The Roman fortress of Caerleon and its environs: A framework for research

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A report for Cadw
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Contracts Division

The Roman fortress of Caerleon © GGAT

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1. Introduction

The Glamorgan-Gwent Archaeological Trust has been grant-aided by Cadw to produce the research framework for the Roman fortress of Caerleon and its environs, which was recommended by the research agenda for Wales drawn up in 2002-03 (see cpat.org.uk\research\serom.htm). Its aim is to provide a review of existing data and outstanding questions, and provide broad proposals as to how they might be addressed in future work.

Recent assessment of research priorities for the Roman period in southeast Wales has identified the environs of the Roman fortress at Caerleon as an area having high potential and value that deserves particular investigation. Environs studies at other Roman centres (eg Wroxeter) have proved to be particularly rewarding. Although Caerleon was also an important medieval centre, this study will focus on the Roman period.

The provision of the research framework is seen as the first step in a new integrated approach to archaeological work in Caerleon, which will identify the extent of our knowledge, the main gaps in it, and the questions which should be asked during any future work in the light of local, regional, national and international priorities. It will not itself set out to answer these questions, but will provide broad proposals as to how these might be addressed.

This research framework has been prepared by GGAT in consultation with other interested parties. A list of those invited to participate will be found in Appendix 2. This report has been compiled in conjunction with a database of information and has been linked to a GIS system. These present information on all sites known in the area of the survey.

1.1 The area of the survey

The survey area is centred on the fortress and is divided into three zones:

Zone A comprises the fortress as defined by the ditch system

Zone B comprises the area immediately outside the fortress, containing the amphitheatre, parade ground and waterfront but occupied in the main by the civil settlement and the cemeteries, and the area of settlement on the southern bank of the Usk around the bridgehead, and the associated cemetery on the lower slopes of Chepstow Hill.. This zone is bounded to the south and southwest by the River Usk; to the north by the crest of Lodge Hill; to the east by the Sor Brook to the north of the Usk, and to the south of it by the nameless stream which runs almost opposite down Chepstow Hill; and to the southwest by the crest of Chepstow Hill.

Zone C comprises a more extensive area. To the south of Caerleon, this extends along the Severn Levels from Rumney at the west to Goldcliff at the east; the boundary then runs inland to Coldra, where it turns to follow the crest of the escarpment forming the east side of the Usk valley nearly as far as Llantrisant, then runs directly westwards to Croesyceiliog before turning southeast and south to meet the line of the M4 motorway at Junction 27. It takes in the satellite settlement to Caerleon at Bulmore on the east bank of the River Usk.

Whereas the limits of Zones A and B are governed by the Roman land-use, Zone C is an artificial construct. Although it would theoretically be desirable to include the whole of the legionary *territorium/prata legionis*, the extent of this can only be conjectured on the current state of knowledge (Mason 1988, 180-4). Consideration was given to the study of a larger Zone C, which would have included all sites and areas which have been suggested as belonging to the *territorium*: the lead-mining and processing sites at Machen in the Rhymni valley, which may well have been under military control; Risca in the Ebbw valley which has produced a legionary tile stamp in a masonry building; and the Usk valley up to and beyond

the fortress of Usk (Brewer 2004, 207, Manning 2004, 190, 198). However, it was felt that, given the relatively limited resources available for the production of this research framework, they would be better employed looking in greater detail at the more reduced area. A detailed consideration of the legionary *territorium* must be the longer term aim.

1.2 Present and future threats

Although the aim of the research framework is to provide an academic framework for future work in Caerleon, it is also intended to inform the archaeological response to development proposals made through the planning process. Caerleon lies within the unitary authority of Newport, and since the 1960s has been subjected to piecemeal development as a dormitory and leisure area for the town (now city) of Newport. At present, the archaeological implications of development are being considered in a piecemeal fashion, and a research framework would greatly assist with the formulation of appropriate responses in the development control process. Current threats include:

- Flood defences proposed by the Environment Agency
- Increasing demand for leisure and sporting facilities, especially on the land to the west of the fortress
- Housing
- Tourism initiatives promoted by Newport CC and private bodies
- Sand and gravel extraction

1.3 A note on terminology

The fortress is oriented almost exactly northwest-southeast, and much of the layout of the modern town follows the Roman orientation. As a result, grids laid out for recording excavations are also almost always laid out on this alignment, and since grids are conventionally described as though they were oriented on the cardinal points, the practice has grown up of using a 'fortress north' oriented along the *via praetoria/via decumana* with the north at the *porta decumana*. However, most of the trenches excavated between the 1940s and 1960s were been published with true compass points, and true compass points are also used for those few sites aligned on modern streets at an angle to the fortress layout. To avoid confusion therefore, directions in Zones A and B have been described using fortress terminology rather than compass points or 'fortress north'. The side of the *porta praetoria*, when not described as such, is called the 'front', and the side of the *porta decumana* is called the 'rear'. The other sides are referred to as 'dextral' (side of the amphitheatre) and 'sinistral' (Mill Street).

2. Existing information

2.1 Zone A

The history and layout of this zone in the Roman period is the best understood of the three, and is summarised in Boon 1972, Boon 1987 and Manning 2004. From the 1930s the National Museum of Wales maintained a plan of Caerleon, upon which the results of all excavations were mapped and which was intended eventually to provide a complete plan of the fortress and its internal buildings. Versions of this were most recently published as the fold-out plans in Boon 1972 and Boon 1987, with known and conjectural detail correct for the years of publication. The former of these works also has excavation areas mapped over the fortress plan on Figure 79 (Boon 1972, 114). However, examination of Boon's plans, with reference to the published plans of individual excavations, makes it clear that much of the detail has been projected on the basis of very limited trenching. The plan showing excavated areas is particularly misleading, as in most cases what has been mapped is the plot of land in which the excavations were carried out; the excavations themselves normally sampled only a very small proportion of each plot. This was the result of the research methodology prevalent in the middle years of the 20th century, best summed up by Fox (1940, 102-3): 'The main history of the site has now been firmly established and each new excavation can only hope to fill up some gaps in the story , or elaborate some part of it…At such a stage in the work, it seems to me that an excavation should be designed to obtain the necessary information from a site with the minimum expenditure of human energy. Duplication of work done in the past should be avoided, both in the actual digging and in publication of material or historical evidence.' It is now appreciated that there is sufficient variation in fortress design and sufficient differences in the history of occupation between one part of the fortress and another, not to mention the potential misunderstanding of deposits seen only in narrow trenches, that such an approach risks the loss of much significant information.

2.1.1 Defences and principal streets

The defences have been examined in a number of areas, mostly by limited trenching, and consist of rampart, wall and ditch, usually examined in different combinations at different sites (Hawkes 1930; Nash-Williams 1931; 1932a, 1932b; Nash-Williams 1936; Fox 1940; Nash-Williams 1953; Murray Thriepland and Davies 1959; Murray Thriepland 1969; Evans and Metcalf 1992, Mason and Macdonald nd). That side of the defences including the *porta praetoria* is least well known. The type site remains the Prysg Field, though this is poorly published (Nash-Williams 1931; 1932a; 1932b). Internal turrets have been excavated at various points along the circuit, where they are associated with other structures in the intervallum area (Hawkes 1930; Nash-Williams 1931; 1932a, 1932b; Fox 1940; Murray Thriepland and Davies 1959; Evans and Metcalf 1992, Mason and Macdonald nd). Of the gates, only the *porta principalis dextra* has been excavated but was only published in brief (Nash-Williams 1933); observations were made on the *porta principalis sinistra* in a watching brief on a service trench (Zienkiewicz 1984b). The *via sagularis* has been examined at most of the defences sites, and is consequently by far the best known of all the internal roads (Hawkes 1930; Nash-Williams 1931; 1932a, 1932b; Nash-Williams 1936; Murray Threipland and Davies 1949; Murray Thriepland 1969; Evans and Metcalf 1992). One section has been cut through the *via principalis*, on the sinistral side (Murray Thriepland 1965); there is a partial section of the *via praetoria*, (Boon 1964, 20-8), and limited excavation of an area of the *via decumana* (Casey and Hoffmann 1995). There was also a trial excavation of the monumental tetrapylon at the junction between the *via praetoria* and the *via principalis* (Zienkiewicz 1993, 140; Burnham 1994, 251).

2.1.2 Internal plan

Boon identifies 24 *insulae* forming a regular scheme of different sized blocks. This part of his work on the fortress is an impressive construct, but the apparent inevitability of the plan should not blind the user to the fact the evidence upon which it is based is very limited. So far, no information has emerged which would require this basic plan to be redrawn, but since confirmation is lacking for significant areas, it must be regarded as provisional. However, it still remains the most useful way of organising known data within the fortress, and as such it has been used during the preparation of this research framework.

Of Boon's 24 *insulae*, only nos III, IV, VII, XII, XIII and XVIII had not been sampled by 1987; some very limited work has subsequently been done on IV (Clarke and Bray 2002). In *insulae* I, IV, VIII, IX, XI, XVI and XXII too little has been excavated to permit any sensible projection of the plan; the attribution of barrack blocks to *insula* I and tribunes' house to the *insulae* on the *praetentura* side of the *via principalis* (VII, VIII, IX, XI, XII, XIII) has been done mainly on the basis of analogy. In *insulae* II, V, X, XIV, XV, XVII, XXIII and XXIV, there is sufficient information to be certain that the attributions are correct (II (barracks) - Hawkes 1930: V - Zienkiewicz 1986a; 1986b: X (tribune's house) - Zienkiewicz 1992a; 1993: XIV (barracks) - Nash-Williams 1932; 1933; Boon 1964: XV (*principia*)- Nash-Williams 1936; Wilson 1970, 272-3: XVII (barracks) - Nash-Williams 1936; Evans and Metcalf 1992: XXIII (barracks) - Nash-Williams 1931; 1932a, 1932b: XXIV (barracks) - Murray Thriepland 1967). Other *insulae* are less clear. At least part of *insula* VI is occupied by a building which has been identified as the hospital on the basis of a corridor which was projected from very limited trenching (Murray Thriepland 1969); this attribution must regarded as very tenuous, since the evidence is so thin and a different extrapolation of information could likely provide an alternative reading of the site plan. *Insulae* XVI and XXI were interpreted as workshops on the basis of finds (XVI Evelyn-White 1906: XXI Nash-Williams 1929; 1936), but workshop-type processing is also known from *insula*e X and XIX, the former of which is definitely domestic in nature, with metalworking occupying only a limited area. The same may be true of *insulae* XIX and XXI, the latter of which also contained a number of what were obviously residential units from their plans. The position of this *insula*, set diagonally behind the headquarters building, is a possible location for the *praetorium*; at Caerleon this has been identified as the building in *insula* XX immediately behind the headquarters (another typical location), which appeared to have a courtyard with at least one rounded end (Grimes 1935; Nash-Williams 1936), but there is no compelling reason why this building had to be the *praetorium*; additionally, it was interpreted as being of a single phase and may therefore only have been occupied for a limited period of time, though the absence of finds made its dating impossible to establish. *Insula* XIX had evidence for metalworking taking place in the basilican building which occupies its northern half (Frere 1987, 307).

2.1.3 History

It is generally accepted that construction of the fortress began c AD 70, with earth/turf and timber defences and timber internal buildings. Until the 1980s, the earliest known buildings were ones with cobbled foundations, but earthfast timber buildings of post-trench construction were subsequently identified in *insulae* X, XVII and XXIII (Zienkiewicz 1992a; 1993: Evans 1991; Evans and Metcalf 1992), and there seems no reason to suppose that they were not the norm over most of the fortress area, with the exception of reserved plots for major buildings such as the *principia* , the fortress baths and the basilica of *insula* XIX. This phase of activity is now below the water-table, making excavation difficult, and it is unsurprising that it would have been missed in the narrow trenches which were the normal means of investigation up to the last quarter of the 20th century. These timber buildings seem to have been replaced by the

buildings on cobbled foundations no earlier than AD 85, when the defences were also rebuilt in stone (Boon 1987, 27-9).

It has been the aim in the past to fit further reconstructions of buildings into overarching construction phases which are valid for the whole fortress. However, as the Roman Gates site has demonstrated (Evans and Metcalf 1992), there is no reason why even adjoining buildings within the same *insula* need necessarily have been reconstructed at the same time, and rebuildings were probably dictated more by need, either because the condition of existing buildings reached a stage when they could no longer be kept in service by routine maintenance, or because there was a change in function. Under these circumstances, it will not be appropriate to look for overall periods, or at least the dating evidence from one part of the fortress to another needs to be carefully collated to determine whether they exist. Both archaeological evidence and building inscriptions indicate that internal buildings were being refurbished and replaced up to the end of the 3rd century, with a hiatus in the second quarter of the 2nd century when the legion was heavily involved on the northern frontier (Boon 1972, 37-44, 53-9).

The exact nature of 4th century occupation within the fortress, whether military or civilian, remains to be established. Some aspects of this problem have been looked at in a recent thesis which concentrated mainly on theoretical issues (Gardner 1997). Boon (1972, 62-9) has maintained that military use of the fortress ceased at the end of the 3rd century, and that subsequent activity within the defences must relate to civilians moving in. It is however possible to interpret the same evidence as showing that military activity continued on a reduced scale in the 4th century after Diocletian's army reforms which resulted in a dramatic reduction in size of each legion, In this reading of the evidence, some buildings, such as the *principia* will have been decommissioned and demolished because they were too big for the new requirements. The careful dismantling of the *principia* suggests that there was a reason for clearing the site, or that the materials which made it up were required elsewhere. Pottery and coins dating to the 4th century have been found on the *via principalis* and in *insula* II (Myrtle Cottage), *insula* XIV (Golledge's Field), *insula* XVII (Roman Gates and Vine Cottage) and *insula* XXIII (the Prysg Field), at least some of which relate to new building works (Boon 1972, 67, Evans and Metcalf, 31-3, 51-3). Given the distribution of these blocks it is difficult to see where a new defensive perimeter could have been drawn up, assuming that the occupation in each case is military. No evidence has been noted for new defences here, and given the distribution of excavations, it would be expected that they would have shown up if they were present, particularly if they included a ditch or ditches. However, the ditch where investigated on the Prysg Field in the rear defences of the fortress, towards the *porta decumana*, proved to have been carefully filled with clean clay (Nash-Williams 1931,101), whereas elsewhere the ditch on the dextral side of the defences in the Prysg (halfway along *insula* XXIII), at the Eastern Corner in the front left-hand corner of the fortress and Backhall Street halfway along the sinistral side was filled with silt and rubble fallen from the wall (Nash-Williams 1931, 100; Davies 1959; Hawkes 1930, 151) and the ditch at10 Mill Street appeared still to have been standing open in the Middle Ages (Clarke and Bray 2002g). This site lies on the line of the road between *insulae* XII and XXIV. Nash Williams provided no date for the infilling of the ditch at the rear side of the defences, and whilst it looks as though it may have related to an abandonment of the defences on this side, it is difficult to see how it could have related to a redrawn perimeter, given the evidence from the other sites.

2.2 Zone B

The evidence available for civilian occupation in the area immediately outside the fortress as of 1995 was summarised in Evans 2000 (pp 488-99 and Figure 125); military occupation in

this area is summarised in Boon 1972 (pp31-2, 44-5). Since 1995 a limited amount of work has been carried out in this area, mostly pre-planning field evaluations and watching briefs on developments. These have not added greatly to what was known in 1995; the most significant piece of work has been that confirming the presence of occupation on the dextral side of the road leading to the *porta praetoria* (Barber 1997). The extramural area was presumably crossed on all sides by continuations of the fortress's principal streets which continued out through the principal gates on the same alignment, though this has never been definitely confirmed for the *via decumana* in the area to the rear of the fortress.

2.2.1 Ancillary structures to fortress

Some structures identified as being military in nature are known from the dextral side of the fortress. The most prominent is the amphitheatre, but despite the extensive campaign of excavations in the 1920s (Wheeler and Wheeler 1928), the form taken by the superstructure is still uncertain and would bear further investigation. Timber structures identified as the construction compound to the fortress were recorded by Boon (1972, 31-2) in the 1960s during a watching brief and salvage excavation on the area which later became the parade ground. The parade ground lay on the opposite side of the *via principalis dextra* continuation. The evidence for this is the replacement of the earlier timber structures by an open area with a metalled surface; a wall interpreted as an enclosure wall was found by trenching (Boon 1972, 44-5). Other buildings have been claimed as being military in origin, but the evidence is equivocal (Evans 2000, 491-2). Evidence from excavation and geophysical survey suggests that a metalled road ran around the fortress outside the ditch.

2.2.2 Waterfront

The extramural area is known to have contained harbour installations. Part of one quay with an associated building has been excavated at the end of the continuation of the *via principalis dextra* and associated with the River Usk (Boon 1978b), but the limited date-range for this quay makes it extremely likely that there were others. There is no information as to whether there were quays on that part of the River Usk associated with the *via praetoria* extension, or on the Afon Lwyd associated with the continuation of the *via principalis sinistra.* Although Boon saw the excavated quay as having been on the river, other studies suggest that it was not intended to deal with tidal conditions (Toft 1992); it is possible that it may have been on a dock with a managed water supply.

2.2.3 Extent of canabae

Occupation is now known to have surrounded the fortress on all sides apart from directly to the rear, where results of the few observations carried out have on the whole been negative, though they may not have been very representative. Much of the land around the fortress is on the flood plains of the River Usk and Afon Lwyd; there is evidence that parts of the settlement on both the dextral and sinistral sides have been lost to erosion, but not how extensive the losses have been. This makes any assessment of how large the settlement was extremely difficult. Only a very small proportion has been excavated. Active erosion by the Afon Lwyd is taking place near the line of the projected road leading out of the *porta principalis sinistra* (Tuck and Leaver 2000).

2.2.4 Dextral side of the fortress

Areas on both sides of the *via principalis dextra* were trenched in the 1950s by Nash-Williams, who opened up some larger areas to reveal a courtyard building with hypocausts and some monumental features adjacent to the amphitheatre (Evans 1995), and a row of masonry strip buildings (the 'oblique shops'), a courtyard house and a corridor house (also with a hypocaust) on the other side of the *via principalis*. These were associated with an orthogonal street plan, though there is evidence of an earlier, oblique alignment. None of

these structures were published, and the fragmentary nature of the site notes means that it is unlikely that they ever can be in their entirety, though a report on the finds exists in manuscript in the NMGW, and at least some of the notes are sufficiently detailed to allow for interrogation and some interpretation. The salvage excavation and watching brief carried out on this area by Boon in the 1960s produced evidence for early timber buildings on the parade-ground area which post-dated the presumed construction camp and were identified by him as the initial phases of the civil settlement. Again, none of this has been published in detail, but summaries are available in Boon 1972.

2.2.5 Sinistral side of the fortress

Excavations in the 1980s on the opposite side of the fortress (the area off Mill Street) were better recorded and have been published in full (Evans 2000). A total of 11.38% of the potential area available was excavated to the level of the latest Roman deposits. Only 1.39% of the same potential area was excavated as far down as the earliest deposits, and 5.36% was excavated to an intermediate depth. Unfortunately it is not possible to convert this into a percentage of the whole of this part of the *canabae*, because it is not possible to determine how much of the settlement area has been lost to river erosion. This area too produced evidence for an orthogonal street plan possibly superseding structures on an oblique alignment, and masonry strip buildings. It also produced evidence that some of this part of the settlement was built on reclaimed marshland, and that significant numbers of buildings of less Romanised plan and construction were present, cottages with plinths of massive blocks or cobbles, possibly associated with agriculture or market gardening.

2.2.6 Front of the fortress

The settlement on the side of the *porta praetoria* is the least well understood. Only four small excavations have been carried out here, and all but one consisted of limited field evaluation carried out in connection with planning applications. The fourth, at Carlton Terrace, revealed only the continuation of the *via praetoria*, here probably truncated by the medieval castle ditch (Zienkiewicz 1984a, 21-5). It is clear however that this area included substantial stone buildings, notably the Castle Baths, and occupation is now known from the other side of the *via praetoria* (Barber 1997). Further settlement is known on this side of the fortress across the river in Ultra Pontem/The Village, where it probably took the form of a ribbon development along the road leading to Caerwent; there is little evidence for much activity away from the line of the road (Zienkiewicz 1984a, 27-8). On this side of the river, the present line of the bank is the result of building up in relatively recent times.

2.2.7 Nature of settlement

Although most of the buildings known from excavations in the extramural area are houses and shops, at least two sets of baths are known, and inscription indicate that there were probably at least three temples. The temple of Diana is recorded by name in an inscription (RIB no.316) said to have been found with part of a statue of the goddess. A temple to Jupiter Dolichenus and a Mithraeum have been surmised on the basis of dedications to those deities (RIB nos.320, 322). Other public buildings may have existed; Boon (1987, 33, 41) interpreted the courtyard building near the amphitheatre as a market hall, but it is more likely to have been a *mansio*, since it had a hypocaust. The evidence we have so far suggests that buildings of importance are more likely to have existed forward of the *via principalis*. (Evans 2000, 491).

2.2.8 Cemeteries

Most of the known cemetery sites at Caerleon lie well away from the fortress and the known occupation areas. The largest burial area known so far lies along the slopes of Lodge Hill, and apparently consisted of smaller cemeteries of limited area within the general cemetery

zone (Evans and Maynard 1997). On the opposite side of the fortress a certain amount of funerary material was found in the area of the Castle Baths, although at least some of it was probably have been brought to the site from elsewhere. Other burials are known from across the River Usk including a pipe-burial, and there are antiquarian records of widespread burials on the slopes of Belmont Hill. A gazetteer of known cemetery sites in Caerleon is being prepared as an appendix to the report on excavations at 'The Coed', on part of the *Ultra Pontem* cemetery area.

2.2.9 Other activity

One site which lies within Zone B but which does not fall into any of the above categories (unless it is a mausoleum) is Penrhos Farm, where there are antiquarian reports of the recovery of 'coins, Roman brick and jasper tesserae' suggestive of a high-status site (Coxe 1801, 86). This is in part confirmed by the results of a recent watching brief which found Roman tile, though not *in situ* (Clarke 1998c).

2.3 Zone C

This is the least well understood of all the zones. Within the wider area, the records for most of the Roman and potentially Roman sites on the SMR had already been subjected to some scrutiny as part of the Romano-British Lowland Settlement Survey grant-aided by Cadw between 1998 and 2001 (Evans 2001), but some sites have subsequently been added by later fieldwork. A proportion of the records consist of finds only, and are not further discussed here. Roman brick and tile is recorded from Tredegar House and Llantarnam Church, but the circumstances in which it arrived on these sites, and how far it travelled, are unknown.

2.3.1 Bulmore

This roadside settlement may fall into the category of the so-called 'small towns', settlements which possess urban characteristics but were not tribal centres, but so far the only potentially urban characteristic which is definitely known is its form as a ribbon development consisting at least partly of narrow-fronted strip buildings. A Roman presence is known to have existed since the 19th century when several tombstones, one commemorating a veteran of the Second Augustan Legion, were found reused as paving. A considerable amount of work has been carried out here since the 1970s, of which only the very earliest campaign has been fully published (Vyner 1978). Excavations in the 1980s revealed a series of masonry buildings, most of 'strip-building' type, fronting onto the road running between Caerleon and Bulmore on the east bank of the River Usk, with inhumations in the area behind the buildings away from the road frontage (Zienkiwiewicz 1984a). Subsequent watching briefs in the hamlet have confirmed this pattern. More recent field evaluations and geophysical survey (Yates 1999; Yates 2001; Young and Macdonald 1999) have helped to establish the extent of the settlement, which now appears to have extended along the flank of Chepstow Hill between two streams which run down the hill to the River Usk, though there were apparently significant areas without buildings. A possible Romano-Celtic temple was identified towards the southern edge of the settlement. Near the top of the hill above the settlement, a pottery kiln associated with another burial has been discovered (Webster *et al* forthcoming).

2.3.2 Rural settlement - the Levels and fen edge

Four sites have been excavated on or at the edge of the Levels and provided evidence for settlement and/or agricultural activity, Pencarn, Hill Farm Goldcliff and Nash/Uskmouth. A key feature is the series of exposures of Roman horizons, characterised as a gleyed horizons with organic material preserved on the surface, known so far from excavation between Goldcliff and Nash on the Caldicot Level and between Peterstone and Rumney on the Wentlooge Level (Locock 1997; Locock 1999; Bell 2000; Meddens 2001).

Field systems have been excavated in the inter-tidal zone of the Wentlooge Level to the east of Newport and Pencarn towards the inland edge of the same Level, and at the Nash Waste Water Treatment Works and Hill Farm, Goldcliff, on the Level to the west of Newport. The excavated features on the intertidal zone of the Wentlooge Level consisted of ditches on several different alignments but including large quantities of occupation debris, suggesting that the settlement to which they related was not far away. Pollen samples taken from associated deposits within the upper ditch fill suggested that, while it was accumulating, the land was being used as pasture with any cultivation some distance away (Fulford *et al* 1994, 181-8, 201-3).

Pencarn produced evidence for a sequence which probably began in the Iron Age, on the basis of the pottery, the earliest feature (excluding an isolated driven post), being a gully. This was followed by a deposit of clay with two drainage ditches containing pottery dating to the late 2nd and early 3rd century. A timber building of the mid-late 3rd century, with cobbled floors and a hearth, was then constructed on a slight terrace made up of clay revetted at one end by cobbles and 'kerbstones', but was probably not permanently occupied. There were also the remains of an external cobbled surface between it and a metalled road. Charred wheat and barley indicated that grain was being processed in the vicinity at the time the building was being erected, but the sedimentary sequence had been too truncated to provide information on the environment. A watching brief provided some information on what appeared to be an adjacent field system (Yates 2000).

At Nash, there were two main periods of field system, the earlier in use in the late 1st – late 2nd century. This consisted of four fields defined by large boundary ditches designed to assist drainage, but although they appeared to have been laid out with care, there was insufficient evidence to determine whether they were part of a planned landscape. It seems to have gone out of use around the beginning of the 3rd century, when it was replaced by a second, less carefully laid out system to the west, characterised by meandering ditches, two of which had fences at their bases. There is evidence in both periods that drainage was a problem; there is evidence for fluctuating salinity in the first phase, and an even more unstable hydrological regime in the second, with intermittent freshwater inundations as well as regular flooding by salt water. Pollen samples indicate that the area was pasture or meadow in the first period, with few trees; what little indication that there was of agriculture in the vicinity came from the second period. A number of post structures in both periods are interpreted as cattle enclosures or pens, and in the second phase there were a number of burials of juvenile cattle. No structures were encountered which would suggest permanent human occupation on the site, though quantities of occupation rubbish, including building rubble in the fill of the ditches to the first field system, suggest that any settlement was not far distant, and the pottery assemblage, consisting mainly of coarse and local wares, indicates that it is unlikely to have been of high status (Meddens and Beasley 2001).

Goldcliff has produced considerable evidence for Roman activity. The Goldcliff stone, a record of a construction project carried out by the military, had probably moved from its original context when found, but has since been associated with a substantial bank and ditch identified as land-claim boundary (Allen 2002). This bank and ditch was associated with smaller ditches and an extensive soil horizon whose origin has been attributed variously to the Iron Age or to the Roman period, but which in any case continued in use to the 4th century AD. Environmental evidence indicates that the area was initially salt marsh, but was later affected by more strongly marine conditions (Locock 1996; Locock1997; Locock and Walker 1998; Locock 1999, 6; Bell 2000). Roman drainage features of a similar type were found further west in the in the area of Saltmarsh on the other side of Goldcliff Pill (Roberts 1999, 12-4) and probably represent a further area of field system. In the intertidal zone at Goldcliff

was a series of rectangular buildings which date largely to the Iron Age, but one of which (Building 8), constructed from driven timbers, probably with some sort of plank cladding, and posts down the long axis, continued in use into the beginning of the Roman period. It stood on a hummock surrounded by an area covered with depressions amongst which cattle hoofprints were the best preserved (Bell *et al* 2000, 106-29). No pollen samples are reported from deposits associated with this building, but the insect remains suggest that it was used as a byre, and that the structures were initially erected in an area of raised bog subjected to inundation by the sea at high tides, but becoming increasing dominated by a marine environment (Bell *et al* 2000, 257-9). The nature of the evidence here suggests that the site may have been used seasonally in the spring and summer for pasturing stock (Bell *et al* 2000, 281).

2.3.3 Rural settlement - the Usk Valley and surrounding area

Inland little evidence has been found so far for settlement. A small squarish enclosure has been recognised noted at Coed-y-fon, Tredunnoc, in a field which has produced Roman pottery (Evans 2001, 114); there are also records of Roman pottery found at Tredunnoc Gaer, which is probably the moated site near Bertholey House. The area of Tredunnoc itself has been put forward as a possible fort on the basis on an earthwork in the field north of the church, not now visible, and the inscription commemorating a legionary trooper which was found in the churchyard, but the circumstances surrounding this find suggest that it was brought to the site as a supposed relic of St Julian, rather than necessarily having originated in the immediate vicinity (Mein 1986, 97 n8, Evans 2001, 18). The presence of two sites fairly close together suggests that the apparent absence of Roman occupation in this area is more apparent than real.

Other sites are represented only by antiquarian records: St Julians, along with Penrhos, is recorded as being the site of baths, and finds including coins, Roman brick and 'jasper tesserae' came from there (Coxe 1801, 86), suggesting that it must have been a high-status site. Glyn Usk as having produced coins and iron slag (Lee 1862, 78 132).

2.3.4 Cemeteries

Four cemeteries not connected with either Caerleon or Bulmore are known from area C, and there are also burials not apparently in the context of a formal cemetery from Nash (Meddens and Beasley 2001, 150, 157) and the Abernant pottery kiln site (Webster *et al* forthcoming). One of the cemeteries, Malpas, is known only from an antiquarian account of dubious reliability. Llanwern and Liswerry were found towards the beginning of the 20th century, the former consisting of a row of six cist burials, associated with Roman pottery and a coin (Nash-Williams 1925). At the latter, a series of 2nd-3rd century cremations associated with copper alloy and iron jewellery and coins of Trajan, Marcus Aurelius and Carausius was discovered; an inhumation in a Bath stone coffin with no grave goods except for iron nails was later found (Nash-Williams 1924). Abernant appears to be an enclosed cemetery containing a series of inhumations in cist and earth-cut graves, with coffins showing only as nails, and dating from the 2nd and 3rd centuries (Tuck forthcoming). The Abernant burials may be associated with Bulmore, although this settlement has known burials closer to the built-up area. No settlements are known in association with the other sites, but must have existed.

2.3.5 Road network.

These roads have recently been made the subject of another study grant-aided by Cadw (Sherman and Evans 2004) and the mapping produced as a result has been included here.[1] The most important elements of this are the road which crosses the Wye at Chepstow and leads westwards to Cardiff and beyond (RR60a and 60b). The line of this has been best established to the southeast of Caerleon, where it crosses Chepstow Hill on its way from Caerwent; to the west it is only conjectural within the study area. There is evidence for two roads (RR62a and RR62a variant) from Usk, one on the west bank, for which a little evidence is known, from the immediate vicinity of the fortress, and one on the east bank, whose line is well established through Bulmore. A short stretch of minor road (RR GGAT 002) has been excavated at the LG Semiconductor site at Pencarn on the edge of the Levels to the east of Newport. Others are conjectured on the basis of modern road alignments but have so far not been confirmed by fieldwork: Wheel Lane on the levels to the east of Newport (RR GGAT 001); and crossing the Sor Brook valley to the north of Caerleon (RR GGAT 003)

2.3.6 Aqueduct

There is an 18th century antiquarian account of the finding of what was interpreted as an aqueduct carrying water to the fortress over Lodge Hill. An earthwork feature on the north side of the hill has also been interpreted as part of the aqueduct. However, a water source on the edge of the coalfield some miles to the to the west of the fortress is more likely than in the hills to the north (Zienkiewicz 1986, 344).

2.3.7 Other activity

One pottery kiln has been located, at Abernant in Zone C, but although it was producing the so-called Caerleon ware, it is not thought to have been military given the lack of infrastructure (Webster *et al* forthcoming). Tile stamps show that the legion was producing its own ceramic building materials, but the location of the legionary kilns is unknown. By analogy with Chester, this is most likely to have been in Zone C, though it is possible that it may have been in Zone B.

[1] The numbering system adopted for the roads, prefixed RR, follows that established by RCAHMW 1994 in its handlist of files on Roman roads in Wales held in the NMR. This follows Margary 1956; roads added from the SMR not in the NMR holdings are prefixed RR GGAT.

3. Current and recently completed projects

3.1 Excavation and survey

3.1.1 The Levels

A lively programme of both research and developer-driven projects in the Levels area of Zone C, with a strong contribution from environmental archaeology, is leading to an explosion of knowledge about this area.

3.1.2 Other areas

Apart from field-evaluations and watching briefs carried out as part of the planning process, very little work of this nature is currently being carried out elsewhere. The exception is at Abernant where Ann Leaver and Martin Tuck have been undertaking a small privately funded research excavation for seven years on the Roman cemetery and associated area. This project is ongoing.

3.2 Post-excavation and re-evaluation of antiquarian and old site records

3.2.1 Bulmore

The report on excavations carried out in the 1980s is largely complete, though the discussion remains to be written, and site plans completed for publication. It will contain a gazetteer of all known features in the Bulmore area, to which the data from the developer-funded projects will be added.

3.2.2 Cemeteries

Julie Reynolds of the Legionary Museum is in the process of completing the excavation report for 'The Coed', which will include a gazetteer of known cemeteries sites in Caerleon (Zone B).

3.3 Finds studies

3.3.1 Coins

Over 4,000 coins have been recovered from the fortress at Caerleon and adjacent sites (including excavated finds and hoards). The 'Ancient Coins from Wales' project undertaken at Cardiff University recorded this material in detail and provides, for the first time, a comprehensive picture of coin use and loss at a legionary fortress in Roman Britain (and probably the northwestern provinces of the empire) (Guest *et al* forthcoming).

3.3.2 Metalwork

All military metalwork from Caerleon has been catalogued by Evan Chapman in an unpublished thesis (Chapman 2004; copies in Cardiff University Library and NMGW).

3.3.3 Samian

All samian from Caerleon has been recorded in a uniform manner as part of the Wales Samian project being undertaken by the Cardiff University Centre for Lifelong Learning. Records are in the Cardiff Samian Archive. A synopsis/discussion need to be completed.

3.3.4 Building materials

Professor John Allen is working on programme identifying the geology and provenance of building stones in Zone C.

4. Areas of further work

4.1 Zone A

4.1.1 Upgrading information on fortress plan

The composite plan of the fortress as published by Boon (1972 and 1986: see above) not only highlights the areas where no information is known, but also presents a misleadingly detailed view of our state of knowledge of the fortress. The deficiencies of this plan can be summarised as follows:

- Blank areas whose use is unknown
- Where excavated detail has been plotted, the inclusion of significant amounts of conjectural detail projected from it gives a misleadingly complete impression
- There has been no attempt to break down the plan by date

4.1.2 Evidence for occupation in the 4th century

Arguments for suggesting that the defended area of the fortress was not reduced in the 4th century are given above (para 2.1.3). If this is not the case, there are three possible hypotheses to explain the distribution of 4th century material:

1. The perimeter continued on the same line, with significant areas inside which had been cleared (perhaps analogous to the forts of the so-called Saxon Shore).
2. The perimeter was redrawn, in which case some of the 4th century occupation which has been noted must be non-military.
3. The hypothesis that military occupation ceased at the end of the 3rd century is correct, in which case the 4th century occupation is civilian.

4.1.3 Tabernae

Work carried out on this element of the fortress plan on the British Telecom and Broadway House sites suggest that the *tabernae* fronting the main streets of the fortress were used for a variety of functions. Further exploration of such sites would help to clarify their purpose.

4.2 Zone B

4.2.1 History of river

The key to understanding this area is to understand the history of the River Usk and Afon Lwyd. Only an appreciation of what land has been lost to the river since Roman times, how much of the present area is due to post-Roman deposition, and how the river meanders have moved over time, will permit an understanding of the taphonomy of the extramural area.

4.2.2 Upgrading information on civil settlement plan

Known detail on this is extremely fragmentary. However, the picture has not been overly confused by the inclusion of conjectural detail as in the fortress. The overall layout needs to be established, and also the whereabouts and nature of any public buildings, particularly the temples which are known from inscriptions.

4.2.3 Burial practices

The cemetery areas need to be examined to understand what burial practices were in use, how they relate to the status of the deceased, and any change in practices over time. Comparisons with burial practices in Zone C may also be instructive.

4.2.4 Construction camp

The extramural area should contain evidence for installations in use during the building of the fortress. Some details were observed by Boon during his watching brief on the creation of the playing fields, and all or most of this information has now been destroyed, but a much larger area was probably involved and is probably still to be found under the civil settlement.

4.2.5 Interaction between the military and the local population

This can probably be most profitably explored in Zone C, but some information may be available from Zone B to throw light on the relations between the military and the inhabitants of the civil settlement, including use of the waterfront. One satellite site within area B which should be investigated is Penrhos Farm.

4.3 Zone C

4.3.1 Bulmore

More remains to be done on this site to elucidate its plan and nature. The publication of the excavations of the 1980 should be a matter of urgency, as also the production of a plan showing the evidence obtained from the more recent work. The relationship between settlement and burials need to be clarifies.

4.3.2 Rural settlement - Levels and fen-edge

Much of the information known from this area has been produced by excavation, but further work needs to be done on clarifying the topography of the area in the prehistoric and Roman periods, in order to establish how far continuity can be recognised from before the Roman conquest, and how far the Roman landscape is the product of deliberate planning by the Roman authorities. There are two contrasting hypotheses, which can be summarised as follows. One, which is the current orthodoxy, sees the use for pasture in the Roman period much of the Levels as the product of a deliberate programme of works including a sea wall which was organised by the Second Augustan Legion as part of the management strategy for its *territorum*, and of which significant traces still remain in the present landscape (Allen and Fulford 1987; Fulford, Allen and Rippon 1994; Rippon 1996). The other sees it as the result of natural processes taking place from the Iron Age onwards, which had no need for a general system of sea defences, and where significant post-Roman marine transgressions later buried the Roman landscape (Marvell 2004). Only further data will establish to what extent engineering works were carried out in the Roman period, and establish whether different areas of the Levels had different histories of development.

Although there is a growing amount of data concerning fields and the natural environment in this area, there is as yet very little data on the associated settlements themselves, and to what extent the area was inhabited all the year round or just seasonally. The presence of a cemetery at Llanwern suggests that occupation of the fen-edge at least was permanent; there may be a contrast with the situation on the Level, or this may have changed over time depending upon the wetness of the ground.

4.3.3 Rural settlement - Usk Valley and surrounding area

Few settlement sites have been located so far in this area, but the work done as part of the Romano-British Lowland Settlement Survey showed that it had reasonably good potential for discovering them. Without considerable further work, it will not be possible to understand the extent to which this area was exploited by the Second Augustan Legion, and how the legion is likely to have interacted with the local population. Settlements with associated cemeteries would be particularly valuable, though data may be limited as the soils in the area do not favour bone preservation.

4.3.4 Rural settlement - The legionary territorium/prata and the local population

As noted above (para 1.1), the extent of any lands controlled directly by the Second Augustan Legion has never been established. An understanding of the pattern of settlement around the fortress and over a wider area may help to establish this, if different patterns of landholding can be identified. However, this is likely to involve an area which extends beyond Zone C.

4.3.5 Roads

More work needs to be done to establish the lines of roads, particularly towards the west.

4.4 All areas

4.4.1 Publication of outstanding excavation reports

Reports on a number of excavations carried out in the 1980s and 1990s are still outstanding, though some post-excavation work has been carried out. The main sites within the fortress (Zone A) are the south(western) defences (early 1980s: Howard Mason), School Field (1986: David Zienkiewicz), British Telecom (1988: JDZ) and Broadway House (1994: JDZ). In Zone B the minor sites of Carlton Terrace (1984: JDZ) and Isca Grange (1984: JDZ) are still outstanding, but The Coed (1993) is due to be published in the near future in conjunction with the general synthesis of the cemeteries. In Zone C, the excavations of the 1980s in Bulmore, already largely complete, should be brought to publication as soon as possible.

The publication of earlier sites is more problematical since the data is of much more varied quality. However, it may be possible to obtain a National Lottery grant to deal with the publication of excavation carried out by archaeologists now dead.

4.4.2 Finds studies

Previous excavations at Caerleon, both inside and outside the fortress have produced vast quantities of finds. The degree of publication and its usefulness varies considerably and is best considered by material.

Coins. As noted above, the coins have been collated and will soon be published, when they will be available for further analysis.

Metalwork. The military metalwork has been dealt with (Chapman 2004). Comparable catalogues for non-military material would enable comparative studies of various sorts to be undertaken.

Glass. There is no over-view of the considerable glass assemblage from Caerleon.

Samian. Study of the samian from Caerleon is an ongoing project; see para 3.3.3.

Coarse pottery from sites excavated in the 1920s and 1930s are dominated by the Jenkins Field and Prysg Field assemblages, which were published in a typological format by Nash-Williams. As a result, they are difficult to use for chronological studies and, inevitably, the typology needs revision. Material from sites excavated after WWII is more useful chronologically but there is a clear lack of an overall typology particularly for Caerleon products.

The problem of the western canabae. The largest unpublished collection of finds from Caerleon consist of those from the area west of the fortress, examined under 'rescue' conditions, mainly by Nash-Williams in the early-mid 1950s (Bear House Field). Brief summaries of both the excavations and the finds were compiled by George Boon and exist in manuscript form in NMGW and might usefully be made available to a wider audience. In addition a complete manuscript catalogue of the samian by Catherine Johns exists in the archive. All who have studied the collection have been hampered by the inadequacy of the

site records and it may well be that we can do no more with the structural record than has already been done by Boon. The finds, however, deserve a little more. At the very least they have a good deal to add to typologies and catalogues and thereby to he social and economic history of Caerleon.

Whilst finds, especially pottery, have traditionally been used to provide chronology and illuminate trading links, recent finds studies have shown the potential of such material to answer social questions, such as the distinction between military and civilian and between urban and rural, as well as issues of function. Because of their size, the finds assemblages at Caerleon should be particularly suitable to answer such questions. There is considerable scope for research under the following headings:

Distribution. The pattern of finds distribution within the fortress has seldom been studied but can have interesting implications for the functions of specific areas. An examination of this type has been done with some success by Evan Chapman in relation to parts of the Prysg Field rampart buildings (Chapman 2002). Similarly there are discernibly different patterns in the samian inside and outside the fortress. There is potential in similar studies. A comparison of finds from the fortress and its environs might be profitable; the coins are already in a suitable condition for such a study.

Trade. The legionary fortress represents one of the largest concentrations of people and wealth within South Wales. The material culture of the site represents one of our best means of seeing how those concentrations impacted on the economy of the region.

4.4.3 Environmental studies

Very little systematic work has been done on environmental data anywhere in the area except on the Levels in Zone C, where the waterlogged condition of many deposits has encouraged extensive programmes of sampling to be undertaken. There is an urgent need for more data to be recovered for all classes of ecofact. In general, the potential for the recovery of useful data has been under-estimated in the past in the 'dry land' part of the study area, and the involvement of palaeoenvironmental specialists during future excavations will do much to improve the quantity and quality of data obtained.

Plant macrofossils. There are few sites in Zones A and B from which plant macrofossils have been recovered, and these have tended to be those with waterlogged deposits: the Museum Garden Zienkiewicz 1993, 136-8) in Zone A; the quay (Boon 1978a,) and Mill Street in Zone B (Evans 2000, 24-8, 30-1, 350-1). The data from the last-named was particularly useful for understanding how the use of this site developed. In Zone C plant macrofossils have been recovered from Nash (Meddens and Beasley 2001, 179-81), Rumney Great Wharf immediately outside the survey area (Fulford *et al* 1994, 202-5), Hill Farm, Goldcliff (Locock and Walker 1998, 41), Great Pencarn (Yates 2000, 70-1, 73-4) and a number of sites along the South East Coastal Strategy Pipeline (Meddens 2001). These were mainly waterlogged deposits, but charred plant macrofossils have also been studied from Pencarn, Nash and Hill Farm, Goldcliff, not all of which has been published.

Charred plant remains are encountered in dry sites, but have only occasionally been studied in any detail. Charcoal identifications were published from Myrtle Cottages and the Prysg, but the most important deposit to be published is the charred grain from the *porta principalis sinistra/porta decumana* quadrant of the civil settlement, Zone B (Helbaek 1964). However, even deposits where there is a relatively low proportion of charred remains have the potential to provide useful information on agriculture and the food supply.

Pollen. There is a general awareness that Zone C sites on the Levels have the potential to provide pollen data; the sites at which pollen has been published are Rumney Great Wharf, Wentlooge (Fulford *et al* 1994, 201-2), Hill Farm, Goldcliff (Locock and Walker 1998, 40-1), Great Pencarn (Yates 2000, 67-70) and Nash (Meddens and Beasley 2001, 174-79). However, the same potential also exists in any site where conditions are suitable, and an effort should be made to obtain pollen samples from other areas, such as the early waterlogged deposits within the fortress and civil settlement.

Animal bone. Bone preservation is frequently poor in Caerleon and the surrounding area because of the soil chemistry, though the waterlogged deposits in the estuarine clays under the civil settlement in Zone B and on the Levels tend to be more favourable for preservation. The only sites in Zone A from which good assemblages of animal bone have been published to modern standards are the Fortress Baths and the Museum Garden (Zienkiewicz 1986a; 1993), though species lists were published from the Prysg and Myrtle Cottage. There are no significant assemblages from Zone B, but they have been published from Nash and Wentlooge in Zone C (Wentlooge (Fulford *et al* 1994, 197-200; Meddens and Beasley 2001). Preservation factors will affect what bone can be recovered from future excavations, but efforts should be made to study assemblages wherever possible.

Other environmental data. Little work has so far been done on other types of ecofact. Again, the datasets are best from the Levels sites, and their potential has not really been considered for the dryland sites. Foramenifera and diatoms have been published from Nash (Meddens and Beasley 2001, 171-4) and Hill Farm Goldcliff (Locock and Walker 1998, 41-2) and Great Pencarn (Yates 2000, 71-2) but not from any of the other sites. However, these organisms are potentially crucial in understanding the development of Usk and Afon Lwyd floodplains, and should if possible be studied from waterlogged deposits in these areas. Insect remains have been published from the intertidal zone at Goldcliff (Bell *et al* 2000, 245-61). No studies of molluscs (other than shellfish identification) have been carried out; these suffer from the same problems with soil conditions as animal bone.

5. Suggested actions for rapid implementation

One of the purposes of the this study was to suggest a series of programme of work which could be implemented relatively rapidly. These are to be found in this section. A list of outstanding topics for which no immediate course of action suggests itself can be found in section 5.

A body to co-ordinate research and act as a forum for the exchange of information and ideas should be established as a priority.

5.1 Zone A

5.1.1 Upgrading information on fortress plan

- Geophysical survey provides a means of enhancing our current knowledge levels relatively easily and at relatively low cost. As geophysical survey is also suggested as a means of enhancing knowledge of Zone B (see below, para 5.2.2 and 5.2.3), a strategy for both areas has been developed and included as Appendix 1.

- Existing detail on fortress plan can be cleaned up by plotting on a GIS system and then deconstructed as follows:

  Certainty. This will require excavation trenches to be plotted, thus allowing it to be seen clearly which parts of the plan are known and which conjectural. The main problem likely to be associated with this process is that the exact whereabouts and extent of Nash-Williams's trenches were never plotted, and that his published plans are known to contain errors, with walls misrecorded or not recorded at all (Prysg Field: Evans 1991, 108; Gollidge's Field: J D Zienkiewicz pers comm). Later excavator's trenches seem on the whole to be well recorded.

  Date. This will require known building plans to be broken down according to what buildings or other features are known to exist at any particular time. A scheme of phasing will have to be devised. This should be relatively straightforward for the initial timber phase and the first phase using stone foundations, but thereafter it may be necessary to set more arbitrary time periods (see above, para 2.1.3).

- There has been a steady stream of development within the fortress area, which usually takes the form of extensions to existing buildings and very limited infill, and usually generates very limited amounts of new information. The briefs for planning-related work of this nature require summaries to be published in *Britannia* and *Archaeology in Wales*. Most of these interventions do not justify more extended publication, but they could potentially reach a point at which the sum of information produced warrants more extended treatment in a suitable journal. This situation should be periodically reviewed and such articles produced when required.

5.1.2 Evidence for occupation in the 4th century

Only the careful excavation of significantly more areas of the fortress can hope to provide a definitive answer to this problem. However, there are some aspects of more limited scope which may be able to cast light.

- Re-examine groups of finds from previously excavated sites to determine whether there is evidence for 4th century occupation from areas of the fortress where it has not previously been identified. Although Boon did this before writing his 1972 study of the fortress, he detailed only some of his results because he thought the others were of no interest.

- Investigate defences to ascertain when they went out of use, and whether there is any difference in chronology between one part of the fortress and another.

5.1.3 Publication of excavations on the southern defences

- Synthesised data already exists as a 'grey literature' report (Mason and Macdonald nd). This should be edited and expanded as soon as possible for publication.

5.2 Zone B

5.2.1 Development of rivers and floodplain

- Key to understanding the history of the civil settlement is an understanding of the development of the River Usk and Afon Lwyd. The site chosen for the fortress at Caerleon occupied a terrace at the confluence of the Usk and Afon Lwyd and was surrounded on three sides by water, with the fourth side rising towards Lodge Hill. The fortress occupied the central area of the terrace, lying mainly above the 15m contour. In contrast, the civil settlement lay below this contour, and at least some of it lay below the 8m contour. It is clear, therefore, that appreciation of the history of this area of Caerleon is dependent largely upon an understanding of the development of the these two rivers which flow into it. Some information on this is already available; Evans (2000) used study of the river and adjacent fields on the ground, map regression, the results of excavations, and existing borehole logs to through some light on this problem, but what is needed is a proper study carried out by an expert in this field. It should be extended up the Usk to take in the area of Bulmore in Zone C. Experts in the field of riverine development and alluviation should be approached to see whether they are interested in working on this area.

5.2.2 Upgrading information on civil settlement plan

- The GIS-based refinement of the fortress plan outlined in para 5.1.1 above can be extended into the area immediately outside the fortress.
- Geophysical survey should at the very least allow the street system to be established. It should also permit the identification of a range of building types, and thus the location of any public buildings and the existence of any zoning in terms of use or social stratification within the settlement (or the lack of it). It may also be able to establish whether there is evidence for the construction camp extending beyond the area examined by Nash-Williams and Boon. As geophysical survey is also suggested as a means of enhancing knowledge of Zone A (above, para 5.1.1), a strategy for both areas has been developed and included as Appendix 1.
- The information produced by the steps above should be incorporated in a constraints map which can inform the planning process.
- As in the fortress area, new information is generated by planning-related field evaluations and watching brief. To date, the quantity of this information has been less than that from within the fortress, but the same review process should periodically be carried out for this area too, and suitable publications prepared as required.

5.2.3 Upgrading information on construction camp

- Geophysical survey would appear to be the best method of establishing the extent of the construction camp.

5.2.4 Publication of excavations at 'The Coed' and of Nash-Williams's excavations in Bear House Field and the Amphitheatre Field

- Publication of 'The Coed' site should if possible be expedited.

- Although full publication of Nash-William's excavations is impossible because of the fragmentary nature of the notes, elements are already in place for a partial publication, and others could be worked up without too much difficulty. Besides Nash-Williams's original site notebooks and drawings, the archives of the NMGW hold two manuscripts prepared by George Boon, one a catalogue of finds and the other an outline structural report (Boon nd). The finds catalogue can probably be published largely as it stands, though some modifications will be necessary the eliminate out-of-date hypotheses (particularly with regard to the hoard of barbarous radiates). The structural report, though of intrinsic interest since it underpins all of Boon's published remarks on the civil settlement, was abandoned by him as unsatisfactory in the light of his own excavations (Boon 1978a). A reappraisal of Nash-Williams's Amphitheatre Field excavations was prepared in conjunction with a field evaluation on Broadway Farm in 1995 (Evans 1995a); this could be published more or less as it stands (together with the results of the field evaluation: Evans 1995b), although an attempt needs to be made to link it with the finds. A similar exercise could probably be carried out on the Bear House Field notes.

5.3 Zone C

5.3.1 Bulmore

- Publication of this site should if possible be expedited.
- A plan should be produced showing all known features identified by excavation and geophysics, and also the areas which have been shown by excavation to be blank, superimposed upon geological data.
- The Bulmore area is likely to be the subject of further planning applications in respect of the sporting facilities offered by the Celtic Manor Hotel, which has an excellent record in commissioning pre-planning archaeological work and in designing new facilities to ensure that either no damage takes place at all, or that it is minimal. More data can therefore be expected, and every effort should be made to ensure that it reaches the public domain as soon as possible in a form which can be readily integrated with existing information.
- Study of the movement of the river should establish whether there is likely to have been significant erosion of deposits (see para 5.2.1).

5.3.2 Rural settlement - the Levels and fen-edge

- More data are needed on both the sedimentary sequence and the settlement pattern in order to resolve the problems outlines in para 3.3.2. Given the development pressures on the Levels and the work of the Environment Agency in reinforcing the intertidal mudcliff, development-related excavation is likely to provide such data in significant quantities both in the short and medium term. Of particular importance is the site of the steelworks at Llanwern, which is likely to come up for development. Briefs for development-related work already contain provisions to ensure that the work fulfils this purpose, and this is expected to continue. However, as much of this work stays in the 'grey literature' periodic reviews of new and existing data, such as that provided by Marvell (2004) must continue to be produced, to ensure that the information is readily available to the archaeological community. Geophysics may be of value once the positions of sites have been established.
- Evidence for Roman activity should be mapped using GIS.

5.3.3 Rural settlement - Usk Valley and surrounding area

- This area is still largely agricultural and is less subjected to development pressures than the Levels. New information must therefore be actively obtained through specially implemented programmes of work. A systematic programme of field survey should be carried out to identify settlement sites. Since much of this area is under pasture, this would have to be undertaken over an extended timescale so that fields can be walked as they are reseeded. Ideally, fieldwalking should be integrated with a programme of geophysical survey (see Appendix 1).

5.3.4 Rural settlement, both areas

- Evidence for Roman activity should be mapped using GIS.

5.3.5 Roads

- A programme of field survey needs to be undertaken to trace that part of the lines of known roads where information does not exist. This should be supplemented by excavation where necessary to confirm the accuracy of the identification.

5.4 General

5.4.1 Finds studies

- Whilst the publication of the coins from Caerleon is already in hand (Guest *et al* forthcoming), other classes of artifact are less well served. A number of existing finds studies need to be made more readily available. These include Evan Chapman's catalogue of the military metalwork from Wales which has a strong Caerleon bias but also provides important comparative material; also the finds summaries from Bear House Field. A means of making the more extensive samian records available might also be considered.

- The chronology of the fortress is heavily dependant upon analysis of the finds, especially the pottery. Both George Boon and Grace Simpson identified key collections in the 1950s and 1960s, but there has been no updating of this work to take account of recent advances in finds dating. The systematic re-examination of key contexts would be of enormous benefit.

- The publication of future finds from the fortress would be greatly expedited by a greater number of finds catalogues. While this may be considered a longer term objective, the publication of a typology of pottery made at or for the fortress is more immediately achievable and would greatly assist future excavation publication.

- Finds form a significant component of the re-examination of specific contexts and/or locations and the publication of unpublished sites recommended elsewhere.

5.4.2 Building materials

- The study of building stone already taking place in Zone C should be extended to Zones A and B. A preliminary study of brick and tile fabrics was carried out by GGAT in the 1980s and 1990s in conjunction with post-excavation work; this should be resumed.

5.4.3 Water supply

- The antiquarian information on the possible course of the aqueduct should be revisited and extended to cover the question of the management of the entire water supply into the fortress. This would be suitable for a student thesis.

5.4.4 Bibliography

- The bibliography drawn up for this research agenda should be established as a database in a relevant organisation or institution, regularly updated to include all relevant material (published and unpublished), and publicised as a research resource.

6. Research subjects for longer-term consideration

The following topics are considered to be of value for research, but successful study either depends on the availability of more data, or it has not yet been possible to devise a suitable strategy to address them.

- **Use of the fortress - recorded activity as opposed to formal plan** (Zone A) Previous studies of the fortress have assumed that it was neatly zoned and that building plan is a reliable guide to all the functions taking place in a given area. However, the phenomenon of evidence for widespread metalworking has already been touched upon above (para 2.1.2); this would bear further investigation, as would an examination of existing records for other apparently anomalous activity. However, a full consideration of this problem is likely to require further data; for example, a programme of research excavation carried out on a number of further *tabernae* should allow current hypotheses on their use to be tested.
- **Use of the fortress - interactions between military personnel and others** (Data from all zones).
- **Burial practices - contrast between populations attached to the fortress and those in the wider area** (Zones B and C) Although known cemetery material in the immediate area of Caerleon (Zone B) has now been studied, more data are needed generally before this subject can be pursued. Cemeteries in Zone C may be difficult to locate.
- **Interaction between Caerleon, Bulmore and Caerwent** (Data from all zones) One possible way of establishing the relationship between these two sites is the comparison of the finds assemblages, but work on this will probably have to wait until study of the Caerleon and Caerwent finds assemblages is further advanced.
- **Land use, agricultural practices and food consumption** (Data from all zones) This is a crucial part of the understanding of the fortress in its setting, but more data are needed before any meaningful work can be done.
- **The extent of the legionary *territorium*** (Zone C) The recognition of the *territorium* will depend upon the extent to which patterns of occupation within it differ from those outside, and will probably require the examination of an area which extends beyond Zone C.

7. Appendix 1: A strategy for geophysical survey

7.1 The fortress and extramural area (Zones A and B)

Geophysical survey should ideally take place according to a coherent plan designed to maximise the amount of information available. This type of investigation should be able to provide significant information, where there are areas of open ground, in Zone A and in that part of Zone B where the civil settlement exist. Past experience shows that it is unlikely to provide useful information about the cemetery area, at least where burials are concerned, though it might possibly be able to identify such features as mausolea and the locations of pyres, provided the overburden is not too great.[2]

Significant areas of the fortress which have still not been built over are listed in the following table.

Insula	***Present use***	***Use in Roman times***	***Potential for significant new information***
Insula I	Farmland (note 1)	?Barracks	Moderate
Insula III	Farmland (note 1)	Unknown	High
Insula IV	*Priory Hotel gardens; *farmland (note 1)	Unknown	High
Insula V	Bull Inn car park	Baths	Moderate - Low
Insula VI	*Garden	?Hospital	High
Insula VII	?Garden	?Tribune's house	High
Insula VIII	Garden	?Tribune's house	High
Insula XI	Museum garden	?Tribune's house	High
Insula XIV	Endowed School playing fields, playground	Barracks	Moderate
Insula XV	*Churchyard	*Principia*	High
Insula XVI	*Churchyard	Unknown	High
Insula XVIII	*Endowed School playing fields	Unknown	High
Insula XIX	Endowed School playground	Basilica and buildings of unknown function	Moderate
Insula XX	Public garden	?*Praetorium*	Moderate
Insula XXII	Orchard House garden	Unknown	High
Insula XXIII	?Farmland	Barracks	Low
Insula XXIV	Public open space (Goldcroft Common), Caerleon House Nursing Home car park, medical centre grounds	Barracks	Moderate

Note 1: At least part of this area has already been the subject of a geophysical survey, which showed up the streets but little else of significance.

The areas marked with an asterisk also have the potential to test Boon's division of the fortress into *insulae*., and must therefore be regarded as particularly important.

[2] Geophysics failed to locate the probable mausoleum on the Abbeyfield site, but there was a considerable depth of overburden at this point.

The lack of a clear picture in that part of the fortress which has been surveyed may be the result of changes in use leading to a complicated build-up of deposits, in which it is difficult to make out a clear signal. In this case, ground-penetrating radar may be the most suitable technique. The blank insulae will include granaries, which have a particularly characteristic form and which should show up well ground penetrating radar, if not on resistivity, which would otherwise be regarded as the most suitable technique. Ground-penetrating radar will probably also be the best technique for the Bull car park, as this site is on the High Street frontage and there is likely to be a significant presence of medieval and post-medieval buildings. Comparison of the plan of present-day Caerleon with that shown on the OS 1st, 2nd, 3rd and 4th edn 6" maps show that this is unlikely to be a problem with any of the other areas within the fortress except for the churchyard; however public opinion might not tolerate the idea of geophysical survey taking place in the churchyard, and any negotiations would have to be carefully handled. It is also possible that the use of the area for burial may have destroyed too much of the buried archaeology to produce a worthwhile result, unless there was already a considerable amount of overburden, in which case Roman levels will be deeply buried.

Much of the unexplored area of the civil settlement still lies under farmland. As a consequence, it would be relatively easy to obtain significant new information from geophysical survey, and both magnetometry and resistivity should be suitable, though resistivity will be best at revealing streets and stone buildings. Resistivity was used on the Mill Street site before excavation, and enabled some features to be predicted, notably the main road and the cobbled yards, and the cobbled foundations of the possible courtyard building alongside the continuation of the *via principalis sinistra* also showed up well. However, traces of the main road became increasingly faint as it was apparently covered by increasing depths of alluvium. Other features showed up on the Uskside site, though here the picture was complicated by modern dumping. Both of these potential complicating factors therefore need to be born in mind during any extensive programme of geophysical survey. Penrhos should also be included in any programme of geophysical survey, but the cemetery areas are generally considered as being of low potential because of the difficulty of identifying individual graves.

Given the very large area potentially available for excavation (subject to the agreement of landowners), it would appear to be most profitable to draw up a scheme designed to provide full coverage of the area incrementally, starting with those areas of the fortress judged to have the highest potential, followed by those parts of the civil settlement where no previous work has taken place. Those areas of the fortress of lower potential should follow. In the twenty years which have elapsed since these initial surveys on the Uskside site, survey equipment has increased in sensitivity and sophistication, and the body of expertise available to interpret the results has grown. In consequence, it may be worthwhile to resurvey this area, possibly using ground-penetrating radar, though this should probably be left until work has been done on all areas of unknown potential.

Some ground truthing should be carried out, to check the accuracy of the results, but with a consistent programme of survey and evaluation, it should be possible to produce increasingly refined results. Subject to the results obtained, it may be considered worthwhile for all planning applications areas in the civil settlement to be required to carry out geophysical survey.

7.2 The wider area (Zone C)

Significant results have been obtained elsewhere in Britain from field-by-field geophysical survey, and this could potentially have the same value for the Usk valley part of Zone C,

supplementing the proposed programme of fieldwalking. There however considerable cost implications, although also opportunities to involve local communities.

7.3 General

Survey grids must be accurately located to allow for incorporation in GIS plan of the fortress and surrounding area.

Some ground truthing should be carried out, to check the accuracy of the results, but with a consistent programme of survey and evaluation, it should be possible to produce increasingly refined results. Subject to the results obtained, it may be considered worthwhile for all planning applications areas in the civil settlement to be required to carry out geophysical survey.

8. Appendix 2

Consultees

Name	*Organisation*	*Special interests (where applicable)*
Richard Brewer	NMGW	
Astrid Caseldine	University of Wales Lampeter	Environmental archaeology
Dr Jeffrey Davies	University of Wales Aberystwyth	Civil settlements
Professor Michael Fulford	Reading University	Supply
Professor Miranda Green	University of Wales Newport	
Dr Peter Guest	Cardiff University	
Mark Lewis	Legionary Museum	
Professor Bill Manning	-	
Victoria Newton-Davies	Newport Museum	
Dr Andrew Pearson	-	Civil settlements
Julie Reynolds	Legionary Museum	
Stephen Rippon	Exeter University	Intertidal zone; historic landscape
Peter Webster	Cardiff University	

Dr Martin Bell of Reading University and Mick Jones of Lincoln Archaeology Unit were invited to participate but declined.

Other personnel

The team from GGAT comprised Dr Edith Evans (Project Manager), Andrew Marvell (Acting Director) and Neil Maylan (Development Control Officer). Paul Jones designed Figure 2, based on a plan kindly supplied by Cadw. Rick Turner co-ordinated Cadw's input into the project

9. Bibliography of sites within the survey area and related issues

This does not generally include interim reports in *Archaeology in Wales* and *Britannia* if a fuller report has been referenced in the grey literature, but summary information on these sites can be found by consulting the gazetteer of sites explored in *Archaeology in Wales* for the same year and *Britannia* for the following year.

Published

Aldhouse-Green, M and Howell, R (eds)	2004	*The Gwent county history vol 1: Gwent in prehistory and early history*
Allen, J R L	2002	The context and meaning of the Goldcliff stone, Caldicot Level, *Archaeol Severn Estuary* **13**,147-54
Allen, J R L and Fulford, M G	1987	Romano-British settlement and industry on the wetlands of the Severn Estuary, *Antiquaries J* **67**, 237-89
Anon	1960	Roman Britain in 1959: I Sites explored, *Britannia* **1**, 210-36
Anon	1994	Caerleon, Broadway House, *Archaeol Wales* **34**, 55
Bell, M	1994	Field survey and excavation at Goldcliff, Gwent, *Archaeol Severn Estuary* **5,** 115-44
Bell, M	2000	Environmental archaeology in the Severn Estuary: Progress and prospects, *Archaeol Severn Estuary* **11, 69**-103
Bell, M, Caseldine, A and Neumann, H	2000	*Prehistoric intertidal archaeology in the Welsh Severn Estuary*, CBA Res Rep **120**
Boon, G C	1964	Three small excavations at Caerleon, *Archaeol Cambrensis*, **113**, 16-40
Boon, G C	1972	*Isca: The Roman legionary fortress at Caerleon, Mon* (Cardiff)
Boon, G C (ed)	1978a	*Roman sites. Cambrian Archaeol Monog* **1**
Boon, G C	1978b	Excavations on the site of a Roman quay at Caerleon, and its significance, in Boon (ed) 1978a, 1-24
Boon, G C	1987	*The legionary fortress of Caerleon-Isca* (Cardiff)
Brewer, R J	2004	The Romans in Gwent, in Aldhouse-Green and Howell (eds) 2004, 203-43
Burnham, B C	1994	Roman Britain in 1993: Sites explored. 1 Wales, *Britannia* **25**, 246-55
Burnham, B C	2000	Roman Britain in 1999: Sites explored. 1 Wales, *Britannia* **31**, 370-9
Burnham, B C	2001	Roman Britain in 1999: Sites explored. 1 Wales, *Britannia* **32**, 311-8
Casey, P J and Hoffmann, B	1995	Excavations at Alstone Cottage, Caerleon, *Britannia* **26**, 63-151
Chapman, E	2002	Evidence of an *armentarium* at Caerleon? The Prysg Field rampart buildings, in M Aldhouse-Green and Webster P (eds) *Artefacts and archaeology, aspects of the Celtic and Roman world*, University of Wales Press, Cardiff 33-43
Clarke, S	1998a	Penrhos farm, *Archaeol Wales* **38**, 123
Coxe, W	1801	*An historical tour of Monmouthshire*

Dickinson, B and Webster, P V	2002	A group of Flavian samian from Caerleon, M. Genin and A.Vernhet (eds), *Céramiques de la Graufesenque et autres productions d'époque romaine. Nouvelles recherches. Hommages à Bettina Hoffmann,* Monique Mergoil, Montagnac, 247-257
Evans, D R and Metcalf, V M	1992	*The 'Roman Gates' site in the fortress of the Second Augustan Legion at Caerleon, Gwent: The excavations of the Roman buildings and evidence for Early Medieval activity, Oxbow Monogr,* **15** (Oxford)
Evans, E M	1986	Caerleon, St Cadoc's Orphanage, *Archaeol Wales* **26**, 47
Evans, E M	1991	Excavations at 'Sandygate', Cold Bath Road, Caerleon, Gwent *Britannia,* **22**, 103-136
Evans, E M	2000	*The Caerleon canabae: excavations in the civil settlement 194-90* Britannia Monogr **16**
Evans, E M and Maynard, D J	1997	Caerleon Lodge Hill cemetery, the Abbeyfield Extra Care Society site *Britannia* **28**, 169-243
Fox, A	1940	The legionary fortress at Caerleon, Monmouthshire: Excavations in Myrtle Cottage Orchard 1939, *Archaeol Cambrensis,* **95**, 101-52
Fox, S	1995	Caerleon, Gwent College of Higher Education: Rathmell extension, *Archaeol Wales,* **35**, 54
Frere, S S	1984	Roman Britain in 1983: Sites explored, *Britannia* **15,** 265-332
Frere, S S	1987	Roman Britain in 1986: Sites explored, *Britannia* **18,** 302-59
Frere, S S	1990	Roman Britain in 1989: Sites explored, *Britannia* **20,** 258-326
Fulford, M G, Allen J R L and Rippon, S J	1994	The settlement and drainage of the Wentlooge Level, Gwent: Excavation and survey at Rumney Great Wharf, *Britannia* **25**, 175-211
Grimes, W F	1935	The Roman legionary fortress at Caerleon in Monmouthshire: Report on the excavations carried out in the Town Hall Field in 1930, *Archaeol Cambrensis,* **90**, 112-22
Guest, P, Wells, N and Besly, E	forth-coming	*Ancient coins from Wales*
Helbaek, H	1964	The Isca grain, a Roman plant introduction in Britain, *New Phytol* **63**, 158-64
Hawkes, C	1930	The Roman legionary fortress at Caerleon in Monmouthshire: Report on the excavations carried out in the eastern corner in 1929, *Archaeol Cambrensis,* **85**, 144-96
Knight, J K	1962	The Goldcliff Stone: a reconsideration, *Monmouthshire Antiq **1**,* 34-6
Knight, J K	1964	Excavations in Cold Bath Road, Caerleon, *Archaeol Cambrensis,* **113**, 41-7
Lee, J E	1862	*Isca Silurum*
Locock, M	1996a	Hill Farm, Goldcliff: A field evaluation on the proposed Gwent Levels nature reserve, 1996, *Archaeol Severn Estuary* **7**, 59-66

Locock, M	1997a	Gwent Levels wetland reserve, Hill Farm, Goldcliff: Excavations 1997, *Archaeol Severn Estuary* **8**, 55-65
Locock, M	1999	Buried soils of the Wentlooge Formation, *Archaeol Severn Estuary* **10**, 1-10
Locock, M and Walker, M	1998	Hill Farm, Goldcliff: Middle Iron Age Drainage on the Caldicot Level, *Archaeol Severn Estuary* **10**, 1-10
Manning, W H	2004	The Roman conquest and the army, in Aldhouse-Green and Howell (eds) 2004, 178-204
Margary, I D	1957	*Roman roads in Britain* vol 2
Marvell, A G	1996b	Great Pencarn Far , *Archaeol Wales000* **36**, 75-6
Marvell, A G	1996a	Celtic Manor Golf Course, *Archaeol Wales* **36**, 74-5
Marvell, A G	2004	Roman settlement and economy, in Nayling and McGrail 2004, 91-110
Mason, D J P	1988	'*Prata legionis*' in Britain, *Britannia* **19**, 163-89
Maynard, D J	1988	Bulmore, *Archaeol Wales* **28,** 62
Maynard, D J	1993	Celtic Manor Golf-Course, Christchurch, *Archaeol Wales*, **33,** 61
Meddens, F M	2001	The Roman landscape between Chepstow and Nash and its implications for Roman land management, *Archaeol Severn Estuary* **12**, 1-13
Meddens, F M and Beasley, M	2001	Roman seasonal wetland pasture exploitation near Nash, on the Gwent levels, Wales, *Britannia* **32**, 143-84
Mein, A G	1986	*Norman Usk*
Mein, A G	1990	*Chepstow Hill, Cat's Ash, Christchurch, Archaeol Wales*, **30,** 57
Murray Threipland, L	1965	Caerleon: Museum Street site 1965, *Archaeol Cambrensis*, **114**, 130-45
Murray Threipland, L	1967	Excavations at Caerleon 1966: Barracks in the north corner, *Archaeol Cambrensis*, **116**, 23-56
Murray Threipland, L	1969	The Hall, Caerleon 1964: Excavations on the site of the legionary hospital, *Archaeol Cambrensis*, **118**, 86-123
Murray Threipland, L and Davies, W J	1959	Excavations at Caerleon 1956, *Archaeol Cambrensis*, **108**, 126-143
Nash-Williams, V E	1924	Roman remains found near Liswerry near Newport, Mon, *Archaeol Cambrensis*, **79**
Nash-Williams, V E	1925	*Archaeol Cambrensis* **7 ser 5**, 423-4
Nash-Williams, V E	1928	Topographical list of Roman remains found in South Wales, *Bull Board Celtic Stud* **4**, 246-71
Nash-Williams, V E	1929	The Roman legionary fortress at Caerleon in Monmouthshire. Report on the excavations carried out in Jenkins's Field 1926, *Archaeol Cambrensis*, **84**, 237-307

Nash-Williams, V E	1930	Note on the bath-building outside the south-eastern defences, in Hawkes 1930, 147-9
Nash-Williams, V E	1931	The Roman legionary fortress at Caerleon in Monmouthshire: Report on the excavations carried out in the Prysg Field 1927-9. Part I, *Archaeol Cambrensis,* **86**, 99-157
Nash-Williams, V E	1932a	The Roman legionary fortress at Caerleon. Report on the excavations carried out in the Prysg Field, 1927-9. Part II. The Finds (pottery excepted). *Archaeol Cambrensis* **87**, 48-104.
Nash-Williams, V E	1932b	The Roman legionary fortress at Caerleon in Monmouthshire. Report on the excavations in the Prysg Field 1927-9. Part III. The pottery, *Archaeol Cambrensis,* **87**, 265-349
Nash-Williams, V E	1932c	Further excavations within the Roman legionary fortress at Caerleon, Monmouthshire, *Archaeol Cambrensis,* **87**, 394-5
Nash-Williams, V E	1933	Further excavations within the Roman legionary fortress at Caerleon, Monmouthshire, *Archaeol Cambrensis,* **88**, 111-4
Nash-Williams, V E	1936	Caerleon excavations, 1936, *Archaeol Cambrensis,* **91**, 107-8
Nash-Williams, V E	1939	White Hart Lane, Caerleon, 1938, *Archaeol Cambrensis,* **94**, 107-8
Nash-Williams, V E	1953	Caerleon: Prysg Field II site, *Bull Board Celtic Stud,* **15**, 236-42
Nayling, N and McGrail, S	2004	*The Barland's Farm Romano-Celtic boat* CBA Res Rep **138**
Parkhouse, J	1981	Lodge Road, Caerleon, *Glamorgan-Gwent Archaeol Trust Ann Rep 1980-1,* 5
Rippon, S J	1996	*Gwent Levels: The evolution of a wetland landscape,* CBA Res Rep **105**
Toft, L	1992	Roman quays and tide levels, *Britannia* **23**, 249-54
Trett, R and Hudson, R	1991	Newport Museum, recent acquisitions, *Archaeol Wales* **21** 35
Tuck, M	1999	Abernant, Kemeys Inferior, *Archaeol Wales,* **39,** 100
Tuck, M	forth-coming	Abernant, Kemeys Inferior, Roman cemetery, *Archaeol Wales* **44**
Tuck, M and Leaver, A	2000	Caerleon, Millmead, *Archaeol Wales,* **40,** 97
Vyner, B	1978	Excavations at Great Bulmore, near Caerleon, in Boon (ed), 25-34
Webster, P V, Hartley, K F, Marvell A G and Sell, S H	forth-coming	A Roman pottery kiln at Abernant Farm, Caerleon, Gwent, *J Roman Pottery Stud*
Wheeler, R E M and Wheeler, T V	1928	The Roman amphitheatre at Caerleon, Mon, *Archaeologia,* **18**, 111-218
Wilson, D R	1965	Roman Britain in 1964: I Sites explored, *J Roman stud* **54**, 199-220
Wilson, D R	1966	Roman Britain in 1965: I Sites explored, *J Roman stud* **54**, 196-217

Wilson, D R	1970	Roman Britain in 1969: I Sites explored, *Britannia* **1**, 268-305
Yates, A M	2000	Excavation of a Roman site south of Great Pencarn Farm 1997: Coedkernew, Newport, *Studia Celtica* **34**, 49-80
Young, T and Macdonald, P	1999	Bulmore, *Archaeol Wales* **39**, 103
Zienkiewicz, J D	1984a	Excavations at Caerleon and Great Bulmore, *Glamorgan-Gwent Archaeol Trust Ann Rep 1983-4: Part 2*, 2-30
Zienkiewicz, J D	1984b	Caerleon, *Archaeol Wales* **24**, 55-7
Zienkiewicz, J D	1984c	Great Bulmore, *Archaeol Wales* **24**, 57-8
Zienkiewicz, J D	1986a	*The legionary fortress baths at Caerleon vol i: The buildings*
Zienkiewicz, J D	1986b	*The legionary fortress baths at Caerleon vol ii: The finds*
Zienkiewicz, J D	1987	Caerleon, Isca, British Telecom site, Museum Street, *Archaeol Wales* **27**, 47-8
Zienkiewicz, J D	1992a	Pottery from excavations on the site of the Roman Legionary Museum, Caerleon, 1983-5, *J Roman Pottery Stud* **5**, 81-109
Zienkiewicz, J D	1992b	Roman glass vessels from Caerleon: Excavations at the Legionary Museum Site 1983-5 *Monmouthshire Antiq*, **8**, 1-9
Zienkiewicz, J D	1993	Excavations in the *scamnum tribunorum* at Caerleon: The legionary museum site 1983-5, *Britannia*, **24**, 27-140

Grey literature

See note at head of bibliography for cross-reference to published interim notes on those sites reported in the grey literature.

Armour-Chelu, R J and Williams D N	1997	*LG Electronics (Phase 1), Stage 4: Watching brief*, GGAT report no.**97/023**
Barber, A	1997	*Land at Bridge House, Caerleon, Newport*. Cotswold Archaeological Trust unpublished report no.**97/1055**
Boon, G C	nd	*Excavations in the legionary civil settlement, Caerleon* . Unpublished typescripts held at NMGW
Border Archaeology	2000	*King's Arms, Belmont Hill, Caerleon, Gwent*. Border Archaeology unpublished report
Boucher, A	1997	*Castle Acre, Castle Lane, Caerleon,: Archaeological trial excavations*. Hereford Archaeology unpublished report no. **319**
Channel Archaeology	2000	*Watching brief at 7 Broadwell Court, Caerleon, Newport*. Channel Archaeology unpublished report
Chapman, E	2004	*A catalogue of Roman military metalwork in the National Museum of Wales*, unpublished M Phil thesis, Cardiff University
Clarke, S	1998b	*The White Hart Inn, Caerleon: An archaeological evaluation*. Monmouth Archaeology unpublished report

Clarke, S	1998c	*Penrhos Farm, Usk Road, Caerleon, Gwent* Monmouth Archaeology unpublished report
Clarke, S and Bray, J	2000	A *programme of archaeological investigation carried out at 12 Church Street, Caerleon, Gwent*. Monmouth Archaeology unpublished report no.**MA08.00**
Clarke, S and Bray, J	2001a	*Isca Grange, Caerleon, Newport: an archaeological watching brief.* Monmouth Archaeology unpublished report no.**MA05.01**
Clarke, S and Bray, J	2001b	*Coldbath Road Allotments, Caerleon, Newport: an archaeological watching brief.* Monmouth Archaeology unpublished report no.**MA13.01**
Clarke, S and Bray, J	2001c	*Hanbury Garage, Caerleon, Gwent: an archaeological watching brief.* Monmouth Archaeology unpublished report no.**MA24.01**
Clarke, S and Bray, J	2001d	*Plas Newydd, Goldcroft Common, Caerleon: A programme of archaeological investigation.* Monmouth Archaeology unpublished report no.**MA32.01**
Clarke, S and Bray, J	2002a	*The Priory Hotel, Caerleon: an archaeological evaluation.* Monmouth Archaeology unpublished report no.**MA04.02**
Clarke, S and Bray, J	2002b	*River Cottage, Isca Road, Caerleon: an archaeological watching brief.* Monmouth Archaeology unpublished report no.**MA14.02**
Clarke, S and Bray, J	2002c	*Hawthorn House, Usk Road, Caerleon: an archaeological watching brief.* Monmouth Archaeology unpublished report no.**MA18.02**
Clarke, S and Bray, J	2002d	*92 Pollard Close, Trinity View, Caerleon: an archaeological watching brief.* Monmouth Archaeology unpublished report no.**MA20.02**
Clarke, S and Bray, J	2002e	*23 Mill Street, Caerleon: an archaeological watching brief*. Monmouth Archaeology unpublished report no.**MA46.02**
Clarke, S and Bray, J	2002f	*The Cedars, Lodge Road, Caerleon: an archaeological watching brief.* Monmouth Archaeology unpublished report no.**MA49.02**
Clarke, S and Bray, J	2002g	*10 Mill Street, Caerleon: an archaeological watching brief*. Monmouth Archaeology unpublished report no.**MA55.02**
Clarke, S and Bray, J	2003a	*27 Backhall Street, Caerleon: an archaeological watching brief.* Monmouth Archaeology unpublished report no.**MA62.02**
Clarke, S and Bray, J	2003b	*The Hollies, Isca Road, Caerleon: an archaeological evaluation.* Monmouth Archaeology unpublished report no.**MA16.03**
Clarke, S and Bray, J	2003c	*Caerleon pavilion: an archaeological evaluation*. Monmouth Archaeology unpublished report no.**MA60.02/MA01..03**

Dawkes, G	1999	*Caerleon Rugby Pitch, Broadway Playing Fields, Caerleon: Report on Archaeological Watching Brief*, Marches Archaeology unpublished report no.**075**
Evans, E M	1995a	*Archaeological appraisal, Broadway Farm, Caerleon*. GGAT unpublished report no. **95/029**
Evans, E M	1995b	*Archaeological field evaluation, Broadway Farm, Caerleon*. GGAT unpublished report no. **95/077**
Evans, E M	2001	*Romano-British south east Wales Settlement survey: Final repor*t. GGAT unpublished report no. **2001/023**
Evans, E M	2003	*Caerleon House Nursing Home, Caerleon, Newport: Archaeological field evaluation*. GGAT unpublished report no. **2003/091**
Evans, E M	2004	C*aerleon House Nursing Home, Caerleon, Newport: Archaeological watching brief.* GGAT unpublished report no. **2004/010**
Gardner, A N	1997	*The Nature and Extent of Fourth Century Occupation in the Roman Fortress of Caerleon*, Unpublished MA dissertation, Institute of Archaeology, University College London
Geophysical Surveys	1991	*Report on Geophysical survey: St Cadoc's Hospital, Caerleon.* Geophysical Surveys unpublished report no.**91/26**
Glover, P	1984	*Resistivity survey of Great Bulmore.* Unpublished paper produced as part of a BSc in archaeological science at the University of Bradford.
Harding, P and Smith, R	1993	*Land at Gwent College of Higher Education, Caerleon: Archaeological evaluation.* Wessex Archaeology unpublished report no.**W557**
Howell, J K	2000	*Broadway, Caerleon: Archaeological evaluation* GGAT unpublished report no.**2000/020**
Howell, R	1998	*Construction of a sports centre and associated infrastructure works at the Caerleon campus of University of Wales College Newport, 1997-98: An archaeological watching brief report*. SCARAB unpublished report
Johnson, A E	1996	*Celtic Manor Golf Course (no 3) nr Caerleon: Topsoil magnetic susceptibility and gradiometer survey.* Oxford Archaeotechnics unpublished survey report **0760296/CAG/GGAT**

Langton, B	1996	*Ambulance Headquarters, Mill Street, Caerleon: archaeological evaluation.* Cotswold Archaeological Trust unpublished report no.**96432**
Lawler, M and Page N	1992	*Sluvad Farm to Court Farm pipeline, Archaeological desk-based assessment*, GGAT unpublished report, project no.**A085**
Locock, M	1992a	*Archaeological desk top study: Celtic Manor Hotel, Coldra Woods, Gwent*, GGAT unpublished report, project no. **A066**
Locock, M	1992b	*Archaeological field evaluation: Coldra Woods, Christchurch, Gwent*, GGAT unpublished report, project no. **A074**
Locock, M	1996b	*Archaeological field evaluation: Gwent Levels Nature Reserve, Hill Farm, Goldcliff, Newport*. GGAT Contracts unpublished report no **96/036**
Locock, M	1997b	*Gwent Wetlands Reserve, Goldcliff, Newport, South Wales. Pre-construction archaeology: Factual report*, GGAT Contracts unpublished report no **97/067**
Makepeace, G A	1997	*Sandygate, Caerleon, Newport, Monmouthshire: Archaeological watching brief*. Unpublished report ref **Mon 9701**
Makepeace, G A	2004	*An archaeological watching brief at Willow Cottage, 35 Mill Street, Caerleon. Unpublished report ref **Mon55/04***
Mason, H and Macdonald, P	nd	*The Roman legionary fortress at Caerleon in Gwent. Report on the excavations of the southern defences carried out in 1982*, Cardiff Stud Archaeol Specialist Rep **5**
Maylan, C N	1991	*Archaeological field evaluation of the Coldra-Caerwent high-pressure gas pipeline* GGAT Contracts unpublished report
Maynard, D J	1996a	*Archaeological field evaluation, Celtic Manor Golf Course No. 3 near Caerleon, Gwent*, GGAT unpublished report no.**96/016**
Maynard, D J	1996b	*First interim report, archaeological watching brief, Celtic Manor Golf Course No. 3, near Caerleon*, GGAT unpublished report no.**96/058**
Metcalf Dickinson, V M	1983	Salvage work at Caerleon, Gwent, *GGAT Ann Rep 1982-83*, 64-5
Milne, H	2003	*Home Farm Green, Caerleon: Archaeological watching brief.* CAP unpublished report no.**220**
Peterson, A	2004	*Legionary fortress, Caerleon: Archaeological watching brief.* CAP unpublished report no.**289**

Ponsford, M	2000	*Watching brief at 12 Broadwell Court, Caerleon, Newport.* Channel Archaeology unpublished report
Purdue, J	1991	*Nursing College, Caerleon: An archaeological assessment*. GGAT unpublished report
RCAHMW	1994	*Roman roads in Wales: a handlist based upon the archive holdings of the RCAHMW* RCAHMW unpublished report
Reynolds, J	2000	*Old Repeater Station, Museum Street, Caerleon, Newport.* Roman Legionary Museum unpublished report
Sell, S H	1998	*Caerleon Endowed School: Archaeological field evaluation.* GGAT unpublished report no.**98/036**
Sell, S H	1997	*LG Europark Development: Archaeological scheme of investigation, Stage 4 watching brief works, LG Semicon Site: Roman road*, GGAT unpublished report no.**97/088**
Sell, S H	2003	*Ivy Cottage, Isca Road, Caerleon: Archaeological watching brief.* GGAT unpublished report no.**2003/011**
Sell, S H	2004	*Caerleon Nursing Home, Caerleon.* GGAT unpublished report no. **2004/058**
Stone, R	1999	*Caerleon Rugby Pitch, Broadway Playing Fields, Caerleon: Report on Archaeological Evaluation*, Marches Archaeology unpublished report no.**055**
Turner, J G	1999	*Archaeological works on public footpath link, Broadway, Caerleon, Monmouthshire.* GGAT unpublished report no.**99/007**
Williams D N	1997	*Archaeological field evaluation (Stage 3), LG Semicon – Roman Road*, GGAT unpublished report no.**97/031**
Yates, A M	1997a	*Celtic Manor Golf Course No. 3, Catsash Roman Road excavation, Cat's Ash, Monmouthshire*, GGAT unpublished report no.**97/038**
Yates, A M	1997b	*Nash WWTW field evaluation Nash, Monmouthshire: A report for Hyder Consulting,* GGAT Contracts Division Report **97/070**
Yates, A M	1999	*WRU Centre of Excellence, Bulmore, Caerleon, Newport, Archaeological assessment, Stage 3: field evaluation*, GGAT unpublished report no. **99/077**
Yates, A M	2001	*The new championship course, Celtic Manor, Newport: supplement to the environmental statement - archaeological field evaluation,* GGAT unpublished report no. **2001/040**

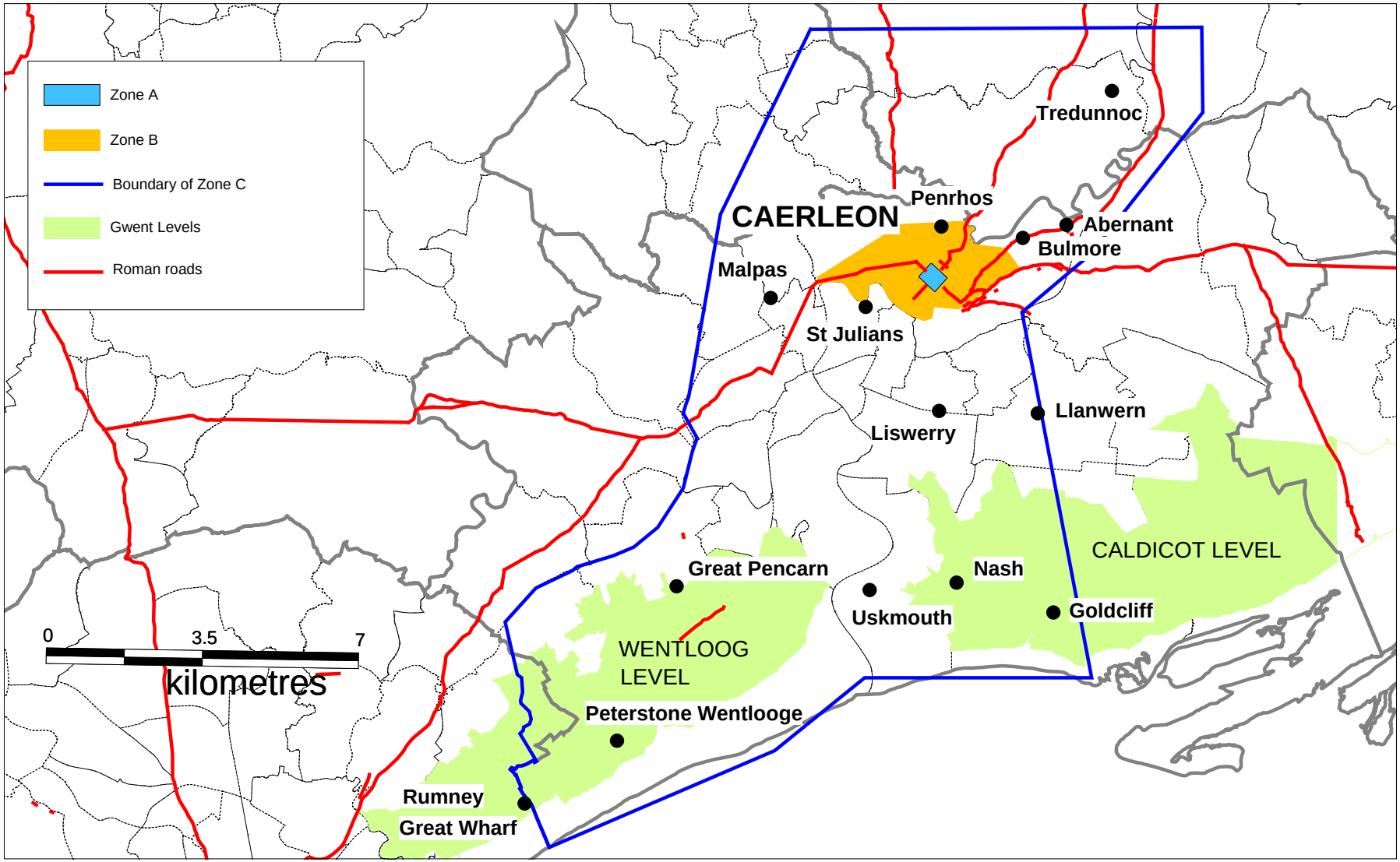

Figure 1: Caerleon and the survey area (with modern local government boundaries). This map is based upon Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office, © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. Glamorgan-Gwent Archaeological Trust Ltd 100017916 (2004). Annotations © GGAT and Cadw.

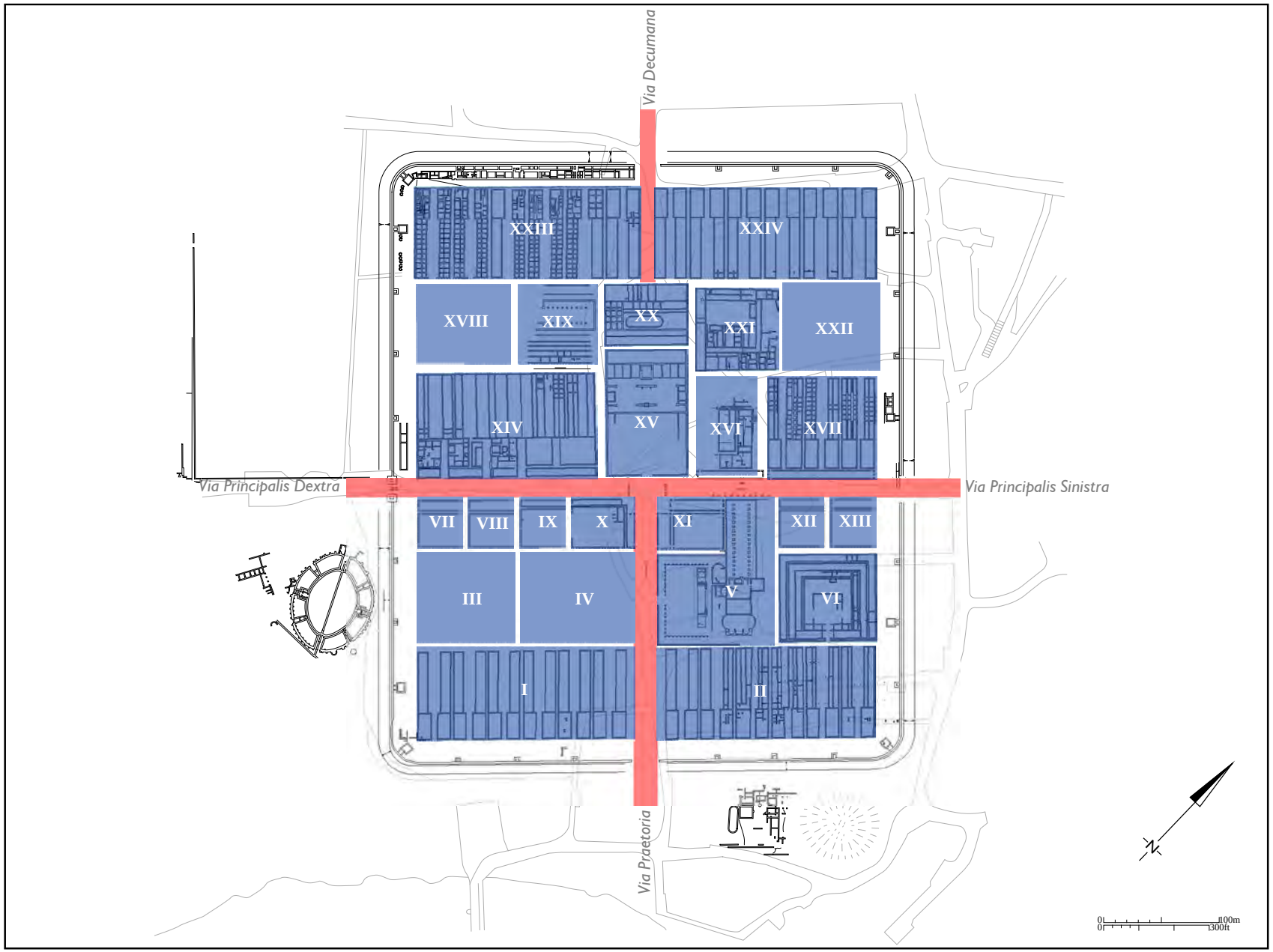

Figure 2: The fortress of Caerleon (Zone A). Base plan © Cadw

The Roman fortress of Caerleon and its environs: A framework for research

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As part of our desire to provide a quality service we would welcome any comments you may wish to make on the content or presentation of this report.

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