



Tintagel, Cornwall

Archaeological impact assessment of proposed new access arrangements to the Island



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'in passing thither, you must first make descent with a dangerous declining, and then make a worse ascent by a path as everywhere narrow, so in many places, through his stickleness occasioning, and through his steepness threatening, the ruin of your life, with the failing of your foot. At the top, two or three terrifying steps give you entrance to the hill ...' (Carew 1602).

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The Project Manager was Jacky Nowakowski.

The views and recommendations expressed in this report are those of Cornwall Archaeological Unit and are presented in good faith on the basis of professional judgement and on information currently available.

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Cover illustration

A late 19thC photograph showing changes in the access track up to the Inner Ward. The abandoned lower zig-zag section of the path is clearly visible. Note also the unconsolidated state of the Upper Ward walling in the foreground.

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Fig 47. The locations of previous archaeological evaluation trenching (Purple) in the southern part of the Inner Ward together with dates and excavator information; additionally the approximate extent of the proposed bridge abutment (hatched) and the locations proposed for the deep boreholes and evaluative drilling (red dots). Depths to bedrock are shown in red.

Abbreviations

CAU	Cornwall Archaeological Unit
CRO	Cornwall Record Office
EH	English Heritage
HER	Cornwall and the Isles of Scilly Historic Environment Record
NGR	National Grid Reference
OD	Ordnance Datum – height above mean sea level at Newlyn
OS	Ordnance Survey
RIC	Royal Institution of Cornwall
RCHME	Royal Commission Historic Monuments England

1 Summary

Tintagel Castle, Cornwall is an internationally significant Scheduled Ancient Monument owned by the Duchy of Cornwall and under the guardianship and management of English Heritage. It is one of the county premier attractions, attracting 200,000 visitors each year.

Access to the castle site was originally from the south, along a path leading from the top of the valley leading into the Barbican and the Lower Ward and thence via a now substantially eroded land bridge to the Inner Ward. The only access to the Island is via paths from the Mainland Lower Ward and from the valley base leading to a bridge across the eroding isthmus followed by a set of steep, rock-cut steps up the Island cliff face. This arrangement is known to deter some visitors, whilst the arduous climb inevitably detracts from many visitors' experience of the site; those with mobility issues are currently wholly unable to access Tintagel Island and to experience all that the site has to offer.

Cornwall Archaeological Unit, Cornwall Council, were requested by English Heritage to undertake a desk-based archaeological assessment of the likely archaeological impacts which would result from the construction of a new 2.4m wide footbridge linking the landward and Island elements of Tintagel Castle to improve the visitor experience at this site and to make provision for continued visitor access to the Island when the current access inevitably becomes unviable through erosion.

A review was undertaken of all documented previous archaeological investigations at Tintagel Castle; evidence available from historic photographs, maps, drawings and postcards was also considered. Post-Roman occupation sites were identified at or close to both of the locations chosen for the bridge abutments.

The principal impacts will occur at the bridge abutment points at the northern end of the Mainland Lower Ward and adjacent to the Great Hall on the Island, though any increase in visitor numbers is also likely to exacerbate erosion of ground surfaces along the Island's paths and of its more fragile sites.

The likelihood of impacts on buried archaeology resulting from the initial investigative phases of the project, during bridge construction works and once it has been brought into use was considered. In the first case, the potential for impacts on sub-surface archaeological deposits was considered to be likely, but limited in extent; impacts during the construction phase were considered to be likely to be unavoidable and greater in extent, but capable of mitigation. Post-construction impacts resulting from considerably increased visitor foot traffic were judged to constitute a significant issue which should be considered as part of the overall project design.

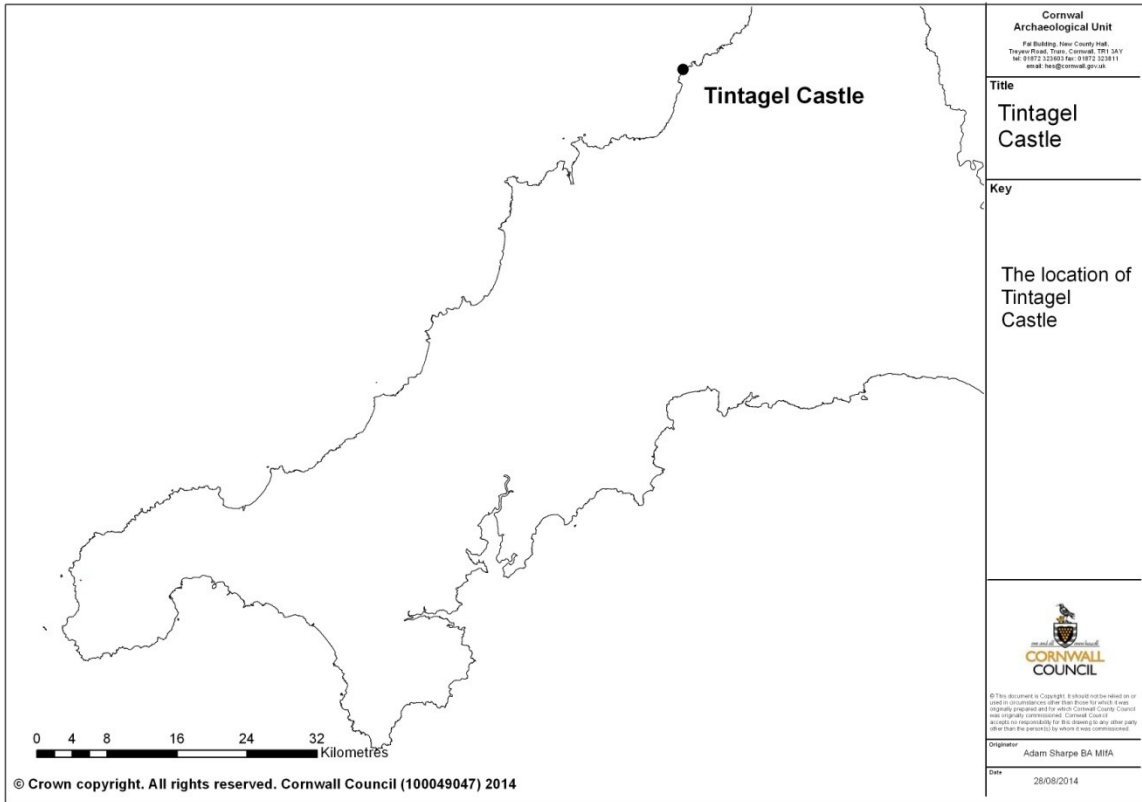


Fig 1. The location of Tintagel Castle.

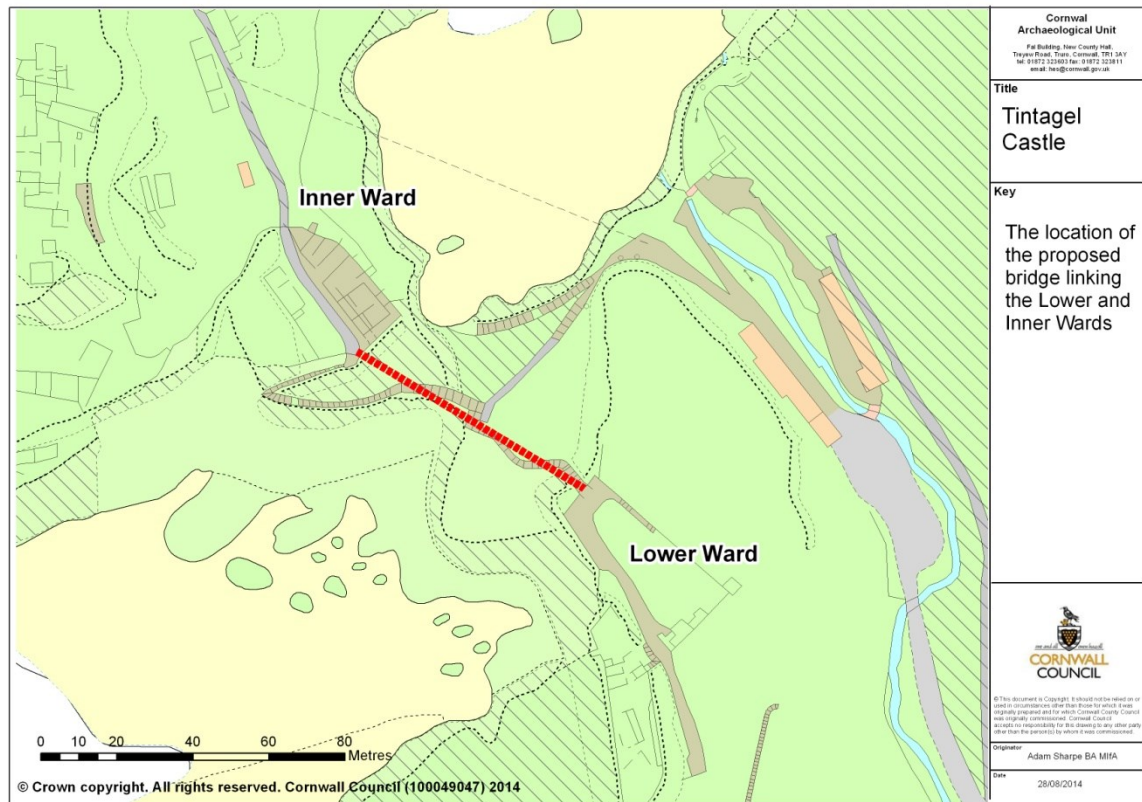


Fig 2. The locations of the Lower and Inner Wards at Tintagel Castle and that of the footbridge proposed to link them.

2 Introduction

2.1 Project background

Tintagel Castle, Cornwall is an internationally significant Scheduled Ancient Monument owned by the Duchy of Cornwall and under the guardianship and management of English Heritage. It is one of the county (and nation's) premier visitor attractions with yearly estimates of over 200,000 visitors.

Access to the castle site was originally from the south, along a path leading from the top of the valley leading into the Barbican and the Lower Ward and thence via a land bridge to the inner Ward. Path routes which may have been in use for many centuries also lead up from the valley bottom, and along Glebe Cliffs from the south.

The current access arrangements to the Island reflect an adaptation to the geomorphological processes which have significantly affected the local cliffs over the centuries. A much more substantial land bridge known to have connected the landward and Island elements of the site during the early medieval and medieval periods has been substantially eroded away, and is now a slender and unstable neck of eroding rock. Visitors have the option of accessing the Island via a steep flight of steps down from the Lower Ward of the castle or via a rock-cut path from the visitor centre in the valley base. From this point they cross a modern bridge to the base of the Island, from where a flight of tortuous rock-cut steps cut during the Victorian period climbs steeply up to a narrow doorway in the crenellated wall constructed during the 19th century to form the southern side of the Inner Ward.

Such an arrangement, whilst reflecting an important historical phase in the development of the castle site (its presentation as a rugged, romantic monument during the 19th century) deters some visitors; for others, the arduous climb inevitably detracts from many visitors' experience of the site, whilst those with mobility issues are currently wholly unable to access Tintagel Island and to experience all that the site as a whole has to offer.

Historic Environment Projects (HEP), Cornwall Council (now Cornwall Archaeological Unit), were requested by English Heritage to provide a written scheme of investigation and estimate for a desk-based assessment of the likely archaeological impacts which would result from the construction of a new 2.4m wide footbridge linking the landward and Island elements of Tintagel Castle (between the Lower and Island Wards) (Fig 2). The aim of this study is to inform the development of this project – the principal aim of which is the improvement of the visitor experience to Tintagel Castle, Cornwall and the construction of a sustainable link between its landward and Island elements.

No detailed plans have yet been developed as this stage of the project, though some initial scoping, design and feasibility work has been undertaken. An (undated) brief for the desk-top assessment has been received from Jeremy Ashbee of English Heritage, and forms the basis on which a WSI was prepared.

The brief requires a desk-based assessment of the two areas within the scheduled monument where the most significant physical impacts on the archaeology of the site are likely to occur, these being the bridge 'landing points' at the seaward end of the medieval Lower Ward of the castle, and that adjacent to the medieval Great Hall at the Inner Ward (on the Island, see Fig 2). Assessments of areas of approximately a five metre radius of the proposed landing points were requested in the brief, though as the bridge location is still to be finalised, these areas will be expanded somewhat so that the study is able to address the potential impacts of any finalised design proposed within these general locations.

2.2 Aims

The principal aim of the study was to carry out a desk-based assessment to determine the archaeological potential of the two principal areas within which physical impacts are likely to occur, these being at the northern end of the Lower Ward of the Castle, and adjacent to the 19th Century entrance to the medieval Great Hall on the Inner Ward. The desk based assessment included:

- The identification from available published and archive sources of the likely dates, nature, depths and complexities of archaeological structures or deposits within an approximately five metre radius each of the two sites likely to be directly impacted upon by the construction of the proposed bridge;
- The assessment the benefits of the construction of the proposed bridge against the potential for the loss of significant archaeological deposits;
- The assessment of the potential for the discovery and scientific recording of potential archaeological structures, deposits, dating material, artefacts and ecofacts within the areas likely to be directly impacted upon at the two ends of the bridge, and the degree to which these will better inform our understanding of the development of the Tintagel site, particularly in relation to its occupation and use during the Early medieval period.
- Setting out recommendations, as appropriate, for future on-site investigation or other recording of each of the two areas considered by the study.

The principal objective of the project is to produce a report summarising the findings of the desk-based study and setting out potential evaluation and mitigation strategies which might be required in advance of any construction programme. A secondary objective is to complete an entry to the OASIS/ADS-Online archaeological record.

2.3 Methods

2.3.1 Desk-based assessment

During the desk-based assessment historical databases and archives were consulted in order to obtain information about the history of Tintagel and archaeological information about those areas where impacts are likely to be experienced. The main sources consulted were as follows:

- Barrowman, R., Batey, C, and Morris, C. 2007, *Excavations at Tintagel Castle, Cornwall, 1990-1999*, Society of Antiquaries monograph (in particular the work on Trench T01 extension into the Lower Ward)
- The full finds catalogue of all finds discovered on the Island since Raleigh Radford's 1930s excavations to 1991 – produced by Professor Charles Thomas and Carl Thorpe
- *Cornish Studies* **16**, 1988. Institute of Cornish Studies Special Issue: Tintagel Papers.
- Appleton, N., Fox, T., and Waters, A. 1988, *Tintagel Castle: survey and excavation at the Inner Ward, the Chapel, Site 4 and the Garden*, Cornwall Archaeological Unit unpublished report
- The Royal Commission survey (RCHME) of the Island undertaken during the 1980s
- Thorpe, C., 2004, *Extreme Archaeology: an excavation at Tintagel, Cornwall: archaeological finds report*, Cornwall Archaeological Unit report 2004R012
- Thorpe, C., 2014, *Tintagel Island trial pits, Tintagel Castle, Cornwall, Scheduled Monument 1014793: archaeological watching brief*, HE Projects report 2014R030

- Thomas, A. C. 1993. *Tintagel, Arthur and Archaeology*, London (English Heritage)
- Material produced by Raleigh Radford and Wright during the 1930s excavations at Tintagel, in particular that relating to Site Z.
- Ramboll UK 2013, *Tintagel Castle Bridge options appraisal: Stage 1 report – March 2013*
- Ramboll UK 2013, *Tintagel Castle bridge geotechnical evaluation: desk study and site visit report*
- Material from Professor Charles Thomas' archives
- Material from Carl Thorpe's archive
- Postcards, guidebooks and other printed ephemera relating to Tintagel Castle

Other relevant material included:

- Reynolds A. 2006, *Repairs to Tintagel Castle 1998/9: archaeological recording, CAU report to English Heritage*
- Reports on HE work at the Iron Gate in 2006, and HE watching brief of the Information Hut in 2007
- Tintagel Island Steps recording work in 1989 and 1990 published in *Cornish Archaeology*, **32**, 1993
- HE report in 1998-1999 repair of the structures within the Castle Inner Ward

2.3.2 Fieldwork

A site visit was made to the two areas of the Tintagel site which would be impacted on by the bridge proposals, should they be proceeded with, in order to assess on site the likely physical impacts of the proposals, and to take illustrative photographs of the areas of the castle which would be likely to be affected should the bridge be constructed.

2.3.3 Post-fieldwork

Archiving consisted of:

- Digital colour photographs (stored according to HER guidelines and copies of images made available to the client)
- Completion of the English Heritage/ADS OASIS online archive index.

An archive report combining the results of all stages of the assessment has been produced (this report).

2.3.4 Archive deposition

An index to the site archive has been created and the archive contents prepared for long term storage, in accordance with CAU standards.

The archiving comprises the following:

- All correspondence relating to the project, the WSI, a single paper copy of the report together with an electronic copy on CD, stored in an archive standard (acid-free) documentation box
- The project archive has been deposited initially at ReStore PLC, Liskeard and in due course (when space permits) will be transferred to Cornwall Record Office.

3 Location and setting

Tintagel Castle occupies a coastal site on the rugged and exposed north Cornish cliffs, its structures being located both on the Mainland (the Upper and Lower Wards) and on a headland attached to it by a slender and eroding isthmus (the Inner Ward). Tintagel Island is centred at SW 04927 89115, its highest point being at 83m OD.

4 Site history

There is currently very little evidence for pre-Roman occupation on the headland of Tintagel though occurrences of prehistoric flints and Neolithic/Bronze Age cup-marked stones do provide evidence for some activity at this time.

There is evidence that Tintagel was a relatively important place by the Roman period. Within the neighbourhood there are two inscribed Roman milestones that suggest a route passing near to Tintagel while Roman coins and pottery (Oxford Colour-coated Wares and native flanged bowls) have been found on the Island, suggesting a date *circa* AD 300 – 400. Radiocarbon dates obtained from the 1990s excavation of structures on the Lower Terrace, Site C, give a range *cal* AD 395-460 (Harry and Morris 1997; Barrowman *et al* 2007). It has been suggested that Tintagel was possibly the "*Durocornovio*" (fort of the Cornovii) of the *Ravenna Cosmography* (Thomas 1993, 84).

During the post-Roman period (from the 5th to early 7th centuries AD) the headland of Tintagel developed into a major fortified citadel (the neck of the headland being separated from the Mainland by the excavation of the "Great Ditch"). It is suggested that this may point to the origin of the place-name, in Cornish '*dyn tagell*' means the fortress of the constriction or throat (Padel 1988).

The survey of the Island undertaken by RCHM(E) during the 1980s after the extensive fire there, together with excavations undertaken since the 1950s have revealed numerous buildings and structures related to the post-Roman period, the density of settlement being such as apparently covering almost every available space on the headland, including on artificial terraces that had been cut into the precipitous sea cliffs that surround most of the site. Associated with these buildings are artefacts, especially pottery, that reflect the importance of this site at this time. Very large quantities of imported pottery (both fine table wares and coarsewares) originating from North Africa and the eastern Mediterranean have been found along with some exotic glass. This suggests that at Tintagel there was a degree of control, organisation and power to trade directly with the Byzantine Empire. The nature of the trade is not known though there is some evidence from other sites that the distribution of tin was an important element (Thomas 1993; Harry and Morris 1997; Barrowman *et al* 2007).

Subsequently the Island was abandoned (apart from a small chapel being built on the peak of the Island c 1100) until the present castle was constructed by Richard, Earl of Cornwall during the mid-13th century. Though the more substantial buildings on the Island, along with the garden and the tunnel, date from this period, the ceramic evidence suggests that occupation appears to have been sporadic (it was sometimes used as a state prison in the 14th century), ceasing by the 15th century. In the 16th century, two small gun houses were built on the Island in response to a possible threat from the Spanish (it is uncertain if they were ever completed); the rest of the castle however was by then described as a picturesque ruin (Thomas 1993).

In the 19th century there was an attempt to mine the lead and silver lodes found on the Island as King Arthur's Mine and the haven developed as a harbour for servicing the surrounding slate quarrying industries. In the 12th Century, Geoffrey of Monmouth had identified Tintagel Castle as that where King Arthur was conceived (not born); this attribution was popularised by Tennyson, Swinburne and Hardy, and Tintagel quickly became an increasingly popular and highly romanticised tourist destination, particularly following the coming of the main line railway to Cornwall and the construction of the Railway Hotel at Tintagel. The Reverend Kinsman, taking on the title of the Constable of the Castle, oversaw the reconstruction of some elements of the monument, and a guide was employed to take visitors around the Castle. A series of formerly rather narrow and dangerous paths were re-cut to enable visitors to access the Island at this time. Eventually the isthmus became too narrow, unstable and dangerous to carry the path

linking the Island to the Mainland and the first of a number of low-level footbridges was constructed. This was replaced by the present bridge in 1975.

Tintagel Castle remains owned by the Duchy of Cornwall, but passed into the Guardianship of the State, being cared for by the Office of Works (and its successors) from 1929 and was Scheduled in 1981 (Monument No 1014793). Archaeological investigations overseen by C.A. Raleigh Radford during the 1930s were followed by some landscaping, reconstruction and repair works. English Heritage commissioned some research excavation at Site C and elsewhere from 1990 to 1999, whilst Cornwall Archaeological Unit and its successors have undertaken a number of watching briefs during safety, visitor management and other works within the Castle site since the mid-1980s to the present day.

5 Tintagel headland – Tintagel Island

As is made clear by the 2013 Ramboll geotechnical report to English Heritage and by previous geological studies of this coastline (most notably by the British Geological Survey) the bedrock on which the various elements of Tintagel Castle have been constructed is both geologically complex and, in places unstable. The coastal bedrock here consists of Upper Devonian slates, siliceous sandstones, pillow lavas and tuffs and phyllites, which have been over-thrust towards the north-north-west. These over-thrust strata were affected by approximately parallel normal faulting, the bedding of the slates generally dipping to the west, whilst the faulting throws the thrust slices down to the west and north-west. At Tintagel Castle specifically, the cliffs consist primarily of a mix of lower Carboniferous and upper Devonian strata for which faulting has inverted the original depositional sequence. Volcanic rocks are also present at the base of the cliffs. As reported by Ramboll 2013 (citing a stability report produced by Gifford), this complex geology has not only brought into being this dramatic coastal landscape, but also threatens its future stability and that of the Castle.

As indicated in the 2013 Ramboll study (authored by Cresswell and West), coastline development here has been controlled by two dominant fault zones: the Castle Fault between West Cove and Smith's Cliff and the Caves Fault Zone, which cuts through the Island across Tintagel Haven to Barras Gug (Figure 25). As the report notes, these are easily worked by marine erosion where exposed, and particularly so where steeply-dipping. The dominant joint set within the rocks trends more or less at right angles to the faults, and has functioned with them to shape the local coastline.

The result of the effects of weathering and faulting within these rock formations over time has been the creation and subsequent erosion of a series of headlands along it – at Barras Nose just to the north, this erosional sequence is not as advanced as at Tintagel. It seems certain that in the past, what is now referred to as Tintagel Island (though still rather precariously attached to the Mainland by an eroding neck of rock), was probably formerly a headland with an appearance rather more similar to that at Barras Nose. It is also clear that it will eventually (and perhaps in the not too distant future) truly become an Island.

What is unclear is the speed at which the process of 'Islanding' has taken place. This need not have been a gradual process, given the complex geology. In many places locally, the cliff is demonstrably capable of standing as a sheer face many tens of metres in height, and the erosion of the headland to produce the current 'neck' may have occurred as a series of occasional but possibly fairly large-scale collapses caused by the collapse of a sea cave running through the isthmus followed by substantial movement along major faults. It seems likely however, given the prevalent geological influences, that there has for a very long time been a relatively narrow neck of land joining the Mainland and the Island. The earliest depictions of Tintagel and its castle by Grenville dating to 1583 show a situation not radically different to that found today, despite the passage of over four centuries. Even allowing for some degree of artistic

licence, the 'Island' and the Mainland are clearly shown as having been joined by a relatively low neck of land, this spanning the gap between near-vertical cliffs. Buck's engraving of the Castle site produced in 1734, just over a century and a half later again shows precipitous cliffs on both sides of the gap between the two wards. Again, some degree of artistic licence in the depiction is certain and unfortunately the angle of view hides the state of the 'neck'. In 1923, Thomas Hardy's reconstruction drawing of the castle for his *Famous Tragedy of the Queen of Cornwall* (reproduced on the cover of *Cornish Studies* 16) not only added a great keep and many turrets and walls to the castle, but also a pair of constructions jettied out into the void between the Mainland and the Island to support a connecting drawbridge.

This supposition, it can safely be concluded, can be entirely discounted. Nevertheless, it and other early depictions of the Castle raise several important questions, most particularly:

- How long ago was it when erosional processes produced the current appearance of the Mainland and Island at Tintagel?
- How did people get from the Mainland to the Island during the post-Roman and Medieval periods, and how difficult was this process?
- How much of either the Phase II post-Roman site or the structures associated with the Medieval Castle has been lost to erosion?

In relation to the first question, the truth is that we simply don't know and will probably never know the answer. It seems unlikely that there was a substantial land bridge linking the two elements of the Tintagel site during the post-Roman period, though what was there is likely to have been a considerably somewhat higher and wider than what survives there now. If this survived as a relatively substantial crossing point until at least 1230 when construction of the Castle began and continued to be useable as a link between Mainland and Island during the following century when the castle was effectively abandoned (despite some probably small-scale reuse during the Phase V occupation during the 14th and 15th centuries), Grenville's drawing of 1583 suggests that it had substantially disappeared by the mid-16th century. All the evidence (below) points to a brief period of catastrophic erosion in the mid to late 16th century which severed the previously-existing access between the Mainland and Island wards of the castle, following which the gap between the two opened up rapidly.

If it was Geoffrey of Monmouth who first made the link between the ruins at Tintagel and the place of where King Arthur was conceived, it was Tennyson and his contemporaries who cemented this into myth and who unwittingly founded the basis of an entire local economy which has survived for well over a century and which shows no signs of giving up on any possible links with the once and future king, despite nearly a century of informed reinterpretation.

From the outset, Tintagel was, perhaps more than any other site in Cornwall, its most breathtakingly romantic and, if you had the nerve, one that simply had to be visited. However, Victorian tourists were not, on the whole, renowned for being comfortable in wild places – indeed, the over-riding impression we have today is that many felt positively ill just thinking about them. Yet, staunch Britons that they were, many of these constitutionally nervous visitors made the precarious trip from Mainland to Island along paths whose narrowness and vertiginous locations would scare the living daylights out of most of today's visitors and would never be allowed under modern health and safety regulations. In places, it is clear from photographs predating the construction of the earliest bridge across the isthmus, that many sections of the path were more of a scramble than any sort of regular footway. In some photographs, abandoned sections of paths which had succumbed to landslips are clearly visible. These do not seem to have deterred visitors. If today, the climb down from the Mainland to the neck is a steep one, it is at least on well-constructed steps

accompanied by handrails. Some early postcards suggest that the route from the 17th century to the mid-19th century was little more than a goat path. The present climb up to the Island is steep, but it utilises rock-cut steps and deters only the unfit, the disabled and the faint-hearted. The climb and apparent exposure to danger is part of the adventure of Tintagel.

The third question was concerned with the extent of what might have been lost to erosion at Tintagel, and clearly this hinges on the form and extent not only of the original headland, but also the degree to which those parts of the headland which have eroded away sited either now completely vanished structures or extensions of those which do survive. Walling and fencing constructed for a mixture of safety and aesthetic reasons during both the Victorian and modern periods to an extent masks the degree to which buildings in all three wards suffered truncation and became ruinous in previous centuries. Early depictions and descriptions of the Castle have proved to be of some use in unravelling the history of erosion at Tintagel.

The earliest useful account of the castle was by Leland, who reported on the castle in 1540 to Henry VII, noting that that *'this castle hath been a marvellous strong fortress and almost situ in loco inexpugnabile, especially for the dungeon that is on a great and high terrible crag environed with the se [sic], but having a drawbridge from the residue of the castelle on to it.'* ... *'The reside of the castelle be sore weather beaten and in ruine, but it hath been a large thing.'* (Leland quoted in Carew 1602).

Leland suggests that there was a gap between the Island and Mainland wards at the time, and access across it could be gained across a relatively short bridge. He does not, however, imply that the land on either side of the bridge was level.

Leland also reported: *It had in all likelihood three wards, whereof two were worn away by the sea, insomuch that it had made there almost an isle, and that there were no way to enter it, but by long elm trees laid for a bridge; so that without the isle is runned only a gate-house, a wall, and a false brayed digged and walled. In the isle remained old walls, and in the east part of the same, the ground being lower, remained a wall embattled, and that men then alive saw therein a postern door of iron.'* (Ibid).

Grenville's 1583 map (Fig 3) clearly shows both the northern end of the Lower Ward and the southern end of the Inner Ward as being truncated, and not being closed off by walling, but it is almost impossible to identify from this image exactly to what point that process of truncation had advanced in 1583. The plan also shows a section of curtain walling to the north-west of the Great Hall, complete with an arched doorway, though this is possibly a proposal, part of his intended fortification of the Island. He does, however, show that the access to the Island from the Mainland was, by 1583, by means of a path leading from the Haven across a low isthmus and thence by means of a zig-zagging track (the upper section of which is visible in this plan) to the Island. This strongly suggests that any previously relatively easy connection between the two elements of the castle had gone, this almost certainly taking place between 1540 and 1580. Carl Thorpe suggests (pers. comm.) that this might have been possible had there been a sea cave through the neck on one of the major fault lines which collapsed around this time. It is noticeable that Grenville's map shows the path extending to the northern end of the Lower Ward terminating at a vertical cliff face.

The bridge was mentioned by Carew in 1602 in his *Survey of Cornwall*, though in the context of a quotation from Leland. However, he mentioned that *'Half the buildings were raised on the continent, and the other half on an Island, continued together (within men's remembrance) by a drawbridge, but now divorced by the down-fallen steep cliffs on the farther side, which, though it shut out the sea from his wonted course, hath yet more strengthened the late Island; for, in passing thither, you must first make descent with a dangerous declining, and then make a worse ascent by a path*

as everywhere narrow, so in many places, through his stickleness occasioning, and through his steepness threatening, the ruin of your life, with the failing of your foot. At the top, two or three terrifying steps give you entrance to the hill ...' (Carew 1602).

Carew seems to be suggesting that there was once a gap between the Island and the Mainland, spanned by this bridge, but that the collapse of the cliffs on the Island side had not only destroyed the bridge, but also formed the current isthmus. This may be based on either local folklore, or a misunderstanding of what he had been told, but it might also reflect the existence of a former sea cave whose roof had collapsed and which until the mid-16th century, could be bridged, until a massive rockfall from the Island cliffs both opened up the gap and infilled the base of the former cave, forming the current land bridge.

If this supposition is correct, it could provide a mechanism whereby a formerly reasonably easy access route to the castle was lost through the collapse of the roof of a sea cave. For a few years it might have been possible to bridge the resultant gap with a timber bridge, but a substantial collapse of the northern cliffs *circa* 1560-70 massively opened up the gap, destroying elements of the Inner Ward, as reported at the beginning of the following century.

John Norden's 1604 drawing of '*Tintagell, a Borowe*' (Fig 4) is too stylised to be of much use, though he does mention in his key the area (4) where '*Buildings fallen into ye Sea*', suggesting that it was known at the time that buildings had collapsed within living memory – this statement may relate to the collapse of the bridge but also to the collapse of sections of the curtain wall and the southern wall of the Great Hall. Norden also explicitly mentions a descent from the Lower Ward, and isthmus and an ascent to the Inner Ward. He does, however mark the site of '*a drawbridge decayed*'. It is likely, therefore, that this bridge was a feature which had still been in existence during the 1540s, though which had gone by the 1580s. It should be noted, however that Norden depicted a northern wall closing off the Lower Ward, something which Grenville's map suggested had been lost to erosion twenty years previously.

The detail in Buck's 1734 engraving (Fig 6) is too fanciful to use as hard evidence in any assessment of archaeological loss; Borlase's 1754 engraving of '*Tindagel Castle*' suggests that, during his time, some additional amount of the south-eastern arc of the curtain wall around the Great Hall survived, but this may be misleading. Borlase's 1754 drawing of Tintagel Castle is also, unfortunately, of little use.

It is not until the advent of photography in the late 19th century that truly directly comparable images of the Island and Mainland become available, and even with these, the often artistically constrained viewpoints utilised when taking them somewhat restrict their usefulness in charting the erosion of the cliffs and buildings at Tintagel (Figs 9 to 20). Some examples of these photographs, often utilised by local postcard sellers (and not infrequently hand tinted and otherwise doctored to enhance the romantic aspects of the site) are included in this report. A number allow stages in the erosion of features at both the Lower and Inner Wards to be documented. Others help to catalogue changes in the access routes from the Mainland to the Island, whilst the *circa* 1877 and 1908 OS 25" mapping (Figs 7 & 8) are useful and probably accurate records of the site condition at these dates.

In addition, the English Heritage Archives for Tintagel document (in some cases in great detail) the efforts taken over the years to provide safe visitor access from the Mainland to the Island, a process which has involved the construction of two bridges, the re-routing and resurfacing of paths, the installation of several iterations of handrail, the dynamiting of unstable rock faces and the rock-bolting, netting and Gunniting of loose cliff faces.

One of earliest available images to show any useful detail (Fig 9) clearly depicts a crumbling, overhanging northern end to the eastern wall of the Lower Ward. Sections of this have gone. Two figures in white at the northern end of the Lower Ward appear to be sitting on the ground behind a low Cornish hedge – this feature has been replaced by the present wall closing off this part of the Castle. The topography suggests that perhaps five and possibly up to ten metres of the northern section of the Lower Ward have been lost since its construction during the C13th, the upper figure being a probable maximum given the tapering shape of this element of the Castle. However, the profile of the cliff slope to the north of the Lower Ward suggests that there have clearly been substantial landslips within this area, and considerable sections of the cliffs at this location have been lost to erosion over the centuries.

Losses of elements of the Inner Ward are more obviously visible, especially when looking towards it from the Mainland, since not only is the curtain wall truncated and the Great Hall has no southern wall, but its eastern and western walls are clearly truncated. Moreover, the foundations of the eastern section of curtain wall are clearly visible in the eroded cliff section. It is probable that the Great Hall and its enclosing curtain wall were the southernmost structures on the Island, and that its southern wall would have had a deliberately impressive elevation when viewed from the Mainland. This has gone, together with all visible traces of its foundations. Whilst the Medieval builders were clearly not averse to constructing the castle close to the edge of a cliff, it is also likely that they would have placed their foundations a safe distance back from its edge. Unfortunately, given the strike of the faulting here, documented collapses have taken place across and down the whole of this section of cliff face, and no evidence survives to indicate the location of any identifiable Medieval cliff edge. However, the photographic evidence suggests that only a small proportion of these losses have taken place during the past century – a matter of less than a metre in the area immediately below the exposed face of the Inner Ward, as well as the rock supporting the seaward section of Kinsman's 19th century walling, several metres of which have been lost to collapse. Matt Ward (English Heritage) reports that about one metre in height has been lost from the surface of the isthmus over the past four decades.

The original extent of the area enclosed by the curtain wall on the Island is somewhat uncertain. One of Raleigh Radford's plans included within his original guidebook for Tintagel Castle (Fig 23) shows a short section of walling on the cliff edge to the west of the main site which was interpreted by him as a surviving fragment of the curtain wall. Recent field examination showed this feature to be a low stretch of lime-mortared wall with a probable longer extension at its western end, this now being represented by only some basal wall courses extending about the same distance westwards as the northern curtain wall on the clifftops above.

The existence of these fragmentary remains raises a basic question as to why the area enclosed by the curtain wall was so extensive. The Great Hall complex occupies only a small part of the eastern section of the enclosed area, whilst the remainder to the west consists of steeply-sloping and extremely uneven ground, incorporating a number of crags and cliff faces. The topography suggests that this area is unlikely to have sited any additional buildings, so why enclose so large an area when the cliffs themselves would have surely formed an impregnable line of defence from assaults from the south in this part of the site? If the extended curtain wall was intended to defend the core part of the castle from attack from the north, it need not have been a complete circuit, but could have terminated at its south-western end on the steep cliffs. Thorpe (pers. comm.) suggests that the curtain wall was originally purely for show, and that the northern section was deliberately constructed so that it could be seen as a backdrop to the Great Hall when viewed from the Mainland. It is very possible that there was an equivalent, almost continuous southern curtain wall of which the short fragment along the cliff edge to the west of the Inner Ward is the last remaining section which added to

the impression of a far larger and more important castle than was actually built on the Island.

Hypothetical reconstructions of the Castle including its appearance during the post-Roman and medieval periods have been included in the most recent version of the Tintagel Castle guidebook (Figures 31 & 32), as well as a possible development sequence for the medieval castle (Figure 33).

Truncation of Phase II period terraces and evidence for occupation has clearly taken place at the southern end of the Island, again, to an unknown extent, though almost certainly to a greater degree than that affecting the medieval components of the site.

One particularly intriguing photographic postcard view of the Inner Ward (Fig 20) shows a substantial stone wall spanning the gap between Kinsman's 19th century wall and the curtain wall to the east of the Great Hall. This feature does not appear in any other available view of the castle, and must have been short-lived. The image also shows restoration work under way on the northern part of the curtain wall, what appears to be a timber-constructed rubble chute sited on the cliff slope below the eastern side of the Great Hall and a fresh pile of excavation spoil below the edge of the plateau more or less below the site of the Island chapel. The path through the Inner Ward is accompanied by a fence, another feature which does not appear in any other view of the site. The image seems likely from the detailing of the cliff path handrails to date to around 1933, at the time of Raleigh Radford's first season of work. A wall in this position is shown on an Office of Works plan which is thought to date to 1932 (Fig 21). Of some interest is why the wall was subsequently dismantled, perhaps having lasted only a handful of years. It is possible that it was felt that it marred the romantic appearance of the castle when viewed from the Mainland, though its western section may have collapsed – as mentioned above, the adjoining section of Kinsman's 19th century wall has been repeatedly truncated by cliff falls, and quite possibly by the relatively dynamiting of the cliff face below it.

6 Relevant previous archaeological work at Tintagel

That most relevant to the current proposals includes:

- The assessment of the material deriving from the 1918 cliff fall. This occurred on the cliff edge below the Inner Ward of the castle on its eastern side (SX 05088 89042). Some 40+ artefacts were collected from the beach (all of post-Roman date consisting of all classes of imported wares together with animal bone). This suggested the existence of earlier occupation sites on the slopes below the castle walls. This material was examined and described in 1988 (Thomas and Thorpe 1988).
- Raleigh Radford's excavations 1933–1939. Excavation revealed numerous structures on both the Mainland and Island, and he was the first to identify them as belonging to the post-Roman period, though at this time he interpreted the site as that of a Celtic monastery. His area of investigation most relevant to the current proposal is Site Z (two small trenches dug just outside the northern side of the curtain wall belonging to the Inner ward) which produced 100+ post-Roman artefacts (Raleigh Radford 1939). The material was catalogued and described in 1988 (Thomas and Thorpe 1988).
- Central Excavation Unit 1981–85. The Central Excavation Unit undertook minor excavations on the site, excavating a small trench near the south-west corner of the Great Hall in the Inner Ward in 1981 (Thomas 1988).

- RCHME survey 1985. As a result of extensive cliff fires on Tintagel Island in 1983, a survey of the whole Island was undertaken by the RCHME. This identified numerous buildings and artificial terraces with possible structures cut into the side of the Island. It showed that the Inner Ward comprised at least two terraces, while at least three are recognised in the vicinity of the Iron Gate (Thomas 1993).
- Inner Ward, Soakaway Pit excavation. 1988. This was undertaken for Cornwall Archaeological Unit by Nic Appleton (Appleton et al, 1988). The pit within the area of the Great Hall was dug to provide drainage for the main pathway through the castle. The trench reached a depth of c3m encountering an old land surface and walling at its base that was dated by artefacts (50+) to the post-Roman period (Thomas and Thorpe 1988). This was interpreted as an extension of Site Z dug by Raleigh Radford outside the curtain wall, indicating that a major artificial terrace lay beneath the current castle (Thomas 1988).
- 'Extreme Archaeology' 2003. Small scale excavations were carried out on Tintagel Island in September 2003 for Mentorn Productions. The work that has direct relevance to the current project was the excavation of Trench 1 (NGR SX 05080 89044) situated across the scar of a cliff fall that had occurred in 1918 (see above). A structure and artificial terrace (the lowest terrace of three) were revealed below the Great Hall. All the artefacts associated with this feature dated from the 5th or 6th centuries AD (Thorpe 2004).
- A watching brief during the excavation of trial trenches for abseil anchor points undertaken in and around the Inner Ward during February 2014. This appeared to show evidence for Period II occupation above an artificial rock-cut terrace, including Post-Roman imported pottery and coarsewares (Thorpe 2014).
- HE Projects watching brief along the path to the Iron Gate 2006. Carried out in February 2006 on the east side of Tintagel Island when work was undertaken to replace a line of fencing between the Iron Gate and the Inner Ward of the castle. Seven artificial terraces cut into the hillside were identified along the line of the pathway, of which three were previously unknown. Evidence for structures of probable post-Roman date built on the terraces was noted on two of the terraces and 42 sherds of post-Roman imported Mediterranean pottery were recovered. An original route between the Iron Gate and the southern end of the Island discovered during this work appeared likely to be of pre-medieval date (Thorpe 2007).
- HE Projects watching brief in advance of works adjacent to the Inner Ward information hut 2007. Carried out during ground lowering activities in front of the information hut on the east side of Tintagel Island in 2007. A further three artificial terraces cut into the hillside were identified, the information hut being sited on the largest, the others being on the hill slope above it. The form of the building evidence recorded on the lowest terrace was consistent with a post-Roman date and similar in form to that extant at Sites F, B and C. Sixty-seven sherds of post-Roman imported Mediterranean pottery were recovered from this site (Thorpe 2008).
- Small-scale excavations in the landward Lower Ward undertaken by Cornwall Archaeological Unit in 1986 (Cornish Studies **16**). These indicated that this element of the Castle had been constructed by enclosing the promontory with a substantial wall set in a large foundation trench. This in part overlaid a terrace which demonstrated intensive post-Roman occupation activity; a clay oven of Roman type was revealed external to the wall, as well as further hearths, organic and artefactual material of 6th century date and evidence for stake-built apparently contemporary structures.
- Chance artefact finds. More than 50 artefacts of imported pottery, bone and metalwork, all dating from the post-Roman period, have been recovered by

visitors from the section of the path from the Inner Ward to the Iron Gate, while over 30 have come from the path in front of the information hut (Thomas and Thorpe 1988, updated 1990).

7 Summary of key evidence for the likely extent of impacts resulting from the bridge proposals

The following section should be read in conjunction with the CAD-derived plan accompanying this report (see also Figs 46 and 47 extracted from the CAD drawing summarising known interventions). This plan has been based on a topographical survey drawn up for English Heritage in advance of the resurfacing of visitor routes in the Lower and Inner Wards in 1998/9 (Reynolds 2006). The plan indicates those areas where superficial materials were removed prior to paving or re-surfacing, as well as the areas and dates of all reported archaeological trenches together with depths to bedrock (where known). The plan also indicates the likely location of the proposed footbridge (and thus the likely footprints of its abutments), together with the locations of trial drill holes proposed by the geotechnical engineers acting as advisors to English Heritage for this project.

The Lower Ward

(See Figures 34 to 37).

Within the Lower Ward, the key evidence is that resulting from the investigation carried out by Hartgroves and Walker for Cornwall Archaeological Unit (with finds analysis by Thorpe) at the northern end of this part of the Castle site in 1986 (as reported on within *Cornish Studies* 16 in 1988). A watching brief on the foundation trench for a new wall at the northern end of the Lower Ward in 1983 (McAvoy 1984) had revealed a shallow holloway which was interpreted as forming part of the route from the Barbican towards the entrance to the Inner Ward. This is thought to have been associated with the Medieval use of the Tintagel site.

Hartgroves and Walker's work was undertaken in advance of the installation of a drainage system and the installation of rock anchors to improve the structural stability of this part of the Lower Ward. Two of the trenches (A and C) adjoined the foundation trench reported on by McAvoy three years previously.

Three small evaluation trenches were excavated within the Lower Ward and a rather larger area was opened up external to the eastern wall of this feature. Those within the Lower Ward (Trenches A to C) were, as mentioned, very limited in extent (Fig 34).

- Trench A near the north-western corner of the Lower Ward revealed a probably 19th century large ceramic pipe which has been interpreted as being part of the water supply for Victorian lead mining operations on the Island.
- Trench B (made up of two narrow cuts) was excavated immediately adjacent to the inside of the north-eastern corner of the Lower Ward and was restricted in depth so as not to undermine the walling. The trench revealed the construction cut for the walling as well as the nature of the material utilised to provide a levelled platform within this part of the Medieval castle.
- Trench C was located near the north-eastern corner of the Lower Ward. A fill similar to that revealed in Trench B was encountered, though this was shown to overlie a steeply-sloping shillet surface interpreted as the surface profile of the natural bedrock at this location. The theoretical projection of this surface eastwards suggested that the backfill behind the inner face of the wall would be in excess of 2.5m in depth, this according reasonably well with the findings of three unpublished trenches excavated by Raleigh Radford here in the 1930s. These findings implied that the Lower Ward curtain wall had been constructed on a pre-existing terrace levelled into the side of a promontory with sloping sides.

- Trench D (Fig 36) was excavated external to the eastern wall of the Lower Ward, effectively as an extension to Trenches B and C. As well as an elongated trench running parallel to and adjacent to the external face of the wall, a narrow extension was cut eastwards across the slope, including the buried terraced area and the Medieval bank and ditch paralleling the curtain wall. The additional area exposed by this trench proved particularly useful, revealing an extent of a pre-Medieval land surface containing a pair of stone-lined hearths, over 100 stakeholes, cooked animal bone, imported pottery, two fragments of early Medieval glass and a piece of copper alloy. A sealing layer contained 25 sherds of imported Mediterranean wares which elsewhere on the Island have been the principal dating evidence for a significant phase of post-Roman occupation at Tintagel. An extension to this trench revealed further sections of the pre-Medieval occupation surface, features and overlying layers. Radiocarbon (C14) dating of material from the stakeholes and ovens proved somewhat inconclusive (some degree of contamination was suggested as a possible explanation for this), although three of the four supported a broadly Roman period date.

It was concluded that the evidence indicated the presence of a post-Roman terrace on which temporary structures had been built and activities including cooking had been carried out. This terrace had been utilised as the foundation level for the Medieval curtain walling, the levelled interior of the Lower Ward having been achieved through infilling with soil and rock fragments, a fill material similar to that recorded by McAvoy in 1983.

The presence of this post-Roman terrace indicates that occupation during this period was not confined to the Island, but extended onto at least the upper parts of the promontory subsequently occupied by the Lower Ward of the 13th century Castle. Both of the upper slopes and the original crest of the promontory should be considered as having substantial potential to be the locations of post-Roman sites as a result. Raleigh Radford's four trenches excavated against the inner faces of the eastern wall of the Lower Ward (Fig 37) confirm the underlying profile of the promontory and suggest the likely presence of a substantial southern extension of the post-Roman terrace identified by Hartgroves and Walker in 1986.

The Inner Ward

(See Figures 38 to 41)

Far greater attention has always been paid to the Inner (Island) Ward at Tintagel, as it has long been assumed that, given its location, this would have sited the most important elements of any palace, monastery or stronghold constructed at Tintagel. It is known that a number of investigations and other activities have taken place here over the centuries, but records for almost all are either rudimentary, have not survived or were never made. It may, initially be a surprise to many that the large scale work undertaken on the Island during the 1930s by Raleigh Radford for the Office of Works have left such a limited archaeological record for the area of the Great Hall. It has to be remembered, however, that Raleigh Radford's principal focus of attention were those elements of the Island site which he considered most likely to have been associated with the monastic site which he considered to have been sited there. Secondly, an examination of the relevant elements of his archive shows that whilst the level of recording undertaken reflects the better standards of the day, it falls far short of what would be required as a minimum today. Thirdly, Raleigh Radford's principal task in relation to any works undertaken in the Great Hall was presentation rather than investigation, and fourthly, as subsequently been made clear, the impressive Medieval structures here overlie, in places, very deeply-buried post-Roman sites which his workmen would not have been able to investigate without causing significant damage to the 13th century standing structures, though it seems unlikely that Raleigh Radford was aware of their existence.

Apart for revealing the wall foundations associated with the Medieval castle prior to their consolidation by the Office of Works, the archaeological record does not suggest that Raleigh Radford undertook much in the way of archaeological investigation within and surrounding the Great Hall, his below-ground investigations apparently being restricted to two limited areas. In 1933, Raleigh Radford oversaw the excavation of an elongated trench between two parallel walls near the centre of the Great Hall to create a relatively shallow soakaway. No records of the findings of this work have been identified. External to the eastern curtain wall of the Great Hall, Raleigh Radford excavated either two or three small test pits (his Site Z) to depths of around 600mm against the internal angles of wall buttresses. Unfortunately his site notes and associate plans were destroyed when his house in Exeter was destroyed by bombing in the Second World War, though he subsequently mentioned that at least one trench revealed evidence for pre-Medieval walling. His finds register indicates that they also produced some post-Roman pottery. This general area was re-examined by Historic Environment Projects in 2014 (Thorpe 2014) during the installation of abseil anchor points. Although only very limited areas were investigated, these small pits suggested the existence of a pre-Medieval occupation terrace and also produced a small quantity of post-Roman imported pottery.

In terms of archaeological information relating to Phase II occupation on the Island, the most important investigation for which a record to modern standards was produced was that undertaken by Appleton for CAU in 1988, when the area adjacent to the soakaway was re-investigated (Appleton, Fox and Waters 1988, and Thomas 1988 in *Cornish Studies* 16, Figure 38 in this report). Appleton excavated a trench to a depth of 2.8m without encountering true bedrock at this location, indicating the very considerable depth of made ground underlying the foundations of the Medieval structures making up the Great Hall. Although this area had witnessed considerable disturbance during the 1930s (and had possibly been originally excavated by Kinsman *circa* 1852), Appleton recorded (with some difficulty) a stratified sequence at this location. The 'modern' surface overlaid several mixed layers with a combined depth of 2.1m, these containing substantial amounts of post-Roman imported pottery and interpreted as fills/levelling material during the construction of the Great Hall. The underlying Layer 5 was interpreted as an old land surface pre-dating these construction activities and contained post-Roman ceramic material, whilst Layer 6 (the lowest recorded) appeared to incorporate a course of horizontal slate blocks and slabs bedded in a yellow clay, and interpreted as evidence for a pre-Medieval structure underlying the Great Hall.

Though very small in extent, a further trench with some relevance to this assessment was excavated by the Central Excavation Unit in 1981 adjacent to the proposed landing point for the new bridge prior to the hard surfacing of a sloping section of visitor pathway at the southern end of the Great Hall. The feature encountered here was interpreted as a medieval rubbish pit. Re-examination of the finds recovered during this work showed that, with the exception of a single 15th Century sherd, all of the ceramics dated to the post-Roman period; some of the sherds suggested contamination by bronze-working. Butchered animal bones were also included in the finds assemblage, and Thomas (1988) has suggested that the CEU trench may well have intersected the western edge of a Phase II terrace beneath the Great Hall.

One further strand of evidence pertinent to this assessment and to interpretations of Tintagel Island was also reported on in *Cornish Studies* 16 in 1988. During a visit to the site, Professor Thomas noted that, following a period of prolonged wet weather which had dislodged superficial material, it was possible to make out a stratigraphic sequence in the exposed southern cliff face below the Great Hall. This was recorded by Thomas and Thorpe utilising a series of photographs as well as direct observation through binoculars and is reproduced as Fig 24 in *Cornish Studies* 16 (1988). Most crucially, the recorded sequence not only confirms Appleton's findings from the soakaway pit the same year, but supplies extensive evidence supporting a construction sequence on the

Island which had previously been hypothesised by Thomas (Figs 39 and 40). Indications of at least two rock-cut terraces can be seen to underlie the present Great Hall floor level, together with hints of walling separating these features, which must be of post-Roman date. The upper part of this cliff face has since been rock-bolted and netted as a safety measure, and the detail of this section is no longer clearly visible. Thomas and Thorpe (pers. comm.) have recently produced a plan from the available evidence suggesting the likely locations and extents of two terraces at the southern end of the Island Ward which are typical of those which characterise post-Roman occupation sites at Tintagel (Fig 41).

Material eroded from this cliff face, and from the 1918 cliff fall on the eastern side of the Island below the north-eastern corner of the Great Hall which derive from these terraces and from material eroding from them incorporates Period II artefactual material, as have small-scale excavations between the Great Hall and the Iron Gate where further post-Roman occupation terraces have been identified (Thorpe 2007). A relatively large number of post-Roman sherds have been collected from the eroding surface of the path between the Great Hall and the Iron Gate, and from the path running northwards from the Great Hall onto the Island.

8 Discussion

It is evident from the discussion above and the plan accompanying this report that, despite the historical, archaeological and cultural importance of Tintagel Castle, only very limited areas of the site have been archeologically investigated in a scientific manner. It also reveals that all interpretations of the development of the site have been based on a very limited archaeological data set, particularly within these two specific areas of the site and that, in relation to the surviving area of the site which is likely to have had the highest status during the post-Roman period, almost no research investigation has been undertaken.

However, although very limited archaeological evidence is, in one case, available for the areas which are most likely to be affected by the current proposals to improve visitor access from the Mainland to the Island, it is felt that sufficient is known to be able to predict likely impacts. In relation to the Lower Ward, it is evident that the promontory was artificially levelled through the building up of material during the Medieval period. This has resulted in the burial by up to 2.0m of post-Roman land surfaces below the eastern edge of the Lower Ward. The impacts of this activity on any archaeological evidence on the central spine of the promontory are unknown, as is whether or not the burial of earlier land surfaces under medieval levelling material might have also taken place on its western side.

On the southern end of the Island, the archaeological deposits have been shown from a small number of investigations to be deepest on its eastern side, underlying the Great Hall. However, Thomas and Thorpe have also postulated the existence of a second, large but more shallowly-buried terrace under the now more or less level grassy area to the west of the Great Hall. No archaeological investigation of this part of the site has taken place and it is likely to lie at least in part within the area which will be most directly affected by the construction of the northern landing point for the bridge and any new path leading from it into the site.

9 Likely impacts

The construction of a new visitor access bridge between the Lower and Inner Wards at Tintagel Castle will have a number of impacts on the archaeology of the site – some of these being direct and physical, some consequential and some aesthetic.

Physical impacts on the archaeology of the site will result from any necessary geotechnical site investigations, archaeological evaluation trenching which might be

required to clarify potential impacts which would result from the bridge construction, archaeological excavation in advance of construction in order to mitigate unavoidable damage to *in situ* archaeological deposits and those resulting from excavation, piling and other works directly associated with the bridge construction (Figure 42).

Other associated impacts might result from the need to site construction machinery, materials storage areas or compounds on parts of or close to the site, or to bring machinery, vehicles, materials or components to the site, or to remove excavated materials from it.

Consequential impacts are assessed as those which would impact on the site following the construction of the bridge access. The creation of a new and spectacular bridge across the gap between the Mainland and Island at Tintagel would undoubtedly lead to an increase in visitor numbers to the site, both to experience the spectacular walk across the bridge itself, and to be able to access the Island without the arduous climb up the present cliff path. Visitor erosion already significantly impacts on the archaeology of Tintagel Island given its frequently thin soils, the fragility of many of its archaeological sites, and the channelling of all visitors onto a very limited number of path routes around the Island itself. This has already led (on both the Mainland and Island Wards) to a requirement to hard surface several sections of the visitor route. Increased visitor numbers to the Island will inevitably result in the need to either protect or excavate eroding archaeological sites, or to hard surface far more extensive sections of the visitor route.

This will result in one of the likely aesthetic impacts, given that additional path surfacing to protect against erosion will introduce further non-original textures into the 'natural' environment of the Island. It could also potentially somewhat confuse visitors as to what are original archaeological features, which represent reconstructions (some Victorian, some undertaken during the 1930s/1940s and some modern), very few of which are interpreted as such; confusion may already exist as to which are original and which are modern safety or site management features. Surfaced paths on the Island plateau, where they will be most required to counter erosion, will have the greatest visual impacts.

A further aesthetic impact will result from the construction of a bridge of modern design and materials linking the Mainland and the Island, since this will inevitably greatly change the appearance of the site when seen from the surrounding landscape (Figure 43). It will also affect the visitor experience since, whilst it will greatly facilitate visiting the Island (and particularly so for those potential visitors for whom this experience is currently impossible by reason of a physical disability), it will also remove from the visitor experience that sense of adventure and achievement which is palpable on the faces of many of those who have 'made it' up the existing steep cliff path.

10 Recommendations

As a preliminary stage in the development of the proposals for the bridge at Tintagel, the project engineers have identified a need to gain further information about the geological conditions existing at the locations where its abutment footings would be sited. It is proposed that this is achieved by core drilling utilising a tracked compressed air drill rig sited in the Lower and Inner Wards. The option of utilising these drill holes to site the rock anchors which would stay the bridge has been suggested. In addition, a hand-operated drill worked by men on abseil ropes is proposed to retrieve material which will allow a determination of the strength of the upper sections of the cliff faces where the bridge abutments are to be founded. Two 15m deep 150mm diameter boreholes are proposed within each of the two wards at five and fifteen metres back from the bridge foundation points, and four groups of four drill holes on 2m x 2m grids into each of the cliff faces and at the locations proposed for the bridge footings.

The engineers have suggested that the impacts arising from this work could be mitigated by archaeological watching briefs during the excavation of test pits a minimum of 500mm square at each drilling location.

Although the engineers have indicated that the locations of the 15m drill holes could be varied by up to one metre from their indicated positions, when these are accurately plotted out (Figures 46 and 47) the southernmost within the Lower Ward is currently proposed to be drilled within the access platform on the eastern curtain wall. The re-siting of this borehole away from the wall will be necessary to prevent damage to it, but it should be noted that it may well intersect a southern extension of the Phase II terrace revealed by Hartgroves and Walker at a depth of approximately 2m from the present ground surface within the Lower Ward. It would be impossible to excavate a test pit of the size suggested to this depth, and it might be necessary to open up a substantially larger evaluation trench as a result.

The northernmost borehole within the Lower Ward is indicated at the site of Hartgroves and Walker's Trench C. Bedrock within this area was found in 1986 to slope from 0.5m to 1.25m from west to east, this probably representing the western edge of an artificial Phase II terrace (see Fig 34). Provided that the borehole is wholly within the footprint of the 1986 trench (which would need to be tested by limited excavation) there may be no requirement for further archaeological evaluation at this location.

Within the Inner Ward, the southernmost borehole is indicated at a location which is likely to be either between the two probable Phase II terrace sites or on the eastern edge of the western example. The depth to bedrock here is likely to be shallow, but the possibility that the soils here will contain displaced artefactual material is, on the basis of the number of chance finds recovered from this area, fairly large.

The northern borehole within the Inner Ward is felt likely to be squarely within the area occupied by the western Phase II terrace. No evaluation of this area has been undertaken. The evaluation of an area large enough to allow the meaningful interpretation of any archaeological results is suggested as being required here. A similar approach is recommended for the patterned hand drilling in both the Lower and Inner Wards.

The Lower Ward cliff face site is less likely to contain *in situ* deposits vulnerable to the patterned hand drilling operations, though may incorporate displaced artefactual material. Operations here may well be in the area already occupied by the upper part of the existing flight of steps, or immediately adjacent to them. If the latter, an archaeological watching brief during de-turfing will be required. Following examination of the underlying material it may be necessary to undertake a small scale excavation to bedrock at the drilling locations; all artefacts revealed during this work would be recovered.

The Inner Ward cliff face location is the most problematic, as this is high, near-vertical, known to be unstable, and has already been netted and rock-bolted; full rope access will be required by the drilling team and by any archaeologist observing the operations as a result. Both *in situ* and displaced material on the routes utilised to get men and equipment down to the drilling locations will be vulnerable to disturbance, as well as at the locations for the drill holes themselves. Examination of photographs and the recent CAU site visit suggested that bedrock is both close to surface at this location and forms the majority of the exposed cliff face, though the eastern part of this area appears to be made up loose deposits which might represent a backfilled cut feature. If this is the case, this part of the cliff face might contain both *in situ* features and artefacts. The depth of this material and the potential for archaeological recording of the impacts of the work at this site is unknown.

Provision would also have to be made for the mitigation of impacts arising from the surface loads which would result from the siting and on-site movements of the air compressor and drilling equipment, and from the creation and use of any site compound and material and equipment storage areas. If the use of sensitive areas of the site cannot be avoided, adequate load-spreading sheeting would be required to avoid compression impacts on sub-surface archaeology, particularly within the area thought likely to incorporate a buried Phase II terrace within the Inner Ward.

Given the unknown nature of the archaeology, depth of deposits and sensitivity to compressive loads or other impacts within the area of the probable western terrace, a detailed geophysical survey of this apparently blank grassy area in advance of any intrusive operations would be prudent. Evaluative trenching to test the results of the geophysical survey should be undertaken on any potentially vulnerable features identified from it.

No detailed final design for the bridge has been drawn up to date. However it is clear that excavation of all superficial materials down to bedrock (and very likely somewhat deeper) will be required within the areas to be occupied by the bridge abutment foundations. These may well be up to 5m x 5m in plan, allowing for the additional space which will be required around them for the installation of the shuttering for forming up the concrete which will be used in their construction. All archaeological features within these two areas will be impacted upon and it is recommended that both of these areas are archaeologically excavated down to bedrock.

An archaeological watching brief may also be required during some stages of the construction of the bridge abutments.

11 References

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Ordnance Survey, c1907. 25 Inch Map Second Edition (licensed digital copy at CAU)

Ordnance Survey, 2007. Mastermap Digital Mapping

Tithe Map and Apportionment, c1840. Parish of Tintagel (licensed digital copy at CRO)

Material from Professor Charles Thomas' archive

Material from Carl Thorpe's archive

Postcards, guidebooks and other printed ephemera relating to Tintagel Castle

The catalogue of all finds discovered on the Island since Raleigh Radford's 1930s excavations to 1991 produced by Professor Charles Thomas and Carl Thorpe

The Royal Commission survey of the Island undertaken during the 1980s

Material produced by Raleigh Radford and Wright during the 1930s excavations at Tintagel, in particular that relating to Site Z.

Sir Richard Grenville, 1583, Plan of Tintagel (from his survey), British Library, Cotton MS Augustus I.ii fol 43

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11.3 Websites

<http://www.heritagegateway.org.uk/gateway/> English Heritage's online database of Sites and Monuments Records, and Listed Buildings

http://en.wikipedia.org/wiki/Tintagel_Castle

12 Project archive

The CAU project number is **146412**

The project's documentary, digital, photographic and drawn archive is maintained by Cornwall Archaeological Unit, Cornwall Council, Fal Building, County Hall, Treyew Road, Truro, TR1 3AY.

English Heritage/ADS OASIS online reference: cornwall2-189885



Fig 3. An extract from Grenville's 1583 map of Tintagel. The extensive stretch of curtain wall shown to the south-west (left) of the site of the Great Hall may have been one the works proposed by Grenville's to fortify the Island, rather than anything earlier which survived at the time. The Grenville map also shows that access to the Island was, at the time, more or less as it is today.



Fig 4. Norden's 1604 view of Tintagel Castle. He showed only the most vestigial of land bridges connecting the Mainland to the Island, labelling it 'Isthmos'. Note the figure in the red breeches clambering his way up the slope to the Lower Ward.



Fig 5. A rather poor quality reproduction of the 1754 Borlase engraving of Tintagel Castle; this shows the neck with an appearance very similar to that seen today.



Fig 6. This low resolution copy of Nathaniel Buck's 1734 engraving of the north view of Tintagel Castle shows the ruinous state into which the castle had fallen by this date, but little other useful detail.

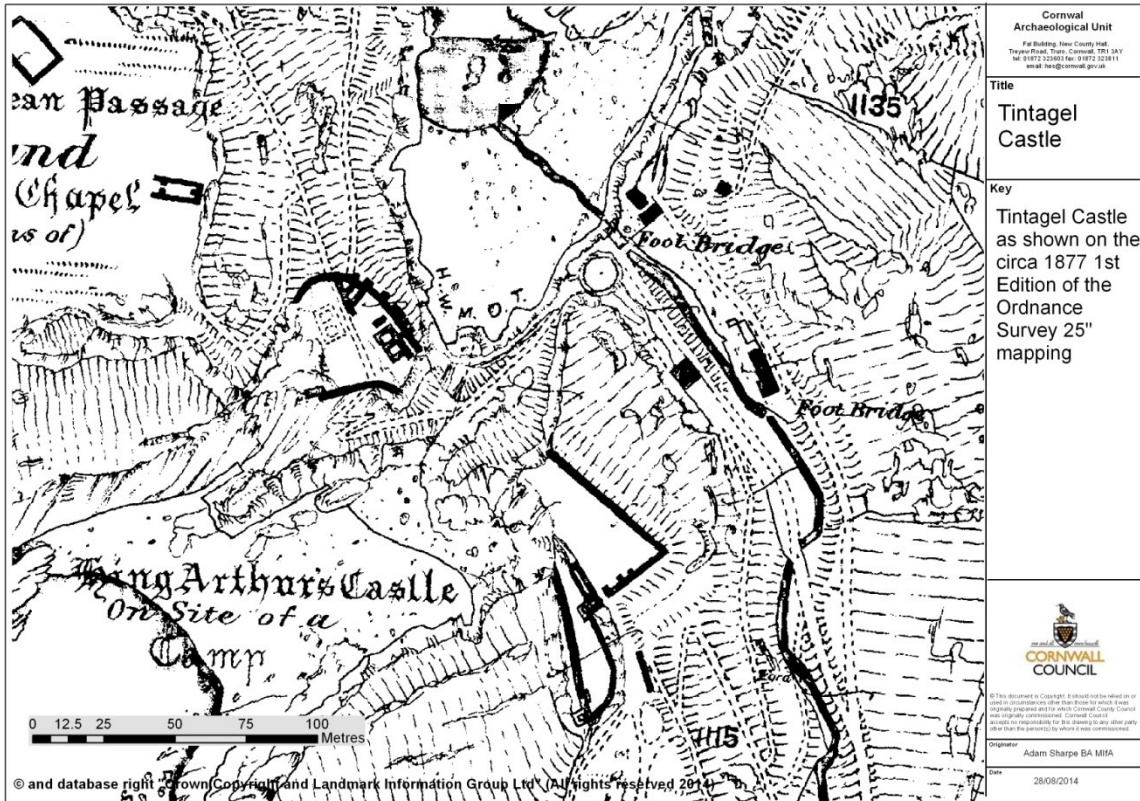


Fig 7. Tintagel Castle, as mapped by the Ordnance Survey circa 1877. Note the zig-zag path from the Inner Ward down to the isthmus.

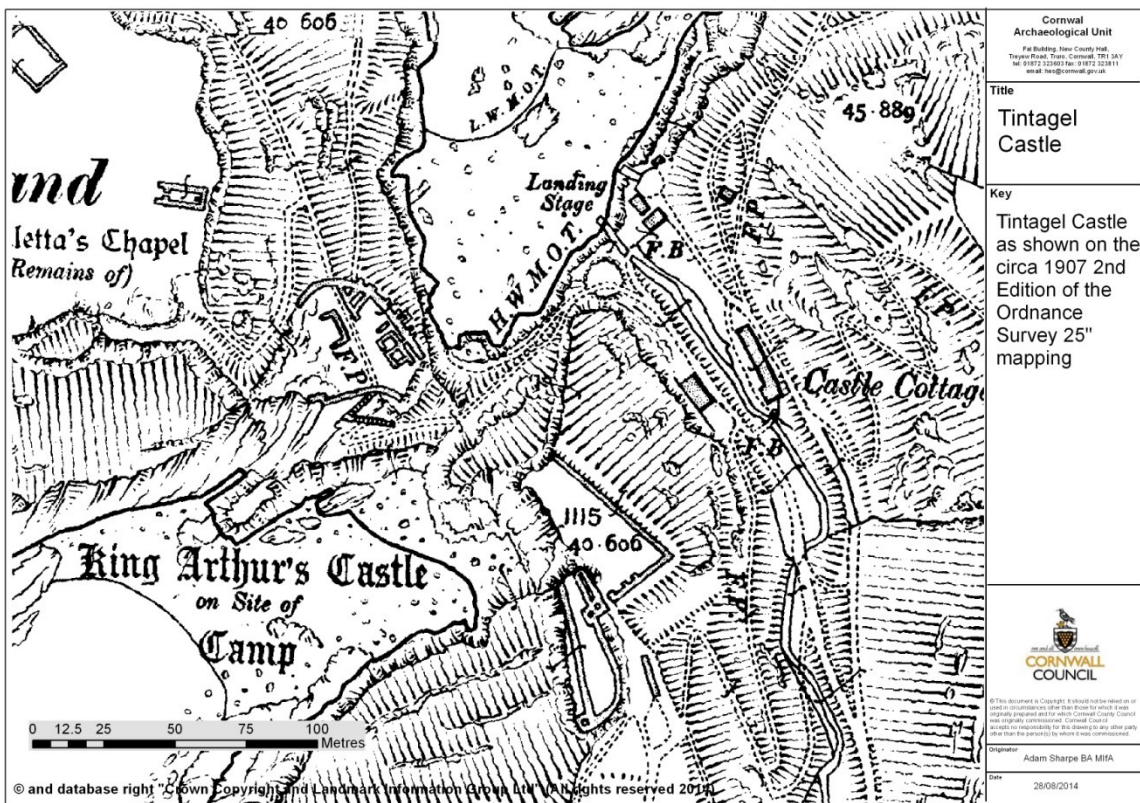


Fig 8. Tintagel Castle as mapped by the Ordnance Survey circa 1907. Rationalisation of the path has taken place since 1877 and a flight of steps had, by this date, been constructed. The earlier path route was still depicted.



Fig 9. The 19th century path arrangement can be seen in this view can be seen to have consisted of a narrow zig-zag path, including a visibly dangerous lower section running up and over the neck. The length of Kinsman's wall visible in this image should be compared with that visible in later views.



Fig 10. In this slightly later image, the lower section of the path can be seen to have been abandoned, and a new route had been cut down to and across the top of the neck.



Fig 11. A modern view, showing the new bridge and the abandoned lower section of the steps which originally led to the path running along the top of the neck.



Fig 12. A Frith postcard showing that there was at the time clearly no access from the Lower Ward down to the neck, nor any form of walling across its northern end.



Fig 13. Another Frith postcard showing access arrangements from the valley base. The higher paths routes led to the neck and the cliff path up to the Island.



Fig 14. An early photograph which shows a low wall or bank across the northern end of the Lower Ward and hints of very steep paths running down the slope below towards the neck.



Fig 15. An early 20thC postcard, showing the flight of steps constructed to give access from the Lower Ward down to the path across the neck and on to the Island. Note that the wall across the northern end of the Lower Ward had by this time gone.



Fig 16. A good late 19th century view looking from the Haven showing the access track leading up the neck. Note the clear evidence for major landslips on the slope below the Lower Ward.



Fig 17. One of the romantically late 19th century tinted and enhanced postcards of the Haven and Castle for sale during the late 19th and early 20th centuries.



Fig 18. A relatively early (probably early C20th) view of the Inner Ward, showing the substantial erosion scar below and to the right of Kinsman's new walling, the right hand end of which had already collapsed.



Fig 19. A Ministry of Works postcard probably dating to around 1930, showing evidence for some degree of additional erosion of the cliff face beneath the eastern end of the Great Hall.



Fig 20. A postcard which is likely to date to the early 1930s showing the short-lived cliff-edge barrier constructed between Kinsman's wall and the eastern curtain wall, as well as excavation spoil from the chapel (circled, left of centre, top) and a wooden rubble chute (circled, on the slope to the right of the Great Hall).

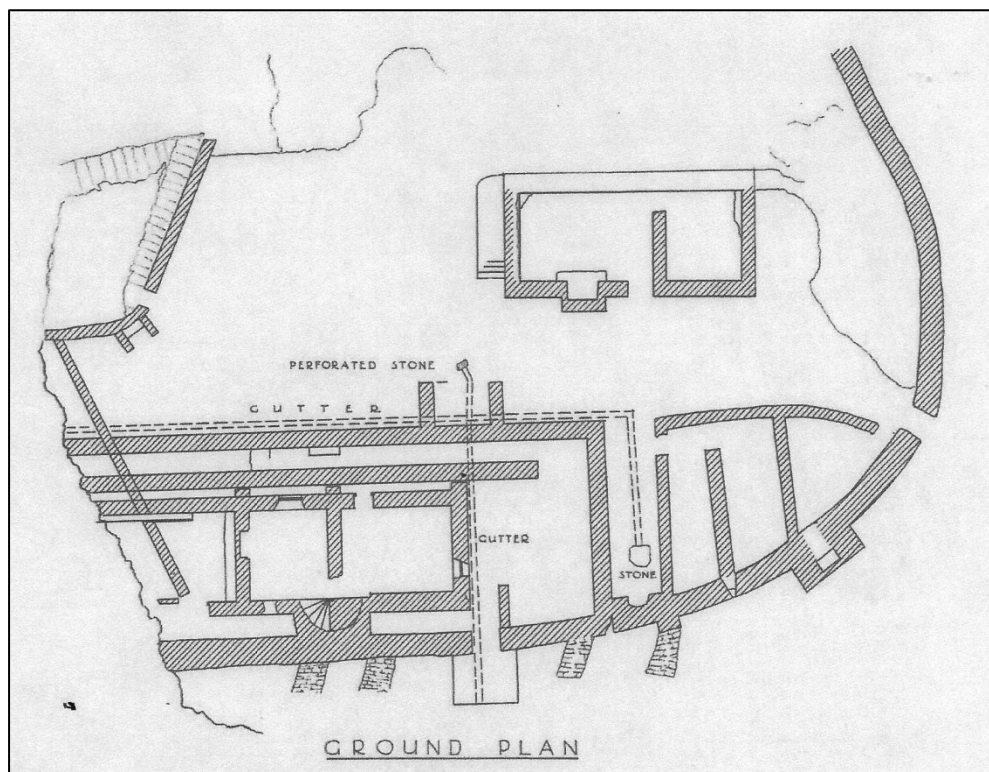


Fig 21. An extract from a 1932 Office of Works plan showing the short-lived walling along the cliff edge at the southern end of the Great Hall.



Fig 22. A broadly equivalent modern view to that shown in Fig 21. The cliff slope below the Great Hall has been meshed and rock bolted. A further metre of Kinsman's wall has collapsed since the earlier postcards were produced.

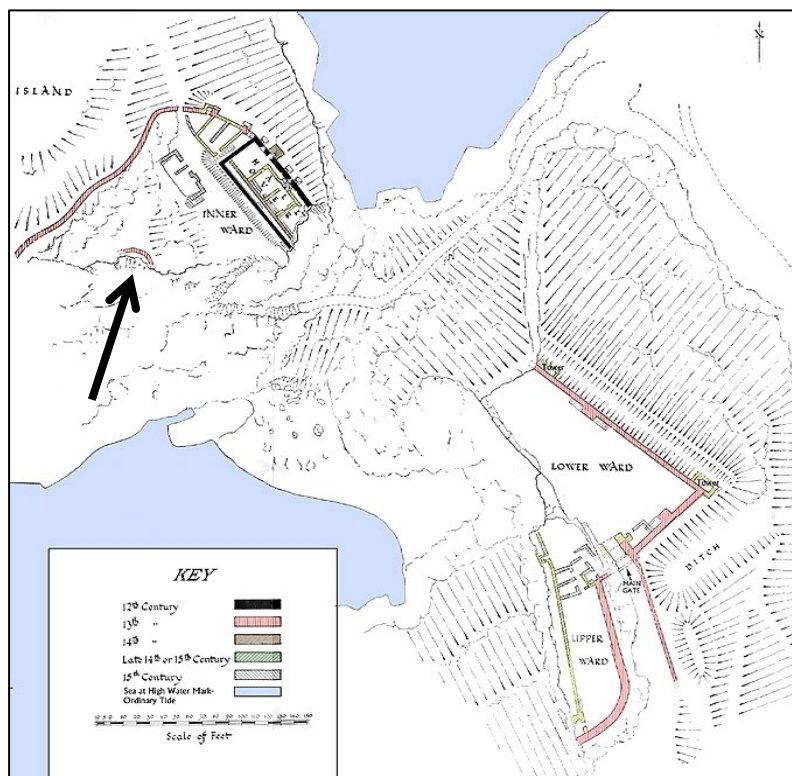


Fig 23. An extract from one of Raleigh Radford's phase plans for Tintagel, reproduced in the first Tintagel guidebook showing (arrowed) a short stretch of the western section of the curtain walling.



Fig 24. A 2005 Cornwall County Council aerial photograph of the Lower and Inner Wards.

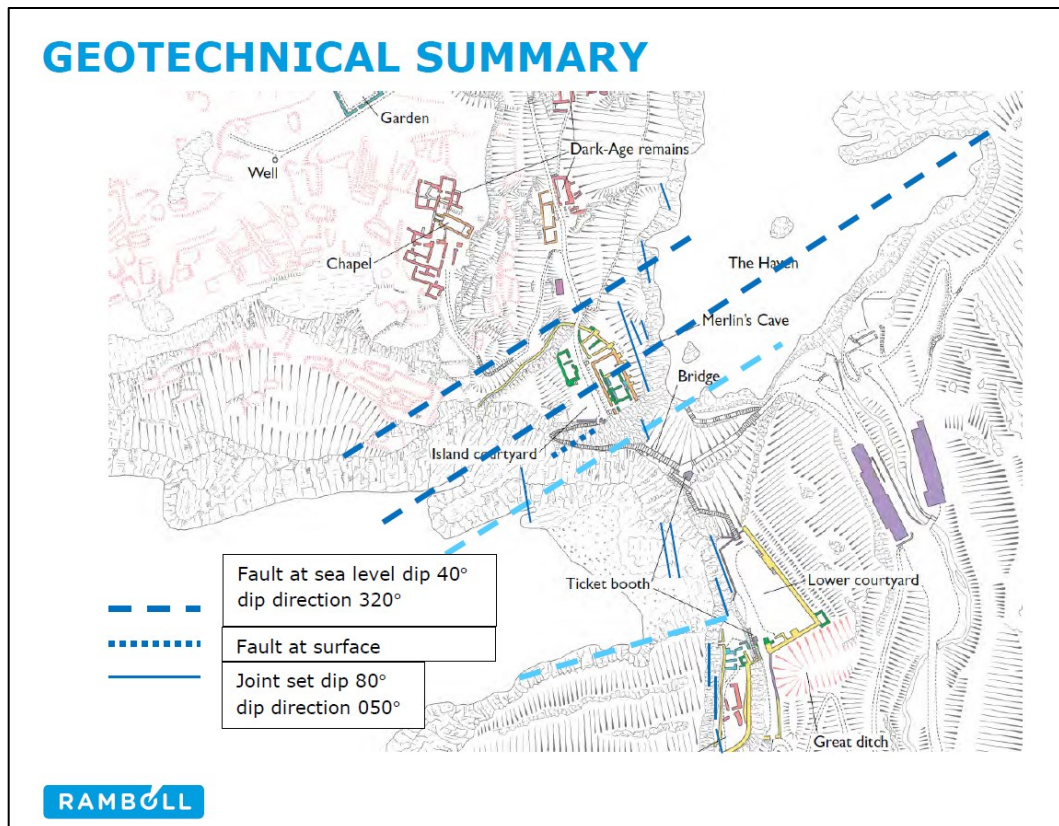


Fig 25. An extract from the 2013 Ramboll report showing the principal fault zones controlling erosional processes at Tintagel.



Fig 26. Looking up to the neck from the Haven, the instability of the land bridge is immediately evident, as is the absence of exposed solid rock within it on this side.



Fig 27. They are also, in places, very steep and there are a lot of them!



Fig 28. And the existing steps are also rather prone to being lost to erosional processes – whether maritime, or through the collapse of the rock on which they were built.



Fig 29. The path up from the Haven to the existing bridge, the route in the foreground being one which has been used since at least the 1580s.



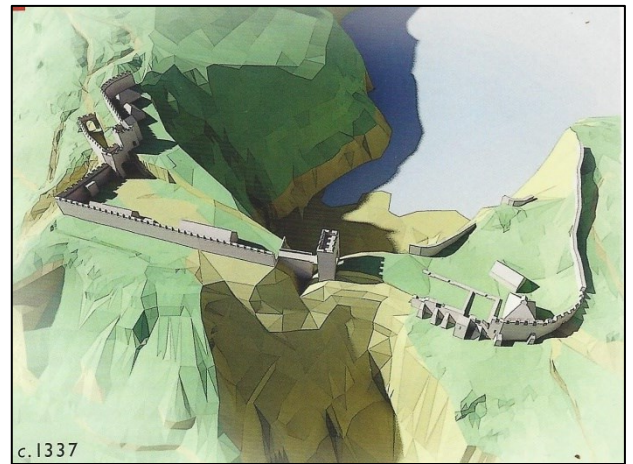
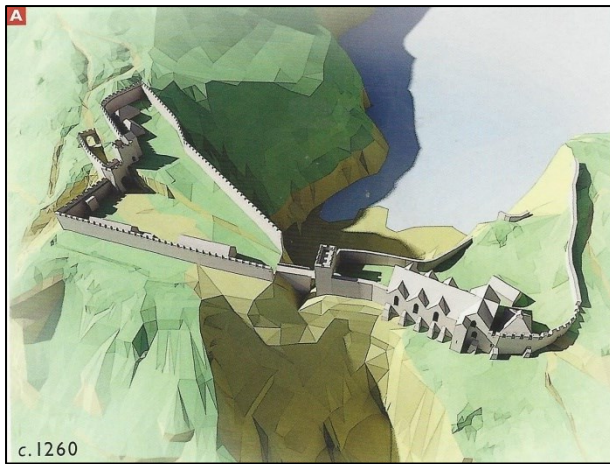
Fig 30. Whether it's getting down from the Lower Ward (left) or getting to the Inner Ward (right), the climb is a steep one, the steps are narrow, and there are few passing places.



Fig 31. An English Heritage commissioned reconstruction of post-Roman Tintagel by Liam Wales. This assumes an almost level surface to the isthmus between the Mainland and the Island and contemporaneity of occupation of all of the house stances on the Island, as well as the sites of a number of structures on the Mainland for which there is currently no surface archaeological evidence.



Fig 32. A companion reconstruction showing Tintagel during the 13th to 14th centuries, again commissioned from Liam Wales by English Heritage. This model again assumes a narrow, almost completely level upper surface to the isthmus and a drawbridge near the Great Hall.



Figs 33 A-D. The development sequence for the Mainland and Island wards during the period from 1260 to 1540 proposed in the current English Heritage guidebook to Tintagel Castle. A – the initial appearance of the castle when constructed. B – parts of the Great Hall and the western wall of the Mainland wards had collapsed into the sea through cliff erosion. C – A new western wall had been constructed for the Mainland wards and lodgings had been built on the site of the Great Hall. D – The drawbridge had collapsed into the sea and the Island ward lodgings had been reduced in size.

The reconstruction assumes the presence of a gatehouse and drawbridge on the isthmus for which no archaeological evidence survives, as well as the very early loss of the southern section of curtain wall around the Great Hall.

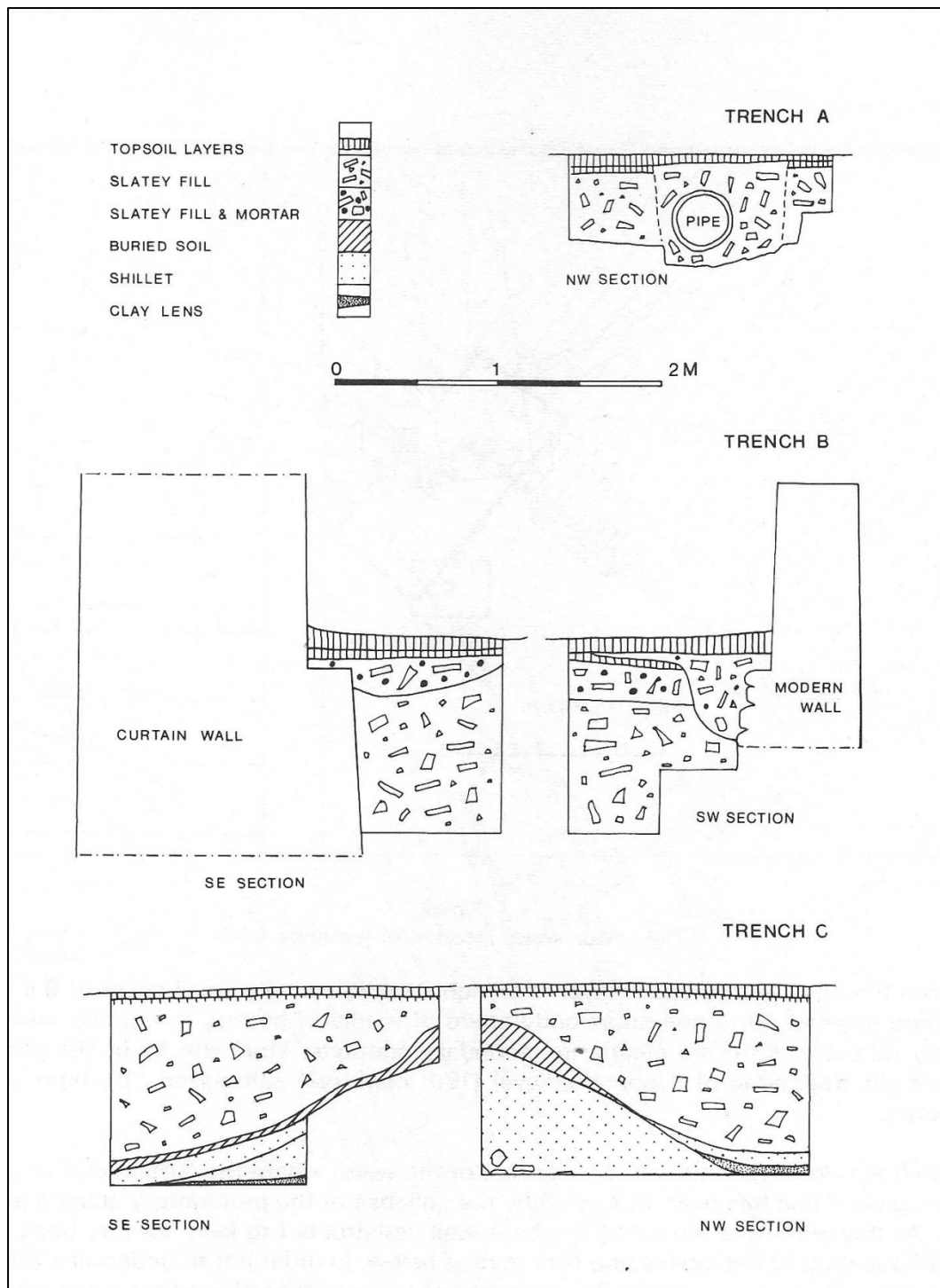


Fig 34. Hartgroves and Walker's sections for their 1986 Trenches A to C in the Lower Ward. Source: Hartgroves and Walker 1988.

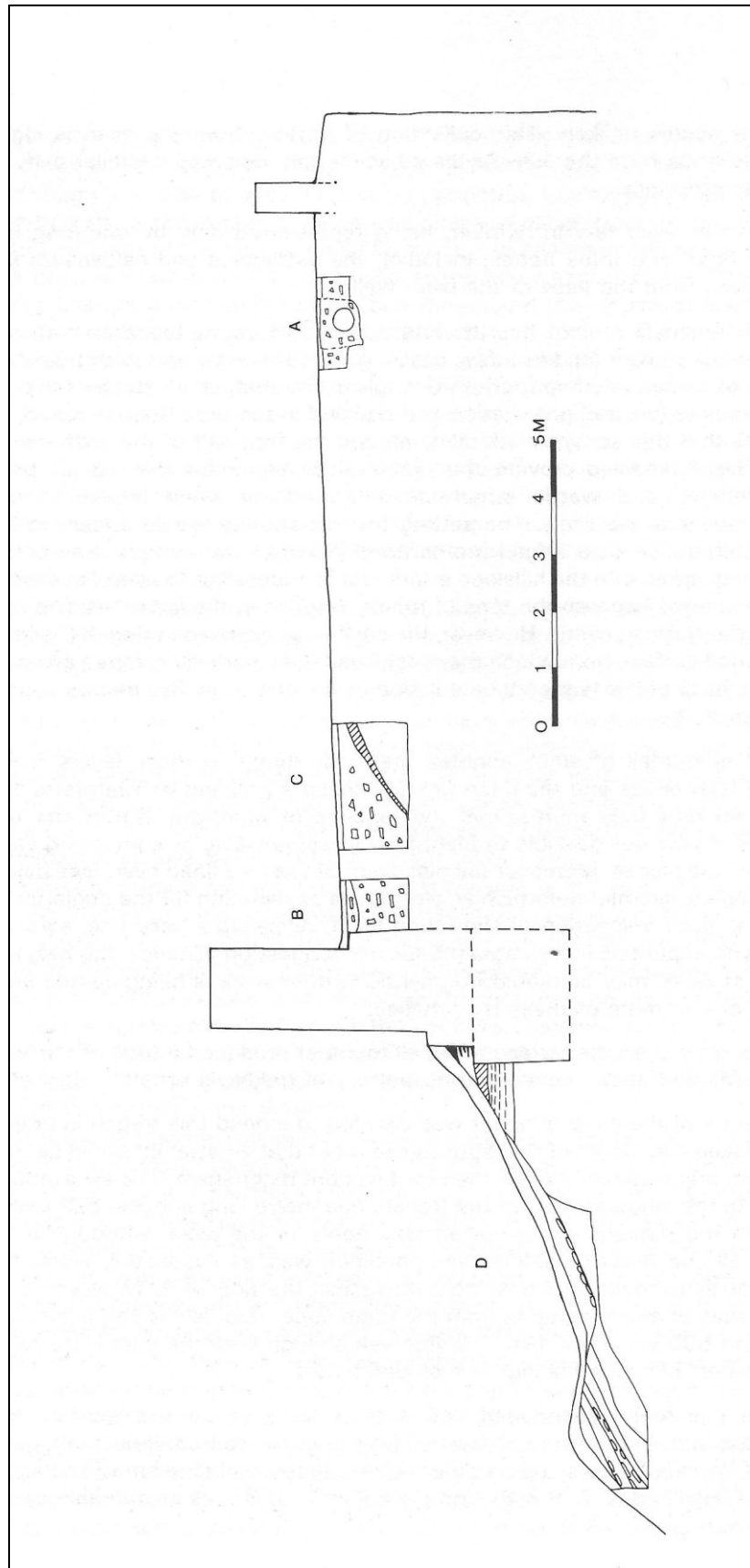


Fig 35. A composite east-west section across the north end of the Lower Ward derived from Hartgroves and Walker's 1986 trenching, showing the depths of medieval fill material and the profile of the post-Roman terrace beneath it. Source: Hartgroves and Walker 1988.

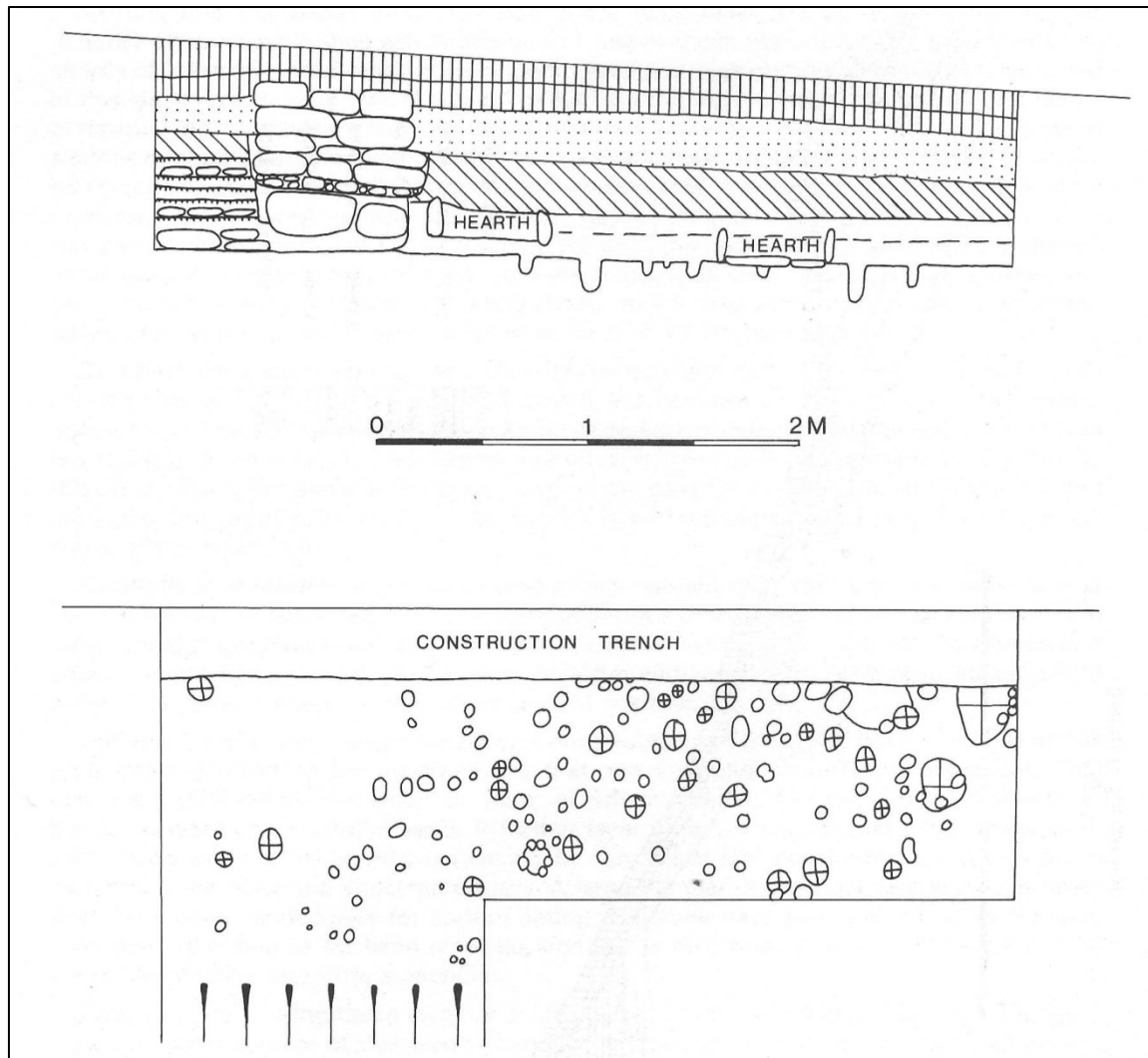


Fig 36. A south-north plan and section of Hartgroves and Walker's 1986 Trench D immediately to the east of the Lower Ward curtain wall. Source: Hartgroves and Walker 1988.

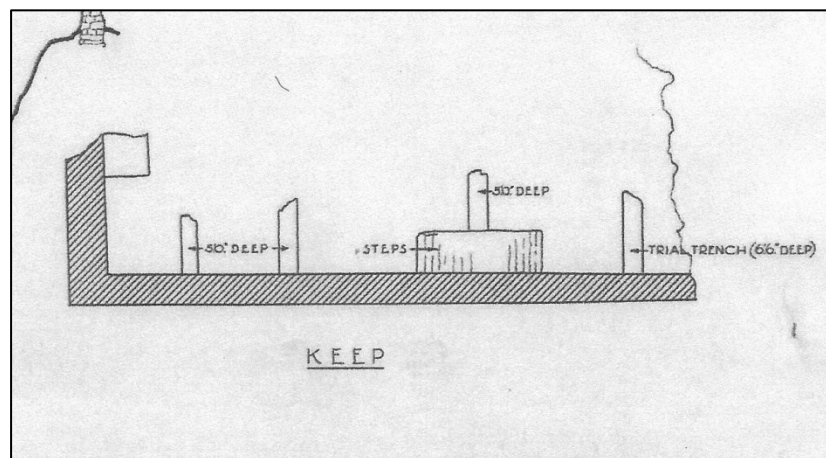


Fig 37. An extract from a 1932 Office of Works plan showing the locations and depths of Raleigh Radford's trial trenches inside the eastern wall of the Lower Ward.

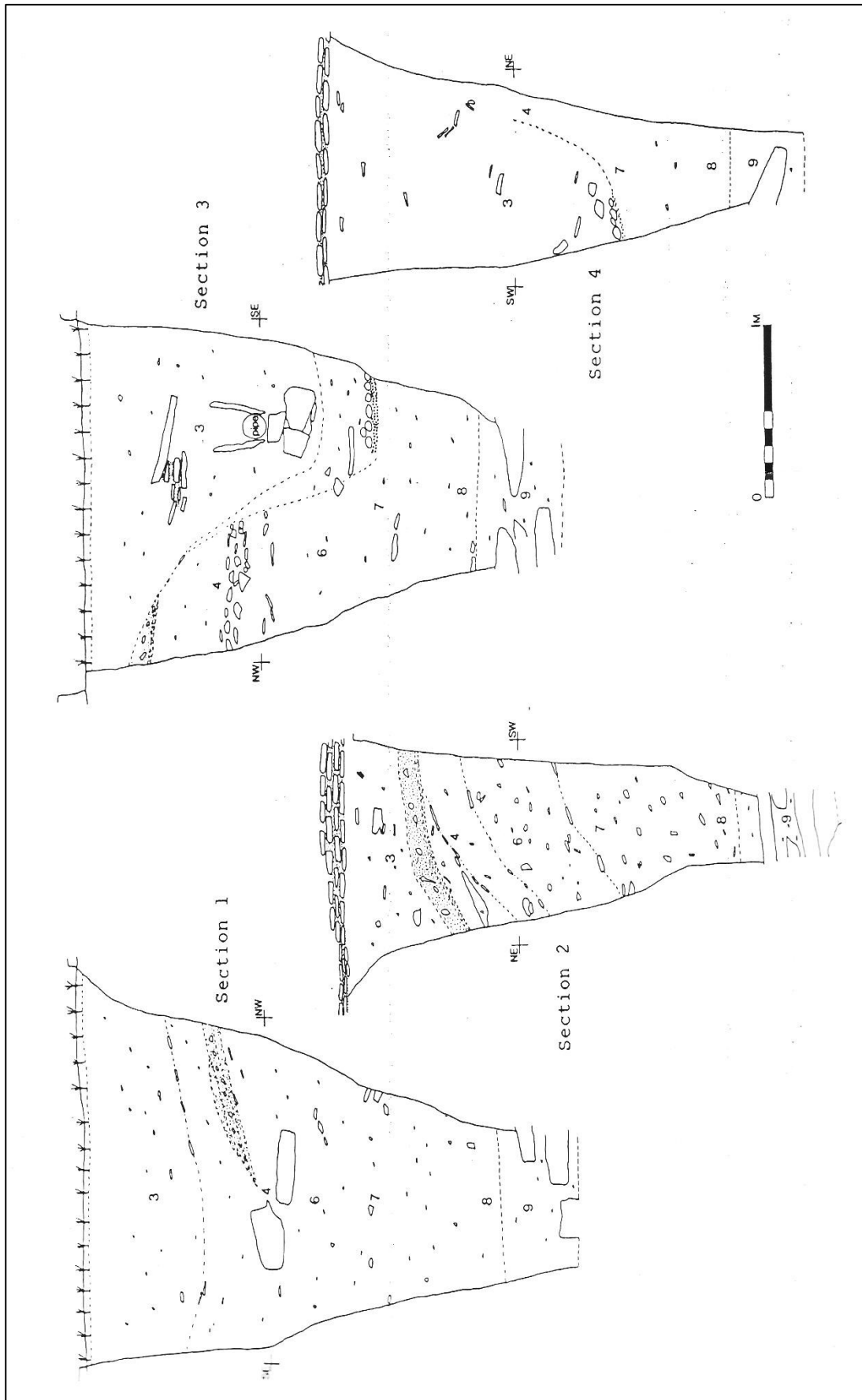


Fig 38. Appleton's 1986 sections of the soakaway trench in the Great Hall. Source: Appleton et al 1988.

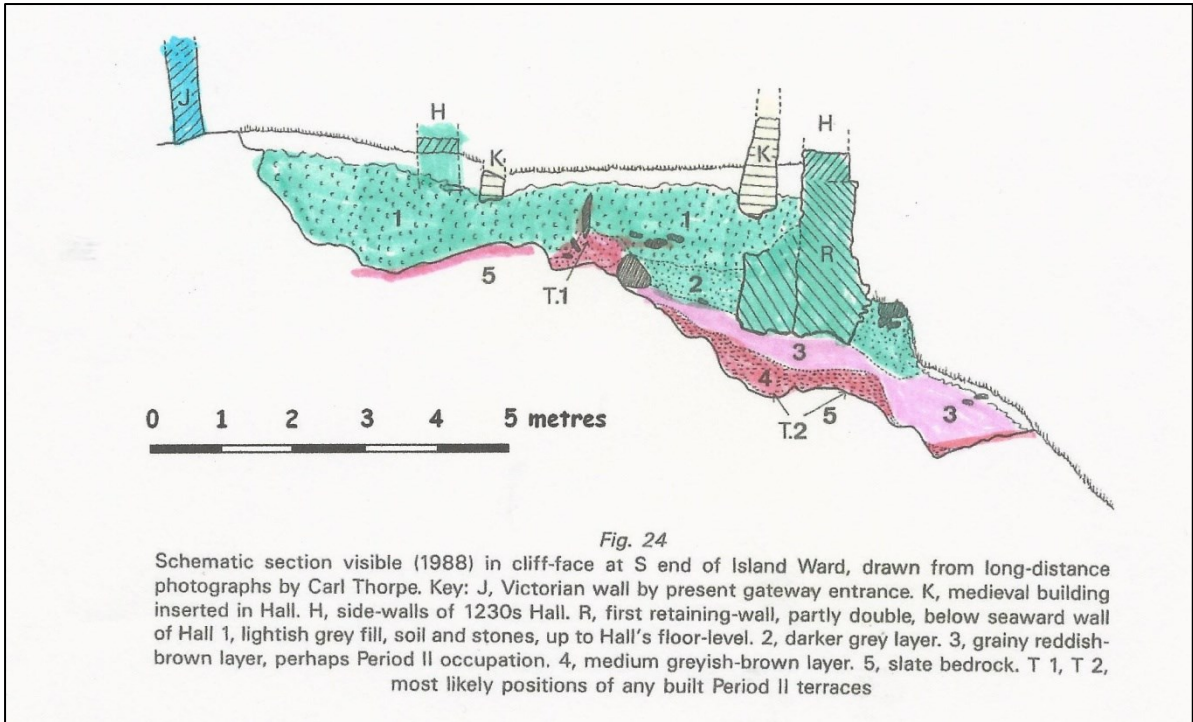


Fig 39. Thorpe and Thomas' 1988 sketch section of the upper cliff face showing post-Roman occupation terraces (Red and Pink) underlying medieval fills (Green) at the southern end of the Inner Ward. These exposures were subsequently meshed and rock-bolted. Source: Thomas 1993.

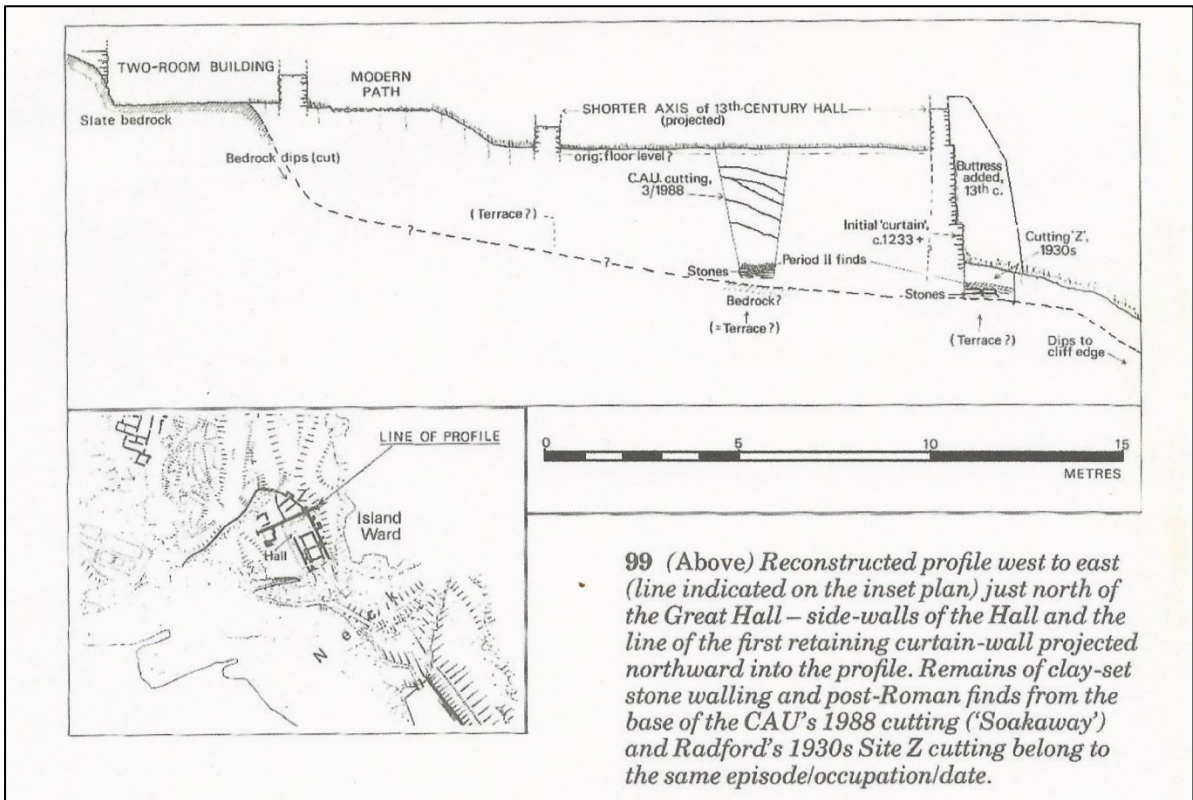


Fig 40. Thomas' hypothesised west to east section across the northern end of the Inner Ward. Source: Thomas 1993.

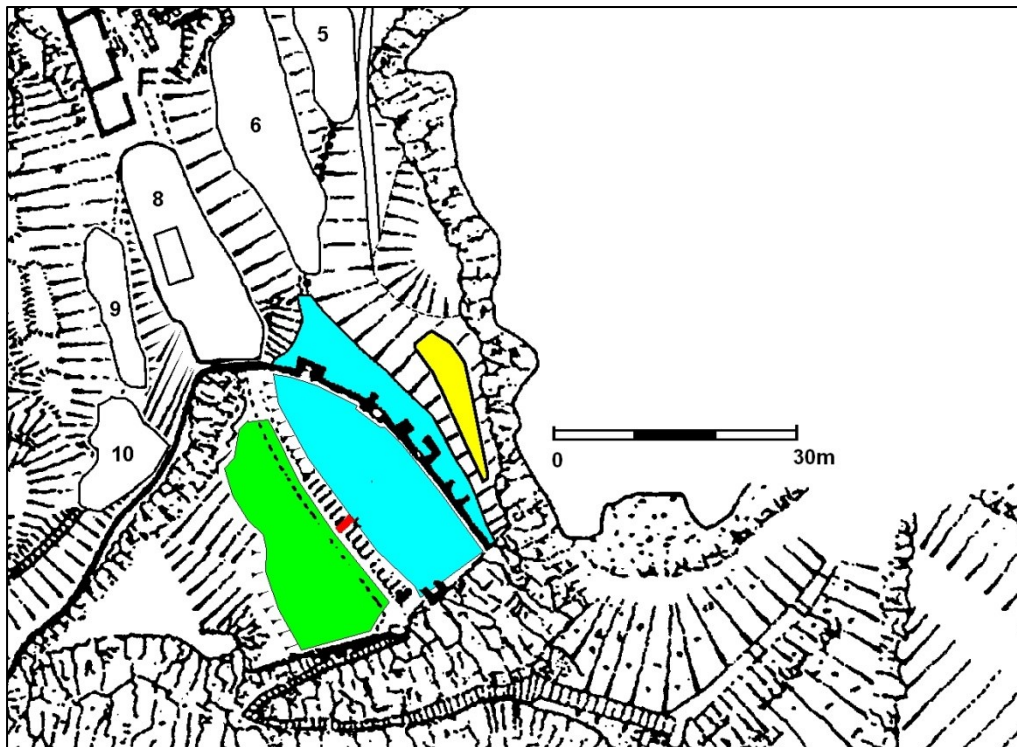


Fig 41. The locations of the three post-Roman terraces considered by Thomas and Thorpe as being likely, from archaeological evidence, to underlie the southern end of the Inner Ward. Source: Thomas 993.

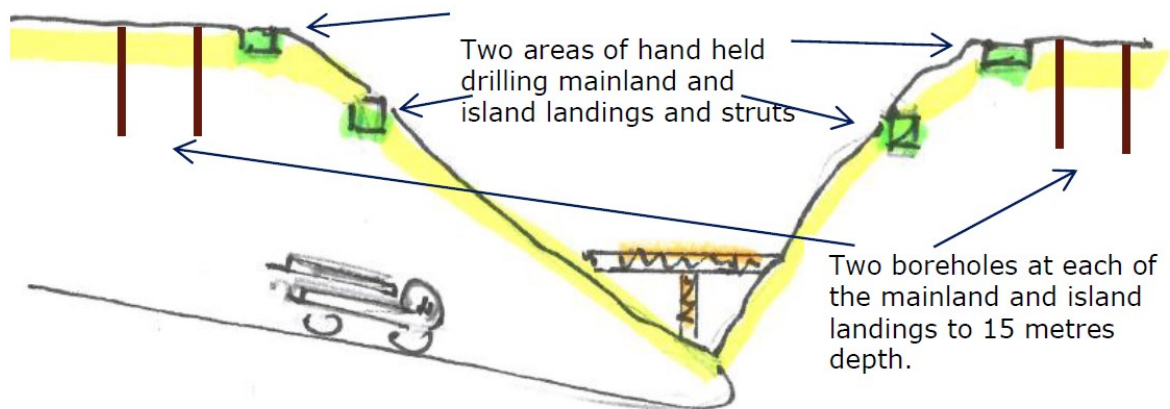


Fig 42. A schematic drawing from the Ramboll 2013 feasibility report showing the general locations of the deep boreholes and the hand-drilled investigative work.



Fig 43. A 2013 Ramboll visualisation of the proposed design for the bridge spanning the gap between the Lower and Inner Wards at Tintagel.



Fig 44. Looking from the Inner Ward to the Lower Ward along the line of the proposed bridge.



Fig 45. Looking from the springing point of the proposed bridge at the northern end of the Lower Ward towards the Inner Ward.

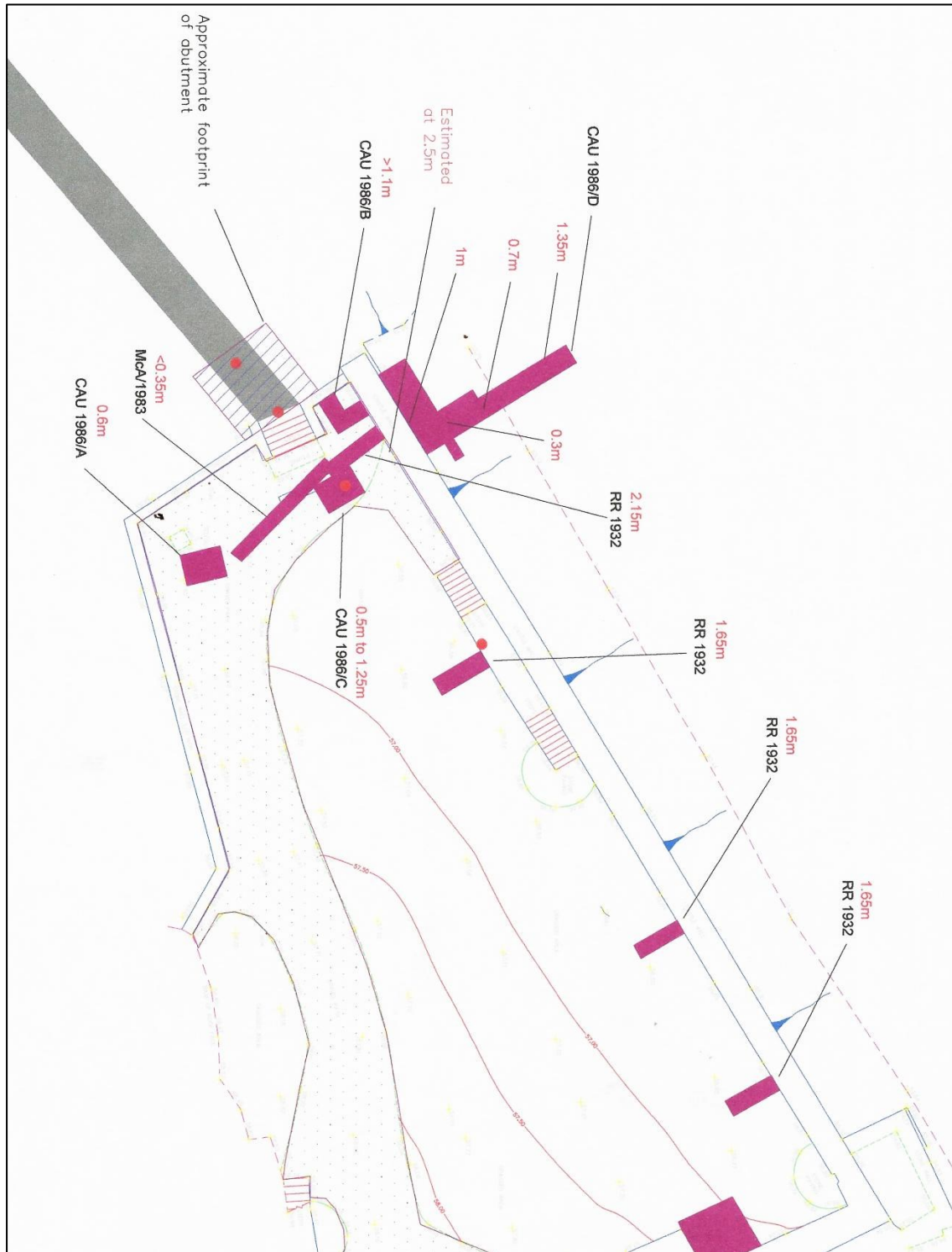


Fig 46. The locations of previous archaeological evaluation trenching (Purple) in the northern part of the Lower Ward together with dates and excavator information; additionally the approximate extent of the proposed bridge abutment (hatched) and the locations proposed for the deep boreholes and evaluative drilling (red dots). Depths to bedrock are shown in red.

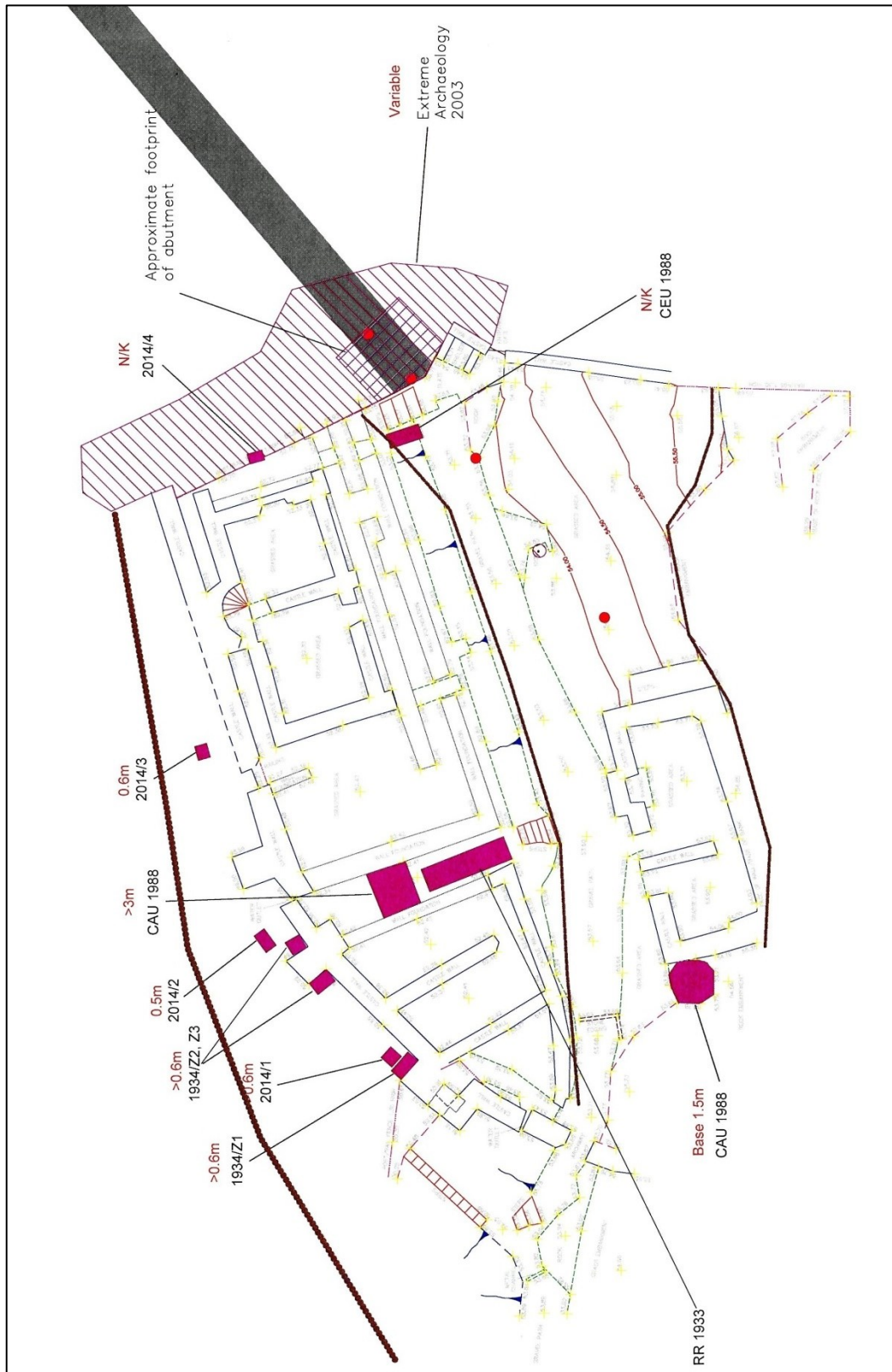


Fig 47. The locations of previous archaeological evaluation trenching (Purple) in the southern part of the Inner Ward together with dates and excavator information; additionally the approximate extent of the proposed bridge abutment (hatched) and the locations proposed for the deep boreholes and evaluative drilling (red dots). Depths to bedrock are shown in red.