellars has been around for some time (Leicestershire and Rutland HER 5508; Liddle 2004, 64). However, until recently there has been very little firm evidence for it, hence it is not generally well known and it does not appear, for example, in mapping for the Roman period in the most recent East Midlands Historic Environment Research Framework (Taylor 2024).

Its course south-west of Melton Mowbray was confirmed by geophysical survey in 2011 (Leicestershire and Rutland HER MLE8839; Thomas 2012, 232). In 2001, remains of 'cobbled' road structure were identified at SK 781 172 either side of Burton Brook, Burton Lazars, and suggested to be possibly part of this road (Leicestershire and Rutland HER MLE20549). Lidar imagery now reveals a straight linear feature south of Sawgate Road, partly beneath medieval rig and furrow which tends to support the identification (see Figure 6, inset B). The first 2.7 km (1.7 miles) from the Romano-British settlement at Thistleton has been lost to ironstone mining, however west of that, a Roman road can now be traced on lidar imagery following a single alignment almost due west from Thistleton as far as the Roman small town at Kirby Bellars.

Unfortunately, the HER then conflates the genuine Roman road with the well recorded medieval road from Melton to Leicester known as Le Strete in 1396 (now largely the A607), due to the old (and now thought to be erroneous) belief that 'Street names normally refer to Roman roads'. In fact, rather than the sinuous line taken by Le Strete to Leicester, lidar imagery suggests that the Roman road probably passed through the settlement at Kirby Bellars and then took a direct route, as illustrated in Figure 6 (inset C). The medieval Le Strete did eventually take up the Roman line, but only from what is today the roundabout south of East Goscote, after which Melton Road follows a generally straight course through Syston for c3.2 km (two miles), to its junction with the Fosse Way.

The suggestion made in the Victoria County History of Rutland Vol. 1. (1908) p.88 of a road linking Thistleton to Market Overton, included in the HER entry 5508, is a red herring, since it is on a completely different bearing and has no relevance.

Roads currently disregarded by the Ordnance Survey and rejected in this study

No fewer than nine roads mapped by Margary (1973) are absent from the Ordnance Survey's map of Roman Britain. All have been reassessed and are discussed below in two parts, firstly those with no

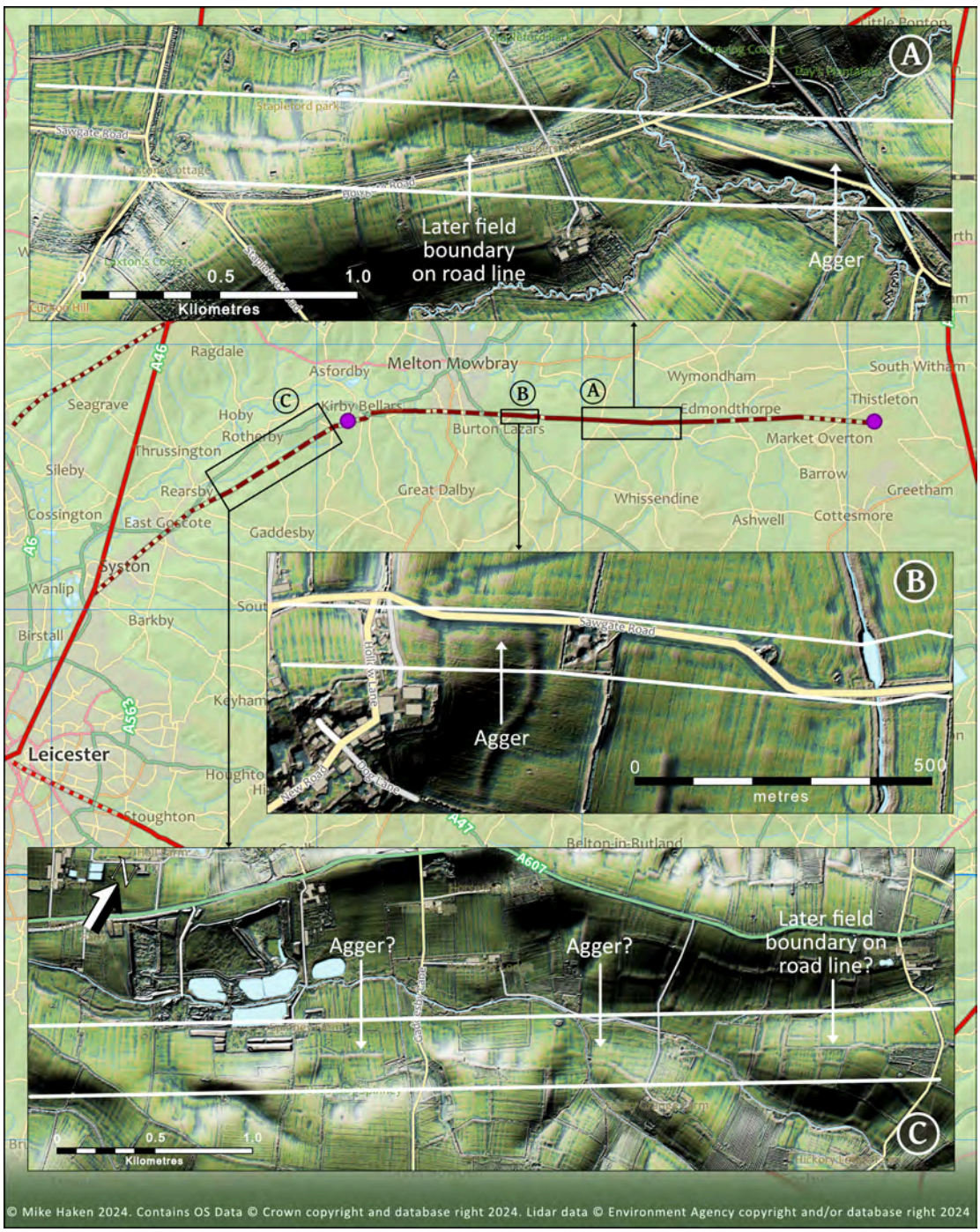


Figure 6. Evidence from lidar of the probable course of the long suspected Roman road (RR582(x)) linking the Roman small towns of Thistleton and Kirby Bellars to Leicester.

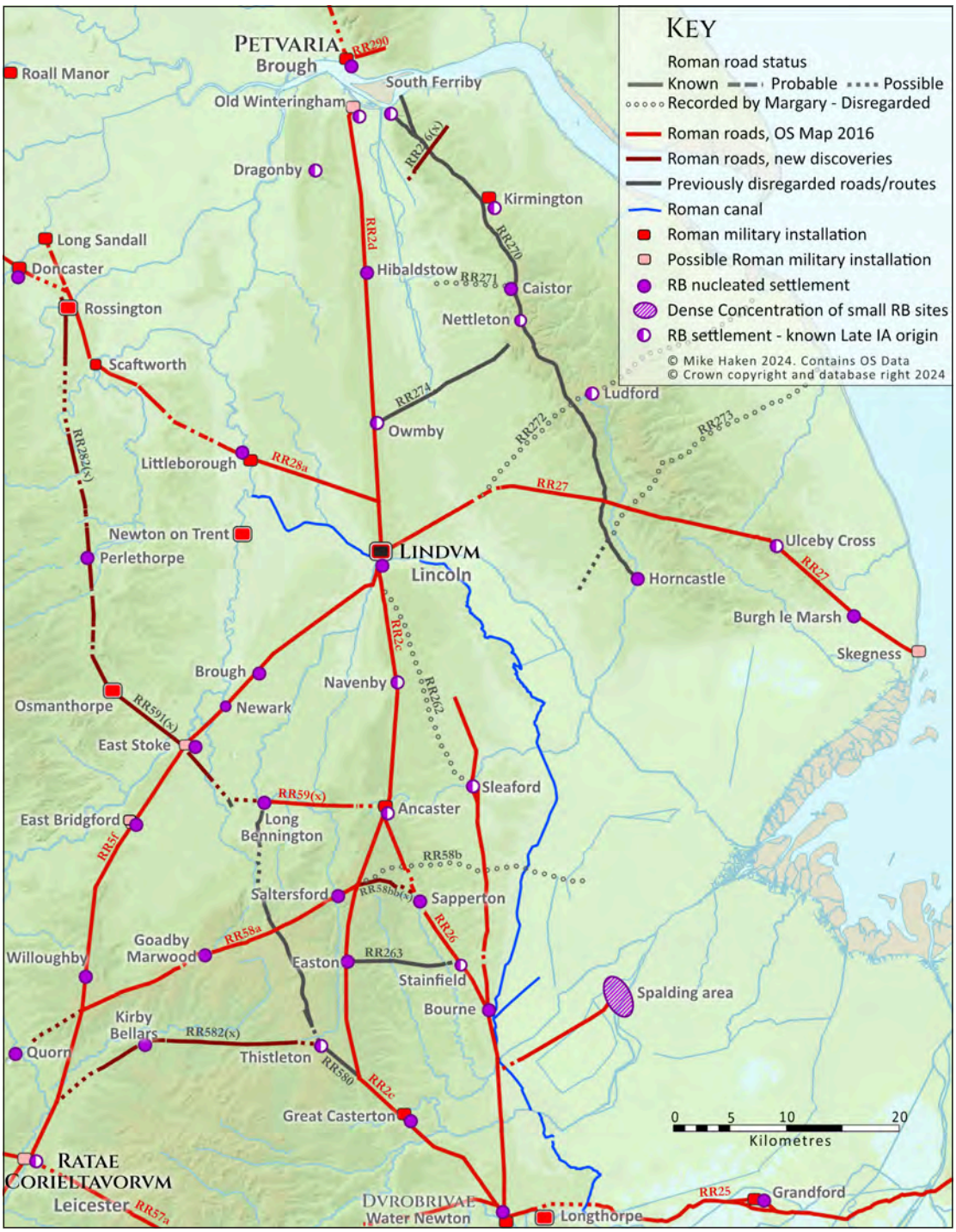


Figure 7. Further revised map after analysis of Roman roads recorded by Margary but disregarded by the most recent Ordnance Survey map of Roman Britain (6th Edition).

evidence to support them, and secondly those which do. These, along with roads previously discussed, are plotted on Figure 7.

RR58b – Saltersford (Grantham) to Donington

This supposed road, marked almost entirely by part of the modern A52, was generally accepted in the 20th century, based on the idea that both it and RR58a, a road with certain Roman origins, formed part of a medieval Salt Way (hence the name 'Saltersford') which according to Phillips 'was certainly in use in Roman times' (1934, 112). Unfortunately, there is no evidence to support Phillips' assertion. Margary himself recognised that the two roads had a quite different character (1973, 223), RR58a being well surveyed and set out using straight alignments, something not at all apparent for RR58b, except for the 2.5 km leading up from the R. Witham at Saltersford to Ermine Street, most of which is clearly visible on lidar and certainly Roman in character. It is unfortunate that Margary's numbering splits RR58 at the crossing of the R. Witham, rather than at Ermine Street, since west of Ermine Street the Roman origin is clear and incontrovertible. East of it, on the other hand, there is no trace whatsoever of a Roman ancestor to the modern A52; not on lidar, aerial photography, or from archaeological investigation, despite many claims to the contrary (e.g. Whitwell 1992, 49).

The death knell for this supposed Roman road finally sounded with the discovery in 1998 of a Roman period road (Lincolnshire HER 90882) leading from the Haceby villa site (Lincolnshire HER 60730, TF 019 368), immediately south of the A52 and the supposed RR58b, and heading south-west towards King Street (RR26). Had RR58b actually existed, it would have made no sense to build a 1.5km link to King Street when RR58b was only about a hundred metres away. The link road has been shown by geophysics to continue north of the A52, presumably to give access to a second 'villa' or farmstead.

RR262 Sleaford to Lincoln

This road was proposed by Margary (1957, 276-7), based on the notion that a more direct link between Sleaford and Lincoln was likely and that the modern A15 '*runs in notably straight lengths which frequently change direction on high points, and it is much raised generally.*' That is insufficient to claim a Roman road, even with a status regarded merely as possible. Since no recognisably Roman features can be seen at any point, and no sign of an old road was found on the supposed line when the Sleaford bypass was built in the early 1970s (OS linear file for RR262, Historic England archive), this supposed road continues to be disregarded.

RR271 Caistor to North Kelsey

This road was also identified by Phillips (1934, 115), and runs straight along the modern North Kelsey Road and Caistor Road for four kilometres due west from Caistor (formerly a Roman small town) as far as North Kelsey Moor, and then continues west for another 1775m along roughly the same alignment, marked by Station Road.

In 1985, a note was added to the Ordnance Survey's file on the road that it 'appears to be associated with the enclosure of Caistor Moor in 1814' and this seems to be borne out by the Russells' work on enclosures near Caistor and North Kelsey (1987, 53-64), which also records the planning of the new Caistor Road, along with objections to it, in 1813 (ibid., 125). Whilst suggestions made by the Russells and by Whitwell (1992, 54) that the new Caistor road deliberately avoided the House of Industry (later the Caistor Union Workhouse) and therefore cannot be Roman, do not bear scrutiny (as Albone (2016, 343) pointed out), the simple fact remains that there is not a single shred of evidence to suggest that

a straight road existed before the Enclosures of 1814. Indeed, in 1780, Andrew Armstrong, a cartographer keen to record Roman roads on his maps, produced a map of Lincolnshire which shows a sinuous road in roughly the same place. If a straight road had existed over such a distance, it is hard to see how Armstrong might have overlooked it, and indeed why anyone would have objected in 1813 to an improved road being built along its precise course.

To misquote a well known saying concerning swallows and summer, *a single straight road doth not a Roman one make*, and therefore RR271 must remain disregarded until such time as any positive evidence is discovered.

RR272 Bullington to Grainthorpe

The notion of a possible road extending the line of RR27 from Lincoln, which turns sharply eastward after Bullington, was first suggested by Codrington (1903, 148-9). However, it is worth noting that Margary only described this road (and RR273) as being of 'possible Roman origin' (1973, 241), suggesting he may have had his doubts.

At first sight, the change in alignment of RR27 after Bullington might seem hard to explain unless it is actually a junction but if RR27 had taken a direct course from Lincoln to Ulceby Cross, it would have been forced to cross the wetlands in the floodplain of the R. Witham and Barlings Eau east of Fiskerton for a distance of around four kilometres (2.5 miles). Instead, the route taken is actually quite pragmatic, avoiding not only the wetlands but also some of the more undulating terrain east of Horncastle. Therefore, the primary reasoning for suspecting the existence of a road heading northeast from Bullington is probably invalid. Furthermore, the various stretches of modern track and road that Margary suggests as being the route are discontinuous and mainly sinuous, and do not suggest Roman surveying. Indeed, intense analysis of lidar imagery has not revealed any trace of a potential straight Roman road at any point along the route, and not even any former stretches of sinuous road filling the many gaps.

Finally, Phillips points out (1934, 113) that parts of the supposed route were utilised by seven wapentakes as a boundary which was certainly true at the time of Domesday (see Brookes 2020), but this is not in a continuous chain. Phillips argued that about 12 km (7.5 miles) at the eastern end (Pear Tree Lane) across the Lindsay Marshland, which is entirely followed by wapentake boundaries, is 'at least as old as Anglo-Saxon times and therefore probably Roman'. His argument might hold were this straight, however it follows a curving route, deviating from a straight line by 900 m at its greatest; not at all the trait of an engineered Roman road.

Therefore, with no positive evidence to support it, RR272 has been disregarded.

Other supposed routes

In recent decades several Roman road lines have been suggested in north-eastern Lincolnshire. These include a road from Caistor to a hypothetical Saxon shore fort site at Cleethorpes, with a branch heading northeast to the Humber estuary and actually continuing on the Yorkshire side (Oliver 2006). The evidence for both is speculative, and neither lidar nor aerial photography shows any sign of long distance roads or routes along the suggested courses. Similarly, various hypothetical roads have been suggested by Owen (1997), none having any substantive evidence to support them. None of these roads have been mapped for this study.

Roads currently disregarded by the Ordnance Survey and reinstated in this study

When compared with Margary's map, four roads are now absent, where no evidence could be found to confirm a road of Roman date, or in two cases (RR272 and RR273) a continuous road of any date. Three further roads included by Margary (1973) but currently omitted by the Ordnance Survey will be demonstrated to have more than sufficient evidence from lidar imagery to regard them as proven Roman roads showing typical planning and construction. A fourth road is partially reinstated, since there is some evidence to suggest that a short part of it may be Roman in origin. A fifth, deliberately left until last, shows no signs of typical Roman construction, and yet was demonstrably an important artery in the Roman period. Summaries of the new evidence are provided below and all five have been reinstated on this study's mapping (see Fig. 12).

RR580 Ermine Street to Thistleton and potentially to Ad Pontem *(Sewstern Lane / The Drift)*

Phillips recognised that Sewstern Lane and The Drift formed an ancient (rather than Roman) road (1933, 147). However, there is no evidence that it originally branched from Ermine Street, as he assumed. It can traced as a continuous and sinuous linear trackway from just north of the Romano-British small town at Thistleton, thought to have late Iron Age origins (Leicestershire and Rutland HER MLE5765) as far as the point where it meets the former Great North Road, immediately south of the Romano-British settlement at Long Bennington. The latter settlement was not known in Phillips's day (Boutwood 1998), otherwise he would have recognised that the road is simply connecting the two sites. It is still largely in use as a track and road, although there is now a gap near Woolsthorpe by Belvoir created when the Woolsthorpe branch of the Great Northern Railway was built in the 19th century. Prior to that, it was still in use as a drove road, hence the name for the much of the road south of Woolsthorpe, 'The Drift'.

Phillips later reported (1934, 111-112) on the discovery of a 'properly engineered junction between Ermine Street and the track known as Sewstern Lane which, taken in conjunction with the Roman sites around Thistleton and Market Overton in Rutland, proves the Romanisation of the southern part of the lane and allows a strong presumption that the whole of it was in use.' The feature Phillips described (spotted from the air by O.G.S. Crawford in 1930, between SK 9520 1347 and SK 9402 1447) runs from the bend in Ermine Street to Wood Lane, which then fossilises the Roman line as far as the former RAF Cottesmore, where it can be picked up again on lidar imagery (Fig. 8, overleaf). However, Phillips's description seems to have been inaccurate, there being no evidence to suggest that the southern section was ever 'Romanised'. Rather, there seem to be two separate roads, Sewstern Lane/ The Drift branching from a typical Roman road where today The Drift becomes Fosse Lane (SK 8993 1914), suggesting that the Roman road came first. For clarity, it is suggested that The Drift/ Sewstern Lane is numbered RBW580, the engineered road remaining RR580. It seems likely that RR580 was intended to run to the sharp bend in RR59(x) west of Long Bennington but there is no sign of the road for 24 km (14.9 miles) north of SK 8921 2070, except for a probable 950 m length of almost ploughed out agger just visible on lidar imagery at the northern end. The logical conclusion is that the road was started but not completed, construction being abandoned in the late 1st century, possibly when the Roman military focus shifted northwards in the Flavian period. At a slightly later point, the sinuous road developed (or was created) between the two settlements. Despite neither settlement surviving into the early medieval period, much of the route has remained in use ever since.

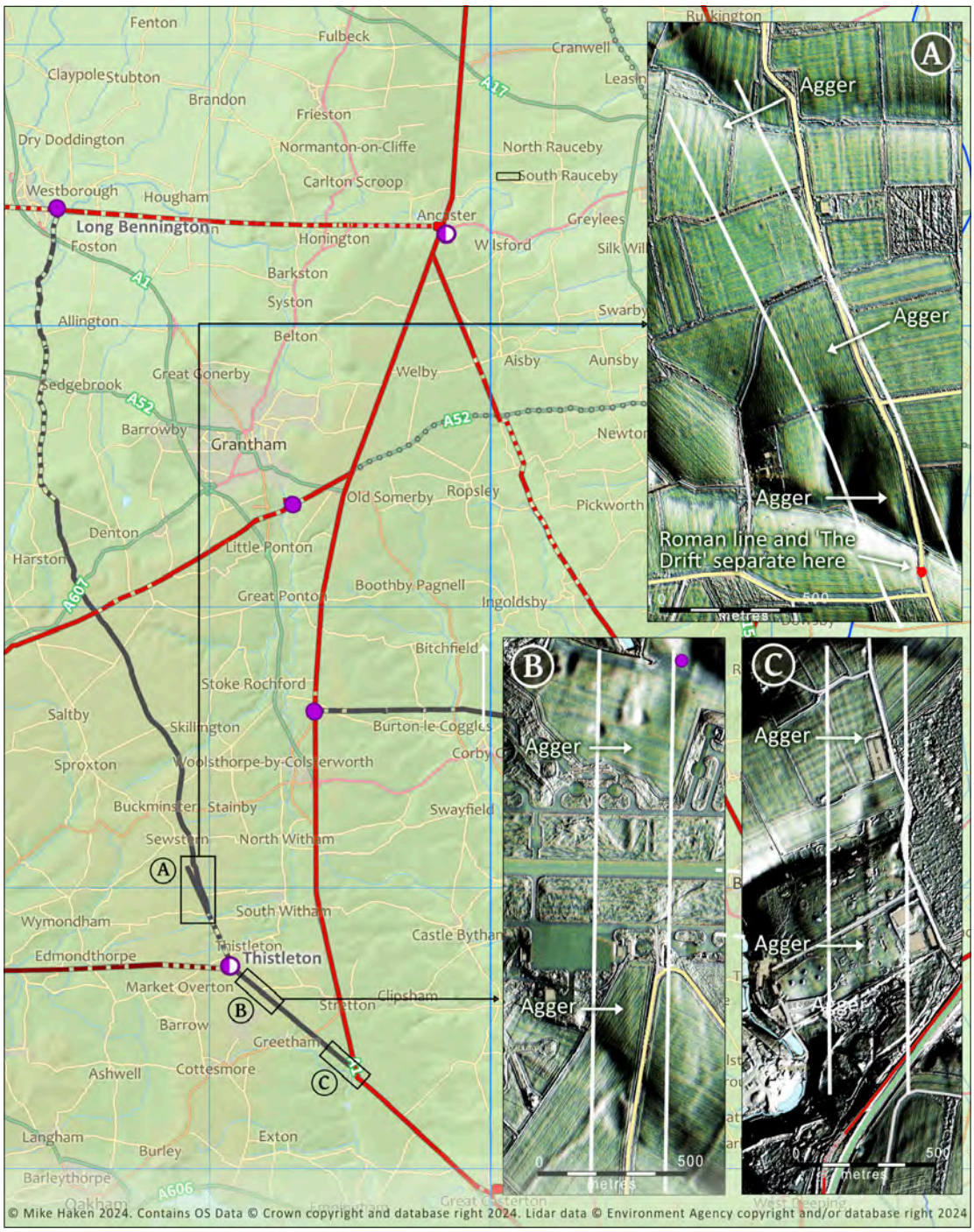


Figure 8. Map showing evidence from lidar for the typically 'Roman' section of RR580 from Ermine Street through the Roman small town of Thistleton. The blue grid is 10km squares.

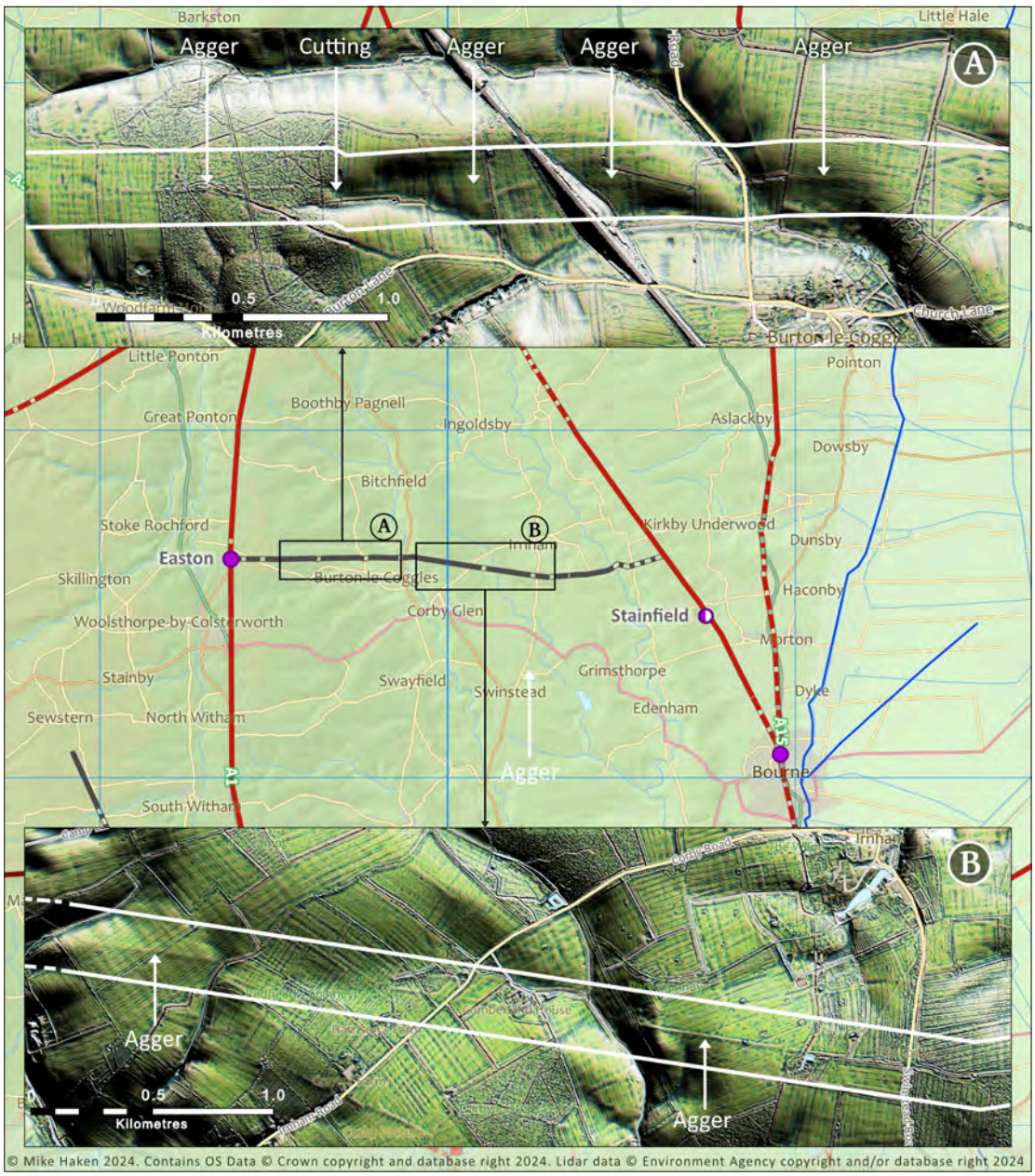


Figure 9. Map and lidar visualisations of RR263 heading east from the Roman roadside settlement near Easton. The blue grid is 10km squares.

Ironically, the feature Crawford spotted in 1930 is actually responsible for the road's later exclusion from OS mapping. In 1965 an OS field investigator, B.H. Seaman, mistakenly described it as a buried pipeline (OS linear file for RR580 – Historic England archive). There is indeed a pipeline running along Wood Lane, however it does not maintain a straight course where the lane bends, as Seaman assumed.

This was checked using the online facility Linesearchbeforeudig, a search of all current and historic pipeline operators coming back negative, not just at this point, but at all points where the road can be seen on lidar. Furthermore, the road was probably observed in 1996 at SK 943 142 during an archaeological watching brief (Leicestershire and Rutland HER SLE2692) and can be seen clearly on lidar exactly where Crawford spotted it.

RR263 Easton to Stainfield?

This road was apparently first observed by Thomas Leman in 1818 (Whitwell 1992, 48) but was largely overlooked until 1958 when Margary rediscovered it and later included it in his second edition of *Roman Roads in Britain* (1967, 236). Both Margary and the Ordnance Survey (Linear file for RR263, Historic England Archive) could only trace the road for about a third of its length, between TF 0044 2612 and TF 0415 2587, and whilst both suspected it was heading east to join King Street (RR62) near the possible settlement at Stainfield, they could find no clear evidence for this. In fact, it seems more likely that it joins King Street some 2 km (1.2 miles) north of the Stainfield settlement. To the west, Margary thought the alignment of the central section near Burton le Coggles continued heading WNW to Ermine Street, citing a visible ploughed out agger at SK 972 271, however he was mistaken. In fact, lidar imagery (Fig. 9) shows clearly that the road turns due west at about SK 9914 2633 to head directly to the Romano-British roadside settlement on Ermine Street at Easton. Given the previous uncertainties, it is perhaps unsurprising that this road has been somewhat ignored, but most of its route is now known with confidence, although the agger is being increasingly ploughed out. The easternmost part of its course remains unclear, but it seems most likely that it was effectively a link between the two settlements.

RR274 Owmby Cliff to Normanby le Wold and High Street

A short stretch of this road was identified from aerial photographs near Osgodby in the mid 20th century, and it appeared on the 3rd edition of the Ordnance Survey's Map of Roman Britain (1956), and was included by Margary (1957; 1973). However, F.R. Harper, an Ordnance Survey field investigator who visited the road in 1963 was highly sceptical, and went so far as to describe the eastern extension of the road through Normanby le Wold as 'topographically impossible' and he thought it doubtful that the road as a whole 'ever existed in any made-up form'. Needless to say, the road did not appear on the 4th edition of the Map of Roman Britain, or on any subsequent editions.

Harper was wrong on both counts. Thanks to lidar imagery (Fig. 10), it is very clear that the road does exist, running from the settlement at Owmby Cliff along a generally straight course to Normanby le Wold, where there is significant evidence of Roman habitation, although it is unclear as to whether or not this constituted a nucleated (or agglomerated) settlement. Whilst it is certainly true that the road would have provided the Roman pottery industry near Claxton and Walesby (North Lincolnshire HER nos. MLI50123, MLI51828, MLI51861) with a link to Ermine Street, this was clearly not its primary function. Rather, the road runs into a natural valley which, contrary to Harper's comment, allows a relatively easy ascent on to the Wolds, the steepest part of the modern lane being about 1 in 6 for 200m – unusual but not extreme for a Roman engineered road (Armstrong D. 2023, 64). Whether it actually made the full ascent is uncertain, however it seems to connect to what becomes a fan of raised and sinuous trackways (Fig. 10) most of which appear to run towards High Street (RR270), with two apparently heading to the Romano-British roadside settlement at Nettleton Top (Chris Pedley, pers. comm. email August 2020).

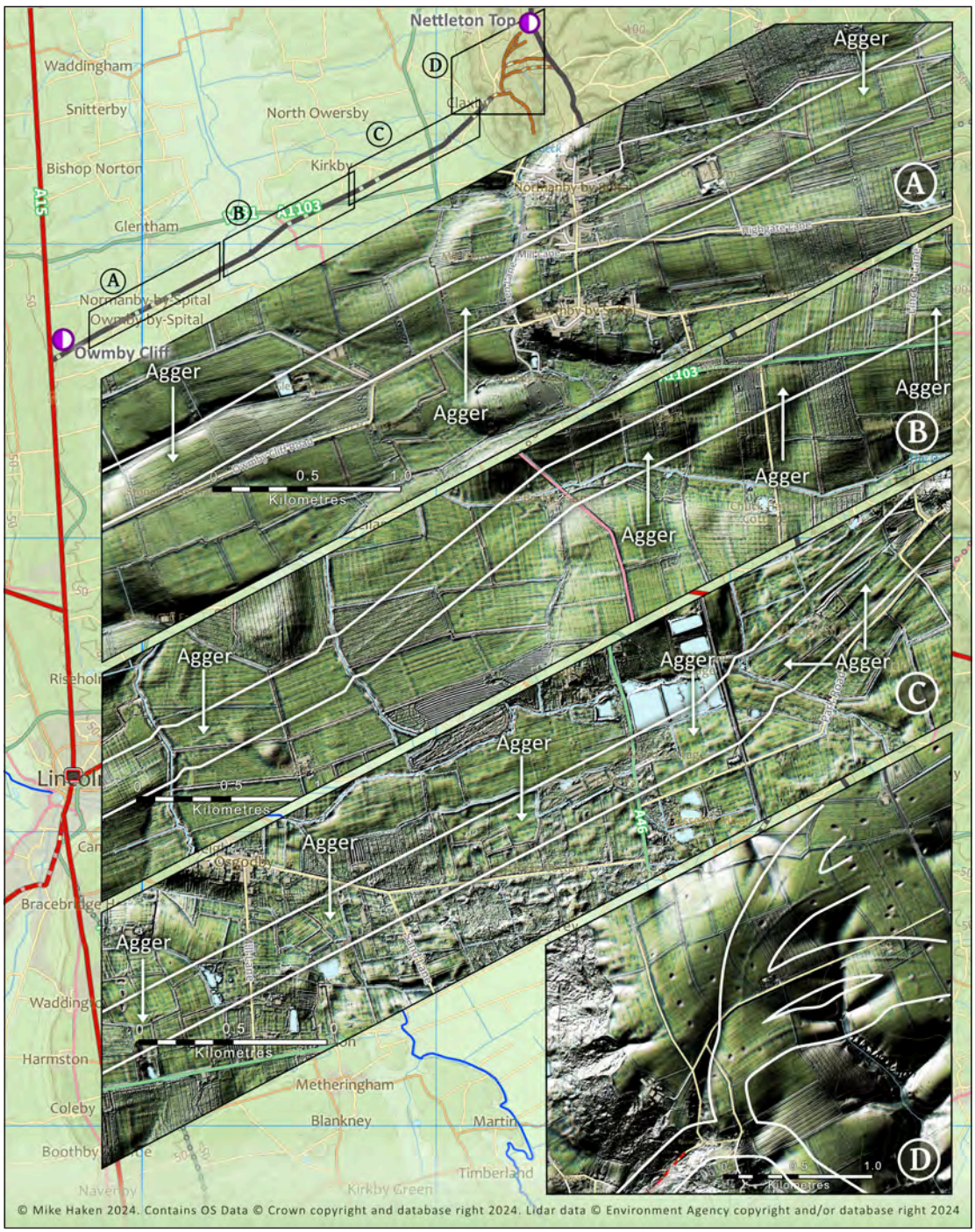


Figure 10. Map and lidar visualisations showing RR274 from the settlement at Owmby Cliff on Ermine Street to Normanby le Wold. Lidar evidence for trackways mainly linking to High Street are also shown.

RR273 Stixwould to Saltfleetby

This road is about 12km (7.5 miles) to the south east of the supposed line of RR272 and runs roughly parallel to it. Albone dismissed it on similar grounds to those for rejecting RR272 (2016, 360), and it is certainly true that north of Hemingby there is no evidence that there was ever a continuous road of any date. However, its original identification by Phillips (1934, 113-114) was due to its southernmost section of some 7 km (4.5 miles), from Stixwould in the Witham valley to the point where it meets High Street (RBW270) being straight. Phillips confused the issue by suggesting that this straight section continued north beyond RR27, which it doesn't. The southern segment would be better described as set out along a straight line, since it does deviate either side of the line quite frequently, but never by more than about 25 m. Over half of it formed part of the boundary between the wapentakes of Gartree and Wraggoe in 1086 (see Brookes 2020) and indeed the northern part of it is still known as Mere Baulk Lane, i.e. the lane on the boundary bank. If taken in isolation, we must consider the possibility that the segment may actually be a branch from High Street dating from the Roman period, despite having no obvious destination or function. Alternatively, it remains just as possible that this part of the wapentake boundary was surveyed as a straight line, with a lane developing along the boundary bank. Either way, the segment cannot be ruled out and is regarded as possible, whereas the rest of the supposed road is disregarded due a total lack of evidence.

RBW270 High Street

High Street, as the name suggests, is the modern name for a ridgeway, linking the Roman small towns of Horncastle and Caistor, and then heading north to the settlement at South Ferriby. Clear evidence that High Street was in use during the Roman period was provided by the discovery of a Romano-British roadside settlement at Nettleton Top (Willis 2013; Lincolnshire HER 50481). Despite this, its sinuous nature and lack of typical Roman characteristics have variously led to it being described as a prehistoric trackway (Phillips 1933, 149; May 1976, 9), an unimproved routeway (Albone 2016, 345) and occasionally Romanised (OS linear file for RR270) with 'some signs of straightening' (Margary 1973, 240). As a result, it has been disregarded by many (e.g. the Ordnance Survey Map of Roman Britain) as not being a true Roman road. However, as pointed out in the Introduction to this paper, such a distinction based on construction and surveying is probably not one that would have been recognised in the Roman period, certainly not in Roman law. It is therefore suggested that it should retain its number awarded by Margary but with the new prefix RBW (for Romano-British Way), proposed earlier in this paper.

Its route between Horncastle and Caistor is primarily a ridgeway along the western scarp of the Wolds represented today by the modern B1225. Between Burgh on Bain and Caistor it is followed continuously by parish boundaries defining parts of 17 parishes over 20km (12.5 miles). As Albone points out (2016, 82), it is impossible to know whether or not the modern line has moved from its original course at any point but the parish boundaries along it suggest that it probably hasn't moved far.

North of Caistor there has been much confusion about the possible route, since no early 20th century writers such as Codrington (1903, 146) or Phillips (1933, 149) felt able to describe the route north of Caistor in any detail. Most writers, including Margary (1973, 240) have therefore assumed that it continued as a ridgeway along the western scarp of the Wolds as far as South Ferriby, mainly represented by the modern road Middlegate Lane, known by this name since at least the 17th century (Bryant 2006, 14). If so, there is no clear evidence for it between the point where it supposedly

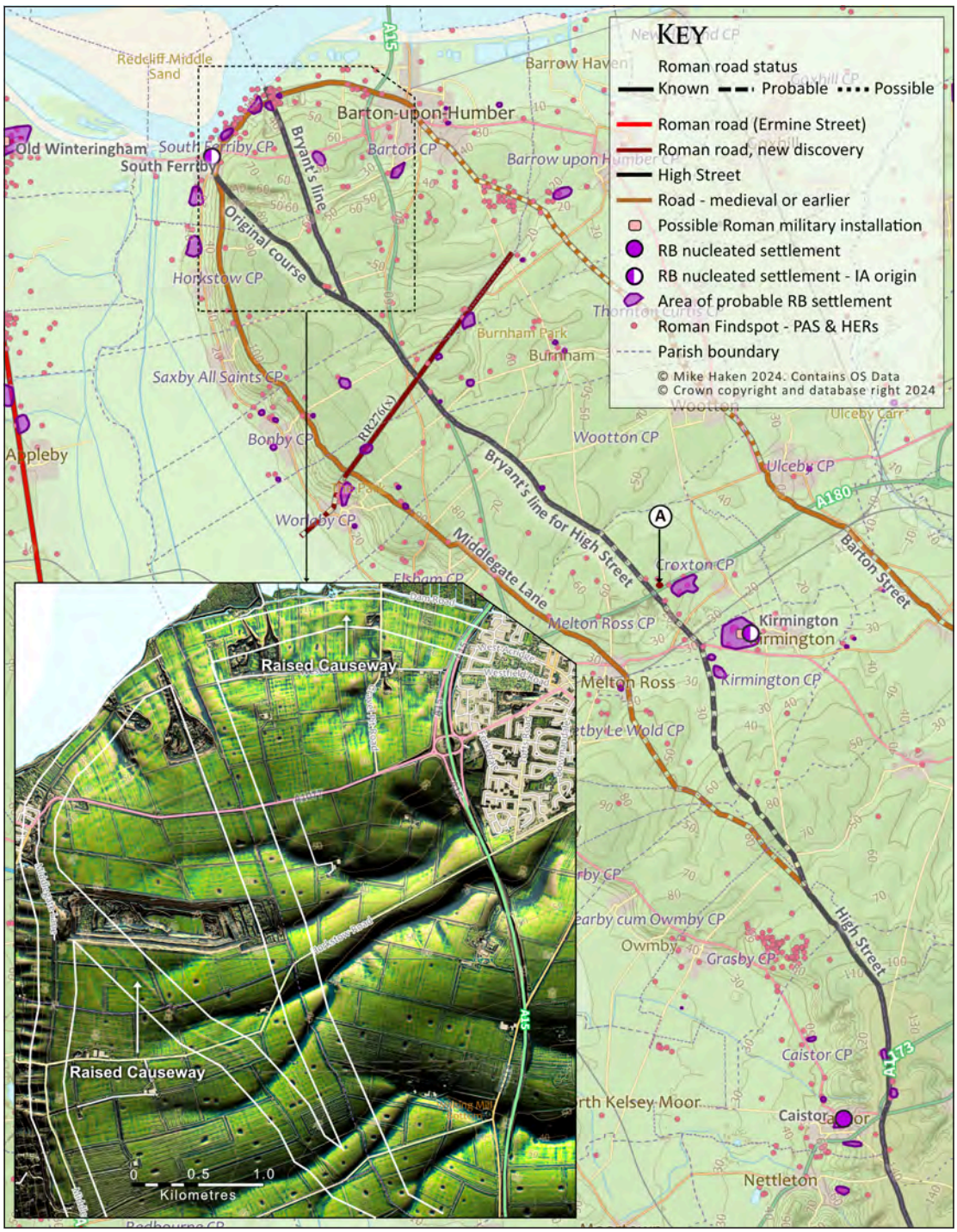


Figure 11. Map showing the probable course of High Street north of Caistor identified by Bryant in 2006 with the newly recognised link to South Ferriby. Lidar imagery reveals how the ancient routes of Middlegate Lane and Barton Street probably form a continuous loop.

diverges north-west from a point at TA 1097 0615 for 6.5 km to the end of the modern Middlegate Lane in Melton Ross, other than a hypothetical and somewhat contrived line mainly comprising straight enclosures period field boundaries and tracks.

Three kilometres north-west of Melton Ross, a large Anglo-Saxon cremation cemetery north of Middlegate Lane was excavated in 1976 close to the intersection with the A15 (TA 046 125), which was found to continue beneath the modern road (although no excavation took place south of the lane). The excavators concluded that since Middlegate Lane is prehistoric in origin, the original routeway must have been slightly further southwest (Webster and Cherry 1977, 209-10), treading perilously close to circular argument. Whilst their suggestion remains possible, the excavators (nor anyone else since) do not appear to have considered the more logical possibility that Middlegate Lane is not of prehistoric origin at all and could actually be later medieval, created above the cemetery long after it had gone out of use. Middlegate Lane has little known Romano-British activity along it, and does not form a parish boundary at any point (other than a couple of short lengths in the hypothetical section), quite surprising given the extensive use of High Street as a boundary marker south of Caistor.

Geoffrey Bryant (2006) proposed a different and more convincing route for High Street well to the east of Middlegate Lane, that forms part of the boundaries of fifteen parishes and passes close to the late Iron Age and Romano-British settlement at Kirmington. This route is for the most part no longer a road, although half of it remains part of the Viking Way footpath from TA 0693 1322 to TA 0047 1921 (9 km). The route as Bryant recorded, and the boundaries along it, has clearly been straightened in places to accommodate 18th/19th century Enclosure Awards, for example where it forms the boundary between Croxton and Melton Ross parishes (near the hillfort of Yarborough Camp). Here, a short length of Roman period road about 225m north east of Bryant's line (TA 0803 1232, marked Point A on Figure 11), potentially representing the original line, was discovered during archaeological monitoring (Murray 2012, 5, fig. 8 and plate 13).

At the northern end, where Bryant's route makes a sharp turn northwards at TA 0156 1815 to then follow a generally straight line towards the Romano-British settlement near Poor Farm (also known as Bluecoat Charity Farm), he was actually conflating two roads, although he couldn't have identified this at the time. Lidar imagery (Fig. 11 inset) shows very clearly that the original road continued on its previous course towards South Ferriby, merging with Middlegate Lane at about SE 9890 2072. The straight road alignment Bryant identified is actually a branch road which has since been confirmed as a Roman road by geophysical survey, and thus confirms that the original sinuous road which it joins must have been in use in the Roman period.

North of the point where Middlegate Lane meets or merges with High Street, now part of the modern Middlegate Lane, the road then swings around to the northeast following the shoreline and is clearly heading directly to the known area of Late IA/RB settlement at South Ferriby Cliff (Price and Wilson 1988, 55-7). In fact, lidar imagery (Fig. 11 inset) shows that it doesn't stop at the settlement, rather it continues past other areas of known Romano British settlement and enters modern Barton on Humber, were its line is taken up the modern road West Acridge. The causeway was previously recognised from aerial photography, but incorrectly interpreted as a boundary earthwork (North Lincolnshire HER 26360). Most interestingly, it seems to form a continuous loop with another well recognised ancient route known as Barton Street (Lincolnshire HER MLI116141), which runs down the eastern edge of the Wolds. The precise route of Barton Street at its northern end approaching Barton on Humber is unknown, but the simple fact that the name of the road occurs as far south as Louth demonstrates that it existed in the medieval period. However, like Middlegate Lane, there is no

evidence for Barton Street being in use earlier than the medieval period, although a prehistoric origin is generally presumed (e.g. Phillips 1934, 149; May 1976, 9). Whilst it is certainly possible to trace it southwards close to the late Iron Age settlement at Ulceby Cross, this could be mere coincidence, hence Middlegate Lane, the northern loop, and Barton Street are marked as 'medieval or earlier' on Figures 11 and 12.

In summary, no evidence could be found to support four of the nine roads included by Margary but excluded from the Ordnance Survey's Map of Roman Britain, and they have been rejected by this study. About 80% of the fifth 'road' also has no evidence to support it. Three of the remaining four have been reinstated on the map since lidar imagery clearly demonstrates typical Roman construction. The final one of the nine, the most notable omission, is High Street, Margary's route 270, which links the Roman small towns of Horncastle and Caistor to the Humber estuary. It appears to have been excluded because it does not conform to the common morphology of Roman roads with a raised *agger*, parallel ditches, and straight alignments, despite having a proven Roman roadside settlement beside it at Nettleton. Since there is no evidence from the Roman period to presume that it was regarded in any different way to a 'conventional' Roman engineered road, it is similarly reinstated.

In this section, we have in effect added ten roads to the map and extended another southwestwards (RR58a). This gives a total of 23 roads, at least in terms of awarded numbers, of which all bar two exhibit the accepted standard morphology of a Roman road. The inclusion of High Street and Sewstern Lane as roads with demonstrable Roman period use, raises the very serious question of what is, and what is not, a Roman road, as was briefly discussed earlier in this paper. It also forces us to consider that if there are two sinuous metalled roads, could there be more, something which will be assessed following an analysis of the 'typical' Roman roads.

Engineered Roads - Analysis and Discussion

As has already been discussed, the earliest phase of development of the road network will undoubtedly have been entirely a military one. M.C. Bishop suggests that we can divide network development into four stages, listed below (2014, 41-3). In addition, there will of course be some existing routes and roads that remain in use or become adapted and developed in any of the four phases.

1. Military roads derived from the main lines of advance during campaign
2. Military cross routes linking the main lines together
3. Interaction of the civilian sphere with the military, possibly happening quite quickly
4. Evolution of the network, new roads added as required, and some going out of use

Conventional wisdom states that most Roman roads in Britain belong to phases one and two, and many of those in phase four also being military roads. However, can that be demonstrated in the study area? Clearly if a road belongs to the first two military phases, it would be expected that they have military installations either at their termini or along their course. Table 1 (overleaf) lists all roads mentioned so far and uses the same symbols as in Figure 12 to visually demonstrate which roads have military sites (or probable military sites) and nucleated or agglomerated settlement at their termini or along their length.

There are ten roads of typical Roman construction which have military sites (or suspected ones) at both termini, and they can safely be regarded as *viae militares* that will have become *viae publicae* when the army moved north in the Flavian period. One slight qualification to this comes with King Street (RR26), since it is known that the construction between Water Newton and Bourne was substantial and early, while excavation of the northern Bourne to Ancaster section suggested that the road was no more than an earth trackway until the late 3rd century at the earliest, when it was metalled in a quite basic fashion (Archaeological Project Services 1995, 57). It is possible that the Roman army planned the road at Stage 1 or 2, but only completed it as far as Bourne, possibly because priorities shifted west to Ermine Street. Whether King Street northwest of Bourne was ever a *via publica* can probably never be determined with full confidence, but as discussed in the Introduction, the fact that it was at first a *via terrana* does not rule that out.

In addition, there are three others. The first is the short road (RR290) heading east from Brough (*Petuaria*, *civitas* capital of the Parisi) on the north shore of the Humber, which will certainly have been a *via publica* irrespective of whether it had any military function, simply by virtue of its origin being

Margary No.	Start and End Points	Sites at Start	Sites at End	Sites along route	Stage	Length	Via
RR2c	Water Newton (*Durobrivae*) to Lincoln (*Lindum*)				1	83km	*publica*
RR5f	Leicester (*Ratae*) to Lincoln (*Lindum*)				2	80km	*publica*
RR59(x)	Ancaster to East Stoke (*Ad Pontem*)				2	25km	*publica*
RR591(x)	East Stoke (*Ad Pontem*) to Osmanthorpe				1	10km	*publica*
RR282(x)	Osmanthorpe to Rossington				1	43km	*publica*
RR2d	Lincoln (*Lindvm*) to Old Winteringham				3	50km	*publica*
RR28a	Scampton to Doncaster (*Danum*)				2	51km	*publica*
RR281	Rossington to Long Sandall				2	6km	*publica*
RR580	RR2c to Thistleton to RR59(x) (uncompleted)				2	35km	*publica*
RR26	Water Newton (*Durobrivae*) to Ancaster				2	48km	*publica*
RR27	Lincoln (*Lindum*) to Skegness				2	66km	*publica*
RR290	Brough (*Petuaria*) to Swanland				3 or 4	4km	*publica*
RR261	Baston to Spalding				3 or 4	14km	*vicinalis*
RR582(x)	Thistleton to Kirby Bellars to Syston				3 or 4	32km	*vicinalis*
RR58a	Quorn? to Ermine Street				3 or 4	42km	*vicinalis*
RR58bbx	Sapperton (*Causennis?*) to Ermine Street				4	7km	*vicinalis*
RR263	Easton to Stainfield?				3 or 4	13km	*vicinalis*
RR260	Bourne to ?				3 or 4	36km	*vicinalis*
RR273	High Street to Stixwould				3 or 4	7km	*vicinalis*
RR274	Owmby Cliff to Normanby le Wold			?	3 or 4	18km	*vicinalis*
RR276(x)	Worlaby	?			4	7km	*vicinalis*

Table 1. A review of all roads listed so far, showing graphically the type of sites they run from and to, and the sites along them. The network stages (M.C. Bishop's model), lengths and probable legal designation are listed.

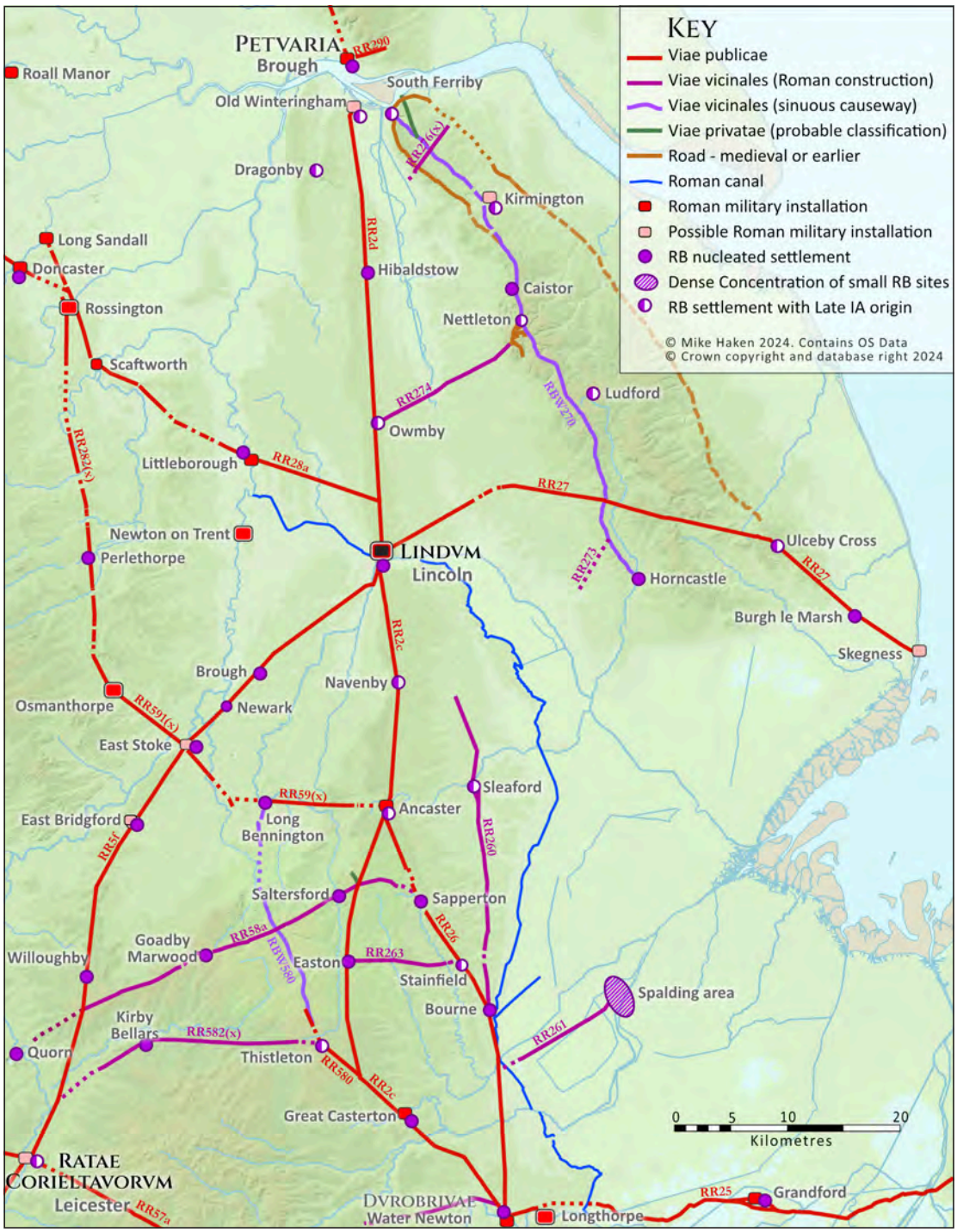


Figure 12. Revised map of Roman roads in the North East Midlands, showing the probable classifications of viae publicae *and* viae vicinales, *including the sinuous routes of Sewstern Lane/The Drift and High Street*

a *civitas*. Next there is RR580 through Thistleton, which appears to never have been completed, but only really makes sense as providing a link between Great Casterton on Ermine Street and the so-called vexillation fortress at Osmanthorpe, via East Stoke (*Ad Pontem*) on the Fosse Way. There are therefore twelve roads which we can confidently conclude were *viae militares* that eventually became *viae publicae*.

Whilst all these roads (excepting RR290) belong to Stage 1 or 2 of Mike Bishop's proposed model, they all also served nucleated civilian settlements that sometimes already existed and often developed along them, sometimes originally associated with military sites, sometimes not. However, there are nine other roads which clearly did not have any association with military sites yet are constructed in standard fashion and only appear to serve the needs of settlement along their route. Interestingly, all bar one (RR276(x) through or from Worlaby, where a settlement is possible) appear to have settlement at one end and a road junction at the other. This includes RR274, with an area of settlement, possibly nucleated, at Normanby le Wold, and even the rather peculiar RR260 north from Bourne via Sleaford which seems to simply stop near Ashby de la Launde, where the PAS database records a cluster of Roman findspots around the northern end of RR260, possibly suggesting a currently unknown settlement. Finally, these nine roads are much shorter than the previously discussed *viae militares*, averaging just 19.56 km long as opposed to 41.75 km for the *viae militares*, later *viae publicae.*

The obvious conclusion here (excepting RR276(x)) is that these roads are designed to link a specific settlement with a specific road, sometimes crossing other roads in the process. They clearly correspond with those roads that Ulpian says 'lead to villages' and described as 'leading into military roads'. In other words, they are *viae vicinales*, not *viae publicae*. There can be little doubt that these were never *viae militares* and yet they appear to have been built in the same way, sometimes surviving much better. It is hard to see why the Roman army would have any interest in such development, although it is conceivable that if these roads were Bishop's stage three, they could represent cooperation between state and local population if only by providing a few skilled men to oversee a local workforce. For roads which connect Romano-British settlement which developed from a late pre-Roman Iron Age precursor, this seems a sensible explanation, although it would probably mean such roads were quite early. Alternatively, especially if built later in the Roman period, commercial contractors (possibly with former military experience) may well have been used. Whilst there is no surviving direct evidence of contractors carrying out road building in Roman Britain, the phenomenon is well attested elsewhere in the Empire, and it seems logical that they would have been used here. Unfortunately, without approximate dates for the construction of individual roads, it is impossible to know which of the two scenarios is correct.

At this point we must turn to the final two roads discussed so far, which were not planned or engineered in classic Roman fashion, but were unquestionably in use during the Roman period, namely High Street (RBW270 and Sewstern Lane/The Drift (RBW580). Whilst High Street may have a military installation close to it (Kirmington), this merely illustrates the Roman army's willingness to use pre-existing roads or tracks. Neither road was built by the Roman military and any straightened stretches probably belong to the 18th/19th century rather than the Roman period. Both have settlements at their termini, although only Sewstern Lane/The Drift meets a *via publica* and does so at each end. They seem to exist primarily to provide connectivity to nucleated settlements; connecting settlement to the greater Roman road network seems to be a secondary function (see Table 2). In Roman legal terms, these roads are also clearly *viae vicinales*, but they are also quite different from the

engineered roads previously discussed, hence they are represented in Figure 12 by a slightly different colour.

Other Sinuous roads from the Roman period

The question as to whether there may be other sinuous roads in use in the Roman period within the study area has already been posed and the logical answer is almost certainly yes. For example, Figure 12 shows how the important settlements at Dragonby and Ludford appear isolated. The real questions should be how many, where, and how sure can we be that they were in use in the Roman period?

Nearly a century ago, C.W. Phillips identified several routeways that he identified confidently as being 'ancient trackways' (1933, 147), implying, without definitively stating so, that they were prehistoric in origin. Not all stand up to scrutiny, but Sewstern Lane and High Street certainly do, and he also included Barton Street, Bluestone Heath Road, and the route that follows the Lincoln Edge, known as Middle Street north of Lincoln, and Pottergate between Lincoln and Ancaster, which have often been regarded to be part of the supposed 'Jurassic Way' (e.g. Grimes 1951; May 1976 fig. 4). Barton Street has already been mentioned, and whilst certainly no later than medieval, there is little evidence to suggest an earlier date, other than the apparent continuity with Middlegates Lane and/or High Street as it seems to loop around past several Romano-British sites near the Humber estuary.

Apart from High Street and Sewstern Lane, three of Phillips's suggested routes are likely to have been in use in the Roman period, plus King Street Lane in Leicestershire and Nottinghamshire, along with two more identified during this study. Each one is briefly described below.

King Street Lane (RBW581)

This road can be easily traced as a continuous route almost entirely along modern lanes, which only makes sense as a single route when one realises that it connects three important Romano-British settlements, namely Thistleton, Goadby Marwood, and East Bridgeford (*Margidunum*). It is known as King Street Lane between Thistleton and Stonesby, also passing through Waltham-on-the-Wolds, Harby, Langar and Bingham. It has previously been recognised by a few scholars (e.g. Liddle 2004, Figure 1) as potentially Romano-British (Leicestershire and Rutland HER MLE2814), but never universally accepted. The original causeway can be seen on lidar imagery cutting across bends in the modern lane in a couple of places, for example between SK 8349 2365 and SK 8307 2395, and between SK 8211 2452 and SK 8125 2473.

Thistleton to Bourne (RBW583(x))

This was identified from lidar imagery (during this study) branching from RR582(x) at about SK 8736 1721 and can be traced easily as a continuous string of field boundaries, trackways, and linear features visible on lidar imagery for 10km to SK 9717 1909 west of Castle Bytham. It skirts around the north of the Romano-British settlement at Thistleton, where King Street Lane appears to branch from it, although the precise location has been destroyed by works related to Ironstone mining. It then crosses Ermine Street (before which it forms the county boundary between Rutland and Lincolnshire), raising the possibility that it actually pre-dates the Roman road, and continues eastwards. East of Castle Bytham its precise course is less clear, however the settlement at Bourne

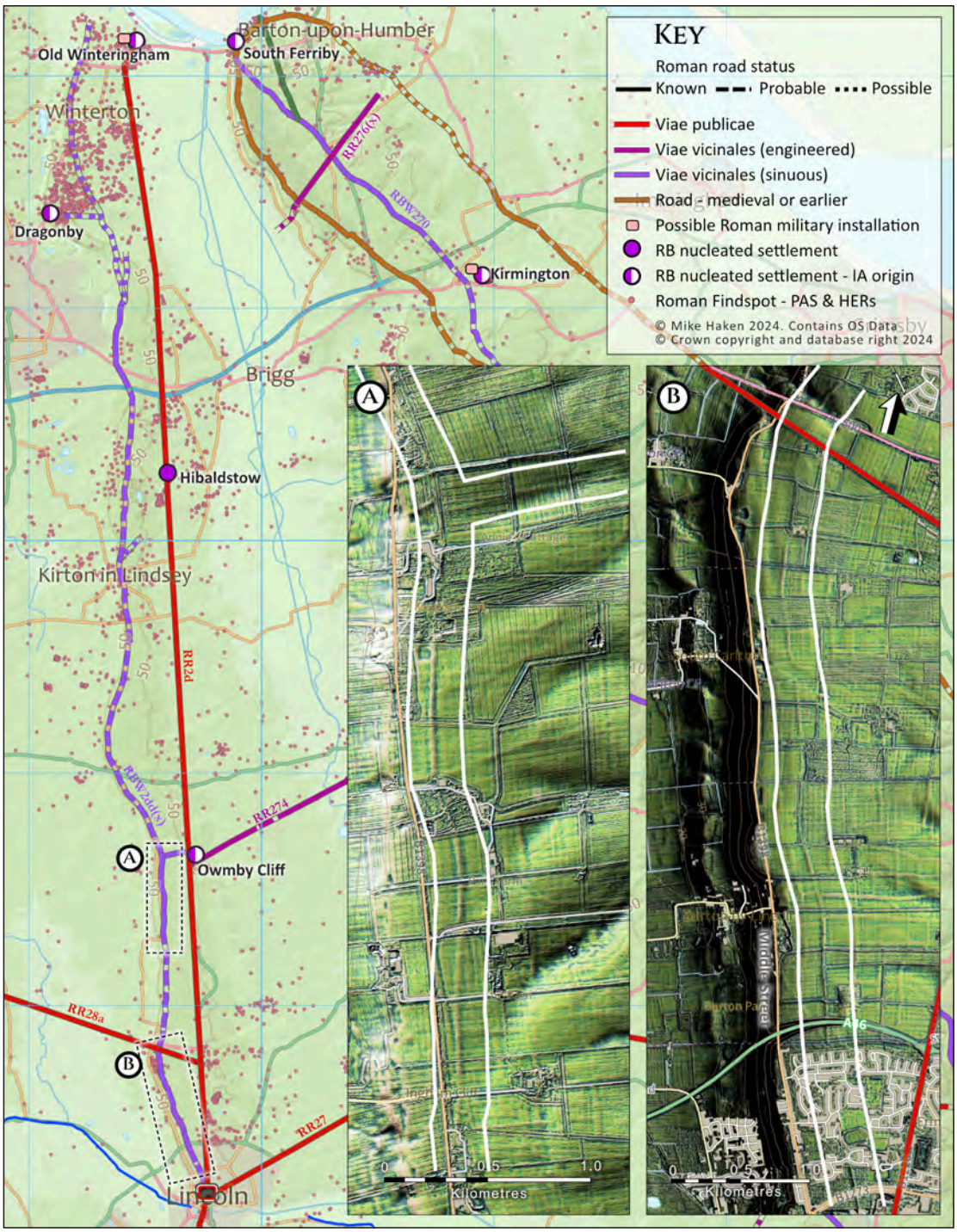


Figure 13. The route of the so-called Jurassic Way (RBW2dd(x)) north of Lincoln, showing the distribution of Roman period findspots recorded both in HERs and in PAS

would be the logical destination, if, of course, the road was in use in the Roman period, and here we risk circular argument. On balance, it is more likely than not that it was, but this cannot be regarded as certain.

Pottergate (RBW2cc(x)) and Middle Street (RBW2dd(x)); part of the so-called Jurassic Way

Pottergate (south of Lincoln) and Middle Street (north of Lincoln) run along the crest of the limestone scarp from Ancaster to the Humber via Lincoln, some 82 km (51 miles). They were certainly medieval roads and are often claimed to have prehistoric origins (May 1976, 7; Whitwell 1992, 45; Lincolnshire HER MLI91063), running to the west of Ermine Street and never more than 3.5km (2.2 miles) away from it. It is quite possible that Pottergate and Middle Street actually represent parts of the same routeway (as they will be treated here), indeed the two roads have frequently suggested to be part of a supposed long-distance routeway from the Humber to the Bristol Channel known as the Jurassic Way (Grimes 1951; Crawford 1953, 81-4).

The Jurassic Way was debunked by Christopher Taylor (1979, 32-6) but this does not mean that some elements of it may not be genuine, they had just been conflated into an artificial whole. However, the use of either Pottergate or Middle Street during the Roman period is by no means generally accepted. For example, whilst the Lincolnshire HER accepts the possibility that Pottergate between Ancaster and Navenby may have prehistoric origins (MLI91063), none of the route north of Navenby is currently recorded as potentially pre-medieval in the HER. It is worth noting that in the report that first established an Iron Age origin for the Romano-British settlement at Navenby, the excavators suggested that Ermine Street 'may be the formalisation of a more ancient trackway' (Palmer-Brown 1994, 23), without considering the possibility that said trackway was on the western side of the settlement, not the east.

North of Lincoln, the route is again ignored by the Lincolnshire HER, but regarded as prehistoric in the North Lincolnshire HER (no. 20003). One partial explanation for this disparity is the assumption that the modern road named Middle Street is always on its original course. For example, when the B1398 was excavated at Burton but revealed only post medieval construction (Lincolnshire HER MLI70106), this was taken as evidence that the entire road was post-medieval. Lidar imagery now shows that this assumption is probably false, with the original line (sometimes fragmentary) being visible east of the modern road in a few places (Fig. 13). The present author identified parts of the original road almost a decade ago but must now admit to an error, since it was suggested that this was an engineered Roman road cutting the corner between RR2d and RR28a; it clearly isn't. Instead, it is sinuous for its entire length, and crucially can be traced appearing to cross RR28a suggesting it may pre-date the Roman road.

The route at its northern end is largely hypothetical, although it would be logical for it (or a branch) to serve the settlement at Dragonby and the dense area of settlement between Dragonby and Winteringham. Indeed, the Lincolnshire and North Lincolnshire HERs along with PAS data show greater evidence of small-scale settlement along the limestone scarp near Pottergate and Middle Street than along Ermine Street itself and those farmsteads would have needed access to major markets (see Fig. 13). For local purposes at least, the road would have served far better than Ermine Street. Indeed, there is circumstantial evidence suggesting that north of RR28, Middle Street may have taken that role. Excavation of Ermine Street near Scampton showed that the Roman road north

of its junction with RR28 (Tillbridge Lane) went out of use for a period some time after the mid 2nd century due to a lack of maintenance (Brett and Clay 2002). Local traffic along this important route must have gone somewhere and Middle Street, or more accurately the road that preceded it, is the only known alternative.

Finally, several short lengths of causeway connecting Ermine Street with its sinuous cousin to the west provide clear evidence that both were in simultaneous use. One link in particular appears to connect Middle Street directly to the settlement at Owmby Cliff, which if proven would demonstrate the Roman period use of the western road.

This road makes no sense as a medieval or even post-medieval road, since in over 82 km (51 miles) it only runs through three Saxon, medieval or post-medieval villages, whilst a further 26 are just to the west of it and three just to the east. Whilst this is not proof, the accumulated evidence strongly suggests that this road was in use during the Roman period and probably before, providing a vital link from the Humber to the southern part of Corieltauvian territory prior to Ermine Street being built.

Bluestone Heath Road (RBW275(x))

The road known today as Bluestone Heath Road was identified as an ancient trackway by Phillips (1933, 148). Lidar imagery suggests it branches from the Ulceby to Mablethorpe road (RBW278(x) as described below, next to the Romano-British settlement at Ulceby Cross, heading to the Romano-British settlement at Ludford and on to meet High Street. There is no clear evidence that it originated further south at Burgh le Marsh as is often claimed, although the modern name has been applied to the Roman road (RR27) between Burgh and Ulceby since at least the mid 19th century. It is a ridgeway, and takes an easy if very winding course entirely beneath the modern road until TF 2561 8611. Here the modern road heads just east of north to meet the A157, however lidar imagery shows clearly that the original causeway headed more north-westerly towards the Romano-British settlement (and modern village) at Ludford (Fig. 14), and then on to meet High Street, as had previously been suspected.

As far as the author has been able to determine, this is the only sinuous Romano-British road in the study area that has been observed in section, albeit only in a narrow service trench (Lindsey Archaeological Services 1997, 17-18). There was apparently only evidence of one pre-modern road, just 2.5 m wide and of a single build of tipped chalk a maximum of 0.2 m deep. This is somewhat at odds with the substantial causeway that can be seen either side of Ludford (Fig. 14 insets), where it survives as a spread feature up to 0.3 m high and 18 m across.

Ulceby Cross to Mablethorpe (RBW278(x))

This road was identified during this study, as a result of analysis of lidar imagery near the settlement at Ulceby Cross. This revealed that where the Roman road from Burgh le Marsh turns to the west, a raised causeway can be seen continuing the alignment onwards, then turning northwards before its line is taken up by the modern lane to Aby (Fig. 16). The impression is also given that the Bluestone Heath Road originally branched from this road at TF 3985 7523, the point where it also meets Barton Street. An earlier route is suggested by lidar for about a kilometre between TF 4041 7727 and TF 4093 7810, with a further 400 m missing section at Withern. Chalk Lane takes up the line at Withern, after which the route is marked by the modern lane all the way to the northwestern edge of Mablethorpe,

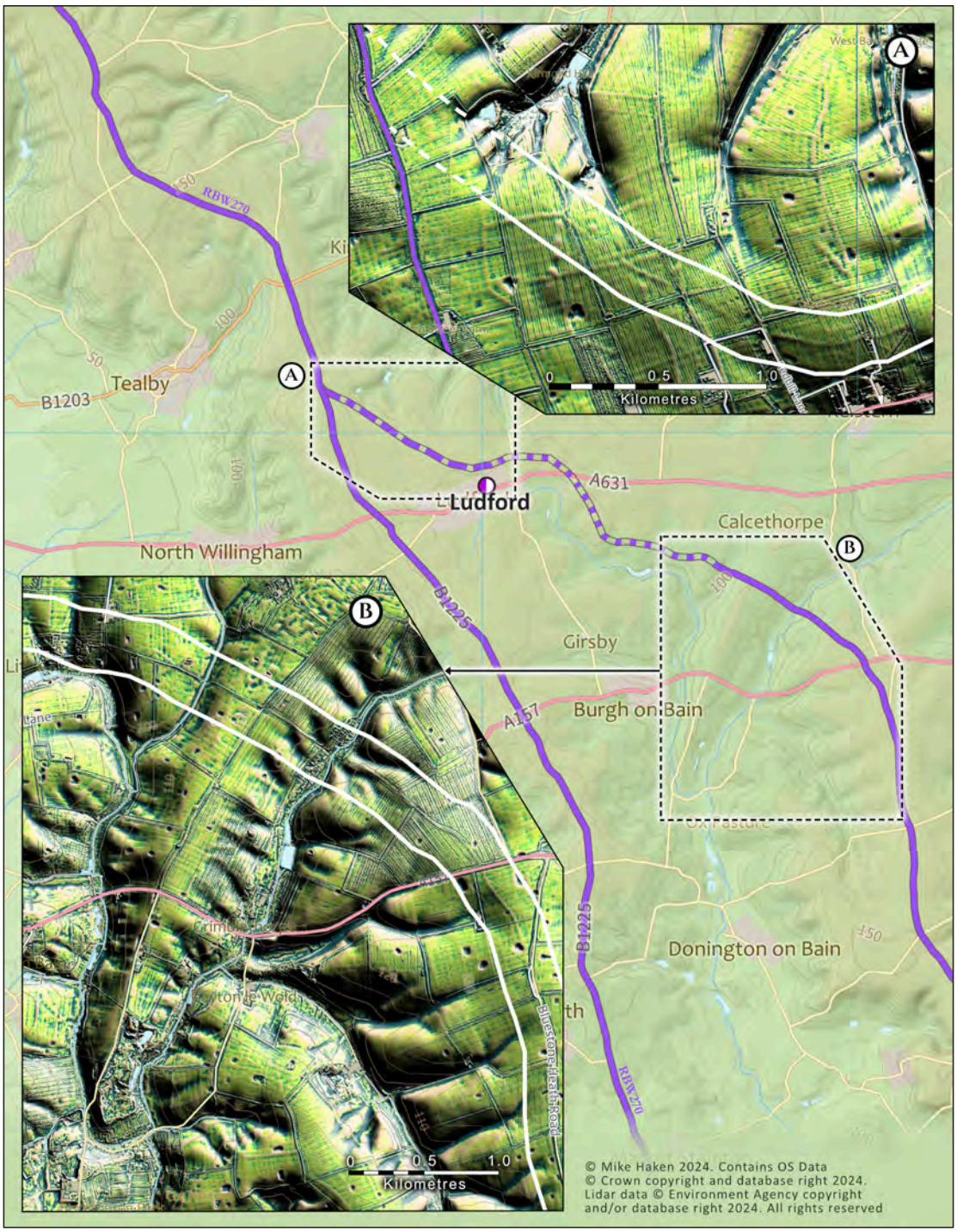


Figure 14. The northern part of the Bluestone Heath Road, showing previously unrecognised evidence for the road from lidar imagery.

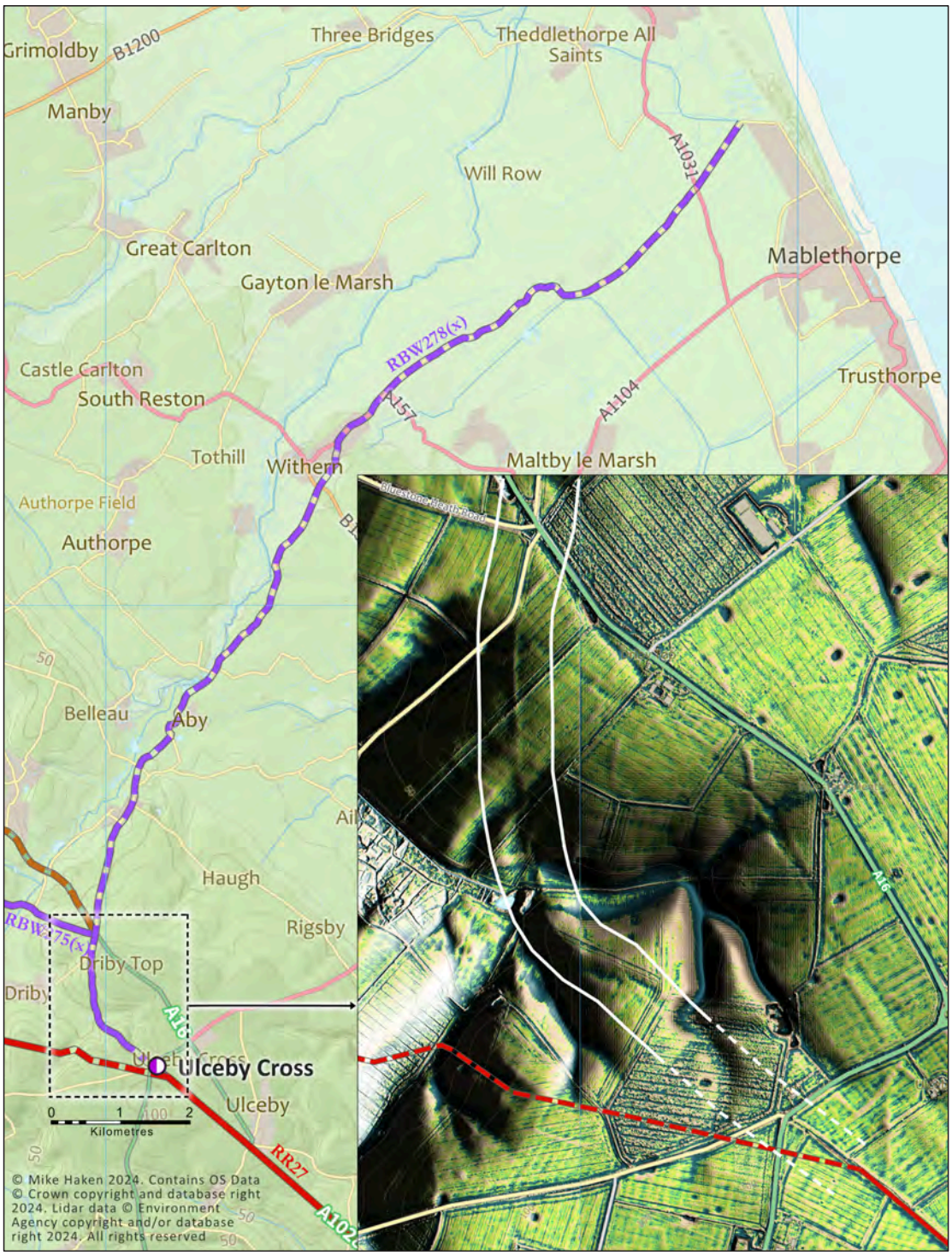


Figure 15. The probable course of a Romano-British way between Ulceby Cross and Mablethorpe.

Margary No.	Start and End Points	Sites at Start	Sites at End	Sites along route	Stage	Length	Via
RBW581	Thistleton to East Bridgeford (*Margidunum*)	◐	●	●	4	33km	*vicinalis*
RBW583(x)	Thistleton to Bourne	◐	●		4	23km	*vicinalis*
RBW2cc(x)	Ancaster to Lincoln (*Lindum*)	◐	●	◐	N/A	25km	*vicinalis*
RBW2dd(x)	Lincoln (*Lindum*) to Dragonby & the Humber	●	◐	◐	N/A	52km	*vicinalis*
RBW275(x)	Ulceby Cross to High Street (via Ludford)	◐		◐	N/A	31km	*vicinalis*
RBW278(x)	Ulceby Cross to Mablethorpe	◐	●?	◐ ●	N/A	19km	*vicinalis*
RBW580	Thistleton to Long Bennington	◐	●		N/A	27km	*vicinalis*
RBW270	Horncastle to South Ferriby	●	◐	● ▢	N/A	62km	*vicinalis*

Table 2. A review of all sinuous roads running from Romano-British settlement in the study area, showing graphically the type of sites they run from and to, and the sites along them. The network stages (M.C. Bishop's model), lengths and probable legal designation are listed.

where it is represented by Stain Lane and Kent Avenue. Scatters of Romano-British artefacts have often been found at low tide on Mablethorpe beach, suggestive of settlement that is now lost to the sea (Lincolnshire HER MLI41439). The finds are insufficient to be able to determine the nature of the settlement, but potentially lends support to the idea that the road was linking two nucleated Romano-British settlements.

Returning to the beginning of this road, heading south-east where it in effect continues as the engineered Roman road RR27, after about 1.5 km a sinuous causeway diverges to the south of the Roman line, to run roughly parallel. There is therefore a suspicion of a parallel road running to Burgh le Marsh, a similar situation to Middle Street, however here the road presents as if it is actually two roads crossing at TF 4412 6962 east of Skendleby, rather than a single direct link. This means that it is not yet possible to claim with any confidence that this is a link between two Romano-British sites, hence it is currently omitted from the map.

Summary

A good case can be made that each of these roads was in use during the Roman period, based on no other reason than the fact that they link two or more Roman settlements or areas of settlement and in every case other than High Street, at least one terminal settlement did not persist into the medieval period (ie Thistleton and Ulceby Cross). Whilst that is not proof, it is difficult to interpret these features in any other way. They are, however, quite different from the probable *viae vicinales* already discussed, and not only in their planning and construction. Table 2 follows the same design as Table 1, and all the sinuous roads so far discussed are included, Pottergate and Middle Street being treated individually. Where eight of the nine engineered *viae vicinales* previously discussed had settlement at just one end, clearly linking settlement into the network, seven out of eight sinuous roads have settlement at both ends, and it could even be argued that Ludford is so close to High Street that the Bluestone Heath Road should also be regarded in the same way. Linking settlement to the Roman network is clearly not a priority. All these roads have a settlement with Iron Age origin at one end and three of them, Pottergate, Middle Street and Bluestone Heath Road could well be prehistoric in origin, as Phillips (1933), May (1976) and Whitwell (1992) all surmised. However, we have to be

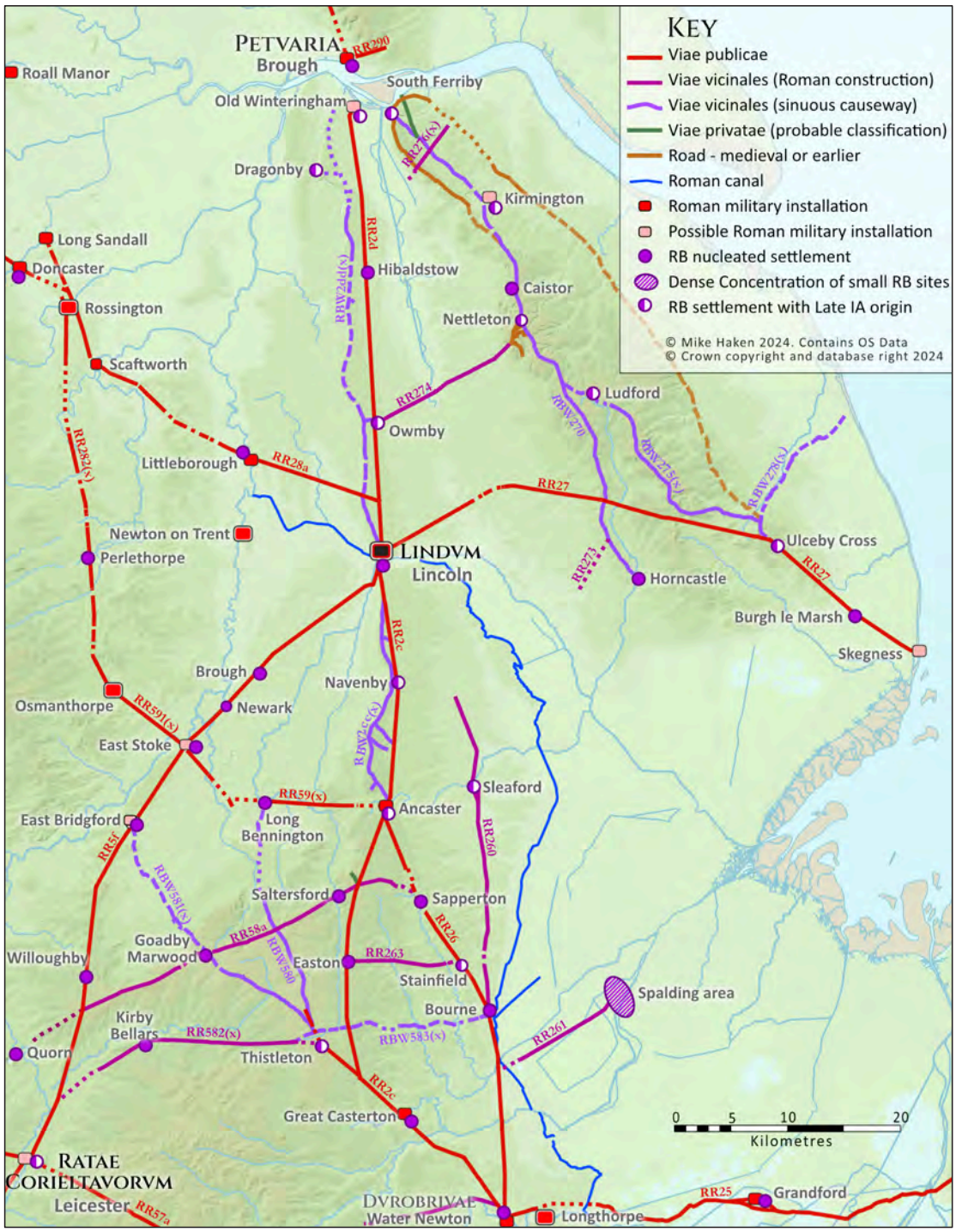


Figure 16. Probable network of Roman roads and Romano-British ways in the in the North East Midlands, showing the probable classifications of viae publicae *and* viae vicinales.

slightly cautious about drawing conclusions based on whether or not a settlement did or did not have a late Iron Age antecedent, since so many settlements have not been thoroughly investigated and the evidence on which such assessments have been made is often very weak. Jeffrey May's claim that 'most major centres of Romano-British population were also population centres in the late Iron Age' (1984, 18) has not been vindicated, although he may yet be proved correct. The final observation here, and an important one, is that the average length of one of these roads is 34km (treating each half of the Jurassic Way as an individual road), as compared to an average length of just 19.5km for the typically Roman *viae vicinales*: these sinuous roads are not insignificant little country lanes.

Final Discussion and Conclusions

The Introduction to this paper set out two key questions; whether or not we should be regarding all Roman roads as being *viae publicae*, and whether all *viae publicae* and *viae vicinales* share the common morphology of a 'typical' Roman road. After analysing the roads and the sites along the roads the simple answers are that we should not and they do not.

It is evident that within the study area, roads that were originally *viae militares* form the core of the road network, representing Bishop's development stages 1 and 2 (marked in red on Figures 12 and 16). These roads will have become public relatively quickly since most military installations in the area (south of the Humber and the R. Don catchment) were abandoned before or during the military push northwards in the AD70s, and the movement of the Legio II Adiutrix from the legionary fortress at Lincoln to Chester in c.AD77-78. Maintenance of existing roads will then have passed to the *civitas* administration at *Ratae* (Leicester) with *Lindum* (Lincoln) playing a part within its own *territorium*, certainly after it became a *colonia* in about AD86. In total, there are 501 km (311 miles) of public roads (roads running off the edge of the map are excluded), and it seems highly unlikely that any more will now be discovered within the study area.

The only road whose legal status as a *via publica* may potentially be uncertain is King Street (RR26). It is marked on Figures 12 and 16 as a *via publica* because it links two military installations, however it has always seemed a little odd, appearing largely to duplicate Ermine Street. King Street is a very well engineered road from Water Newton to Bourne but archaeological investigation suggests that from Bourne to Ancaster there was merely an earthen trackway (*via terrana*) until it was thinly metalled in the late 3rd century. It is possible that it was all planned as a whole, but that original construction never finished beyond Bourne because the army moved north. If so, it was a *via militaris* (later a *via publica)* and would be the only known example in Britain of a *via publica* persisting as an unmade road for over two centuries. On the other hand, could the post-medieval name 'King Street' actually conflate two roads? If so, one, or even both, may only have been constructed to link the settlement at Bourne into the network, making them by definition *viae vicinales.*

As was shown in Table 1, military/public roads stand out as having a military installation at each end, the only exception being RR290, which in any case was probably built when *Petuaria* was already a *civitas* centre. The remainder of surveyed and engineered roads total some 176 km (109 miles); these generally have a settlement at one end only and connect to another road at the other end with no obvious military connection. It remains possible that the military assisted with their construction, in which case these would be part of Bishop's stage 3, although if contractors had been commissioned to undertake their construction, which is possible, they would fall into Bishop's stage 4. Applying what

we know from Ulpian and Siculus Flaccus regarding road administration, these roads link *vici* to *viae militares/publicae*, and are therefore by definition *viae vicinale*s, and would have been the responsibility of the *magistri* of the *pagus* and not administered by either *Ratae* or *Lindum*. Crucially, it is very clear from the archaeological evidence that these roads are in no way lesser or inferior, as has been previously assumed. If the northern half of King Street truly was a public road, that only serves to emphasise this point.

The study has shown that there are 272 km (169 miles) of road within the study area which do not exhibit classic Roman engineering (29% of the total), and which are all too often rejected as being Roman roads as a result. Some, such as Middle Street and Pottergate (part of the supposed Jurassic Way), may have prehistoric origins, however others, such as King Street Lane between Thistleton and *Margidunum* (East Bridgeford), appear to have been created during the Roman period. Yet they present as a uniform group, always linking two Romano-British settlements one of which always seems to have pre-Roman Iron Age origins. Their very nature makes them much harder to identify with any confidence, and it is therefore likely that there are several more waiting to be added to the list. We might predict, for example, that there could be roads from Sleaford to Ancaster and Navenby, and from Ulceby Cross to Horncastle, and from both Navenby and Ancaster to *Crococalana* (Brough, near Newark).

Legally, all this latter group of roads would also have been *viae vicinales*, and administered by the *pagi* through which they ran. Despite this equality of administration, they were quite different from the previously discussed group of viae vicinales, since they utilise a different form of construction, and their main intent seems to be to link settlements together, joining the main Roman road network being mainly an unintended (but beneficial) consequence.

This apparent separation between the two groups of *viae vicinales* may have a cultural explanation. Settlements along the *viae publicae*, including ones which have older origins such as Owmby Cliff, would have much more cosmopolitan populations, were in more regular contact with Roman cultural influence, and were consequently generally much quicker to accept a degree of *romanitas*. Hence, roads built by these settlements were of typical Roman construction.

Away from the *viae publicae*, things may have been very different. In the north of Lincolnshire, May (1984) noted the relatively even spacing between the major later Iron Age settlements of Dragonby, Kirmington, Owmby, Ludford and Ulceby Cross, adding Horncastle and Lincoln to that list (the existence of such major settlements at Lincoln or Horncastle has not actually been confirmed, but cannot be ruled out). May postulated that each had its own administrative area of roughly between 24 km and 32 km (15 to 20 miles) across, and it is quite reasonable to suggest that such an arrangement may have continued through the Roman period, with each area effectively becoming a *pagus*. Southwest of the Wolds, the picture is less clear since fewer major late Iron Age centres have been identified. However, Ancaster is 28 km (17 miles) from Lincoln, and Thistleton 27 km from Ancaster, and Leicester 34 km (21 miles) from Thistleton. All three could be argued to fit May's pattern.

With regard to road administration, it is important to remember that *viae vicinales* were the responsibility of the *pagi*, and it hardly seems likely that roads would have been built unless they served the vicus at the heart of each *pagus*. In other words, the roads will provide strong clues as to the *vici* forming the centres of *pagi*. Thistleton is a clear candidate for being such a *vicus,* as is Bourne.

It is conceivable that some of these *vici*, especially those well away from the *viae publicae*, maintained a degree of cultural continuity into the Roman period, and simply continued to construct their roads

in the same way they always had. If so, a clear implication would be that some of these roads may be pre-Roman, the favourite candidate being the Jurassic Way. Cultural continuity may also explain why the Jurassic Way continued in use during the Roman period, despite the creation of Ermine Street. A modern parallel might be seen in Yorkshire, where the creation of the A1(M) has left the old Great North Road running alongside it between Melmerby and Scotch Corner; local traffic largely continues to use the old road, and long distance traffic the A1(M).

The Ordnance Survey's Roman Britain map shows just 487 km (302 miles) of Roman road in the study area (excluding roads that go off the map), compared with 949 km (590 miles) of road identified by this study, almost double, clearly illustrating the inadequacies of that map in its current form. Just under half (448 km - 278 miles) should be regarded as *viae vicinales*, the proportion being likely to increase if aditional sinuous Romano-British ways are discovered. Of course, this study has only been covering about three quarters of the area typically ascribed to the Corieltauvi. Does the remainder of Corieltauvian territory display the same phenomena or are there marked differences? More importantly, if this exercise is repeated across the rest of England outside the militarised zones, would results be similar or would the proportions of *viae publicae* and *viae vicinales* vary significantly?

Whatever the answer to those questions may be, the study has shown that in the North-east Midlands at least, the actual network of main roads used during the Roman period is not well represented by our current simplistic use of the term 'Roman road'. It has demonstrated that the classic Roman road, a well engineered *via publica* built in a series of straight lengths, actually accounts for only half the full network. The idea that the other half (i.e. the *viae vicinales*), were all inferior in their construction has been shown to be false, a misconception which probably arose from the general understanding that *vicus* refered to a small village, whereas in reality the term probably applied to any settlement less important than a civitas, and thus included small towns such as Horncastle and Caistor.

Unfortunately, this study has highlighted a second major issue, namely a major lack of archaeological investigation on both the roads themselves and the settlements they serve. Of the five previously identified sinuous Romano-British ways, all known for 90 years and High Street for much more, none has ever been subject to pro-active archaeological investigation of any kind. The only known observation of the construction of one of these roads was of the Bluestone Heath Road, and that was only possible due to a service trench being dug across it. In order to truly understand the differences between these features and what others regard as true Roman roads, targeted excavation is essential. Similarly, most settlements are so poorly understood that it is not clear how the roads and Romano-British ways truly relate to them, and as a consequence, leaves us unable to prove whether or not these roads were in use during the Roman period. We can only hope that in the coming decades there will be a renewed interest in conducting fieldwork on and around these vitally important sites.

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This paper would not have been written had it not been for the influence of two individuals. First, Bev Knott, whose persistent questioning of the received wisdom that Roman roads were built mainly by the military, forced me to reconsider the evidence. Second, but of no less importance, Chris Pedley, who first alerted me to the fact that RR274 and High Street (RBW270) east of Normanby le Wold were linked by sinuous raised causeways and not a conventional 'Roman road'. It was Chris's discovery that made me wonder if Bev's assertions could be supported by the evidence, and instigated the research that was eventually to form this paper.

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A Focus on: The North End of the Devil's Causeway

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Questions as to the exact route of the Devil's Causeway at its northern end have been asked for many years. There are also several subsidiary questions to be answered: where is the most northerly confirmed sighting of the road? Does it cross the Tweed between Tweedmouth and Berwick-upon-Tweed and, if so, how? If the road heads purposefully to Tweedmouth, why was this its destination and is there a fort waiting to be discovered there?

In an attempt to answer these questions, the Border Archaeological Society invited members of the Roman Roads Research Association and the Northern Roman Frontiers Seminar to join them for a day conference in Berwick-upon-Tweed in October 2022. Sadly, this event had to be postponed due to 'works on the line' effectively making train journeys to Berwick from Newcastle and Edinburgh impossible on our chosen day. A second attempt was made in May 2023 and this time, despite a rail strike, a very successful conference was held, with lectures followed by a walk along the banks of the Tweed to allow people to familiarise themselves with the terrain.

Much that was new was discussed and it was suggested that the papers should be published so those who could not attend might discover what was discussed and those who did attend could digest the contents at their leisure. The members of the Border Archaeological Society are very grateful to the Roman Roads Research Association for allowing these contributions to be inserted into *Itinera IV*. Sadly, not all the speakers were able to prepare their papers for publication, but it is hoped that the following will provide much food for thought and move on the debate about the purpose of the Devil's Causeway.

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The Devil's Causeway: a Tidal Issue

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Abstract

The following is a discussion as to whether the Devil's Causeway crossed the River Tweed at Berwick-upon-Tweed or was aiming for a port or fort on the south bank at Spittal or Tweedmouth. If there was an installation at the mouth of the Tweed, questions are then asked as to whether servicing such a facility was feasible, how difficult it would have been to sail regularly between the River Tyne and the Antonine Wall in the Roman period, and how long such a journey might take. Was the Tweed the only harbour along the route, or should we be looking for other harbours along the Northumberland coast?

Introduction

There are several puzzles regarding the north end of the Devil's Causeway, the first being where it might be. Locally, Sir Walter Aitchison is believed to have seen traces of the road at Springhill (Tweedmouth) in 1946, but the evidence is not as convincing as usually thought – see below (St. Joseph 1951). More recent work has confirmed the route of the road as far as Berrington (Blyth, this volume), but after that it is elusive although it is presumed it is heading towards the River Tweed. If it reaches the river, does it cross over to continue on its way north or was its target the south bank in order to service a fort or a coastal supply route? To dispose of the fort theory first: Frere admitted that 'no fort is yet known in Berwick', but he postulated, following Margary (1955, II, 209), that 'the place is clearly the destination of the road' i.e. the Devil's Causeway (2001, 291-2). He was sure enough about this to claim the postulated fort could be '*confidently identified with*' the *Oleiclavis* of the Ravenna Cosmography (2001, 292). Sadly, no Roman artefacts to support this theory have been found at Berwick in a convincing Roman context and it is hard to see where the fort would be, what purpose it could have served and how easy would it have been to access if the following arguments are taken into consideration.

Crossing the Tweed

If the road did continue northwards, there would be three ways to cross the Tweed estuary in the Roman period: by ferry, by ford or by bridge, but none of these options would have been easy at the

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time. Whilst there have been ferries across the Tweed since the medieval period, they have been largely seasonal ventures, such as those which ran for the tourists who flocked to Spittal in the 19th century. Ferrying a unit of soldiers across the river at any time of year would have been time-consuming, while moving horses or stock in this way would have been challenging, although by no means impossible if a pontoon-style rivercraft was used or the animals were encouraged to swim across shallow-water stretches upstream. It should be remembered, however, that the Tweed is tidal up to the Union Chain Bridge at Horncliffe, with an average daily variation between low and high tide which can be as much as four metres, considerably more when the Tweed is in flood due to adverse weather conditions nearer its source (*Berwick upon Tweed Tide Tables* 2023). Operating a rowing and/or poling ferry across the river within a mile of its mouth would have been subject to significant constraints of tide and weather.

This tidal element of the River Tweed would also have limited the use of fords. Two fords are mentioned as early as 1541 in the survey by Bowes and Ellerker, one at Tweedmouth church and one at Berwick Streams (Hodgson 1828, 194-202), but the position of the fords across the Tweed has changed many times over the years, usually after the flash floods the river is noted for. The flow and depth of water in any river increases as it rounds bends, so fords tend to be situated on the straighter stretches, of which there are few in the lower reaches of the Tweed. For a ford to be usable, there also needs to be convenient access from both banks; due to the local geology, the Tweed has cut deeply into its bed, creating river cliffs which result in difficulty of access to the water in many places; at Berwick itself, the natural slope of the banks before medieval waterfront development would have been very steep, steep enough to make the passage in winter of pack animals and waggons a hazardous undertaking.

Although ferries and fords could have offered potential ways of crossing the river at Berwick for an army on the march, an advance was not simply a matter of moving troops and horses but involved complicated logistics. The Roman army did not travel light; in his description of the progress of Varus in AD 9, Cassius Dio mentions his army as having with them '*as many waggons and beasts of burden as in time of peace*' as well as '*not a few wives and children*' and '*a large retinue of servants*' (*Roman History* LVI.20.2-5). Moving such a horde across a river as complex as the Tweed would have taken a very long time but, once across, even a small unit would have needed supplies, even if only at irregular intervals, if it was to have a permanent or even semi-permanent presence (for evidence of the nature of such supplies, see Bowman and Thomas 1994). In the case of the River Tweed, a method of crossing which was not dependant on tides or seasons would have been required.

The building of the ramparts and walls considered militarily essential, firstly by Edward I and then by Elizabeth I, impacted on the banks of the River Tweed, with later industry further altering the course and width of the river. (Fig.1) As a consequence, the river today is much narrower and thus much deeper than in the Roman period - the 17th century bridge, which is still used today, is 355 metres long while the Royal Tweed Bridge, which was completed in 1928 and stands much higher above the river, is 430 metres long; in the Roman period a bridge in a similar position would have needed to be nearly 500 metres in length if it was to be well bedded into both its north and south banks. The technical difficulties of building a bridge of such a size should not be underestimated; later attempts at bridging the Tweed at Berwick with a wooden bridge were regularly thwarted by flash floods (see Bankier, this volume), and it was not until 1624 that a stone bridge was successfully completed. Roman stone bridges of any substantial length required abutments and piers (Bidwell and Holbrook 1989), no evidence for which have been found within the Tweed estuary. Unless it was built with a



Fig. 1. Berwick Quayside taken from the 17th century bridge showing the Elizabethan walls to the left, and the build-up of the Quayside as well as the width of the river at this point. Carr Rock is in the far background. Image: Lindsay Allason-Jones

deck that was high over the water, a bridge would also have seriously hindered river-borne traffic, limiting the number of hours in the tidal cycle when vessels could pass through without either grounding at low water or offering insufficient headroom to shoot it at high water. Likewise, it would have prevented seagoing craft from proceeding further upstream. This is not to suggest that the Romans did not have the technical capabilities to build very long bridges (as, for example, the Trajanic bridge across the Danube in Serbia) or high bridges with tall piers (as was built across the Tiber at Rome), but such monumental structures would leave noticeable traces which would have either been found or recorded by antiquarians and there is no evidence for either.

If the Romans did cross the River Tweed at Berwick, where were they going and what would the suggested fort have been guarding? Earlier scholars were convinced that the Devil's Causeway continued on to Newstead, with a postulated Roman fort or 'naval station' at St. Abbs (see Ainslie's 1789 map of Scotland; Sinclair 1834-45; and Stuart 1845), although William Roy found no traces of a continuation of the road through Berwickshire (1793) and no modern scholar has been able to substantiate these claims. The cliff top site at the Needles Eye, excavated by Pre-Construct Archaeology in 2005, is the only site of any size and suitable date immediately to the north of Berwick (NT 9880 5540: Proctor 2012). This site consists of a series of enclosures and was for most of its history a non-defended settlement with a subsistence economy based on mixed pastoral and small-scale

arable farming with an element of salt production. Salt was, of course, always important, but the *briquetage* evidence suggests that this production was probably seasonal and had mostly been abandoned by the early 1st century AD; as a consequence, it is unlikely that this was industry on a scale to have warranted the effort of building a bridge over the Tweed near its estuary or a fort for the protection of that bridge. Other than the *briquetage*, the Roman period finds from The Needles Eye constituted what has traditionally been seen as a typical Romano-British settlement assemblage in Northumberland (Allason-Jones 2009): a couple of pieces of glass bangle and one piece of 1st century samian (S. Gaulish Dragendorff 18 platter: AD 40-100).

Regular traffic heading north of the Tweed more probably kept to the flatter, more sheltered land to the west, keeping well away from the coast in order to avoid crossing many deep-sided ravines; the distribution of Roman sites in the Borders indicates that the nearest forts to the north are all sited well inland and mostly along Dere Street. It is also noticeable that the temporary camps which are known, at Norham, East Learmouth (south-east of Wark) and Carham, are all well to the west of Berwick and all on the south bank. Aerial photography suggests there may also be a marching camp behind Dove's warehouse at Tweedmouth, but this is yet to be confirmed.

The purpose of the Devil's Causeway

A circular argument has developed over the years that the existence of the road indicates that there must have been a port of some kind at the mouth of the Tweed or just inside the estuary, either at Spittal or Tweedmouth whilst, at the same time, a port could explain why the road is aiming for the coast. Wherever it was heading, building the road would have been a major engineering feat, requiring the crossing of several rivers between Halton Chesters and the banks of the Tweed, and it is unlikely that the Roman army would have gone to so much trouble for only limited benefit. It is also curious that, so far, there is only one definite fort along the route of the road: the apparently short-lived Low Learchild (St Joseph 1951, 56; 1955, 85; *Journ. Roman. Stud.* 1957, 206; Birley 1961, 244-5; see also Armstrong, this volume) with a possible, but so far unproved, site at Wooperton (Gates and Hewitt 2007). Most of the other sites which have been suggested as possible fortlets over the years have invariably proved to be temporary camps - probably associated with the Agricolan advance (Gates and Hewitt 2007) - or rectangular settlement sites (eg Hartburn: Jobey 1973, who also discusses Brinkburn on the River Coquet, Hall Hill near Longframlington, Ferney Chesters to the south-west of Hartburn and Mitford). Sir Walter Aitchison in 1946 excavated a site he thought was a small fort or fortlet at Springhill reservoir at Tweedmouth but, despite the pottery including a now missing fragment of what was described as a late 3rd century mortarium, this is unlikely to have been a Roman military site (St. Joseph 1951, 56). Sadly, other than Hartburn few of these sites have been given a thorough excavation to prove the point one way or the other. One accepted fortlet has been surveyed at Longshaws (NZ 134 884), but this sits 3 km to the east of the known line of the Devil's Causeway and its relationship with the road is, therefore, open to debate (Welfare 2011). There has been a general presumption that other forts could have been ploughed out, but any fort that has been used for any length of time produces artefacts – see, for example, Elginhaugh, just south of Edinburgh, which was occupied for barely a decade (Allason-Jones 2007). No artefact scatter or, indeed, many single Roman artefacts have been found along the line of the Devil's Causeway except at river crossings (Allason-Jones 1996); Dere Street, on the other hand, has produced a regular scatter along its length (see Portable Antiquities Scheme database).

It has been argued that the Devil's Causeway was only used by cavalry and that is why there is only one definite fort. This seems rather unlikely - even if the road was primarily an early frontier (Hodgson 2017, 36, 72), any fort or fortlet along its length would have required provisioning, and that would have required carts and pack animals which move more slowly than cavalry horses. Harness pieces have been found at Berrington, however, which may suggest that some cavalry were using the road (see Blyth, this volume), although that might be stating the obvious.

A port on the north bank would, for reasons outlined above, have been usable only for goods from the area immediately north of the river. Whether the south bank site implied by the evidence was a port with permanent shoreside facilities or simply a temporary beach-based market, it might be postulated that it was intended to provide a place for the army to take on provisions from farms in North Northumberland. The problem with this suggestion is that the evidence, as it survives, still seems to indicate that most of what have been traditionally called 'Romano-British settlement sites' had been abandoned by the mid-2nd century AD throughout the county. There have, however, been recent suggestions which propose a well populated productive coastal plain with co-operative inhabitants continued beyond this date (Hodgson, McKelvey and Muncaster 2012), but if there were still farms, were these elusive farmers supplying garrisons to the north or to the south?

These questions may currently be unanswerable, but if the Devil's Causeway was intended to provide a supply route to or from the coast or included this in its remit, then there are also questions to be answered as to how easy it would have been for a merchant ship or military supply vessel of the period to ply these waters and thus use this suggested facility.

Coastal Traffic

The evidence is clear that the fort at South Shields was intended as a supply depot, particularly during the Severan advance into Scotland (Bidwell and Speak 1994), but how difficult would it be to sail a cargo from South Shields to Berwick in a Romano-Celtic vessel? We have more knowledge of Roman sea-going vessels in the Mediterranean than in Britain, but the remains of the 19 metre-long *Blackfriars I* found in the River Thames (Marsden 1994) and the 25 m *St. Peter Port I* from Guernsey (Rule and Monaghan 1993) would appear to represent the types of Romano-Celtic vessels that were crossing the English Channel on a regular basis and these would have been capable of sailing up the north-east coast (pers. comm. Prof. Boris Rankov; see also Ellmers 1996, 68-71). Calculations suggest that even the smaller *Blackfriars I* carried up to 60 tons of cargo, equivalent to 120 carts pulled by a single ox. This can be compared with Marcy's claims that 1000lbs was a cartload which a single ox could be expected to pull (Marcy 1849). The United States War Department's *Ordnance Manual* of 1862 considered 1500lbs per single ox cart load not unreasonable, although it is not clear how far it was expected the ox should struggle with such a weight. In the Roman period the *Cursus Publicus* had load limits which changed over time; according to the Codex of Theodosius in AD 368, an *angarias* (possibly a post-wagon) might carry a maximum of 1500lbs and a *raeda* (post-carriage) 1000lbs, but a post-horse was only allowed to carry 30lbs (*Cod. Theod*. 8.5.30). A later entry dated to AD 385 adds a limit of 600lbs for a *carrus* (cart) (*Cod. Theod.* 8.5.47), but the amounts allowed could vary, depending on the commodity being transported (*Cod. Theod.* 8.5.48). Whilst it is not always possible to be certain exactly how the Roman weights relate to modern weights, nor how fast the traffic using the *Cursus Publicus* would travel compared to ox carts carrying cargo, these equivalents do suggest a considerable

number of carts would be travelling up and down the Devil's Causeway during the sailing season, if the mouth of the Tweed played a major part in coastal traffic.

Further queries are: how long would passages take and how often would it be feasible to attempt them in a year? There are two matters that need to be taken into account to come to any conclusions: tidal influences and the nature of the presumed departure point, that is, the mouth of the River Tyne. Tidal influences, both in respect of range (height) and the character of the inshore tidal streams (currents) would have been much as today. As yet, however, there is no hard evidence regarding the hydrography of the Tyne's entrance in Roman times, although it will not have differed so significantly as, for example, the Caister-on-Sea (Norfolk) entrance and the Yare-Waveney (Norfolk) estuaries today (Ashwin and Davison 2005, 29). The Tyne's south bank may have featured an inlet near the Mill Dam (South Shields) and will have displayed extensive tidal flats at Jarrow, where the main river received the inflowing Don. As with all rivers along the north-east coast, the Tyne had an 'entrance bar', although a relatively navigable one, giving minimum and maximum depths of some two and six metres at low- and high-water of spring tide respectively. Rock reefs to the north and a 'hard sand' (shoal) to the south undoubtedly required seamanlike care upon arrival and strong onshore winds spelt danger, but once inside the entrance the natural harbour was safe and roomy. The exact location of the loading dock within this harbour at South Shields has yet to be found.

Historically, seafarers have been ambiguous about coastlines, welcoming the navigational advantages of 'sailing within sight of land', but wary of the physical hazards involved. The Romans, generally speaking, did not like to sail far from the shore and, if possible, avoided sailing at night (Casson 1994). Of course, our understanding of shipping in the Mediterranean, as recorded by the Roman authors, has influenced our ideas about sailing in the Roman world in general, but, as Boris Rankov has warned (pers. comm.), Mediterranean sailing habits may not be pertinent to the north-east coast of Britain, and, although relatively little is known about Iron Age sailing techniques or vessels in Britain, the documentary evidence for the nearby Atlantic Celts suggests that 'they were clearly seafarers of some competence, able to deal with the hazards of coasts, channels and archipelagos, and also take advantage of tidal flows' (McGrail 2001, 206-07).

The coast of north-east England and south-east Scotland can be dangerous sailing territory, with tidally limited river entrances, long stretches of cliff and/or reef and broad beaches with wide, impassable surf zones. In the 18th/19th centuries more sophisticated sailing craft than were available to the Romans came to grief with depressing regularity along the Northumberland coast – one gale which lasted for three days in April 1799 led to the loss of 14 sailing vessels between Blyth and Holy Island alone (Osler 2013, 14-15). It is, therefore, not improbable that Roman sailing ships, whether military or civilian, erred on the side of caution by avoiding the more frequent storms and short days of winter. Indeed, it is likely that Roman coastal traffic was confined largely to the summer months, utilising the longer daylight hours at 55°–56°N and the more clement conditions. Analysis based on modern weather data suggests that the opportunities for Roman (square-rigged) shipping's north-bound Tyne to Forth passages were best in springtime, whilst summer offered equality of chance for both north- and south-bound trips - although the former would gain the advantage of the coast's diurnal sea breezes. Sailings in early summer risked the region's notoriously dense sea fog, known locally as the 'haar' (Osler 2023, 6-8).

It seems likely that passage-making would be based on a simple strategy of day-sailing between successive anchorages or havens at which the ship could stop overnight, or maybe seek shelter in adverse conditions. Positing a conservative speed of 2–2.5 knots over a 'day' of 12 hours (in which the

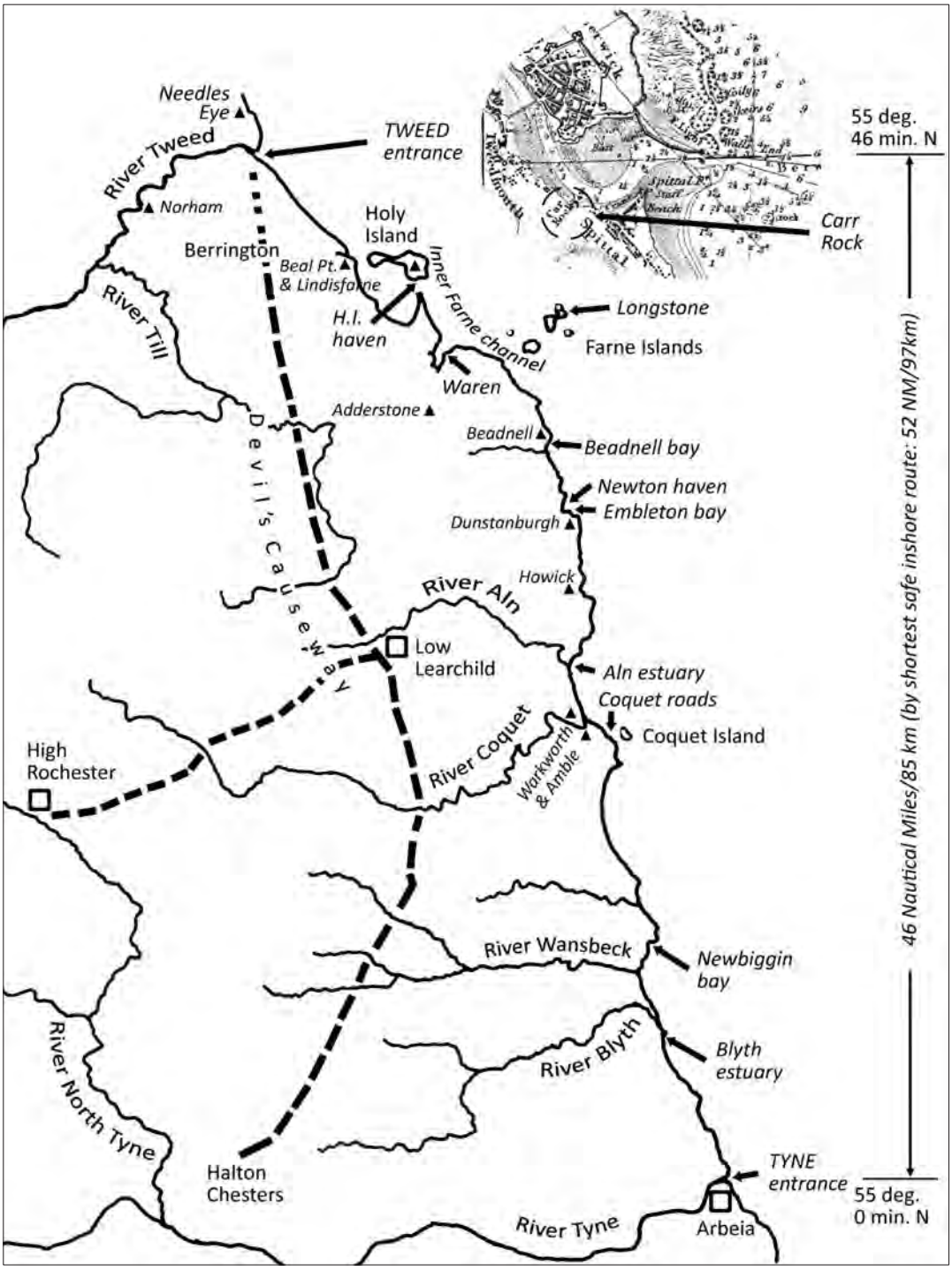


Fig. 2. The Devil's Causeway and the North East Coast, with locations referred to in the text (inset - Berwick harbour and approaches as of 1831).

tidal streams cancel out) then stopovers would be required approximately every 24-30 nautical miles or less. This would seem achievable on the Tyne to Tweed section of the route using, possibly, Blyth/Newbiggin, Coquet Roads/Aln estuary, Embleton Bay/Newton haven and Holy Island/Waren, as stopping points (Fig. 2). Experience, however, suggests this would have been much harder along the section from the Tweed (or Eyemouth) to Leith as this involves rounding St. Abb's Head into the Forth's open waters and traversing some 45 miles of cliff- and reef-lined coast before reaching the relative safety of Dunbar Roads. The few exposed anchorages in this section are tenable in offshore winds only (Osler 2023, 8-11). Fortunately, the route's final leg from Dunbar to Leith was less challenging.

When planning his trip, a putative 'Romano-Celtic' ship's master will have been aware of two unavoidable risks: passage through the Farne Islands and rounding St. Abb's Head. For the former he would, like most modern small boat sailors, probably have chosen the shorter inshore passage (Inner Farne Channel) rather than adding several miles distance and facing the elements and dangers further out around Longstone (Matt Moore pers. comm.). But whichever course was chosen, the master had to time his run through the Farnes' renowned 'tidal gate' precisely, ensuring clearance of the islands during the favourable six hours of tidal stream which, at fortnightly springs, could run at several knots. Elsewhere the tidal streams were modest, one knot or slightly more, but still quite sufficient to retard the ship's progress in light or unfavourable winds, requiring the master to anchor or even turn back (Osler 2023, 4-5). At St. Abb's Head these modest tidal streams prevailed, and the dangers of rounding the Head arose largely from the seas in the area having an unusual depth right up to the cliff face, making anchoring unfeasible. As a result, in order to get into the best position for rounding the Head into the Firth of Forth, a small sailing ship going north from the Tweed might need to anchor at least twice along the coast before attempting the manoeuvre (Matt Moore, pers. comm.).

What kind of passage times might have been achieved over the entire Tyne to Forth route? In attempting to answer that question it is useful to work from comparative data. During the 18th and 19th centuries the region's comparable small coasters regularly made the passage from Leith to South Shields in eight to ten days, whilst a full round trip – including loading and discharge – usually took about a month. Based on the factors outlined above, the minimum achievable trip between South Shields and the Antonine Wall might be estimated as at least ten days if conditions were favourable. However, it might easily have been twice that length (or more) if adverse weather or accident intervened. On average, a round trip of six to eight weeks can be envisaged, permitting two or three trips for each ship in a summer season; regrettably, there will also have been accidental losses. This has implications for the size of the fleet required, particularly in the Antonine and Severan periods.

A port on the Tweed

Returning to the Tweed and leaving aside the uncertainties of ship availability and seafaring competence, it is appropriate to consider the potential relationship of seaborne traffic to the presumed north end of the Devil's Causeway. Was there a deliberate convergence of land- and sea-roads? Historic evidence suggests that the Tweed estuary was never easy of access, owing to a strong cross current that might occur in the approaches, and the river's '*heavy freshes*' which, combined with onshore gales, frequently and '*materially change the positions of the sands [i.e. shoals] at the entrance*' (Baharie 1849, 37). Generally, there was a minimum clearance of about two metres over these,

although an expert 19th century hydrographer published the entrance depth as '*uncertain from shifting sands'* (Johnson, 1831); it probably differed little in Roman times. Nevertheless, once inside the Tweed's entrance, shipping found a relatively safe refuge and adequate mooring space, even a natural jetty:

> *'On the south side of the river is a large sand-stone rock called the Carr, projecting from the shore, round which is the deepest water and best anchorage in the river. Vessels generally moor there with a fast [rope] to a ring in the rock and an anchor in the stream'* (Baharie 1849, 36); (see Figs. 1 and 3).

Advantageously, there was also a shelving foreshore just upstream that was suitable for vessels needing to beach on the tide for purposes of loading and discharge, or repair. Significantly, or otherwise, the postulated stretch of the Devil's Causeway at Springhill, although open to doubt, aligns with this Carr Rock shore, making this point a strong candidate for the destination of the Devil's Causeway. Much further south it is also relevant to ask whether there are any side roads off the Devil's Causeway heading to the coast and other convenient ports or havens? So far there is little or no evidence for these, although the suggestion by MacLauchlan, in the mid-19th century, of a possible route along the valley of the River Aln between Alnmouth and Thrunton – ie the site of Low Learchild fort – may be worthy of re-examination (MacLauchlan 1864, 55, 57; Osler 2023, 14).



Fig. 3. The Carr Rock, on the south side of the river, was still used by merchant vessels in the 19th century. Photograph courtesy of the Crossman family and Berwick Archives.

Artefactual evidence for coastal activity

Do finds of Roman artefacts suggest the whereabouts of some of these other coastal candidates for Romano-Celtic shipping activity? There have been remarkably few finds of Roman date discovered along the coastal plain, even though many more Romano-British settlement sites are now being found than previously anticipated (Proctor 2009; Hodgson, McKelvey and Muncaster 2012). One unusual find is an altar fragment from Gloster Hill, near Amble (Fig. 4; *RIB* 1206), whose surviving inscription indicates it was dedicated '*To the goddesses of the Parade Ground ... the 1st Cohort....*'. This reference to a parade ground suggests the altar came from a full-sized fort, for which no evidence has ever been found in the area, suggesting that the artefact was probably brought to Amble by an intellectual cleric or landowner at a later period and is, therefore, of little help in identifying a Roman presence in the vicinity.



Fig. 4. Fragment of an altar from Gloster Hill, near Amble, dedicated to 'The Goddesses of the Parade-Ground'. RIB 1206. Courtesy of the Great North Museum and the Society of Antiquaries of Newcastle upon Tyne.

Coins are among the most common finds along the coast. As early as the mid-19th century, a coin hoard in a box with a bronze scale beam, bronze weights and an iron bridle was found at Adderstone (Archbold 1858; Tate 1863). In the early years of the 20th century, there was a donation to the Society of Antiquaries of Newcastle upon Tyne of five coins found at Norham (*PSAN* 2nd ser. 10 (1902), 168; for more recent coin finds from Norham, see PAS: NCL-99F5D8; NCL-C810DI; NCL-999E53). Other coin finds reported to the Portable Antiquities Scheme from the coastal plain include a sestertius of Trajan found near Amble (PAS: NCL-A69E11), other Roman coins from Beal Point (PAS: NCL-139DB2) and from Berwick itself (PAS: NCL-4EC612). At Warkworth a selection of coins of various dates was found with part of a distinctively Roman lock and a fragment of a key (coins: NCL-4751C4; NCL-8CE512; NCL-

8C9294; lock: NCL-7F9275; key: NCL-5265D4). It must, however, be noted that Roman coins have a habit of arriving on these shores in the luggage of tourists or people who have served in British military or the Merchant Navy in the intervening years; none of the coins listed above have been found in a recognizably Roman context.

At Dunstanburgh a settlement site was excavated in 1936 which, as well as Roman coins, also produced a bronze head-stud brooch, two button-and-loop fasteners, a fragment of a Roman helmet or shield binding, black burnished ware and samian ware, as well as the usual glass armlets (Bosanquet and Charlton 1936). That is an unusually rich assemblage for a settlement site in Northumberland, perhaps implying that its inhabitants had contact with a wider selection of Roman merchandise than most of their neighbours. The penannular brooch found by Tait in 1970 at Beadnell, was found in a re-used burial cist (Tait and Jobey 1971). More recently, a copper alloy phallic pendant has emerged at Howick (Fig. 5: PAS: NCL-D8AF10) and a copper alloy figurine of a naked male at Lindisfarne. Many of these loose finds could have arrived at their findspots in more recent times, but the amounts are beginning to add up to suggest more activity along the coastal plain than previously believed. Sadly, the findspots do not clump geographically in a way that might indicate sites in regular use by visiting vessels.



Fig 5. A copper alloy phallic pendant of Roman date found at Howick (Portable Antiquities Scheme: NCL-D8AF10).

Conclusion

The east coast of Northumberland has experienced much change over the centuries. Acres of land have been lost to coastal erosion, there has been considerable industrial activity and no river mouth in Britain is as it was in the Roman period, so a great deal may have been swept away or built over (Waddington 2010). The mouth of the Coquet changed dramatically in 1765, whilst the changes at the mouth of the Aln in the early 19th century, although less dramatic in timescale, were equally dramatic in effect (Osler 2022). At Berwick-upon-Tweed, the colossal Elizabethan walls complicate modern understanding of the original interaction of land and sea at the mouth of the Tweed.

Despite these hindrances to our knowledge, it is hoped that this paper has provided convincing arguments that the Devil's Causeway did not cross the River Tweed in order to access a Roman fort at Berwick-upon-Tweed or continue north into Berwickshire. The resulting presumption is that the road terminated in proximity to the safe anchorage of Carr Rock. Exactly why the road was aiming for this vicinity remains less clear; indeed, it is still open for discussion whether the road was heading for an existing port or if the building of the road made establishing a port economically or militarily feasible. If the target was a port, it is yet to be determined whether this was a supply depot with appropriately military shoreside facilities or simply a civilian beach market. Whichever it was, the complications of coastal traffic at that period suggest that the facilities may only have been used seasonally. It is also possible that other ports or havens between South Shields and the Antonine Wall remain to be found, as are the side roads leading to them.

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Crossing the River at Berwick-upon-Tweed

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Abstract

Whenever roads of any length are built, eventually they will need to cross a river. The problems encountered in ensuring that a river crossing provided a safe and dry means of access between the banks in all weathers and seasons are common in all periods of history. The building of the 17th century 'Old Bridge' at Berwick-upon-Tweed offers a case study which has relevance for our understanding of how Roman engineers will have approached the problem of getting roads across rivers. It also indicates how building a suitable bridge was not the only challenge; maintaining that bridge in the face of flash floods, storm surges and other natural damage offered another, longer-term series of problems.

Introduction

Today at the mouth of the River Tweed, there are three iconic bridges which span the river and allow people to cross it easily: the 17th century 'Old Bridge', as it is known by locals, which still takes road traffic, the Royal Border Bridge, built between 1847 and 1850 to carry the railway and the Royal Tweed Bridge, which was constructed between 1925 and 1928 as part of the course of the old A1. What happened before these bridges were built, how the river was crossed and why it was particularly important to be able to cross it at this point where it enters the sea, are all questions which are relevant to the course of the Devil's Causeway.

The River Tweed is a strategic river which has been looked upon variously as an obstacle or an asset, depending on which nation it belonged to at a specific date in history. For some of its length, the Tweed is now the boundary between England and Scotland but the border deviates around Berwick, with the town and its bounds being on the north bank of the river yet still part of England. This has been the case since 1482; before that date Berwick changed hands many times, with the border often being well to the south. Whenever possible, the English armies preferred to have a base on the north bank as this meant they did not have to cross the river before confronting the Scots; for the Scots, holding Berwick provided access to a port as far south as possible on the east coast.

When considering how the river might have been crossed by civilians and armies in the past, there are three options available which show a progression from a temporary to a more permanent solution. Fording points are the first option and it is clear that the River Tweed has been crossed this way in the past, near Norham and also at Berwick itself, amongst other places (Hodgson 1828, 194-202;

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see also Allason-Jones and Osler, this volume). According to the local historian, Francis Cowe (pers. comm.), the fording point near Tweedmouth Parish Church on the south bank across to the Shoregate, mentioned by Bowes and Ellerker in 1541 and referred to by Hodgson in 1828, is no longer visible due to the construction of the Tweed Dock in the 1870s and the effect of that work on the river. This position makes perfect sense, as the original route north through the town of Berwick would have been via Hide Hill and Church Street before passing Wallace Green and then onwards to the north. However, fording the River Tweed would have only been possible at certain times as the river is tidal right up to the present Union Chain Bridge (see Allason-Jones and Osler, this volume). The course of the river will have altered several times over the centuries and the time of the year and changeable weather conditions would have made this an unreliable option.

A more dependable method would have been by boat. This would still have been dangerous, but there is evidence that this was the preferred method of crossing the Tweed, particularly before the construction of more permanent solutions. For example, in 1211, a huge "galley", possibly a raft, was used to transport King John across the Tweed when meeting William the Lion of Scotland, a situation brought about by the destruction of the bridge in the massive storm of 1210, which destroyed bridges across the country, including that at Perth (Sheldon 1849, 39; Graham-Campbell 1994, 4). A boat must still have been the best way to cross the river in the 14th and 15th centuries. Moving forward in time, a ferry still operated between Spittal and Berwick in the early 20th century, as can be seen in extant postcards of the Border Maid and the Susan in Berwick Archives.

Ultimately, the best way to guarantee crossing the river over a prolonged period was to build a bridge either of wood or, for a more permanent structure, of stone. As well as providing a more reliable crossing in all weathers and seasons, this would also allow a larger volume of people and goods to be carried over the river at any one time.

Building a Bridge

Since the early medieval period, there has been a series of bridges over the Tweed joining Berwick and Tweedmouth, each progressively more solid in their appearance and construction. The earliest documented bridge was in existence in the period 1153 to 1165. During this time Malcolm IV of Scotland issued a charter to the canons of Jedburgh Abbey in which he refers to a salmon fishery in the River Tweed at Berwick 'above the Bridge' (Cowe undated; see also Johnstone 1817, 121, who places this bridge '70 or 80 yards above where the present stone one stands', ie Berwick Old Bridge). This was probably a totally wooden structure as it was comprehensively swept away by floods in 1199 (Cowe 1980). After the destruction of the bridge in 1210, mentioned above, there is a reference to another bridge in 1216, which is recorded as having stone piers and a wooden deck, implying a more elaborate structure (https://www.scotlandsoldestbridges.co.uk/berwick-bridge.html). However, as was the fate of many bridges on the Tweed, this was also swept away by floods coupled with high tides and debris coming down the river (Johnstone 1817, 121). The next mention of a bridge appears in the *Lanercost Chronicles* and is dated 1296 (Maxwell 1913, 108; Scott 1888, 408). This refers to a tremendous flood breaking down the bridge, demolishing a tower on it (indicating it was fortified) and sweeping the people who were on the deck out to sea. This bridge was only about nine years old at the time of its destruction; according to the *Scalacronica* in the 14th century, it broke because the arches under which the water flowed were not strong enough or high enough to take the strain (Maxwell 1907, 9; Hearne 1774, I, 293). During the 14th and most of the 15th centuries there doesn't appear to have been

a permanent bridge which linked Berwick and Tweedmouth, although Chalmers (1807-24) records that in 1376 Edward III ordered the local fisheries be taxed in order to raise funds for a new bridge, a project which failed due to the Bishop of Durham's refusal to allow the bridge to come onto his land; instead, the river was crossed by ferry or horseback at low tide, which must have been both inconvenient and challenging as well as impeding trade.

In 1482, Berwick was captured by the English, and, at the time, no-one would have been certain how long it would remain in their ownership; despite this uncertainty, Henry VII built a new bridge across the river to help ensure easier communication between the town and the rest of his Kingdom. This bridge existed by 1498 and was constructed of wood, but was based on at least one stone pillar, probably a legacy from an earlier bridge. The construction was mainly sets of wooden posts driven into the riverbed, with a railed deck laid flat on top of them. For defence there was a drawbridge and a strong stone tower on the bridge near the Tweedmouth shore (Scott 1888, 411).

In 1503, Margaret, the daughter of Henry VII, crossed this bridge at Berwick on her way to Edinburgh to marry James IV of Scotland (Scott 1888, 106). However, although it was a more permanent structure which was well used, ice floes and floods on the river constantly damaged it; for example, three piers had to be reconstructed between 1568 and 1574 as well as all the woodwork being replaced, which cost £4004 15s 9½ d (equivalent to about £950,000 in 2017 (National Archives Currency Calculator)). This bridge is the first that can be confidently located on contemporary maps, the earlier efforts having left few traces due to the strength of flood water in the intervening years. According to John Speed's map of Berwick, it reached the north bank of the river just slightly further upstream to Berwick Old Bridge, near the entrance to the New Road and Bankhill (Speed 1610). This will have been the bridge commented on in 1584, as being long and wooden by the German traveller Lupold von Wedel (von Bülow 1894, 223-70). It does not seem to have been well maintained: it was King James VI of Scotland's first encounter with an English Bridge when travelling south to be crowned King of England in 1603 and he seems to have been unimpressed, as he is reputed to have said '*Is there ne'er a man in Berwick whae can boo stanes to mak' a brig over the Tweed?*', although it should be noted that the earliest reference to this remark is by Sheldon: 1849, 39, and it may be apocryphal.

It was clear that there was a need and also a willingness to construct a more substantial permanent structure near the mouth of the River Tweed. As the kingdoms of England and Scotland were now united, there was more traffic going back and forth and it was not cost effective to continually repair wooden structures which were not likely to last and were unable to cope with the weather conditions. The final straw was in 1608 when James Burrell, the Surveyor of the Bridge wrote to Lord Salisbury, Secretary of State, on 15 February that he was very worried because the river was in spate and bringing down ice, which would damage the bridge. His fears were justified, with the consequence that:

> *'Yesternight, between 6 and 7 of the clock, the spate rose here and brought the ice so fast upon the bridge as ten pillars and eleven bays thereof, being in the strength of the river, were then thrust down and carried away.... The rest of the bridge is in many places so shaken as I expect no other but still the falls of some of them. All feasible means I used to have prevented this, but the ice was with the furious and fast current of the spate so forcibly cast against the bridge....'.* (Scott 1888, 411).

No one was hurt in this disaster, but the bridge was now beyond repair and it was clearly time to consider constructing a new one which might better withstand the local conditions. The main person behind this project was the Earl of Dunbar, who had great influence with King James I. He persuaded the king that a new bridge was essential and that it could be viewed as a symbol – a link between

England and Scotland on its major east coast road (Colvin *et al.* 1982, 771). Sadly, Dunbar was unable to see the project through to fruition because he died in early 1611. However, Sir William Bowyer, Captain of Berwick, continued his work (Colvin *et al.* 771). Initially, the plan was to have a stone bridge over the middle of the river and then wooden elements at both ends; however, two more timber arches of the original bridge collapsed and eventually it was agreed to build a wholly stone bridge at the estimated cost of £8,500 (equivalent to £1,139,812 in 2017). This money was to be provided indirectly by the Crown and as proof of the money spent, the town was required to keep weekly accounts of expenditure, including the amounts paid to each workman. These volumes still survive in the Berwick Archives (Ref: BA/G/2/13/258).



The Old Bridge at Berwick-upon-Tweed completed in 1634; the Royal Tweed Bridge, completed in 1928, can just be see in the background. Photograph: Siobhan Bankier.

Work started on the Bridge in June 1611 and was not without its trials and tribulations, as can be seen in the Bridge account books. Timber was transported from Chopwell, a Royal Forest near Gateshead, down the River Tyne and then by ship to Berwick and into the River Tweed. Even then the channel was narrow, and the ship ran aground, which meant her load had to be taken off by horseback. The various trades employed in building the bridge indicate the range of skills required in building such a structure: masons, carpenters, smiths, quarrymen, sawyers, shipwrights, lightermen, labourers and boys as well as a surveyor and clerk of works. All these tradesmen were individually listed with their rates of pay and the number of days or tides worked – some tasks could only be attempted when the

tides were right, which meant that on some days few hours could be worked leading to delays. As ever, the cost of the Bridge kept increasing and more money had to be granted. By May 1617 the original grant of £8000 had been spent and a further grant of £4000 was agreed in July 1618 (Scott 1888, 414). Work progressed and the bridge was taking shape, but there were still delays due to the seasonal problems of the river flooding and debates as to how various aspects of the work were to be carried out. By 1620, the Bishop of Durham had got involved and it was suggested that the work should be let out to contract instead of just paying all the workmen until it was finished (Colvin, *et al.* 1982, 774-775). This was agreed and real progress was being made when disaster struck in October 1621 with the arrival of another storm which washed away more of the older wooden bridge the remains of which when travelling downstream damaged the new bridge and undid the work which had been done in the previous year. More money had to be granted to continue work and by 1624, the bridge was passable but not completed. It was to take until 1634 to complete it all and by then it had cost nearly £15,000 (equal to £1,832,238 in 2017) and was well over budget, but the result was an impressive stone structure which has withstood the test of time (Fig. 1). This bridge was to remain the main pedestrian and vehicular access between Berwick and Tweedmouth and formed part of the Great North Road running between London and Edinburgh until 1928 when the Royal Tweed Bridge was opened.

Conclusion

Today the 'Old Bridge' is the lowest crossing point on the River Tweed and it is a testament to the strength of its construction that it is still used today by both pedestrians and cars. The history of this bridge, its predecessors and the earlier ferries and fords demonstrate that crossing points are usually placed strategically – in this case either to provide access to Berwick from the rest of England or to give the Scottish armies access to the Bishop of Durham's lands in Tweedmouth - and evolve from temporary to more permanent solutions as the need for them and their usefulness is acknowledged.

The building of the 17th century bridge also shows what a major investment building a bridge represents. It took time (in this case 23 years), a very large and varied workforce, a considerable quantity of material which needed to be transported, often from some distance, and the builders had to contend with the vagaries of the weather and tides to the extent that their work might be swept away as it was being done. To go to this much trouble, the authorities had to be very sure that the cost-benefit equation stacked up and that there were guaranteed long-term gains.

The course of the River Tweed at its mouth would not have been exactly the same in the medieval period or, indeed, in modern times, as when encountered by the Romans when they were constructing the Devil's Causeway. However, to cross this river, they will have faced the same questions and had the same dilemma as those who followed them - how and where do you take a large volume of people across a river when there is no bridge and is building a bridge worthwhile? Such an obstacle of nature will have halted many an army or invader in the past and forced them to decide whether the likely benefit of gaining the other bank was worth the effort involved in building and maintaining a major engineering structure.

In conclusion, crossing the Tweed at this juncture, near its mouth, was always a challenge until a permanent stone bridge was built which allowed the safe passage of large amounts of people at any time. Prior to that, armies and others were very much dependent on nature – the time of the year, the weather conditions and most importantly the tides, being crucial factors in safely crossing the river.

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The Devil's Causeway: Current Understanding and Future Work

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Abstract

This summary is broken into three parts: what we know about the Devil's Causeway, what we do not know and what our Association is currently doing to close the gap.

What do we Know about the Devil's Causeway?

It has long been known that a Roman road ran from north of Hadrian's Wall, branching from Dere Street and running generally north-east to north towards the mouth of the Tweed at Tweedmouth. Horsley, amongst others, mapped it that way (Horsley 1732, map after p. 156) (Fig. 1). While his mapping appears to be more illustrative than specific, lacking the precision of modern GPS, intriguingly he shows the Devil's Causeway crossing over Dere Street and continuing on towards the fort of Chesters on Hadrian's Wall. Was he aware of some evidence or was he making assumptions and just joining the dots?

It is thought that the name of the road comes from the early medieval period, created by those who could not conceive that such a massive straight structure might be man-made and it must have been the work of the Devil. In some areas it is also recorded as being called Cobs or Cobbs Causeway.

The first scientific step in recording the course of the road was made through the 1850s and published in 1864, by Henry MacLauchlan. This was at the request of the Duke of Northumberland, a keen antiquarian himself, with a full survey of the course of the road accompanied by a commentary and additional notes (Fig. 2). This also covered a survey of Margary's RR88, from High Rochester to what we now know as the fort at Low Learchild, although MacLauchlan was unaware of the fort's presence and its significance adjacent to the junction.

The next significant work was undertaken by R.P. Wright, just prior to World War 2, when the nature, structure and dimensions of the road were determined at a large number of locations where it was most obvious in two of the segments in its central and southern areas (Wright 1938, 351-361; 1940, 65-74). Wright found the road was typically about 24 feet (7.3 m) wide at its south-western end and around 19 feet plus (5.8 m) in the central segment. It was solidly built with bottoming and a metalled

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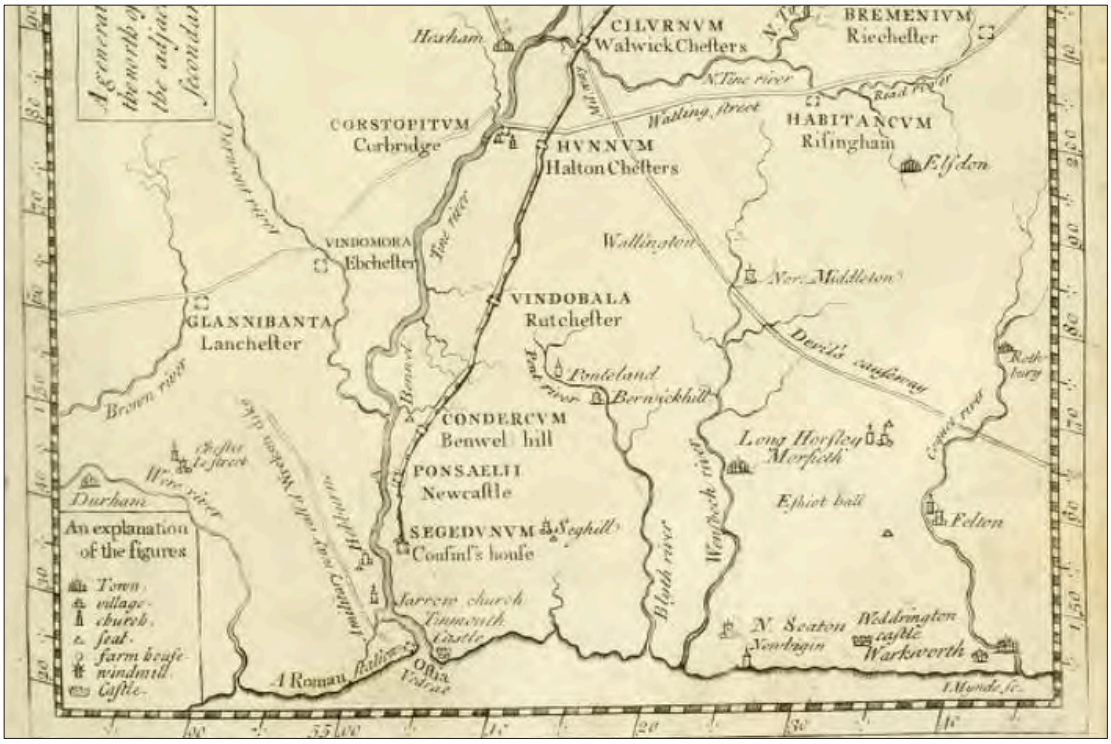


Fig. 1. (above). Horsley's map of 1732 showing the Devil's Causeway crossing Northumberland from top centre to bottom right of the image. Note that north is to the right.

Fig. 2. (below) An extract (from sheet 3) typical of MacLauchlan's mapping of the Devil's Causeway, this being near Horton, showing the extent of the detail he incorporated.



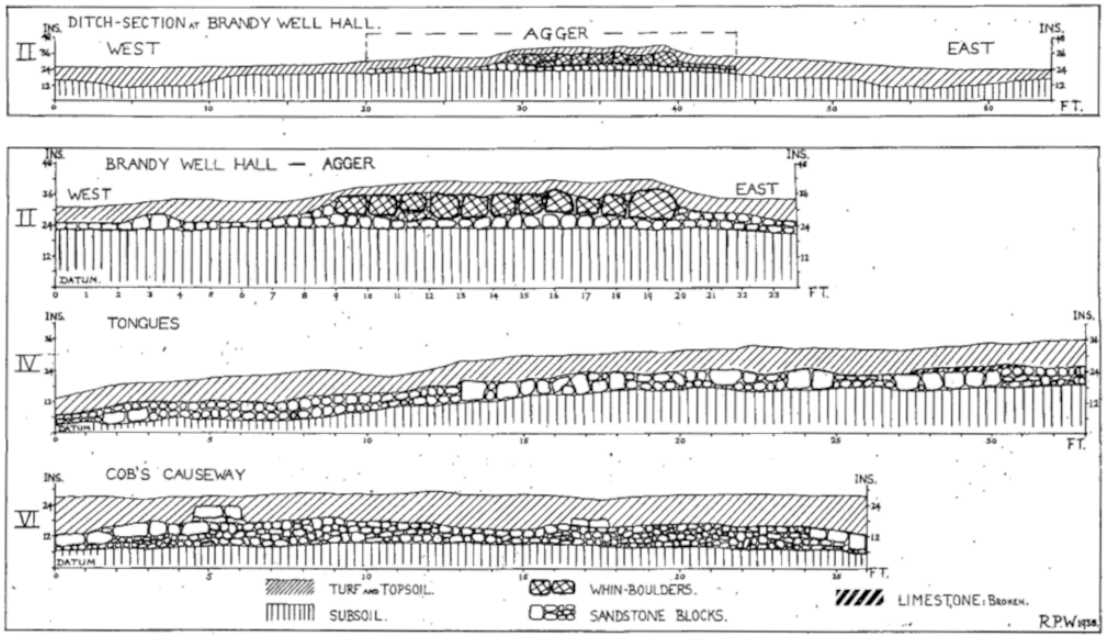


Fig.3. An extract of Wright's work on the Devil's Causeway. Image © SANT, reproduced from Archaeologia Aeliana, *Ser. 4, 15.*

surface. There were places where the road had a centre rib (Fig. 3). Margary summarised this work and allocated the road the number RR87 in his numbering series (1973, 478-80). He also allocated RR88 to the link road from High Rochester to Low Learchild.

Rowland described the road's course in an undervalued little book (Rowland 1984), with some further excavated sections being taken. While his recorded dimensions of a width of 24 feet (7.3 m) at a number of locations are consistent with Wright's measurements, his section drawings seem generic rather than specific and lack Wright's precision (Fig. 4).

More recently, John Poulter has analysed the surveying and layout of the route revealing some long-distance alignments for the north end and south-west segments (2014, 76-85; see also Poulter, this volume). After this, pre-development activities have located the road in a number of places where it was expected, and not located it in some other places. Through the Covid pandemic, the Association completed a lidar survey of the full route and found it presents itself very well for much of its course (Fig. 5).

All this indicates, in general, the precision of MacLauchlan's work. His survey is generally very close to Lidar/GPS accuracy, often only a few metres out across much of the route, although there are places (at Hartburn for example) where there is some doubt over his plotted course. There is no certainty on the start and end parts of the route around Beukley and Tweedmouth, with no excavated evidence or clear lidar indications.

In comparison with neighbouring Dere Street, there are very few known Roman installations along this road. The Association is investigating the route to determine if there are any as-yet undiscovered fort or fortlet sites. This is of significance, as a strong presence of the military would indicate the

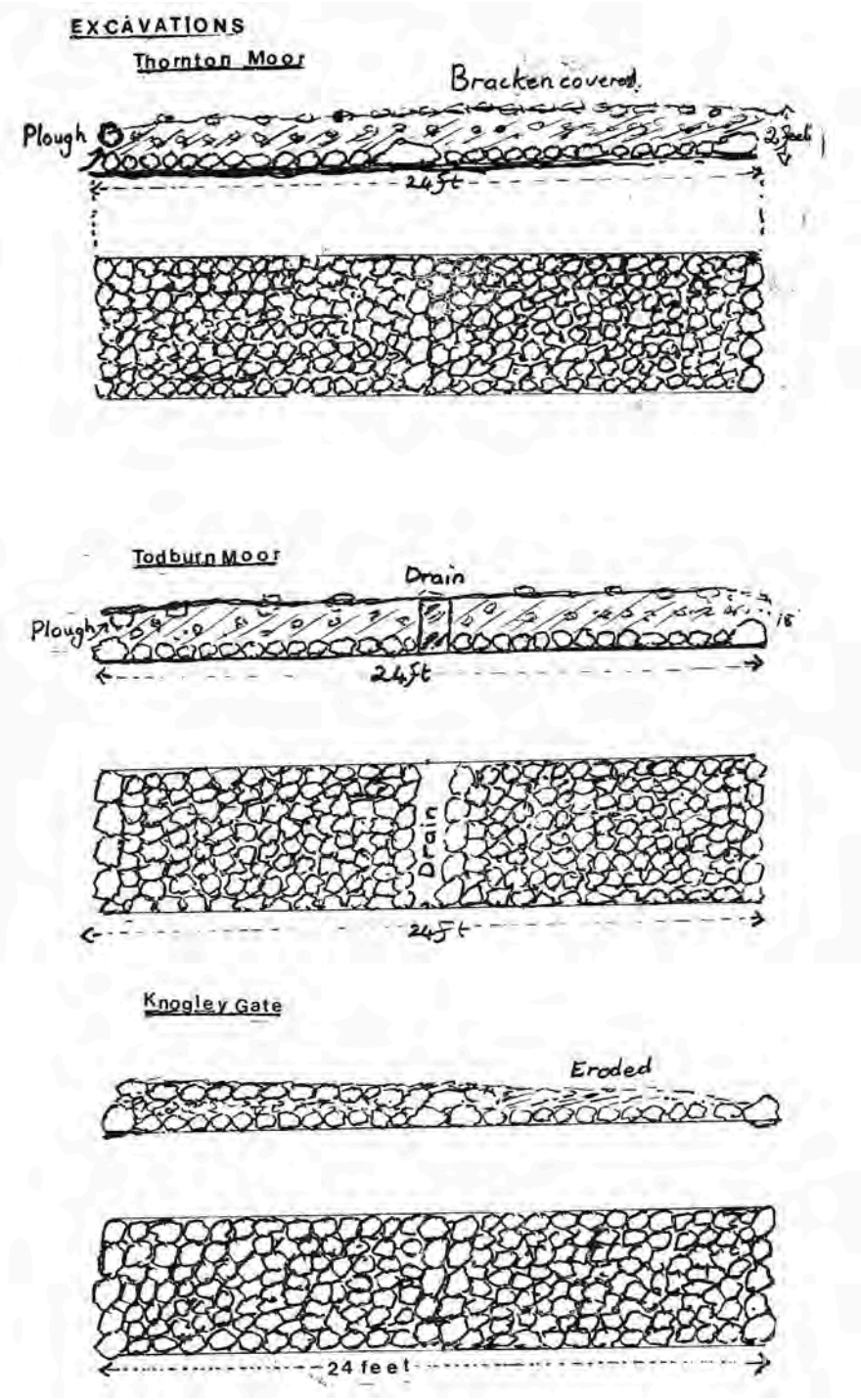


Fig. 4. Section drawings of the Devil's Causeway by Rowland.



Fig. 5. Lidar image of the Devil's Causeway near Longframlington, visible in the bottom right corner of the image. The agger is very prominent between the parallel white lines. Image © DA, RRRA, 2022. Lidar data, © Crown Copyright 2019, Open Government Licence v3.0.

potential of a fortified route and possibly indicate the role of the road. Logically a lack of forts/fortlets would suggest no fortified route, perhaps indicating territory under the control of allied tribes. This also would impact on our understanding of Roman control of this area.

The one fort site that is known along the course of the Devil's Causeway is Low Learchild, which will be covered later in this paper with what was achieved there in 2022. A fortlet site is also known just off the Devil's Causeway at Longshaws (Fig. 6). This twin rampart site has an unusual layout and is some distance away from the known road (Welfare 2011). Other previously postulated military sites at Hartburn and at Tweedmouth have been shown not to be Roman military installations, but regularly shaped Romano-British sites (Jobey 1973, 11-54 and Archaeological Practice 2017, respectively). However, cropmarks have revealed possible temporary camp sites at West Marlish, Hartburn, Edlingham, and East Horton (Gates and Hewitt 2007, 11-30). Excavation in advance of quarrying at Wooperton, that has not yet been formally reported, has revealed some tantalising evidence of Roman occupation. Other speculation has proposed potential sites recorded in the HER at Chatton, Mitford Steads, Laverocklaw and Hall Hill, to name but a few (see end notes [1] for HER references). An extra site has been added from lidar at Todburn West just above the Coquet crossing (Fig. 7). Significantly these sites are close to river crossings, where the Romans preferred to locate their forts (Fig. 8).

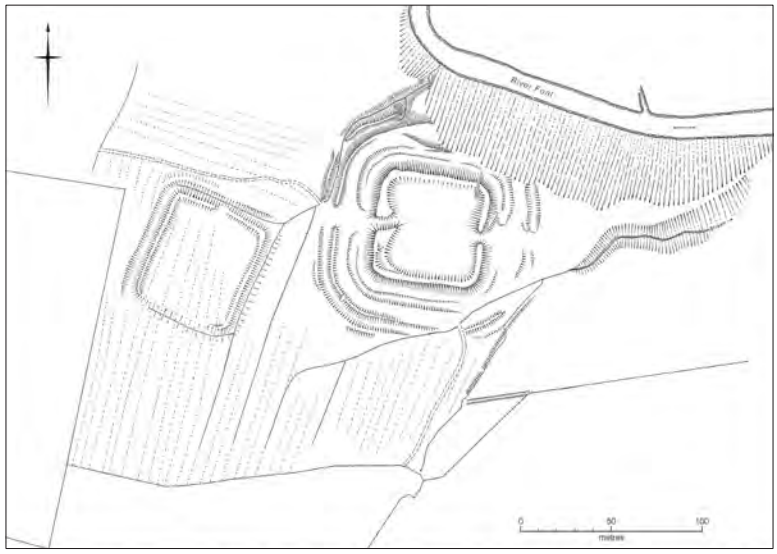


Fig.6. Earthwork representation of Longshaws Roman fortlet(s). Image © SANT, EH, reproduced from Archaeologia Aeliana, *Ser. 5, Vol. 40 where the caption states; The earthworks of the Roman Fortlet at Longshaws, with - immediately to the west - those of what is probably an associated detached annexe. (Inked archive drawing by Iain Salisbury; prepared for publication by Philip Sinton) © English Heritage.*

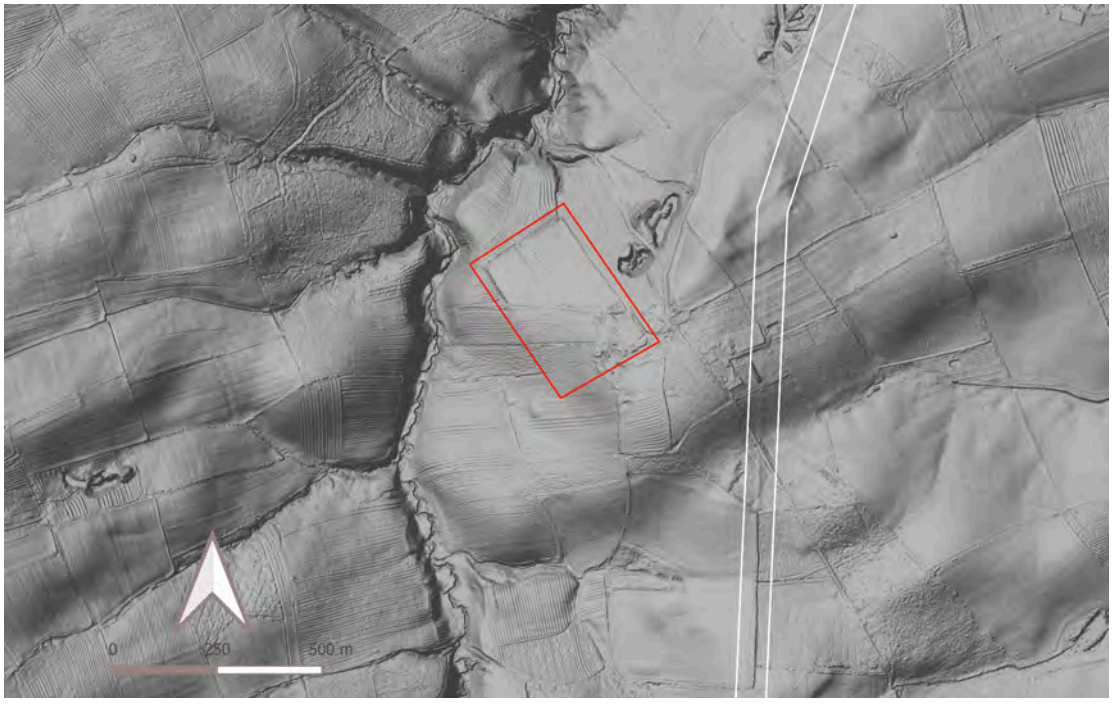


Fig.7. Todburn West, a suspected temporary camp site, outlined in red. Image © DA, RRRA, 2022. Lidar data, © Crown Copyright 2019, Open Government Licence v3.0.

In summary, the Roman origin of the Devil's Causeway (RR87) and its route, other than the north and south ends, is generally well established. The road, where it has been exposed, is a well-engineered structure, laid out on long alignments typical of other Roman roads. A Roman fort is known at Low Learchild adjacent to a road junction with RR88 from High Rochester. Another fortlet is just off the road at Longshaws. Further sites are postulated along the road's course but with little evidence as things stand; they may not be Roman.

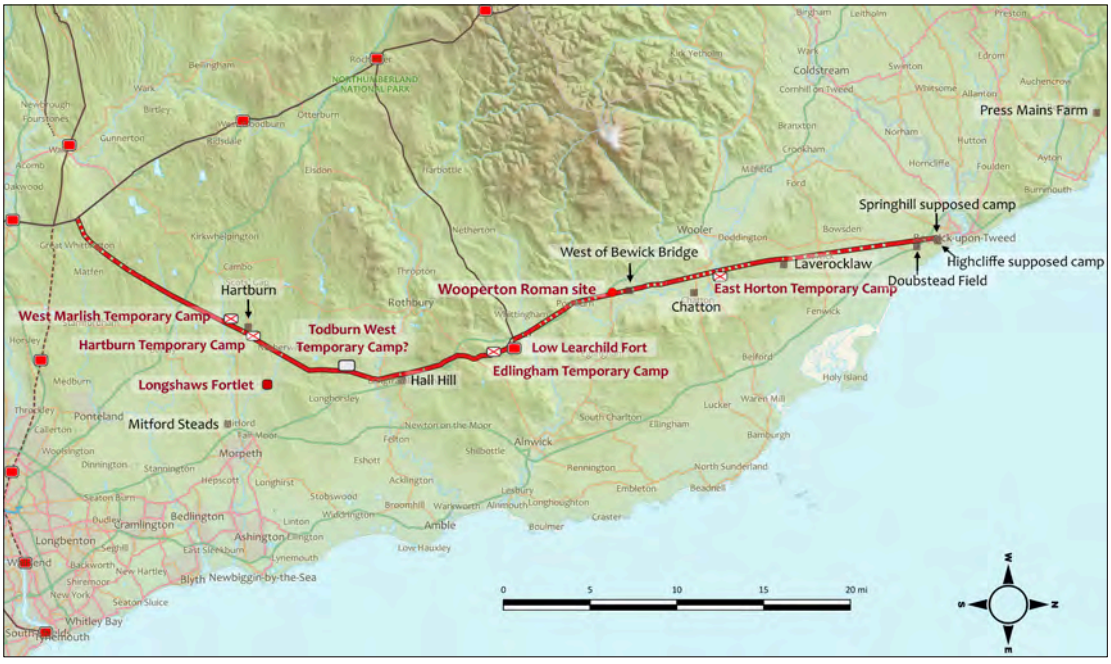


Fig. 8. All known and suspected Roman sites along the Devil's Causeway. Note that north is to the right. Image © Mike Haken, RRRA, 2022. Lidar data, © Crown Copyright 2019, Open Government Licence v3.0.

What don't we know?

As stated, the northern terminus of the road at the River Tweed is not anchored on a known Roman site. Similarly, the southern junction, thought to be with Dere Street north of Halton Chesters, is not underpinned by any evidence. There are a number of potential Roman sites that have not yet been explored and there has also been speculation as to whether there was a greater Roman road network in Northumberland than currently identified (Bishop 2014, 165-177 & Selkirk 2001, 264-9). Medieval armies moved on other routes that could suggest they may have had an earlier origin, perhaps Roman. Possible temporary camps in the Tweed valley identified by Gates and Hewitt (2007) suggest there may have been a route or road up the valley in the direction of Newstead. Also unclear is the dating of the known and postulated sites along the road which may indicate if their relative relationship is to the early 1st century advance north into Scotland, the control of a frontier during the subsequent withdrawal, or as an outpost system which formed part of the establishment of Hadrian's Wall (Hodgson 2017, 36).

What is the RRRA doing to close the gap?

The Association, inspired by Nick Hodgson's talk covering these issues at the 2019 Arbeia Conference, has initiated a project to gain a greater understanding of this road and its associated installations. All the previous data on the road has been gathered, a lidar survey completed confirming its course in most places and a start made in exploring the sites. Part of of this is to understand the road in the context of the wider Roman occupation. Thus, the route of RR88 from High Rochester to Low Learchild is being plotted and a review is determining if there was a network of other roads. A lidar survey to the north and west of Berwick-upon-Tweed has yet to identify any indications of Roman roads or other possible sites. Evidence for the postulated Roman fort at Press Mains Farm at Coldingham north of Berwick (Selkirk 2001, 25) (Fig. 9) and a Roman road nearby has been reviewed, but nothing compelling has been found.



Fig. 9. The postulated Roman fort site at Press Mains Farm, Berwickshire (Selkirk 2001, 25)

The first site worked on has been Low Learchild, including the junction of the Devil's Causeway with RR88 from High Rochester. After the discovery of the fort site by Dr St. Joseph in the 1940's (St. Joseph 1947) (Fig. 10), some trial trenching was made in 1945 by Sir Walter Aitchison, who unfortunately died before publishing his findings and his notes: all bar a brief message and sketch, are now lost. Recovered pottery, which has been located in the Great North Museum, Newcastle upon Tyne and reassessed, suggested 1st and 2nd century occupation. Sir Ian Richmond carried out further exploratory excavation in 1956 (Richmond 1957) that enabled him to estimate the minimal dimensions of the fort, which he believed was large, orientated north/south and had two phases, but sadly he also died before publishing a final report. Richmond's archived papers in Oxford do not contain any further information, although Charles Daniels did manage to locate one of Richmond's site plans while discussing the site with Nick Hodgson. More recently, three small parts of the site were surveyed in 1991, with what was early generation geophysics equipment, by an informal group of Newcastle University archaeology postgraduates (Anderson, Rushworth and Willis 1992, 34). This did no more than suggest the overall rampart dimensions exceeded those estimated by Richmond; any further information and their data is now believed lost.



Fig. 10. Aerial photograph, un-numbered, of the Low Learchild site looking south taken by St. Joseph assisted by the RAF. Reproduced from the papers of Sir Ian Richmond with thanks and © to the Sackler Collection of the Bodleian Library.

Assisted by the Holystone History and Archaeology Group, a gradiometer survey was undertaken in August 2022; this has clarified and built upon the sketchy information left by Aitchison and Richmond. Instead of a large north/south orientated fort of two phases that Richmond postulated, the survey suggests that the smaller double ditched fort was smaller than Richmond assessed, and was orientated east/west, but has what appears to be an annexe on the north side (Fig. 11). A single ditched larger enclosure surrounds this smaller fort. All the southern defences have been truncated by the railway but the slope of the site, particularly the west and south-west sides, does define the maximum extent in those directions.

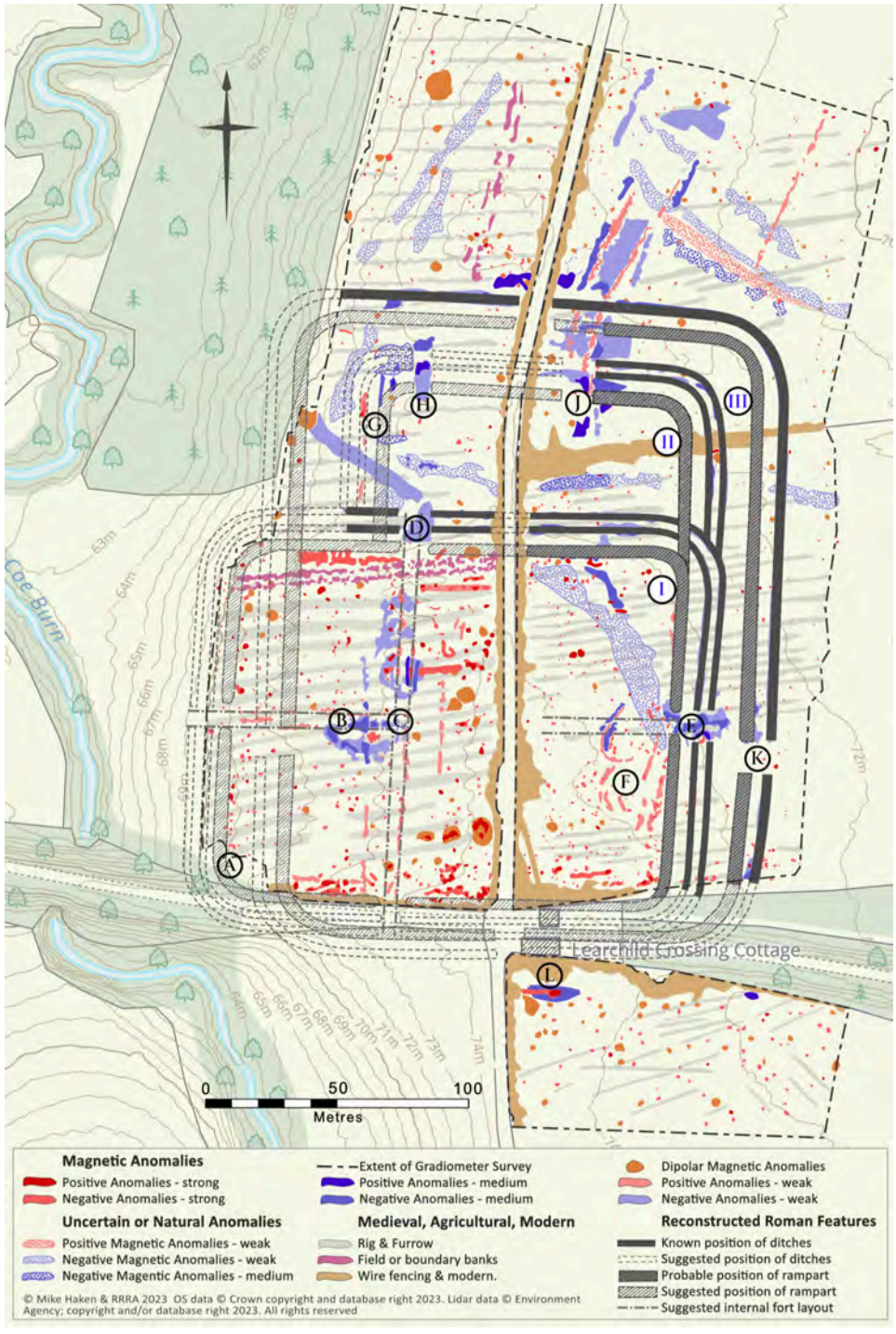


Fig. 11. Interpretation of the geophysics of the Low Learchild site (Haken and Armstrong 2023). For details, consult the full report as listed in the Bibliography.



Fig. 12. Lidar image of the junction of the Devil's Causeway and RR88. The courses of these roads as mapped by MacLauchlan and the OS are shown in red, but the suggested lines are indicated between the white dotted lines. The ditches and ramparts of the Low Learchild fort site are visible at the top right. © Mike Haken, RRRA, 2022. Lidar data, © Crown Copyright 2019, Open Government Licence v3.0.

As part of the survey, the course of the Devil's Causeway was sought near Low Learchild where the junction with RR88 was mapped by MacLauchlan but not definitively located. However, Wright's work at the Bridge of Aln, just to the north, suggested that MacLauchlan's alignment may have been slightly out (Wright 1940, 74). In addition, lidar suggests that RR88 as it approaches the junction is further to the north than mapped (Fig. 12). The conclusion is that the junction is some 135 m to the north of MacLauchlan's line, although the survey did have a very weak indication that may correspond with this. The full report of the Low Learchild work is available on-line from the Association site (Haken and Armstrong 2023).

Further surveying work has commenced and is in progress at the potential site at Todburn West. A bank standing approximately 1 m high, very suggestive of a rampart, with an external ditch still of some 1 m depth and 2 m width, makes up the northern side of the site and a substantial length of the west and east sides, with what appear to be curved corners set at 90 degrees. To explore this further, a gradiometer survey of the southern side, particularly the potential location of a south-west corner, was completed in 2023. Preliminary results suggest that the bank and ditch did continue further along the western side, but the weak indications petered out and did not indicate a clear curved corner where anticipated (Fig. 13). While the site is clearly archaeological in nature, further survey work is being planned to clarify this.



Fig.13. The Todburn West initial gradiometer survey as viewed from the south. © RRRA, 2023. Aerial Photograph background courtesy of GoogleEarth dated to July 2021, image © CNES / Airbus.

Concluding Remarks

From the excavated sections and lidar of the alignments, the Devil's Causeway has all the construction and laying-out characteristics of a Roman road. While its destination at a location at the mouth of the Tweed has not been confirmed, the alignment of the road through north Northumberland shows a very clear intent that the road was heading for or originating from that area. MacLauchlan's last confident observation was at Oxford, some 3 miles (4.8 km) south of the river mouth at the end of a direct alignment of over 11 miles (17.7 km) from Hetton Law. The last clear lidar evidence of the road is slightly further north at Scremerston (but see Blyth, this volume). Alternative routes have been suggested approaching the river to the west of Berwick-upon-Tweed, perhaps with crossings. However, there seems to be no evidence currently that these routes existed or that they were even Roman roads. The topography to the south of Berwick is generally not severe and there is no other obvious physical reason why a Roman surveyor would set this straight alignment on the Tweed – the focus on the river mouth is very clear. Going forward, the Association's intent, working in cooperation with local archaeological groups, is to continue investigating possible fort sites to clarify if the road was garrisoned or militarised in a similar manner to Dere Street.

Acknowledgements

The RRRA's Devil's Causeway Project was inspired by Dr. Nick Hodgson, whose advice and guidance with the interpretation of the Low Learchild fort site have been invaluable. The Low Learchild survey could not have taken place without the permission and enthusiasm of Mr. Jabin Cussins and Mr. Andrew Ellis, owners of the Low Learchild site and supposed road junction site respectively, along with Mr. Tony Drummond, who farms the land at Low Learchild. Access to the finds from Low Learchild was made possible by Andrew Parkin, Keeper of Archaeology at the Great North Museum, who took some considerable trouble to locate them in the Museum's external store, and the summary assessment of them was undertaken by Dr. Reb Ellis-Haken. We are extremely grateful to Charlotte Goodall, Classics Librarian for the Bodleian Library in the University of Oxford, for locating the relevant material in Sir Ian Richmond's archive, and for granting us limited permission to reproduce that material. Thanks are also due to Lindsay Allason-Jones and the Border Archaeological Society who initiated the 'Devil's Causeway Day' at Berwick that prompted the presentation that has been expanded into this paper. Finally, the author wishes to recognise the contribution to the RRRA made by the late Paul Bidwell. His support and encouragement of the Association and its work, and for volunteer and community archaeology more widely, should be recognised and applauded. He is greatly missed.

End Note

1 For details of these sites see the HER at; Aerial photograph NMR NU 0528/1-6 (TMG 16204/26-31) 14-AUG-1995 with RCHME/EH/HE Aerial Photographers comment, J. Walford 2003, S. Cutchley 2003. See Pastscape <https://www.pastscape.org.uk/hob.aspx?hob_id=1379894>. Field Observations by OS, E. Geary 1954, D. Smith 1971. See <http://www.keystothepast.info/article/10339/Site-Details?PRN=N11274>. Field Observations by OS, A.S. Philips 1955, N.K. Blood 1964, D. Smith 1968. See <http://www.keystothepast.info/article/10339/Site-Details?PRN=N3688>. Field Observations by OS, E. Geary 1954. See <http://www.keystothepast.info/article/10339/Site-Details?PRN=N4287>.

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The Planning of the Devil's Causeway in Northumberland

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Abstract

The author has been studying the planning of the Devil's Causeway Roman road in Northumberland since the close of 2011, and has published twice on the subject. This paper presents an evolution of the author's thinking, not only about the planning of this Roman road but also about the Long-distance Alignments which have been found to underpin the courses of some of the major Roman roads in Britain.

Introduction

The author's attention to the planning of the Devil's Causeway Roman road had been prompted by a question posed by the late Paul Bidwell towards the close of 2011. Paul had been convinced that there must have been a Roman road running from Newcastle to Berwick – a predecessor of today's A1 – and he wondered if the author had seen any indications of one. As a result, in 2012 the author undertook a study of the area between Newcastle and Berwick, which was conducted via maps and on the ground. A report was prepared for Paul personally, but not published, although Humphrey Welfare and Dr Nick Hodgson now also have copies of it.

Subsequently, in his BAR 598 monograph *Further Discoveries about the Planning of Roman roads in Britain* (Poulter 2014, 76-85) the author used the planning of the Devil's Causeway as one of his three detailed examples of how particular Roman roads appear to have been set out. This carried forward the author's thinking about the planning of the Devil's Causeway, and, in particular, discussed the possibility that the southern arm of the road had been aligned exactly upon the location of the Portgate, where Roman Dere Street crossed Hadrian's Wall.

This thinking was developed in the author's article about Long-distance Roman Alignments which was published in *Itinera* in 2022 (Poulter 2022, 27-32)[1]. The present paper brings the thinking up to date, offering not only the latest evolution of the author's reflections about the Devil's Causeway but also about the nature of Long-distance Roman Alignments and their implications for Roman mapping practices, about which little is known with any certainty.

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Throughout all this period of study, reliance has had to be placed almost entirely upon the line of the Roman road which is shown, commendably clearly, on modern Ordnance Survey maps. Virtually nothing of the Roman road can be seen on the ground nowadays, and in fact the Ordnance Survey's line has been largely derived from Henry MacLauchlan's survey of the Devil's Causeway in the 1860s. Recently Mike Haken of the Roman Roads Research Association has used lidar to detect some differences from the Ordnance Survey's line near the Roman fort at Low Learchild (Mike Haken pers. comm., see Haken and Armstrong 2023, 15-17), but these observations have not affected the author's interpretation of the overall planning of this Roman road.

Investigation

In Northumberland, apart from Dere Street, the Devil's Causeway is the only north-south Roman road which is known at present, and as can be seen in Figure 1 it bears no relationship to the course of the A1.

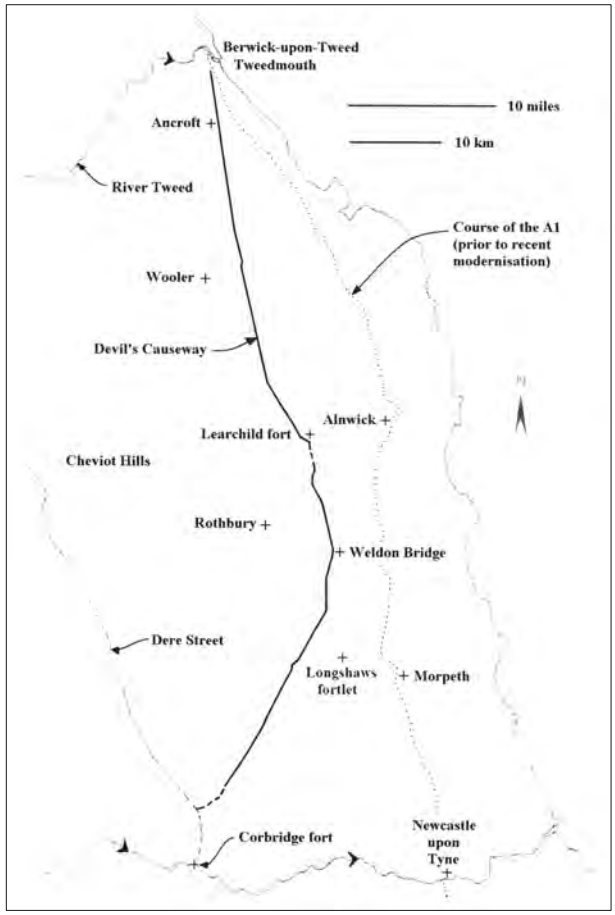


Figure 1. Course of the Devil's Causeway in comparison with that of the A1 (The Great North Road). Reproduced with agreement of BAR Publishing, www.barpublishing.com. © Copyright John Poulter.

Instead, in its central part the Devil's Causeway possesses a closer relationship with the A697 road from Morpeth to Wooler and Coldstream. In fact the latter road runs upon the course of the Roman road in one place, as can be seen in Figure 2, although this is likely to be a fortuitous factor of the landscape rather than evidence that the road had survived from the Roman past.

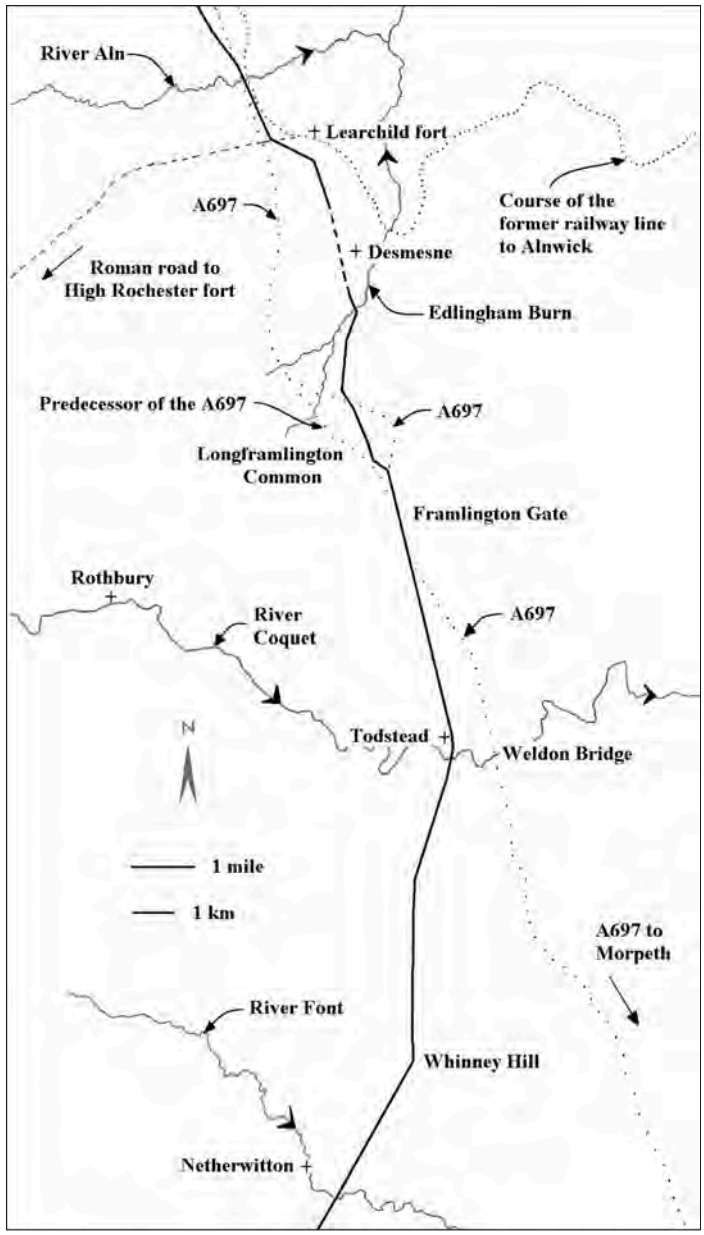


Figure 2. Course of part of the Devil's Causeway in relation to the A697 road from Morpeth to Wooler and Coldstream. Reproduced with agreement of BAR Publishing, www.barpublishing.com. © Copyright John Poulter.

Clearly, in terms of their courses, the Devil's Causeway was not a predecessor of the A1 (the Great North Road). Moreover, a study of the line of the A1 revealed no trace of Roman planning along its length, with a possible single exception close to Newcastle – to be described in the Discussion section below. Nevertheless, as the sole Roman road heading in the same general direction it seemed sensible to begin to try to answer Paul's question by examining the planning of the Devil's Causeway – if only to gauge what the Romans' intentions may have been in the area.

As readers of the author's previous publications on the planning of Roman roads (Poulter 2009; 2010; 2014 and 2022) will be aware, it appears that, for some of their roads, the Romans:

1. began by laying out a series of Long-distance Alignments, to set the general direction of the road
2. and then, probably when the time came to build the road – which might have been several years later, in some cases – they would set out deviations from the Long-distance Alignments, in order, for instance, to reach suitable river crossing-points, or to avoid unsuitable ground, or maybe to service forts or settlements which had been established away from the Alignments, etc. Typically, they would then return their deviations to the Long-distance Alignments afterwards.

Figure 3 illustrates the process.

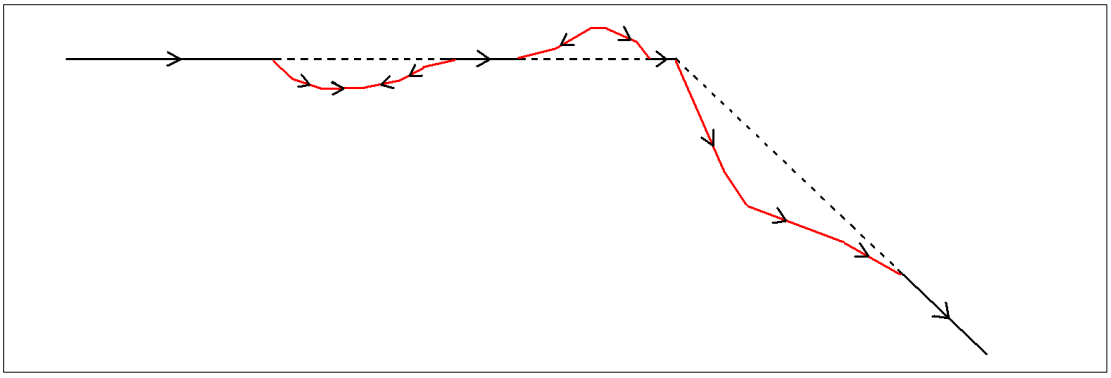


Figure 3. Planning of a Roman road by (a) laying out Long-distance Alignments, and then (b) setting out deviations from the alignments to reach local targets and then return to the Alignments. The arrows indicate the directions of planning, which tended to be in a continuous direction for the Long-distance Alignments but arbitrary for the deviations. © Copyright John Poulter.

Hence, the examination of the planning of the Devil's Causeway began with a search for Long-distance Alignments, and, to the author's surprise, he found not one but two quite separate ones. One of them set the course of the southern part of this Roman road, and the other directed the line of its northern end.

The southerly alignment ran from Whinney Hill to the Portgate area, which is where Roman Dere Street crosses Hadrian's Wall. See Figure 8. As usual, before committing to a conclusion that this had indeed been a Long-distance Alignment, the author sought to understand how the Romans could have set out such an alignment, because it is more than 27km (17 miles) in length and the two end points are not intervisible. It turned out to have been very easy. As can be seen in Figure 4, there is a single high point across the intervening landscape, near Kearsley farm, from which both end points are visible. Therefore, using lights at night it would have been simple to move a brazier near Kearsley farm until it stood in a single straight line between lights at each end[2].

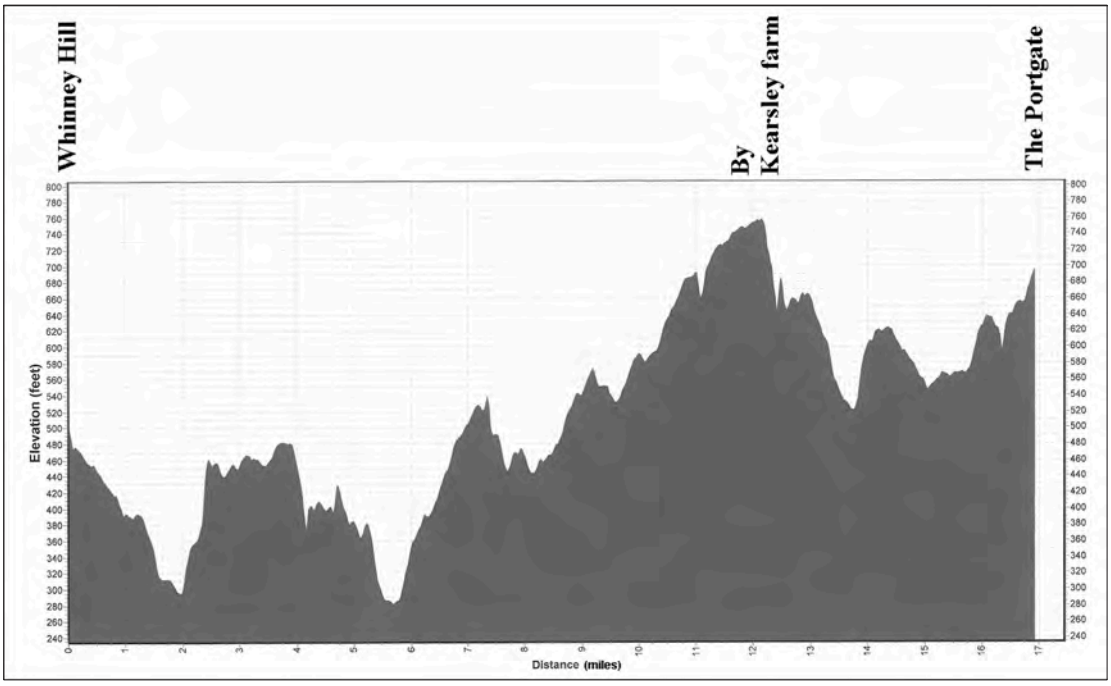


Figure 4. Profile of the landscape between Whinney Hill and the Portgate, showing a single high point by Kearsley farm from which both end points would have been visible. Reproduced with agreement of BAR Publishing, www.barpublishing.com. © Copyright John Poulter.

As Figures 5 and 8 show though, this Roman road, as built, strays slightly from the Long-distance Alignment via a series of kinks. This is unusual. Normally, when Roman roads follow an alignment they do so with notable rigidity. Since the starting and end points of each Long-distance Alignment are likely to be out of sight of the teams constructing any road between them for much of their time, it would appear that the only way for the Romans to have achieved such consistent conformity with an alignment would have been for them to have set up marker posts on each intermediate high point along the alignment so that the construction teams would have local targets at which to aim and so stay on course.

The impression given by the behaviour of the southern part of the Devil's Causeway is that such intermediate marker posts had not been set up in this case. Hence the team or teams building the road would have had to sight upon the end points of the Long-distance Alignment when weather conditions permitted. Over a distance of up to 19km (12 miles), and with any visibility likely to be handicapped by showers of rain, distant haze and mist, and wind blowing the smoke of a bonfire around, such sightings are likely to have been unreliable and in need of correction from time to time. This appears to have been what was happening when this part of the Devil's Causeway was being constructed.

This deduction seems to be supported by the locations of the slight changes of direction along the way. These are marked as points A to G in Figure 5, and Figure 6 shows that, apart from point G and possibly A, these are always facing towards the terminus of the Long-distance Alignment on Whinney

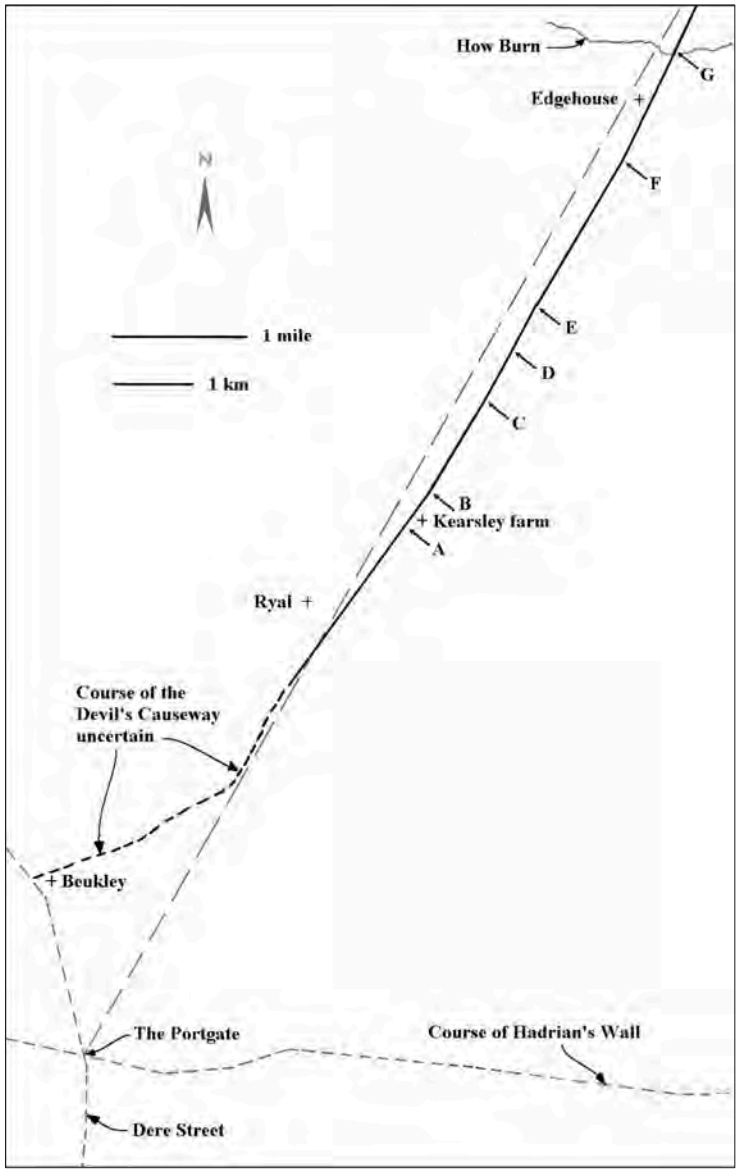


Figure 5. Course of the southern part of Devil's Causeway in relation to its Long-distance Alignment. The letters A to G mark each of the slight changes of direction of the road as built. Reproduced with agreement of BAR Publishing, www.barpublishing.com. © Copyright John Poulter.

Hill. It would appear from this that the leader of the road construction gang had stopped at these points to check and correct the course that his team was taking.

Overall, the impression gained is that the setting-out and the construction of this part of the Devil's Causeway had been something of a "rush job"; in other words, the tasks had been undertaken in a hurry. This impression is reinforced by the way in which the road, as built, breaks off from the Long-

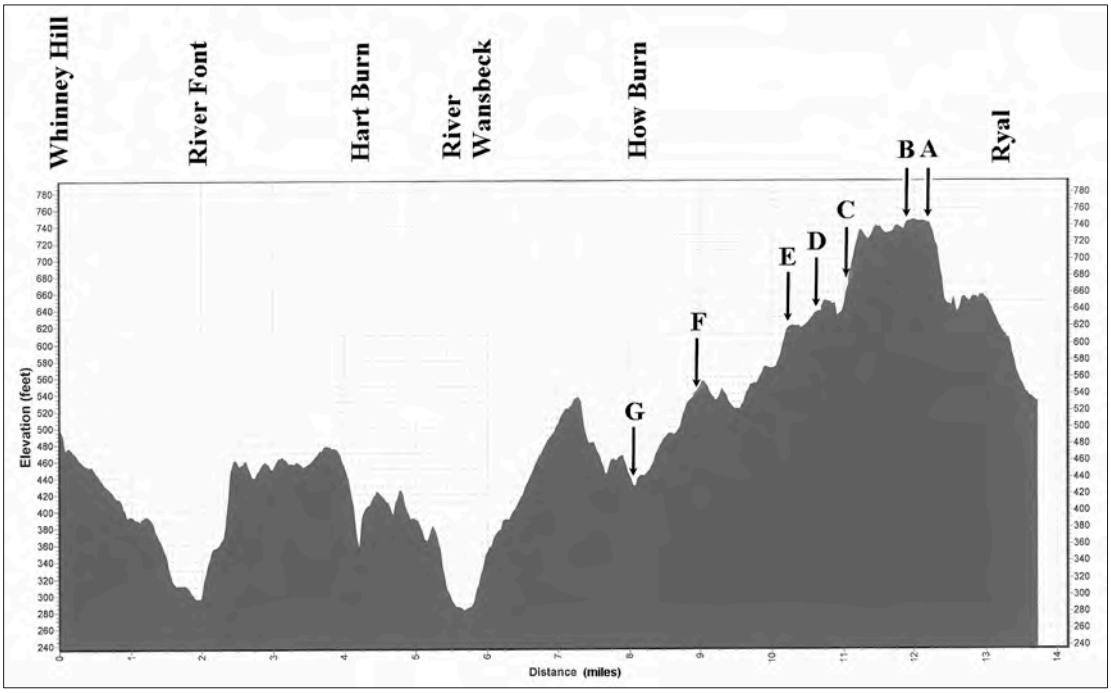


Figure 6. Profile of the landscape between Whinney Hill and near Kearsley farm showing the positions of each of the slight changes of direction which are indicated in Figure 5. Reproduced with agreement of BAR Publishing, www.barpublishing.com. © Copyright John Poulter.

distance Alignment near Ryal to run to meet Dere Street near Beukley. See Figure 5 again. This would have saved having to build some 6.5km (4 miles) of new road to the Portgate area – although it must be admitted that the saving would not have been that great because the detour to Beukley would have required some 3km to 5km (2 to 3 miles) of road construction anyway. Lindsay Allason-Jones (pers. comm.) wonders if the detour to Beukley might also have been intended to forestall possible congestion from the convergence of two routes upon the single gateway at the Portgate.

It remains to consider where the southern terminus of this southern Long-distance Alignment might have been located. Although such alignments might have been marked out on the ground in Roman days, no such makers remain today. Hence the exact course of a Long-distance Alignment has to be judged from where the road or roads which might have adopted it can be seen to have run. This can be especially difficult where, as in the case of the southern part of the Devil's Causeway, the Roman road persistently wanders off line. However, experience shows that, in such cases, the original alignment tends to be followed most closely near the termini of the alignment. This is only to be expected, since it is from these points that the Long-distance Alignment would have been set out.

Hence, as can be seen in Figure 7, the author simply took the first two miles of the Devil's Causeway from Whinney Hill to the River Font and extended the line south-westwards to see where it landed. To his astonishment, the line headed not only to the Portgate area but landed exactly upon the Portgate itself. Since, as already mentioned, the location of the Portgate is where Roman Dere Street crosses Hadrian's Wall, this means that this part of the Devil's Causeway could not have been laid out, let alone constructed, before at least the line of Hadrian's Wall had been marked out.

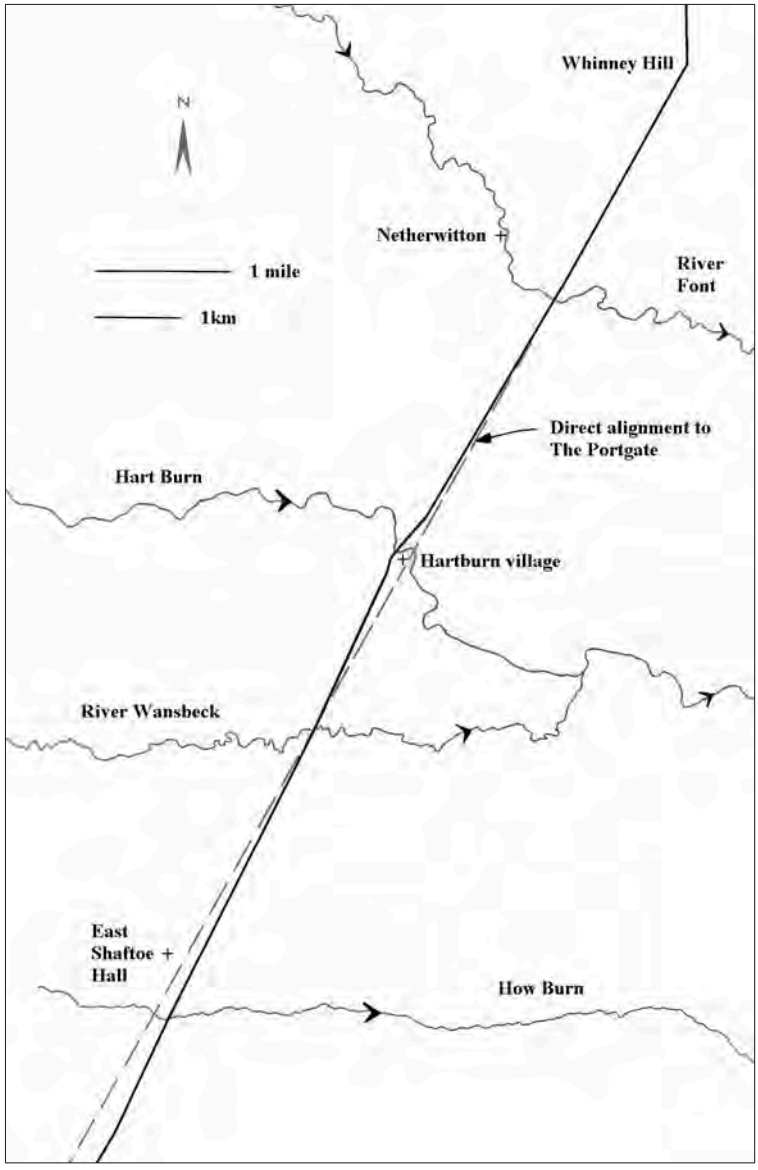


Figure 7. Course of the northern end of the southern part of the Devil's Causeway, showing the Long-distance Alignment derived from the first two miles of the road from Whinney Hill to the River Font. Reproduced with agreement of BAR Publishing, www.barpublishing.com. © Copyright John Poulter.

This challenged the then current interpretation of the life of the Devil's Causeway, based upon evidence from elsewhere along its course. This interpretation was that this Roman road had been in existence before Hadrian's Wall but had probably been abandoned not long after the Wall had been built. As a result, both Humphrey Welfare and Nick Hodgson (pers. comms.) suggested that the southern terminus of the southern Long-distance Alignment had been located where Dere Street,

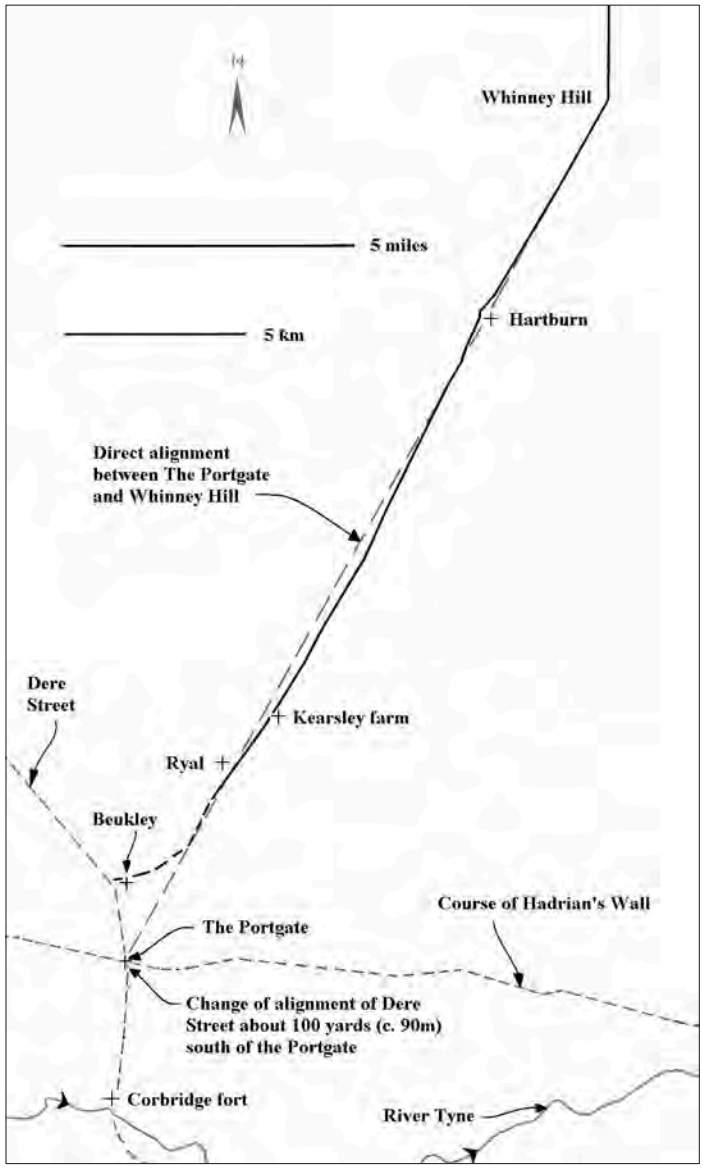


Figure 8. Course of the Devil's Causeway showing two possible options for the southern terminus of the Long-distance Alignment to be at either the Portgate or at a point on Dere Street about 90m (100 yards) south of the former. Reproduced with agreement of BAR Publishing, www.barpublishing.com. © Copyright John Poulter.

after breasting one last rise in the climb up from Corbridge, had then turned more north-northwestwards about 90m (100 yards) south of the Portgate.

This point can be seen on Figure 8, and this proposition is an entirely realistic one. If Hadrian's Wall had not been in existence, this point would have been a natural one from which to have set out a

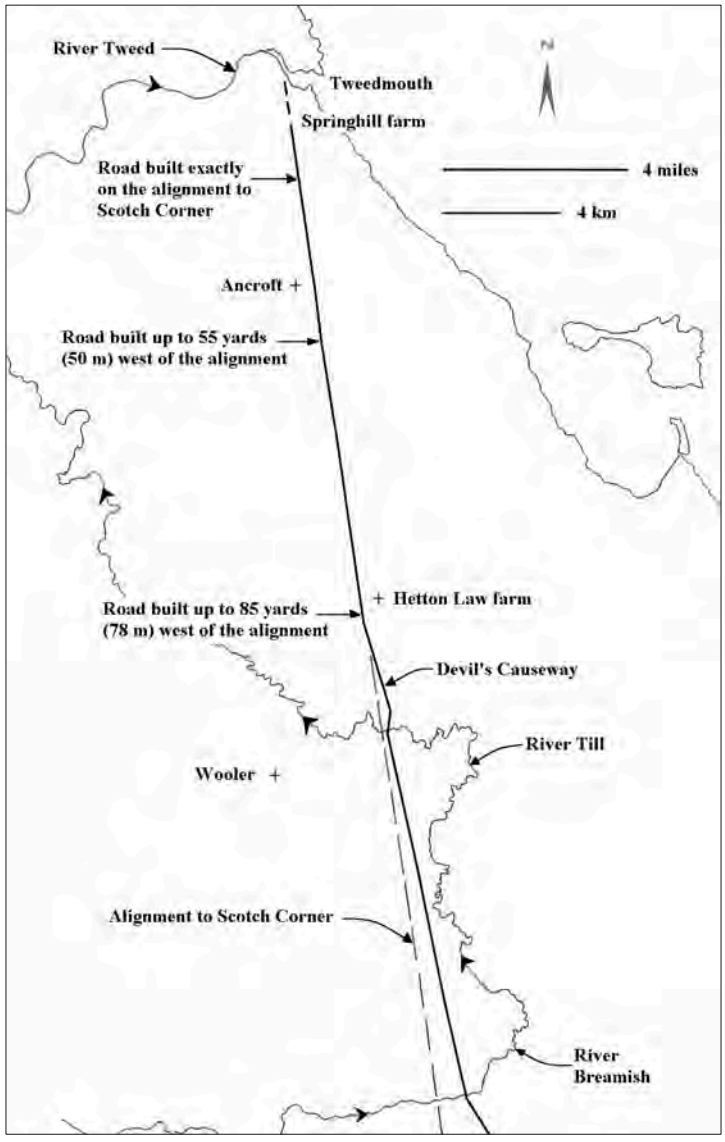


Figure 9. The course of the Devil's Causeway in relation to a direct alignment from Roman Scotch Corner. Reproduced with agreement of BAR Publishing, www.barpublishing.com. © Copyright John Poulter.

Long-distance Alignment towards or from Whinney Hill. Moreover the process for doing so would have been just the same as that already described above, exploiting a single high point near Kearsley farm.

Accordingly, although the author was unwilling to forego entirely what he had discovered by observation he was prepared (in Poulter 2022, 30-31) to credit Welfare's and Hodgson's proposal as being the more likely of the two. However, Mike Haken recently repeated the author's exercise of extending the alignment from Whinney Hill to the River Font and although his preferred alignment

ran marginally to the north of the author's he concluded that in his opinion an alignment to the Portgate was the more likely of the alternative possibilities (Mike Haken pers. comm.). In addition, the author had been coming to the conclusion that since the southern part of the Devil's Causeway appeared to have been a "rush job" it might have been the result of a late change of plan from the rest of the Devil's Causeway, possibly occurring during the very early phases of the planning of Hadrian's Wall. This would have made an alignment targeted upon the Portgate not only feasible but very plausible. The possible reasons for such a change of plan are addressed in the Discussion section.

If the southern part of the Devil's Causeway had been laced with surprises, the northern end proved to be even more remarkable. This was because the final 5.6km (3½) miles approaching Tweedmouth (as suggested by MacLauchlan and implied by subsequent Ordnance Survey maps[3]) were found to be exactly aligned upon the Roman site at Scotch Corner, more than 144km (90 miles) distant. Moreover, the final 16km (10 miles) of the Roman road, northwards from Hetton Law Farm, were found to have run increasingly close to the alignment too, as can be seen on Figure 9.

This gradual convergence of the Roman road upon an alignment, and the apparent exactness of the road upon the alignment for the final 5.6km, appear to rule out any chance that this could have been a coincidence. As a result it seems clear that the line from Scotch Corner had been a Long-distance Alignment and that the final part of the Devil's Causeway had been constructed to conform with it.

The immediate question which then arose was: how had the Romans managed to set out a Long-distance Alignment over such an immense distance? Unlike the southern Long-distance Alignment, there is no single intermediate high point between Scotch Corner and Tweedmouth, from which both end points would have been visible. In any case, even the use of lights at night would not have been practical over such a great distance. At this juncture, therefore, it is pertinent to turn once more to the nature of Long-distance Alignments.

When the Long-distance Alignments were first discovered – several of them underlying the course of Roman Dere Street – it was assumed that they had been created for the purpose of setting the general direction of the Romans' roads, and, at times, the locations of the military installations along them. Since then what has gradually emerged is that the Romans had been setting such alignments out for other purposes as well. Rob Entwistle, for instance, has proposed (Entwistle 2019, 48-75; 2022) that they were sometimes set out to delineate territory for administrative or political purposes. The author has also come to think that they were sometimes set out for surveying purposes (Poulter 2022, 44-47).

Surveying by setting out dead straight lines at set angles is a well-established surveying technique, used for gaining a rapid grasp of unfamiliar territory. General Roy (then just Mr Roy), for instance, employed this technique for his survey of the whole of Scotland (except the Western Isles) between 1747 and 1755 (Anderson and Fleet 2018, 118-124). What is also becoming apparent is that these long-distance Roman administrative and survey lines seem to have been set out on constant bearings, unlike the line-of-sight alignments which appear to have been used simply for planning road lines. (The Long-distance Alignment from Whinney Hill to the Portgate area is an example of a line-of-sight alignment.) The difference is that lines at constant bearings take gentle curves across the spherical surface of the Earth, as shown in Figure 10, below. This is because the lines of longitude taper towards the Earth's poles. In contrast, alignments set out by line-of-sight run in straight lines across the surface, as is also shown in Figure 10.

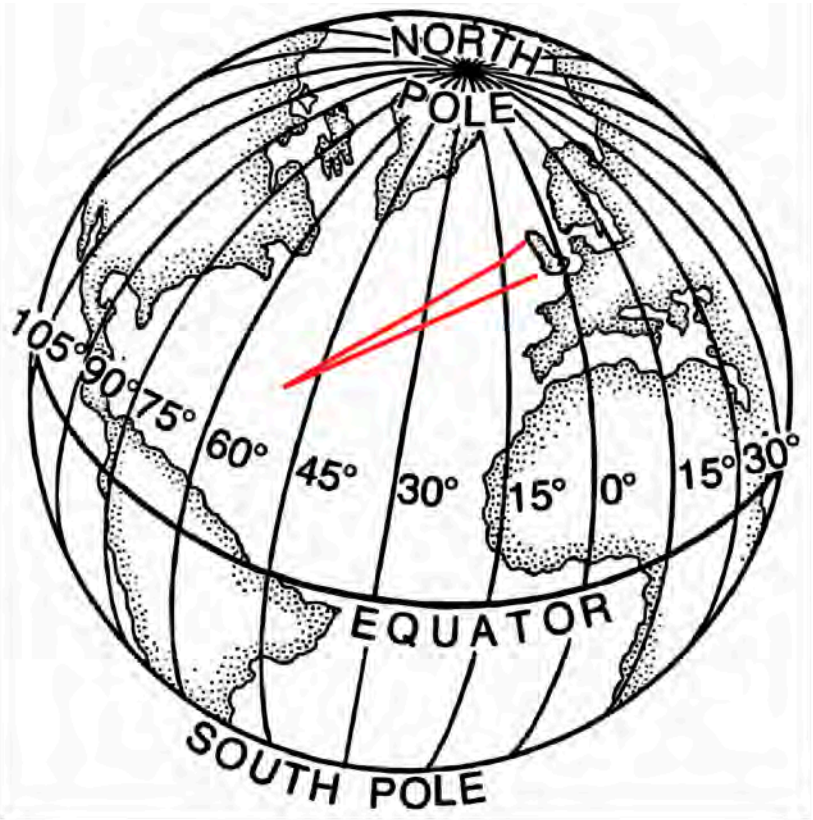


Figure 10. Comparison of a constant bearing line (the upper red one) curving across the surface of the Earth whereas a line set out by line-of-sight (the lower red one) would run straight across the surface of the planet. © Copyright John Poulter.

On the other hand, once the surface of the Earth is projected flat, as on a map, the lines at constant bearings would appear to run dead straight across the map. This is because, on a typical map – for instance, an Ordnance Survey map – all the lines of longitude are shown running in parallel, north-south. Therefore a line running across them at a constant bearing would strike them all at the same angle. In contrast, over significant distances, lines set out by line-of-sight would show a slight downward curvature over the same kind of map (unless the lines happened to be running due north-south or due east-west). Because of the latitude of the British Isles, it is unlikely that the two kinds of alignments would show any significant difference on a map over distances of up to, say, 40km (25 miles), but over any distances greater than that the difference would be noticeable.

Figure 11 shows that the alignment from Tweedmouth to Scotch Corner is dead straight on the map, whereas if it had been set out by line-of-sight it would undoubtedly have shown some curvature over such a distance. This suggests that it had been a survey line, set out on a constant bearing.

As a by-product, this may tell us something about Roman mapping. It is generally assumed that the Roman administrators and planners must have had and used maps, but little is known about their

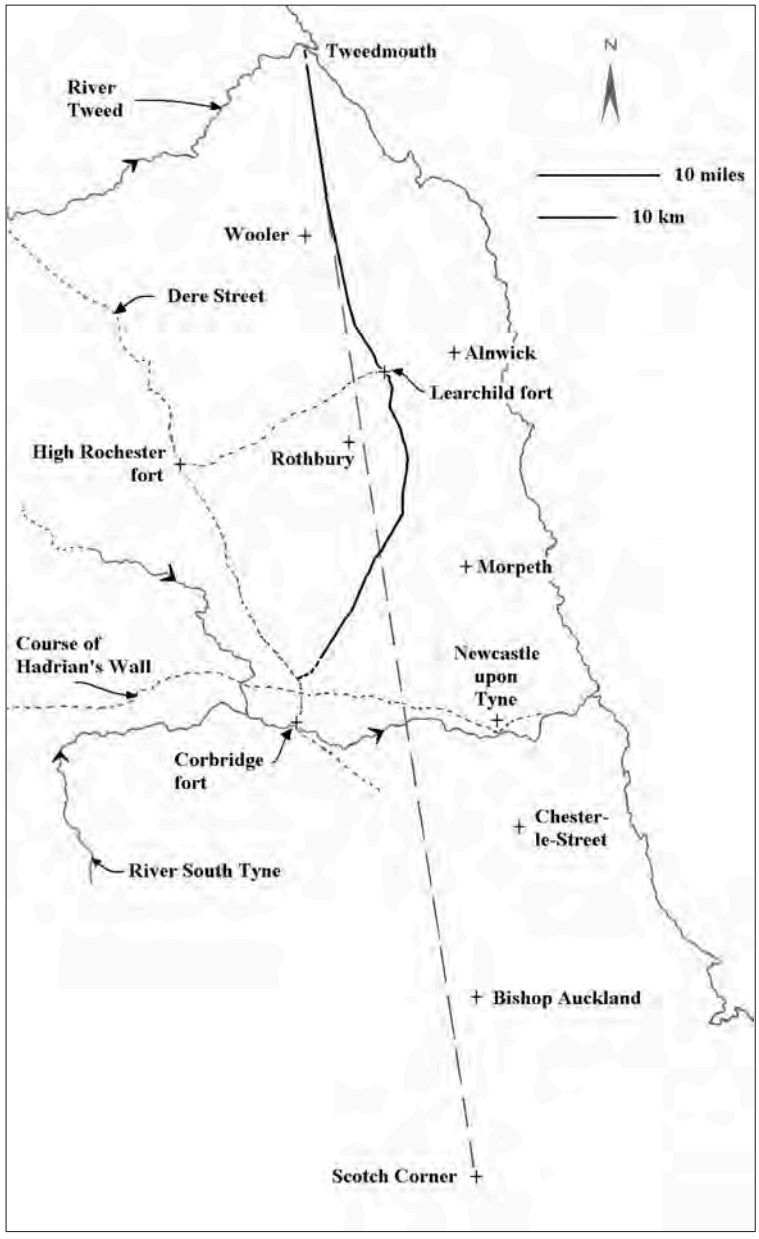


Figure 11. The northern part of the Devil's Causeway falling in with the Long-distance Alignment from Scotch Corner. Reproduced with agreement of BAR Publishing, www.barpublishing.com. © Copyright John Poulter.

mapping practices (Poulter 2014, 37-38). If their survey lines were being set out on constant bearings, it implies that the Romans would have been using projections similar to those of our modern maps, in which the lines of longitude would have been straightened out to run in parallel and across which their survey lines would therefore have appeared to run dead straight.

To provide reliable frames of reference, such survey lines would need to have been kept as straight on the map as possible. On the planners' table-tops, they would then have been used to record both topographic and demographic information, as witnessed by the surveyors both on and from the survey lines. Then, since the survey lines would have served as the only common frames of reference, they would have been used to direct actions to be taken by the troops on the ground. This could explain why such survey lines were subsequently often employed to set the directions of Roman roads and the locations of fortifications along them.

For setting the angles between such survey lines, the Roman planners and surveyors (unlike General Roy) appear not to have used degrees (Lewis 2001, 226-228). Instead they seem to have resorted to using simple geometrical angles such as right angles, 45˚, and the angles of 3:4:5 and 8:15:17 Pythagorean triangles (Entwistle 2019). These angles could all be easily constructed on table tops using set squares and then reproduced by rods or possibly chains on the ground.

The Roman planners would sometimes seem to delight in playing sophisticated tricks with such tools, though. At Whittlestone Head, for instance, between Manchester and Ribchester, they seem to have accomplished a change of angle of only 8.3˚ in the alignments of their Western Main Road. They

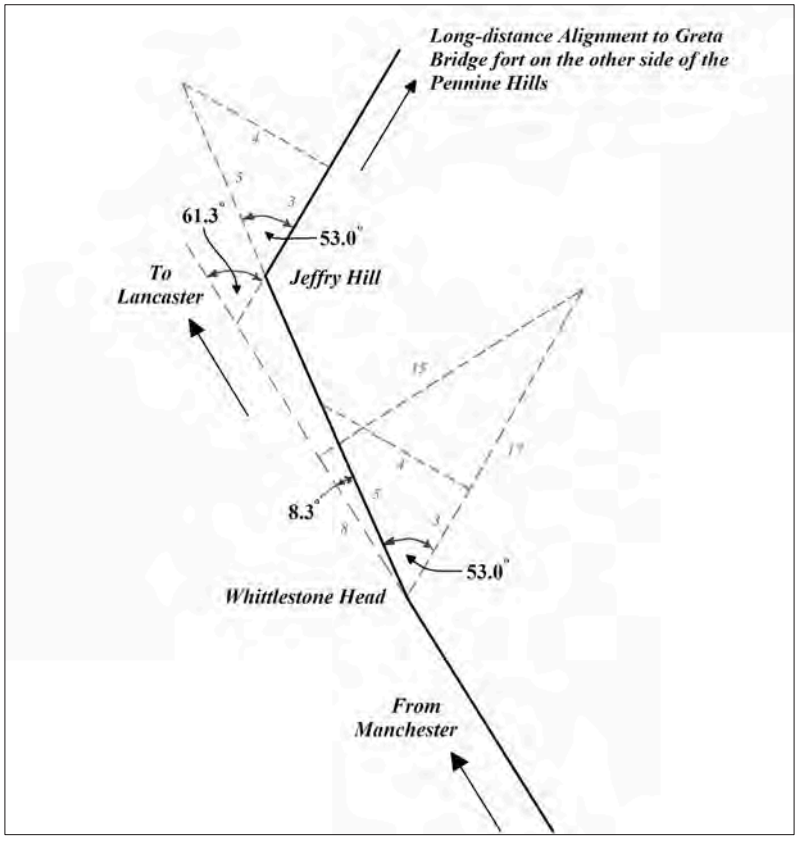


Figure 12. Use of a geometrical subtraction to achieve a change of angle of 8.3˚ in the alignment of the Romans' Western Main Road near Whittlestone Head. © Copyright John Poulter.

achieved this by means of the geometrical subtraction of one Pythagorean angle (53.0˚) from another (61.3˚), as shown in Figure 12. It may, therefore, be no coincidence that the bearing of the alignment from Scotch Corner to Tweedmouth is 8.5˚ west of true north.

Between its northern and southern ends the course of the Devil's Causeway appears not to have been underpinned by any Long-distance Alignment. Instead, the road proceeds in a series of short straight stretches which were clearly designed to service the Roman fort at Low Learchild and to cross the intervening landscape and the Rivers Breamish, Aln, and Coquet at convenient locations. Figures 2 and 11 show that the fort at Low Learchild was also served by a Roman road running from the Roman fort at High Rochester on Dere Street. As previously mentioned, Mike Haken has recently examined the area in and around the fort at Low Learchild using lidar and shown that the course of the Devil's Causeway as published on Ordnance Survey maps is not quite correct (Mike Haken pers. comm.). He was also able to show, from their intersection, that the road from High Rochester appeared to have been constructed earlier than the Devil's Causeway. This should not seem surprising. If Low Learchild had already been served by the Devil's Causeway there would have been little incentive to have built a road to it from High Rochester.

As can be seen in Figure 1, the course of the Devil's Causeway in its central section does seem to have been generally heading southward towards the Newcastle area – that is, until it reaches Weldon Bridge over the River Coquet. There it rather abruptly branches south-westwards and climbs awkwardly across sloping ground, seemingly so as to reach Whinney Hill, from which the southern Long-distance Alignment appears to have been set out towards the Portgate. The fact that a line of electricity pylons changes direction at the same place helps to illustrate what a fine vantage point Whinney Hill does offer.

Discussion

It was the rather sudden change of direction at Weldon Bridge, coupled with the impression that the Devil's Causeway from Whinney Hill to the Portgate had been planned and constructed in something of a hurry, which prompted the thought that the southern part of this Roman road might have been the result of a change of plan. In other words, that the road had originally been planned to run to the Newcastle area, as Paul Bidwell felt would have been necessary, but that it had then been switched to run to the Portgate instead. The possibility is indicated on Figure 13, below.

Accordingly, a search was made, on the ground and via maps and aerial photographs, for any signs of a Roman road between Weldon Bridge and the Newcastle area. However, only one slight and rather indirect indication was detected, and this is shown on Figure 14. Figure 13 indicates that between Newcastle and Morpeth the A1 (the former Great North Road) adopts a course which is not dissimilar to that of a direct line from Weldon Bridge to Newcastle. Figure 14 shows that, approaching Gosforth, to the north of Newcastle, the (former) course of the A1 is exactly aligned upon the northern bridgehead of Newcastle's medieval bridge over the Tyne. It is believed that this had also been the location of the Roman bridge over the Tyne, and if so this would have been a typical example of Roman planning. In contrast it is unlikely to have held any great relevance in medieval times. Thus it might appear that construction could have been started on the Devil's Causeway from the Newcastle area to Weldon Bridge, only to have been aborted, rather hastily, in order to adopt a new line from Weldon Bridge to the Portgate.

Two reasons can be suggested for such a change of plan:

(a) a decision had been made that, once Hadrian's Wall had been completed, the Portgate should be the only main/civilian gateway through the eastern side of the country[4]

(b) a decision had been made that, although Hadrian's Wall would terminate on the Tyne at Newcastle (or possibly Wallsend), the main troop concentration supporting the eastern flank of the Wall would remain at Corbridge, at least initially; therefore communication would have been required with Corbridge rather than Newcastle.

Although it would have involved no hasty change of plan, it has been suggested (Hodgson 2017, 36) that the Devil's Causeway might have been planned as an eastward continuation of the Stanegate Roman road from Carlisle to Corbridge, so extending the concept of a 'Stanegate Frontier' to the North Sea coast. As it happens, an independent researcher, Steve Hedworth, recently claims to have

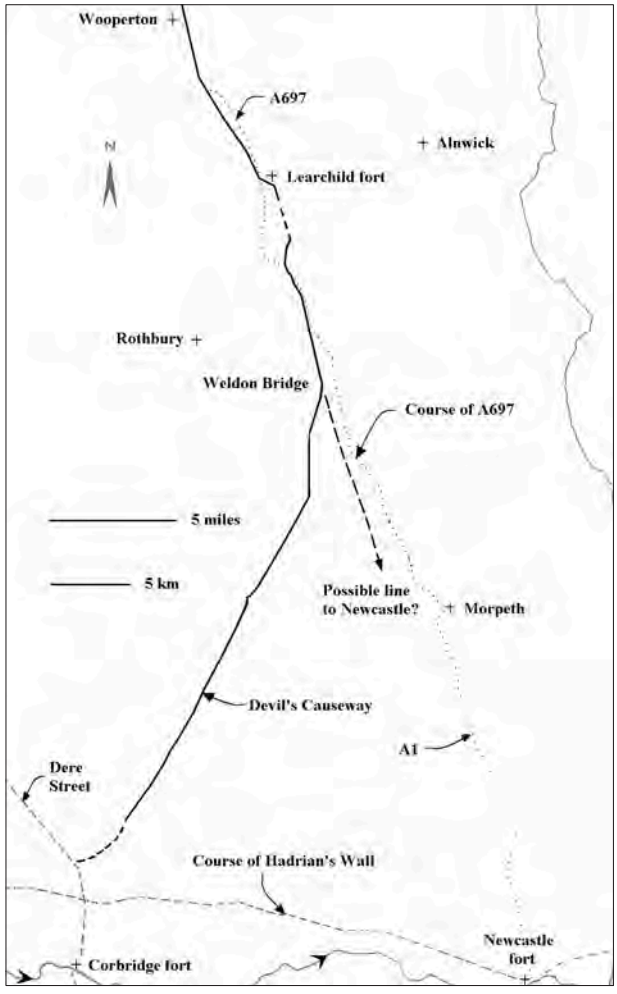


Figure 13. The possibility of a direct line from Weldon bridge to Newcastle. Reproduced with agreement of BAR Publishing, www.barpublishing.com. © Copyright John Poulter.

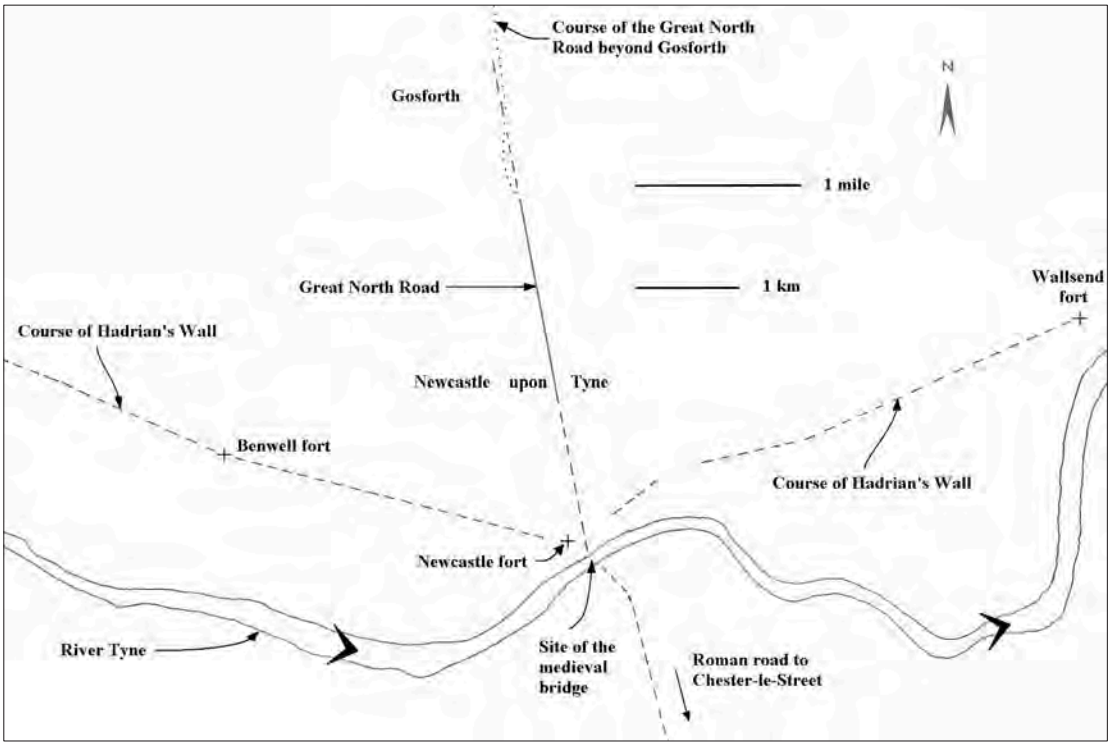


Figure 14. Alignment of the former course of the Great North Road towards Gosforth with the northern bridgehead of the medieval bridge and possible location of the Roman bridge over the River Tyne. Reproduced with agreement of BAR Publishing, www.barpublishing.com. © Copyright John Poulter.

detected traces of a continuation of the Devil's Causeway to the west of where it meets Dere Street at Beukley (Hedworth pers. comm.). He proposes that it would then have continued in the direction of the village of Wall and then crossed the River North Tyne to link up with a branch of the Stanegate which has been found to have run around the northern flank of Warden Hill. Figure 15 shows this projected course.

This is an interesting suggestion which would fit in well with the notion of a Stanegate extended eastwards. Unfortunately, although the author has not examined this possibility on the ground he has not found anything to support such a line on either lidar or Google Earth. A suggestion made by a local landowner, Mr Pennie, at the Berwick meeting was that this might have been part of a prehistoric routeway across the area, of which the planners of both the Stanegate and the Devil's Causeway might have made use, in certain places and at different times. It is therefore possible that what had been traces of this routeway are what Steve Hedworth had picked up.

On balance, though, the indication that the southern part of the Devil's Causeway had been the result of a somewhat hasty change of plan does seem more persuasive. Moreover, the likelihood that its Long-distance Alignment had been aimed at the Portgate, means that, at the earliest, the change of plan could not have taken place before the planning of Hadrian's Wall had begun. Hence, although certainly worthy of further investigation, the foregoing possibility is really only included here for the sake of completeness.

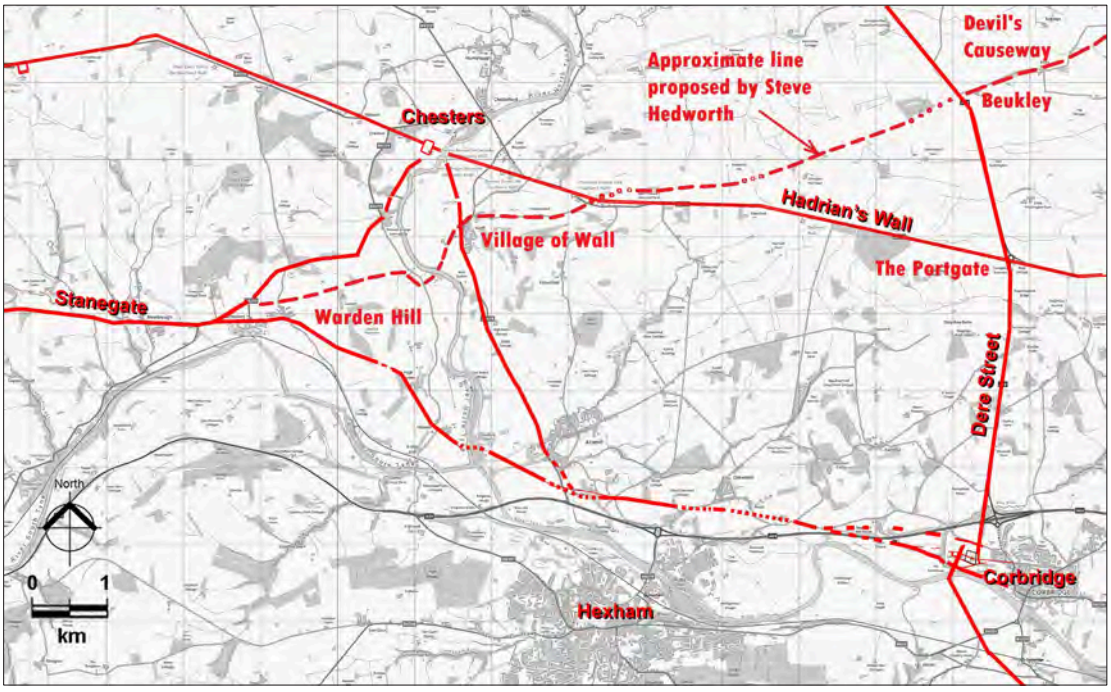


Figure 15. Plot of a possible continuation of the Devil's Causeway running westwards from Beukley to link up with a branch of the Stanegate running around the northern flank of Warden Hill. The dots show where Steve Hedworth reports observing traces; the dashes are where the course is conjectural. The solid lines show where lidar traces are clear. Base map © copyright Ordnance Survey Open access data; lidar lines © copyright David Ratledge; plot of Steve Hedworth's line © copyright John Poulter.

There is at least one further curiosity about the Devil's Causeway, though, and that is the absence of fortifications along it – on the basis of current knowledge, at least. The author has tended to assume that once the Romans had planned a line of fortifications, priority would have been given to erecting the fortifications first, with perhaps just a lightly-built track running between them to support communications. Only afterwards, it was assumed, when time and resources permitted would efforts be devoted to constructing a properly-engineered road between the fortified points. Instead, along the Devil's Causeway, although there are known to have been camps beside it – probably for the construction of the road – the only firm evidence for a fort or fortlet at present is the site at Low Learchild, and this seems to have been in existence before the road was built. It is understood that Roman artefacts have been found at Wooperton (see Figure 13), but that there are no signs of fortification there.

Perhaps the most striking omission is the absence of any Roman structure at Tweedmouth. Up to now the assumption has been that the Devil's Causeway had been built to service a Roman station at Tweedmouth, whereas it now appears that the Roman road, as it approaches the Tweed, had simply been set out to follow the end of a Roman survey line. Hence it is perhaps not surprising that nothing substantially Roman has been found beside the Tweed as yet. It is possible that the Romans intended to construct some kind of base at Tweedmouth, otherwise there would have been no point in building the road to there. However, it looks as if the road got there first and that whatever plans the Romans had had were then abandoned before construction beside the Tweed had started (see Allason-Jones and Osler, this volume).

It is therefore quite possible that the Roman authorities had had plans for the creation of several fortifications along the line of the Devil's Causeway, but that an early abandonment of the road meant that these plans remained unfulfilled. However, there is a need to be cautious about an absence of evidence. As Nick Hodgson pointed out at the Berwick meeting, formerly unknown Roman forts and fortlets continue to be discovered in Britain quite frequently, and so the unfortified nature of the Devil's Causeway may eventually turn out to be an illusion.

Apart from the military installations along Dere Street, there is one other Roman fortification which is known in Northumberland north of Hadrian's Wall, and that is a seemingly isolated fortlet and annex at Longshaws (NZ 134884), overlooking the River Font between Morpeth and Whinney Hill. See Figure 1. Although there is no firm dating evidence for the fortlet, it is considered likely to have been established in the Flavian period (Welfare 2011, 128) and thus to be earlier in date than the Devil's Causeway.

Nevertheless, the fortlet stands at the head of a stretch of the Font which happens to lie exactly on a direct line from Whinney Hill to Newcastle. Therefore, just to be sure that the fortlet had not been positioned to oversee traffic from and to Newcastle, David Ratledge was invited to search, via the latest lidar data, for any sign of a road in the area. The result was negative, not just beside the Font but also on any other line into Newcastle (David Ratledge, pers. comm.).

This, therefore, seems to conclude the attempt to answer the question which Paul Bidwell had posed in 2011. In brief, there appears likely to have been a plan to build a Roman road from Newcastle to the Tweed, but that before construction had got under way (if at all) at the Newcastle end, the plan had been altered to redirect the southern part of the road to run from Corbridge **i**nstead.

Acknowledgements

The author is particularly grateful to Lindsay Allason-Jones for several comments and suggestions made on earlier drafts of this paper. He is also grateful for several valuable inputs from Mike Haken, David Ratledge and Steve Hedworth both before and during the course of this paper's composition.

Endnotes

1 In *Itinera* (2022), both the author and Rob Entwistle published articles based upon the recognition that Long-distance Roman Alignments had physically existed and had not just been figures of speech. To avoid confusion in terminology, the two authors agreed that Long-distance Alignments (with capital letters) should be the spelling of the physical Roman entities, to distinguish them from any general alignments or indications of direction. Some authors refer to Long-distance Roman Alignments as LDAs, but in this paper the preference has been to use the full form.

2 This would not have been possible over such a distance in daylight. As General Roy found out when embarking upon the Ordnance Survey of Britain, using lights at night can increase the distances being surveyed manyfold. See Roy, W. 1790, several pages, but especially 265-6. I am indebted to Humphrey Welfare for this reference.

3 It appears that MacLauchlan had not actually seen the road at this point (Lindsay Allason-Jones pers. comm.) but that he had evidently relied upon the reports of others, including people working in the fields. At the same time MacLauchlan appears to have been completely unaware of any relationship between his

line, as speculated, and an alignment from Scotch Corner, so that their exact correspondence here seems highly unlikely to have been a coincidence.

4 It is envisaged that there would have been an equivalent main/civilian gateway through Hadrian's Wall at Carlisle for the western side of the country, but that, although there would have been gateways through each of the Wall's milecastles, these would have been intended for military use only (even if, later, that intention may well have been forgotten).

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The Devil's Causeway - A Preliminary Investigation of its Presence at Berrington, Northumberland

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Abstract

This paper describes the evidence for the existence and location of the Devil's Causeway at Berrington in North Northumberland. The project was prompted by a small assemblage of metal detecting finds of the Roman period that were unearthed in the vicinity of the road. A correlation was established between the observations of Victorian surveyor Henry MacLauchlan, aerial photography and lidar images. A survey of the plough-soil along this line revealed a significant quantity of stones consistent with the known fabric of the road. Based on these clues a series of test pits were excavated close to a river crossing. The results seem to suggest the presence of the road at this location. Documentary evidence is also presented showing that the Devil's Causeway may have continued to function as a significant route at Berrington into the mid-14th century.

Introduction

William Camden lamented that Roman roads, '*being dismembred ... and cut one peece from another in some places, by reason that the countrey people digge out gravell from thence, are scarcely to be seene*' (Camden 1607, 44-5).

The north end of the Devil's Causeway (Margary 1955, Roman Road 87) fits Camden's description of a road that is '*scarcely to be seen*'. For the most part it has remained elusive, having been destroyed by the plough or buried beneath modern sections of road. The most northerly confirmed sighting of the road prior to 2023 was 30 km south of the Tweed at Wooperton quarry in 2000 (Gates and Hewitt 2007). Excavations at Netherwitton in 2001 (Tyne and Wear Museums Service 2001) and Thornton Moor Farm in 2018 (AP 2018) revealed its surface including a central rib. A bridge abutment was discovered at the Hart Burn in 1989 and a paved ford at the River Wansbeck around the same time. (Brown and Hudson 1989) R.P. Wright opened seven sections of the road between Bradford and Ryal in 1937 (Wright 1938) and the most southerly sighting to date was at Matfen in 2017 (Morton 2018). For a more detailed summary of these excavations see Carlton 2018, 7-9.

A positive identification of the Devil's Causeway as far north as Berrington - just eight kilometres from Tweedmouth - would add a new piece of information to the current body of knowledge. It is hoped that what follows will provide a foundation for further investigation.

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MacLauchlan's Memoirs

Henry MacLauchlan visited Berrington during a three year-long survey of the Devil's Causeway that he began in 1857. In his memoirs he wrote that, '*Our line ran about 300 yards on the east of South Berrington House*' (MacLauchlan 1864, 46). This appears to refer to a projection of the line of the road northward from Lowick, rather than a physical sighting at this location.

Having established his datum, MacLauchlan describes four specific observations that he recorded with the assistance of farm steward John Todd. He reported that the road...

- may still be seen in the brook dividing South from North Berrington;
- appears near a well a little further on;
- is visible at a spot where four hedges meet in a field road, about 600 yards north from North Berrington House;
- passes about 180 yards east of the house, and traces of it may possibly be found in a ridge of land somewhat broader than the others.

Despite more than a century and a half of agriculture, MacLauchlan's survey may still be used to locate the line of Devil's Causeway as it passes through Berrington (Fig. 1). Resources that were unavailable to the Victorian surveyor, including aerial photography and lidar, compliment his work but also help to refine his fourth observation as will be discussed presently.

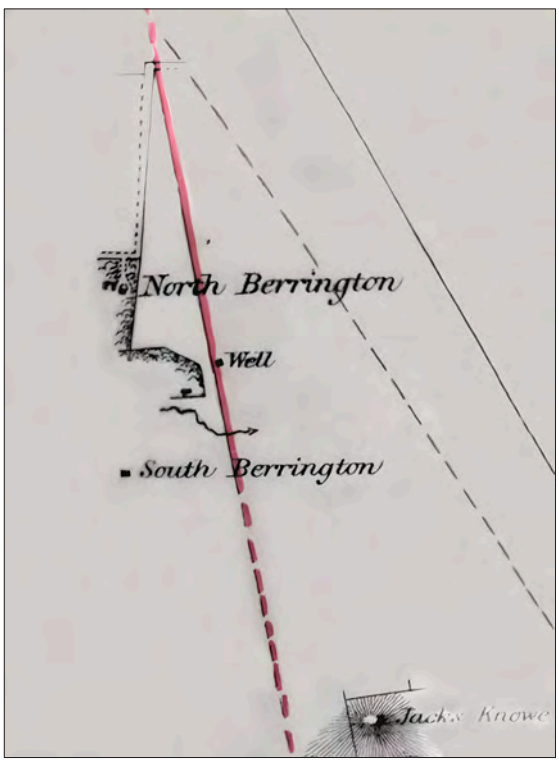


Fig. 1, Henry MacLauchlan's survey of Berrington. Published 1864

The well that MacLauchlan referred to no longer exists; however, a series of Ordnance Survey maps from 1868 to 1968 are in close agreement as to its exact location. Maclauchlan draws the road adjacent to the well on its west side. The vicinity of the well contains a significant amount of stone and water-worn cobbles that become visible after every harvest. It appears that the road may be close to the surface at this flat spot before it ascends the slope onto the east-west ridge of the field.

The place '*where four hedges meet in a field road*' was previously identified by the current landowner as an especially rocky area where many stones are to be found deposited in the field margins. One particularly large specimen measures 1.2 x 0.45 x 0.3 m. MacLauchlan's drawing shows the line passing to the east of



Fig. 2, MacLauchlan's observations plotted on Google Earth. His line coincides with a linear cropmark to the north of the well.
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the point where the hedges intersect. We can draw a line from there, passing just west of the well, to his datum '*300 yards on the east of South Berrington House*'. The GoogleEarth image taken in 2006 is useful in this context. The section of our line between the well and the next hedge to the north can be seen to pass through a light-coloured linear cropmark (Fig. 2; see also Fig. 3).

The intersection of this line with the Berrington Burn is where MacLauchlan saw the road '*in the brook dividing South from North Berrington*'. At this precise spot sandstone blocks protrude from the north bank of the river. Other examples are to be found in the stream and more worked stones can be seen scattered around the vicinity.

MacLauchlan's final observation at Berrington was of '*a ridge of land somewhat broader than the others*', a feature he located 180 yards (165 m) east of Berrington House. Patterns left by ridge and furrow ploughing are visible in aerial photographs of the field that is known in the modern estate plan as Big Field. Broad 'reverse-S' shaped ridges, likely from the medieval period, are evident. The north-west corner of the field contains narrower, straighter ridges that may be post-medieval in origin (Fig. 3). Although it has been somewhat obscured by modern agriculture, it is likely that these features were still visible in the mid-19th century. MacLauchlan makes reference to an especially prominent ridge that he suggested might be evidence of the Devil's Causeway. Figure 4 shows this earthwork highlighted by snow during the *Beast From The East* storm in 2018. A parallel earthwork, 150 m further west, can also be seen in the background.

This '*ridge of land*' is a prominent feature when viewed in lidar (Fig. 5). By overlaying MacLauchlan's line (indicated by 'A') it can be seen that the earthwork (indicated by 'B') is probably not the *agger* of



Fig. 3, Big Field rendered in grayscale highlighting the ridge and furrow furlongs. © 2023 Infoterra Ltd & Bluesky



Fig. 4, Earthwork, likely the 'ridge of land somewhat broader than the others' seen by MacLauchlan. Highlighted by snow during a storm in 2018. © Bill Blyth 2023, licensed CC

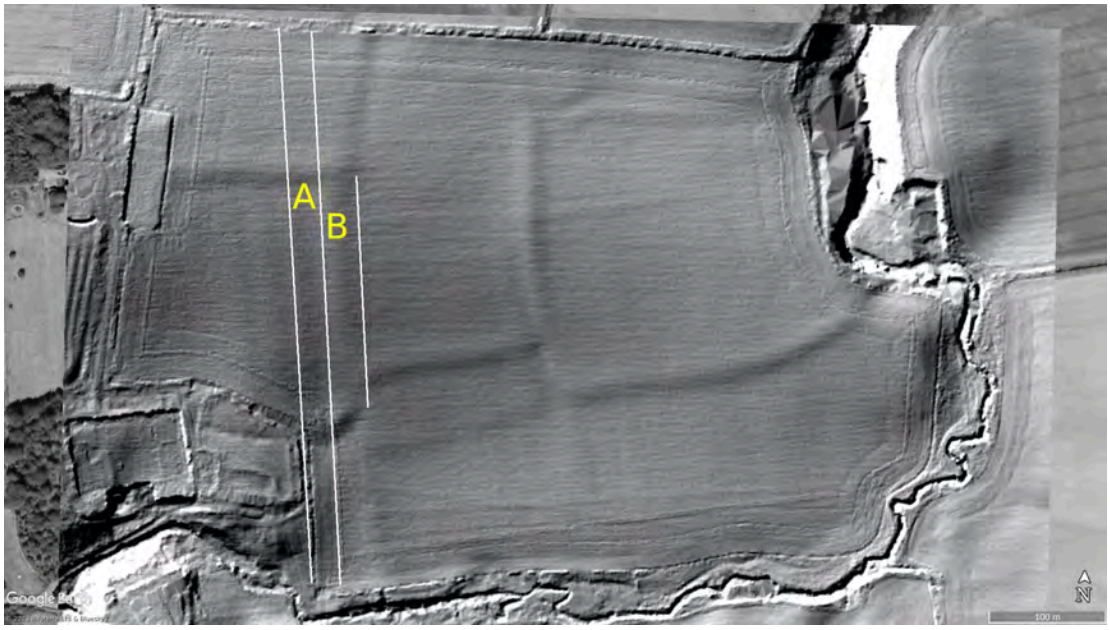


Fig. 5, lidar image of Big Field showing MacLauchlan's line (A) with the earthwork (B) immediately to the east.. Basemap © 2023 Infoterra Ltd & Bluesky: Lidar © Esri, Intermap, NASA, NGA, USGS | Esri Community Maps Contributors, Esri UK, Esri, HERE, Garmin, Foursquare, GeoTechnologies, Inc, METI/NASA, USGS

the Devil's Causeway but lies immediately adjacent to the line on its east side. A complex pattern of earthworks is evident in the lidar image; a comparison with Figure 3 reveals these to be artefacts of a medieval open-field system. The headlands and baulks that separate the furlongs or *flatts* have left a permanent record in the landscape. It seems that MacLauchlan's caution was justified when he suggested the road '*may possibly be found*' in this earthwork, and what he saw was not the road but evidence of the way it had impacted the agricultural layout of Big Field.

Stone Survey

After harvest in 2022 a fieldwalking survey was conducted along a zone 50 m either side of the putative line of the road. A significant quantity of water-worn cobbles and blocks of whinstone were observed on the surface of the plough soil. The largest blocks of whinstone measure 0.2 - 0.3 m cubed. Geologist Dr Ian Kille observed that, '*The presence of whinstone in the field clitter is somewhat puzzling as ice movement here would have been from north to south and all outcrops of whinstone are south of this area. It leaves open a highly speculative possibility that these stones were purposely moved at some point in history*' (Kille 2023).

R.P. Wright observed similar-sized whinstone blocks in his excavation of the Devil's Causeway at Brandy Well Hall. He described a sandstone layer of '*bottoming*' 23 ft. 9 in. (7.2 m) wide, topped by a '*massive upper layer, which was composed of whin-boulders averaging 10 inches (0.25 m) cube*' (Wright 1938, 354).

Excavations

Based on this evidence an investigation was begun in August 2023, initially by way of a series of test pits, to see whether any physical remains of the road might survive north of the river crossing. The location on a strip of pasture was chosen to avoid disruption to the arable field, and because of the presence of the blocks of stone in the north bank mentioned above. It was also hoped that land so close to the river might have escaped the attention of the plough.

In the first test pit a compact layer of stones was discovered at a depth of 0.7 m. This pit was extended and a further two pits were opened to the west in an attempt to locate an edge. All three pits revealed the same layer. Four metres from pit one - at the western end of the third pit - the depth of the layer was found to be increasing, perhaps suggesting the beginning of a camber.

When an mechanical excavator briefly became available, the opportunity was taken to open a larger trench 20 m north of the Berrington Burn in the border of the arable field. The trench was 6 x 1.5 m with an east-west alignment. Again, a compact layer of stones was found at the same depth as the test pits. These stones are on average slightly larger (0.1 - 0.3 m) than in the test pits and also differ in that the upper layers have a distinctive orange-yellow colour (Fig. 6.1). Ian Kille recorded that:



Fig. 6.1, Trench opened on MacLauchlan's line, 20 m north of the Berrington Burn. The top layers have been consolidated with orange-yellow coloured clay. (Ranging pole is 2 m; north is at the bottom of the picture) *© Bill Blyth 2023, licensed CC BY-SA*

'Almost all of the stones examined consisted of sandstone with one piece of shale and no limestone. Most were entirely angular, but a significant number were rounded and weathered in a manner that was consistent with material found in glacial till'. Regarding the colour of the surface, he observed that, 'the orange-yellow colouring is likely a product of the poor-quality clay found between the stones in the top layer. This colour of clay is typical of clays found in glacial till and appears to have been used deliberately as a material to bed the stones together providing a more resilient surface' (Kille, 2023).

The sandstone construction and absence of limestone - despite extensive limestone deposits nearby - is noteworthy. MacLauchlan observed a road parallel to his line across three fields at South Berrington but rejected it on the basis that it was formed from broken limestone, '*and it seems probable that there was no excavation made of that rock for the use of the road'* (MacLauchlan 1864, 45).

Although most of the surface has a random appearance there are a few areas that seem to show evidence of more careful hand-setting of the stones. The surface cambers down towards an eastern edge, but at the time of writing, the nature of the edge has not been resolved (Fig. 6.2). No diagnostic features have yet been discovered, such as kerbs or the central spine that was observed by Wright in his excavations at Edlingham and Bridge of Aln. It is interesting to note, however, that, at Brandy Well Hall, Wright found a combination of sandstone, clay and whinstone, but noted that the road *'lacked well-defined kerbs*' (Wright 1940, 65-74). It may be that the surface corresponds to that referred to by



Fig. 6.2, Facing west. Ranging pole is level showing camber and apparent edge. © Bill Blyth 2023, licensed CC BY-SA

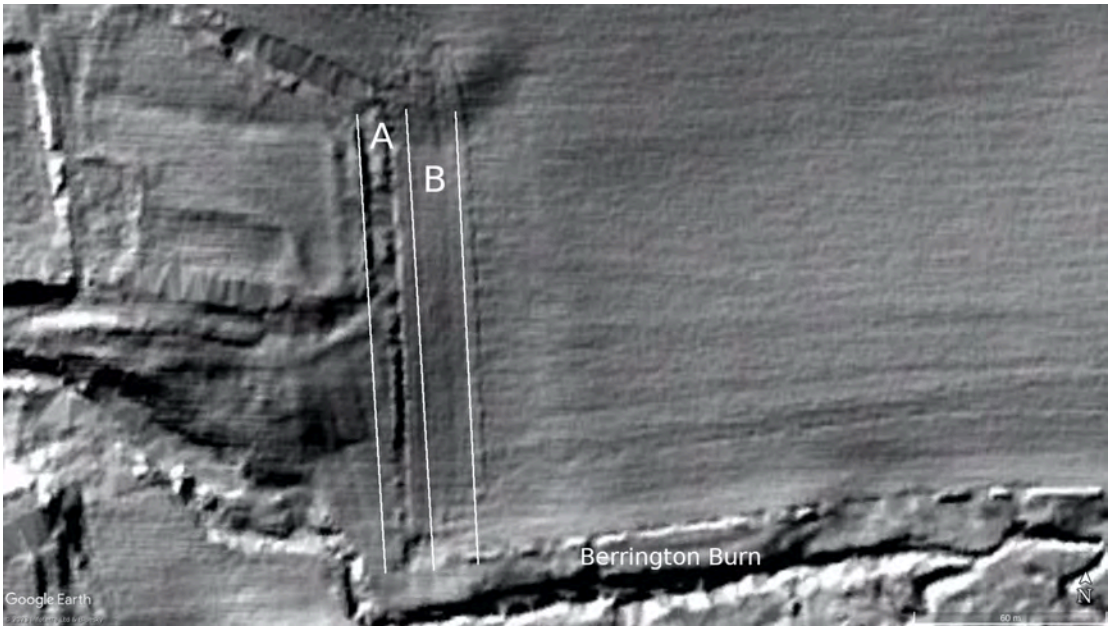


Fig. 7, lidar image showing a ditch (A) that that runs parallel to the line of the road (B) Basemap © 2023 Infoterra Ltd & Bluesky: Lidar © Esri, Intermap, NASA, NGA, USGS | Esri Community Maps Contributors, Esri UK, Esri, HERE, Garmin, Foursquare, GeoTechnologies, Inc, METI/NASA, USGS

Wright as '*bottoming*', with larger stones having been robbed out in antiquity. A more extensive excavation will hopefully reveal further details of the road's construction and width as well as any evidence of a bridge abutment.

In the lidar image of this location (Fig. 7) a ditch (indicated by 'A') can be seen to run parallel to the line of the road (indicated by 'B'). It is tangible beneath the vegetation on the east side of the fence and it would not have functioned well as a drainage ditch in the context of current ground levels. Resolving whether this feature is associated with the road might be an additional objective of future work.

Evidence for Post-Roman Continuity

Ridge and Furrow Alignment

The 150 metre section of fence line that marks the western edge of Big Field, just north of the Berrington Burn, is the only field boundary adjacent to the line of the Devil's Causeway between Lowick and Berrington that is parallel to it. There is another possible alignment at Scremerston Hill Farm, more than five kilometres to the north.

David Astbury compared the alignment of the Devil's Causeway in south-east Northumberland - between the rivers Tyne and Wansbeck - with that of surrounding field boundaries, tracks, and ridge

and furrow. He reported that he found there to be '*very little relationship between the two*' (Astbury 2010, 292). He went on to say.

> *'For most of its route through this study area the Devil's Causeway runs oblique to field boundaries and evidence for ridge and furrow'. In his judgement, 'the lack of this feature type showing any affinity in terms of orientation with the Devil's Causeway is a clear indicator that the road had ceased to hold any importance by the time medieval furlongs were being laid out. Stretches of the road can be traced beneath medieval furlongs, which carries the implication that the physical components of the road such as stone used for the drains on either side of the road had been robbed or largely cleared for practical purposes during the process of laying out and ploughing medieval furlongs'* (Astbury 2010, 297).

In view of this lack of alignment Astbury thought it likely that *'at least significant stretches of the Devil's Causeway went out of use sometime after the fourth century and the eleventh century AD'* (Astbury, 2010, 298).

Our site is outside of Astbury's study area, but if a similar picture holds true north of the Wansbeck, then it is interesting to note how the ridge and furrow furlongs in Big Field share the same orientation as the line of the Devil's Causeway. Does this suggest that the road continued to be important at the time the medieval field system was laid out at Berrington? There is some documentary evidence that would seem to support an affirmative answer.

Documentary Evidence

Among the muniments of Durham Cathedral is a document penned on the feast day of St. Gregory (March 12) 1348 (Specialia GB-0033-DCD 3.1 Spec. 41). It records a grant by Robert Manners, soldier and Lord of Berrington, to chaplains Dom William of Middleham and Dom Robert of Dalton. In exchange for the annual payment of a hewing axe Sir Robert pledges a *messuage* (dwelling) with a garden containing *a rod and a perch* (approximately half an acre) to the north of the '*villa de beringdon'*. The document describes the location of this property as being between the tenement of John, son of Thomas, on the east, and on the west side the '*regiam viam que vocat le Lonynges*' (the Royal Highway called the Loanings) (Fig. 8).

The term *regiam viam* or *via regia* appears regularly in medieval records, often in the context of boundaries. According to Robert Peberdy it was not so much a name as the designation of the status of a road and implied certain legal obligations.

> *'The description of the route as [a] royal way in the mid fourteenth century suggests that it was well-established and had possibly been regarded as a strategic line of communication. The term was applied to 'primary national routes' and to 'secondary routes' between market towns and between market towns and shire centres. It appears to have been introduced by the Normans, though designated royal routes existed in Anglo-Saxon England, probably for military purposes. In the early twelfth century the designation via regia indicated that a route led to a major centre, namely 'a city or fortress or castle or royal town'. Royal ways were under the king's jurisdiction, and compensation for assaults on royal ways had to be paid to the king. Royal ways had to be kept open – they could not be closed or diverted' (Peberdy 2012, 103).*

This, then, is a reference from the mid-14th century to a significant road with a north-south orientation (since it marked a western boundary) that is adjacent to the village at Berrington. We also

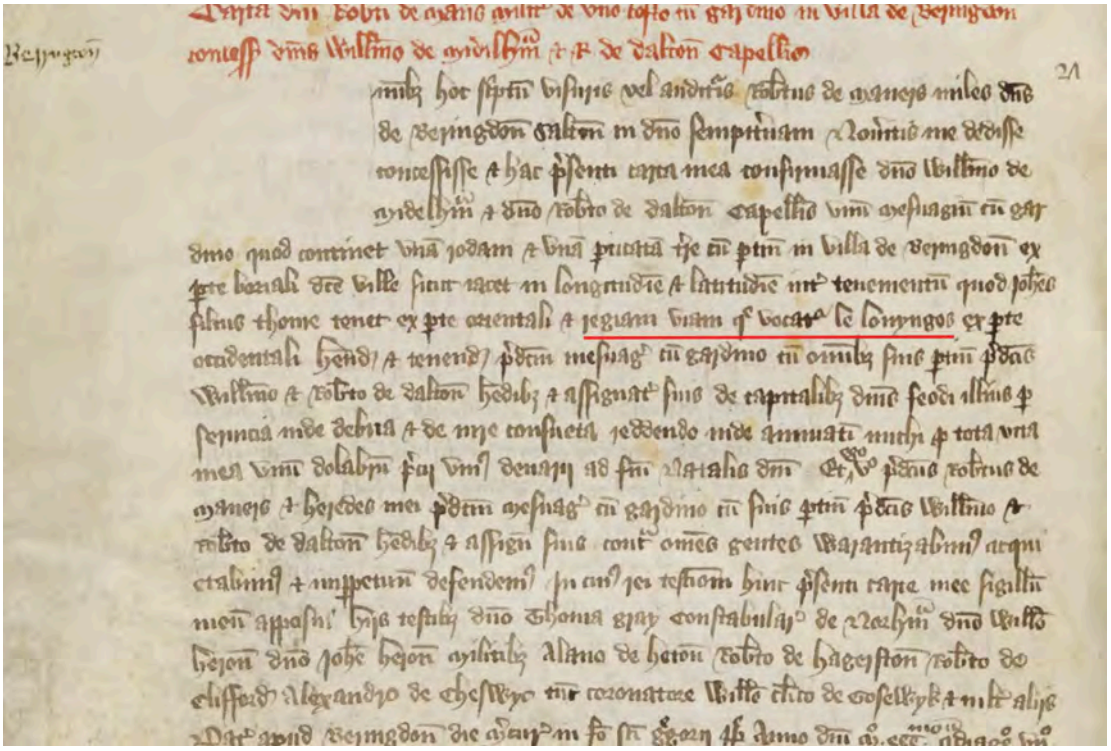


Fig. 8, Fourteenth century document that references a 'regiam viam que vocat le Lonynges' at Berrington. Provided by Durham Priory Library Project - a collaboration between Durham University and Durham Cathedral. CC BY-NC-ND 4.0

have evidence on the ground that the line of the Devil's Causeway was sufficiently influential in the medieval period to constrain the layout of the adjacent field system. The route led towards the major centre at Berwick-upon-Tweed, with its castle and harbour. It would seem reasonable, then, to identify the Roman road that became known as the Devil's Causeway with that referred to locally as the Loanings, and which held the legal status of a Royal Highway in the 14th century. Robert Manners' use of the designation *regiam viam* in the present tense suggests that the road was functionally, as well as physically, present at that time. While recognising the limitations of negative evidence, it may be worth noting that if the 'Lord of Berrington' was aware of the appellation Devil's Causeway he makes no reference to it in this document. As for the road's colloquial name, a section of the Devil's Causeway in the Hartburn area was also known locally as the *Harpeth Loaning* (Haycock 2021, 3).

Another example of a Roman road that went on to attain the medieval status of *Regiam Viam* can be found in a 12th century charter of King Malcolm IV that gifted the lands of the royal cook Gocelynton to the Monastery of Newbattle. The description of the boundaries includes the phrase, *'ad viam regiam que vocatur derestrete'* (as far as the Royal Way which is called Dere Street) (Curle 1911, 15).

If the destination of the Devil's Causeway in 1348 was Berwick-upon-Tweed - in English possession since the Battle of Halidon Hill in 1333 - the question arises about its southern terminus. Royal Highways tended to be long distance routes but how much of its original course was navigable in the 14th century remains a subject for further research.

Early Medieval Clues

When discussing a road built by Romans and known to still be in use in the medieval period, a question then arises about the intervening centuries. There is one written reference to the Devil's Causeway from the pre-Conquest period. The *Historia de Sancto Cuthberto* records a grant of land made by King Ceolwulf to Lindisfarne in AD 737. The description of the boundaries includes the phrase '*et ab Alna usque in dimidiam viam inter Cocwud et Alna*' (and from the Aln to the mid-point of the road between Coquet and Aln). Although there are differences of interpretation regarding the details of the boundaries, it is generally agreed that the *viam* referred to here is the Devil's Causeway '*therefore providing evidence of the road being in use in the 8th century*' (Haycock 2021, 25).

J. E. Albone addressed the once prevalent opinion that '*Roman roads were largely, if not completely, abandoned during the early Anglo-Saxon period*', and those that survive today are the few that were later reinstated (Albone 2016, 29). Albone argues that this view was based in part on the questionable assumption that there was little or no long-distance travel taking place in the 5th or 6th centuries to ensure that the roads continued in use:

> *'Increasingly, excavated evidence, particularly in the form of grave-goods from cemeteries, is demonstrating that early Anglo-Saxon communities had very wide communication and trade networks and that long-distance travel was likely to have been a regular occurrence for at least some elements of the population'* (Albone 2016, 29).

Citing Oliver Rackham, Albone states that roads only survive through continuous use and any road that is neglected soon becomes '*more impenetrable than if it had never been a road'* (Albone 2016, 30). In support of this hypothesis is the example of Sandyford Bridge, which carried the B6353 Berwick to Wooler road at Berrington until it collapsed during a storm in 1958; this was replaced by a new bridge nearby and a short section of the road abandoned. Just over six decades later it would be difficult to discover that a road ever existed there. Any road that fell out of use for many centuries would surely become beyond recovery. It seems probable then that the Devil's Causeway continued to be used as a route in the early medieval period at Berrington.



Fig. 9, Early Medieval strap end found in Big Field Berrington. © Bill Blyth 2023, licensed CC BY-SA

Deb Haycock has examined the influence of the Devil's Causeway on post-Roman settlement patterns and found that the etymology of place-names and the location of pieces of Anglo-Saxon sculpture were among the factors considered in locating potential sites (Haycock 2021, 17-24). It was observed that places where the road crosses rivers or burns frequently coincided with sites of continuous occupation.

There are a few hints of an early medieval presence at Berrington that could account for the continued use and maintenance of the road. Richard Lomas identifies Berrington, Kyloe and Low Lynn as an example of a pre-Conquest thanage that survived the reorganisation of the incoming Norman regime (Lomas 2005, 15). In his

Dictionary of English Place Names Eilert Ekwall writes that Berrington is derived from the Old English *byrig-dun* meaning a 'hill with a burg' (Ekwall 1935, 39). Mark Wood identifies the characteristic feature of a *burh* as a '*man-made landscape feature, generally a fortified place*'; as a place-naming element *burh* suggests a date of the 7th and 8th centuries (Wood 2007, 267-69). Regarding the second naming element *dun,* he cites Margaret Gelling, who suggests it was '*probably used in the formation of settlement names from the beginning of the Anglo-Saxon period and into the 8th century but was not commonly used for settlement naming after 800 AD*' (Wood 2007, 308). Wood cites Berrington as an example of a place that combines these two naming elements (Wood 2007, 269).

An Early Medieval strap-end has been found in Big Field (Fig. 9). Similar examples recorded by the Portable Antiquities Scheme fall within a date range of AD 750-95. In 2023 a recycled window head of early medieval date was discovered in the wall of an 18th century barn at Berrington within metres of the projected line of the Devil's Causeway (Allason-Jones 2023).

Roman Small Finds

The Romans who travelled along the road left behind a few tokens of their presence that were rediscovered by metal detecting in Big Field and one adjacent field. Lindsay Allason-Jones has kindly contributed the following descriptions of these objects.

(Fig. 10.1) Part of a terret (a rein ring for a yoke) with circular-sectioned hoop, which narrows from the base. The centre has a double lipped projection. The base is hollow with a large elliptical hole; the integral strap bar is missing. This falls into the category of 'massive terrets', the double-lipped projection being typical of the type. Most massive terrets have been found in the North of England or Scotland, with a preponderance from Aberdeenshire, although some are known from Wales. Parallels found in closest proximity to Berrington are from Corbridge (MacGregor 1976, no. 115) and Eyemouth (MacGregor 1976, no 119), which may be described as being at either end of the Devil's Causeway. MacGregor has suggested that this type was '*devised by British craftsmen, working under Continental influence sometime between the late 1st and the mid-3rd centuries A.D.*' (MacGregor 1976, I, 48). W: 67 mm, Surviving H: 44 mm, Max. Th: 22 mm.

(Fig. 10.2) Circular pendant stud with a bevelled flange surrounding the hollow, domed centre. There are incised concentric lines on both the flange and the dome. The attachment is flat with a flared end and 5 mm circular hole. These would have been attached to the body straps of harness to carry heart-shaped pendants. Although the majority of such studs are hexagonal in shape, circular studs are known in Roman military contexts in the 3rd century AD. They are particularly common along the German limes, see Oldenstein 1976, 137-8, but are known in Britain. Diam: 38 mm, L with loop: 41 mm, H: 14 mm.

(Fig. 10.3) Pendant terminal? Crescentic loop with a bulbous shaft and part of a second open terminal. This would appear to come from a swivel, possibly from a cauldron, although those elements are usually of iron. Roman? Total L: 15 mm, Max. Th. of shaft: 14 mm.

(Fig. 10.4) Flared oval head of a small trumpet brooch with a circular-sectioned bow. Traces survive of the double lug hinge mechanism. This is a common type of bow brooch, dating to 75-200 AD. It is slighter than many trumpet brooches and would not have been strong enough to hold a cloak, but



Fig. 10.1, above left, terret ring (rein guide), late 1st to mid 3rd centuries AD. © Bill Blyth 2023, licensed CC BY-SA. Fig. 10.2, above centre, harness decoration, mid 3rd century AD. © Bill Blyth 2023, licensed CC BY-SA. Fig. 10.3, above right, pendant terminal, identity uncertain. © Bill Blyth 2023, licensed CC BY-SA



Fig. 10.4, above left, part of a small trumpet brooch AD 75-200 © Bill Blyth 2023, licensed CC BY-SA. Fig. 10.5, above centre, three of eleven domed studs found at diverse locations within the vicinity of the road. © Bill Blyth 2023, licensed CC BY-SA. Fig. 10.6, above right, coin probably of Antoninus Pius AD 138-61 © Bill Blyth 2023, licensed CC BY-SA



Fig. 10.7, lead steelyard weights; typically Roman in form. © Bill Blyth 2023, licensed CC BY-SA

may have been worn in a soldier's cravat or as one of a pair to fasten a woman's tunic. They are mostly found in military contexts. For type and dating, see Mackreth 2011, 114-6. Surv. H: 15 mm, W of head: 13.5 mm.

(Fig. 10.5) Eleven copper alloy domed studs. Five have rectangular-sectioned, slightly tapering shanks *in situ*. Two have circular holes roughly pierced from the outside in the middle of the domed head but with no trace of the shanks. Three have a small section of rectangular-sectioned shanks *in situ*. Although they are mostly now corroded, one still retains a polished surface to its dome. It is possible that these are Roman in date, as they are a type found on Roman sites, but this type of domed stud has a very long period of use so dating them out of context is not possible. Diameter: 21- 30 mm, length of only complete shank: 20 mm.

(Fig. 10.6) Very badly worn AE2 coin, probably of Antoninus Pius (138-161 AD). The obverse has an emperor's head facing right in full profile; the reverse is too corroded for identification.

(Fig. 10.7) Two of three lead steelyard weights with integral iron suspension loops. The biconical shape is typically Roman in form.

Conclusion

In summary, this paper is making two propositions. Firstly, that physical remains of the Devil's Causeway still exist at Berrington, and secondly, that it continued in use as a significant highway into the mid-14th century.

Various lines of evidence point to the presence of the road and to its exact location. A small assemblage of finds consistent with a military context are suggestive of Roman activity. Henry MacLauchlan's memoirs are particularly precise at Berrington. His putative line is supported by cropmarks that are visible in aerial photography and with features that are revealed by lidar. Stones of a type and size that are known to be consistent with the road were found in the plough soil. Finally, an excavation targeted on this line uncovered a compact surface of sandstone. More work remains to be done; however, it seems reasonable to propose that the most northerly sighting of the Devil's Causeway can be moved a further 30 kilometres towards the Tweed.

References to the Devil's Causeway in the post-Roman period are relatively rare so the mention of a major road at Berrington in the mid-fourteenth century is potentially an important piece of data. Its status as a *Regiam Viam* and the record of its colloquial name are useful pieces of information that add to our knowledge of the road's history.

Further investigation will hopefully resolve unanswered questions such as the construction and width of the road, the possible presence of kerbs and the nature of the river crossing.

At other locations, such as Piercebridge, a number of small finds have been recovered from river crossings (Eckardt and Walton, 2021). Further searching in the Berrington Burn may also reveal clues about the lives and practices of the people who briefly occupied this distant corner of Roman Britain.

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A proposal for numbering non-standard Roman roads in Britain

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Earlier in this volume is a paper, *Viae Vicinales in the North-east Midlands* (Haken 2024), detailing the results of a recent study which aimed to identify the legal classifications of roads, being mainly either *viae publicae* or *viae vicinales*. Traditionally, a Roman road in Britain has always been defined by its morphology, being setting out in straight lines and utilising a raised agger and flanking ditches. One unexpected result of the study was the identification of a group of roads which formed an important part of the regional road network in the Roman period, but which do not conform to the standard morphology usually associated with Roman roads. These roads are sinuous and not set out in a series of straight lengths. The one feature they appear to share with 'typical' Roman construction is the use of a raised causeway, but other than that little is known of their construction since none have ever been subject to archaeological excavation.

Most of these roads are ridgeways and have been previously recognised as potentially of the Roman period but have been disregarded by many writers and scholars simply because they do not confirm to the accepted morphology of a Roman road. Three (i.e. Middle Street, Pottergate & Sewstern Lane) were included by O.G.S. Crawford as elements of his version of the supposed long-distance trackway, the Jurassic Way (1954, 81-5, fig. 8), as did his colleague C.W. Phillips two decades earlier (1933, 148). Their reputation as early roads has suffered as a result, the Jurassic Way as a long distance route being debunked by Christopher Taylor, at least in Northamptonshire (1979, 33-6). When considered individually however, the evidence for their use in the Roman period is extremely strong.

This small group of roads in the North-East Midlands are almost certainly all *viae vicinales*, having the primary function of linking together two or more nucleated or agglomerated settlements together. It seems clear that whilst they have morphological differences from other *viae vicinales* built in typical Roman fashion, and possibly a slightly different function, they are no less important than the *viae vicinales* of more 'typical' Roman construction.

It is also clear that at least some of these roads (in particular High Street and Sewstern Lane) were constructed during the Roman period, since their purpose is clearly to link Roman period settlement. That said, the possibility that some may be earlier cannot be entirely ruled out, since each one connects at least one settlement with known late Iron Age origins, suggesting the possibility that there may be a degree of cultural continuity in the techniques utilised for their planning and construction. It is also worth noting that in some cases the roads seem to skirt around a settlement rather than running directly to it, possibly suggesting that the settlement came first.

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Clearly, these roads cannot be regarded as being the same as other 'Roman roads' and therefore numbering them in exactly the same way would be potentially misleading, especially as some may date from the late Iron Age. Despite the differences, these roads were a vital part of the transport network of the Roman period, and just as important as many other 'typical' Roman roads; High Street, linking the Roman small towns of Horncastle and Caistor with the Humber estuary, is perhaps the best example of that. Not numbering these roads and omitting them from mapping (as the current Ordnance Survey Roman Britain map does) would be just as misleading as numbering them like all other roads. It is therefore proposed that the simplest solution to the problem is to maintain the RRRA's established protocol for awarding new Margary numbers, numbering these roads as if they were conventional Roman roads (Armstrong 2021) whilst applying a different prefix. Where a conventional road would have the prefix RR (for Roman road), these sinuous *viae vicinales* would have the prefix RBW (for Romano-British way). Using this model, High Street retains the number awarded by Margary and becomes RBW270. In the case of Middle Street (part of the fictional Jurassic Way), which runs parallel to Ermine Street, it follows Margary's method for roughly parallel roads and adopts the number of the main road but with a double suffix, so is numbered RBW2dd(x).

Under this proposal, to qualify for an RBW number a road must satisfy all the following criteria.

1. The evidence supporting at least one segment must be enough to justify a status of 'known'. This does not have the same requirements as the protocol suggested for use by the RRRA for 'typical' Roman roads (Haken 2021, 297), however it must be a demonstrable road.
2. The road must be generally sinuous or winding, and not be set out in straight lengths. Straight lengths may be permitted only if they are clearly the result of post-medieval alterations, usually as a result of Enclosures Acts.
3. The road must be shown to terminate at a Romano-British nucleated or agglomerated settlement bigger than 3.5Ha in area, excluding farmsteads and villas.

At this stage, this is a proposal, although it has been used in the aforementioned paper earlier in this volume. Whether or not similar roads can be identified elsewhere in Britain is yet to be demonstrated. Should that happen, it is always possible that in other regions the morphology may display further variations however the same basic principles should still apply. Having the protocol already in place will allow us to number a sinuous *via vicinalis* just as we would any other road.

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Roman Roads in 2023

Collated by Dave Armstrong

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This section of *Itinera* briefly describes recent work on Roads roads, often in advance of formal reporting, in a similar style to the regional roundup in Britannia. This data has been assembled by RRRA members in the local areas listed below and then collated by Dave Armstrong. For inclusion in future volumes, please contact the relevant correspondent with any news via the mail address above. Data has come from enquiries to the relevant HERs and to local Archaeological Societies and we appreciate the help that has been willingly given, often while busy themselves.

Local correspondents

Neil Buckley;	Cheshire, Derbyshire, Greater Manchester and Lancashire,
David Brear;	Yorkshire and Lincolnshire,
Richard Hucker;	Dorset,
Neil Godfrey & Eric Rose;	Wiltshire,
Elliott Mouelhi & Neil Godfrey;	Somerset,
Paul Smith;	Shropshire, Staffordshire, Warwickshire and West Midlands,
Geoff Lunn;	Essex, Suffolk and Norfolk,
Delwyn Matthews;	Devon and Cornwall,
Paul Seddon;	Oxfordshire,
Keith Abbott;	Berkshire,
Nigel Rothwell;	Buckinghamshire,
Chester Forster;	Cumbria,
Robert Matusiewicz;	Nottinghamshire, Leicestershire and Rutland,
Dan Murphy;	Glamorgan and Gwent,
John Byde;	Gwynedd,
Colin Adams;	Dyfedd,
Greg Morris;	Clwyd and Powys,
John Ashcroft;	East and West Sussex, Chichester,
Chris Webb;	Gloucestershire, east of the Severn,
Ian Dean;	Gloucestershire, west of the Severn,
Matt Sparkes;	Surrey and Greater London,
Ian Jardine;	Herefordshire,
Wayne Kirk and Dave Haywood;	Northamptonshire,
John Fare;	Worcestershire,
Mike Luke,	Bedfordshire,
Paul Morris;	Scotland,
Dave Armstrong;	Durham, Northumberland and Tyne and Wear, as well as assisting with Cambridgeshire and Hampshire.

We are also grateful for contributions from Richard Whaley (NEHHAS), Simon Maddison (work around the Chepstow Bridge) and Ryan Smith (lidar survey in Cornwall).

Summaries, on the following pages, are arranged first by Country (i.e. Scotland, Wales and England), and then in alphabetical order by county.

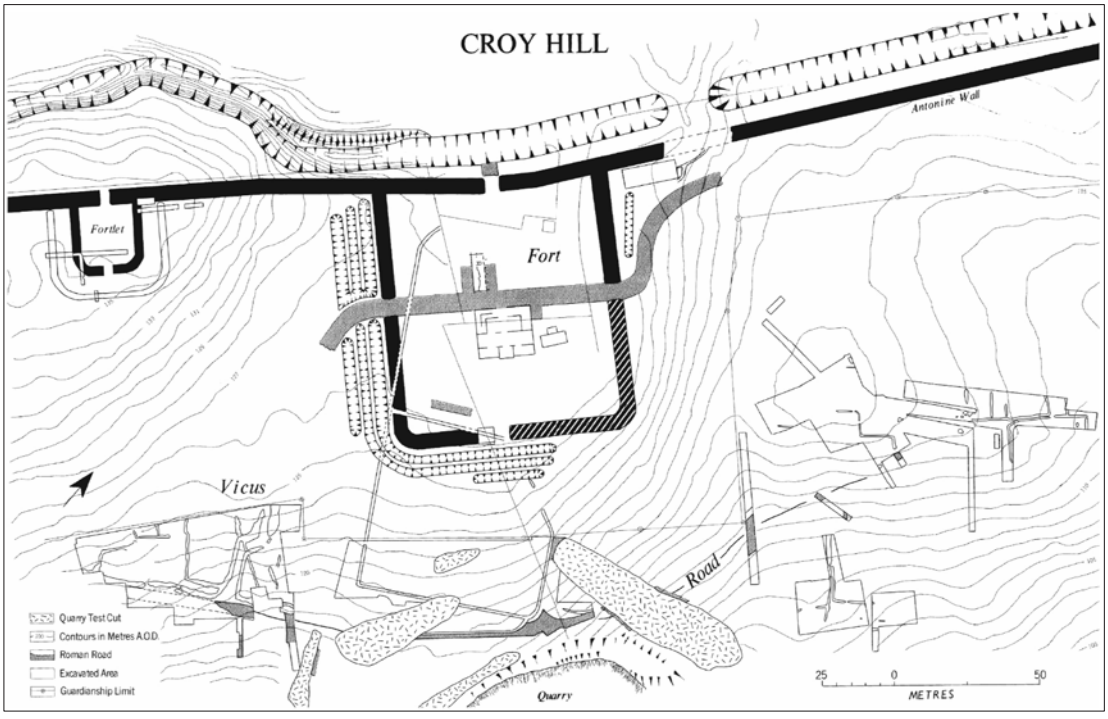
Researchers can follow the links or contact the appropriate HER, commercial unit or Society direct.

Scotland

North Lanarkshire, Croy Fort, RR90, NS 73372 76537
Summary by Paul Morris

Excavations outside the Roman fort on the Antonine Wall at Croy Hill were conducted between 1975–8. A report on this activity was published in 2022 in the Scottish Archaeological Internet Reports series, number 98.

The report provides detailed analysis of the digs carried out at the site of the Croy Hill fort, situated on the Antonine Wall. As well as a comprehensive breakdown of finds at the site, the report confirms the location and route of the Military Way (Margary RR90) and contains illustrations and



Plan of Croy Fort showing the course of the Military Way, RR90, and the fort bypass through the vicus.
Illus. 1.2 (p.4), William S Hanson 2022, CC BY-NC 4.0

photographs of the route at this location. It also provides evidence for a "bypass road" to the south of the fort, with an associated *vicus* to the north of that bypass road.

The road system to the south of the fort was investigated at various points during the four seasons of excavation, revealing at least two phases of bypass road and a connecting link to the south gate of the fort.

The bypass road was traced for a total distance of some 275m, firstly immediately to the south of the pre-fort enclosure, then to the east of the fort as the road swung north-east to rejoin the Military Way, and finally to the south-west of the fort as it headed up the slope in the direction of the alignment established by Macdonald (1934: 144) and defined by the local topography.

The existence of a bypass road leaving the line of the Military Way some 300m west of the fort had originally been established by Glasgow Archaeological Society's Antonine Wall Committee (1899: 67) and its line confirmed by Macdonald (1934: 144–5). This excavation traced it intermittently over a distance of some 275m, looping round to the south of the fort before heading back up the slope towards the Military Way on its east side. The bypass road was both important and well used. This was indicated by wheel ruts, resurfacing and realignment, as well as a relocation to follow a slightly more northerly route around the south of the fort when the earlier line was partially washed away.

Source: Hanson, W. S. 2022 'Excavations outside the Roman fort on the Antonine Wall at Croy Hill, 1975–8', *Scottish Archaeological Internet Reports 98*. Also available at <https://doi.org/10.9750/issn.2056-7421.2022.98**>.**

South Lanarkshire, RR78a

Summary by Paul Morris, work by Headland Archaeology (UK) Ltd

In Clydesdale, an analysis of the site of the archaeology of the Clyde Wind Farm. A report on this activity was published in 2022 in the Scottish Archaeological Internet Reports series, number 104. The report is a wide ranging publication, with limited references to Roman Road investigations. The work on Roman Roads remains speculative, though it covers Margary RR78a. Much of the possible route of the Roman road is beneath the current A702. The report does evidence possible Roman quarry pits, near Woodend (pictured), however these are not visible in a lidar search. The work, however limited, is informative and corroborates RR78a.

Source: Cox, S & Marshall, N 2023 '"Sae lofty and wide": the archaeology of the Clyde Wind Farm', *Scottish Archaeological Internet Reports* 104. Also available at <https://doi.org/10.9750/issn.2056-7421.2023.104)>.

Leadhills, NS 9376 1394

Summary by Paul Morris, work by Clyde Archaeology

An assessment of the historic environment was undertaken in August 2022 as part of a proposed forestry planting near the village of Leadhills (NS 9376 1394). The proposed planting area covers some 1,732ha. Through desk-based research and field surveys, David Sneddon of Clyde Archaeology noted a number of non-designated sites within the search area, which also includes five Scheduled Monuments. Among these finds was included "Roman remains in the form of a possible route of a road". A lidar search by your correspondent, using the National Library of Scotland side by side search <https://maps.nls.uk/geo/explore/side-by-side/>, proved to be fruitless, due in part to incomplete lidar coverage.

Summary report in Discovery and Excavation Scotland, Vol.23, 2022, p.163

Manor Powis, site of suspected Roman Fort NS 82753 94833

Summary by Paul Morris.

In 2024 an archaeological dig, of potentially national importance, will be undertaken at a site between the town of Alloa and the city of Stirling. A previously unidentified Roman Fort has been located on 18th century mapping. The site of the potential fort, on the north bank of the River Forth, south of the Dumyat hillfort of the Maeatae tribe, would link with known roads in the Bridge of Allan and Stirling area. The investigations will be led by Dr Murray Cook and attended by your correspondent.



Extract from the Stobie 1783 map, also available at <https://maps.nls.uk/view/216443031>. Reproduced with the permission of the National Library of Scotland under (CC-BY) licence.

Drip Ford, Stirling, RR9a, NS 76988 95603

Summary by Paul Morris.

In 2023 a discrete archaeological dig, led by Dr Murray Cook, was undertaken in a garden near to the River Forth to the west of Stirling at an area known locally as Drip. This location has been, for centuries, a crossing point of the Forth and to this very day carries road traffic over a bridge.

The purpose of the dig was to confirm the location of the crossing at Drip, part of Dere Street north from England and leading to the Roman Gask Ridge in Perthshire and beyond. Dr Cook has conducted extensive research into the crossing points of the River Forth and tributaries and has been published on the subject of river crossing points on the Forth. The following text, setting context for the find, has been included with Dr Cook's permission:

> '*The precise direction of the Flavian invasion north of the Forth is uncertain as is the location of the roads between Stirling and Doune and Ardoch (e.g. RCAMS 1963: Vol 1, Figure 4; Hanson & Maxwell 1983, inside*



Small trial trench showing cobbled surface at the bottom. Those involved; left to right, Peter Dunn, Jennifer Strachan and Dominic Farrugia.

> *cover; Hanson 1991, 31; Hanson 2003, 196 & 199). Additionally given the limited duration of the Roman occupation some forts may never have roads to them (Maxwell 1989, 5-6), this may also suggest a reliance of fording points and fords rather than bridges. Prior to the discovery of Doune fort (Maxwell 1984) [recorded in Itinera Vol. II] it was generally assumed that the Roman road travelled along the Allan Water (Crawford 1948:19; RCAMS 1963Vol I:53; and Maxwell 1990:353). However, the details of this route were undefined and it could've crossed the Forth in a number of locations. The RCAMS (1963:115) hypothesised a Roman road to Bochastle, Callander with a Forth crossing over at Drip. This was based on two antiquarian accounts (Nimmo 1880 Vol I: 2; Tait 1794:277). Gray's (1845:1264) describes an apparent Roman road near Ochtertyre called "Staniegates".'*

After Doune fort's discovery, Maxwell (1989, 72 & 113) argued that the Roman road led to Doune and then to Ardoch, which would have involved crossing first the Teith and then the Allan Water. Breeze also followed this model (2006, 54) though not Keppie (1998, 148). Woolliscroft and Hoffmann note that it's unclear if a road ever went to Doune (2006, 85). Maxwell (1989, 72) implied a crossing at Drip, then the Teith at Doune and finally the Allan Water, the latter two of which are easily crossable in Summer. Woolliscroft and Hoffmann (2006, 2) suggested a potential bridgehead or harbour at Doune. At present there is no firm evidence for either the use of bridges or fords on the Gask Ridge (Woolliscroft & Hoffmann 2006). However, both bridges and fords were likely to be used and Bailey

(1996, 2021) suggests a mixture of both on the Antonine Wall and they are recorded across the British Roman road network (Davies 2002).

The location of this ford offers the tantalising prospect of confirming the references to Roman roads within the Statistical Accounts for Stirling, dating as far back as the late 18th century, through further research in the years ahead.

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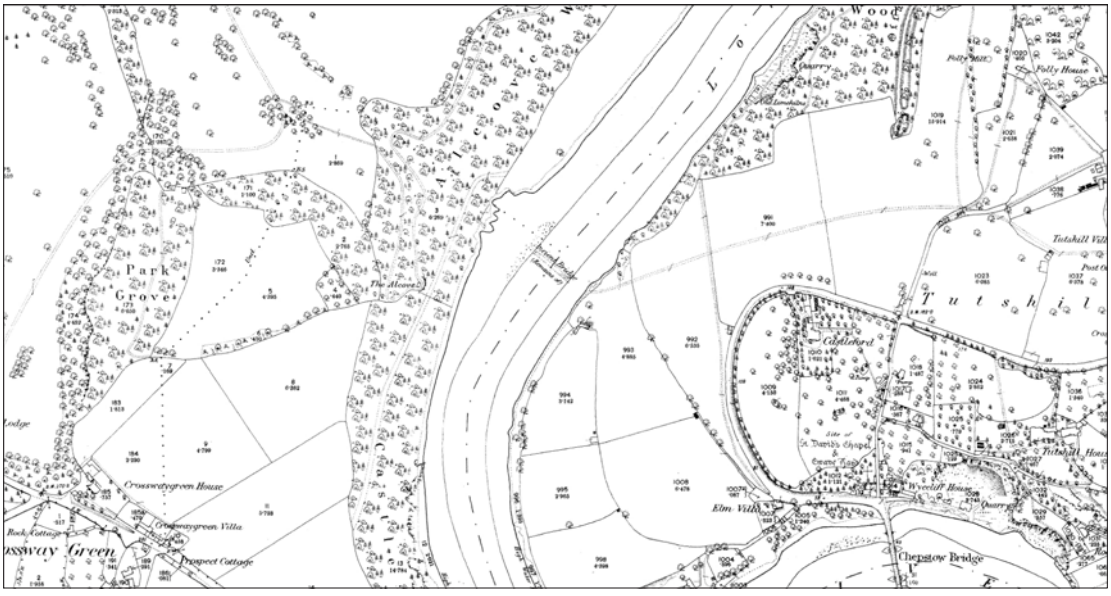
Wales

Monmouthshire

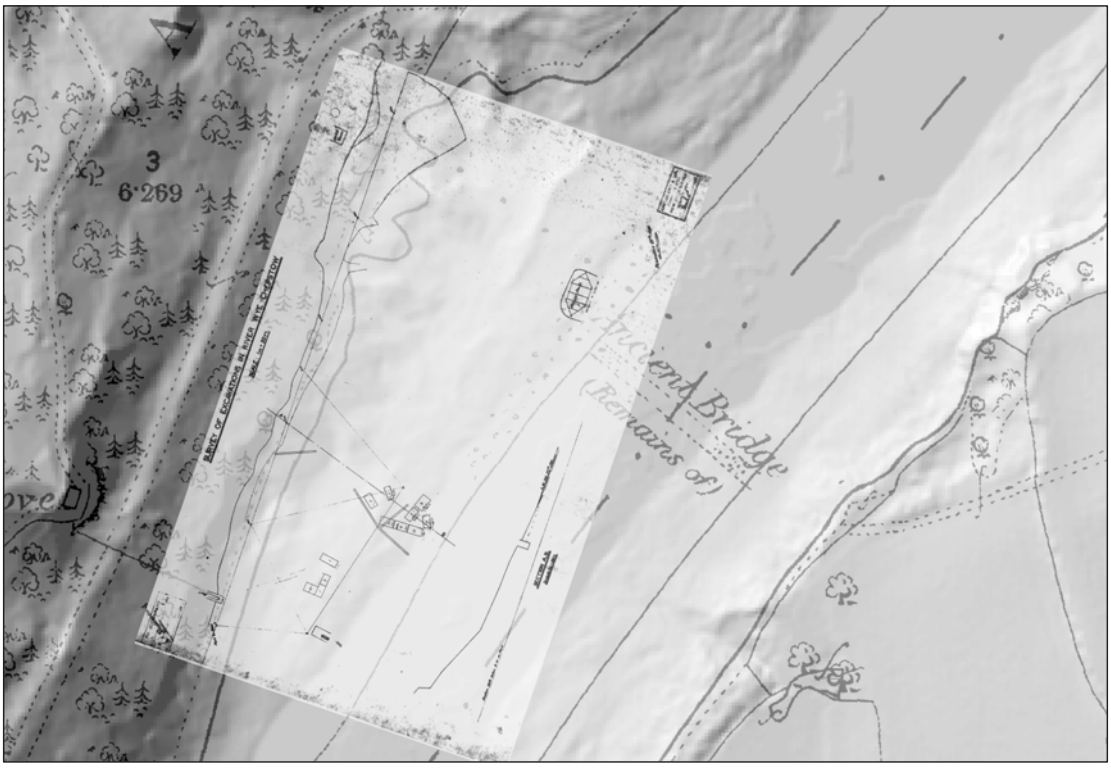
Evidence for a Roman River Wye crossing near Chepstow

Summary by Simon Madison of Chepstow Archaeological Society; Monmouthshire Antiquarians

Grid Reference ST 53171 94758. Excavations were conducted on the Welsh side in 1910-11 which uncovered a likely bridge pier. This was quite well recorded, and there is an approximate location for it from georeferencing the drawing made at the time. This is a little above the low water line, and it would be a bonus if we were able to corroborate its location. The English side at Castleford was investigated by the Time Team spin off Extreme Archaeology in 2003/4. Access is extremely difficult and potentially hazardous in the soft silt and mud at low tide. There is a recording of the programme, and some still images have been taken from it, but the investigation was never written up. We



OS1881 map, showing 'Ancient Bridge (remains of)', with the roadway shown as a track on the (right) Gloucester side.



The 1911 plan georeferenced and overlaid on lidar and the OS1881 map, showing the bridge pier location to be close to the line of the bridge lidar data, © Environment Agency copyright and/or database right 2020. All rights reserved

therefore have an approximate idea of the location only – within say 50m or so. The C14 report made at the time has been located and gives a date range of 50BC to 126 AD (at 95% probability) and 35BC to 107 AD (at 68% probability).

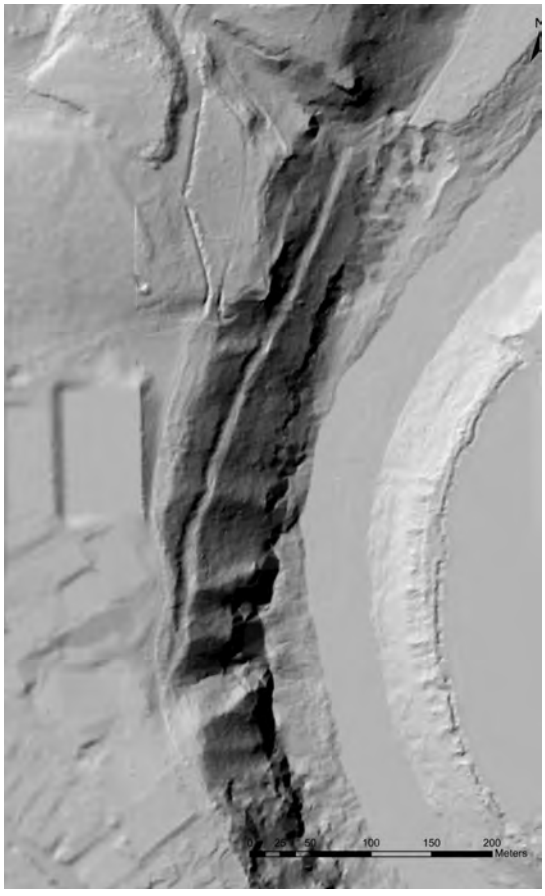
This clearly puts this particular feature within the Roman era, and strongly supports the theory that what was found was a Roman construction and likely a bridge pier based on other evidence. The Extreme Archaeology team undertook a sonar survey around the site and identified what was a possible feature in the middle of the river that could be the foundation of another bridge pier. The wooden structure at the Castleford end also looks as though it could be the foundation of a bridge pier. It appears at very low tide and is not much above the low water line. Even if it is covered by shallow water it might be possible to recognise it if any timbers extend above the water level by probing with rods.

Investigations in Alcove Wood

Summary by Simon Madison of Chepstow Archaeological Society; Monmouthshire Antiquarians

The Welsh side of the approach to the bridge above is through the wood covering a severe slope. Lidar has revealed that a terrace pathway approaches to the approximate position of the bridge.

A number of trenches and test pits have been opened up along the course of the terrace to determine if it has any Roman features or otherwise to see if this is a Roman road or a later structure.



In summary, the test pits have shown evidence for the trackway at key locations along its length, but also demonstrating a variety of construction techniques, which have been adapted to the particular conditions. At the lower sections, a terrace has been hacked out from the underlying rock, the quarried material then used to build out the outer part, with a significant quantity of sandy clay and crushed gravel. The source of the latter is not clear.

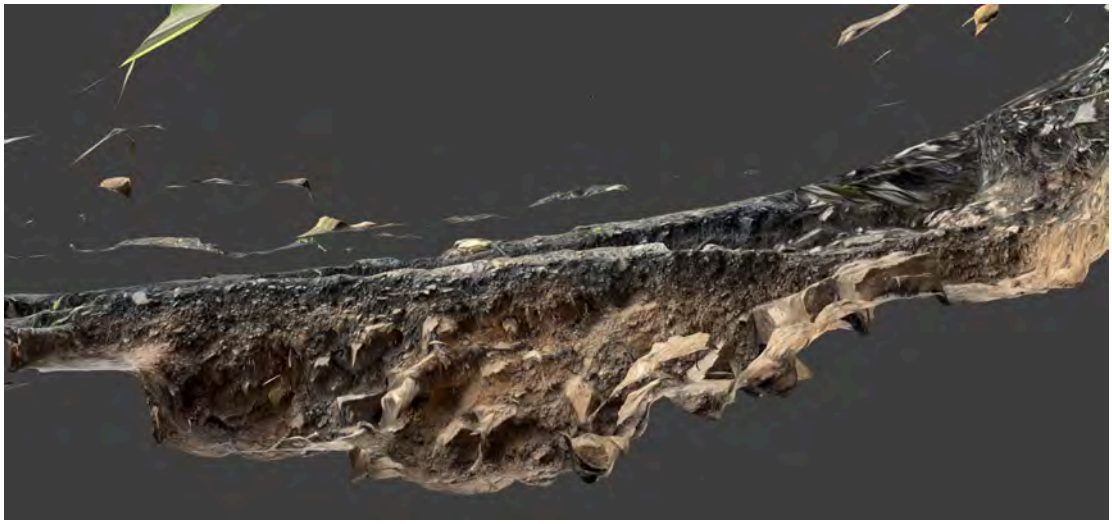
Further up, at Test Pit 4, a rock bluff has been cut through leaving an exposed rock surface which we presume would have crossed the full width of the track.

At the location of Test Pit 3, a terrace has been cut again, with metalling laid directly onto the quarried surface, and the outer part once again made up of quarried material and sandy clay.

At the top of the track, cobbles have been laid over packed clay and sand.

Work is continuing.

Left: Lidar visualisation of the terraceway through Alcove Wood, lidar data, © Environment Agency copyright and/or database right 2020. All rights reserved. Below: 3D scan of trench 1.





Trench 1 and 1x in plan. 3D scan. South to the top.

Bedfordshire

Summaries by Mike Luke, (The HERs and Archaeological Officers at Bedford Borough Council and Central Bedfordshire Council were contacted and all contributed in one way or another to these summaries)

Due to limited previous entries on Roman roads in this county this summary presents an overview of evidence for Roman roads in Bedfordshire over the last decade, rather than just focusing on new evidence uncovered in 2023.

Numerous Roman roads have been proposed by Margary (1967, map 7a) for Bedfordshire; one of the smallest counties in England. These were, in part, based on the dozen or so (totaling 145km by length) proposed by a group of Roman archaeologists operating in the south-east Midlands known as The Viatores (1964) of which Margary was a member. The evidence proposed by The Viatores for roads usually comprised straight lengths of modern road or tracks, straight hedgerows and parish boundaries, and visible earthworks. This evidence was examined by Angela Simco, of Bedfordshire HER, who dismissed all but a few because many of the modern roads and hedgerows were only created at the time of Enclosure (1984, 78 and fig. 68). Of course, Simco was only dismissing the evidence available at that time and was not necessarily saying that all the roads proposed by Margary and The Viatores in Bedfordshire did not exist. For example, of the dismissed roads, there is now good evidence for the existence of the southern part of RR170a within the county (see below).

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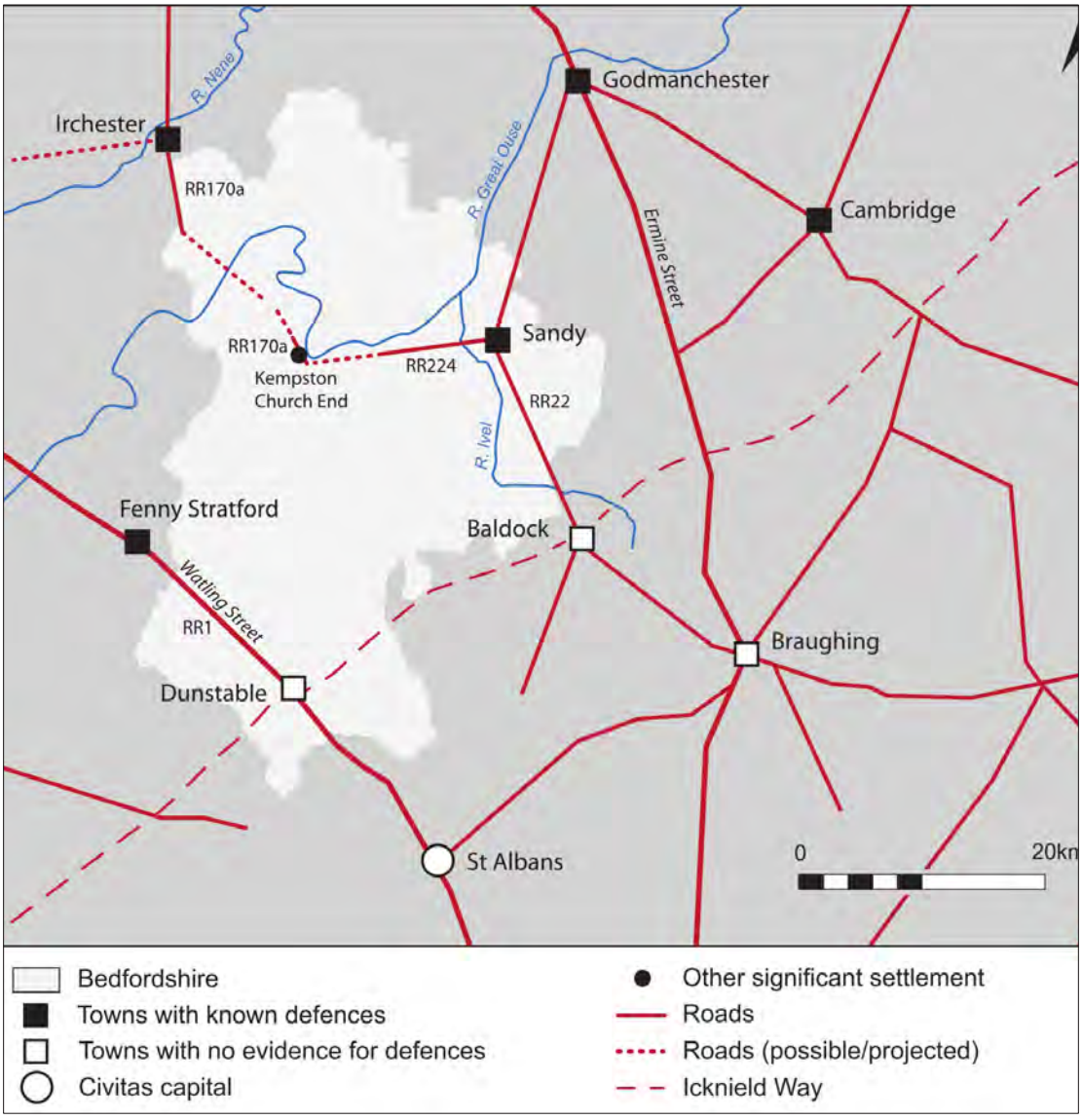
The Viatores, 1964: *Roman Roads in the South-East Midlands*, London: Victor Gollancz Ltd

RR1 (Watling Street)

Despite some extensive archaeological investigations near its route, north of Dunstable, no new evidence has been found directly associated with this Roman road. This is likely to be because the road underlies the present A5 trunk road.

RR22 (Braughing to Godmanchester)

There is now a better understanding of the route of this road through the Roman ‘small town’ at Sandy (Luke 2024). Although its route away from the town to the north-east is clearly preserved in present-day field boundaries, its course through the town has been a matter of speculation for some considerable time (Viatores 1964, 235–6, 473; Johnston 1974, fig. 1; Dawson 1995, fig. 15.2).



Map showing the Roman roads of Bedfordshire plus adjacent area.

In 2018, the course of RR22 was traced for 320m as a linear geophysical anomaly and also confirmed to be present within three trenches, within an evaluation undertaken adjacent to the present day Potton Road and Swaden (Albion 2019). The road was up to 12m wide with make-up layers and surface comprised of compacted gravel, clay and silt. It was sealed by *c.*1m of colluvium which probably explains why it had not been previously identified, for example, in 1955 when pipe trenches adjacent to Potton Road were observed (Viatores 1964, 235; Johnston 1974, 39).

Projected to the south, the road's alignment corresponds with road-like linear anomalies found by geophysical survey in 1996 at Woodside Farm, but at the time these were interpreted as streets within

the town rather than as RR22 (GSB 1996, fig 4). In places the anomalies were defined by parallel ditch-type anomalies *c.*9m apart.

To the south of Roman Sandy, early evidence from a single trench at The Bungalow was used to suggest that the road lay *c.*50m east of present-day Stratford Road (Viatories 1964, 237). While these remains may represent a road, its projected course does not correspond with a broad linear cropmark which continues the line of the road-like geophysical anomaly found at Woodside Farm. Therefore, based on the current evidence, it seems likely that RR22 underlies the southern part of present-day Stratford Road.

Approximately 3km to south of Sandy on the northern outskirts of Biggleswade, the road may have been detected as two parallel linear anomalies *c.*16m apart within an evaluation undertaken by Oxford Archaeology (as previously reported in *Itinera*, 2021, 327–8). In the same area two parallel cropmarks are visible on a Google Earth aerial photograph dated June 2009.

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RR170a (Irchester to Bedford area) See also Northamptonshire.

Only the southern part of this route identified by The Viatores (1964, 290–293) is situated within Bedfordshire. At the time of The Viatores' publication, the only firm evidence for the existence of this road was in Northamptonshire near the Roman 'small town' at Irchester (between modern Rushden and Wellingborough). However, over the last thirty years a number of investigations have identified a Roman road in the vicinity of the large settlement around Kempston Church End (to the west of Bedford) which is likely to be RR170a.

The road has been traced for 1km through the Kempston Church End Roman settlement and is *c.*350m east of the route in this area than that proposed by The Viatores (1964, 149, 419). Within the settlement it has been examined within three different developer funded investigations: one associated with the construction in 1990/91 of a major sewer (Dawson 2004, 160, 179, fig. 5.81), another within the Bedford western bypass corridor in 2006 and the third, in a pipe trench in 2009 associated with adjacent housing development (both published in Luke 2016, 219–221).

Where RR170a was examined within the settlement it comprised a *c.*4–6m wide cambered metalled surface, in places with a narrow limestone core, that had been resurfaced on a number of occasions (Dawson 2004, 160; Luke 2016, 221, plate 5.11). Side ditches were evident *c.*7–10m apart and these had been re-dug on a number of occasions often resulting in the narrowing of the road width.

To the north of the Kempston Church End settlement the road could be traced for *c.*300m as two parallel cropmarks *c.*9m apart (now under the Box End lakes). The route around Harrold and Carlton has been studied by Matt Tuohy (HER officer at Bedford Borough *Council*) who has suggested, based partly on historic trackways, a number of alternative routes to that suggested by The Viatores, but these have not been tested by excavation. The route to the south-east of the Kempston Church End settlement is unknown as it would be situated under modern Kempston. However, it is clear that the road did not stop at the settlement as The Viatores had suggested (1964, 419). It is speculated by the author that it may have followed the course of the River Great Ouse and then headed east to join RR224 (see below).

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RR170a at Kempston Church End (Luke, 2016, Plate 5.10)

RR224 (Sandy to Bedford area) See also Cambridgeshire.

The original evidence for RR224 took the form of two parallel cropmarks *c.*12m apart (as originally identified in two separate locations between Sandy and Bedford by The Viatores (1964, 484). Similar parallel cropmarks were later identified at a third location near to Sandy but to the west of the River Ivel. All three sets of cropmarks can be identified on Google Earth, confirming that they have the same alignment.

The cropmarks of the eastern alignment of RR224 are located 80m south of the route proposed by The Viatores; they proposed that the road crossed the River Ivel near the Girtford Bridge (1964, 270, 485). The existence of this eastern length has since been confirmed, initially by geophysical survey (Sumo 2022, 5) and then within the route of a pipeline. Associated with the latter, the eastern length has been seen within an evaluation trench (Northamptonshire Archaeology 2007a, 4) and subsequent investigation in advance of the construction of this pipeline (Northamptonshire Archaeology 2007b, 4). The evidence indicates that the road comprised a sand and gravel *agger*, approximately 8–10m wide, with side ditches *c.*13m apart.

It has been observed by the author that if the alignment of the cropmarks and other evidence is projected eastwards, it would suggest that the course of the road was sighted on the hill occupied by Caesar's Camp immediately north of the Roman 'small town' at Sandy (Luke 2021). There is still no firm evidence for the course of the road between the River Ivel and the Roman town, partly because it underlies the modern town, but based on a recent review it is now assumed that this road must have entered via its north-west gate (Luke 2024).

Simco (1984, 65–6) believed that RR224 exhibited some peculiarities e.g. the way it appears to stop abruptly at a rural settlement and then restart on the other side. To Simco this would not have happened if the road was constructed by Roman officials, and she suggests that it may have been commissioned by a member of the 'local aristocracy'. There are no 'small towns' as such in the Bedford area, although the most significant site that this road may have been served is the *c.*17ha settlement at Kempston Church End (Luke 2016, 208–41)

References

Luke, M. 2016: 'Close to the Loop: 6000 years of landscape and settlement evolution within and near the Biddenham Loop, Great Denham, west of Bedford' *East Anglian Archaeology* 156

Luke, M. 2021: 'Sandy: A Preliminary Summary of the Evidence for the Defences, Layout and Extent of the Roman 'Small Town' at Sandy', *CBA South Midlands* 51, 20–21

Northamptonshire Archaeology, 2007a: *An Archaeological Evaluation on the Route of the Mox Hill to Sandy Water-Main (Phase 2) Bedfordshire* (unpublished report 07/120)

Northamptonshire Archaeology, 2007b: *An Archaeological Investigation on the Route of the Mox Hill to Sandy Water-Main Bedfordshire* (unpublished report 07/139)

Simco, A. 1984: *The Roman Period*, Bedfordshire County Council

Sumo, 2022: *Geophysical survey report: Beeston, Sandy, Bedfordshire* (unpublished report 10596)

The Viatores, 1964: *Roman Roads in the South-East Midland*s, London: Victor Gollancz Ltd

Trackways

Short lengths of evidence for trackways are often an integral feature of the layout of Roman rural settlements in Bedfordshire. Only in a small number of cases has there been evidence for stone or gravel surfacing. However, these trackways were identified based on the presence of parallel ditches *c.*6–10m apart which, although they probably continued, are rarely identified beyond the settlement area.

In three areas of Bedfordshire, extensive archaeological investigations ahead of development have provided the opportunity to identify a network of trackways e.g. at Biddenham Loop (Luke 2016, 283–5, fig. 5.1), land west of Kempston (Luke 2016, 285–6, fig. 5.1) and north of Houghton Regis (Luke and Barker 2021, 11; Luke and Shotliff 2023, 37, 54–5, 172) where developer funded investigation by Albion



Trackway at Houghton Regis, (HRN 3938, Film 03-02)

Archaeology and others is ongoing. Recent investigations by Albion Archaeology north of Houghton Regis have identified a stone surfaced trackway associated with a rural settlement. This comprised a *c.*5m wide slightly cambered surface of flint cobbles defined by side ditches which had been recut on numerous occasions. It may be more substantial in this area because it is in the vicinity of the likely crossing of the Ouzel Brook.

References

Luke, M. 2016: 'Close to the Loop: 6000 years of landscape and settlement evolution within and near the Biddenham Loop, Great Denham, west of Bedford.' *East Anglian Archaeology* 156

Luke, M. and Barker, J. 2021: *A Roman Farmstead and other Late Neolithic to Post-medieval Land-use, at Houghton Regis, Bedfordshire*: Site HRN3206. Albion Archaeology Monograph 7

Luke, M. and Shotliff, D. (eds), 2023: *Late Mesolithic to Early Anglo-Saxon Land-use at Houghton Regis North, Bedfordshire:* Sites HRN3205, HRN3455/6/7, HRN3486 and Woodside Link. Albion Archaeology Monograph 11

Internal streets within the Roman 'small town' at Sandy

Evidence for streets within the Roman Sandy has been found intermittently over the last few decades. Recently all available evidence has been reviewed and a new layout of streets within the town has been proposed (Luke 2024). In summary, they appear to form a planned system but they are not in a rectangular grid like pattern. It is clear that some of the streets were 'cut off' when the town defences were built.

References

Luke, M. 2024: *The Roman 'small town' at Sandy, Bedfordshire: review of its origins, defences, layout and extent*. Albion Archaeology Monograph 13

For Sandy to Thrapston, RR226(x), see Cambridgeshire.

Buckinghamshire

By Nigel Rothwell

Little Kimble settlement site, RR168b, Lower Icknield Way, (SP 81907 06501)

Pre-development work undertaken by Thames Valley Archaeological Services

TVAS undertook excavations in 2023, following a magnetometer survey by Sumo Geophysics in 2022, for client Orion Heritage on behalf of Cala Homes. This was a requirement of the local planning authority, ahead of a proposed housing development in Little Kimble. The site is north of Kimblewick Road, Kimble. The site adjoins and extends orthogonal to the RR168b route of the Lower Icknield Way (B4009), with a frontage along the inferred Roman Road extending for about 110m. The geophysical survey recorded several linear magnetic responses, particularly close to and parallel with the line of the Roman Road, but also appearing to form rectilinear patterns, along with pit-like responses.

Post-excavation analysis and reporting is underway. The excavations have revealed extensive Roman roadside settlement with numerous wells, and have yielded a large quantity of artefacts, including coins, brooches, and high-status pottery.

References

Cockcroft, T. 2022: *Geophysical Survey Report - Land North of Kimblewick Road, Kimble,* Survey Report 08681, SUMO Geophysics Ltd (unpublished report available at - Buckinghamshire County Council / Wycombe District: Planning Application Ref. 22/06929/ADRC)

RRX021 / RR163C(x), Glory Hill, Holtspur (SU 9176 8969)

Investigated as part of research into the route of RR163 (this volume)

Morris, Hargreaves and Parker (1970) documented the possible course of a Roman Road along the A40 corridor through South Buckinghamshire. Their route was not included in Margary's (1973) 3rd edition of Roman Roads in Britain, despite their field work having taken place in 1966, and Morris having worked alongside Margary as part of the Viatores Group (publishing Roman Roads in the South-East Midlands in 1964). Morris et al record that they had been given permission by the M40 engineering contractor to open a 12 ft. long trench at Glory Hill, and a note describing this is recorded in the Ordnance Survey archives. A sketch section was published in their 1970 paper, along with a caveat that their excavation work 'did not reach the standard of completeness that is archaeologically desirable.' This locale was subsequently removed by the earthworks associated with construction of the M40.

Rothwell and Peveler (2023) identified plausible lidar evidence in support of this route, some 7km east of Glory Hill, on the Bulstrode estate at Gerrards Cross, otherwise supporting evidence is scant. However, whilst investigating the route of RR163 (Rothwell 2024 – this volume), photographic evidence of the Morris et al Glory Hill excavation turned up in the archives of the Beaconsfield Historical Society (Figures 1, 2 & 3). Together with the lidar evidence this provides greater credence for the existence of a road following the course of their route. The logic of Morris et al is that this Glory Hill road-section provides a connection, via Flackwell Heath (where there is a lidar linear earthwork feature on the golf course), to High Wycombe. However, it is now considered more likely

that Glory Hill, and Juniper Lane across the Wye valley, had a primary function as part of the newly described RR163C(x) route to an alternative River Thames crossing point at Hambleden.

References

Morris, C., Hargreaves G.H. and Parker R.P.F. 1970: *A Roman road through south Buckinghamshire*, Records of Buckinghamshire, Vol 18 part 5: 367-385.

Rothwell, N. and Peveler E. 2023: 'Roman Roads in the Chilterns Region: Observations on a lidar based reassessment.' *Itinera* III: 145-166.

Rothwell, N. 2024. *Verulamium* to *Calleva Atrebatum*: RR163 and the River Thames Crossing, *Itinera* IV: 1-38.

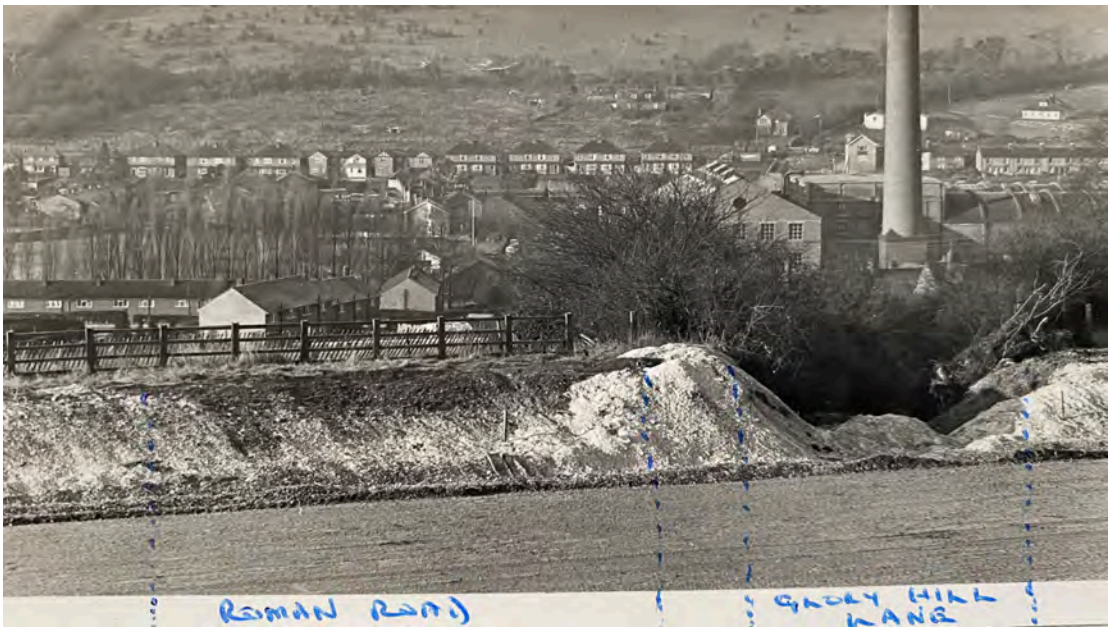


Figure 1 (Above): View southwest from Glory Hill across Wooburn Green and the valley of the River Wye. Glory Hill Lane is in the deep cutting on the right, heading towards the chimney of the former Glory Mill; the tree line on the opposite hillside, behind the chimney, marks the traversing line of Juniper Lane; the apparent line of the Roman Road is interpreted as the dark smudge overlying chalk to the left of the lane; and the foreground has been removed by the M40 engineering work (Herbert Crane, c.1966 © Beaconsfield Historical Society).



Figure 2 (Left): The excavation trench on Glory Hill, orientated approximately northwest-southeast (see Morris et al 1970 for the corresponding sketch section). The crouched figure is probably Group Captain Jack Ward, former land owner (Herbert Crane, c.1966 © Beaconsfield Historical Society).

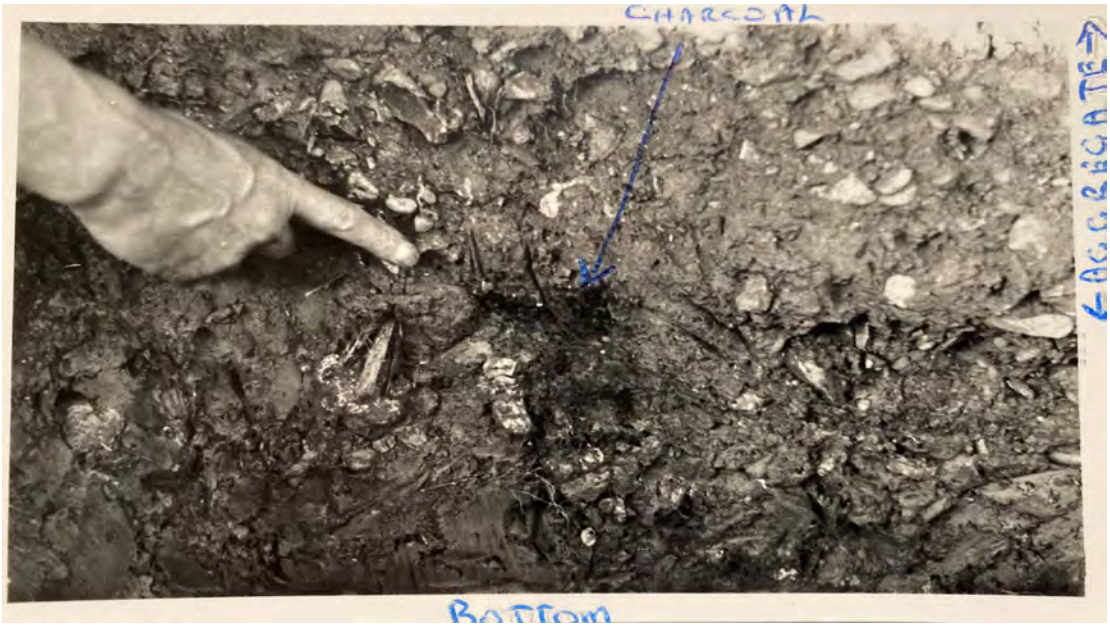


Figure 3: Photographic evidence presented of burnt material underling a compacted flint and pebble 'metalled' surface, northeast wall of the excavation trench (Herbert Crane, c.1966 © Beaconsfield Historical Society).

Cambridgeshire

By Ruth Beckley of Cambridgeshire HER. HER references are included in brackets with the prefix CHER.

A428 Black Cat to Caxton Gibbet Improvement Scheme, Abbotsley, Site 15 (ECB6876)

Work by C. Kolonko. (Interim Statement)

Archaeological excavation carried out following an earlier programme of geophysical survey and evaluation. Site 15 is located over an enclosure complex identified during the geophysical survey in 2020 (CHER MCB30688). The excavation revealed the presence of an Iron Age settlement including roundhouses and burials while early Roman evidence comprised a northwest-southeast aligned droveway measuring 8m in width along with evidence of quarrying and enclosures.

Abbotsley, Site 17 (ECB7060),TL 2133 5998

Work by A. Reid. MOLA (Interim Statement)

Archaeological excavation carried out following an earlier programme of geophysical survey and evaluation. Site 17 is located over a known enclosure complex (CHER MCB30688), recording evidence of Iron Age to Saxon activity. Roman phased remains comprised a northwest-southeast aligned trackway across the centre of the site and an associated cultivation system. The trackway showed no surviving evidence of metalling, however, it comprised two parallel ditches approximately 9m apart. There is evidence to suggest the trackway was a long lived feature in the landscape with evidence of recutting throughout much of the Roman period and it may have been associated with Margary RR22 located to the west of the site. Associated with the trackway were the remains of at least three fields of Roman cultivation or bedding trenches.

Eltisley, Site 29 (ECB6993), TL 2068 5934

Work by C. Kolonko, MOLA. (Interim Statement)

Archaeological excavation carried out following an earlier programme of geophysical survey and evaluation. Site 29 is located over a known enclosure complex (CHER MCB24588) recording evidence of a multi phase string ditch enclosure system dating to the Middle to Late Iron Age with evidence of some Roman activity. While the main phase of activity was Iron Age a series of Roman ditches representing enclosures and possible trackways were also recorded.

Eltisley, Site 30 (ECB6994), TL 5273 2603

Work by M. Cameron-Heffer. MOLA (Interim Statement)

Archaeological excavation carried out following an earlier programme of geophysical survey and evaluation. Site 30 is located over a known enclosure complex (CHER MCB24587) recording evidence of Iron Age to Roman settlement. While the main phase of activity was Iron Age, a north-south aligned trackway with an associated field system is tentatively dated to the Late Iron Age to Roman period. Later Roman activity included kiln waste, pit clusters, watering holes and enclosures.

Abbotsley, Solar Farm (ECB7101), TL 2060 5619

Work by E. Dacre of Magnitude Surveys

Geophysical survey carried out over 72ha of land in order to inform proposals for a solar farm confirmed the presence of below ground features associated with two known cropmark sites (CHER MCB19080 & MCB19066). Both sites appear to include enclosures, ring ditches and internal features. The conjectural route of Margary RR22 crosses the site on a north-south alignment, however, only limited evidence suggestive of a road surface was identified.

Cambridge, Aylesborough Close (ECB7044), TL 4489 6095

Work by J. Martin-Jones of Cotswold Archaeology (MK0851_2)

Archaeological evaluation carried out in advance of residential development. The evaluation identified a series of ditches on a northwest-southeast alignment that contained Roman and post medieval pottery. The remains appear to form a continuation of ditches previously identified in 2015 to the northwest that was interpreted as a Roman trackway (MCB20408).

Cambridge, Mount Pleasant (ECB7146), TL 4426 5919

Work by C. Cessford of Cambridge Archaeological Unit (1558)

Archaeological evaluation undertaken in advance of residential redevelopment close to the Roman town of *Durolipons* and adjacent to the Cambridge to Arrington Road (Margary RR23a). Previous evidence of the road had been recorded at adjacent sites in 2020 and 2021. The 2023 evaluation revealed widespread Roman archaeology including features associated with a road and evidence of a cemetery. Further investigation is planned.

Cambridge, Park Street (ECB6281), TL 4489 5889

Work by A. Towle of Headland Archaeology (Report Pending)

Archaeological excavation carried out at Park Street following the demolition of an existing car park and in advance of construction of a hotel. The excavation has revealed extensive and complex

archaeological remains from the Roman period to the 19th century. Roman evidence included a Roman road approximately 6.8m wide and consisting of a metalled surface on a northwest-southeast alignment and bounded by ditches. Settlement activity was recorded to the north of the road while gravel extraction was noted to the south. Pottery, box tile and brick were recovered from both roadside ditches along with butchered cattle remains. The site is located to the southeast of the main Roman settlement in Cambridge and thus presents a unique opportunity to understand the development of hinterland expansion during the Roman period.

Comberton, Branch Road (ECB6943), TL 3843 5680,
Work by G. Clarke of Oxford Archaeology (2620)

Archaeological evaluation in advance of residential development identified a series of features associated with an Iron Age to Roman settlement previously recorded as cropmark remains (CHER PRN 08895). Finds recovered from features in the northern part of the site indicate a settlement consisting of enclosures and trackways.

Elm, Gosmoor Lane (ECB7152), TF 4795 0607
Work by S. Thomas of Archaeology England (2221)

Archaeological evaluation carried out in advance of a small solar farm in Elm. The evaluation identified a small number of features of likely Roman origin including evidence of a possible droveway on a northwest-southeast alignment in two trenches. In both cases, the parallel ditches were approximately 4.5-5m apart. Dating evidence was, however, limited.

Guilden Morden, Trap Road (ECB7043/7131), TL 2814 4401
Work by R. Pedro. (R15340); T. Revell of Pre-Construct Archaeology (R15716)

Archaeological evaluation and subsequent excavation carried out in 2023 in advance of residential development. An initial evaluation revealed the presence of a series of undated ditches and ditch termini thought to closely relate to the conjectural course of a Roman Road (Margary RR176; CHER MCB30145), the route of which survived as a trackway into the 20th century. The excavation later confirmed the features to represent a rural road. No *agger* or surface was identified during the excavations, however, the route was marked by two parallel ditches containing Roman pottery. Evidence of Saxon settlement indicate the road remained a significant feature in the landscape.

Hinxton, Wellcome Genome Campus land east of A1301 (ECB6850), TL 5036 4494
Work by T. Lewis & M. Headifen of Oxford Archaeology (2676)

Archaeological excavation and fieldwalking carried out in advance of proposed expansion to the Wellcome Genome Campus following two earlier phases of evaluation and geophysical survey. The excavation revealed Neolithic to Saxon activity. The site is located immediately west of Margary RR21b from Great Chesterford to Worsted Street. Roman remains included two major trackways, one extending from RR21b on a north-south alignment (CHER MCB31117). The trackway was identified in five excavation areas and consisted of a broad shallow hollow with cart ruts evident in places with a narrow drainage ditch on its western side. In other areas it appeared more ad hoc with several short ditches suggesting a long period of use and reuse. Finds associated with the trackway included pottery, coins, copper alloy brooches and nails. A second trackway on an east-west alignment was also recorded, this appears to form part of the same trackway identified to the west at the Genome Campus (CHER PRN08892) and to the east at Uttlesford Crematorium.

Wimblington, March Road (ECB7162), TL 4130 9308

Work by A. Schute of Britannia Archaeology (1366)

Archaeological evaluation carried out prior to residential development identified parallel linear ditches representing a north-south aligned Iron Age to Roman trackway. This trackway represents a continuation of the same trackway identified in several sites to the south at Bridge Lane in 2021 (CHER MCB31818), and at March Road in 2018 (CHER MCB20356).

Litlington, Highfields Farm (ECB7075), TL 3230 3999,

Work by E. Brunning of West Yorkshire Archaeological Services (3938)

Geophysical survey undertaken across 50ha of land to inform a potential solar farm. The survey identified a section of a holloway on an east-west alignment thought to be Roman or later in date (CHER MCB21087).

Whittlesey, Eastrea Road (ECB7125/7158/7193), TL 2870 9738

Work by E. Dacre & D. Wilkinson of Air Photo Surveys Magnitude Surveys and C. Cox of Pre Construct Archaeology (Report Pending)

Programme of archaeological investigation comprised an aerial photographic assessment and geophysical survey on land north of Eastrea Road. Both reports confirmed the presence of an east-west aligned trackway thought to represent part of the Roman Fen Causeway (CHER PRN11048). Subsequent evaluation identified ditches associated with the causeway, although Roman dated finds were limited, the ditches overlie prehistoric enclosures.

Water Newton, *Durobrivae*, TL 1253 9647

Work by K. Lockyear of the Community Archaeology Geophysics Group

Geophysical survey carried out by the Community Archaeology Geophysics Group with permission by Historic England. 6.73ha of land at Boat Field at the southeastern end of *Durobrivae* (NHLE 1021429) were surveyed, recording the presence of several roads within the known settlement remains as well as the line of Ermine Street (CHER CB15034).

Arrington Bridge to Sandy, RR224

Lidar survey by David Ratledge. See also the Bedfordshire section.

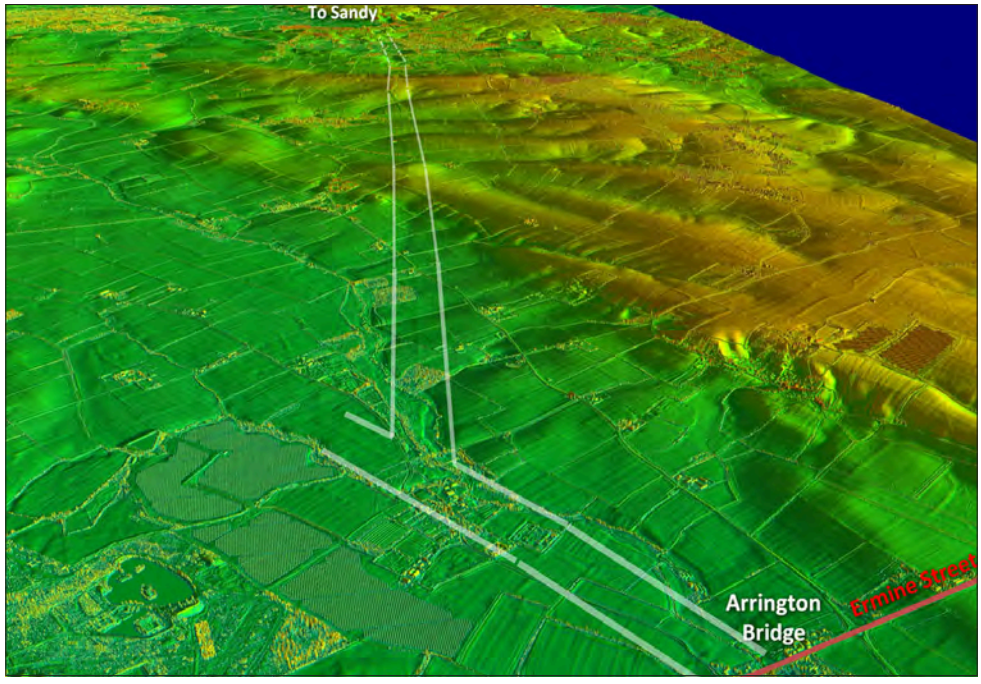
As part of his survey of Cambridgeshire to complete the mammoth East Anglia research (available at <http://www.twithr.co.uk/cambridgeshire/cambridgeshire.html>), this road was observed. The start of RR224 from Sandy described by The Viatores is correct but then it soon wanders off along existing roads. The correct route towards Arrington Bridge has survived well. Recent excavations have confirmed Sandy, in Bedfordshire, as a walled town/settlement.

Arrington Bridge to Stotfold, RR176

Lidar survey by David Ratledge

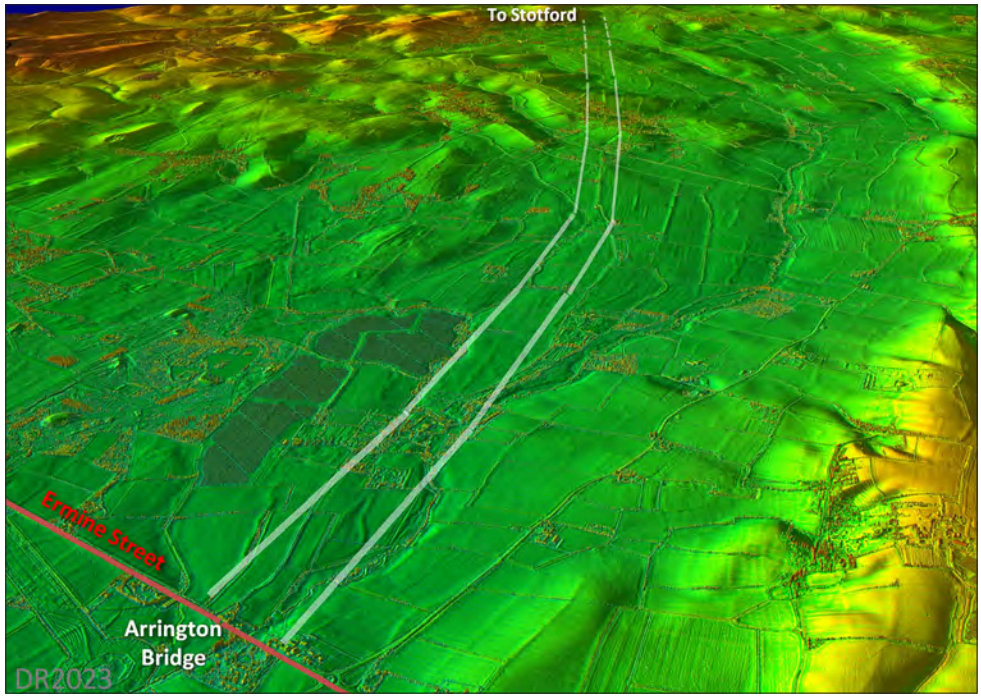
As part of his Cambridgeshire survey, this road was followed in lidar. The original Viatores RR176 routing is close to reality but tends to use modern roads whereas the actual *agger* is generally in fields.

The destination seems to be Stotfold although evidence at the west end is intermittent. It certainly carried on where Viatores show an almost right-angle bend. An argument could be made for this road



Above: RR224, Arrington Bridge to Sandy, Oblique lidar image looking west. RR224 branching from RR176.

Below: Oblique image of RR176b from Arrington Bridge to the SW. Just a slight dog-leg from a perfectly straight alignment. Only nearer Stotfold does the evidence become more intermittent. Lidar data © Environment Agency copyright and/or database right 2020. All rights reserved.



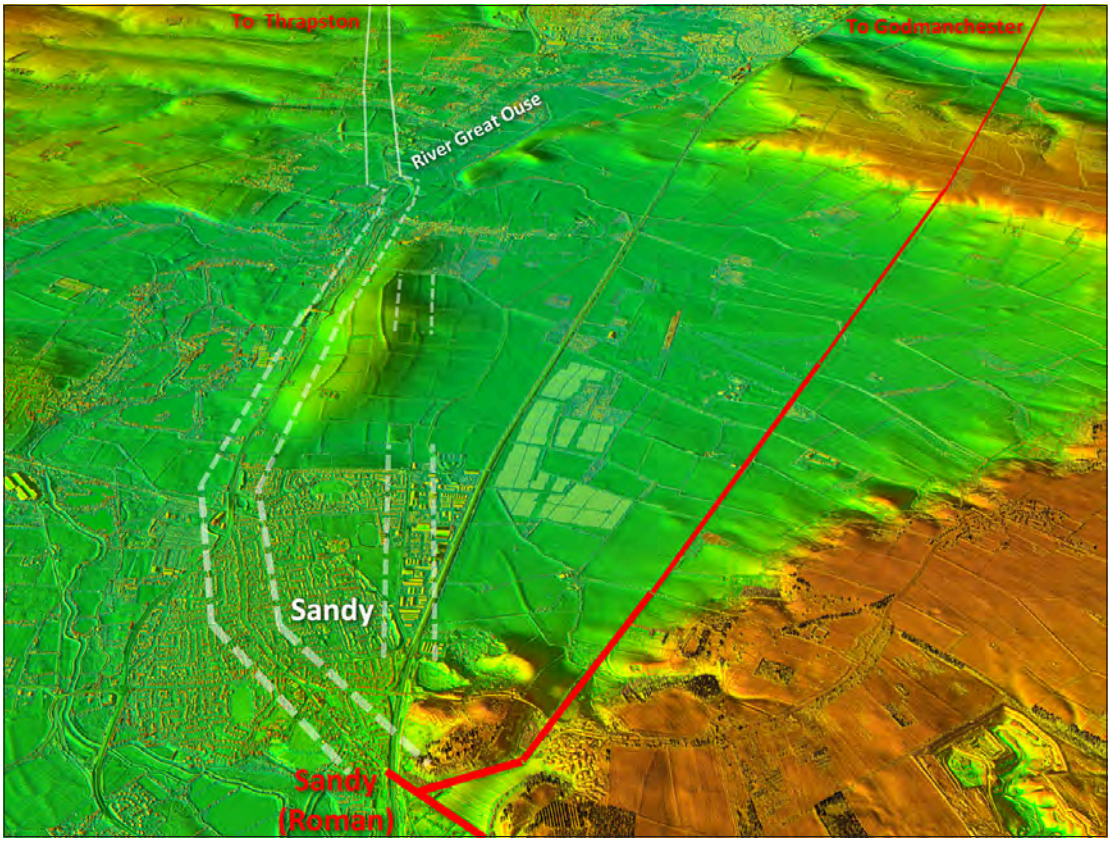
really being a continuation of RR23 (Akeman Street) from Cambridge. It certainly continues that road's general alignment.

Sandy to Thrapston, RR226(x)

Lidar survey by David Ratledge, available on his website at; <http://www.twithr.co.uk/cambridgeshire/sandy-thrapston.htm>.

A new road has been revealed by the Cambridgeshire lidar survey. Whilst this new road starts in Bedfordshire and ends in Northamptonshire, most of its length is in Cambridgeshire and confirmed independent work at the Northamptonshire end by Mike Haken and Wayne Kirk. There appears to have been a possible settlement at Staughton at approximately the half-way point.

As indicated elsewhere in this volume, the new Margary number RR226(x) has been awarded for this route following the protocol laid out in Armstrong (2021, 282).



Oblique image of new road RR226(x) from Sandy to Thrapston. Two options as far as the River Great Ouse. Most likely is the route following the current road. The Ordnance Survey First Edition mapping shows this as a series of straight alignments. The alternative is a direct route to the right (east) of the small hillock. Some evidence for this but is it enough? The evidence is more certain beyond the River Great Ouse. Lidar data © Environment Agency copyright and/or database right 2020. All rights reserved.

Cheshire

Recent Archaeological Sites in Cheshire, Warrington and Halton

By Neil Buckley

Roman Sites identified through archaeological fieldwork instigated by the Cheshire Archaeological Planning Advisory Service (CAPAS) for the period April 2022 to March 2023, summary by Neil Buckley below.

CHER ECH numbers refer to the Event Records and CHER numbers relate to Monument Records in the Cheshire Historic Environment Record, which can be consulted at www.cheshirearchaeology.org.uk/.

Archaeological excavation at Crown Farm Quarry, Oakmere, (SJ 5664 6946). RR7a.

Work by Wardell Armstrong Archaeology August 2022

Following the submission of a planning application for the expansion of the quarry and an earlier programme of archaeological evaluation (Jenkin 2010), a c100m length of the line of the Roman road from Chester to Northwich (CHER 844/1/0) was stripped under archaeological supervision and examined, prior to the initiation of quarrying operations (Whitworth 2022). The stretch of road chosen for further work lay at the western end of the quarry and was selected for more detailed examination as the 2010 evaluation had shown that its line lay under the embankment of a nineteenth century mineral railway and might be better preserved than elsewhere within the quarry.

In the event, survival proved to be extremely poor with much of the former road surface represented by a loose concentration of gravel within the topsoil. Only at the western end of the trench were significant amounts of gravel recognised beneath the topsoil but, even here, the material was loose with little evidence of surviving structure. Other features and deposits recognised during the work perhaps explain the poor survival of the road, with evidence for tree throw holes, ploughing, a large pit that may have been used to win gravel from the road surface, and broad areas of linear disturbance that are thought to represent evidence of subsoiling.

Excavations during a subsequent watching brief (Vernon 2022) revealed a probable Roman ditch lying a little to the south of the line of the road and parallel to it. The function of this feature remains unclear as it lies immediately to the north of a natural, boggy depression and seems unlikely to represent the northern boundary of an enclosure.

References

Jenkin, C. 2010: *Cheshire Sands Quarry, Delamere, Cheshire: Archaeological Evaluation and Auger Survey*. (Unpublished client report CP. No: 1280/10). Nenthead: North Pennines Archaeology. CHER ECH4727

Whitworth, H. 2022: *Land at Crown Farm Quarry, Oakmere, Cheshire: Archaeological Excavation Report.* (Unpublished client report GM12404, CFQ-H). Bolton: Wardell Armstrong Archaeology. CHER ECH7154

Vernon, E. 2022: *Land at Crown Farm Quarry, Oakmere, Cheshire: Archaeological Watching Brief Report.* (Unpublished client report GM12404, CFQ-I). Bolton: Wardell Armstrong Archaeology. CHER ECH7155

Archaeological Evaluation Land South of Radway Green Business Park, Crewe. Near RR70a. Feb 2023, Wessex Archaeology with Savills Heritage (SJ 7765 5386)

Crewe: Archaeological evaluation of land south of Radway Green Business Park (SJ 7765 5386), February 2023

Following a programme of geophysical survey over 25ha (Cockcroft 2022) and thirteen evaluation trenches (each measuring 30m x 1.8m) (Metcalfe 2023), Wessex Archaeology with Savills Heritage undertook further archaeological mitigation within areas of interest identified by the earlier work, concentrated in the northern part of the site and containing features of Roman date extending over one hectare.

The Roman remains recorded are of significant interest and represent a hitherto unknown site. The pottery provides evidence for activity dating to the later first and second centuries ad., while a Roman quern stone indicates crop-processing on the site. Future analysis of environmental samples recovered from the main phase of excavation may provide further information on farming practices.

The environmental evidence from the earlier evaluation works comprises rich assemblages of waterlogged plant remains with a small component of charred remains and charcoal. However, these came from features related to post-medieval land division and agriculture and do not justify further analysis. The later finds assemblage is small and is in poor condition, reflecting the limited nature of later phases of activity on the site.

The discovery of Roman features and artefacts in the area opens a series of questions, given that there are no other known Roman deposits nearby. Fine wares recovered, such as Samian, indicate the potential for a 'Romanised' rural settlement. It is hoped that ongoing post-excavation work (Wessex Archaeology forthcoming) will shed further light on this interesting and previously unknown site.

References

Cockcroft, T. 2022: *Geophysical Survey Report Land south of Radway Green Business Park, Crewe.* (unpublished client report 06532) Worcestershire, Sumo Geophysics Ltd. CHER ECH7067

Metcalfe, E. 2023*: Land south of Radway Green Business Park Crewe, Cheshire. Archaeological Evaluation.* (unpublished client report 271280.03) Wiltshire, Wessex Archaeology

Wessex Archaeology, forthcoming *Excavations on the Roman site at Radway Green, Crewe.*

Antrobus (Franley) and Comberbach, Vale Royal: (Centred SJ 6422 7829) Possible branch off King Street RR70a Roman route,

A Roman road traced on lidar (301m by 1383m) HER 436/1/20 dated 6 Feb 2024 refers. HER report submitted by N Buckley & David Ratledge.

A spur off RR70a south of Franley (SJ 639 791) can be traced on lidar and Satellite aerial images across the fields to the edge of Comberbach (SJ 644 776). It is most noticeable in "Stoney Field" (Tithe Map) just to the west of Field Farm (SJ 642 783). Beyond Comberbach it probably follows Marbury Road on an alignment taking it directly to the Northwich Roman fort but no evidence has been found to confirm this part of the route.

An annual summary of archaeological fieldwork instigated by the Cheshire Archaeology Planning Advisory Service (CAPAS) has been reported in the Journal of the Chester Archaeology Society under the heading "Cheshire Past" since 2013, (Volume 84). For more information about how to access the Journal please see the Chester Archaeological Society Website (<chesterarchaeolsoc.org.uk>). The most recent annual summary appears in Volume 93 for 2023.

Cornwall See also Devon and Somerset

A listing of more recent archaeological discoveries and investigations summarised by Delwyn Matthews

This summary deals with any new findings made (or at least reported on) during 2023, although note is also here taken of some earlier finds (in Cornwall) which date to 2021/22 but which have not previously been highlighted.

In my previous report (February 2023), attention was drawn to some of the new research work being carried out by Dr. Chris Smart, Exeter University in partnership with the Spanish National Research Council (SNRC) using lidar and other data, to help identify hitherto unknown sections of Roman road in the region. Dr. Smart gave an online presentation to RRRA members on some of this work on 5 January 2023; this still remains available to watch on catch-up via YouTube (<https://www.youtube.com/playlist?list=PlqRwv1RsLjSctOlcQ9Voki6rglg4j55Kj>).

Following this presentation, a fuller detailed joint research report was released during summer 2023 and which has been the focus of considerable interest. The new research work has begun to transform our understanding of the Roman road network in the South West. Prior to this study, views concerning the basic layout of the network had hardly changed since Margary's publication in 1973. It is now known that Roman activity extended far into the peninsula and on into Cornwall, however, few of these roads had been properly identified beyond suspected (and often inconsistent) routes shown on various maps.

2023 has though seen something of a major watershed in terms of rethinking the Roman road network. The new research by Dr Chris Smart and Dr. Joao Fonte of Exeter University and Dr Cesar Parcero-Oubina of the Institute of Heritage Sciences, SNRC, has been able to map out the likely full extent of this network west of Exeter (as well as into parts of Somerset). See: '*Roman Roads in the South West of England*', Orion Archaeology available at <https://www.orionheritage.co.uk/roman-roads-in-the-south-west-of-england/>. Margary had concluded that Exeter was the focus of the Roman road network in the region, a view which had not changed in many years. The University study has instead now been able to establish that, instead of Exeter, it was North Tawton in West Devon (close to the present day Cornish border) which was in fact the main centre of a road network which further radiated out to the tidal estuaries on the north and south coasts of Devon and down into Cornwall.

The University team have specifically identified an additional 60-70 miles of additional Roman roads west of Exeter where very few had been recorded previously. Using geographic predictive modelling (incorporating information on gradients and flood risk) they have focused in and identified further possible routes of previously unsuspected Roman roads. It seems likely that the proposed network now identified is an amalgam of pre-existing prehistoric routeways, Roman military campaign roads later adopted into the provincial communications system and of others constructed during peacetime in a wholly civilian context.

It is accepted by Dr. Smart that further lengths of this road network are yet to be physically identified on the ground although some 8 miles (13 kms) of road have been so far, lying within just a short distance predicted by the model. The remainder of this report therefore considers any other known reports of roads, separate from Dr. Smart's own extensive work.

Area North of Condolden Barrow near Bodmin

Work by Andrew Ross (ongoing).

As reported in the September 2023 RRRA Newsletter, Andrew Ross has been carrying out work to identify a possible Roman road and military industrial complex in the area to the north of the A39 and itself just north of the Condolden Barrow (SW 0905 8718). Lidar shows a possible Roman road with quarry pits running from SW 0877 8700 for about 450 m. Interestingly he notes that the road could be connected to a western extension of the Roman road identified by Smart and Fonte near Camelford. Possible connecting routes were being further investigated by Ross as part of his research for a forthcoming book ('*Searching for Tamara: Iron Age, Roman and Post-Roman Transport Routes in South West England*', Tryphena Publications).

Tregellas

Work by Andrew Ross/ongoing

The cropmark of a linear feature, possibly a Prehistoric/Romano-British road (SW 9178 4927), is visible on Google Earth imagery dated 07/10/2022. Pits to its east have been observed on lidar which may indicate a Roman date for the feature, although these pits may also be associated instead with the post-medieval buildings of Tregellas farm itself. The road appears to run in a NNE/SSW direction, and if extrapolated in the southerly direction would run directly to the west of the hillfort and Romano-British settlement at Carvossa. The road also runs immediately to the west of a square enclosure believed to be Roman in date, and immediately to the east of the cropmark of a removed Post Medieval field boundary within that same field.

Cornwall/Isles of Scilly HER: MCO75444. Source: Personal communication: M. Curnow email dated 06/12/2023

Work on the A30 Chiverton to Carland Road Upgrade (main excavations 2021-2022)

The following four entries relate to this work. CAU (Sean Taylor) has stated that further detailed reports should be available by the end of this year (2024), including analysis of samples taken for potential OSL dating. Until then these features remain possible Roman roads only and cannot yet be definitely confirmed as such.

Four Burrows to Chybucca

Work by Cornwall Archaeological Unit - A30 Chiverton to Carland Road Upgrade.

Two separate lines of borrow pits. The first, at Four Burrows, comprises 16 pits over a distance of 160m (SW 76103 48343 to SW 76249 48411) running parallel to the current A30 route 100m to the south along an ENE-WSW alignment. Eight were excavated and averaged around 2m across and 0.5m deep. No finds were recovered from these but samples for potential OSL dating were taken.

Another line of borrow pits at Chybucca comprised 19 pits over a distance of 245m (SW 77882 48891 to SW 78089 49024) running roughly parallel to the current A30 30m to the south. Five of the smaller examples were hand-excavated and a sixth larger pit (6m by 5.5m and 0.3m deep) was excavated by machine but again, no finds were recovered. A pair of parallel ditches 5.6m apart ran intermittently immediately to the south of the pits along the same ENE-WSW alignment.



A30 improvement works showing Chybucca Pit alignment. Source: CAU

Nanteague to Marazanvose

Work by Cornwall Archaeological Unit - A30 Chiverton to Carland Road Upgrade.

A section of ditched road was identified at Nanteague over a distance of 155m immediately to the south of the current A30 (SW 79328 49685 to SW 79417 49712). The distance between the steep-sided ditches was 3.7m. Some stone surfacing survived in places although the bulk had been ploughed away.

A few fields to the east a long section of old road was identified over a distance of nearly 400m (SW 79623 49918 to SW 79890 50192). The road took the form of a ditched section on the higher ground to the west but as it descended the slope towards Marazanvose it turned into a sunken holloway up to 5.5m wide and 0.4m deep, at the base of which was surviving metalling. This section could clearly be seen to join the existing A30 at the top of the hill to the west and seems to represent a previous iteration of the route. Interestingly, the current section is followed by a parish boundary, which suggests the diverted current route is of at least medieval date (and probably early medieval) rather than a later turnpiked section. Rather circumstantially a pit containing a Roman coin (of Commodus,



Holloway section of road at Marazanvose. Source: CAU

dating to AD 181) was excavated next to the holloway stretch, which also ran past a complex Bronze Age roundhouse. A short stretch of ditched road that may be a continuation of this route was identified in another excavation area 200m to the north-east by Nancarrow Farm.

Carland Cross

Work by Cornwall Archaeological Unit - A30 Chiverton to Carland Road Upgrade

A line of borrow pits associated with a ditched road was identified to the east of Carland Cross over a distance of 185m (SW 184997 54139 to SW 185169 54208). Pits were found either side of the road and both pits and road crossed (and cut) a more recent ditched trackway that appears on historic mapping. The parallel ditches were 4.4m apart. Once again no finds were recovered from either pits or ditches but samples for potential OSL dating were taken from the pits.

Roche

Work by Cornwall Archaeological Unit - St Austell to A30 Link Road

Two sections of ditched road were identified during these excavations. One, comprising two parallel ditches 2m apart ran for a distance of 45m up to a rectilinear enclosure interpreted as a Roman fortlet (from SW 198724 58843 to SW 198743 58884). The later phase of the fortlet appeared to cut the road. The other section, 45m long, ran parallel to the west of the existing B3274 road through Roche (from SW 199039 58979 to SW 199020 59019), through ancient farmland and not mapped on any historic mapping. The ditches were just over 5m apart.

Cumbria

Carlisle, Carlisle Cricket Club, Edenside and Rickerby Park

Work by RRRA

magnetometry survey of the playing area at Carlisle Cricket Club, adjacent to the excavations of 2021 failed to find any trace of the East-west trending Roman road, leaving the possibility that the road is buried at depth or that it was removed in the 1840's when the cricket ground was being laid out.

Much of the 18-hectare Rickerby Park to the east was surveyed along the projected line of the road mentioned above but nothing was found. However, in a small area of the park to the north and abutting Brampton Road clear results were obtained which showed buildings and particularly what appeared to be an apsidal building.

Derbyshire.

Possible road north of Smithy Farm. SK1606 6284 to SK1606 6284.

Summary of work by Neil Buckley.

A proposed amendment to HER record 'MDR 1023 – Possible road north of Smithy Farm' has been submitted by N Buckley. A significant extension to the known length of road first identified at Smithy Farm and assumed to be medieval in origin. The apparent junction with The Street is at SK1606 6284, the road is traced as far as Mapleton Bridge at SK1654 4809.

Using lidar the road can be traced east to a junction with RR71a (The Street) close to Arbor Low. The road has also been traced with high confidence south west as far as Mapleton and the River Dove. Rocester appears to be the origin but a river crossing point is yet to be identified.

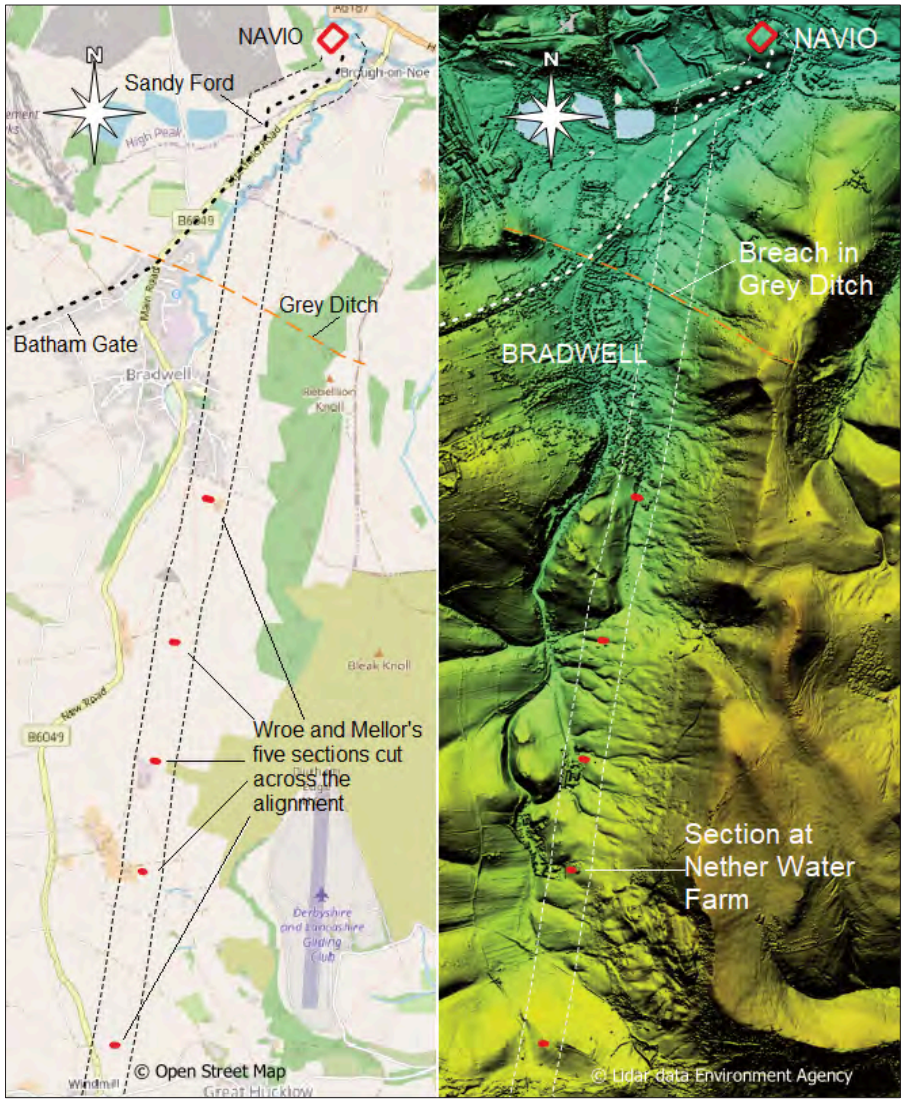
Summarised from RRRA Newsletter 27, Summer 2023.

As indicated elsewhere in this volume, the new Margary number RR716(x) has been reserved for this route following the protocol laid out in Armstrong (2021, 282).

Brough (*Navio*) south up Bradwell Dale.

Summary of work by Neil Buckley.

In 1974 Wroe & Mellor investigated a possible Roman road going south from Brough up Bradwell Dale to Windmill. Five sections were cut across the presumed alignment (Wroe 1982). The section at Nether Farm (SK 1728 7887) revealed "three construction periods and possibly four" and that its greatest width was about six metres in the later periods, somewhat wider than other roads (Derbyshire HER ref. MDR11383). A later Derbyshire HER ref. MDR2435 concurs with Wroe's alignment up the Dale but suggests that the approach to the fort continued on the same alignment in the general direction of what we now know is Sandy Ford. The source of Derbyshire HER ref. MDR2435 is an unpublished document by K. Smith dated 1991, so the basis of the proposed route is not known. Wroe's sections are on a mostly straight alignment and all are on a sight line from Sandy Ford. Also on that sight line is the western breach in the Grey Ditch as it crosses the valley. So, there are a number of clues suggesting that a Roman road did go south from Brough but unfortunately, apart from the diagonal across the Stretfield, there is very little lidar evidence in Bradwell Dale to support it. Although the existence of this road has still not been confirmed the Stretfield diagonal *agger*, if



Possible road to the south via Windmill. Base map is © OpenStreetMap Contributors 2020, made available under the Open Database License (ODbL) v1.0. Base lidar data is © Crown Copyright 2021

confirmed, would lend some support to it. It would also provide a plausible explanation for the Batham Gate zig zag, suggesting that Batham Gate was a spur off perhaps an earlier road going south.

Reference

Wroe, P. 1982: 'Roman Roads in the Peak District'. *Derbyshire Archaeological Journal*, Vol 102, 49-73

Summarised from RRRA Newsletter 28, Winter 2024. As indicated elsewhere in this volume, the new Margary number RR717(x) has been reserved for this route following the protocol laid out in Armstrong (2021, 282).

Devon, see also Cornwall and Somerset.

Summary by Delwyn Matthews

Apart from any significant new findings made by Dr Smart, contact with all the relevant HER records offices for the county, and others, have revealed no other significant new finds within the county.

Plympton to Clearbrook, RR495(x).

As reported in last year's *Itinera* III, the creation of a new town at Sherford, to the east of Plymouth (near Plympton) has been the subject of further detailed archaeological investigations, involving AC Archaeology. In early 2023 excavations revealed a (then) undated road flanked by a drainage ditch and which it was thought might be Roman based on lidar analysis. Orion Archaeology has subsequently carried out further analysis work (in its role as managing the large post-excavation programme on behalf of the developers).

Optically stimulated luminescence (OSL) dating of the soil immediately below the road surface excavated has now provided a later Iron Age (300-130 BC) date. As these soils pre-date the construction of the road, this dating has been interpreted as being reasonable evidence for the road being of Roman date and probably at the end of the occupation range.

Significantly, the section of Roman road excavated is just over a mile (1.7kms) to the west of the position of the Roman road in the area predicted by the Exeter University study. Although other variations have been noted between the predicted route and the actual, Orion Archaeology has stated "the predictive modelling by Exeter University appears to be reasonably accurate ".

See: *Roman Roads in the South West of England*, Orion Archaeology, available at <https://www.orionheritage.co.uk/roman-roads-in-the-south-west-of-england/>.

Exeter to Cullompton, RR494(x).

As reported in *Itinera* Volume 3, 2023, the route of a possible Roman road would have run from the East Gate of the legionary main fortress at Exeter to an auxiliary fort at Cullompton (SX 971 999). A section of this road is thought to have passed through the National Trust (NT) Killerton Estate, approximately midway between the two fort locations. Excavations carried out by Exeter University Archaeology Field School in the summer of 2023 (led by Dr. Sue Greaney) unfortunately failed to find evidence of this road following the opening up of a large trench (Trench 2) near the Front Park /pond area. This had been located over the line of linear high-resistance anomalies following an earlier resistivity survey. However, instead of a road, excavations revealed spreads of demolition rubble and many post-medieval finds of pottery and other artefacts, also revealing a wall and two cobbled surfaces, probably forming part of a post-medieval settlement. It is hoped that further investigations can still be undertaken during future field schools to locate this road.

See also David Ratledge, this volume.

Dorset

From Mike Holmes

Fosse Way, RR4f, Marshwood Vale

It is a surprising fact that the middle section of RR4f, between Two Gates in Dorset and Woodbury Roman Fort in Devon, is not definitely agreed. Between these two places the road crosses a difficult 25km stretch of hills cut by steep sided river valleys called the Marshwood Vale. There are three or more published routes which claim to be the Roman Road from Dorchester to Exeter. However, recent work by Hugh Toller (2014) has thrown much needed light on the situation.

From Loders, where Margary had the road divert to the south-west so as to reach Bridport, Toller looked for and found evidence that it went straight ahead. From Loders westward, he recorded lidar and *agger* for a road heading directly into the Vale and bypassing Bridport to the north (see Fig. 3). Very significantly, he identified clearly visible lidar evidence at Copse Gate where the road makes a turn from north-west to west-south-west. This change of alignment enables the road to avoid the high ground to the south. The lidar continues across a number of fields and can still be seen in a forest towards a crossing of the River Char (Fig 4). Both *agger* and lidar are visible west of the River Char confirming the new alignment of the road. On the way to Wootton Fitzpaine, the road crosses a small stream. Toller notes that "in a boundary charter of 1044 this location is described as 'straetforda'".

Toller's road then merges with the A35 and Woodbury Lane to reach the fort. It is clearly a direct well-engineered road taking advantage of the landscape to find the shortest way. It should be regarded as the most probable Roman road between Dorchester and Exeter and an alternative route to Margary's RR4f.

Summarised from RRRA newsletter 26, Summer 2023.

Reference

Toller H., 2014: 'The Roman Road from Dorchester to Exeter" *Devon Archaeological Society Proceedings* No. 72, 2014.

Two Gates to the Roman Fort at Waddon Hill, RR481(x).

This route runs northwards along the edge of the Marchwood Vale to the Roman fort at Waddon Hill. It leaves the road RR4f at Two Gates and makes a right turn, passing Eggardon hillfort to the east and heading northwards. To the west of the village of Hooke, the road follows a byroad in a north-west direction until it meets the modern road B3163 at Hackthorn Hill. Beyond the road junction, there is no further visible indication of the road, but the byroad at Hackthorn Hill is aligned towards the south-east entrance of the Roman fort at Waddon Hill. Field (1992) continued the alignment of the byroad and traced a probable course to a crossing of the river Brit south of Beaminster Church and on to the fort itself. Field does not report any continuation of the road beyond the fort. Possible confirmation of this route is provided by the lidar which shows what may be the continuation of the alignment across open ground to the west of Hackthorn Hill.

As indicated elsewhere in this volume, the new Margary number RR481(x) has been reserved for this route following the protocol laid out in Armstrong (2021, 282).

Summarised from RRRA newsletter 26, Summer 2023.

Reference

Field N.H., 1992, *Dorset and the Second Legion,* Dorset Books, Tiverton.

Durham

Reappraisal of the Stanhope to Eggleston 'Roman Road' RR821

By Dave Armstrong

This old road, thought to be Roman from its construction in short straight segments efficiently traversing the topography, has never been totally convincing. While the structure of the road, of a lightweight nature, is not dissimilar to some other Roman roads, it also has a very narrow width at approximately 4m or 12' without kerbstones or adjacent quarry pits that can be typically diagnostic of Roman roads. But equally, construction as an eighteenth century road relating to local lead mining is not an easy explanation. If constructed in the 1700s (the commitment and expense is not recorded in the London Lead Co. records) – why was it redundant and bypassed by the current road that was in use when the First Series OS map was surveyed in 1857?

To reconsider this conundrum and determine if more work was needed to convincingly determine the era the road was constructed, a joint field visit between members of Altogether Archaeology and the Roman Roads Research Association was conducted in March 2023. The focus was on three enclosed cultivation areas, long abandoned, that lidar revealed the road running through. The relative relationship of these and the probable dating of the rig and furrow cultivation could then determine which predated the other and thus what the likely construction era may have been.

Lidar in three prominent locations suggests that the old road was constructed over, and hence after, the rig and furrow was being cultivated. Observing where the old road cut through the enclosing embankment suggested that the embankment had been removed to allow the full width road through without any narrowing. Probing revealed that the hard surface of the old road was continuous through the gaps while not present in the embankment – the edge of the old road was consistent. All this suggested that the road post-dated the (redundant) embanked enclosures. The narrow and quite straight nature of the rig and furrow indicates that the ploughing was horse-drawn and therefore probably post-medieval. It therefore seems probable that Roman construction is highly unlikely.

Present

Altogether Archaeology; Martin Green, Rob Young, Janet Stirk, Rob Pearson.

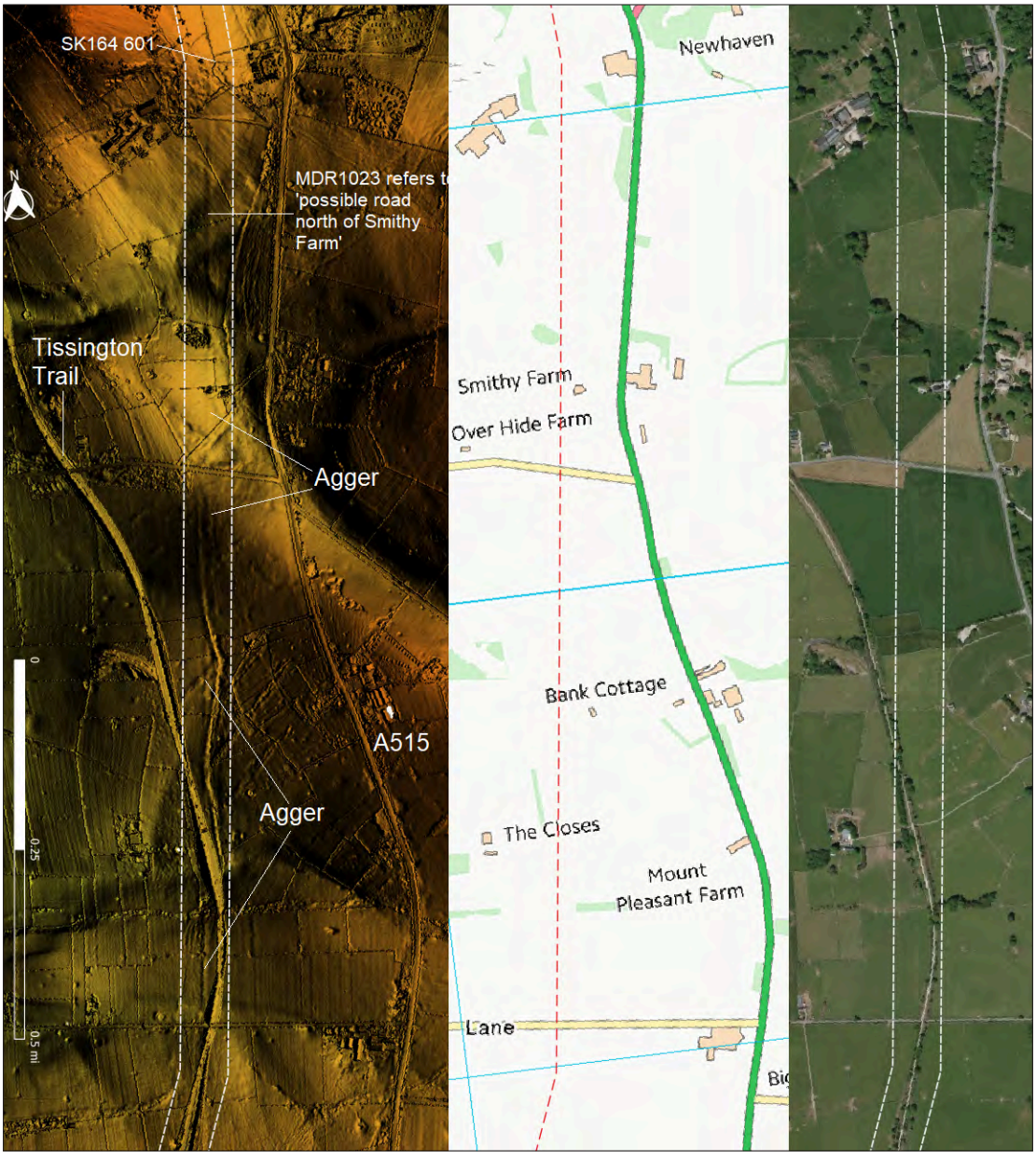
RRRA; Mike Haken, Dave Armstrong.

Essex

From Geoff Lunn of Colchester Archaeological Trust (CAT)

Colchester to Gosbecks Archaeological Park, Essex, TL 97538 23073, RR321

The Colchester to Gosbecks Roman road (RR321) was once again excavated over a short section to the rear of Hedges Drive in Colchester, by CAT, ahead of a new development of houses. As seen elsewhere, the road consisted of four ditches defining two narrow footways, c 2.6m wide, on either side of a wider central carriageway which was about 7.6m across.



Newhaven to the Tissington Trail. Base lidar is © Crown Copyright 2022. Base Satellite map is copyright Microsoft Bing. Base map is Opendata copyright Ordnance Survey.

In this location, the ditches were well defined and were 100% excavated for finds retrieval except for a small central baulk in the middle of the site. No trace of metalling was discovered as has been seen elsewhere along this route. This could be due to ploughing or possibly that the road was never metalled along its full extent, as evidence of metalling has only been found at the extreme ends of the road, near to Colchester, and near to Gosbecks Archaeological Park.

The Roman road linking the Roman town of Colchester to Gosbecks was projected to run through the development site as the course of the Colchester to Gosbecks Roman road is well known, originating from the major Roman road junction beneath the Colchester Royal Grammar School (2.14 km north-east of the development site) and running to the east side of the market, religious and likely administrative complex at Gosbecks (c 400 m south-west). Early aerial photographs had revealed a road consisting of four ditches, creating a main central carriageway with ancillary tracks to each side.

Work elsewhere along the route has shown that the road was widened at some point, probably in the early 2nd century, and the two inner ditches filled in. The reasons for this modification remain unclear, but it seems likely that there was probably an increase in traffic volume during the 2nd to 4th centuries.

HER Report ECC4765; Archive: Colchester Borough Council, CAT report 1917

Gloucestershire

Summaries provided by Ian Dean, west of the Severn and Chris Webb, east of the Severn

Land south of the A40, Churcham, Gloucestershire, RR61. Grid ref: SO 77917 18864, Map Sheet SO71NE, HER 24143

A geophysical survey and trenching evaluation (total of 326 trenches opened across 17 fields) were undertaken in two phases, in 2021 and 2022 prior to planning application for development. A Roman road and roadside ditches were identified during a 2021 geophysical survey/evaluation. Anomalies identified as possible archaeology relate to infilled ditches and pits, located either side of the Roman road and in an area to its south west.

The Roman road was more distinct in Field 12 and was identified in Trench 179 and additional trenches 325 and 326. In Trench 326 distinct northern and southern ditches were observed, with the lower layers of the road preserved between them. The northern ditch (32610) had a maximum width of 8.8m,a depth of 0.24m.and contained two distinct fills. The lower fill was concentrated to the northern extent of the ditch and consisted of a light greyish brown silty clay with occasional inclusions of small rounded pebbles and was covered by a fill consisting of a mid-greyish brown clay with abundant inclusions of small to medium rounded pebbles and rare slag.

The southern ditch fills were significantly stonier and had a much higher concentration of slag inclusions and had a width of 6.4m and a depth of 0.22m and contained three distinct fills. The southern lower fill consisted of a mid-red clay binding an abundant inclusion of rounded pebbles. The northern lower fill was a mid-greyish white silty sand containing stones that appear to have slipped in from the road. These were partially covered by a dark greenish black sandy silt with frequent inclusions of slag.

This road is considered to be heading from the *colonia* at Gloucester towards *Ariconium* (near Ross-on-Wye) and onwards towards Herefordshire, it is unclear if it goes via Mitcheldean and the iron working sites nearby on edge of Forest of Dean, and it is possible there is a sideroad from it near Churcham leading SW to Newnham and the main Gloucester to Caerwent to Caerleon road

Reference

Report no.17950 (Williams B, Worcestershire Archaeology) 2023 and Geophysical Report (Carrozzo F and Garst L, Magnitude Surveys) 2021.

Land to the east of Newent Business Park, Newent, Grid ref: SO 73177 225796, Map Sheet SO72NW, HER 49885.

A site on the eastern edge of Newent, to the south and east of Newent business park, Gloucester Street, and the B4215, was subject to an (unreleased) magnetometer survey in 2018 and a 2023 trenching evaluation (48 trenches across 8 fields) in advance of a proposed development. Activity identified was primarily Roman, with some undated later activity and occasional modern truncation. The site contained a substantial Roman settlement, comprised of rectilinear and curvilinear enclosures, ring ditches, extensive pitting and a road or trackway. The settlement contained abundant evidence for iron processing, but no evidence of iron working.

Reference

HER no. 15475, 2018 report by an unknown author.

Land west of the A48, near the driveway to the Haie, Ruddle Court Farm, Newnham, Gloucestershire, Grid ref: SO 68 10, HER ref. 49786

In advance of agricultural works a site of Romano-British date including a cremation cemetery was identified in 2018 through geophysical survey. This was followed by a trench evaluation the same year and an excavation over four areas of the site in 2019.

The features were interpreted as evidence of iron smelting and possible occupation of Romano-British to early medieval date, and the survey interpretations included dense concentrations of both linear and discrete features with dispersed magnetic debris. This has been interpreted as an area of metalworking activity and associated waste, possibly including at least one furnace. Isolated discrete positive anomalies have been interpreted as areas of burning.

In the north of the site a series of ditches including several boundary ditches were identified along with a number of pits, one with an associated stone-lined culvert. A group of four small pits/postholes ran in a line 10 m long, and possibly formed part of a building, and one pit/posthole had a gold coin of Vespasian (AD 69-79) interpreted as probably residual or curated. To the south were 7 cremation burials, one of which lay apart from the main group. Four were urned, one in a 1st/2nd century blue glass vessel within a stone-lined cut. The south of the site also contained pits, ditches, a possible trackway and an area of colluvium, which was overlain by two spreads of ironworking slag and associated debris. A possible furnace cutting colluvium consisted of an irregular pit containing charcoal and with signs of in-situ burning.

The 2021 excavation report concluded that the earlier phase of the site's development involving ditches, a stone-lined pit and culvert and a cremation cemetery was of early to middle Roman date. Ditches contained 1st to 3rd century pottery, animal bone, Roman ceramic building material, unworked burnt stone and slag, all broadly early to mid Romano-British but not all contemporary. A stone-lined pit/water tank appeared to have silted up naturally and its fills contained finds including slag and later C2nd-3rd pottery, whilst the associated culvert contained a sherd of broadly Roman pottery and charred spelt wheat. Four postholes formed part of a structure or fence, with fills containing pottery of late Iron Age to 3rd century date. Other finds from the postholes included Roman CBM, slag, 2nd/3rd century glass sherds, burnt stone as well as the gold coin of Vespasian (AD 69-79) believed to be either residual or curated. The feature appears to have gone out of use and been backfilled in the 3rd century. Samples from the postholes contained mainly oak and alder charcoal, with some ash. One early to mid Roman period pit contained later 2nd/3rd-century pottery, Roman

CBM and slag, and another contained charcoal, probable Roman glass, and amorphous fired clay fragments and possibly served as an oven or hearth.

The cremation cemetery was also of early to mid Roman date and consisted of four urned/two unurned cremations, an especial feature of one being a mid-2nd century, globular, Baetican Dressel 20 amphora containing a glass vessel also believed to be 2nd century, within which were the cremated remains. Other finds from the cremations included a piece of pottery re-worked to create a stopper, nearly 200 iron nails/small iron fragments, sherds of 2nd century pottery, and broken Gaulish amphora of mid-2nd-century date. Radiocarbon dates obtained from two of these burials, were of cal 91 BC-cal AD 63 and cal AD 127-238.As the artefactual evidence from the cremations was in line with an early to mid Roman date it is thought that the earlier radiocarbon date could have resulted from the use of old wood during the cremation process. The remains within the double-urned burial are believed to be those of an adult male, whilst the others (including some human bone fragments associated with the double-urned burial) are unsexed.

There is a second phase of the site's development dated to the later Romano-British period which pottery of 3rd century and later date, slag, iron nails and 3rd-4th century glass. A pit of this period had a clay lining suggesting a possible origin as a storage tank or well, and had been backfilled with deposits containing 3rd-century or later pottery, Roman CBM, unworked burnt stone, slag, animal bone, structural fired clay possibly originating from a hearth, and an iron fragment. A single cremation of this period (possibly of an adult male) was within a late 3rd or 4th century Dorset Black Burnished ware jar. Two large slag heaps in the south of site indicated iron production of 3rd-4th century date.

Also there are signs of post-Roman and early to later medieval iron-working on the site including a possible furnace or charcoal-burning pit/hearth containing a charcoal-rich deposit with alder charcoal with a radiocarbon date of cal AD 774-889, overlain by a deposit containing burnt unworked stone and alder charcoal with a radiocarbon date of cal AD 687-887.

Contributor's personal comment: This site is very interesting particularly because of its cemetery which may have been near the Roman road from Caerleon to Gloucester RR60a and potentially hints at its route hereabouts. Parts of the Margary/OS line for the road in the area are incorrect due to the uncritical assumption that the Roman road is represented by the line of the modern A48 almost everywhere. This cannot be correct in some nearby stretches where the A48 only gained its present line in the 18th/19th centuries. In the site area here there are two possibilities on the edge of Newnham with its Severn river ford for the Roman system and both routes seem to be converging within a very short distance of this site which is between the two.

Confluence of the Roman roads between Gloucester and Dymock and Gloucester and Mitcheldean at Linton Farm, Highnam. RR61. Grid Reference SO 801 192. HER ref. 7122
Work by Substrata commissioned by Heritage Archaeology Limited

Geophysical survey of land to the east of Linton Farm, Highnam in 2014 had revealed a probable Roman road north branching in a north westerly direction from the road from Mitcheldean to Gloucester (HER 7123 RR61). Other features, possibly indicating a small settlement alongside the road were also identified. In advance of a planning application, an archaeological magnetometer survey was undertaken in 2022 at Land at Linton court, Linton Farm, Gloucester. Magnetic enhancements and pit-like anomalies adjacent to the proposed road may be evidence of structures and/or occupation activity. Elsewhere two areas of magnetic dipolar response may be contemporary

industrial activity zones. Many linear anomalies in rectilinear patterns were detected north and south of the proposed road, which may be evidence of field systems and/or settlement foci, of uncertain date. Positive rectilinears and especially those north of the proposed roman road appear to run perpendicular to the proposed road which may suggest some contemporaneity however it should be noted that the alignment of the proposed roman road is preserved in a field boundary drawn on the 1840s tithe map and so some of these linears could be as late as the 19th century. The roadside settlement now extends from Linton Farm boundary to the east for at least 400 m and from the Roman road alignment at least 150 m to the north and south; with possible paddocks and structures along the roadside. The possible junction was not noted, that may be due to the survey area not going far enough to the west. In 2023 evaluation carried out with six trenches that targeted anomalies identified in the 2022 geophysical survey and confirmed them as features of a 1st to 4th century AD Romano-British settlement, with evidence of multiple phases of domestic, economic and mortuary activity on the site.

The east-west road between Gloucester and Dymock/Mitcheldean RR61 was identified crossing the site, with ditches running either side, although only intermittent traces of metalling survive.

Roman features were identified both to its north and south, including enclosure ditches with signs of maintenance and recuts, inhumations, large waste and cess pits, rubbish deposits, pits, postholes and a trackway. Buried soil horizons were identified in all trenches, in some being cut by Roman dated features and in other areas possibly sealing them, further suggesting that multiple phases of activity are present.



View north across the Roman road showing the exposed ditches

Greater London

Summary from Matt Sparkes

City of London, 6-8 Bishopsgate / 150 Leadenhall Street, EC3, TQ 3308 8116

Work by Silvia Barlassina and Sadie Watson of MoLA (Museum of London Archaeology)

Following the notice in *Itinera* 3 (269-70) work has continued at this central London location. 'A late 1st century AD main road, serving both the fort to the south of the site and local traders, ran across the site from east to west. There were several large quarry pits on the site where gravel and sand had been extracted to provide road surface metalling.' (Source: London Archaeologist 16 (S1) p4.)

Borough of Tower Hamlets, 629-631 Roman Road, E3, TQ 3693 8353, RR30

Work by Zoe Schofield of Touchstone Archaeology

A metalled surface was uncovered, similar to that described in archaeological excavations at nearby Parnell Road and Lefevre Walk in the 1980s (interpreted at that time as part of the London to Colchester road, RR3a, but now reinterpreted as part of the Stratford to Great Dunmow road, RR30). No definitive edge to the feature was located, but pottery found elsewhere on the site gave dates ranging from AD 43-270, consistent with the AD 50 date of the road's construction. (Source: London Archaeologist 16 (s1) p32.)

Borough of Havering, 90 New Road, Rainham, RM13, TQ 5087 8276, RR3a

Work by Guy Seddon of Pre-Construct Archaeology

The northern part of the site was close to the anticipated line of RR3a. No sign of the road was located, but a Roman ditch was found running parallel to the expected alignment. (Source: London Archaeologist 16 (S1) p15.)

Borough of Hounslow, Brentford Waterside, Blocks B, C and K, Brentford High Street, TW8, TQ1755 7730, RR4a

Work by Jess Bryan, Paolo Clemente and Marianne Cook of MoLA

Roman features including a potential quarrying pit were located south of the known route of the London to Silchester Roman road. (Source: London Archaeologist 16 (s1) p16.)

Borough of Hounslow, 65-67 Hanworth Road, TW3, TQ 1397 7568, RR4a

Work by Audrey Charvet of L-P Archaeology

The site is located approximately 50m south of the projected line of the London to Silchester Roman road. No archaeological features were observed. (Source: London Archaeologist 16 (s1) p17.)

Borough of Tower Hamlets, 32 Whitechapel Road, Shadwell, E1, TQ 3422 8152, RR3a

Work by James Aaronson of Compass Archaeology

The site is believed to be located alongside the line of the London to Colchester Roman road, but no traces of pre-16th century archaeology were located. (Source: London Archaeologist 16 (s1) p33.)

Hampshire

Roman Road Winchester – Chichester, RR425(x)

Summary provided by Richard Whaley of NEHHAS.

Dig attendance was low thought to be due to the cost of living crisis, but we finished field work at the site of what we believe is *Clasusentum* which has the correct mileage with ITER VII with this direct route between these towns. The site is by the A32 at Exton, and the farmer on whose land much of it occurs invited us to direct him using his digger to take off the soils. A base line was selected which should give a good indication of the state of Roman development. This has been written up and can be seen at <https://www.nehhas.org.uk/sha19-22.htm>. The Map therein indicates the Street Grid is N – S, probably what the Romans could create using a sun dial. The Chichester Roman Road crosses the site in a SE direction as 3 spaced lanes. The Streets were largely composed of sand coloured clay containing a variety of materials and probably topped with a running surface of hard white chalk not occurring locally (except at some depth). What we call the Principal N – S and E – W Streets which show up clearly on lidar were found to have the Street material contained within the natural chalk. The other Streets were built on the natural chalk.

The Roman Road Lanes were built on the natural chalk some 30 – 40cms high of various types of chalk and probably topped with hard white chalk. However where a Lane was crossed by a Street the Roman Road material was replaced by the Street material – indicating the Streets were later.

Apart from a scatter of Roman pottery north of the Principal E – W Street there was little evidence of Roman development. The 2023 Bank Holiday digs were focused on trying to locate where the habitation was. When the A32 was constructed in the 1930s building work was seen. This is at the North end of the Principal N – S Street. This building was excavated in 1980s – 1990s by Winchester College, finding a large Roman house astride the A32 which was highly decorated, with a wall fallen down. Part of this wall was extracted and is on display at the British Museum. A coin of 350AD was found under this wall – several other coin sequences exist in this area, all ending around the same time. The Roman economy seems to have come to an end. The interpretation is that Saxon incursions caused the owner of this big house to retire to one of the cities. This period had the Roman Naval Saxon Shore Forts constructed to combat them. This house then appears to have been used as a barn before it fell down. Its owner was likely to have constructed the Street system which was never developed.

The Antonine Itinerary was produced around 200AD, so for *Clasusentum* to be included it would have to be offering travellers facilities from around 150AD. This is too early for the big house. The farmer had a theory that the lane leading to his farm (on the East of the above Map) was Roman, while the Roman Road Lanes are at right angles to it. Furthermore on lidar and air photos a line runs slightly west of this lane. The theory was explored that the original settlement was in this area, using the Roman Road Lanes as Streets, and constructing twin N – S Streets at right angles to them. The lidar image gave a width of just 4m for the line just west of this modern lane, and excavation found a Street of this width with ditches at both sides. It was a simple affair largely built up of chalk from the two ditches.

The theory is that a twin Street exists under the modern lane. For complex reasons this was confirmed by finding that the ditch on the East side of the excavated Street was full of human bones. There were at least four burials, two were children, with later burials disturbing earlier. The problem is complex because the farmer some decades ago discovered the first Saxon burial cutting a septic

tank in this region, which led to considerable archaeological activity finding a string of Saxon burials to the East of this modern lane. These were all individual burials. The report of these mentions finding a ditch, and states that the burials have a relationship with this ditch. The ditch is not shown on their plan and its not clear what the relationship is. However, NEHHAS will be publishing an analysis of this report – showing that a line drawn through skulls likely to be associated with the excavated Street is parallel to lines drawn through skulls likely to be associated with the Street under the modern lane. The only way these parallels can occur is for the burials to have relationships with the four ditches of these two Streets – of which 3 ditches have been seen.

If a settlement had existed from around 150AD we would expect some tiled roofs and floors - floor tiles were reported in the burial excavations. We used our magnetometer to search for continuous areas of house size and have found a number of house-size areas around the modern lane and Roman Road Lanes. These will be published in due course.

We also used our magnetometer over the excavated Roman Building by the A32. We did not find a continuous signal, but intense spikes. How the site was backfilled may be the cause. We have reported finding a Lake round 2 sides of this Roman House <www.nehhas.org.uk/clalake.htm>. It turns out that the boundary of this Lake is preserved as a Parish Boundary in what could have been the gardens of this Roman House. This produced Iron signals – which might be the remains of iron lakeside walkways and garden buildings or could be due to the Lake edge being made of iron stained flint – which give a high iron signals. We have found flints from this lake edge elsewhere.

Our last published report has the Road entering Coombe Wood on Chidden Down <https://www.nehhas.org.uk/rrch13.htm>. We have found the route through the wood as a light air photo line, crossing the deep coombe as a causeway. It comes out of the Wood as beautiful binocular image of 3 terraces, with the 40' terrace in the middle with a slight hollow way. Up to Coombe Wood this Roman Road has been followed by modern roads and foot paths. These leave the Roman Road on entering this Wood, and its character changes. – we get 3 *agger*s. Farming activity may flatten *agger*s into terraces.

Kent

Summary and research by Mike Haken

A planning application for a proposed solar farm (centred at NU 1007 1137) between Ash and Richborough in Kent led to a re-assessment of the Roman road network approaching to the important Roman site at Richborough, in Roman eyes known as the gateway to the Roman province of Britannia. The role it played in the formation and development of the Roman province of Britannia, and by extension the history of this country, cannot be overstated, as demonstrated by the construction at *Rutupiae* in the late 1st century AD of one of the largest triumphal arches ever built in the Roman empire.

A complex picture of seven, arguably eight roads have previously been suggested in this area. However, there are just three roads for which there is sound evidence as illustrated in figure 1. and summarised below. The full report can be accessed at <https://romanroads.org/reports/sr011-richborough-little_south_solar_farm-haken_2024.pdf>.

RR10, Richborough to Canterbury

Leaving the west gate of Richborough, the course is well established, crossing the neck of the former Wantsum Channel by a causeway towards Fleet Farm. It must be remembered, however, that Roman

occupation lasted three and a half centuries, and it seems quite possible that the channel west of Richborough that the channel was originally open, but became silted up at some point during the Roman period, and the road only constructed after that time. Indeed, the excavations by both Ogilvie (1968) and KAFS (2001) may support this suggestion, since they revealed that the road structure contained much re-used Roman material, such as Carrara marble, broken Roman brick and tile, quern stone fragments, and sherds of Roman pottery. This clearly raises the possibility that the road may not have been not the original route west from Richborough (see East Street to Richborough, below).

Whilst the route of the road between Richborough and Ash is known with reasonable confidence, there remains some uncertainty between Fleet Farm and Cooper Street. The most likely course keeps to higher ground just south of Fleet Farm where a possible length of *agger* is visible on lidar between TR30666028 and TR30606024. It would then head south of Chapel Cottages through a possible cutting at TR30466013, before heading south-south-west along the known straight alignment through Europa Greenhouses to Ash. At Ash, the road makes a sharp turn of about 73° to head west towards Canterbury, which may seem peculiar, however it allows the road to keep to high ground with a good field of view, whereas the direct route would have crossed several shallow marshy valleys creating an

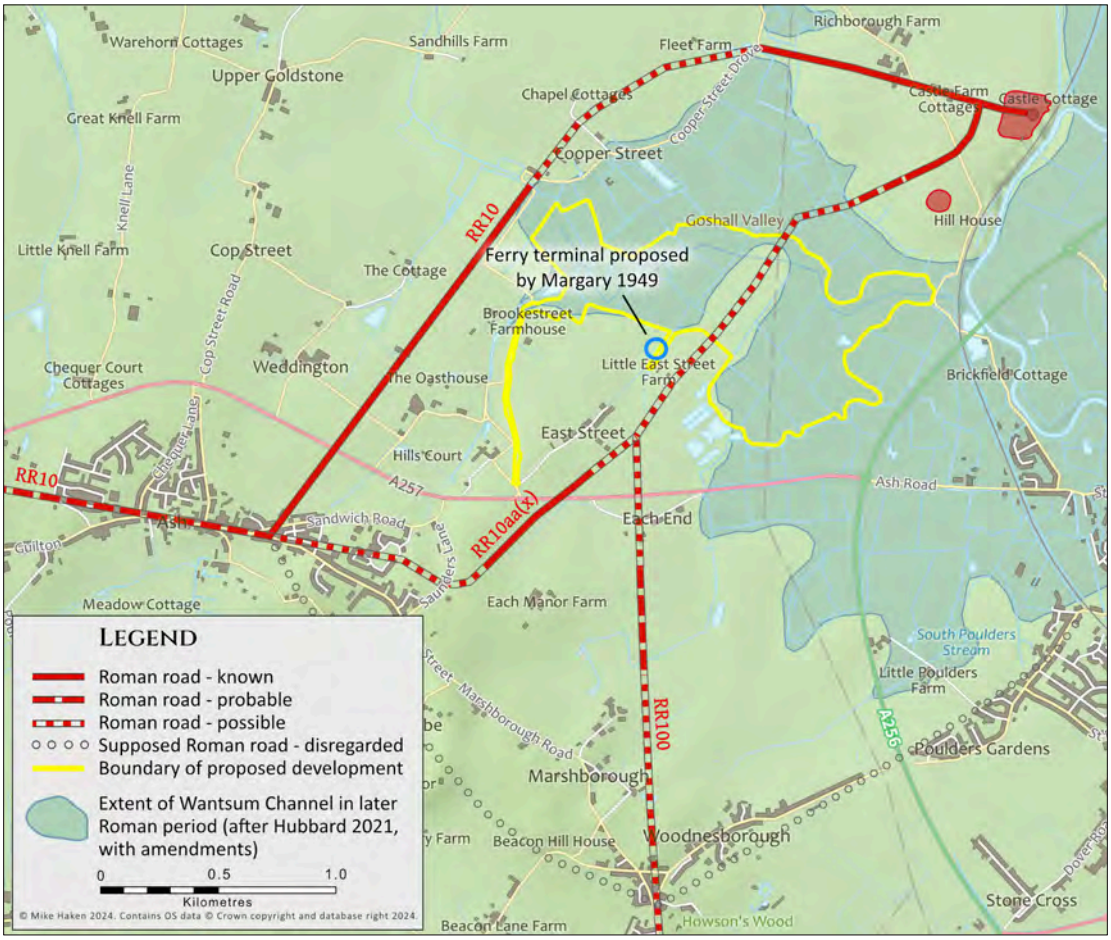


Figure 1. Map showing the probable layout of Roman roads near Richborough.

engineering problem to overcome, and potentially leaving a force on the march vulnerable to attack. There is, however, another explanation for the sharp turn at Ash, in that the road from Richborough could be meeting a pre-existing road which today runs east to west through Ash (fig. 1). Further west, the line of the road between Ash and Pine Woods has until recently been unclear, Margary's route being well to the south of the true line. The Street in Ash fossilises its course between the ends of Sandwich Road and Pudding Lane, the Roman line continuing along the same straight alignment for four kilometres, fossilised today by Nash Lane and Heart's Delight Road. West of Wenderton Lane it can be seen clearly on lidar imagery making an alignment change at TR24255923, before crossing the valley to head WSW through Wickhambreaux and on to Pine Woods and Canterbury.

References

KAFS 2001: 'Field School News', *Practical Archaeology* 4, 12-15. Also available at <https://www.kafs.co.uk/mags/Practical%20Archaeology%204.pdf>.

Ogilvie, J.D. 1968: 'The Fleet Causeway' in B.W. Cunliffe 1968. *Fifth Report on the Excavations of the Roman Fort at Richborough, Kent.* Oxford, Society of Antiquaries. 37-40

RR10aa(x), East Street to Ash

In 1992, excavations took place (centred at about TR30405850) prior to the construction of the Ash by-pass (Hicks 1998). A previously unknown Roman road was revealed aligned roughly south-west to north-east, with adjacent roadside settlement probably dating from the mid second to the late third centuries, with evidence for some activity throughout most of the Roman period. The excavators suggested that the road was probably first constructed shortly after the Claudian invasion (ibid, 101), beneath it being an earlier rutted trackway with drainage gullies which was presumably in use until the route was formalised with an engineered road (ibid, 97). Coin evidence from deposits above the road suggested that the road went out of use in either the late third or early fourth century.

The excavators concluded that the light construction (15cm thick metalling) suggested that it was not intended for heavy use and that it was therefore merely a local road, however excavated examples of much thinner metalling are known over aggers of many other important *viae militares* in Britain.

The remains of the road can be seen on lidar imagery running for 830m from East Street at TR30625869 to about TR30005815 near Saunders Lane, where all trace is lost, however it is presumed that it skirted around the head of the small valley west of the lane (thus avoiding gradients of 1 in 5), where it would meet the extended alignment of RR10 from Ash to Wenderton Lane already described. This is essentially similar to the conclusion reached by the excavation report, although they were unaware that this road extended as far southwest as it does and of the true course of RR10 west of Ash. To the northeast, it is clear that RR100 from Dover (see fig. 2) meets this road near East Street, although what happens beyond that junction is less clear.

Reference

Hicks, Alison J. 1998: 'Excavations at Each End, Ash near Sandwich, 1992' *Archaeologia Cantiana* 118, 91-172

RR100, Dover to East Street

Whilst often assumed to be associated with the early stages of Roman occupation, there is currently little evidence for Roman occupation at Dover (Dubris) before the early second century, and it therefore seems unlikely that this road was constructed any earlier than *c.* AD100. The road is set out along a single straight planning alignment which is followed by the *via principalis* of the Classis Britannica fort in Dover.

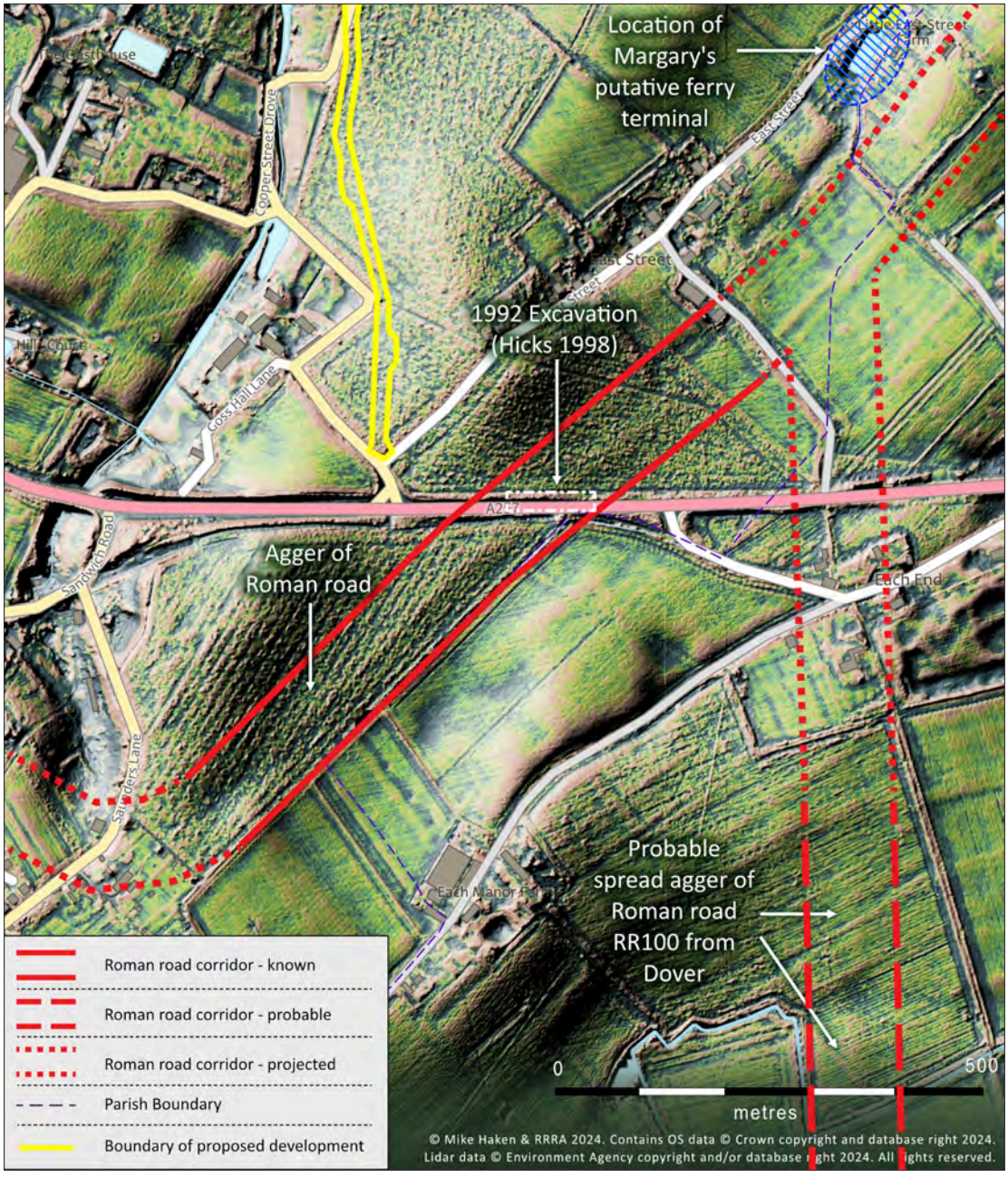


Figure 2. Lidar visualisation showing the agger of part of the extension of RR10 towards East Street and its junction with RR100 from Dover. Lidar data © Environment Agency copyright and/or database right 2020. All rights reserved.

The route of the road northwards is a little sketchy leaving Dover, making a local deviation from the alignment as it climbed out of the valley of the R. Dour, after which it rejoined the alignment from Dubris which it then followed for eight miles. Today, the Roman line is often represented by modern road but with intermittent extant sections of surviving *agger*. The planning of this road is clearly

deliberate, keeping to higher ground wherever possible as is typical of Roman road planning and avoiding the low and wet valley to the south of Ash.

Since no trace was known north of Woodnesborough, it has been traditionally assumed that it turned north-west to head to Ash where it joined RR10 to head north-east to Richborough, but despite Margary's reasoned argument in favour of such a road to Ash, no evidence of it has ever been found. However, rather than skirting around the west of the Wantsum Channel to reach Richborough, as Margary suggested, lidar imagery strongly suggests that RR100 was laid out to join the earlier road (RR10aa(x)) at East Street in order to utilise an existing route to Richborough across the Wantsum Channel.

East Street to Richborough .

The fact that there are almost certainly two important Roman roads meeting at East Street makes the former existence of a crossing of the Wantsum Channel somewhere between East Street and Richborough inevitable. The only questions that remain are by what method, and where? Margary originally suggested a possible ferry terminal in the area around Little East Street Farm (1949), which he quickly rejected in favour of his supposed route via Ash (1955, 33). Based on what is known about the likely date of the two roads approaching here, it is much more likely (but not certain) that the earlier road from Ash (RR10aa(x)) was dominant, the Dover road (RR100) butting up to it at a 'T' junction. Logically, RR10aa(x) would have continued north-eastwards along the low spur of land that projected into the channel (see fig. 1), and then either crossed the channel by ferry, or alternatively by a long bridge or timber causeway, often termed a *pons longus*. It is also possible that the crossing was originally by ferry, which was then replaced by a timber piled causeway as the channel began to silt up. However the crossing was made, the destination of the crossing is almost certainly known road which curves northwards through the extra-mural settlement at Richborough.

If this is indeed the original road to Canterbury, then its route joining the road leading from the west gate is initially hard to understand. One plausible explanation would be that this is a later rerouting of the road which occurred as the extra-mural settlement developed and well before the so-called Saxon Shore fort was built in the late 3rd century, and that it originally ran to the west gate of the fort. There are hints on a gradiometer survey (Martin 2002, fig. 2) in the area around TR32126002 and a little further north-east that could be interpreted as suggesting that this is the case.

References

Margary, I.D. 1949: 'Notes on Roman roads in east Kent.' *Archaeologia Cantiana* 61. 126-132

Margary, I.D. 1955: *Roman Roads in Britain* Vol. 1. London, Phoenix House

Martin, Louise 2002: *Richborough, Kent: Report on Geophysical Surveys, September 2001*. Centre for Archaeology

Leicestershire (& Rutland)

Summaries and research by Mike Haken.

R582(x) – Thistleton - Kirby Bellars – Leicester

Lidar analysis, along with recent geophysical survey, has confirmed the existence of the long suspected road which links the probable Roman small towns of Thistleton and Kirby Bellars to Leicester (see Haken, this volume, 188 & Fig. 6).

RR580 Ermine Street to Thistleton

First identified by O.G.S. Crawford in 1930, this road has been largely disregarded and ignored since the early 1960s. However, lidar has confirmed its line either side of the probable Roman small town of Thistleton and its existence is no longer in doubt. The northwards extension to Long Bennington known as Sewstern Lane does not display classic Roman engineering, but is a Romano-British road nonetheless (see Haken, this volume, 193-6).

Lincolnshire

RR2c Ermine Street, Bracebridge Green. ?Grange Farm, Waddington, Lincoln LN5 9NA, SK 979 661

Summary by David Brear. Work by Anglian Water Services Limited - Strategic Pipeline Alliance

Excavation in connection with the construction of the Elsham to Lincoln water pipeline disclosed a section of Ermine Street. Wheel ruts were visible on the surface. This was reported briefly in the TV programme Digging for Britain (Series 11, Episode 4).

HER: not yet recorded. Published report: awaited.

RR274 Owmby Cliff to Normanby le Wold and High Street

Summary and research by Mike Haken.

This road has been disregarded in recent decades due to a lack of evidence. However, lidar imagery clearly shows almost its entire course from just east of the Romano-British settlement at Owmby Cliff on Ermine Street, as far as the Wolds scarp at Normanby le Wold (see Haken, this volume, 196).

RR276(x) Worlaby

Summary and research by Mike Haken.

This short length of Roman road runs north-east from the top of the Wolds scarp above Worlaby along a single straight alignment for five kilometres and it is possible that this road ran from a wharf on a now dried up inlet off the R. Ancholme to an area of Romano-British settlement in Worlaby and then on to other settlements in the northern Lincolnshire Wolds (see Haken, this volume, 186-8).

RR263 Stainfield? to Easton

Summary and research by Mike Haken.

A small length of Roman road was identified by Thomas Leman in 1818 near Inham, presumed by Margary to branch from King Street near Stainfield. Due to a perceived lack of evidence, it has in recent decades been disregarded, however lidar imagery has now confirmed the road over most of its course. Whereas Margary assumed that it turned north west near Burton-le-Coggles, in fact it heads almost due west to the Romano-British settlement at Easton. (see Haken, this volume, 196-7).

RR273 Stixwould to Hemingby

Summary and research by Mike Haken.

Whilst no evidence could be found to support RR273 north-east of Hemingby, the four mile long straight section south-west of High Street could potentially be Roman (see Haken, this volume, 198).

RR262 Sleaford to Lincoln, RR271 Caistor to North Kelsey, RR272 Sleaford to Lincoln, RR58b Ermine Street to Donington

Summary and research by Mike Haken.

No evidence could be found to support the existence of any of these roads and they should continue to be disregarded. RR58a should be considered to terminate at Ermine Street, not Saltersford. (see Haken, this volume, 191-2).

RR58b & RR58bb(x) Cold Harbour to Ropsley

Summary and research by Mike Haken.

, lidar imagery has revealed a new road from Cold Harbour on Ermine Street, east of Grantham, to the modern village of Ropsley, which could potentially have continued to the Romano-British settlement at Sapperton (Haken, this volume, 184-6).

Northamptonshire

RR574(x), Northamptonshire and Rutland, Kettering via Laxton to Great Casterton, SP 8718 8060 via SP 9675 9741 to TF 0002 0880

Lidar survey by Dr Wayne Kirk

A Roman Road heading NE from the minor Roman town of Kettering towards RR57a (Via Devana) has been suspected since excavations in Kettering Roman town and Weekly Villa in the 1980's. Recent excavations at the Stanion villa and Priors Hall sites, examination of data from other villa sites and lidar survey data have definitively established a route from Kettering Roman town to Great Casterton, via Laxton. The 32km route (Figure 1) links Kettering to a series of villas, the major Roman iron

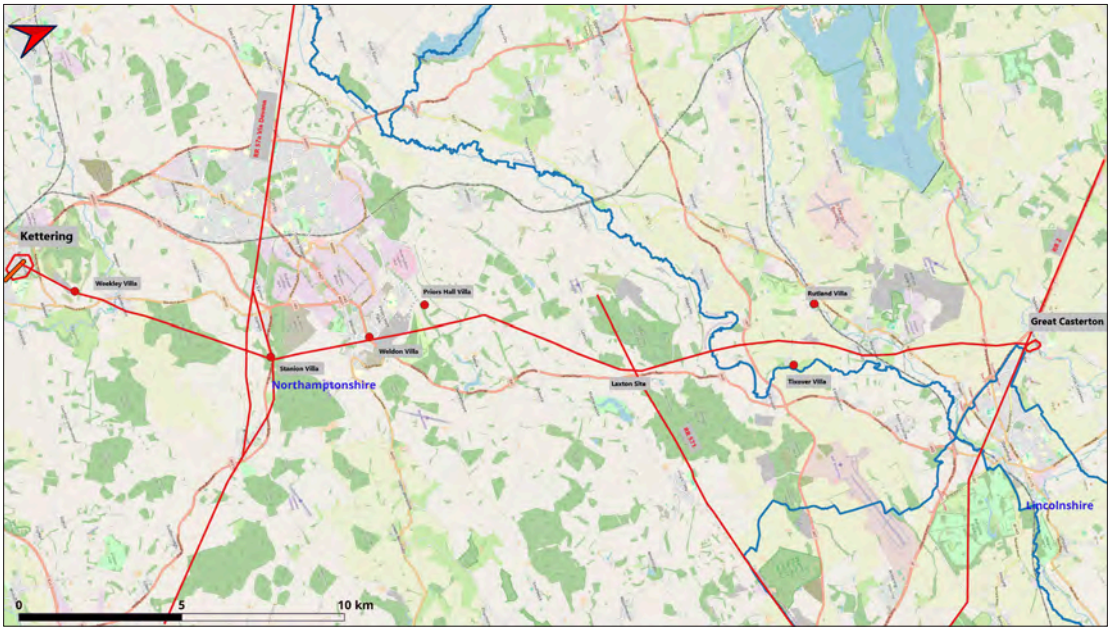


Figure 1: Overview of route of RR574(x) from Kettering to Great Casterton

working site at Laxton, where the route meets a newly identified extension of RR571 and continues northward onto Great Casterton.

A series of small sections of road have been identified in excavations at Weekly villa, the Stanion villa, the Weldon villa, and the Priors Hall site (which was the subject of an RRRA talk by Paddy Lambert on 11/01/2024). All sections of the excavated road head roughly NE and the fact that the Weldon and Priors Hall sites are north of Via Devana, clearly indicates that it is more substantial than just a Kettering to Via Devana link. The lidar data provides the firm evidence to link these excavations together.

Unfortunately, the residential development of Kettering and the iron workings around Weekly have destroyed any potential lidar evidence in this area. However, the first section identified in Geddington Chase and heading towards the Stanion villa has an excellent quality response (Figure 2). Back projecting towards Kettering using the lidar shows the route passes through Geddington along Wood St, across the River Ise near the Eleanor cross and former Medieval Royal Lodge, along Queen Street and back to the Weekly villa, where is obscured by iron workings after the junction with Kettering Rd.

The section approaching Stanion villa shows exact alignment with the excavated road section and a scatter of road debris is clearly visible in the field to the south. Interestingly, the lidar data does not clearly identify the purported route of RR57a Via Devana in this area and there is a possibility that

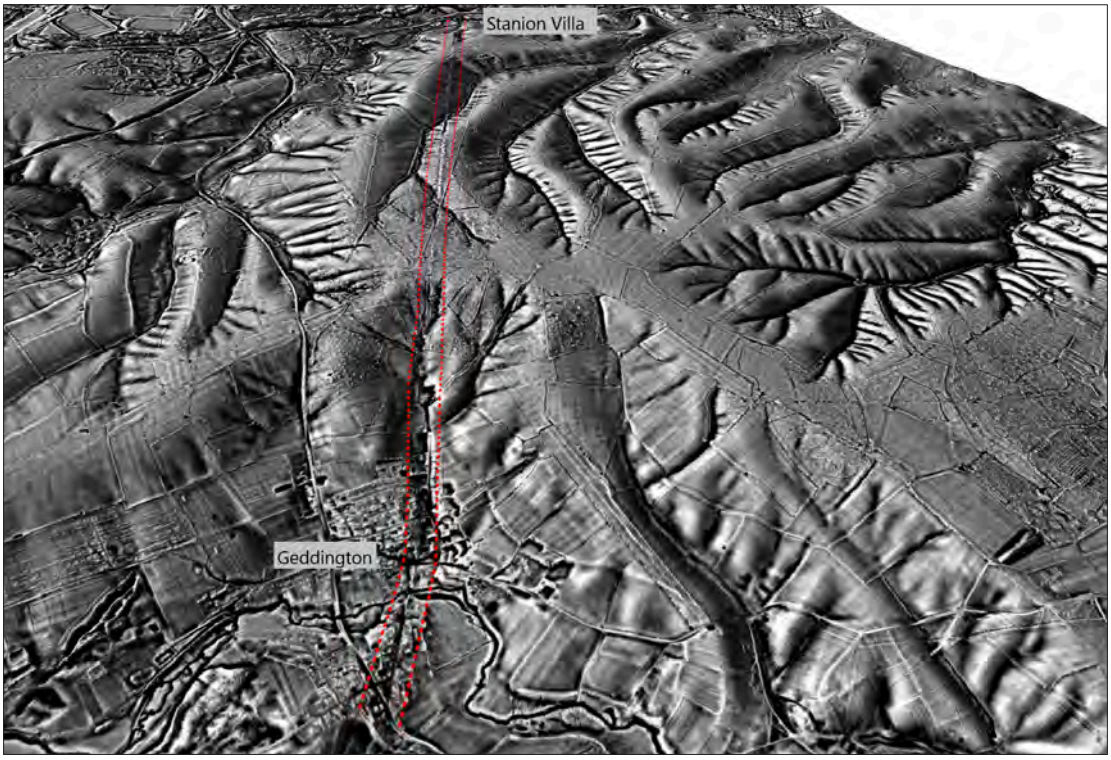


Figure 2:. Lidar LRM perspective looking NE from Geddington towards Stanion. Lidar data © Environment Agency copyright and/or database right 2020. All rights reserved.

this road stays north of Harper's Brook going directly past the villa and avoids two crossings of the brook at Stanion and Brigstock.

Between Stanion villa and Weldon villa the route turns more northerly, switching from 040 deg to 010 deg. The route is mostly obscured by modern iron workings, but a section southeast of Weldon shows faint lidar evidence and a linear 800m cropmark is on the correct alignment (Northants HER 6701/1/1).

Beyond Weldon villa, the route continues along the same alignment towards the Priors Hall site, but the lidar is again obscured by iron workings to the south of the dig site. However, a 1.2km cropmark seen on aerial photos taken prior to quarrying is on the correct alignment (Northants HER 6701/1/2) and defines the route.

The excavation of the road at the Priors Hall site demonstrates that it was substantially constructed, repeatedly repaired with a possible military origin. Dates of use range from the 1st century AD to the 5th century AD, with little evidence of use beyond this. Through the site, the lidar survey shows a weak but consistent response to the road (Figure 3). The imaging is impacted by the road running alongside a small slope and later pits and quarrying.

To the north of Priors Hall, the road crosses Gretton Brook where there is another change in direction from 010 deg to 040 deg. Here the road immediately passes into another area of iron workings but shortly re-emerges with a clear lidar signal in Ferrels Wood. There is a strong lidar signal across fields

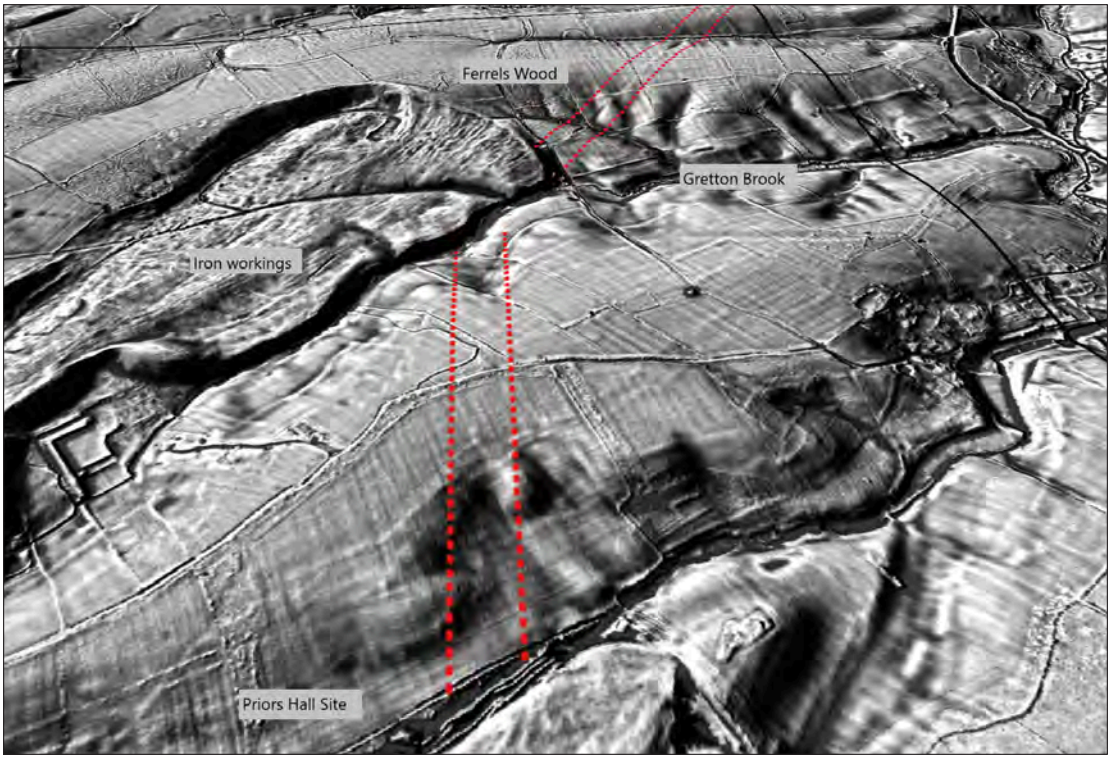


Figure 3: Lidar LRM perspective looking NE across Priors Hall excavation site. Lidar data © Environment Agency copyright and/or database right 2020. All rights reserved.

to Fineshade Brook, through Church Farm and all the way to Laxton and the intersection with the RR571 extension (Figure 4).

The intersection is the site of a known major iron-working centre, Roman cemetery and nucleated settlement location known as Laxton. Here several furnaces of around 1.5m diameter have been found, some of the largest in Europe. The exact configuration of the roads here is complicated by the A43 road course, man-made lakes and minor quarrying activity but the road can be seen again in the lidar data around SP 9676 9753 where it is heading 5 degrees east of north (Figure 5). The road continues along the boundary of Wakerley Great Wood, where it follows a parish boundary towards Wakerley Oaks and onto an intersection with the river Welland. Here, both the Leicestershire and Northamptonshire HERs record finds of possible Romano-British wooden bridge piles discovered during the straightening of the Welland river at around SP 9692 9962.

Ascending from the river valley, the lidar indicates the road following the same course, to the west of St Luke's church Tixover and towards the A47. The route northwards beyond the A47 to Geeston is not well defined by the lidar data. There are several possible route options, none of which have any certainty. The route appears to have served the Tixover Villa and may have had a connection to the recently discovered "Rutland villa" at Cuckoo Lodge. The Leicester HER records a single ditch SW of Geeston (SK 979 033) and a second single ditch at (SK 981 033) which are cited as evidence of a possible Roman route.

Through Geeston, the route underlies Geeston Road and heads to a probable crossing of the River Chater near the end of Steadfold lane. The road then heads for Great Casterton as it follows Steadfold

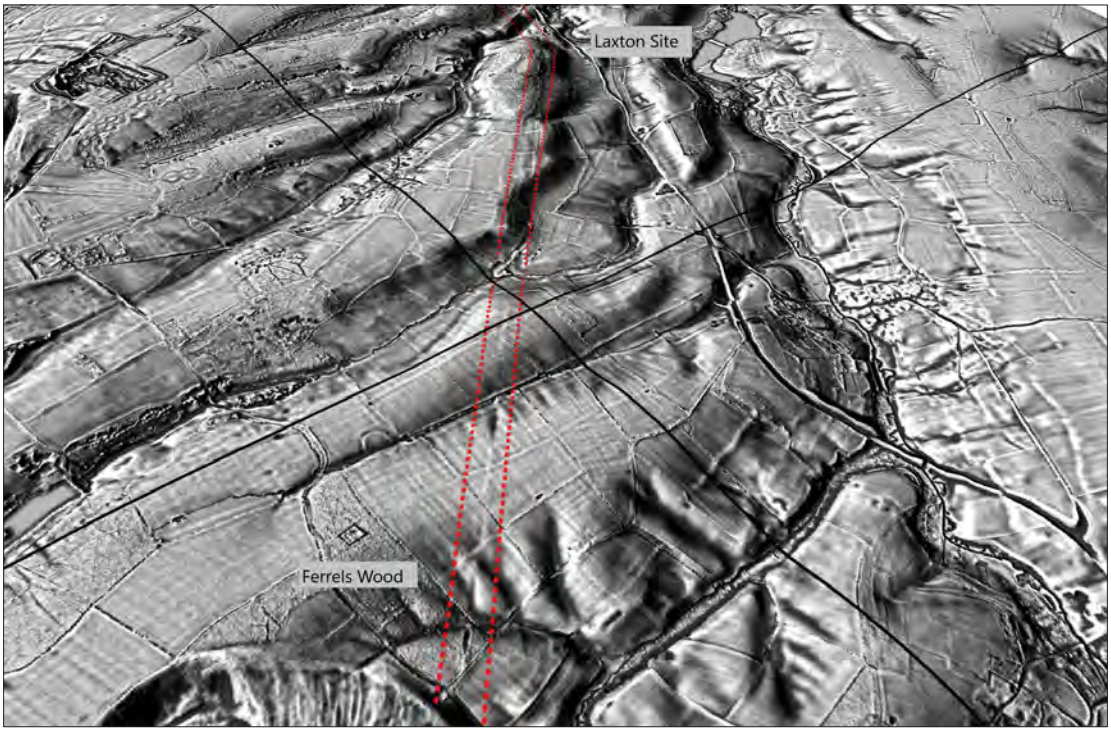


Figure 4: Lidar LRM perspective looking NE from Ferrels Wood to Laxton Roman site. Lidar data © Environment Agency copyright and/or database right 2020. All rights reserved.

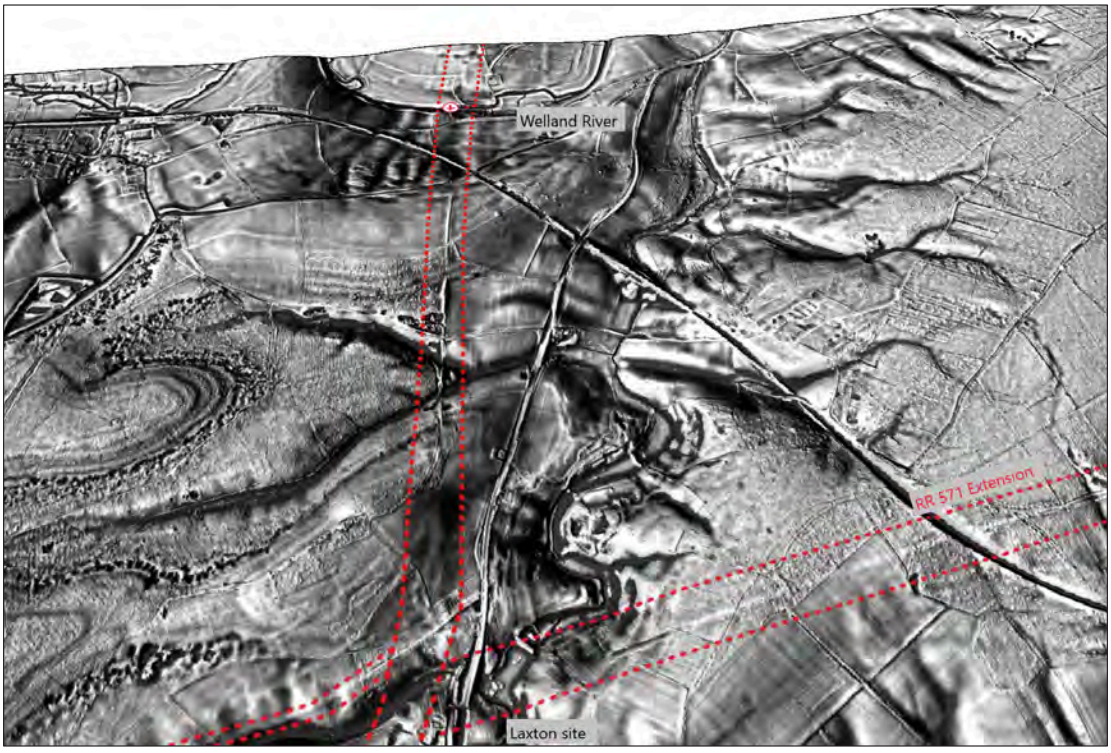


Figure 5: Lidar LRM perspective looking N from Laxton Roman site to the Welland River. Lidar data © Environment Agency copyright and/or database right 2020. All rights reserved.

lane until its junction with the A606. After the intersection, the road then passes across open fields for the last kilometre with a faint lidar signal and evidence of *agger* in a small valley until finally reaching Great Casterton.

RR571 extension, Northamptonshire and Peterborough, RR2 Ermine St near Ailsworth to Spanhoe Airfield, TL 1060 9906 SP 9410 9700

Lidar survey by Dr Wayne Kirk & David Ratledge

RR571 has long been recognised heading from a junction with RR2 (Ermine St) near Ailsworth to a point just northeast of King's Cliffe, where it suddenly ends as it reaches Stamford Rd. New lidar survey data combined with analysis of the Northamptonshire HER shows that the road continues heading WSW from King's Cliffe, through West Hay and Lynn Woods to a junction with newly identified RR574(x) at the Laxton Roman site. A further westward extension of the route to Spanhoe Airfield and identified prehistoric iron workings is also observed, although with slightly less certainty than the King's Cliffe to Laxton section. The total road extension is approximately 7.2km.

Lidar analysis of the section of road from RR2 to King's Cliffe is in good agreement with the existing mapping for this segment. The Roman road underlies more modern roads as it leaves RR2 and skirts around the river Nene to the north of Wansford. It then assumes a straight course as it follows King's Cliffe road past Bedford Purlieus Woods which was the subject of a Time Team dig some years ago but didn't really focus on the road, so not much to add from that. After leaving the woods, it runs to the

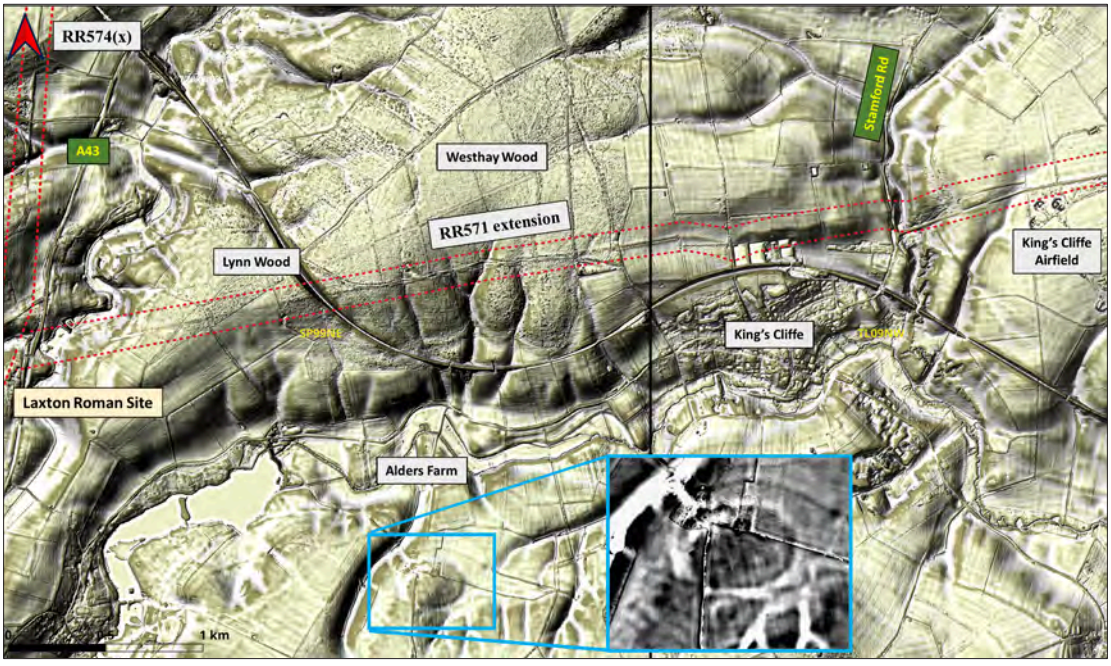


Figure 1: Lidar shaded LRM of RR571 in the area of King's Cliffe and oval enclosure insert. Lidar data © Environment Agency copyright and/or database right 2020. All rights reserved.

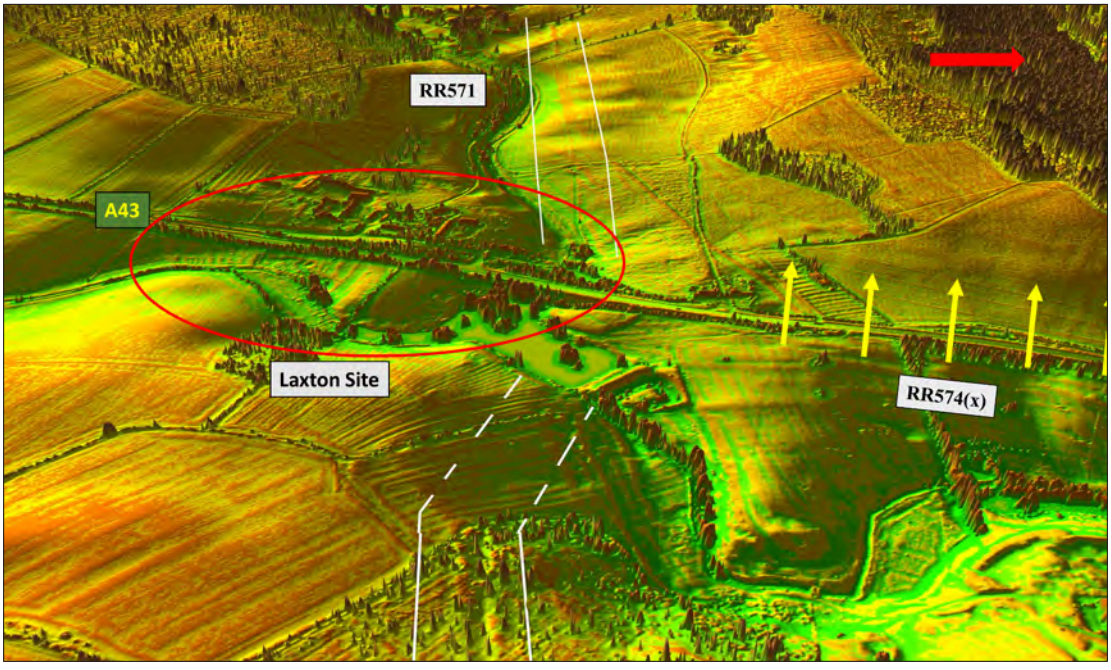


Figure 2: Lidar LRM perspective looking west at Laxton junction with RR574x (courtesy David Ratledge Roman Roads in Cambridgeshire (twithr.co.uk)). Lidar data © Environment Agency copyright and/or database right 2020. All rights reserved.

north of King's Cliffe airfield. Here, crop marks and the lidar data show the Roman Road running approximately 30m to the north of the modern road (Figure 1) as it approaches Stamford Rd.

Existing mapping has RR571 stopping as it reaches Stamford Road, probably because the route is obscured by quarrying in this area. The lidar data show it clearly continuing on its WSW orientation to the north of King's Cliffe, passing through Millennium Wood and into West Hay woods. The response is a positive feature on the lidar Local Relief Model (LRM) dataset, indicating it is raised above natural background levels. In the woods, it mostly underlies a modern woodland track but can undoubtedly be seen on lidar where the modern track bends off course. (Figure 1).

On leaving West Hay woods, the road crosses open fields for a short section at SP 9808 9746 where a scatter of limestone can be observed. The road then enters Lynn Wood for approximately 650m with some of the strongest lidar response around SP 9730 9729 where the road descends a steep slope towards and intersection with RR574(x) on the western side of the A43. Here, the road shows as cutting on the LRM dataset.

One further intriguing feature identified on the lidar in this area is what looks like a significant oval shaped enclosure, sitting on a hillside over-looking the Willow Brook valley and the Roman Road, approximately 400m south of Alders farm (Figure 1 insert). The enclosure is *c.*350m in diameter and has an area of around 7ha. The Northamptonshire HER has records of a significant scatter find of Romano-British pottery (HER 9465/0/0) in the area but not the enclosure feature. This may be an Iron Age enclosure possibly located, in part, to have access to the nearby iron ore deposits.

As the road reaches RR574(x), work by David Ratledge (Figure 2) indicates that the route continues almost straight across this junction, whereas the Northamptonshire HER record (HER 2870/1/6) suggests a slight offset, with the western portion of the road joining RR574(x) approximately 150m to

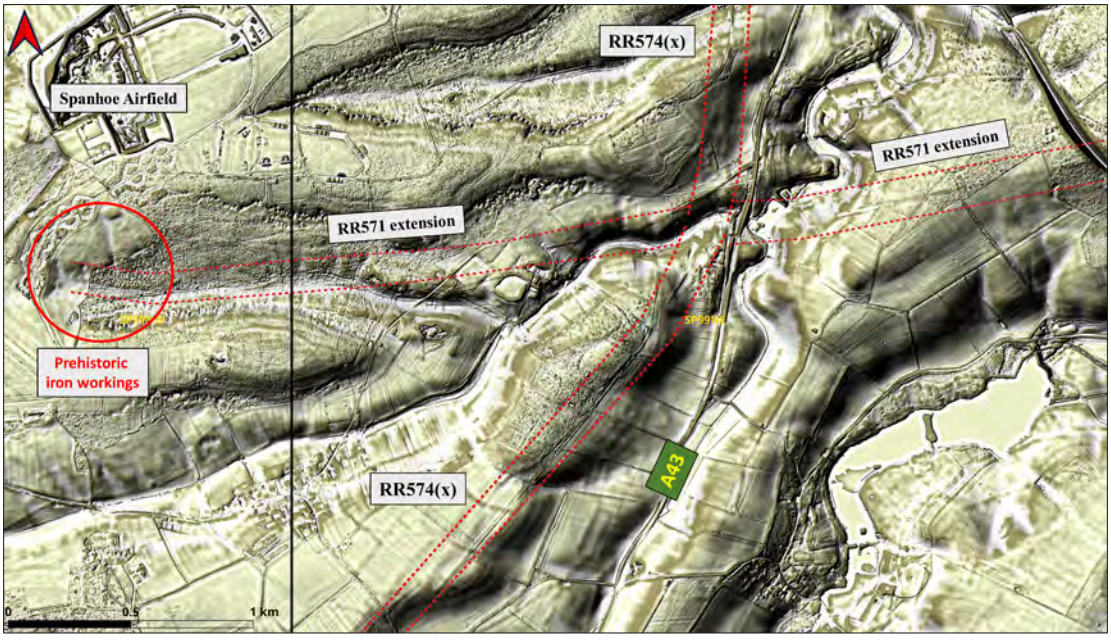


Figure 3: Lidar shaded LRM of RR571 in the area of Laxton Hall and Wood. Lidar data © Environment Agency copyright and/or database right 2020. All rights reserved.

the north of the eastern section. Also seen in this image is the *agger* associated with the northward continuation of RR574(x) running along the side of a slope to the west of the A43.

The intersection is the site of a major ironworking centre, Roman cemetery and nucleated settlement location known as Laxton. The exact configuration of the roads here is complicated by the more modern A43 road course and man-made lakes. It is also reported that Roman era dumping of slag covered an area of 4000 sq. m and partially filled a small valley. Either or both interpretations of the route may be correct, but the road does appear to continue westward beyond RR574(x).

The lidar data allows the route to be defined more accurately for a 550m section from SP 9645 9722 to SP 9592 9712 as the road passes through the grounds of Laxton Hall (Figure 3). The route is then lost due to landscaping to the west of Laxton Hall but reappears following a modern trackway in Laxton/ Town Woods. It is interpreted to follow the trackway for c1100m until the lidar data suggest a possible slight northerly alignment change at SP 9444 9696.

The road can be traced to around SP 9410 9700 on the former Spanhoe airfield site into an area recorded in the HER as prehistoric iron-workings. Beyond this it would meet earthworks associated with the airfield and then a modern iron quarrying site. Beyond the modern quarry, the route would reach the deserted medieval village of Shotley before entering Harringworth but no lidar evidence is seen of a continuation beyond Spanhoe airfield. It may have continued down towards the Welland river - there are some further iron ore sites around there. Possibly they had routes which "funnelled back" to RR571 which aren't substantial enough to turn up on the lidar.

RR575(x), Northamptonshire, Irchester Roman Town to Kettering Roman Town, SP 917 670 to SP 872 804. See also Cambridgeshire

Lidar survey by Dr Wayne Kirk

The Roman town of Irchester on the southern bank of the River Nene is an important hub for Roman activity in this area of the English Midlands between Watling Street and Ermine Street. Work by Margary and the Viatores shows RR170 heading south from the town towards Dungee corner and possibly onwards to Kempston with another branch to Olney. The town is also connected to Durobrivae and Thrapston (and RR57) by RR570 which runs SW-NE along the southern banks of the Nene and it may be connected to the Roman site at Duston in Northampton to the west.

A northern connection to the Roman town of Kettering has been suspected since the 1970's when a low linear earthwork/causeway (Northants HER 3141/1/5) was recognised crossing the floodplain to the north of the Nene (RCHME, 1979,96). This idea was supported in the late 1980's when the earthwork was further investigated and excavation in 1994 by Oxford Archaeological Unit definitively proved it to be of Roman age (Keevill and Williams, Northamptonshire Archaeology 1995, 26). Further evidence of the road has subsequently been found by geophysics and excavation during development of the Stanton Cross housing estate which lies just to the north of the causeway e.g., (Arkley and Walford, Mola, Report 18/155).

At the northern end of the route, excavations show that Kettering Roman town lies on an north-north-west to south-south-east alignment (Taylor, Kettering Roman Town, Extensive Urban Survey, 2002) which points towards a link back to Irchester Roman Town, although no archaeological evidence exists for the road heading south from Kettering.

The analysis of DEFRA lidar data helps to better define and expand the known extent of this 14.5 km road along the east bank of the River Ise through Burton Latimer and Barton Seagrave and onto a

junction with RR574x at Kettering Roman town (Figure 1) and indicates a slightly different route at the northern end to that proposed in the Northants HER (3141/1).

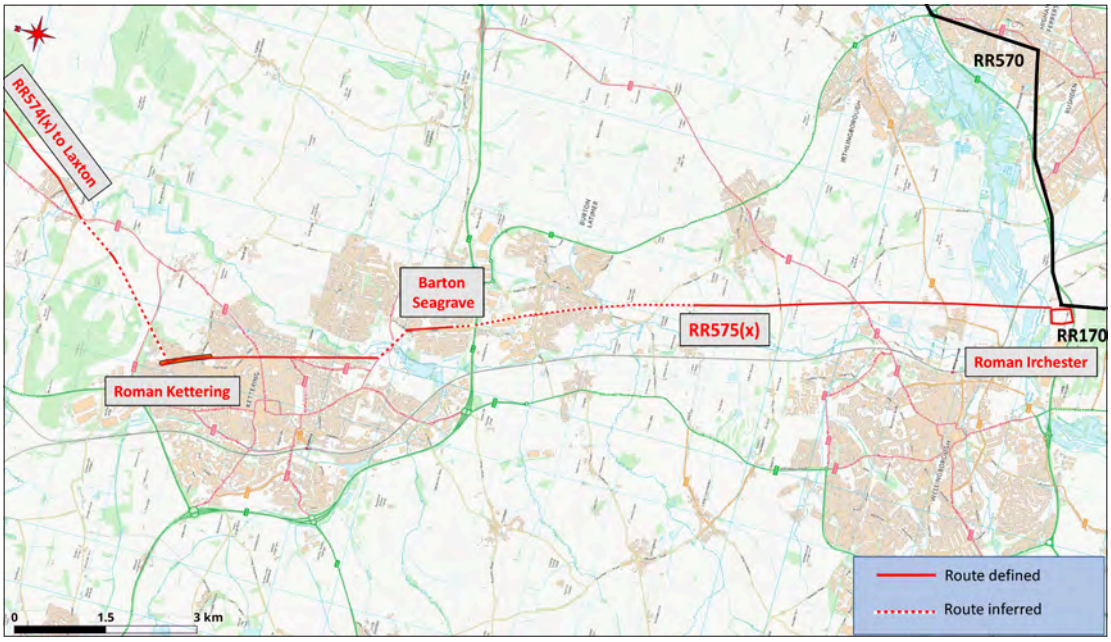


Figure 1: Overview of route of RR575(x) from Irchester Roman Town to Kettering

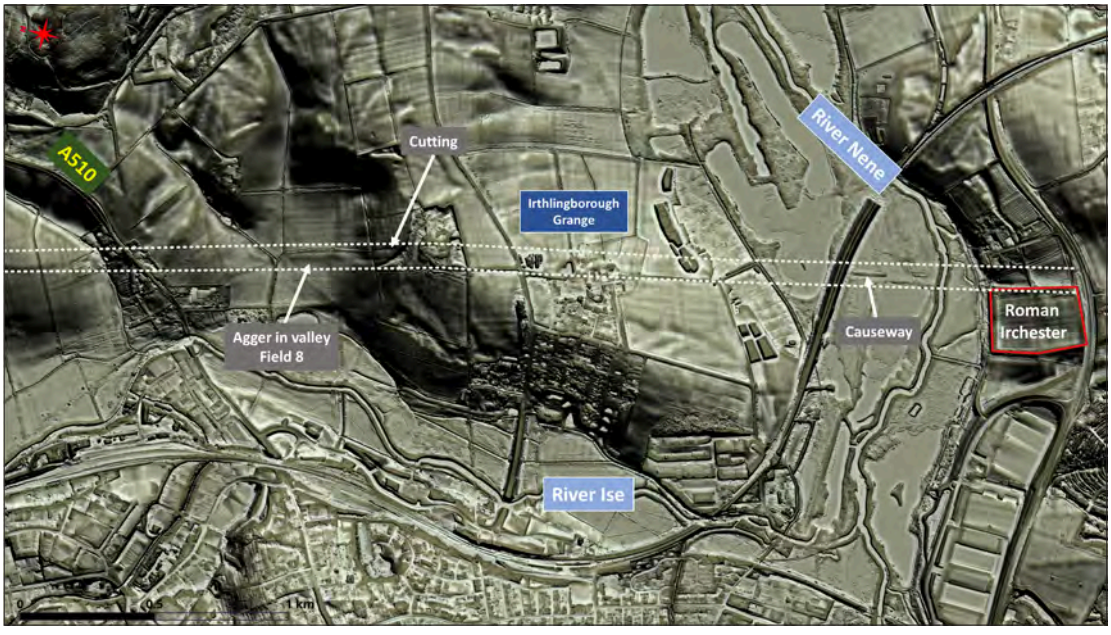


Figure 2: Lidar shaded LRM at around the Stanton Cross housing development. Lidar data © Environment Agency copyright and/or database right 2020. All rights reserved.

The area in and around the walled Roman town of Irchester has been extensively studied as it has been developed for new roads, industrial sites and housing estates. Key to the understanding of the Roman roads in the area was a geophysical survey which identified a road (RR170) approaching the town from the south to the east of the town walls (Butler, 2004, Northamptonshire Archaeology Unit, A geophysical survey of land south of the A45, Irchester Roman Town). This is in direct alignment with the causeway and road to the north of the Nene.

The causeway can be clearly seen on lidar data (Figure 2) and excavations have measured it at up to 17m wide (varying between 11-17m) and 0.6m above ground level (Keevill and Williams, Northamptonshire Archaeology 1995, 26). The *agger* consists of brown loam up to 0.45m thick which is covered by a layer of gravel metalling around 0.15m thick. The metalling consists of limestone and ironstone nodules 50-100mm across with occasional large river pebbles in a gravel matrix. Two phases of side ditch were identified on the east side of the road and three phases on the west side with a width of between 18-20m. Dating evidence comes from six coins and an assemblage of pottery which give dates between the 2nd and 4th centuries AD.

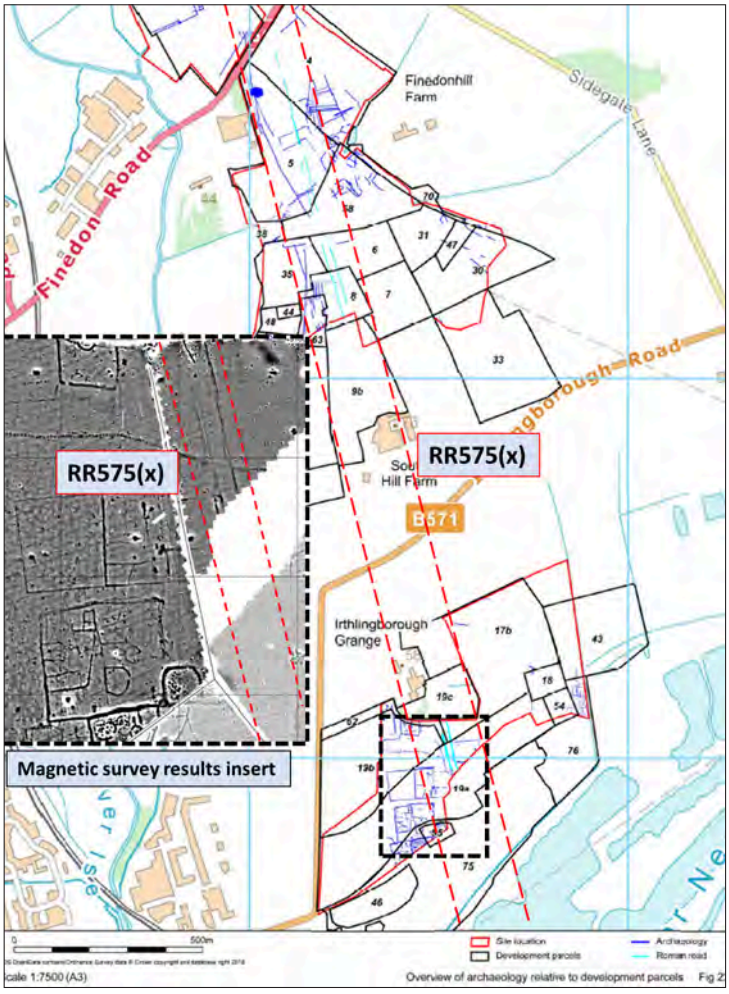


Figure 3: Geophysical survey results from Stanton Cross (Arkley and Walford, MOLA, Report 18/155).

Further north, the road enters the development area for the Stanton Cross housing estate which lies on the east side of the River Ise between the River Nene and the A510. The area has been extensively covered by geophysical surveys and some excavations undertaken. Figure 3 is assembled from a geophysical survey report (Arkley and Walford, MOLA, Report 18/155) and shows the road traversing the whole site and the insert gives an example of the magnetic response in the area just to the south of Irthlingborough Grange. The multiple side ditches can be seen with a width of *c.*17m, which is similar to the excavations of the road on the causeway.

The lidar response over this section is generally poor, except where the road passes into a slight valley in Field 8. Here, a

small cutting is observed along with a section of *agger* which runs parallel to a field boundary for *c.*350m (Figure 2). The overall muted lidar response is likely related to iron workings and poor preservation of the *agger*, as is evidenced by trial excavations either side of the A510 where only the roadside ditches are preserved (HER 3141/1 (13)).

North of the A510, there are no archaeological investigations, but the lidar data shows a linear feature on the correct orientation running from the A510 through Hillside Farm and onto Westfield Lodge SP 9088 7048 to SP 9037 7223 (Figure 4). Here a small cutting descends into a minor valley but then the road is not visible on the northern side of the valley in the fields heading towards Burton Latimer. This area has been affected by iron workings (e.g. HER 8432/2/1) which has disrupted the lidar signal from the Roman Road.

The road is expected to continue its course near to Barnfield Lodge Farm SP 8998 7357 and then on into the housing developments of Burton Latimer. The route through Burton Latimer is difficult to define but there is a subtle lidar linear ridge running from SP 8983 7413 to SP 8972 7446 which may indicate the location.

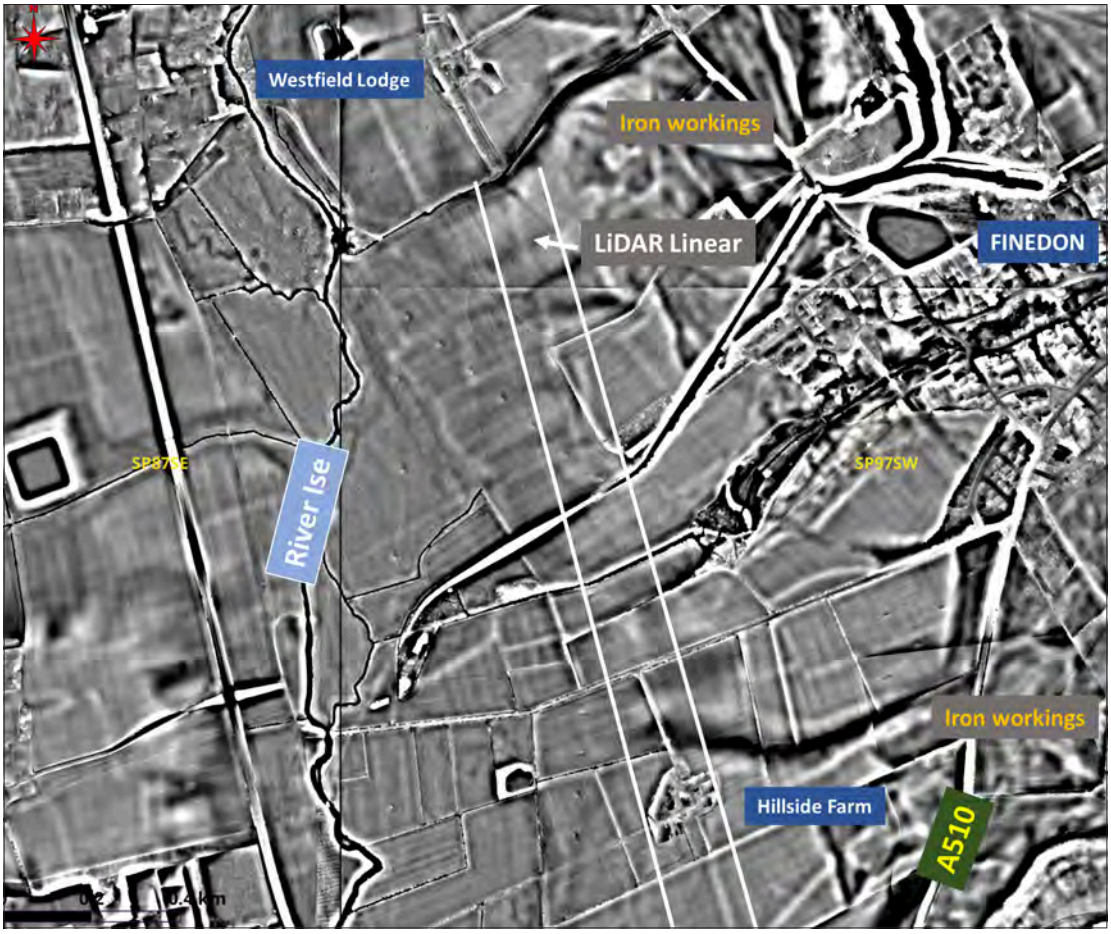


Figure 4: Lidar LRM from A510 to Burton Latimer. Lidar data © Environment Agency copyright and/or database right 2020. All rights reserved.

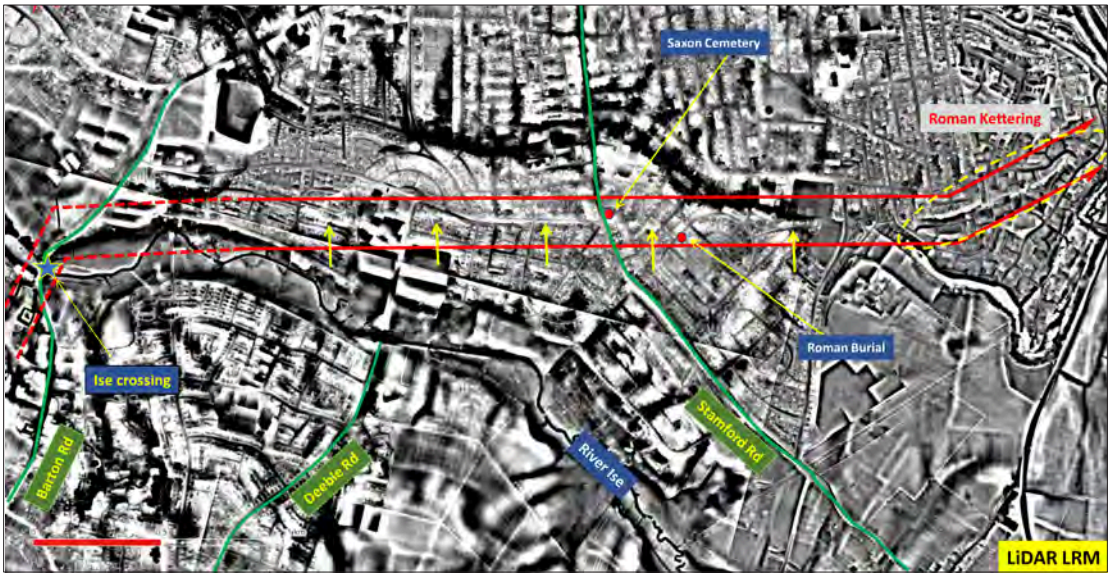


Figure 5: Lidar LRM from Kettering Roman Town to Barton Seagrave. Lidar data © Environment Agency copyright and/or database right 2020. All rights reserved.

The route defined in the Northamptonshire HER runs slightly to the east of this, through a poorly defined possible IA/Roman settlement at SP 8952 7552, onto the Romano-British site at Templar Rd/ Churchill Way, Kettering (SP 886 780) and then crossing the River Ise near Deeble Rd (SP 883 784). Whilst this route is possible, there is no evidence in the lidar data and there is stronger evidence for a crossing of the Ise further south at Barton Rd, which would support a more westerly route.

The preferred route continues the orientation of the Burton Latimer lidar ridges, towards an early Saxon cemetery at SP 890 758 (HER 3771/1), along a straight section of Polwell Lane, which is adjacent to the Romano-British and Saxon settlement at Dales Lodge Farm (SP 885 765), to a crossing of the Ise near Barton Seagrave Castle and Wicksteed Park. The village of Barton Seagrave was in existence in AD c1050 and the church dates from AD 1130 indicating there was probably a river crossing by that time at least.

The earliest map recognised in this area is Brazier's pre-enclosure map of Kettering from 1720, which shows a river crossing at this location. This map also shows a significant linear feature on the west side of the River Ise called Church Headland, which has been identified as a possible route for the road south out of the Roman Town (Dix, Northamptonshire Archaeology, 1986-7,21). The area overlying the Roman Road route in Kettering is now completely developed but when the lidar data is processed to generate a Local Relief Model (LRM), a faint linear alignment is seen which is likely the remnants of Church Headland and/or RR575(x) (Figure 5) heading south from Kettering Roman Town towards the Ise crossing.

Excavations indicate that Kettering Roman town lies on an north-west to south-east alignment (Taylor, Kettering Roman Town, Extensive Urban Survey, 2002) and this is supported by the linear anomaly seen in the lidar data. The feature appears to turn more north-north-west to south-south-east around SP 872 804 and then heads for the Saxon cemetery at the junction with Stamford Rd, along Windmill Avenue for a few hundred metres and continues straight towards the River Ise and a

crossing at Barton Rd. Thomas Jeffery's map of 1779 shows a road from the NW entering the region of the Roman town, which then turns more north-north-west to south-south-east as it exits the area, so a later age for some of the features cannot be discounted, but it may be that this road uses older origins for its alignment. The road is not on the 1st series OS mapping but the alignments show as the parish boundary, which may support this idea.

An extension of the road further N/NW towards Corby and RR57 using the lidar data has not been possible to identify. The area just north of the Roman town has been seriously disturbed by iron workings and housing development, but some relatively undisturbed regions lie further north. An unmetalled trackway with side ditches has been identified at SP 874 813 (Dix, Northamptonshire Archaeology, 1986-7, 21) but no indication of a road is seen on the lidar across undisturbed areas on this alignment. There is also a possibility that the route continues more NW towards Barford Villa and Bath house at SP 848 331 (HER 3961/1) but again iron workings have likely destroyed any lidar evidence and no continuation is seen outside the undisturbed areas.

It may be that the major traffic from Kettering went north-east along RR574(x) (Kirk, this volume) towards the junction with RR57 at the Stanion Villa site and the road to the north or north-west was relatively minor. This would imply that the focus for trade was more towards the east i.e., Durobrivae and Durovigutum than Ratae to the west.

RR576(x), Northamptonshire, Barton Seagrave to Geddington, SP 890 758 to SP 898 834

Lidar survey by Dr Wayne Kirk

A local Roman road of approximately 7.6 km between Barton Seagrave and Geddington has been identified which is believed to service a Roman villa in Warkton village. The road starts in the south at a junction with RR575(x) near the modern A14 in Barton Seagrave and heads slightly east of north through Warkton and the Boughton House estate to a junction with RR574(x) just north of Geddington village (Figure 1). The best lidar response is seen in the central section of the road, either side of Warkton village, but lidar anomalies on the correct alignment are seen throughout the route.

The road is interpreted to leave RR575(x) near the modern A14 and a substantial early Saxon cemetery at SP 890 758 (HER 3771/1), heading NNE along a lidar anomaly which follows the path of the old parish boundary between Burton Latimer and Barton Seagrave e.g., OS six Inch 1840-1880's. This is shown as a treeboard on the Barton Seagrave estate map of Viscountess Hood (1840's) but today lies in a housing estate.

The preferred route continues NNE through the housing estate to the area of Barton Seagrave Cricket Club, where it appears to follow an old field boundary (Figure 2). A geophysical survey of the fields immediately east of the boundary did not detect the road (Beaverstock, TVAS East Midlands, Land at Barton Rd Barton Seagrave Kettering, 2023) but the results around the route were reportedly affected by magnetic disturbance, so are probably not reliable.

The road then enters the Ise Lodge housing estate and is not seen on the lidar data. Figure 2 compares the OS six Inch 1840-1880's map (National Library of Scotland) with a 3D perspective view of the shaded lidar local relief model and shows the road passing through the former site of New Lodge Farm and following a series of straight field boundaries towards Warkton. Approximately 800m to the west of the road is the Romano-British site at Templar Rd/Churchill Way, Kettering (HER 3780/1, SP 886 780). The area immediately north of the Ise Lodge estate has been subject to archaeological investigation e.g. (Butler, Northamptonshire Archaeology Unit, Archaeological Geophysical Survey

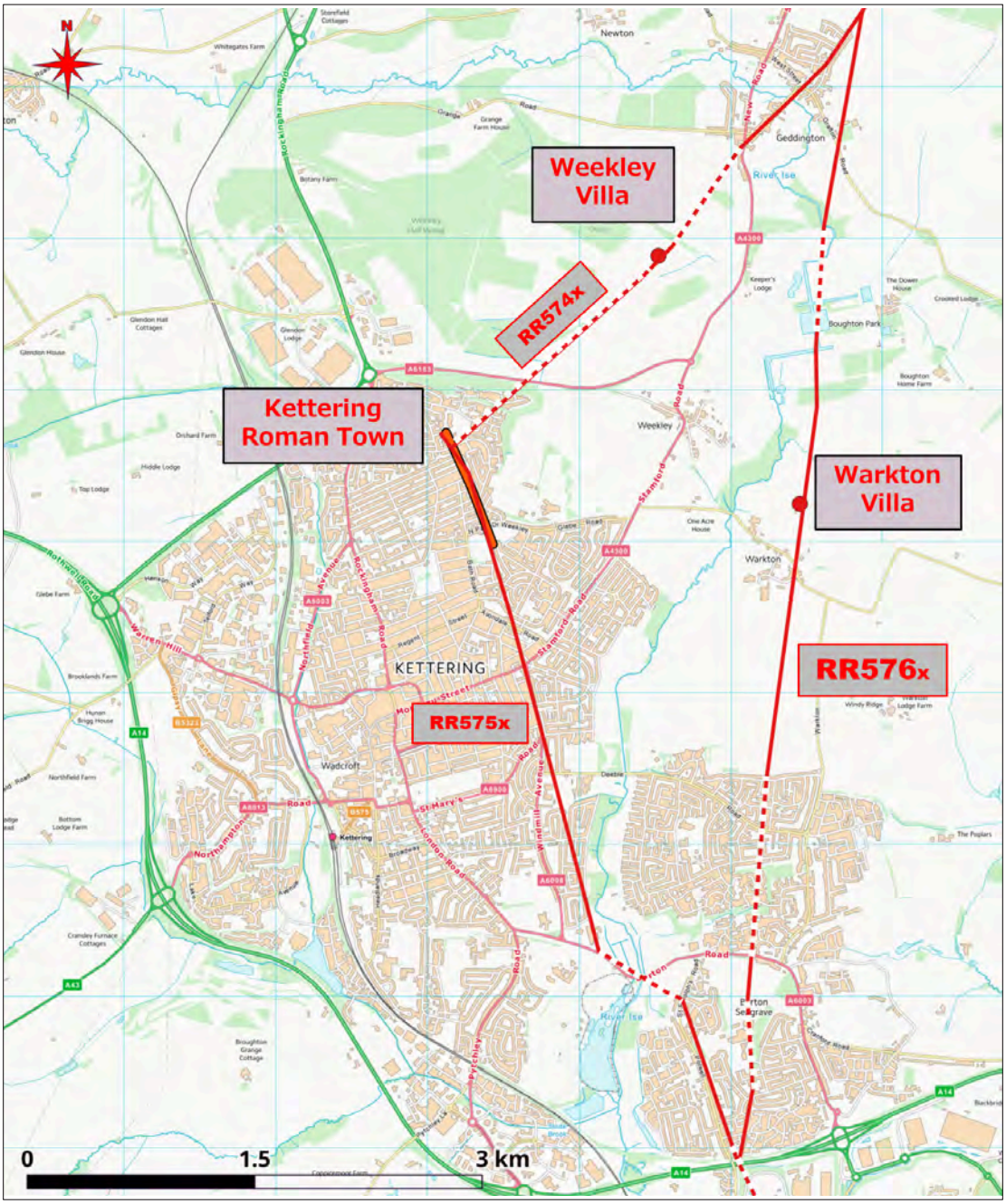


Figure 1: Overview of route of RR576(x) from Barton Seagrave to Geddington

on Land East of Kettering, Northamptonshire, 2011) which has not identified the road. However, as the road follows the field boundaries, it is not covered the geophysical surveys and any trial trenching avoided these areas.

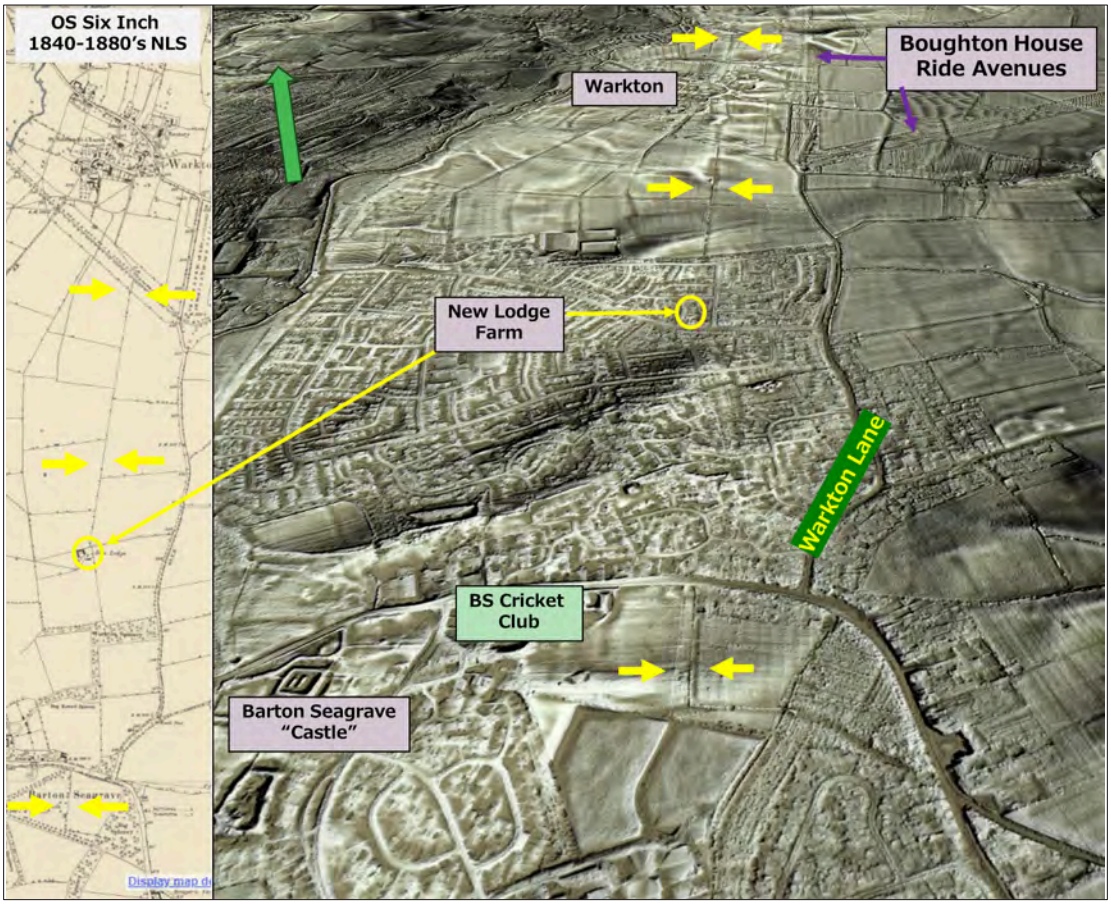


Figure 2: Perspective lidar shaded LRM and OS Map across Ise Lodge housing estate. Lidar data © Environment Agency copyright and/or database right 2020. All rights reserved.

The strength of the lidar response increases as the road approaches Warkton village and the Roman Villa. It can be seen underlying one of the Boughton estate ride avenues just before it reaches the village. Also apparent in this area (SP 893 794) is a region that appears to have been quarried (Figure 3). The road passes through the village, the site of Warkton Roman villa and continues towards the water features of Boughton House.

The site of the villa at Warkton (HER 3902) is still in the early stages of investigation. The area contains extensive Roman finds including pottery, stone scatters and tesserae, indicating the site of a high-status Roman building and an initial excavation has been undertaken with a further dig planned in 2024. Geophysical evaluation of the site has identified the villa and other buildings and a *c.*250m linear feature which is *c.*10m wide in the same position as the lidar anomaly (D Errickson, pers com). The feature has not been excavated as yet but may be in future seasons.

After passing the villa, the route continues towards the NNE and Boughton House. Just before the Broadwater Lake, the road may take a slight turn more towards the north, but it is quickly truncated, so it is difficult to see with certainty. The road is lost for several hundred meters through the water

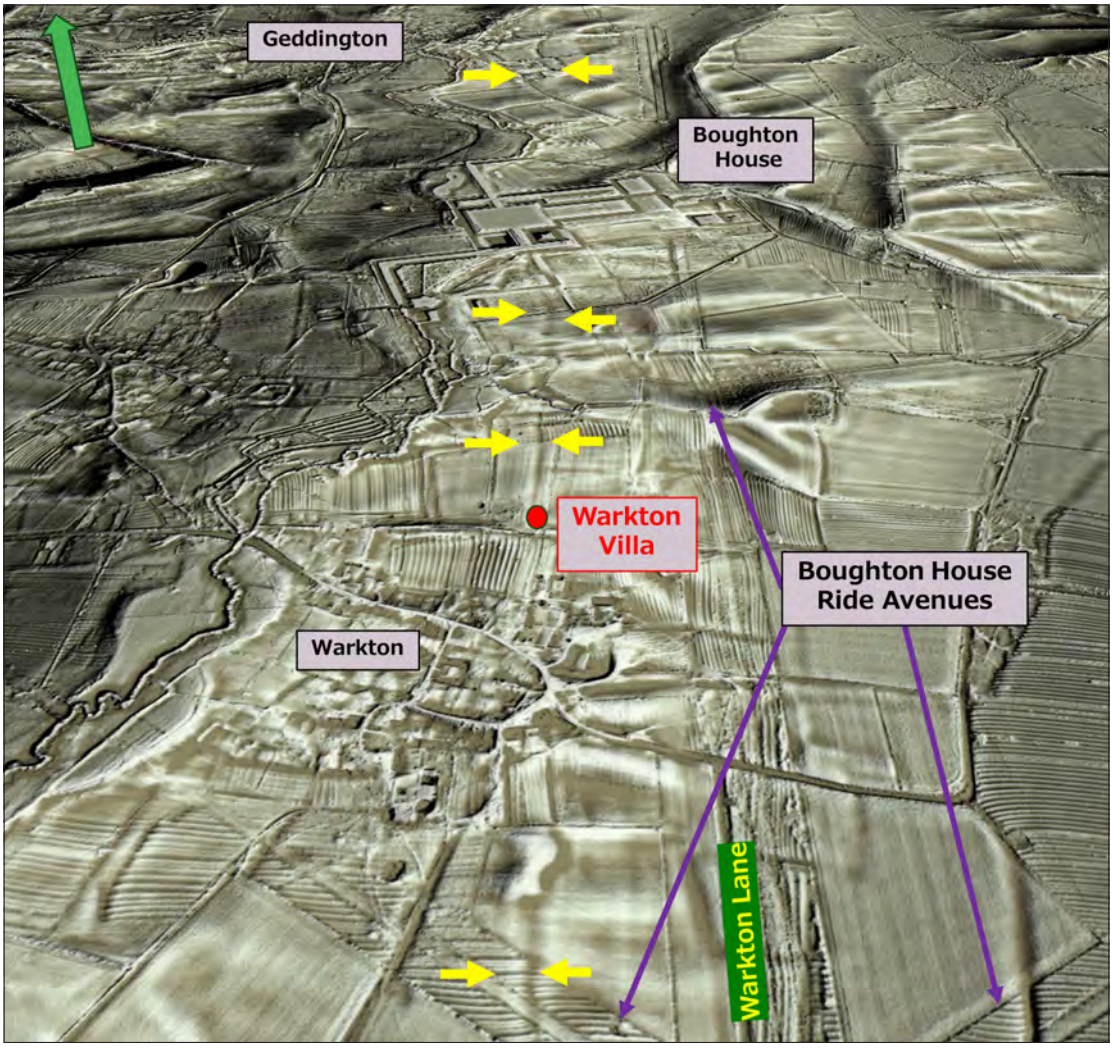


Figure 3: Perspective lidar shaded LRM from Warkton to Boughton House. Lidar data © Environment Agency copyright and/or database right 2020. All rights reserved.

features and as the road approaches the River Ise, however, a linear lidar feature between SP 8960 8223 and SP 8968 8258 indicates the course further north (Figure 4). The alignment would suggest that the current Ise river channel is a few tens of metres further east today than it was in Roman times, otherwise the road would have been in the channel. This is not unreasonable looking at the topography and the fact the waterways have been disturbed during the construction of the Boughton estate. A final section of lidar alignment is seen in fields east of Wood St in Geddington, as the road approaches the junction with RR574(x) at SP 898 834.

It is possible that the road is a "by-pass" for the main RR574(x) and RR575(x) routes in and out of Kettering Roman town, providing the Warkton villa with a more direct link with Irchester to the south and RR57 to the north-west. The site lies on the Northampton Ironstone formation, as do the

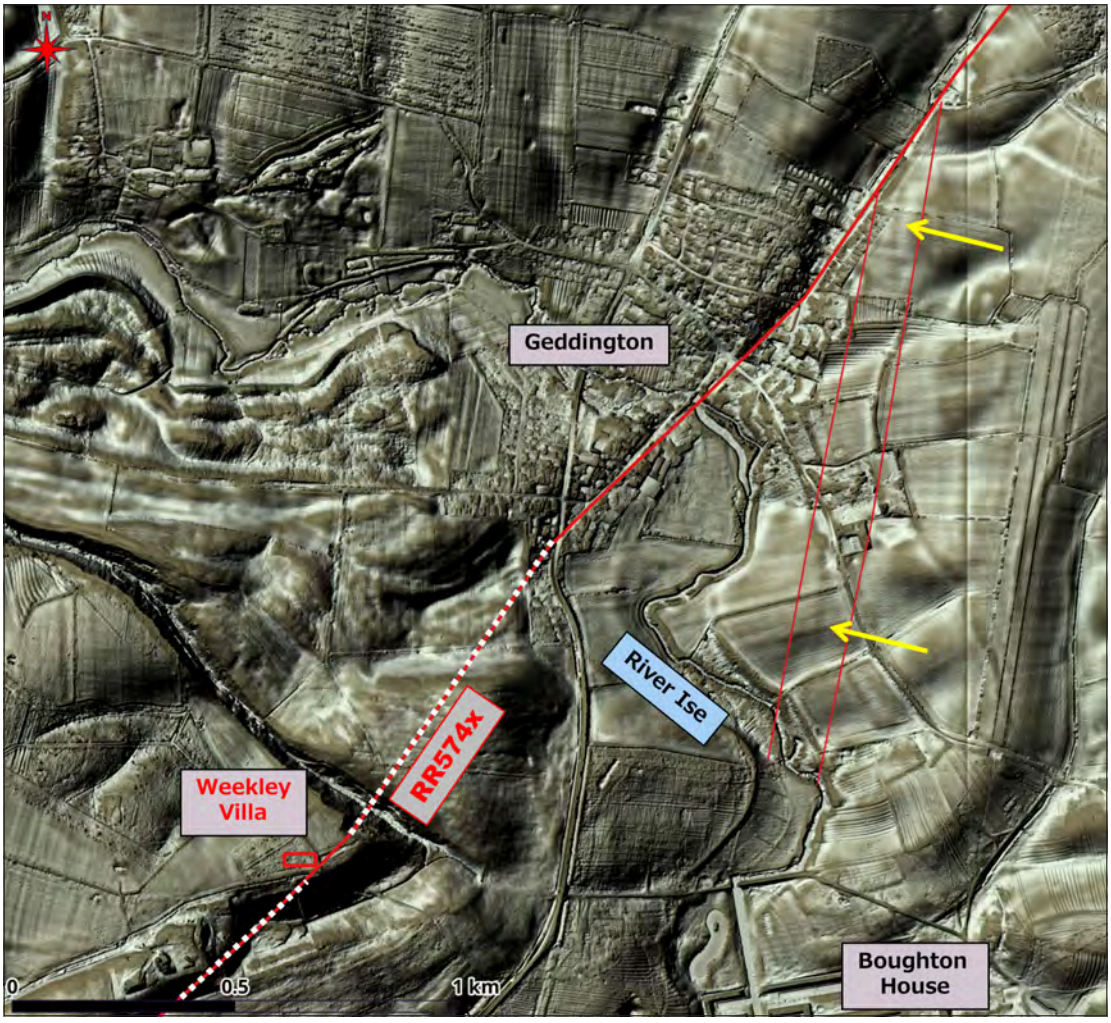


Figure 4: Lidar shaded LRM from Boughton House to Geddington. Lidar data © Environment Agency copyright and/or database right 2020. All rights reserved.

majority of major Roman sites in the area, so it is possible that iron/iron products were significant in the villa location and activities. Hopefully, further investigation of the site will reveal more details.

There is also the possibility of a Roman road heading west from the Warkton villa to Kettering along the course of the modern-day roads. The Saxon charter for Kettering from 956 AD has 'Walcot' furlong names between the villa and the Roman Town and where the modern road Pipe Lane crosses the River Ise is interpreted as "Weekley Ford" in the charter (Foard and Ballinger, Kettering EUS, 2000), so the crossing here has existed for at least 1000 years. The lidar clearly shows a significant hollow way heading east-west from the site of the villa to the location of the Ise crossing (Figure 3), indicating that the east-west route through Warkton was once much straighter than the current roads but the route into Kettering is not obvious on the data. Work at the villa site may also shed more light onto the origins of this feature.

Northumberland

Summary by Dave Armstrong

Low Learchild fort site and road junction, RR87/RR88

In August 2022, Gradiometer surveys were carried out at two sites by volunteers from the Roman Roads Research Association (RRRA), the Holystone History and Archaeology Group, and others from the local community. The surveys aimed to better understand the Roman fort at Low Learchild (HER No. 4465, NU 1007 1137), and the supposed junction of the Devil's Causeway with the Roman road from High Rochester some 700m to the west (NU 0936 1116). These were part of a major RRRA project to examine the Devil's Causeway (see elsewhere in this volume) and the sites along it and confirmed the presence of two successive Roman forts. The road junction survey found possible evidence of the Devil's Causeway, but no junction. Closer interrogation of lidar suggests that the junction may be some metres to the north of where mapped, outside of the survey area. See elsewhere in this volume and a full report on the survey is available on the RRRA website <https://romanroads.org/reports/low_learchild_smx006_final.pdf>.

Shropshire

Summary by Paul Smith

RR6a, Watling Steet (West), Wroxeter, (The Roman city of *Viriconium*) to Whitchurch.

Grid Reference: Three trenches located across the line of RR6a were located in grid refs: SJ5616 & SJ5617.

Archaeological evaluation undertaken by Archaeology Warwickshire ahead of the installation of solar arrays, battery storage and associated infrastructure on land to the north-west of Roden, Shropshire.

Planning permission had been granted by Telford and Wrekin Council for the installation of solar arrays, battery storage and associated infrastructure on land to the north-east of Haughton, north-west of Roden and west of Poynton, Shropshire (planning reference TWC/2020/0851). A condition of the planning permission required the applicant to secure the implementation of a programme of archaeological evaluation to determine if there are any significant archaeological remains within the site.

Archaeology Warwickshire carried out a programme of archaeological evaluation in June and August 2023. There was potential for Roman remains within the site as the line of the Roman road from Wroxeter to Chester (HER 00066) was thought to run through the eastern edge of the Site. Geophysical work undertaken in 2020 found no signs of the road. However, the line of the road is visible on lidar running north-west to south-east in the south-eastern corner of the Site.

The area was evaluated by means of 5400m of trial trenching (108 50m x 1.8m trenches). Trenches 96, 101 and 108 were moved from the positions specified in the WSI to more effectively target the potential Roman road visible on lidar data and these trenches included hand excavated slots across the line of the road.

The remains of the road were uncovered in three trenches, where it survived as a metalled surface, with ditches flanking some sections of it. The surface was best preserved in trench 108, where it appeared to have been maintained and remained in use as a track into the 19th century. It was not so

well preserved in the other two trenches, where it seemed to have been disturbed by the creation of a boundary that followed its line until the late 19th century.

In Trench 108 the road consisted of a metalled surface (10807; Figure 3) constructed from frequent rounded stones and fragments of slag, with occasional angular stones and iron fragments also present. At its widest point it was 3.40m wide and ranged in depth from 0.22m to 0.40m. The road sat within a shallow irregular hollow, and was overlaid by clay layer, sandy silt layer, and pebbly silt layer. The slag recovered from the metalled surface has not been assessed, but it may be post-medieval or later, and a small and very abraded sherd of probable Roman Grey Ware pottery was found. The road was flanked by ditches and to the east and west. Both had steep sides and a rounded base, no finds were recovered from either ditch.

Trench 101 was laid across the line of the road, and here it consisted of a spread of medium-large pebbles in a dark brownish grey clayey silt (10107) and a concentration of small-medium rounded pebbles in a greyish brown sandy silt (10110). Both had unclear edges, but appeared to be roughly north-north-west to south-south-east oriented and were probably the metalled surface of the road.

Trench 96 was positioned at the southern end of the road within the Site, and it contained two spreads of small-medium pebbles in very compacted silty loam (9603 and 9604). Both had depths of around 0.10m and appeared to be the surviving metalled surface of the road. They were separated by

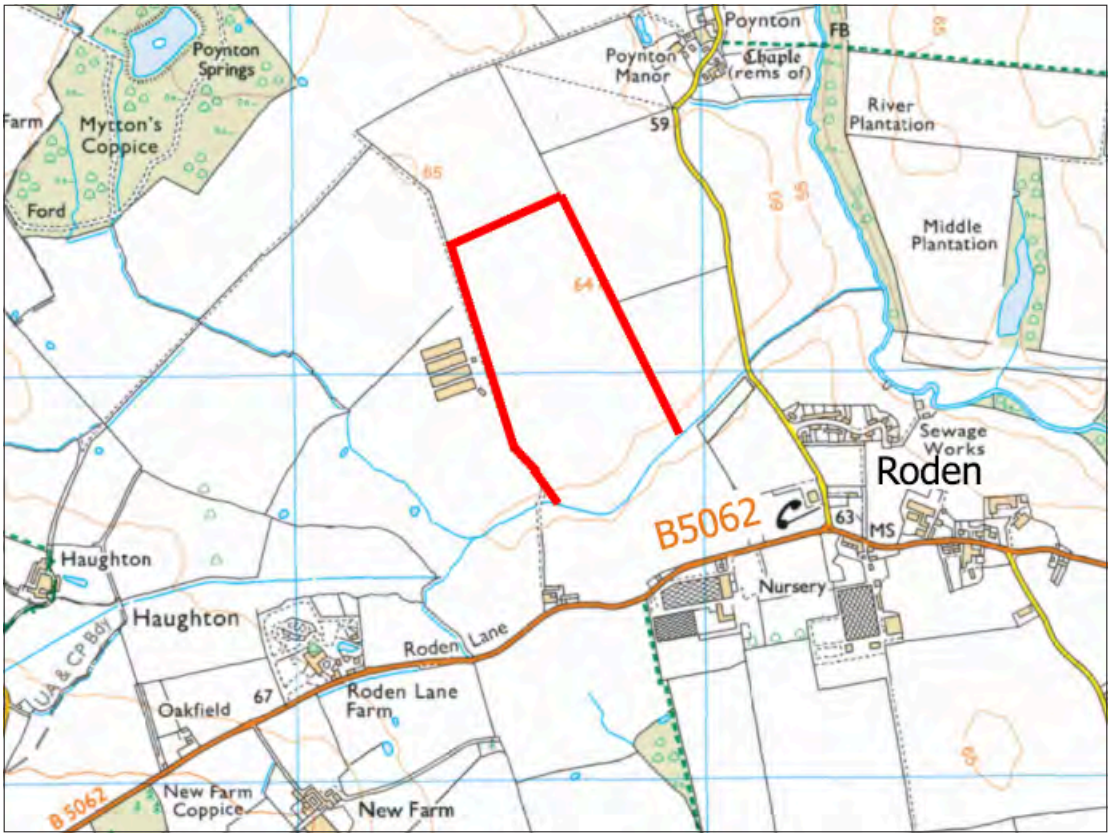


Fig 1: The 3 trenches located across the line of RR6a were located in the field indicated in red. © Paul Smith. © Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation.

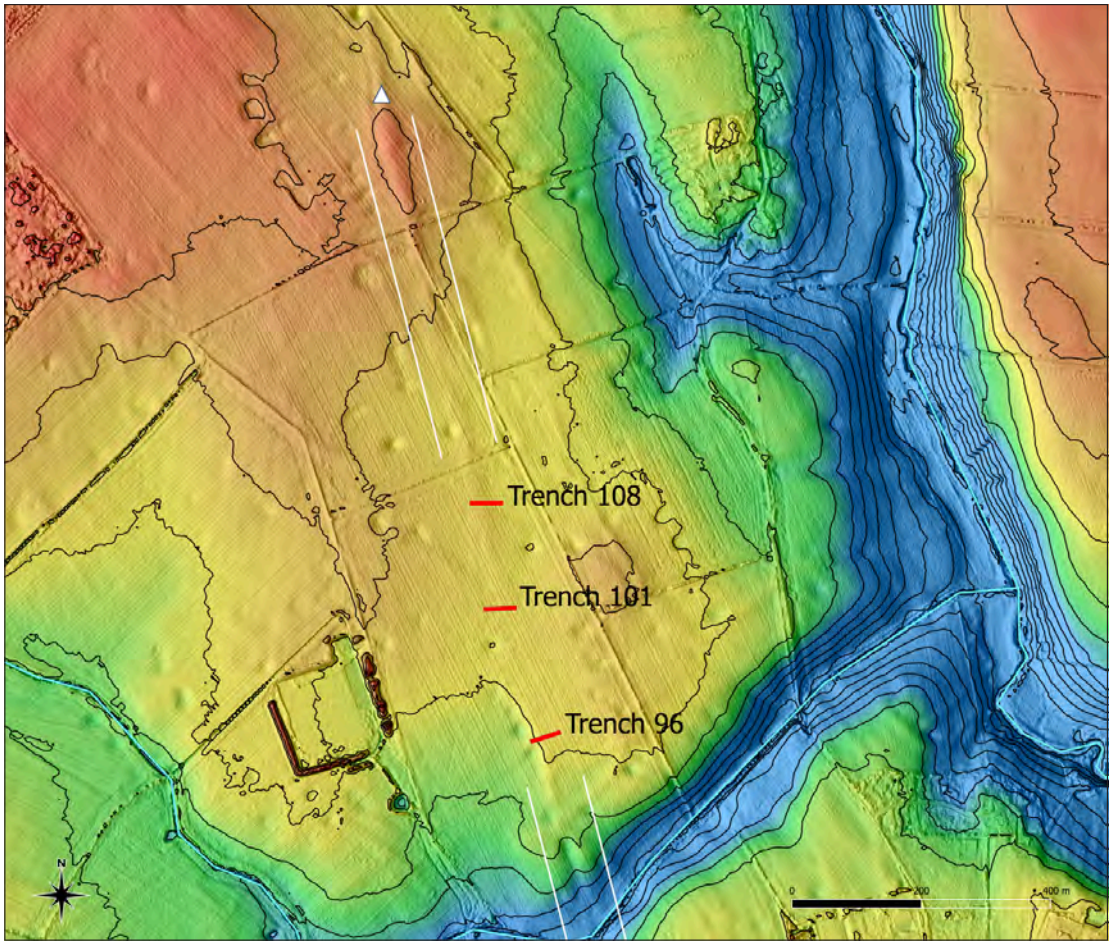


Fig 2: The location of trenches 96, 101 & 108. The white tram lines indicate the agger of RR6a. The white triangle to the north shows the location of the cross section across the agger; see Fig 4 © Paul Smith 2024. Base lidar data is © Crown Copyright 2020.

ditch 9605, which, like ditch 10108 in Trench 101, appeared to line up with the boundary shown on the Tithe map. Another ditch, 9607, was situated directly to the west of spread 9604 and may be a flanking ditch for the road, or part of the later boundary.

Correspondents Comment:

RR6a linked Wroxeter with Chester to the north and RR6b linked Wroxeter to Caerleon in the south. During the military operation in Wales and the Welsh Marches area must have been of key strategic importance. It was interesting to receive confirmation from Archaeology Warwickshire that the internal distance between ditches 10810 and 10812 in trench 108 is 3.68m.

This would seem to suggest that RR6a was much narrower than the normal width of a Roman road, yet a cross section created in QGIS and positioned approx. 650m to the north of Trench 108 shows that the *agger* here is 21m wide at a height of 0 to 0.2m above the surface of the rest of the field.



Fig 3: The metalled surface of RR6a seen in trench 108 looking south. © Archaeology Warwickshire.

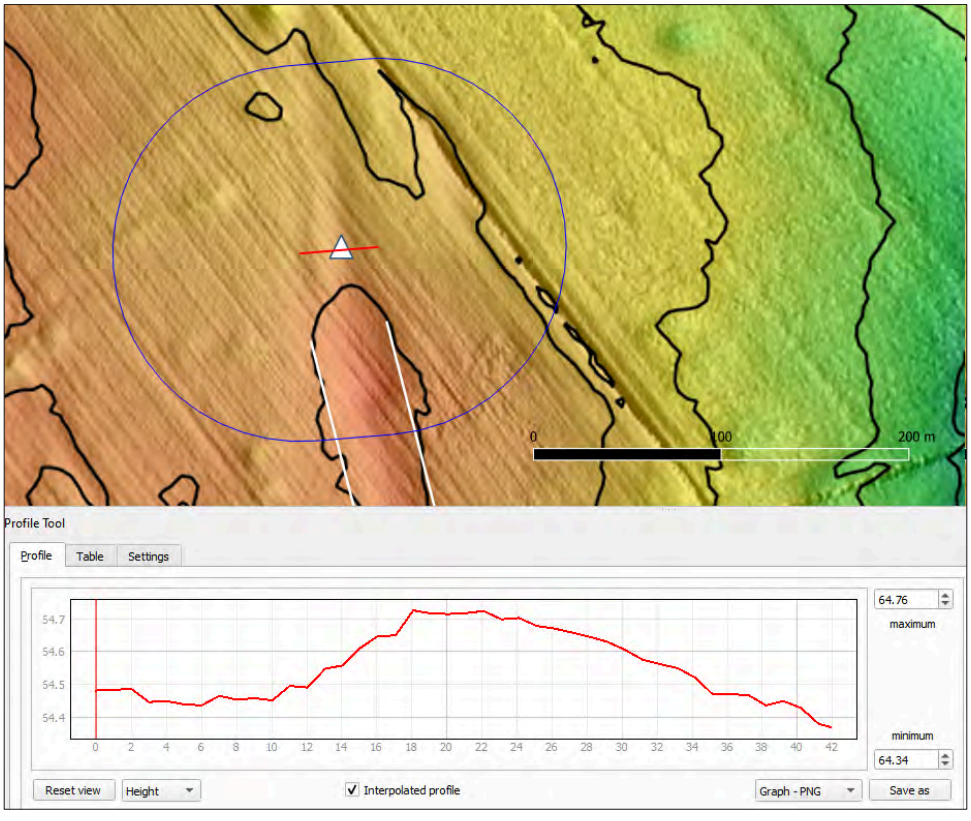


Fig 4: Cross section of agger of RR6a, see Fig 2 for location. Top half of the image shows the location in close-up; bottom half of the image shows the variation in height over a distance of 42m. 4 © Paul Smith 2024. Base lidar data is © Crown Copyright 2020.

Somerset

Summary by Elliott Moeuhli

Possible Rookham-Dalleston Road

Lidar analysis by S. Fairburn

The publication in 2023 of DEFRA's 2022 National Lidar Programme survey data has meant that for the first time, previously neglected upland areas such as Mendip Plateau now have full, publicly-accessible coverage. On Mendip specifically, lidar reveals a mostly-continuous, E-W linear earthwork, that can be traced with certainty from ST 545 486 near the hamlet of Rookham, which lies at the southern edge of the Mendip Plateau, a little north-east of the Iron Age/Romano-British farmstead at Hole Ground, Wookey Hole (Somerset HER: 24440).

From here, the earthwork heads eastwards, in a broadly straight line, with a few minor changes in alignment and the occasional gap, until it becomes near impossible to trace east of ST 598 495, between Green Ore and Binegar. It is possible however, that the earthwork's trajectory is continued by the eastern part of Whitnell Lane, in which case it may carry on even further, to join Turner's Court Lane (Fig. 1). Including this proposed eastern extension would make the hypothesised stretch of road 7.1km long. Interestingly, Tratman believed Turner's Court Lane to be part of a minor Roman Road which branched off north from the Charterhouse-Old Sarum road (RR45b), a little west of, and parallel

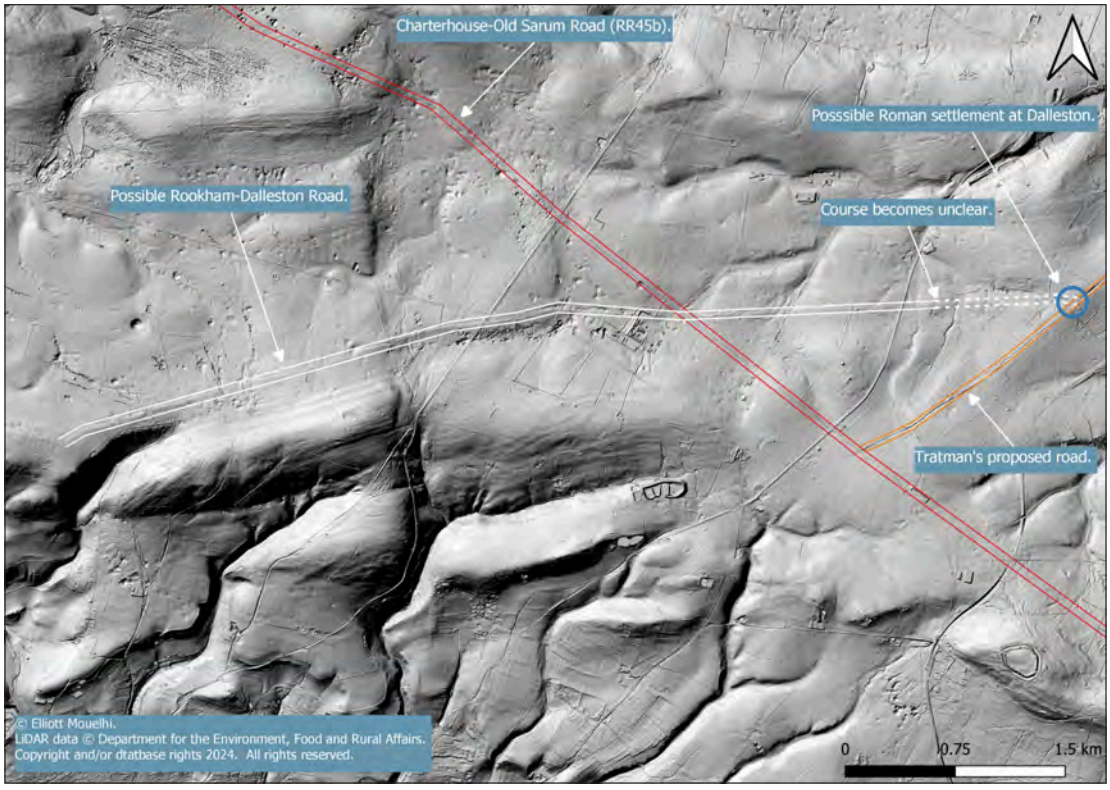


Fig.1: 1m DTM lidar image showing course of possible Rookham-Dalleston road (white), in relation to the Charterhouse-Old Sarum road (red) and Tratman's proposed road (orange). Lidar data © Environment Agency copyright and/or database right 2020. All rights reserved.

with the Foss Way (RR5b). Further, the hypothesised T-junction where the proposed road meets Turner's Court Lane would be at Dalleston, Binegar (ST 613 496), where a Roman coin and significant quantities of Roman pottery have been found, possibly indicative of a settlement (Somerset HER: 23151; 23468; 57162).

The earthwork's status as a road is nonetheless uncertain. The HER entry records that at "consistently about 10m in width, possibly with ditches to both N and possibly S forming a feature about 30m in width at its core", the earthwork would be unusually wide if it were indeed a Roman road, although given its relative straightness over such a considerable length, a geological explanation seems even more unlikely. Only a future excavation will be able to reveal the earthwork's true age and purpose.

Somerset HER: 48681.

Iron Age/Roman/Sub-Roman Trackway, Congresbury

Excavation by Cotswold Archaeology

Excavation in January 2023 by Cotswold Archaeology, at a site Smallway, Congresbury, centred on ST 438 647, revealed an Iron Age/Roman trackway. The excavation followed an earlier geophysical survey, which showed the trackways a positive linear anomaly, with an overall SW-NE alignment, notwithstanding a short dog-leg. The trackway was caught by three trenches and was found to have a construction cut of varying width (5.08-8.5m). In one trench, Iron Age pottery was recovered from a silty fill that had accumulated over the trackway's stone pebble surface. It is possible that these sherds were residual, as seemingly Roman ditches (possibly field boundaries) run parallel to the trackway on either side, suggesting the route continued to be used during this period.

The projected north-eastern course of the trackway approaches Cadbury-Congresbury Iron Age hillfort from the south-west, where the hill's gradient is gentlest and its alignment suggests that it connected hillfort with the River Yeo. The hillfort is one of many in the South-West which was refortified and re-occupied during the late Roman/sub-Roman period and Mediterranean pottery, including North African red-slipped ware, has been found at Cadbury-Congresbury during past excavations. The River Yeo, leading out into the Bristol Channel, is believed to have been part of a long-distance trade route connecting the hillfort with the Mediterranean.

North Somerset HER: MNS9595.

Reference

Cotswold Archaeology (2023): *Land at Smallway, Congresbury, North Somerset: Archaeological Evaluation*. Unpublished report.

The following Somerset note is from Neil Godfrey, a part-time D.Phil student at the University of Oxford researching sacred space in later prehistoric and Roman Landscapes. He recently investigated RRX037, RR54b, RR46 and RR52 for a dissertation exploring the landscape context of Romano-Celtic temples in Somerset and Wiltshire. The dissertation was completed as part of the MSc Applied Landscape Archaeology at the University of Oxford, and can be accessed at: <https://ora.ox.ac.uk/objects/uuid:de69aaa8-1962-4181-ac09-11b31eea662d>.

RR465(x), RRX037, Pylle Hill to Bruton, Somerset

Research and summary by Neil Godfrey

Ordnance Survey Archaeological Division (OSAD) archive files (1983a) record 'the probable course of a Roman road' (RRX037) - via soil, crop and relief markings on aerial photographs between between

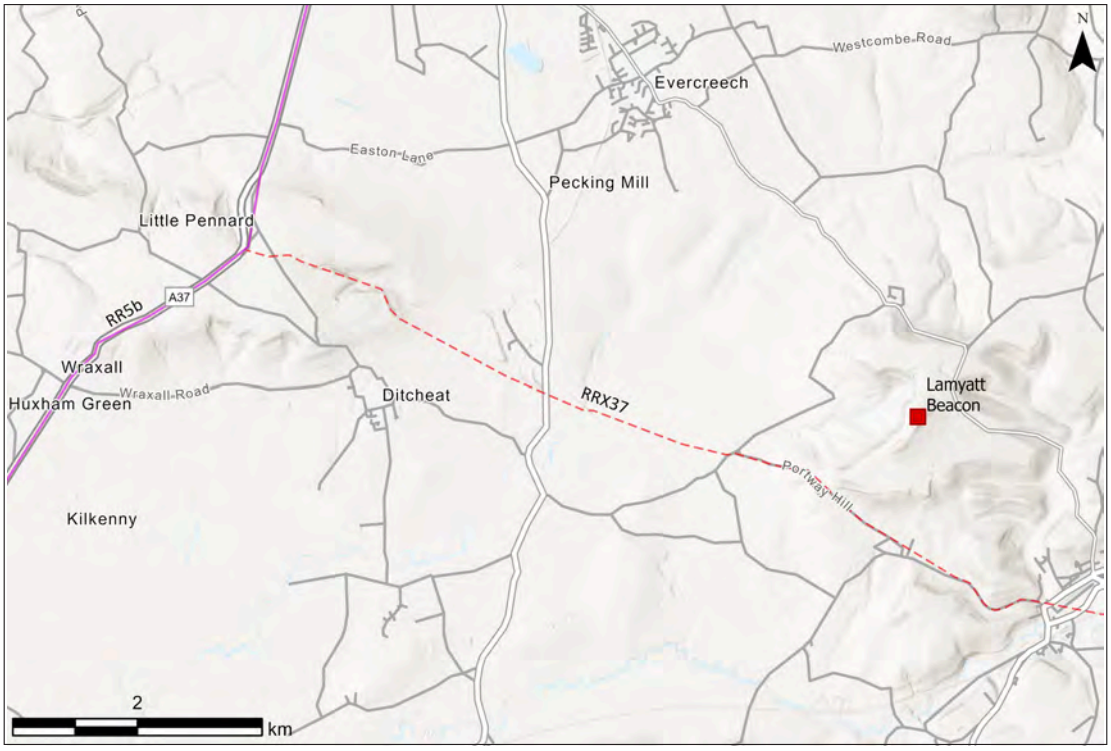


Figure 1. Map showing the course of RRX037/RR464(x) from the Fosse Way, Pylle Hill to Bruton. Map data © ArcGIS Pro 3.02, World Terrain Basemap.

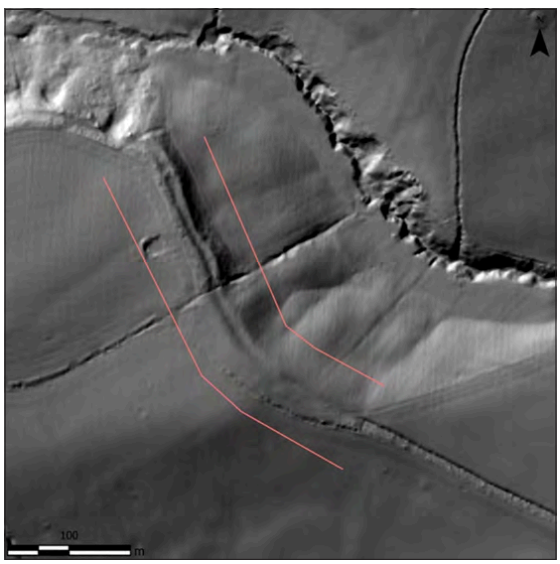


Figure 2. Holloway preceding parish and field boundary line. Lidar data © Environment Agency copyright and/or database right 2020. All rights reserved.

Pens Pits, Somerset (ST 76701 31530) and Knapp Hill, Dorset (ST 85047 27116) - which was assumed to eventually join RR46 at Semley, Wiltshire. The focus of the present study was to explore the notion that the western starting point of RRX037 was at a junction with RR5b (Foss Way) at Pylle Hill, Somerset (ST 61597 37577), and that the road continued from here into Bruton (ST 67938 34676) (Figure 1). Just as RR5b is indicated by the boundary between the parishes of Ditcheat and East Pennard, Aston and Burrow (1982, 64) suggest that RRX037 can be traced by a mainly straight line of parish and field boundaries between Pylle Hill and Lamyatt. The first visible evidence of RRX037 may be preserved by a holloway (ST 62688 37093) that is visible on an aerial photograph (Google Earth, 2024a) immediately preceding the commencement of this straight line of boundaries. Furthermore, lidar shows that the holloway is partly concealed by woodland (ST

62770 36983) (Figure 2). As the route approaches Evercreech Junction, an aerial photograph (RAF, 1924) shows ridge and furrow aligned along the proposed road route at ST 63088 36806.

Hedgerow has occupied the course of the route from the holloway to Lamyatt since at least the 19th century. However, there is a break in the hedge line, immediately east of the A371 at Evercreech Junction where historic mapping indicates that there was previously a boundary continuing the conjectured line of RRX037 (ST 64089 36295). Furthermore, traces of what may be the road are very faintly visible on lidar here, and it seems likely that the road crossed the River Alham at this point. It is notable that Broomhead (1988, 1-2) records a concentrated scatter of over 300 sherds of mid 2nd-4th century Romano-British pottery that was recovered from the same field, which he suggests almost certainly represents an occupation site at ST 64060 36400. It may also be significant that a public footpath follows the parish and field boundary line from Evercreech Junction towards Lamyatt, although this also follows the course of a stream.

As it approaches Lamyatt, at the point where the straight line of parish and field boundaries ends, the Somerset HER (2023) suggests that the route appears to form the east-west axis for the subsequent formation of a now shrunken medieval village, with 15 house platforms fronting the road (ST 65109 35934). This, together with some remnants of ridge and furrow aligned to the road, is clearly visible on lidar (Figure 3). The OSAD (1983) suggests that the route subsequently follows the narrow lane of Portway Hill to the south of Creech Hill, until it reaches Crabtree Lane. At Crabtree Lane, the OSAD (1983a) notes a possible crop/soil marking of RRX037 (ST 66844 35094), which corresponds to a feature visible on lidar and which is also aligned with the present Portway Hill to the north-west, which occupies the conjectural route of RRX037. From this point RRX037 is likely to have followed the course of Shute Lane through the valley into Bruton. The route from Bruton to Pen Pits remains uncertain (Somerset HER, 2023), although the OSAD (1983) notes that '*an 18th century coach road of singular straightness may occupy the course of the Roman road*' (ST 71876 33409).

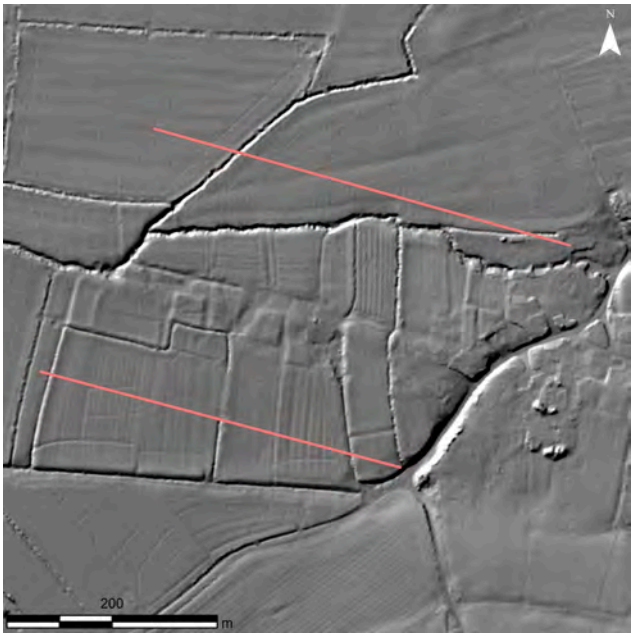


Figure 3. Lidar trace of the shrunken medieval village and ridge and furrow aligned to route of RRX037 Lidar data © Environment Agency copyright and/or database right 2020. All rights reserved.

Whilst requiring further investigation, the OSAD (1983a) evidence for the Pen Pits (ST 76701 31530) to Knapp Hill (ST 85047 27116) section appears to refute the repeated claim (Tratman, 1964 cited in OSAD 1983a; Aston and Burrow 1982, 64; Leech *et al.* 1986, 272), that RRX037 terminated at Lamyatt. Furthermore, whilst its likely junctions with both RR5b and RR46 suggests that it post-dated both roads, construction of RRX037 appears likely to have preceded the Romano-Celtic temple at Lamyatt Beacon (c. AD 300). Therefore, whilst the temple excavators (Leech *et al.* 1986, 272) suggest that RRX037 was built to serve and lead directly to the temple, it appears likely that its location was at

least partly selected for its proximity to the road. Furthermore, the discovery of portable votive objects at the temple site (Leech *et al.* 1986, 318), the limited pre-Roman finds recovered from the hilltop that might indicate pre-Roman significance of the location, together with its proximity of Lamyatt Beacon to both RR5b and RRX037, suggests that the temple may have been located to facilitate religiously oriented visitors. Indeed, the relationship between roads and temples is integral to the notion that some Romano-Celtic temples may have been pilgrimage destinations (Kiernan 2012, 83). Furthermore, GIS visibility analysis demonstrates that the distinctive Lamyatt Beacon hilltop is likely to have been visible from long sections of RR5b as well as from RRX037 as it approaches Lamyatt from Pylle Hill; which might suggest an intention to capitalise on the location to provide a visual focus for pilgrims travelling to a local cult centre. However, Lamyatt Beacon's accessibility and visual prominence may also have been valued for its potential to project a social display to road users, possibly bound up with the patronage of the native elite based at one of the nearby villas, such as that at Ditcheat.

As indicated elsewhere in this volume, the new Margary number RR465(x) has been reserved for this route, cross referenced to the OS RRX037, following the protocol laid out in Armstrong (2021: 282).

See also Wiltshire for RR54b, RR46 and RR52.

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Staffordshire

Summary by Paul Smith of work by Transforming the Trent Valley Scheme led by Dr. Mark Knight.

RR18c - Ricknild Street or Rycknield Street. Bean's Covert in Branston, to the south of Burton upon Trent. From SK 228 217 to SK 230 219

A report in *Itinera* III, page 290, described the removal of scrub and bramble from the known course of Ricknild Street, RR18c, in Bean's Covert. The removal of scrub and bramble revealed the top of the curve of the *agger* or convex road surface standing some 45cm higher than the level of the surrounding land surface, and approximately 8m from side to side. The adjacent ditches or fosses, either side of the road were also visible in places, although very silted due to accumulation of soil and



RR18c in Bean's Covert , Branston, Staffordshire. © April 15, 2023. Mark Knight. TTTV.

leaf litter over the centuries. The segment of road is 232m long and does not appear to have been damaged by ploughing.

Led by Transforming the Trent Valley Scheme, Branston Friends Group, working with local community groups and Burton Conservation Volunteers have managed to reduce the bramble growth on the road almost to nothing in 2023. It is hoped that, if sensitively managed, will allow celandine and other woodland wildflowers to carpet and protect the site. The trees on the site are protected by a tree preservation order.

Dr Mark Knight, Cultural Heritage Officer with the Transforming the Trent Valley Scheme comments that:

> *"Survival of Roman roads in this condition is rare in an urban setting; this remaining section of Ricknield Street in Bean's Covert deserves care and conservation for current and future generations."*

The RRRA believes that Roman roads could and should be conserved; progress with this project will be followed with keen interest.

For further information please visit; <www.thetrentvalley.org.uk/projects/tttv-heritage/conserving-a-roman-road-in-branston/> or contact Dr Mark Knight, Cultural Heritage Officer, with the Transforming the Trent Valley Scheme.

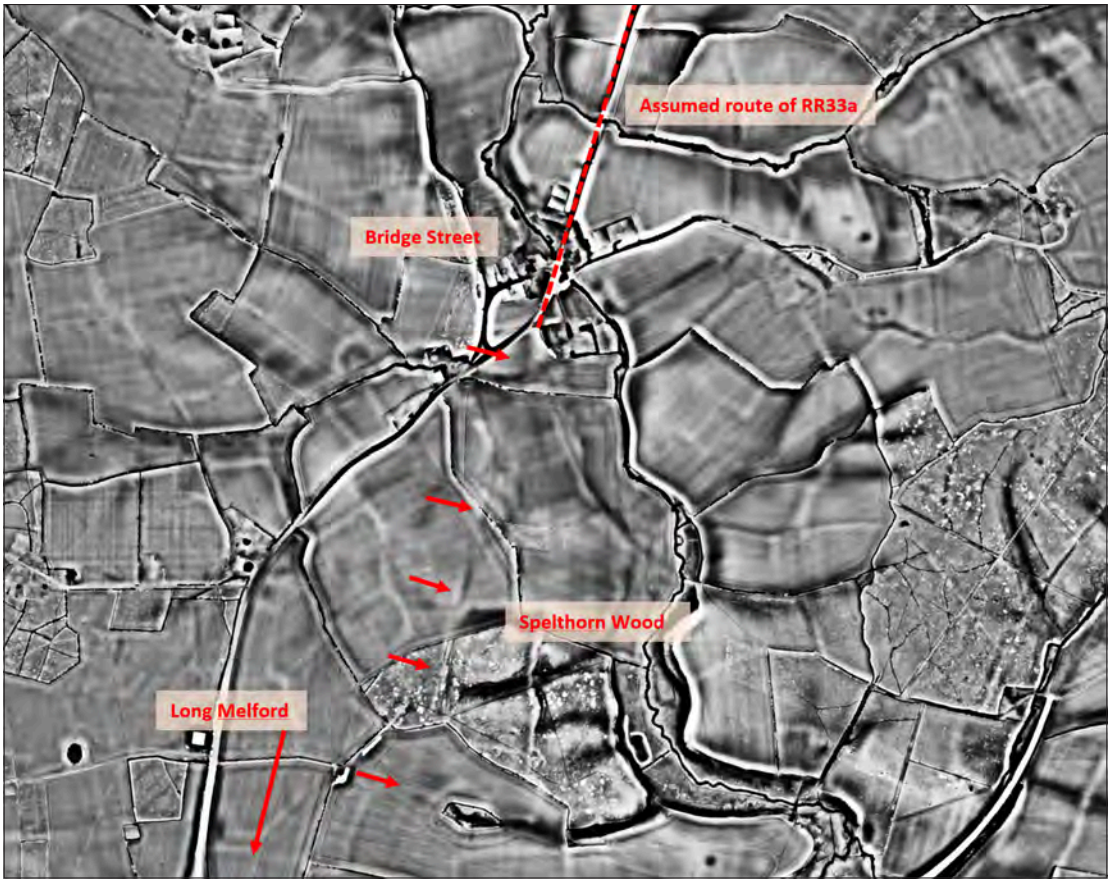
Suffolk

Summary by Geoff Lunn

Bridge Street, Alpheton, Suffolk, RR33a, TL87854911 RR33a

By Colchester Archaeological Group (CAG), Long Melford Heritage Centre (LMHC)

Since the days when Ivan Margary plotted the supposed route of RR33a, it has been assumed that the Roman road followed the High Street through Long Melford in Suffolk, and there is at least one



Lidar image revealing the course of RR33a to the north of Long Melford. Lidar data © Environment Agency copyright and/or database right 2020. All rights reserved.

recorded instance of workmen having encountered what was assumed to be the surface of the road whilst digging in the High Street in the 1960's. Recent work in and around Long Melford by members of LMHC has however cast some doubt on that assumption, based on excavations and other surveys around the small town.

In 2023, Geoff Lunn of CAG noticed what appeared to be a section of RR33a to the north of Long Melford on lidar. Subsequent investigation also revealed tell-tale cropmarks of the road on Google Earth Pro. Traces of the road can clearly be seen on both lidar and aerial images heading south from Bridge Street to Spelthorne Wood at TL8765548275, and where the road enters the wood on the north side, two clear banks are visible from the ground along the line of the road. Faint traces of the road are also visible where it exits the wood on the south side, but these traces disappear after approximately 300m. It seems likely that the road is heading for the known Roman settlement to the south of Long Melford town, but no further traces have yet been identified.

Spelthorne Wood is a Protected Ancient Woodland and permission to excavate is therefore unlikely to be granted, however, LMHC are hoping, with the permission of the landowner, to conduct a small

exploratory excavation in the summer of 2024 to investigate the remains of the road in the fields to the north of the wood.

HER Report No. N/A. Archive: N/A. Published Report: TBD

Surrey

Summary by Matt Sparkes

North Park Quarry, Bletchingley, TQ 318524

Work by J Sanigar and F Wood of Wessex Archaeology

A Romano-British trackway was located, defined 'by a pair or partially recut ditches, averaging 1m wide by 0.3 m deep, and set 14 m apart'. The trackway (previously mentioned briefly in *Itinera* 2, 328) has now been traced for 400 m and passes a Romano-British inhumation cemetery. If the unusually straight course is projected a short distance further to the south it appears to head for the site of a Roman building and hypocaust discovered in the early 19th century. The trackway runs approximately north-south, perhaps 3km west of the (also north-south orientated) RR150. (Sources: Surrey Archaeological Collections 104, 264-7, and 105, 258-60.)

Ewhurst, RR 151, several sites including NGR 50875 146077.

Work by David Calow (Surrey Archaeological Society) and Chris Gibson (Ewhurst Historical Society)

Surrey Archaeological Society and Ewhurst Historical Society have continued their work tracing the route of the Rowhook to Farley Heath road, RR151. This is an eight miles long spur from the London to Chichester road (RR15) and apparently ends in the vicinity of the Farley Heath Roman temple. (See *Itinera* 3, 295-7 for an earlier notice on this project). By probing along a one-mile stretch of the route of RR151, the road was located at four locations, typically being found to be 25 cm below the ground surface. Following excavation the construction details of the road were considered to be more typical of a longer distance road than simply an 8-mile track leading to a temple. Work therefore continues in trying to trace the possible course of the road beyond the temple, which may continue either to the assumed London to Winchester route, RR400(x), or the London to Silchester road RR4a. Progress to date will be covered in a report in a forthcoming volume of Surrey Archaeological Collections. (Source: Gibson, C. *Surrey's Past* 495, 8-11.)

Sussex

Summary by John Ashcroft

This review draws on recent records of finds in Sussex that may throw light on the network of Roman roads across the county, starting with East Sussex and moving on to West Sussex. It has relied heavily on the excellent co-operation of the three relevant Historic Environment Record Offices, covering East Sussex, West Sussex (excluding Chichester District) and Chichester District, for which I am immensely grateful. Note that it is the recording within the relevant HER that is recent, not necessarily the underlying archaeology. The HER numbers are given for each relevant entry.

As there have been relatively few new records relating directly to Roman roads, this review also summarises some finds relating to settlements which may shed light on the course of nearby roads. Even these are relatively limited as the extensive archaeology that has perforce taken place in recent

years has been mostly of the rescue variety at forthcoming developments or watching briefs, rather than targeted at places where particularly interesting archaeology might emerge.

East Sussex

Starting with East Sussex, this review excludes developments in the excavations at Bridge Farm/ Culver Farm near Barcombe and Wellingham, including a new road thence to the southwest, as there is little relevant to report since the article on these excavations by Rod Wallace in *Itinera* Volume II (2022). The remaining entries that relate directly to known (Margary categorised) Roman roads broadly confirm what is already supposed, with the exception of some interesting new evidence at the western end of the RR142 Arlington to Pevensey road, as follows:

RR13 Norton Farm, Battle (actually between Sedlescombe and Beauport Part at the north end of Hastings) (TQ 7840 1560 - MES37352):

The entry references a report of a section of Roman road between Oaklands and Beauport Park, noting that there is already evidence of this stretch of road including geophysics, confirming our understanding of the southern part of the RR13 (Rochester to Hastings).

RR14 Isfield Place, Buckham Hill, Isfield (TQ 4466 1846 - MES 37777):

Excavation in 2020 located a couple of assemblages of Roman pottery which might suggest some kind of settlement in the area and which might therefore strengthen the case for Margary's route of the London to Bridge Farm/Barcombe road (RR14) which he was forced to conclude ran by Isfield despite consequential additional river crossings.

RR142 Wootton Manor, Folkington (TQ 5634 0594 – EES19591):

Various types of archaeological fieldwork were undertaken in 2020 to check-out the course of the Arlington to Polegate (thence Pevensey) road (RR142) sometimes called 'Farne Street' which was first identified by Ivan Margary. They were unable to find any trace of a settlement but confirmed that the road took the course of the old coach road but then cut straight across a field which the coach road circumvented – in line with what one would expect from what is already known.

RR142 Rattle Road Pipeline Scheme, Stone Cross to Pevensey – road at Westham (TQ 6334 0452 – EES 19686):

The archaeological intervention (by Archaeology Southeast in 2018/19) was about a kilometre west of the 3rd century Roman fort at Pevensey (*Anderitum*) from which it is known a road ran west (RR142). The entry records evidence of a Roman road that it declares (perhaps over-cautiously) to be 'perhaps a Roman road, comprising layer/s of stone and/or flint cobbles, at four locations'.

Arlington to Pevensey road (RR142):

Recent archaeology helps to answer the question of why this road ran east of Arlington before the Saxon Shore fort was built at Pevensey (*Anderitum*) during the 3rd century. It strengthens two competing theories, as detailed in the following two entries.

RR142 Land at Uplands Farm, Rattle Road, Stone Cross (TQ 6240 0426 - MES36786):

An excavation in 2019 disclosed a concentration of late Iron Age or early Romano-British features indicative of settlement activity. As well as ditches there was a concentration of features containing pottery, and possible fragments of fired clay pedestals, indicating salt production or industrial activity. Finds from another part of the site suggest a more domestic function, with one ditch containing large fragments of wide-mouthed necked bowl/jar of probable mid-1st century AD date. This seems to be a southern continuation of a previously excavated settlement (can be referenced from EES18766). Overall, this would appear to be a significantly sized settlement of pre-Roman origin, which might by itself justify a road from Arlington, which it is on or close to the line of. The road could then have been extended to Pevensey fort once that was built. However, we may not need to assume that Stone Cross was the road's destination, should evidence be found that the Pevensey site was occupied before the fort. This is now emerging, see below.

RR142 Ivymead, Pevensey (TQ 6443 0490 - MES37955):

An entry in 2021 reported on a ditch emanating north from the Pevensey fort, containing late Iron Age or early Roman pottery, alongside some ceramic Roman building material. Taken together these suggest a settlement outside and pre-dating the fort (with quite probably plenty more buried underneath the fort). (There was also a Roman burial although this might date from after the fort being built). The finds could provide the first evidence that there was sufficient settlement at Pevensey to justify a Roman road running from Arlington (RR142) from the early Roman period, rather than as a later addition to the network. The Pevensey site lies on a spur into the Pevensey Levels, in Roman times a vast wetland area passable only by boat, and hence would most definitely have been the end of the road.

Whilst there has been little other archaeology in East Sussex referencing roads, some recent archaeology relating to settlements may strengthen, (or in one case weaken) the case for several more speculative roads mostly not identified by Ivan Margary.

An obvious gap is in the road network is the absence of any road linking the east and west of East Sussex across the Sussex Weald north of the intrusive Pevensey Levels, despite the extensive iron industry in the Weald which would be exported through the Channel harbours. Identifying where such a road (or roads) might run is made harder by the limited number of Romano-British settlements identified in this area, and the complete disappearance of settlement after the Romans left. Recent excavations (between 2018 and 2021) near Battle may, however, point to a possible settlement sufficiently important to have a road running through. These have centred on North Trade Road, Battle (TQ 7284 1595 - MES36369, EES18749, EES19151, EES20043 & MES38073). The site is over a km to the west of the post-Roman town of Battle. Evidence has emerged of Roman features (including a ditch, gully and artefact spread). There is evidence of small-scale iron production during the Romano-British period industrial activity. Taken together these excavations suggest that there might have been an extensive and important settlement here. This in turn might suggest that if there had been a road from Arlington on the RR142 in the west to the RR13 Rochester to Hastings road, and thence to Bodiam, hence connecting two important iron industry forwarding sites, it would surely have come this way.

Other reports of Romano-British settlement of possible interest are:

RR143 Brodricklands & Hamlands Farm, Willingdon (TQ 5957 0363 - MES37820):

A 2021 evaluation report documents extensive Roman period burials along with a Roman period barn and associated ditches. Many of the linear features run towards a previously excavated settlement of round houses. The site would seem to be close to the Stone Cross to Jevington road identified by Margary (RR143) adding to the evidence for it passing this way.

Ewe Down, Exceat, Seaford (TV 5106 9992 - MES36480):

Roman pottery sherds were recovered during an excavation at this location. Their location in topsoil is suggestive of their being washed down from a higher point which may have been close to a potential road from Jevington to the possible Roman harbour at Seaford. This would add weight to the idea that Margary's RR143, which he has terminating at Jevington, continued to Seaford, bearing in mind the absence of any good reason for Jevington itself being the terminus.

Antony Close, Bishopstone (TQ 4670 0074 - MES36510):

A large assemblage of Iron Age to Roman pot sherds was excavated. They 'undoubtedly' relate to activity from the nearby settlement, probably representing an unintentional refuse spread or deliberate manuring. This adds further weight to the case for a significant settlement in this vicinity (at Rookery Hill or Bishopstone village itself) and for a Roman road running this way from Gynde and the Roman town at Wellingham/Bridge Farm down to Seaford with its likely harbour. In this context it is interesting that further Romano-British remains have been found at two central locations in Seaford (MES36650 and 38048). That some of the pot sherds found were pre Roman suggests that this might have been a significant location from an early date.

Lower Lodge Farm, Laughton Road, Ringmer (TQ 4641 1297 - MES38218):

Evidence was found in 2020 and 2022 of late Iron Age and early Romano-British settlement including storage pits and pottery. It is thought that the settlement then moved to a drier site nearby. Disappointingly, no evidence was found of the possible road from Bridge Farm/Barcombe to Arlington (to be continued by RR142), which might have been expected to run through or near to this site. However, reference to a ditch on a NE/SW alignment might just relate to a Roman road headed into the weald associated with the remarkably straight road called the Broyle, although this was not suggested.

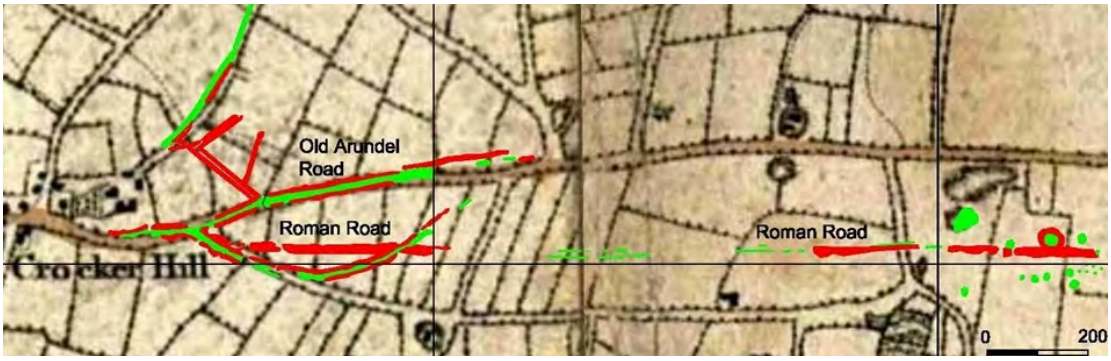
Lewes Residential and Walwers Lane Sites, Lewes (TQ 4172 1007 - MES36468):

Sporadic Roman finds were recorded across the Lewes Residential and Walwers Lane sites (associated with re-development activity), including tile, pottery, coin and jewellery, increasing the likelihood of a settlement in what is now Lewes town of sufficient size to justify road access. Some residual tile fragments have been found close-by (MES36535). These finds are relevant to discovery of a road running southwest to Offham, and quite probably Lewes, from the fairly recently discovered Roman small town at Wellingham/Bridge Farm, making the hypothesis that the road continued on to Lewes more likely.

West Sussex (including Chichester District)

RR153: Chichester to Portslade

Probably the most significant recent development in West Sussex has been the evidence reported in 2016 regarding the western section of the Chichester to Portslade road (RR153), postulated by Ivan Margary with limited evidence. The new evidence came from an aerial survey by Historic England for the Secrets of the High Woods Project (working in partnership with the South Downs National Park) combining aerial photography with lidar data. This appears to confirm Margary's view that the road from Chichester followed the course of Stane Street (RR15) to a point northeast of Westhampnett before branching off east along what became the Old Arundel Road, then continuing straight though parkland and across country where the Arundel Road takes a detour. It then picks up a woodland track before re-joining the modern Arundel Road and entering (what is now) Arundel town. Margary believed that the road crossed the River Arun (by ferry) from that point on the southeast causeway which still exists. That this is some way north of the modern riverside village of Ford suggests that the Romans sought to minimise the distance within the floodplain, a factor which may have concerned later generations less. This northerly course has been borne out in particular by lidar identification of earthworks in Binsted woods just 2km due west of Arundel town (NGRX: 489155 NGRY: 106628 - CD10259).



The course of the Roman road RR153 east of Westhampnett and Crocker Hill mapped from lidar and overlaid on Yeakell and Gardener's 1778–83 map of Sussex. © Dr Dominic Fontana, University of Plymouth via Old Sussex Mapped <http://www.envf.port.ac.uk/geo/research/historical/webmap/sussexmap/sussex.html>. Lidar data © Environment Agency copyright and/or database right 2020. All rights reserved.

The case for the road RR153 taking the recently identified route has been strengthened further by the very recent (reported in 2024 and without an HER entry as yet) 14 hectare Roman site found at Tangmere (presumably) just south of the road and less than a km east of the divergence from Stane Street. More archaeology will be needed to clarify what type of site this is, but something this size, more small town than villa, and with pre-Roman origins, might by itself justify the course taken by the road. There is also significant recent (2023) evidence of an Iron Age through to late Roman period settlement at the Rolls Royce factory or close by the RR15/RR153 junction near Westhampnett (NGRX: 488783 NGRY: 106738 – CD10554). The settlement appears to have moved to be closer to Stane Street (where settlement evidence was reported by Archaeology Data Service in 2020) and the author speculates that given its proximity to the road it could have developed into a small roadside settlement. Being close by a junction might add further weight to this supposition. On the other hand

it is remarkably close to Tangmere – is it actually part of the settlement reported in newspapers as being at Tangmere, see above?

Few other Roman period settlements have been recently identified along the alignment of the RR153, contrasting with plenty of archaeology to the south, most notably in recent years at Barnham. The possible exception is 2019 and 2021 excavation of a Multi-Period Site East of Tye Lane, Walberton (SU 97345 06189 - MWS15289): This site is not that far south, of the recently evidenced course of the Chichester to Portslade road, and has a Romano-British NNE-SSW oriented trackway that might have connected to it. The site itself produced a considerable amount of late Iron Age and Roman (all period) artefacts especially pottery and also residue suggestive of a kiln. Building rubble, some high status, suggests a nearby Romano-British settlement of some kind –quite possibly a villa given the off- road location.

East of the Arun the course of the RR153 becomes more speculative. Whilst it is believed to have headed a bit southeast after the river crossing, it probably did not head as far south as the northern suburbs of Littlehampton, despite settlement evidence being uncovered here in recent years. In the absence of any recent evidence regarding the road, we can but fall back on some recent settlement evidence near where the road might have run:

Land off Arundel Road, Angmering (TQ 0654 0533 - MWS15365):

Excavation in 2022 uncovered some Romano-British artefact evidence (pottery, ceramic building material and perhaps kiln) which might indicate nearby settlement. The RR153 could well have run close-by – maybe this was some kind of road-side settlement.

New Monks Farm, Lancing (TQ 19051 05275 - MWS15007):

A 2019 excavation found Roman period archaeological evidence some of which suggested a settlement close-by the site's western edge. Such a settlement would likely be close to the RR153, a bit west of a possible crossing of the River Adur.

RR155 Chichester to Silchester

Moving away from the coastal plain there has been a flurry of reports regarding the Chichester to Silchester road. Running south to north they are:

Lavant Primary School (just south of) (NGRX: 485391 NGRY: 108441 - CD10413):

There is a 2018 report of a cropmark comprising ditches 16.2m apart, presumably forming part of this road.

Binderton (NGRX: 484938 NGRY: 110386 - CD10414):

The same year there is a report of a similarly dimensioned cropmark just north of Lavant on the direct course up from the other site.

Robin's Farm near Milland (NGRX: 484622 NGRY: 125509 - CD10396):

A Chichester District Archaeology Society Excavation in 2020 concluded that the originally supposed route of the RR155 around Robin's Farm was too steep and indicated an alternative alignment.

Other roads

Elsewhere in the County, recently reported evidence relating to known Roman roads, is as follows (running east to west):

RR150 Land East of Walnut Marches, East Grinstead (TQ 36158 39220 - MWS15239):

Excavation near Felbridge, west of East Grinstead, in 2019, disclosed a section of the NNE aligned Roman London to Portslade road (RR150) running through the south-east corner of the site, consistent with Margary's alignment. No other archaeological evidence was found, suggesting that this section of the road was in a remote part of the Roman landscape.

RR150 Land at London Road, Hassocks (TQ 30493 16576 - MWS15325):

This archaeological site from 2021-23 is of interest not so much because the finds evidence is consistent with proximity to the known Romano-British settlement at Hurst Wickham, but because it sits astride the presumed course of the RR150 road, to the north of that settlement, but with no evidence of that road being found. Its course may therefore have differed from Margary's supposition, although maybe not to the west, given another recent excavation in that direction (MWS15320) which also does not report any road.

RR140 Possible Road or Boundary, Steyning (between TQ 1909 1340 and TQ 1953 1339 - MWS11177):

Aerial photography in 2012 revealed a linear feature to the northeast of Steyning. This is possibly part of the Roman road RR140 (Greensand Way), thought to follow roughly this course from the end of the current track to Wyckham Cottage to a river crossing over the River Adur to the east.

RR156 Road ditches at Chichester Golf Club, Sidlesham Common, near Hunston (NGRX: 485515 NGRY: 100387 - CD10409):

Geophysics in 2020 provided some confirmatory evidence for the excavation finding in 2014 of parallel ditches 17.5m apart believed to be part of a Roman road identified by Ivan Margary as RR156 with later confirmatory evidence on the file. Suggestively, the site is only a short distance north of the place called Street End, which might confirm a Roman road coming this way, and there is supporting artefactual evidence for a Roman date. One might suppose that any such road was headed towards some kind of hithe on Pagham Harbour. It might have continued to what became the site of the Saxon Selsey Cathedral. Indeed, it might have been extended by the Saxons to give access to the Cathedral from the important Saxon settlement (and Royal 'palace') at Whyke southeast of the old Roman city.

RR421 Alfrey Close, Southbourne (NGRX: 476460 NGRY: 106020 - CD10449):

Evidence was reported in 2018 of some kind of early (50-150 CE) Roman settlement at which would have been a bit north of the Chichester to Bitterne road as postulated by Margary. Perhaps the settlement moved closer (south) to the road, hence explaining its limited existence on this site.

Track-ways:

Lychpole Farm, Sompting (TQ 15676 07856 - MWS11565):

A pre-Roman or Roman trackway has been identified by aerial photography in 2012 crossing the South Downs on a nearly N-S bearing. It ties in well with the track-way believed to run north, as Charmandean Lane, from the RR153 Chichester to Portslade road at Broadway in Worthing 'into the weald', maybe taking it up to the Greensand Way (RR140) north of Steyning. It constitutes a parish boundary for at least some of its course. Further aerial photographic evidence has disclosed other track-ways east of this one including a pre-Roman track-way on Annington Hill, Sompting (between TQ 1616 0792 and TQ 1598 0835 - MWS11566) with evidence of use in the Roman period. The remains of a settlement at Steep Down, Sompting include its own stretch of track-way (TQ 16289 07223 - MWS11573). A further track-way was found by aerial photography also on Steep Down (MWS11571). One of these track-ways was presumably the route that became allegedly the main coach road from London to Worthing until 1804. The problem is that all the track-ways seem to run on a broadly N-S alignment. Maybe the preferred alignments changed over time.

Multi-Period Activity, Land at Wickhurst Green, Broadbridge Heath (TQ 14676 30715 – MWS11271)::

This site, situated at the western edge of the suburbs of Horsham and around 4km from Stane Street (RR15 London to Chichester) may conceivably be of interest because of a Roman period hollow way found in the site which might have been part of a minor road running southwest from Stane Street, near the settlement at Alfondean, and maybe continuing further east. Roman period settlement evidence at this site is fairly limited and agricultural, declining after the early 2nd century, but the hollow way lasted somewhat longer. Of course, there might have been a more substantial settlement located (or re-located) nearby so as to justify a track-way from Stane Street.

Wiltshire

From Neil Godfrey a part-time DPhil student at the University of Oxford researching sacred space in later prehistoric and Roman Landscapes. See Somerset for RR465(x), RRX037.

RR45b, Stockton Wood to Maiden Bradley, Wiltshire

RR45b was established soon after the Roman invasion to transport lead mined in the Mendips via Charterhouse to Old Sarum (Leach 2001, 22). Whilst Margary (1973, 101) and the Ordnance Survey Archaeological Division (OSAD 1983a) record parts of the route between Sherington Wood, Great Ridge (ST 94221 35885) and Monkton Deverill (ST 85726 37429) with some certainty, and a section on Pertwood Down is a scheduled monument (No.1020379), much of the Great Ridge to Maiden Bradley section remains conjectural (Figure 1). Indeed, Margary (1973, 101) attributes much of the remainder of the route to Sir Richard Colt Hoare, who acknowledged its uncertainty, especially from Kingston Deverill to Maiden Bradley.

From Sherington Wood (ST 94221 35885) until Point Pond Wood (ST 92579 36232) the OSAD (1983a) is certain about the route, which is confirmed by lidar revealing what appears to be the road, beneath the tree canopy (western section in Figure 2). Furthermore, lidar reveals a previously unconfirmed section of a field system nearby (ST 94152 36730), which may be connected with the Iron Age and Romano-British settlement at Stockton Earthworks. Whilst the OSAD (1983a) considers the route

from Scrubbed Oak (ST 92579 36232) to Pound Copse (ST 91101 36321) to be conjectural, lidar appears to show the continuation of the *agger* (Figure 2; eastern section in Figure 3). The OSAD (1983b) then has confidence about a short stretch of the road approaching the edge of the woodland (ST 91101 36321 to ST 90674 36383), and this appears to be confirmed by lidar (Figure 3), as is the previously unconfirmed course of the road as it begins to cross the fields beyond the woodland. The OSAD (1983b) route is then conjectural until it reaches Lower Pertwood. However, it can be confirmed by an aerial photograph as it approaches the A350 (ST 89282 36513) (Figure 4). After it crosses the A350, a restricted byway preserves the route and the *agger* is visible on the ground (ST 88700 36746). From this point the route is recorded as a scheduled monument for 1060 m. As noted by the OSAD (1983b) and Margary (1973, 102) the road then descends with the *agger* partly visible on the ground as well as in lidar, as it skirts the base of a hill (ST 87911 37070).

After the end of the scheduled section (ST 87698 37032), the OSAD (1983b) confirms the route as running through some woodland, north-east of Pen Hill Barn (ST 87229 37048). The road here is clearly visible on lidar and this section is also visible on an aerial photograph (Google Earth, 2024b), as it exits the woodland and descends a steep hill. As Margary (1973, 102) also notes, the *agger* is observable on the ground as it descends (ST 86678 37117). Beyond this point the OSAD (1983b) state that the route is lost, but suggest that the road may have continued west, passing just above the New Inn, crossing the river at a possible ford '*paved with chalk and flint*', before joining the present day Kingston Lane.

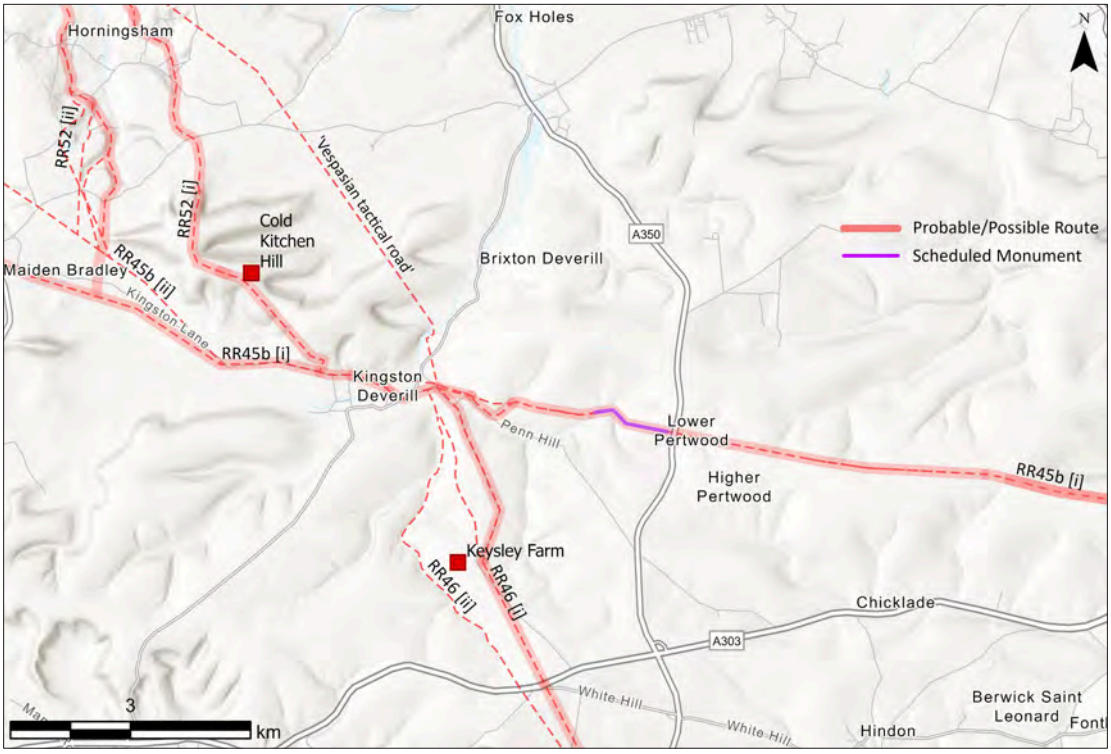


Figure 1. Map showing the routes of RR45b, RR46 and RR52 with postulated alternatives with suffixes. Map data © ArcGIS Pro 3.02, World Terrain Basemap.

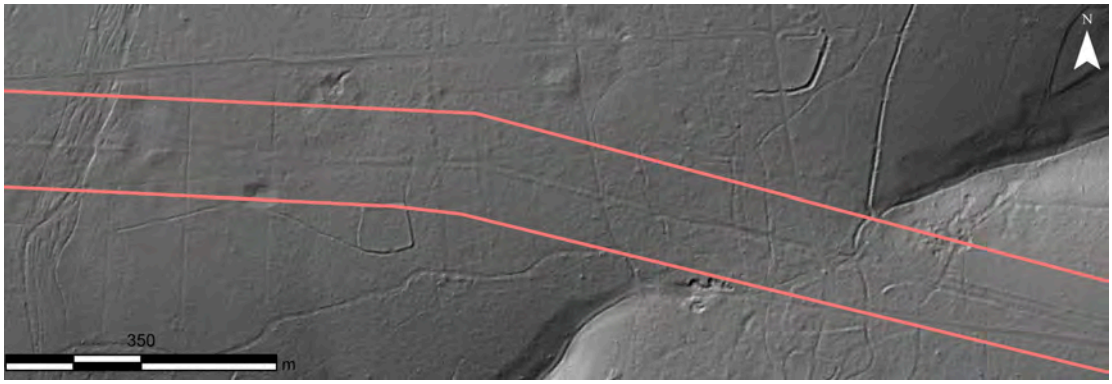


Figure 2: Lidar image of route of RR45b in Great Ridge woodland, western section. Lidar data © Environment Agency copyright and/or database right 2020. All rights reserved.

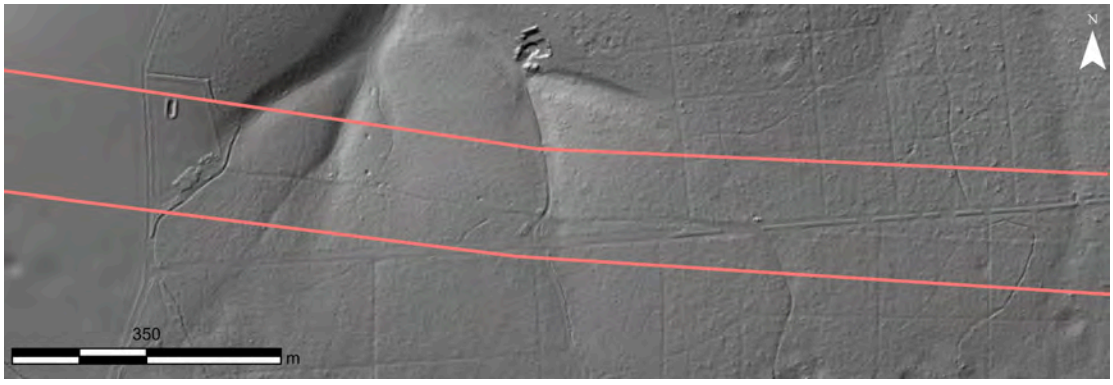


Figure 3: Lidar image of route of RR45b in Great Ridge woodland, eastern section. Lidar data © Environment Agency copyright and/or database right 2020. All rights reserved.



Figure 4. Aerial photograph of RR45b (copyright Google Earth, 04/2001, 2024).

However, only one ford appears on modern maps (close to Kingston Lane, ST 85119 37284), whilst the OSAD's mapped route appears to cross the river at ST 85485 37382. Margary (1973, 102) suggests a route to the south-west of Monkton Deverill Church and it seems likely that his route utilises the ford close to Kingston Lane. Assuming that the road crossed the river here, the excavation evidence discussed below for RR46 at ST 85810 37227, suggests that the route is likely to have crossed or skirted a hill (ST 86442 36945) before following the present day Hindon Road and then onto the ford, before joining the OSAD's (1983a) conjectural route along Kingston Lane. Whilst the OSAD (1983b) also suggest that the road may have taken a route bearing north-west of Maiden Bradley (RR45b suffix ii), its alternative suggested route RR45b suffix i towards and through Maiden Bradley (OSAD 1983a; Figure 1) appears more likely from this point, particularly in the context of the discussion of RR52, below.

RR46, Keylsey Down to Kingston Deverill, Wiltshire

Margary (1973, 107) and the OSAD (1983b) suggest that RR46 connected Badbury Rings with RR45b at Kingston Deverill. However, whilst well authenticated from Badbury Rings to the East Knoyle gap, from this point to its junction with RR45b, the RR46 remains conjectural (Henry et al 2021, 79-105), and the nature of its relationship to RR45b is a matter of debate.

The OSAD (1983b) suggests that the most likely route utilised a ridge over Keysley Down (RR46i) or alternatively, followed the bottom of a dry valley (RR46ii); with both routes passing the presumed Romano-Celtic temple site at Keysley Farm (ST 86054 35128). Margary (1973, 107) does not speculate on the route in this area, but does suggest that the road is likely to have met RR45b at 'the ford over the River Wylye'; whilst the OSAD (1983a) suggest that the junction was more likely to be close to Monkton Deverill church (ST 85589 37355) a little east of where it is suggested that RR45b crossed the river. However, excavation of a section of Roman road during the installation of a pipeline at ST 85810 37227 was aligned along a grid bearing of 332 degrees: '*almost parallel to the present road under which it was found*'. The orientation of this evidence suggests that it is RR46, and Peddie (1990) suggests that it is most likely to have approached this point via the track from Keysley Farm (ST 85900 37100; Figure 1). Furthermore, only one road was recorded, which leads to the suggestion that RR46 and RR45b had joined together south of the pipeline excavation: '*probably at the point at which the modern road intersects with the track to Keysley Farm*', from where it is suggested they continued as a single road towards Monkton Deverill before diverging at the fork in the road (ST 85700 37300) (Rawlings 1995, 37-38).

However, it seems equally possible that the road fork was the junction where RR46 joined RR45b, before it continued to the ford near Kingston Lane. Rawlings (1995, 37-38) and Peddie's (1990) interpretation appears to rest on the assumption that RR46 - which they name as the '*Vespasian tactical road*' - was constructed prior to RR45b and continued directly to Bath via the eastern side of Monkton Deverill. This is in contrast to the view of Margary (1973) and the OSAD (1983c), that the route to Bath continued via another road (RR52), which had a junction further along RR45b to the west (Figure 1).

RR52

Whilst RR52 can be traced from Bath as far as Woolverton (Margary 1973, 127), much of the route to the south of this remains uncertain, including the junction with the RR45b (Margary 1973, 127; OSAD, 1983c). The OSAD (1983c) proposes two routes from RR45b heading north, the first of which (RR52i), joins RR45b 1.6 km west of Monkton Deverill, at the start of a bridleway (ST 84270 37508) that traverses the southern slopes of Cold Kitchen Hill via a spur (Figure 4). It is suggested that this route

would involve an unnecessary climb, unless it was intended to serve the 'Romano-British settlement on Whitecliff Down' (OSAD, 1983b). This site dates to the Iron Age and is notable for the Cold Kitchen Hill Romano-Celtic temple (ST 83416 38735).

However, the Wiltshire HER (2023a) records an 'undated linear bank, possibly a Roman road' at Charlock, immediately before the steep ascent up Brimsdown Hill towards Whitecliffe Down (ST 82775 40014). Furthermore, an additional note on the Wiltshire HER (2023a) record suggests that is a road *agger*, running north-south for a length of approximately 350 m - which is visible on the ground and curving slightly as it rises to cross Brimsdown Hill - represented by a cambered surface located upon an *agger* or bank 14 m wide by 1.5 m high. To the north the road is cut by a post-medieval quarry, whilst to the south at the top of the slope a later cart track has deepened the road to a holloway disturbing the earlier Roman remains (ST 82745 39790; Figure 5).

The second potential route (RR52 suffixed ii) proposed by the OSAD (1983c) suggests that the road headed north from a junction with RR45b suffixed ii, 2.75 km north-north-west of Monkton Deverill, skirting the high ground of Cold Kitchen Hill; although four separate routes are proposed (Figure 1). However, the Wiltshire HER (2023b) suggests that an undated trackway, where a linear feature was identified on an aerial photograph directly south of RR45b suffix ii (ST 81514 38976) is potentially a Roman road.

Whilst it is suggested that this may be a section of RR45b, and not RR52; given its northerly alignment, the reverse is more likely to be the case. This would extend the junction of RR52 suffix ii and RR45b south of RR45b suffix ii. Therefore, RR45b suffix i would become the most likely route and given that the trackway aligns with one of the routes skirting the high ground to the west, suggests that this would be the most likely option of RR52 suffix ii (Figure 1). A third option has been proposed by Peddie (1990) and Rawlings (1995, 37-38), who argue that the pipeline excavation evidence from ST 85810 37227 suggests that rather than the route to Bath continuing via a separate RR52, the '*Vespasian tactical road*' continued, running to the east of Monkton Deverill and crossing the river at a ford, close to the pumping station (ST 85700 38000). From here, they suggest that it would have traversed the eastern flank of Cold Kitchen Hill and continued on towards Woodcombe Farm. However, there is no evidence beyond the pipeline excavation for this route, and as discussed in the context of RR46, it appears equally likely that the RR46 section of the Badbury Rings to Bath route

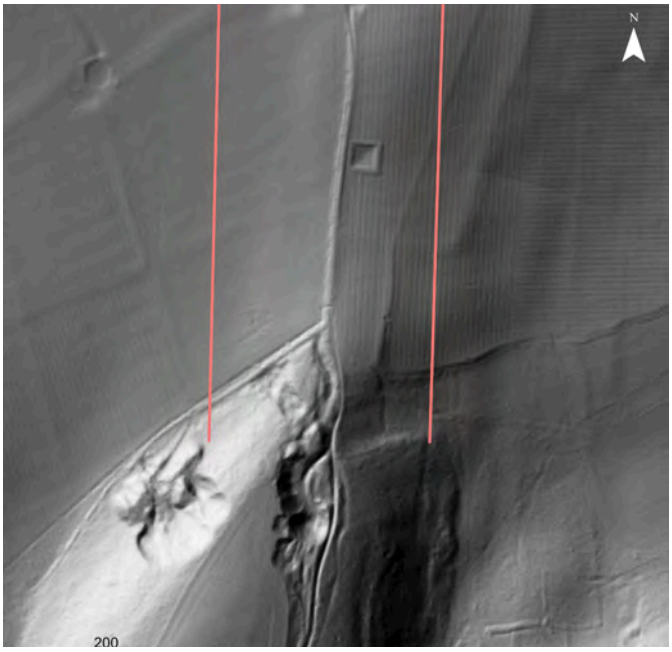


Figure 5. Lidar image of RR52 suffix i at Brimsdown Hill. Lidar data © Environment Agency copyright and/or database right 2020. All rights reserved.

terminated when it joined RR45b at ST 85700 37300, and that the route continued to Bath, via RR45b and then RR52.

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*Digitised archive records accessed via Roman Roads Association. NB: Precise date unknown and therefore 1983 is provided as the date that OSAD ceased operations.

Yorkshire

Summary by David Brear

RR732(x), Feetham, Swaledale SD 99201 98965

Work by West Yorkshire Archaeological Services (WYAS)

In 2023 Yorkshire Dales National Park Authority (YDNPA) requested mitigation work in connection with a communications tower at Gallows Top, Feetham, to include excavation of an earthwork feature identified on lidar. Open area excavation revealed a loosely cobbled road surface (see photo), on the line of the terraceway referred to in <https://roadsofromanbritain.org/gazetteer/yorkshire/rr732.html>. Past activity in the area includes extensive modern lead mining operations but the position confirms that this is the Roman road first recorded in 1717 by John Warburton and more recently in 2013 by Hugh Toller, and now numbered RR732(x).



RR732(x) under excavation at Feetham, Swaledale SD 99201 98965 by West Yorkshire Archaeological Services

The road here is about 4.8m wide. First a shallow, side cut had been made into the subsoil and a clayey-sand layer deposited, probably as a levelling deposit. Above this lower fill, a layer of stones, mostly around 0.25m in size, had been deposited forming a rough surface. The north-western edge was formed by a rough kerb of larger stones.

YDNPA staff also report potential sections of the route visible heading south-west in the general direction of Askrigg in Wensleydale, and also northwards SD9875898282-SD9888698475, SD9891598514-SD9922299023, SD9902899371-SD9896399530, SD9895399567-SD9891399662, and possibly NY9910900396-NY9912500457 and NY9914700568-NY9919700859. The line then turns down to cross Old Gang Beck at/near Surrender Bridge as expected. No dateable material was recovered from the WYAS excavation.

This Roman road makes an interesting comparison with the potential example excavated higher up the dale at Thwaite in 2018 by NAA. Built on flatter ground rather than a hillside, that road was c5.4m wide and had been laid in three separate layers of angular limestone over an *agger* of gravelly sand, itself about 3.2m wide. The upper surface produced a Roman-period glass bangle fragment.

HER: not yet recorded. Archive: West Yorkshire Archaeological Services. Published report: Gallows Top, Feetham North Yorkshire Trial Trench Evaluation and Mitigation Excavation, Report no. 4047 (copy with Yorkshire Dales National Park).

RR82, Gilling with Hartforth & Sedbury. NZ 164 078

Two potential stone trackways were recorded in the vicinity of Carkin Moor fort. The first, in trial pit (TP) SBC41 had a surface constructed entirely of angular sandstone slabs, while the second in TP SBC42, appeared to have a kerb of large stones flanking a metalled surface, potentially constructed atop an earlier hollow-way. Only the edges of the features were revealed in their respective trial pits and no finds were recovered; however, they both appeared to run north-east to south-west, perpendicular to the route of the A66/RR82, and both were recorded in an area of known Roman archaeology. The potential trackway in TP SBC42 was located directly to the south of the roadside settlement excavated in 2016.

HER: MNY40703, MNY40704. Archive: North Yorkshire HER Digital Library. Published report: Northern Archaeological Associates. 05/2021. A66 NTP Bowes to Scotch Corner Geotechnical Investigations Archaeological Monitoring Report. Drinkwater, H. Report No. 21/26 RR82. Gilling with Hartforth & Sedbury and East Layton. Centred on NZ 159 084 Work in 2016 identified the Roman road partly to the south of the A66 for about 1km, deviating to cross Mains Gill, next to Mainsgill Farm, where an excavation recorded Roman kilns with near complete fourth century vessels. In 2022 further remains of this Roman roadside settlement were excavated, including kiln/oven /flue features, ditches, pits, cobbled surface, trackways and enclosure ditches. Two enclosures were carbon dated cal AD 130–330. Most evidence for activity within the settlement to the west of the fort was consistently dated to the 3rd–4th century.

HER: MNY40705. Archive: North Yorkshire HER Digital Library, North Yorkshire HER Parish File 1037. Published report: Wessex Archaeology. 04/2022. A66 Northern Trans-Pennine Project 3.4 Environmental Statement Appendix 8.6 Trenching Report(s). A66 Northern Trans-Pennine Upgrade Lot 3: Bowes Bypass, Cross Lanes to Greta Bridge, Stephen Bank to Carkin Moor. Post Excavation Assessment and Upgraded Proj. Valdes-Tullett, A.

RR280, Newton Kyme

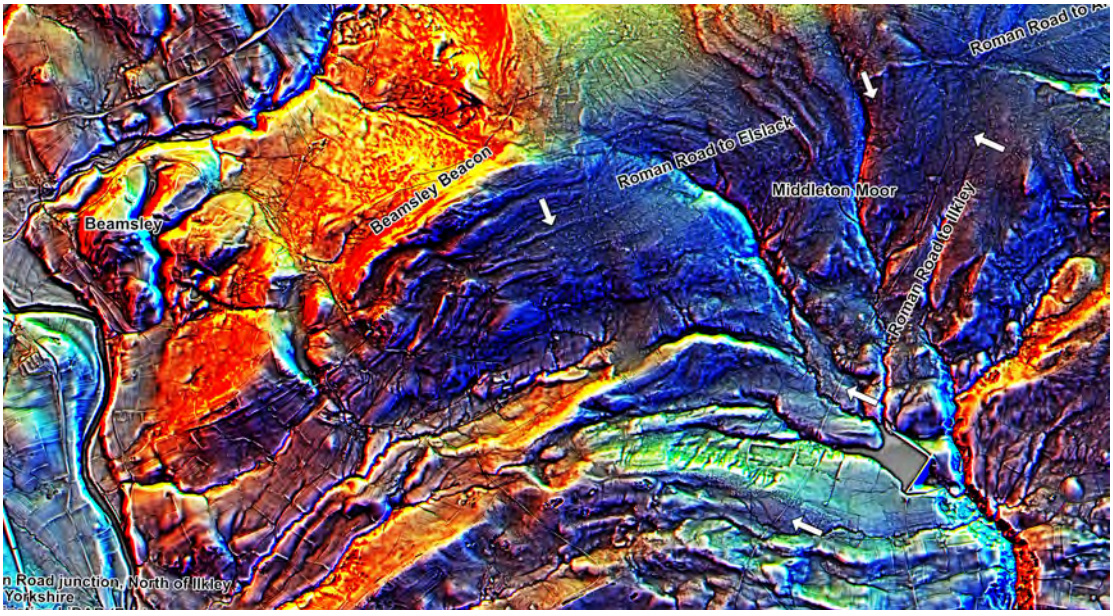
Gradiometer survey by RRRA

In 2023, a team of RRRA volunteers concluded a series of geophysical surveys immediately north of the R. Wharfe to determine the course of RR280 on its way north to join RR8a at Whixley. These have now demonstrated that the medieval road known as Rudgate, which crosses the Wharfe via St. Helen's Ford well to the west of the fort and substantial Roman-British settlement at Newton Kyme, does not represent the line of the Roman road in this area as was traditionally thought. Instead, it is now beyond doubt that the road passed directly through both the extra-mural settlement and the fort, continuing north through Walton Lodge Farm. A full report will be produced in due course.

RR720b and RR720bb(x), Aldborough to Ilkley,

Summary of work contributed by Phil Barrett with additional information from David Ratledge and John Poulter

It always seemed strange that the Roman road from Aldborough to Ilkley (RR720b) should take a pretty straight alignment for 90% of the way until just north of Ilkley when it takes a sharp deviation to the fort at Ilkley, especially considering that the final destination of the road was probably Ribchester (on the original alignment). investigation of processed Environment Agency lidar data soon showed that the deviation was, in fact, a junction and the perfectly straight alignment of the road did continue in the direction of Addingham (and Elslack fort and Ribchester) and was visible for approximately 3km to just below Beamsley Beacon where the land started to fall to the valley. Here



Lidar image showing RR720b in the top right corner approaching Round Hill from the north east. Previous logic was that a turn was made here descending to Ilkley at the bottom centre of the image. This lidar shows that this was a junction and the road carries on towards the south west. Lidar data © Environment Agency copyright and/or database right 2020. All rights reserved.

the more unstable land shows a number of possible routes down and a definitive route is not clear on the lidar. The road would have undoubtedly joined the Elslack to Ilkley road somewhere between Addingham and the Chelker reservoir (under which the Elslack – Ilkley road passes).

Summarised from RRRA newsletters 27 and 28.

After consideration it has been decided that while the new section of road from what previously appeared to be a turn at Round Hill does in fact continue onwards. It would be unwise and confusing to change numbers allocated by Margary. Thus, RR720b will remain for the leg down to Ilkley and RR720bb(x) has been awarded for the new segment south west from Round Hill following the protocol laid out in Armstrong (2021: 282).

No road number. Barlby. SE 633 353
Work by Humber Field Archaeology

Four linear ditched features were exposed. These were interpreted as a Roman trackway, associated with a 2nd-4th century domestic/military settlement recorded to the south and west in 2016. An assemblage 3rd-century pottery was recovered from one of the ditches.

HER: MNY40675. Archive: North Yorkshire HER Parish File 8016. Published report: Humber Field Archaeology. 2022. Archaeological Evaluation on Land West of the Junction of A19 and A163, York Road, Barlby, Selby, North Yorkshire. Kennedy, S.



Excavation of the un-numbered road at Stamford Bridge. Image courtesy of ECUS Archaeology

RR Not allocated. Stamford Bridge, East Riding of Yorkshire, SE 71174 54458
Work by Ecus Archaeology

Excavation in connection with the Yorkshire Water wastewater pipeline between Full Sutton and Stamford Bridge exposed a small area of heavily plough-damaged road foundation with roadside ditches, approximately 7m wide (outer ditch edge to outer ditch edge). Since the pipeline easement was just 10m wide the direction was difficult to ascertain but approximately NNW to SSE. The road was dated by a pottery sherd, believed Roman, incorporated into the road surface.

HER: not yet recorded. Archive: currently with Ecus Archaeology. Published report: awaiting report.


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Newly Allocated Margary Road Numbers

By Dave Armstrong & Mike Holmes
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Following the protocol published by Armstrong (2021, 279-284), a number of new Margary road numbers have been allocated. These fall into two categories: new roads identified in 2023 since publication of Volume III of *Itinera* and numbers for new roads reported in this volume. All are laid out below. Numbers are either reserved, or fully awarded, using the status rating criteria laid out by Haken (2021, 285-318);

1 A Roman Road number is reserved where there is archaeological evidence sufficient that at least one road segment has the status *2. Road, probable*, i.e. some evidence of a Roman road.

2 A Roman Road number is awarded where there is sufficient evidence to have at least one road segment of status *3. Road, known,* i.e. convincing evidence of a Roman road.

These allocated numbers are recorded in RRRA's master register of Margary road number and cross references. The RRRA master database is securely retained and maintained by Mike Holmes. For any queries contact him on the above mail address. It is intended to make this information available for reference on our website, in due course.

Margary Numbers allocated during 2023

Two Gates to Waddon Hill, Dorset. Status, possible road. (Holmes 2023 & this volume). **RR481(x)** reserved.

The Street to Mapleton, Derbyshire. Status, possible road. (Buckley 2023 & this volume). **RR716(x)** reserved.

Ash to Richborough (via East Street Farm), Kent. Status, known road. (Haken 2024 & this volume). **RR10aa(x)** awarded.

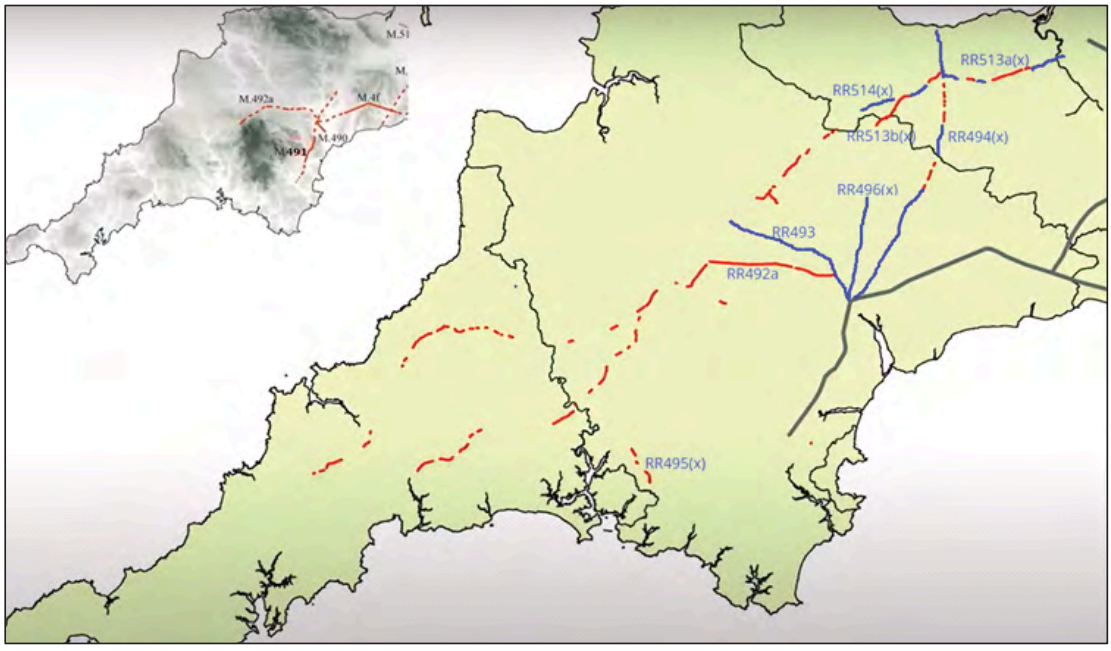
South from Brough *(Navio)* heading up Bradwell Dale, Derbyshire. Possible road. (Buckley 2024 & this volume after original work by Peter Wroe). **RR717(x)** reserved.

Link from RR720a towards Beamsley, N. Yorkshire. Status, known road. (Barrett 2023, Poulter and Ratledge 2024 & this volume). This new section of road continues the alignment of RR720b from Kettlesing south-west from Round Hill (north of Ilkley) from what had previously appeared to be a sharp turn but is clearly a 'T' junction, apparently heading to join RR72a. After consideration, it was felt it would be unwise and confusing to change the numbers allocated by Margary. Thus, RR720b and RR72a will remain unchanged, and we are awarding **RR720bb(x)** for the new segment.

Margary Numbers allocated from work reported within this volume

The preceding Roman Roads in 2023 section, along with other papers in this volume, provides brief reports of new roads found recently. These are listed below with the new Margary number awarded or reserved.

As noted in previous volumes, there remains the potential for a previously unrevealed network of roads and Roman occupation in the three south-western counties of Somerset, Devon and Cornwall. Determining the connections between some of the isolated fragments of probable road has proved difficult with long lengths of road yet to be found and the connections often less than obvious. To give better clarity the sketch map below is annotated with the numbers so far allocated; un-numbered segments are also mapped.



Map developed from a screen shot provided by Chris Smart. His team's work marked in red lines with other roads added by David Ratledge (this volume) marked in blue. Margary road numbers are marked where allocated. Routes down into Cornwall are still not clearly connected nor correspond with Margary's RR492b route, hence are not yet numbered.

Kettering via Laxton to Great Casterton, Northamptonshire. Status, known road. (from the RRRA talks season, January 2024 by Paddy Lambert, available at https://youtu.be/aZCLlFwg4Ac?si=suNFHZ2TGSoXEshE> plus a wider write up, by Dr. Wayne Kirk, this volume). **RR574(x)** awarded.

Irchester to Kettering, Northamptonshire. Status, known road. (Dr. Wayne Kirk, this volume). **RR575(x)** awarded.

Barton Seagrave to Geddington, Northamptonshire. Status, possible road. (Dr. Wayne Kirk, this volume). **RR576(x)** reserved.

Sandy to Thrapston, predominantly Cambridgeshire. Status, known road. (David Ratledge, this volume, also at <http://www.twithr.co.uk/cambridgeshire/sandy-thrapston.htm>). **RR226(x)** awarded.

River Trent to Loughborough, Lincolnshire. Status, possible road. (Haken, this volume). **RR182b(x)** reserved.

Worlaby north-eastwards, Lincolnshire. Status, known road. (Haken, this volume). **RR276(x)** awarded.

Thistleton to Kirby Bellars to Leicester, predominantly Lincolnshire. Status, known road. (Haken, this volume). **RR582(x)** awarded.

Brough (Crococalana) south-east to either River Witham or Ancaster, predominantly Lincolnshire. Status, possible road. (Haken this volume). **RR592(x)** reserved.

Ermine Street, Cold Harbour to Ropsley to Sapperton, Lincolnshire. Status, known road. (Haken, this volume). **RR58bb(x)** awarded.

Beaconsfield via the Wye Valley to the River Thames at Hambleden, Hertfordshire. Status, possible road. (Rothwell, this volume). **RR163C(x)** reserved.

Bridge Farm to Ardingley, Sussex. Status, possible road. (Holmes, this volume). **RR142aa(x)** reserved.

Lower Stoneham to Beddington, Sussex. Status, possible road. (Holmes, this volume). **RR145aa(x)** reserved.

Enmore to Cothelstone to junction with RR494(x) at Elworthy, Somerset. Status, known road. (Ratledge, this volume). Previous work on this segment gained the number RR513(x) but the further extension beyond RR494(x) warrants extending the numbering with suffixes so this segment is re-awarded the number **RR513a(x)**.

Junction with RR494(x) at Elworthy to South Combe, Somerset. Status, known road. (Ratledge, this volume). **RR513b(x)** awarded.

Rainsbury west over Haddon Hill, Somerset. Status, possible road. (Ratledge, this volume). **RR514(x)** reserved.

Exeter towards Tiverton, Devon. Status, possible road. (Ratledge, this volume). **RR496(x)** reserved.

Pylle Hill to Bruton, previously RRX037, Wiltshire. Status, possible road. (Godfrey, this volume). **RR465(x)** reserved.

Currently Disregarded

Not all roads listed by Margary are still believed to be genuine Roman constructions. Work by Haken within this volume has found no evidence supporting the existence of some Roman roads in Lincolnshire. These are to remain in the number schedule but be marked 'currently disregarded'. New evidence supporting their existence would promote them back into consideration.

Relevant numbers are; **RR590, RR58b, RR262, RR271 & RR272,** all Haken, this volume. Also **RR821,** Armstrong, this volume.

Others widely regarded as not Roman and now to be appended as 'Currently disregarded' are **RR74**, (High Street, Cumbria) and **RR81b** (Wade's Causeway, North Yorkshire).

Romano-British Ways

It is clear from increasing observation (e.g. Haken this volume) that the fully engineered Roman roads were sometimes enhanced by a number of less well engineered but equally important roads which supported the needs of nucleated settlement, the *vici*. To provide awareness of these, the Margary number Register is being expanded with a new section RBW (Romano-British Way). These are roads or tracks not displaying classic characteristics of Roman roads but which have often been claimed to have been either 'Romanised' prehistoric trackways, or prehistoric routes that remained in use during the Roman period.

These were all re-examined and compared with evidence from lidar imagery to confirm their routes. Assessment was then made as to their likely use during the Roman period based mainly on their relationship (or lack of) with Romano-British settlement. These sinuous roads/tracks can be branches of more significant Roman roads and appear to run for long distances from nucleated/agglomerated settlements. This point is crucial in sentencing these as RBW and not earlier or later routes.

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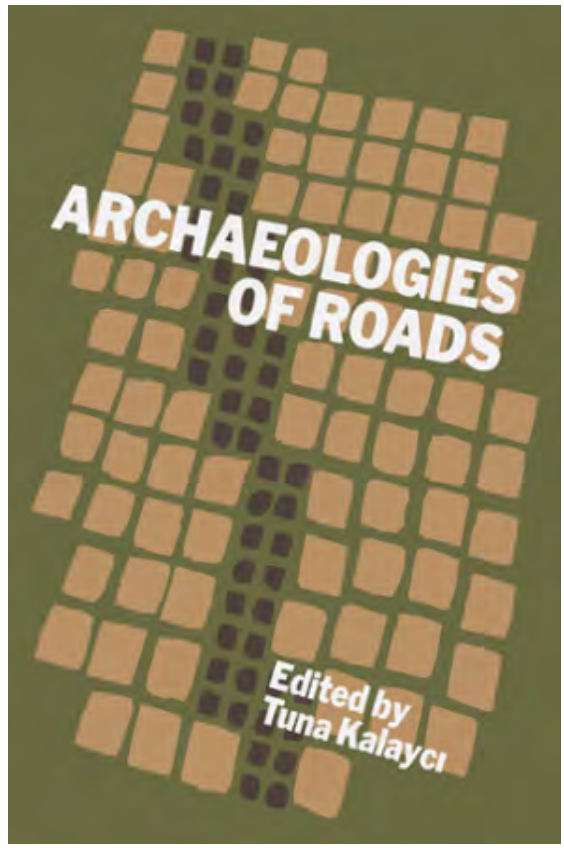
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Book Review

Archaeologies of Roads.

Edited by Tuna Kalayci.

Grand Forks: Digital Press at University of North Dakota, 2023, Pp 439, Price £16.41.
ISBN-13: 979-8989191284.



From the cuneiform itineraries of Mesopotamian camel trains 4000 years ago to the skeletons of exhausted camels littering the steep tracks of Egypt's Eastern Desert and the Afghan cameleers who competed for trade along Australia's Birdsville track in the early 19th Century, camels are the surprise stars of *Archaeologies of Roads*. We might be forgiven for thinking that these extraordinary animals are the key to unlocking the mysteries of travel throughout human history and they are certainly a fascinating part of the story, but if the 15 essays collected here show anything, it's that the range of variables needed to model movement in the past is formidable and perhaps ultimately unrecoverable.

The introduction begins by arguing for the exceptionalism of roads as artefacts that are unrivalled for their 'substance, transcendence, and immanence' and for the fact that they can be 'both ancient and modern *at the same time*'. We also hear that the 'road is not only a container for an action, but also the action itself.' These observations promise much from the volume, and it is left to the diverse range of papers that follow to tell us why these things matter and are anything more than truisms. More immediately useful is the reiteration of nine comparative variables for classifying roads in an historical and archaeological context that might be profitably applied to thinking about Roman roads: '1. Amount of construction / over what time; 2. Technology of movement; 3. Characteristics of terrain; 4. Points/ places of access (terminal points, resources, facilities, shrines); 5. Ownership/ access/ stewardship; 6. Functions; 7. Form/ network organization; 8. Scale; 9. Meaning.'

There is plenty of interest here on roads both as physical objects and symbols, but mostly as tangible evidence for human movement in the past for war, trade, colonisation, pilgrimage and exploration. How researchers model movement emerges as the strongest and most interesting theme, although we also get papers on roads as infrastructure, as digital objects, as metaphors and much else, as well as some straightforward proving of the line.

The last of these is found in a paper on a section of the Roman road from Guadix in Granada to Cartagena in Murcia, Spain. The authors set out to clarify the role and significance of the road, but mostly just share the familiar evidence – aerial and Lidar – for the course of the Western end of the route. An *in situ* anepigraphic milestone marks the course of the road and has been used as a boundary marker since at least the nineteenth century. Sixteen more forthcoming milestones feature prominently in another Roman-themed paper that is less about what we can learn about the roads, but what epigraphy along them can teach us about the ill-fated Valerian and his successors in the Eastern provinces of the Empire. Milestones were also largely responsible for our knowledge of the course of the *Via Nova Traiana* in the ancient Roman province of *Arabia Petraea* according to the authors of a paper on the road and the defensive system of the *Strata Diocletiana*. They endeavour to use modern remote imaging data to provide a detailed description of the road, and their findings should be of interest to anyone wanting to know more about the fortifications of the *Limes Arabicus* and what they might reveal about Roman policy in the period between Pompey the Great and the death of Diocletian.

There are brief references to Roman roads as the fastest routes in both of the two standout essays: the first on the ancient tracks and hollow ways of Mesopotamia, in which the authors amass an extraordinary array of evidence to model past human movement including Cold War spy photography, ethnographic interviews, cuneiform itineraries and terracotta models of wheeled vehicles. There is no hiding the fact that, while their efforts are far from futile, the journeys generated are a platonic ideal. As the authors concede, modelling how we journey to work today would have to factor in twenty-first century coffee culture among many other elusive variables. The second paper that caught my eye, on least-cost path modelling of journeys across Egypt's Eastern desert, leads to similar conclusions. Despite valiant efforts to calculate the gradients that camels can contend with, when tested against travellers' accounts of real journeys, the models fall short because they cannot account for such common contingencies as travellers getting lost at night or having camels die on them. The discussion of methodology in both these papers is fascinating.

The last essay in the volume is as much interested in today's travellers as in their ancient predecessors, especially in tourist encounters with memory and meaning along Australia's famous Birdsville Track and the complexities faced by the heritage community in constructing an authentic route where Aboriginal and European cultures meet. The conclusion to the piece, and to the volume as a whole, might be summed up in the opening paragraph: 'Roads form part of the physical and cultural landscape. They are constructed as much in the imagination – through journeys and representations – as by material fabric and engineering, and they embody multiple layers of history, meaning, and symbolism.'

Review by Christopher Hadley (author of 'The Road')

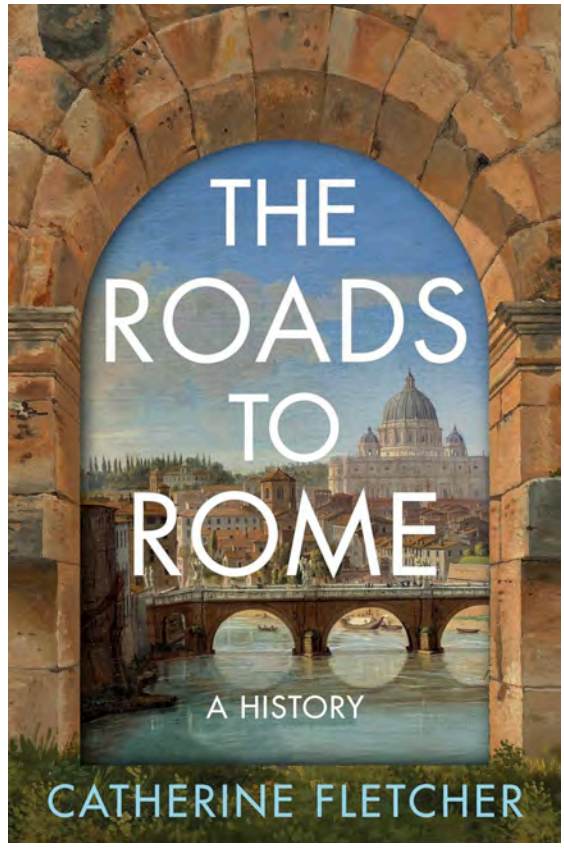
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Book Review

The Roads to Rome: A History.

By Catherine Fletcher.

London: The Bodley Head, Pp 400 In hardcover June 13th 2024. Price £39.58.
ISBN-13: 978-1847928030.



How did a Roman traveller experience the roads in antiquity? Asks Catherine Fletcher in her new book *The Roads to Rome: A History*. It's an ambitious question, typical of this wide-ranging historical survey that seeks to people the roads the Romans built -- and especially those literally leading into Rome – with 2000 years of travellers. She begins her answer by taking us into the Capitoline museum to look at a votive tablet engraved with pairs of feet facing in both directions for the journey out and the journey home, telling us that at one roadside shrine several such offerings have been found, presumably left by travellers praying for a safe trip. It's a lovely example of how much we can demand of the traces that remain if we are prepared to use our imaginations; also of how the ancients were both like us and nothing like us at all.

It is in asking questions like this that the first sections of the book, which deal with the origins and early history of the roads, are at their most interesting, although where she asks more familiar questions about Roman roads, her answers are inventive enough to make them feel fresh. Those sacrificial feet lead her to wonder how fast people travelled along the roads and she turns to the testimony of court hearings, since summonses took into account how long it would take people to travel to Rome.

Her search for evidence yields fascinating details that help to build a picture of the road network in its heyday that is teeming with life: an account of one of Cicero's trials reveals that wealthy travellers might quite reasonably take to the roads with as many as 30 armed attendants to clear the way for them (little wonder that plebeian wayfarers made offerings to the gods before setting out).

She isn't afraid to ask questions that are harder or impossible to answer: did a certain traveller get blisters, walk in the blazing sun or a cooling breeze, contend with water planing on rutted stone? Done sparingly this is both charming to read and a useful technique for activating the historical imagination – one of the book's declared aims. Another is to invoke what is implied by the historical or archaeological remains. Consider the tombstone of Regina now at Arbeia Roman fort at South Shields, erected by her husband Barates from Palmyra, inscribed in Latin and Aramaic and based on a Syrian design – we can't help but imagine the very real journeys along the roads of languages, ideas, fashions and flesh and blood individuals who are far from home.

Fletcher prefaces her book with a nod to the speech that Tacitus put into the mouth of Calgacus before the battle of Mons Graupius, with a dedication, 'To those who wore out life and limb to cut through marsh and forest.' It is a fitting tribute to those whose labours had such an impact on the landscape and life of the Roman Empire and its inheritors, but taken as a whole the book is more a memorial to those who travelled the roads after the decline of Rome than to those who built them.

Although she made her name as a Renaissance historian, Fletcher is not afraid to flit through history, sometimes in the space of a few paragraphs, between the Spartacan revolt, the building projects of the sixteenth century, Romantic poets and the modern day. These snapshots and comparisons across time of places, topics and themes enrich a story whose main organising principle is simply chronological. The book is in five sections of several centuries each, spanning the period from 350BCE to the present. This long story has four inter-weaving through-lines: the author's own journeys, undertaken in the last few years, often in the footsteps of historical figures or following itineraries; a history of the roads from earliest times with the emphasis on those who travelled them; an outline history of Europe over two thousand years, with the city of Rome at its centre; and finally a history of people's changing notions of the past, of those who were interested in the roads as monuments of ancient Rome and for their romance or symbolism. One or more threads regularly coincide, for instance when Napoleon's general Berthier marches on Rome and speaks from the Capitoline, making no end of references to ancient Rome, foreshadowing his Emperor's aping of Roman imperial pomp and imagery. This melding of threads is even more notable in Fletcher's treatment of the Italian campaign in World War II, when world history turns its eye on the Italian capital and the roads to Rome are again used for their original martial purpose. The war correspondents who describe the advance on the city are ever sensitive to the weight of history and on the look-out for analogies to the horrors of war in the ancient past.

As a history of travel from Roman times until the present, it is an excellent source book with compelling accounts of journeys by pilgrims, soldiers, merchants, diplomats, popes and royalty. By the eighteenth century there is a proliferation of more self-conscious travel writing to draw upon and thus an embarrassment of riches for Fletcher that culminates in the Romantic period. The best line here is not from Goethe or Wordsworth but comes from Lady Morgan with her observation in eye rhyme that the Roman pavements '*read,* better than they *tread*' – a nicely succinct observation on their meaning for lovers of the antique and their ongoing utility for travellers. By the time Henry James and late nineteenth century writers tour Italy, these earlier accounts are themselves part of the ancient past adding multiple layers to their descriptions of the sites and their journeys.

Fletcher follows the routes some of her subjects took and while she is an excellent historian and thoughtful writer with a talent for selecting and presenting evidence that edifies and evokes, she occasionally seems less sure of herself when trying to find relevant things to say about her own journeys. Her trips happened at different times – as she outlines in an appendix – and this might

explain the lack of evenness in her approach. In the introduction we get some brief and appealing lyrical moments, later quick segues from observations in the present to the past. Further into the book, she seems to abandon the search for relevancy and resonance and simply gives us notes on what she encounters, someone ordering a bottle of wine for instance. Earlier in the book, this might have led to a consideration of the transport of amphorae and the wine trade in the ancient world, but now it is just some bloke having a bottle of wine to himself. Of course, we might imagine that she is deliberately writing for posterity and leaving a report for future historians of travel. After all, when we learn of the 4th Century lawyer Theophanes of Hermopolis' journey from the Nile Valley to Antioch, the quotidian details, his meals and his daily expenses, we find these fascinating at such a distance.

I was particularly interested to follow the last of the threads that begins with the anonymous author of the *Gesta Francorum,* a chronicle of the First Crusade, whose sense of the past muddled history and legend. While they call the *Via Egnatia* the 'Old Roman Road', the northern route to Constantinople, the *Via Militaris* is unnamed, but described and credited to Charlemagne based on a legendary journey he was thought to have made. In time, artists, writers and antiquaries would start to separate fact from fiction once they began to carefully record and draw the monuments and inscriptions of Rome, especially on the *Via Appia*. It is the three roads mentioned here that inevitably have the lion's share of the story. The latter for its remains, proximity to the centre and attraction to sightseers and the others because for much of the Middle Ages all roads no longer led to Rome but eastwards to Constantinople and Jerusalem. By the time of the Grand Tour, Rome once again asserts its pull and the *Via Flamina* from the north is frequently encountered, but it is still the Appian Way that monopolises most prose and verse.

It is comforting to learn that as long ago as the fifteenth century, popes Alexander VI and Pius II both appreciated the beauty and importance of Rome's remains, including its roads, and took measures to safeguard them, albeit with limited success. The battle to preserve them continues into the present moment, with ongoing efforts to get the Via Appia added to Unesco's world heritage list.

The Roads to Rome is predominantly a cultural history of the Roman roads leading into Rome over the long durée -- with the occasional detour to northern Britain and elsewhere. It is done with the confidence and aplomb of an experienced and sensitive historian with an ear for a story, for selecting evidence that is both informative and evocative. Reading it makes me want to read her earlier books.

Review by Christopher Hadley (author of 'The Road')


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