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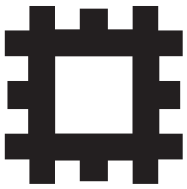
Trevor Pearson

SURVEY REPORT

Archaeological Investigation Report Series AI/11/1999



SCARBOROUGH CASTLE
NORTH YORKSHIRE

Archaeological Investigation Report Series AI/11/1999

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INTRODUCTION AND BACKGROUND TO THE SURVEY

In October and November 1998, the York Office of the RCHME undertook a 1:1000 scale earthwork survey of Scarborough Castle in North Yorkshire (NMR No. TA 08 NW 35). The survey was requested and partially funded by English Heritage to assist with their management and presentation of the site. The castle is in the guardianship of English Heritage (Guardianship No. 557) and is scheduled (RSM No. 13300).

The castle is situated along the coast of north-east Yorkshire (Figure 1) on a prominent flat–topped headland which is 8ha in extent and between 67m and 87m above OD. The south-west side of the headland faces inland (Figure 2) and is defined by a steep natural escarpment called the Castle Dykes at the foot of which is the town of Scarborough: the remainder of the headland ends in steep cliffs facing out to sea.

Figure 1. The location of the site

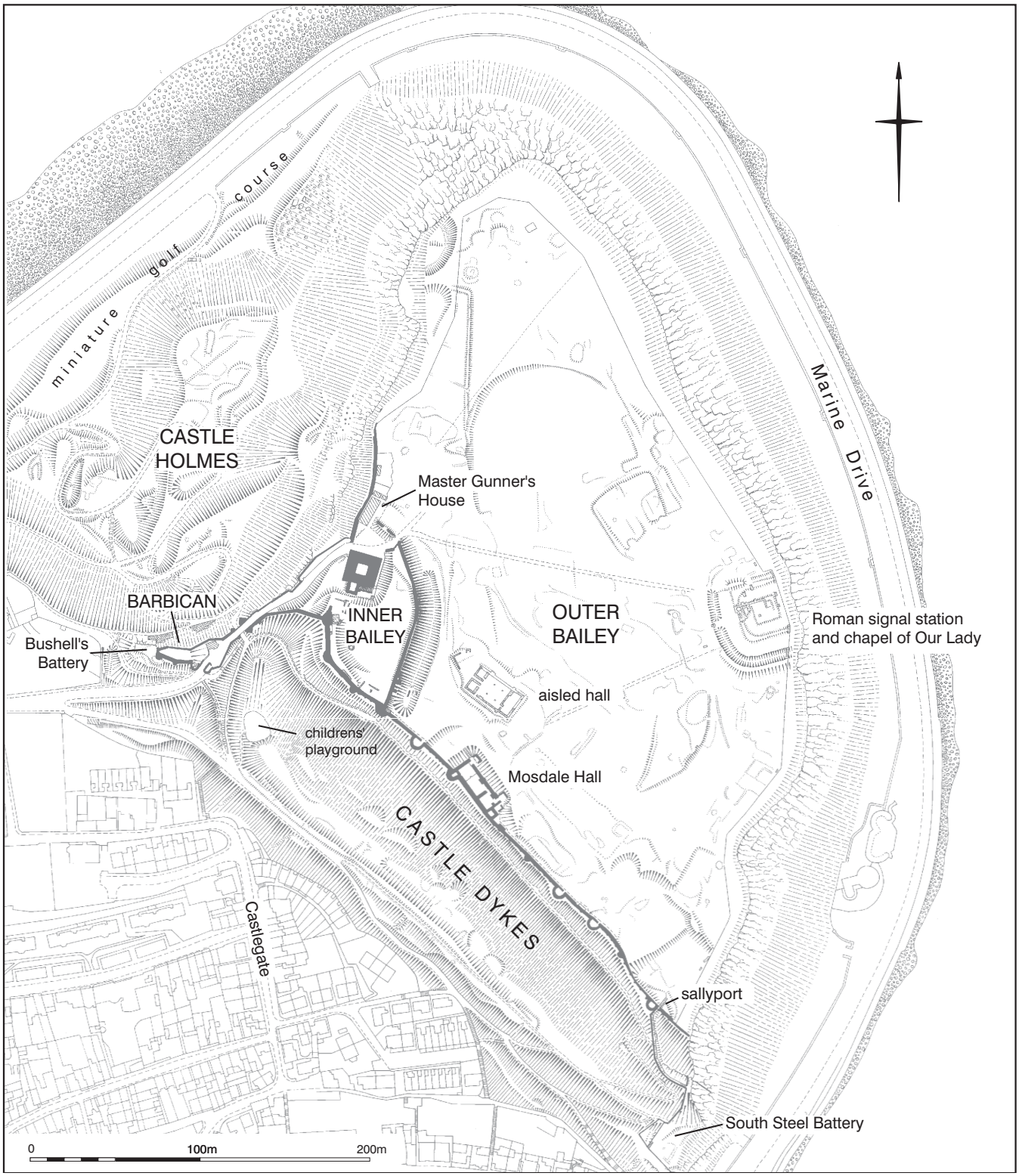

Figure 2. The component parts of the castle

Since the turn of the 20th century, bays to the north-west and south-east of the headland have been linked by the construction of a road (the Marine Drive) at the base of the cliffs.

The castle comprises an inner bailey at the western angle of the headland within which is a square keep; the remainder of the headland forms the outer bailey and is partially protected by a curtain wall on the south-west running along the crest of the Castle Dykes. A further, much shorter, section of curtain wall overlooks the Castle Holmes on the north-west side of the headland. The outer bailey contains the excavated remains of an aisled hall near the inner bailey and those of the medieval chapel of Our Lady and a Roman signal station at the cliff edge. Entrance to the castle is at the west through a barbican which stands off the headland and is separated from it by a rock-cut defile. The defile is spanned by a masonry bridge with flanking walls connecting the barbican to the inner bailey. At the south end of the curtain wall, a sally port leads out to a flight of steps down the side of the Castle Dykes. The steps are protected by a flanking wall on the north side and terminate at an outwork called the South Steel Battery which looks out over the harbour in the South Bay.

Excavations have found evidence of settlement on the headland prior to the construction of the castle, beginning with prehistoric occupation dating to the Late Bronze Age/Early Iron Age, followed by the construction of a signal station in the late Roman period. A small chapel was built on the signal station site around the year 1000 AD. The first castle was constructed before 1135 by a local magnate, William le Gros, who held the lordship of Holderness in the East Riding. No remains of the first castle have so far been identified. The earliest standing fabric belongs to the reign of King Henry II who took the site from William in 1154 and built the present keep. He was also responsible for establishing a town on land immediately to the west of the castle hill. The castle remained in Royal hands throughout the middle ages but suffered two sieges during the English Civil War which left it in a ruined state. It was garrisoned by the army during the 18th and 19th centuries and various structures, including a barracks and magazines, were built at this time. The 20th century has seen the castle transformed into a public amenity, initially under the ownership of Scarborough Borough Council, but later passing to the Ministry of Public Buildings and Works and latterly, English Heritage.

The survey encompassed the summit of the headland extending to the foot of the Castle Dykes on the west and across the Castle Holmes to the Marine Drive on the north. Considerations of safety precluded work in areas of cliff face and rock-tumble around the side of the headland and survey in the outer bailey was not continued beyond the safety fence around the cliff top. Wherever possible details of these areas were visually checked against the most recent 1:1250 Ordnance Survey base map.

Following the completion of the survey, the earthwork evidence was compared with the wide range of maps and plans of the castle which survive from the mid 18th century onwards. This helped to identify the origins of many of the earthworks recorded by the survey and consequently this report closely integrates both earthwork and cartographic evidence.

GEOLOGY, TOPOGRAPHY AND LAND-USE

Scarborough castle headland is formed from limestone and sandstone beds of Upper Jurassic date which create precipitous cliffs around the seaward side of the headland (Young 1978, 55-57). The summit slopes gently south-eastwards from the highest area at around 87m OD in the inner bailey to the lowest at 67m OD at the south end of the curtain wall (Figure 3) and is capped with a covering of pleistocene boulder clay. The headland is an outlier of the Tabular Hills which form a prominent escarpment along the south edge of the North York Moors. This same feature is seen in the steep landward facing slope of the Castle Dykes on the south-west side of the headland. On the north side, the cliff line is intersected by two diverging geological faults and the cliff in between has slumped forming a natural hollow called the Castle Holmes.

Boulder debris at the base of the cliff testifies to the fact that erosion is gradually reducing the area of the headland which presently amounts to 19 acres (8ha). In the 12th century the chronicler William of Newburgh gives the area of the summit as 60 acres but this is probably a scribal error (Stevenson 1856, 445). It is unlikely so much ground has been lost in the space of eight hundred years when 18th-century maps of the headland show it not markedly different in outline to the present day.

The summit of the headland is mainly covered in grass which had been mown around a month prior to the start of the earthwork survey up to the post and wire security fence around the top of the cliff . The grass was closely cut in the outer bailey to define paths leading to the site of the Roman signal station on the east edge of the headland and from there to the excavated medieval aisled hall near the outer bailey curtain wall. The grass was cut short in and around both these sites and across the whole of the inner bailey. At the south end of the curtain wall, the grass is not mown to protect the diversity of plant species growing here.

The Castle Dykes escarpment is covered with dense scrub and bushes though the vegetation is cut back alongside the paths which traverse the slope. The scrub gives way to mown grass at the base of the main escarpment which continues over the counterscarp bank of the Castle Dykes and down the lower slopes to the town. The area of the Holmes between the castle barbican and the Marine Drive is maintained as a public amenity with surfaced paths and close mown grass though further north, the vegetation changes to bushes and an undergrowth of scrub as the side of the headland become steeper and strewn with boulders. A detailed report on the botany within the castle boundary is contained in a survey prepared for English Heritage (Fitzgerald 1995).

The castle is open to the public during normal opening hours and is occasionally used for events such as historical re-enactments and displays. There is no restriction over public access to the Castle Holmes and Castle Dykes apart from the South Steel Battery where entry is barred for safety reasons. The amenity value of these two areas is increased by the provision of a playground in the Castle Dykes and of a miniature golf course at the foot of the Castle Holmes bordering the Marine Drive.

Figure 3. The castle headland showing contours at 1m intervals

PREVIOUS ARCHAEOLOGICAL RESEARCH

The earliest recorded discovery of archaeological remains at the castle was in 1746 when a number of buried drains or channels were uncovered feeding the cistern next to the chapel of Our Lady on the east cliff (Schofield 1787, 105). In 1783 ploughing revealed a "pavement of neat square bricks" and a fireplace of gritstone near to the western wall of the inner bailey (Cole 1825). Other chance discoveries were made in the early 19th century at the site of the chapel of Our Lady including a fragment of a medieval cross shaft which was unearthed in 1817 (Baker 1882, 123) and part of a human skeleton which fell out of the cliff edge behind the site of the chapel in 1824 (Cole 1825).

The first recorded archaeological excavations took place in 1888 when levelling operations by the War Office brought to light the foundations of a medieval hall in the outer bailey which was subsequently "most carefully cleared of rubbish" under the guidance of an officer in the Royal Engineers, Col. Peck (Hope 1889). The building proved to be an aisled hall with a detached kitchen block on the north-east side and was probably built during the early 13th century although unstratified material of 12th century date also came from the site (Clark 1997, 247). Excavations under the direction of Tony Pacitto resumed on the site in 1973 (Rutter 1973, 43) continuing at intervals in the late 1970s and early 1980s in advance of consolidation of the remains for display.

In January 1907, Scarborough Corporation began clearance work in the inner bailey presumably to prepare the remains for public display following their lease of the castle in 1905 from the Ministry of Woods. The work involved clearing the basement of the keep and its forebuilding of debris, and also exposing the plinth at the base of the keep. The inner bailey well was emptied of rubbish to a depth of 178 feet and "much accumulated soil" was cleared from the bailey itself and a wide range of artefacts was collected (Yorkshire Archaeological Society 1907, 15). Further details of the work are depicted on a manuscript plan dated January 25th 1907 and included reducing the height of the bank against the south-west wall of the inner bailey by 10 feet (3m) and the east wall by 7 feet (2.1m) (Scarborough Borough Council 1907a). There is no record of any structures coming to light during the clearance work though the position of several walls were already known as these are labelled as "old foundations" on the map and were probably traced from the Ordnance Survey map of 1892 (Ordnance Survey 1892a). These might be the remains mentioned above which were unearthed in the 18th century.

The most extensive excavation to date at the castle took place between 1921 and 1925 on the site of the medieval chapel of Our Lady near to the cliff edge in the outer bailey. The excavation was under the direction of the noted archaeologist F.G. Simpson, a specialist on the Roman period, who had apparently been drawn to excavate the site after noticing the outline of a ditch with rounded corners in low sunlight (Simpson 1997). The ditch must have been fairly clear on the ground because it is shown on the 1892 Ordnance Survey map mentioned above. The earthwork proved to be the outer ditch of a Roman signal station, one of the chain built along the coast of north-east Yorkshire in the late 4th century AD. The remains consisted of a central tower surrounded by a curtain wall with equal sides and rounded corners beyond which was

a ditch separated by a 9.1m wide berm from the curtain wall. The plan was not complete because the curtain wall and ditch on the east side had fallen victim to coastal erosion.

Underlying the Roman signal station, the excavators found 42 pits of late Bronze Age/early Iron Age date, some of which contained pottery with continental, Hallstatt affinities. No structural remains were found making it difficult to establish the precise nature of the occupation, though it was concluded that the site was a temporary camp only occupied for a couple of years during the summer months. This interpretation stemmed from the discovery of layers of rain-washed clay in several of the pits suggesting the site had been abandoned and the pits left open to the elements over succesive winters. The excavations revealed that site of the signal station was occupied by a small burial ground and chapel around 1000 AD which was rebuilt twice in the medieval period and extended with the addition of a range of domestic buildings on its north side. Over 400 inhumations were removed from the adjacent graveyard during the course of the excavation (Rowntree 1931, 148) but burials presumably ceased at the site after the middle of the 16th century when the chapel seems to have been converted to domestic use and a horse-mill constructed in the former chancel. These important excavations have never been fully published, although reports on the prehistoric and Roman pottery have appeared (Smith 1927; Hull 1932) along with an analysis of a series of human skulls from the excavation (Little 1943-46).

Subsequent excavations at the castle have not approached those of 1921-25 either in extent or in the importance of their findings so little new light has been shed on the pre-medieval occupation of the headland. A further area of prehistoric remains were revealed in 1953 by J. Rutter of Scarborough Museum who excavated trenches between 15m and 60m to the south of the Roman signal station. Four prehistoric pits were revealed but, apart from two areas of cobbles, no structural remains were found (Rutter 1959), leaving the nature and extent of the occupation still unresolved. In 1965, Stead put a new perspective on the prehistoric aspects of the headland by suggesting that Scarborough was the “Hill-fort Bay” mentioned by the Roman geographer, Ptolemy, taking its name from a fort on the castle hill (Stead 1965, 71,79). If this was the case then the excavated remains are probably only a part of a much larger settlement and the unpublished discovery of a Bronze Age sword in 1984 during excavations on the medieval aisled hall possibly indicates more extensive occupation.

No records have been traced of two other small excavations in the outer bailey which might have shed further light on the extent of prehistoric occupation. In September 1964, a watching brief was apparently undertaken by Scarborough Museum during the construction of a Royal Observer Corps protected shelter at the north end of the headland (York University 1999, 153) and about May 1966 the erection of an ‘exercise post’ to the north-east of the Roman signal station for the coastguard was preceded by the excavation of a trial hole (AA 16228/3/106, 108-9).

No new light has been shed on the Roman occupation of the headland following on from the 1921-25 excavations though the possibility that there may have been civilian settlement adjacent to the Yorkshire coast signal stations has been put forward (Faull 1974, 20). Less credible is the argument for the existence of a second signal station at

Scarborough immediately to the north of the excavated site, based on an interpretation of a published aerial photograph (Selkirk 1987, 29; Frere and St Joseph 1983, 82). The idea seems to rest on an erroneous interpretation of mowing patterns and the presence of a spoil dump from earlier this century.

The significance of the pre-conquest chapel and burial ground on the site of the Roman signal station is the most enigmatic aspect of Simpson's excavation since there is no contemporary occupation from the vicinity with which to associate it. Its position might be explained from it having had a secondary function as a beacon (Rowntree 1931, 52) or a suspicion that it might be earlier than the 11th century is probably behind the statement in the latest castle guide book that the headland was the site of a 7th or 8th century monastery (Port 1989, 13-14).

Apart from work on the medieval aisled hall in the outer bailey referred to above, other excavations over the last thirty years have focussed around the keep and entrance. In September 1977, T. Pacitto undertook two trial excavations on the north extremity of the inner bailey at the north and south ends of the 18th-century Master Gunner's House; that to the south revealed the footings of 18th- and 19th-century buildings and that to the north backfill deposits resting on natural at a depth of 3.2m from the surface (Pacitto nd.). In the late 1970s an unpublished excavation by T. Pacitto on the north side of the barbican in advance of the construction of a ticket kiosk exposed the stone foundations of a rectangular medieval tower. A watching brief took place on this same site in 1997 (MAP Archaeological Consultancy Limited 1997). Also in 1997, a trench was excavated in the basement of the keep revealing deposits of 17th century and later date (Northern Archaeological Associates 1998) and a watching brief took place in the Castle Dykes during the refurbishment of a childrens' playground finding only recent backfill (Ferguson 1997).

In recent years, excavation evidence from the castle has been supplemented by both earthwork and geophysical surveys. An earthwork survey of the Roman signal station was undertaken in 1985 by the RCHME (RCHME 1985). This concentrated on a description of the excavated and consolidated remains, but highlighted the fact that the unexcavated north-west corner of the ditch survived as an earthwork and suggested that shallow depressions beyond the excavated area might represent subsidence of prehistoric pits.

An earthwork survey of the outer bailey at a scale of 1:500 was undertaken between 1988 and 1990; this was accompanied by a descriptive and analytical report (Atkins 1993). The survey indicated a series of terraces over the south part of the bailey marking the possible site of medieval buildings and suggested that two possible lynchets and a bank represented evidence for agriculture over the rest of the area. Earthworks indicative of 19th- and 20th-century military activity were found to predominate, the largest of these being a 'D'-shaped area covering much of the north of the bailey and interpreted as a military parade ground. More recently in 1998, magnetic and resistivity surveys in the inner bailey highlighted the possible site of a building towards the centre of the area with others around the periphery, though none of the structures were clearly defined (Ancient Monument Laboratory 1998).

SITE HISTORY

A detailed account of the castle with references to the primary sources can be found in the conservation and management plan recently prepared by York University for English Heritage (York University 1999). This obviates the need for a detailed historical account in the present report.

The foundation of the castle and town

The headland was part of the territory of the Royal manor of Falsgrave when the lord of Holderness, William le Gros, appropriated the site around the year 1135 and constructed the first castle. His fortification is described by the chronicler William of Newburgh, writing towards the end of the 12th century, and seems to have consisted of a tower overlooking the entrance and a wall defending the perimeter of the headland (Stevenson 1856, 445-6). Soon after the accession of Henry II in 1154, William le Gros was forced to surrender the castle to the king. William of Newburgh states that by this date the tower had fallen into decay and that King Henry decided to replace William's fortification with " a large and magnificent castle." The pipe rolls for the early years of Henry's reign record an expenditure of over £650 between 1157 and 1169, most of which went on the construction of the keep (Clark 1997, 241). The rest of the outlay probably went into preparing the inner bailey defences, of which the east wall is the only surviving element, and the cutting of a ditch at the foot of the Castle Dykes escarpment. This is presumably the "great ditch at Scarborough" referred to as being dug in the winter of 1167 (Clay 1936, no. 244).

King Henry's involvement at Scarborough did not cease with the construction of the castle. An enquiry held in 1240 stated that he also established the two 'boroughs' which make up the medieval town of Scarborough (Hector 1979, 491-2). This in itself would have been a major undertaking as the area occupied by the medieval town partly occupies a steep, south facing slope which had to be terraced. The earliest part of the town to be established was the Old Borough (Figure 4) which was laid out immediately to the west of the castle hill (Pearson 1995). It was protected by the castle on the east and by precipitous sea cliffs on the north. A wall and ditch defended the west side facing inland and possibly there was a wall on the south side on top of the shallow cliff which overlooks the south bay. There is as yet no evidence that this wall connected with the castle defences (Pearson 1987, 15). The second part of the town, called the New Borough, was added to the west side of the Old Borough and was secured by its own landward facing defences. The King confirmed his support for the town by granting Scarborough a charter of privileges sometime before the year 1163 (Rowntree 1931, 102).

The castle in the 13th and 14th centuries

The next major expenditure on the castle occurred in the reign of King John who is credited with rebuilding the south-west wall of the inner bailey and constructing the present curtain wall with towers along the summit of the Castle Dykes, possibly replacing fortifications constructed by William le Gros or Henry II on this line. In addition to these fortifications, the reign of King John also witnessed the construction of a hall in the inner bailey and two further halls in the outer bailey namely Mosdale

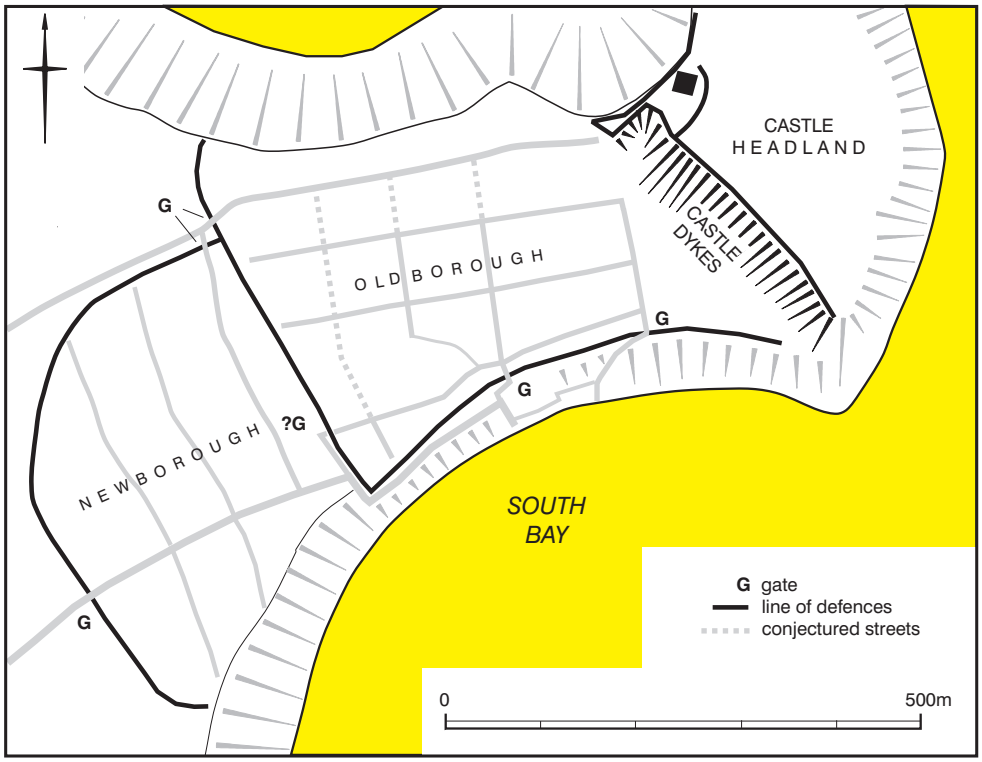

Figure 4. The castle in relation to the medieval town

Hall, which abutts the curtain wall, and the aisled hall 30m to the north excavated in 1888 (Clark 1997, 245-47). Reference to the construction of a ditch or bank during this period may signify further work to fortify the Castle Dykes (York University 1999, section 1.5). By the end of the reign of King John the total amount spent on the castle was £2,973.18.7 making it the third most expensive royal castle after Dover and the Tower of London (Pounds 1990, 77).

The main building work during the remainder of the 13th century and the first half of the 14th century involved the construction of the barbican and the fortification of the causeway leading from it into the inner bailey. At the point the causeway spanned the ravine a gate and drawbridges were constructed, work on these beginning in 1243. The barbican is harder to date although it is thought to have acquired its present plan by 1350 (Clark 1997, 242-3). In the inner bailey, the hall constructed during the reign of King John was in a poor state of repair by 1260 (Brown 1892, 72-3). It was probably demolished around this time and replaced by a range of service buildings along the south-west and west walls of the inner bailey (York University 1999, 3.3).

Other than building work and repairs to the fabric, the documents are largely silent about activities going on at the castle during this period. It is reasonable to assume that areas, most likely in the outer bailey, would have been set aside for cultivation and the management of stock though as there is no information about the size of the garrison through time it is difficult to assess what supplies would have been needed. A mill house and granary mentioned in 1260 (Brown 1892, 72) and ten quernstones "valueless through age" mentioned in a survey of 1393 (York University 1999, section 1.8) might be evidence for cultivation of the headland were it not for the fact that the garrison are also known to have brought in supplies from outside. For example in 1267, the constable of the castle paid a London merchant for 120 quarters of wheat

(York University 1999, section 1.7) and sometimes the garrison fell to looting their supplies from the neighbourhood (Rowntree 1931, 104). Parts of the outer bailey may have been given over to martial pursuits as in 1275 Edward I is supposed to have held a tournament at Scarborough (Port 1989, 4). It is also likely that there would have been quarries on the headland to supply the stone needed for repairs to the castle. Outside the castle walls, buildings constructed along modern day Castlegate started to encroach on the lower slope of the Castle Dykes (Jeayes 1914, 18e, 36d) and in 1275 the 'moat and rear-mound' of the castle, presumably the Castle Dykes, were used for drying nets (Brown 1892, 164).

The castle from the beginning of the 15th century to 1642

The castle suffered a steady decline during the 15th and 16th centuries as successive monarchs struggled to find the funds to maintain the fabric. The strategic importance of the castle was brought home to King Henry VIII in 1536 when the garrison was besieged by a rebel force during the Pilgrimage of Grace and although they did not capture the castle, Henry was sufficiently concerned to order a survey to be made into it's state of repair (Rowntree 1931, 159-164).

The survey, which was made in 1538, is almost exactly contemporary with the visit to Scarborough of the antiquary John Leland (Woodward 1985, 16). Also from around this same date is a coloured 'birds-eye' view of Scarborough which is the earliest representation of the town to have survived (Port 1989, 17). Together these three sources give a valuable 'snapshot' of the condition and appearance of the castle at this time. Leland mentions seeing a chapel in the outer bailey with "old walls of houses of office beside it", presumably a reference to the chapel of Our Lady near the edge of the cliff. This is shown on the view in a somewhat stylised fashion with a nave and tower and the 1538 survey mentions that it was roofed with lead and therefore probably still in use. The same document mentions a well near the chapel and one is shown on the view, but neither Leland nor the 1538 survey mention any of the other features depicted in the outer bailey. The view shows a rectangular pond to the north of the chapel and a bedstock cannon towards the south-east point of the headland. The 1538 survey noted there were several pieces of ordnance stored in the basement of the keep but does not mention any positioned in the outer bailey. The view also shows a curious wooden structure to one side of the cannon which has been interpreted as a probable archery target (Binns 1983, 14).

The castle continued to decline throughout the following century as its strategic importance reduced. The last recorded garrison before the English Civil War is mentioned in 1602 (Binns 1996, 19-20) and a pest house was placed in the Castle Holmes during an outbreak of the plague in 1626 (Cole 1829, 29). However the outbreak of the civil war in 1642 propelled the castle with its command of a strategically important port onto the national stage.

The First and Second Civil Wars 1642-48

At the outbreak of civil war in the late summer of 1642 Parliament dispatched Sir Hugh Cholmley of Whitby to take control of the town and castle. However in March 1643 he changed his allegiance and declared for the King and shortly afterwards began to increase the fortifications of both the town and castle (Binns 1996, 114-5). At

the castle this involved the construction of the South Steel Battery on a natural flat-topped eminence outside the curtain wall at the south-east end of the Castle Dykes. This position offered control over the harbour whilst a second battery on high ground immediately outside the barbican commanded the main approach to the castle. This became known as Bushell's Battery after its commanding officer, Captain Browne Bushell. In the event, Cholmley had nearly two years to perfect his defences before the Parliamentary attack came, though the two batteries are the only works which are documented at the castle. The town defences held for three weeks before being over-run by Parliamentary forces on February 18th 1645 who then proceeded to lay siege to the castle. In the bitter fighting which ensued both batteries were captured but the castle itself did not fall until July when the garrison were reduced by illness and starvation, the barbican having been reduced to rubble and the keep partly destroyed (Binns 1996, 131-162).

Despite these damages, when hostilities between King and Parliament resumed in 1648 the castle underwent a second siege after the Parliamentarian governor, Colonel Matthew Boynton, declared for the King. The reaction of Parliament was swift leaving Boynton little time to prepare for an attack. On July 30th, three days after his change of allegiance, a Parliamentary force appeared outside the town, though it was not until September that they were strong enough to carry the town and besiege the castle (Binns 1996, 203-7). Details of the second siege are not plentiful, but it seems to have been a desultory affair with Boynton eventually surrendering in December.

Mid 17th century to mid 18th century

With the fall of the castle, Parliament contemplated demolishing the fortress, but the plan was revoked in 1651 and instead a permanent garrison was maintained at Scarborough to counter threats of a royalist landing from the continent (Binns 1996, 220). As the keep shows evidence of demolition, the suggestion has been made that some work had already started before it was decided to spare the castle (Thompson 1987, 155). The permanent garrison was maintained until 1678 after which the local militia were engaged to hold the castle in the event of an invasion. In 1716 the Duke of Marlborough ordered a survey of Scarborough castle to be made by his chief military engineer Captain Phillips as part of a review of northern fortresses following the Jacobite rising of 1715. His survey is the earliest detailed plan of the castle and survives as a copy made in 1742 (Works 31/1138). It shows that a complex of buildings had developed immediately to the north of the inner bailey, including a 'gunner's house' and further buildings in the inner bailey itself. The medieval Mosdale Hall against the curtain wall in the outer bailey was used as a magazine.

With the outbreak of the Jacobite rebellion in 1745 measures were swiftly implemented to defend the town and castle which was thought to be a likely destination for the Scottish rebels (York University 1999, section 1.12). Some of the measures taken are depicted on a plan of Scarborough prepared in the aftermath of the rebellion (Vincent 1747). A total of 99 guns were positioned in new batteries around the perimeter of the town whilst at the castle the only battery was that already in existence at South Steel overlooking the harbour, where eight guns were deployed. The ditch at the bottom of the Castle Dykes took on the role of a 'covered way' communicating between the South Steel Battery and the castle barbican, though the townsfolk had grown accustomed to using the dykes for grazing, as depicted on the

earliest plan of the town (Cossins 1725) and for a rope walk, shown on a broadly contemporary engraved view (Settrington 1735).

Other plans add more detail about the castle during this period. For example the fact that Castle Dykes were to be palisaded is contained on a plan probably prepared in 1745 in advance of the anticipated Jacobite attack (Works 31/1137), whilst a plan of 1746 labels the former magazine in Mosdale Hall as the new barracks (Works 31/1139), an elevation and section of which also survive from this same year (Works 31/1140 and 1141). The new barracks was a three-storey brick building capable of housing 120 men and the construction of this, along with the erection of a storehouse and magazine at the South Steel Battery and the provision of a new water cistern in the outer bailey next to the medieval chapel, underline the value placed on the castle in the aftermath of the 1745 rising (York University, section 1.12). It is also possible that the stone wall flanking the steps from the sally port down to the South Steel battery dates to this period, although a Civil War date has also been proposed (Binns 1996, 114).

Mid 18th century to the end of the 19th century

Following the building work at the castle in the aftermath of the Jacobite rebellion, the remainder of the 18th century witnessed little new work and it is uncertain if the numbers forming the permanent garrison were ever as large as the 120 that could be accommodated in the new barracks. At the end of the eighteenth century the castle was occupied by a small detachment of invalid artillery and new batteries were built in the Castle Holmes overlooking the North Bay in 1794 and at the south point of the outer bailey in 1796 (Hinderwell 1798, 81), as the castle was put in a state of readiness at the time of the French and Napoleonic wars.

During the 19th century, documentary and cartographic evidence for the castle becomes more plentiful and it is possible to reconstruct in some detail the use to which the various parts of the castle were put. A large store house was built against the east wall of the inner bailey in 1811 (York University 1999, section 3.3) and depicted in an engraving of 1832 (Hinderwell 1832, 39). Drawings survive from 1821 of the complex of buildings on the north of the bailey. These centered on the Master Gunners House, with a barracks building to its south and a magazine and shifting house, for the airing of ammunition, to its north. There was also a range of store houses between the Master Gunner's house and the keep, (PRO WO55/2490). Speculation has arisen that the magazine shown in 1821 might be a medieval building on account of its stone construction, round-headed doorway and window, and stone-vaulted interior (York University 1999, section 2.3). Further north along the cliff a battery of three guns was added to the defence of the castle in 1819 (Hinderwell 1832, 116) whilst later on in the century a different battery is shown further north along the cliff and called the North Battery (Anon 1879). Another focus of military buildings in the 19th century abutted the curtain wall either side of the 18th century barracks block. Their individual functions are depicted on a manuscript plan of 1879 and included store houses, latrines and a cook house (PRO MPH 364).

The military use of the castle must have changed following the construction of an artillery barracks on the north side of the town in 1862. The barracks on the castle hill were last occupied by regular troops in 1878 (Mould 1978, 14) though the castle grounds continued in use for training and exercises. The 1892 Ordnance Survey maps

show two rifle ranges, one in the outer bailey and the other in the Castle Holmes (Ordnance Survey 1892a and b). A building was erected for the naval reserve in 1893 at the south-east point of the headland and they too had several large calibre guns for training purposes (Mintoft 1907, 40). The admiralty also established a coastguard station on the site of the Roman signal station around the year 1885 (Collingwood 1925, 8), which in 1892 comprised several small buildings, a flagstaff and a semaphore (Ordnance Survey 1892a).

The documentation also allows glimpses of non-military aspects of the castle during the 19th century. For example, an 1849 plan shows three plots in the castle grounds cultivated by the Master Gunner. The first was in the inner bailey, the second around the magazine and shifting house north of the Master Gunner's house and the third against the curtain wall south-east of the barracks block (PRO WO44/565). Similarly in August 1890 a kitchen garden on the north side of the headland was reportedly carried away when part of the cliff edge fell (Heywood *c*1891, 21). The outer bailey was also leased for grazing in 1851 (PRO MPH 1026/1).

Apart from times of national crisis, the castle grounds were openly accessible to the town such that inhabitants and visitors were able to come and go more or less as they pleased. In 1803 the noted traveller William Hutton was able to walk around the castle unimpeded apart from when he strayed too close to one of the gun batteries (Hutton 1804, 244-57) and in 1850 entertainment for visitors included watching the troops parade on the headland (Fenteman 1984, 9). Scarborough Cricket Club, founded in 1849, played its matches in the castle grounds before moving to a site on the edge of the town in North Marine Road in 1863 (Rowntree 1931, 290).

The 20th century

The lease of the castle in 1905 by Scarborough Council did not bring an end to military use of the headland. A plan of the castle survives from around 1907 marking land to be retained by the War Department - the inner bailey with the buildings to its north and a large strip parallel with the curtain wall either side of the 18th century barracks building. (Scarborough Borough Council 1907b). Around 1904 a bungalow housing a hydrophone (or PLU55) was built immediately to the north of the coastguard station mentioned above, but was destroyed along with the coastguard station in the German naval bombardment on December 16th 1914 (Mould 1978, 9). The bungalow was subsequently rebuilt on the same site and the coastguard station was moved further to the south to allow for the excavation and permanent display of the Roman and medieval remains underlying its original site. During the Second World War there was an R.A.F. direction finding station on the headland whose component buildings appear on an untitled 1947 plan (Ministry Of Works 1947). Other organisations with buildings in the outer bailey during the 20th century have included the Royal Observer Corps, the St John's Ambulance and the Y.M.C.A. (York University 1999, section 1.14).

The open space of the outer bailey has also lent itself to a variety of non-military uses during this century. It was the site of an historical pageant in 1912 for which a large stand was erected (Rowntree 1931, 309-11) and in the 1920s work started to construct a football ground across the centre of the headland. The outer bailey also made a useful temporary camp site as is evident on an aerial photograph (Figure 5) taken

Figure 5. Aerial photograph of the castle from before 1938 (Adshed and Overfield 1938, facing page 80)

before 1938 which shows several clusters of bell tents dotted around the inside of the castle (Adshead and Overfield 1938, facing page 80).

During the early part of the century the Castle Dykes and Castle Holmes were the subject of several landscaping schemes to increase their amenity value as detailed on plans of the time (Scarborough Borough Council 1905 and 1907c). This involved consolidating existing paths as well as creating new ones, and in the Holmes a considerable amount of work must have been undertaken to drain and landscape the slope. Around this same time rubble from clearance work at the castle was dumped in the bottom of the Castle Dykes via a purpose-built barrow run down the side of the slope below the inner bailey (Ferguson 1997, 6). The inner bailey also underwent landscaping at this time resulting in the archaeological discoveries discussed earlier and it is clear from surface evidence (described later) that similar work has also been undertaken in the outer bailey although no documentation of this has been noted.

SURVEY RESULTS

The results of the survey are described within the main divisions of the castle and headland which are the inner bailey, outer bailey, the Castle Dykes and the Castle Holmes.

THE INNER BAILEY (Figure 7)

Medieval defences (A1-A12)

The outer ditch which defines the south–east side of the inner bailey (A1) is a maximum of 8m wide and 4m deep and has a steep 'V'-shaped profile. The west side of the ditch is contiguous with the slope up to the curtain wall on the east side of the inner bailey. Close to the south end of the ditch, the masonry foundations of a bridge support are preserved in the bottom and east side of the ditch (A2) opposite the foundations of a rectangular gatehouse which survive on the outside of the inner bailey curtain wall at this point (York University 1999, section 3.3). Both ends of the ditch are rounded, the northern one being partially revetted with stones to a depth of 0.7m from the surface.

The ditch presumably dates from the earliest fortification of the inner bailey in the 12th century but it is impossible to be certain how closely the present earthwork matches its medieval appearance. The ditch today is largely the result of undocumented clearance and consolidation work which was probably part of the 1907 landscaping in the inner bailey (discussed below). Before this, the 1892 Ordnance Survey map (Ordnance Survey 1892a) shows the ditch as a less sharply defined earthwork and without the rounded terminals of today (Figure 8). A building is shown over the south end of the ditch, described in 1879 as a straw store (PRO MPH 364, 1879) but the north end of the ditch ends at approximately the same position as today.

There is no earthwork evidence to indicate that the ditch extended further north, but it is reasonable to assume that to maximise the security of the inner bailey, it would have extended as far north as the cliff edge. The 1979 excavation on the projected line of the ditch was inconclusive (Pacitto nd.) and the earliest available maps of the castle from the middle of the 18th century suggest that the ditch did not extend much further north than today, indicating that if it did continue, it must have been filled in before the mid 18th century.

The inner bailey partly occupies a flat-topped mound which rises up to 4.0m above adjacent parts of the headland. The keep stands off the mound and is at the same ground level as the outer bailey to its north. The east side of the mound forms a prominent 4.0m high slope immediately on the inside of the inner bailey ditch (A3) and is surmounted by a curtain wall. The slope continues 20m further north than the ditch, terminating at a revetment wall marking the south side of a vanished gate through to the outer bailey at A4 (York University 1999, section 3.3). The current north-west edge of the mound curves around the east and south sides of the keep (A5) and is up to 2.6m high and then turns southwards reducing to a 2.0m high slope (A6) overlooking the causeway leading out to the barbican. The slope below this (A7) on the south side of the entrance causeway is 5m high but below the base of the mound

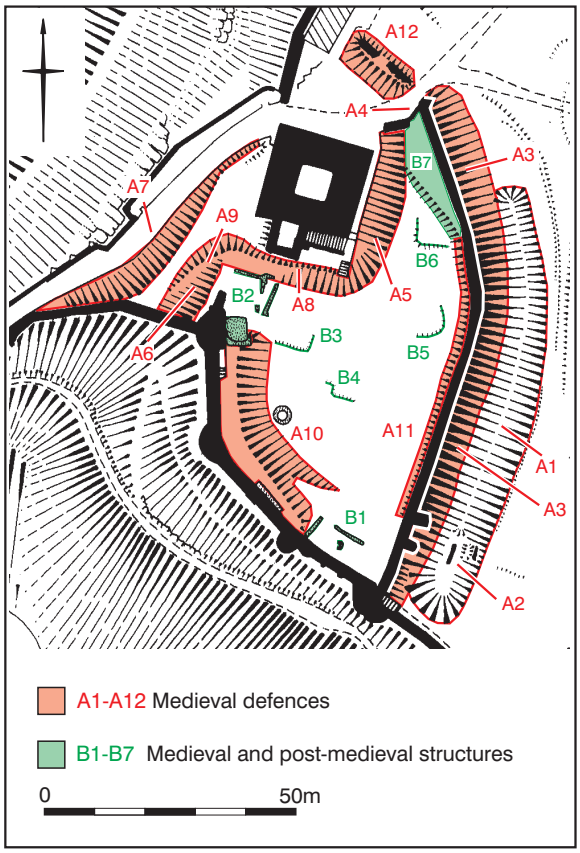

Figure 7. Interpretative plan of the inner bailey at 1:1500 scale showing features described in the text

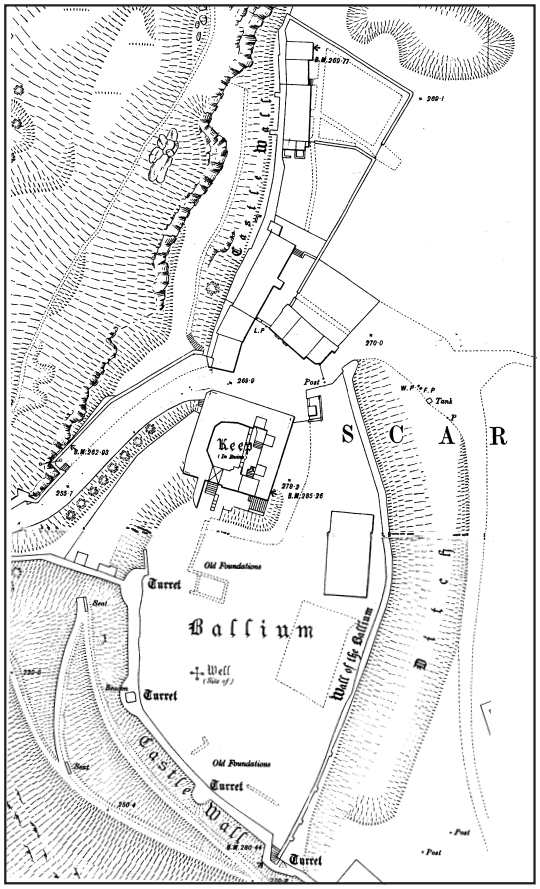

Figure 8. 1892 Ordnance survey map reduced to 1:1500 scale showing inner bailey and military compounds to the north (Ordnance survey 1892a and b)

and probably represents the cutting back of the side of the natural hillside to accommodate the access route. The inner bailey curtain wall looking out over the Castle Dykes masks the south-west side of the mound. The overall shape of the mound strongly suggests the keep is a later feature which has been cut into its north side (Figure 9) raising the possibility that the mound could be a remnant of the first castle constructed by William le Gros around 1135. This possibility is examined further in the discussion section of this report.

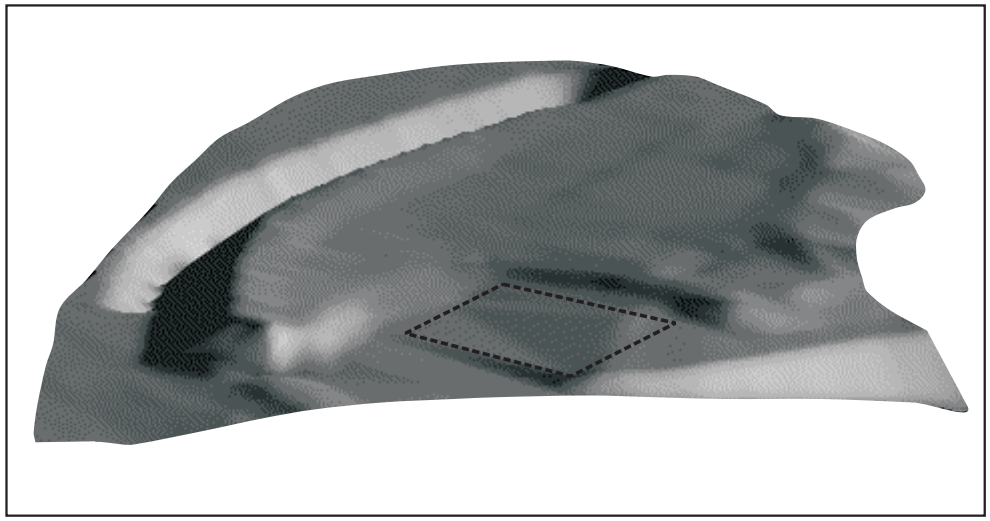

Figure 9. Digital terrain model of the inner bailey mound viewed from the north. Position of the keep shown with a dashed line

The sides of the mound were extensively remodelled earlier this century. The east side rises in an uninterrupted slope from the bottom of inner bailey ditch and such a smooth profile must have been achieved by cutting back the slope. This probably occurred around the time of the 1907 landscaping of the inner bailey. The edge of the mound on the east side of the keep is largely the result of clearance work in 1907 to re-expose the plinth on this side of the keep (Yorkshire Archaeological Society 1907, 15). The resulting slope was given a batter as is documented on a 1907 plan (Scarborough Borough Council 1907a) and a path was inserted about half way down, remaining in use until after the Second World War (Ministry of Works 1947). There is now no trace of the path indicating the slope has been further remodelled during the last fifty years. The continuation of the mound edge around the south side of the keep and then southwards on to the curtain wall has also been graded and smoothed, although here the line of the 1907 path is still visible. On the south side of the keep the line of the path is marked by a distinct break of slope (A8), widening to a ramp, 1m across, after turning south to descend the west side of the mound (A9).

A flat-topped bank, 0.9m high, runs along the inside face of the curtain wall on the south-west side of the bailey (A10). Similarly, a much less prominent bank 0.2m high is on the inside of the east wall (A11). Both features were extensively remodelled in 1907, since the plan prepared at that time (Scarborough Borough Council 1907a) records that the bank behind the south-west wall was to be reduced in height by 10 feet (3m) and that behind the east wall by 7 feet (2.1m). The fact that the bank at the rear of the south-west wall is now 5m wider than as shown on the 1907 plan suggests material taken from the top was redeposited on the side away from the curtain wall. Although both features butt up to the perimeter wall of the inner bailey and could therefore be the remains of a medieval rampart, they are unlikely to be this early. A

medieval hall and service buildings are known to have butted up against the inside of the south-west wall which would have been impossible if the bank was then in existence (York University 1999. section 3.3). This bank therefore probably represents the late-medieval or post-medieval build-up of material, as probably also does the much reduced bank at the rear of the east wall.

The lower part of the inner bailey which contains the keep is secured on the north-east by a wall surmounting a bank up to 1.0m high (A12). The herringbone foundations of the wall are exposed indicating that the height of the bank must have been reduced by at least 0.5m to expose the foundations. Indeed, a range of buildings stood up against the inside of the wall for several centuries until they were demolished after the First World War raising the suspicion that, at the very least, the inner face of the rampart must be a recent reconstruction.

Medieval and post-medieval buildings (B1-B7)

The positions of two medieval buildings are indicated by the exposed foundations of a probable hall at the south angle of the inner bailey (B1) and by a service range on the south side of the keep (B2). In addition to these, a slight rectilinear scarp 0.1m high on the south side of the keep (B3) marks the position of what is probably a further element of the service range. Foundations in this position were exposed prior to 1892 and are marked on the 1892 Ordnance survey map (Figure 8) as "Old Foundations".

In the approximate centre of the bailey is a further slight rectilinear scarp 0.1m high (B4) which is in the same area as a building has been detected by geophysical survey (Ancient Monuments Laboratory 1998). It is possible the scarp may be surface evidence for one of the range of buildings shown at right angles to the curtain wall on the 1742 copy of Captain Phillips's 1716 survey of the castle (Works 31/1138) another element of which could explain the "Old Foundations" marked in broadly the same area on a 1907 plan (Scarborough Borough Council 1907a).

The position of two other post-medieval buildings are also indicated by earthworks. At B5 a curving scarp 0.2m high marks the south-east corner of the store building constructed in 1811 (York University 1999, section 3.3) and demolished in 1907 (Scarborough Borough Council 1907a), whilst at B6 a rectilinear scarp 0.1m high defines the south-west corner of a building also probably represented by a series of joist holes in the adjacent stretch of the east wall of the bailey. The building has been suggested as a medieval hall (Port 1989, 8) but it is more likely to be a smaller structure, perhaps a timber framed service building or a stable (York University 1999, section 3.3). Rubble from its demolition may account for the triangular shaped platform against the inside of the east wall of the bailey (B7). This platform is defined by the curtain wall and a retaining wall at right angles on the east and north respectively, but on the south-west the edge is marked by a scarp up to 0.4m high.

THE OUTER BAILEY

Prehistoric occupation

An earlier survey pointed out two terraces on the north of the headland that were possibly the result of prehistoric and medieval cultivation (Atkins 1993). They are not as prominent on the ground as the earlier survey depicts and it was concluded that they are more likely to be natural features. The suggestion that slight hollows in the vicinity of the Roman signal station may represent collapsed prehistoric pits cannot be verified from surface evidence alone (RCHME 1985). This suggestion ignores the wide spectrum of later activity that could well have produced these features.

The Roman signal station (Figure 10; C1-C7)

The present appearance of the signal station is largely the result of the consolidation programme which followed on from the end of the excavation in 1925. The tower and excavated perimeter wall are picked out by turf banks up to1.0m high (C1) and the encircling ditch is dug out to a depth of 2m and width of 6m (C2). The rounded ends of the ditch define the entrance causeway (C3) and further north, the point at which excavation of the ditch ceased (C4). A scarp up to 1.2m high on the north of the signal station probably marks limit of the excavation in this direction (C5).

Immediately on the outside of the ditch are the remnants of a counterscarp bank. On the south and south-west sides of the ditch, this is preserved as a flat-topped bank up to 8m wide and 0.2m high at the south-west increasing to 1.2m on the south (C6). It was stripped of turf in the 1921-25 excavation judging by a published photograph of the work in progress (Rowntree 1931, Fig. 20) but may not have been dug into. There is no surface evidence of the counterscarp along the west side of the ditch but it emerges again at the north-west corner as a curving flat-topped bank 4m wide and 1.0m high (C7). This feature lies outside the area of the excavation.

The observed relationship between the counterscarp bank at C7 and the projected line of the excavated ditch to its south (C4) is that the bank partly overlies the outside edge of the ditch. This suggests the ditch might have been over-dug at the time of the excavation or when it was consolidated for display. An alternative possibility is that the counterscarp bank is a later feature partially constructed over the line of the infilled Roman ditch.

Medieval buildings (Figure 10)

St Mary's Chapel (D1-D5)

The chapel was revealed by excavation in 1921-5 and the fabric was left uncovered (D1). The revealed plan (Rowntree 1931, 147) included a range of domestic buildings extending to the north of the chapel but little of these are visible at the surface (D2). This range partly fell outside the north edge of the excavation which, as was mentioned above, is probably represented by the scarp at C5 consequently the published excavation plan may be partly conjectural. A series of low earthworks, 0.2m high at D3 could mark the positions of some of the walls of the domestic range as they probably survive close to the surface. This is demonstrated by the fact that as late

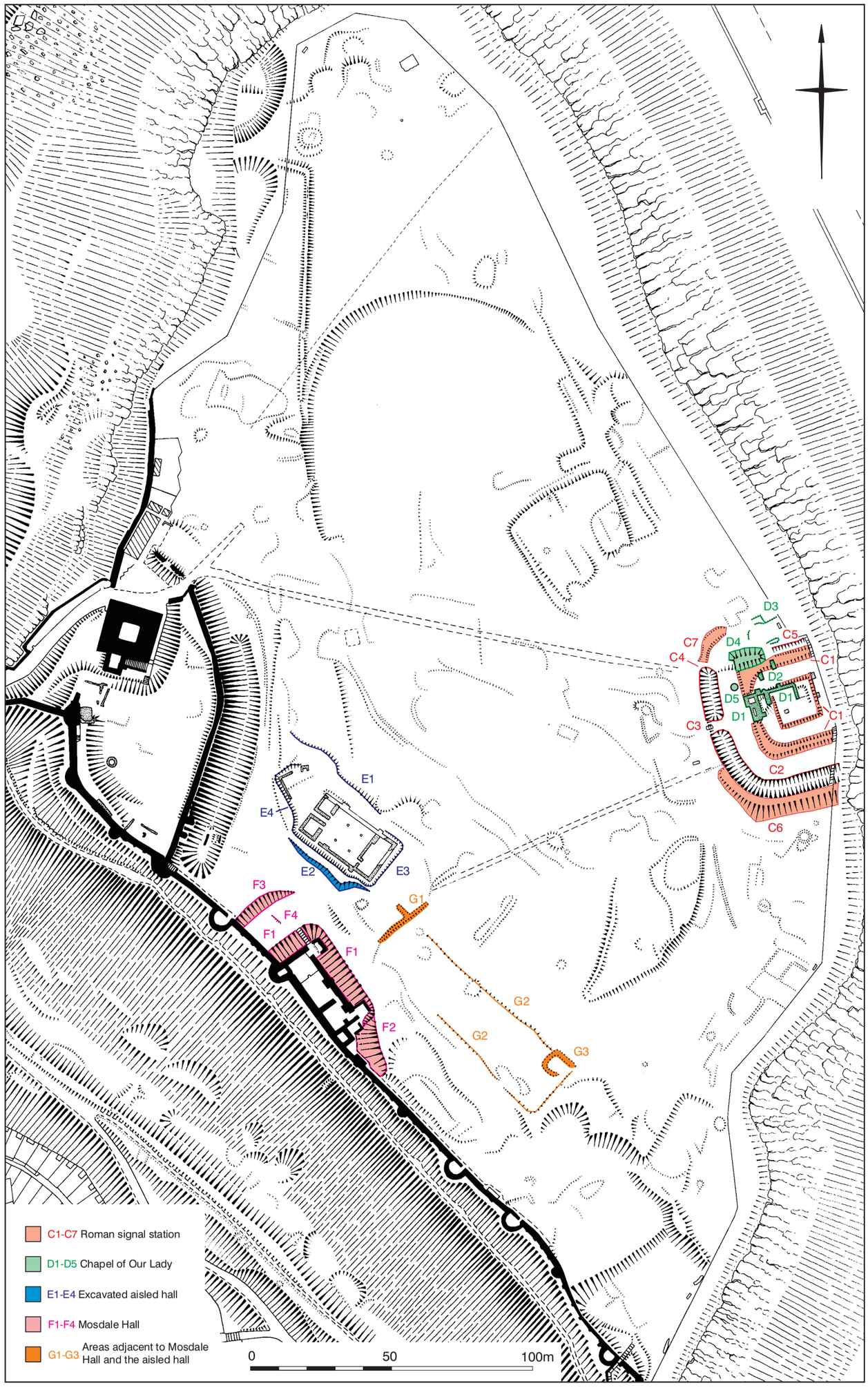

Figure 10. Interpretative plan of the outer bailey at 1:1500 scale showing earthworks associated with Roman and Medieval features described in the text

as 1892 masonry was visible north of the area later excavated (Ordnance Survey 1892b). This feature was not noted during the present survey because, if it still survives, it would be outside the safety fence around the cliff edge.

To the south, the domestic range encompassed a cistern in an underground vaulted chamber. The mound over the vault (D4) is 1.0m high and within is a large reservoir tank believed to have been constructed around 1745 (Rowntree 1931, 147). On the outside of vaulted cistern at D5 is the well of Our Lady. This well replaces one nearer to the cliff edge which was described as a spring "within half a yard of the edge of the rock towards the sea" in 1660 (Wittie 1660. 4-5). This well is shown on the cliff edge as late as 1747 (Vincent 1747) but presumably disappeared through erosion shortly afterwards. The approximate position of the well places it within the Roman signal station suggesting the well might have been constructed as the garrison's water supply.

The excavated aisled hall (E1-E4)

Earthworks adjacent to the aisled hall (first excavated in 1888) suggest it occupied the centre of a man-made platform, the evidence for which is most clearly seen on the north-east side. Here a 1.0m high embankment, 5m from the outside of the aisled hall, marks the edge of the platform (E1) whilst a 0.3m high scarp on the opposite side of the hall may define the south-west side of the same platform (E2), although as this feature rises above the level of the building it is more likely to mark the edge of excavation spoil. The south-east, south-west and north-west sides of the building are fringed by a continuous slope facing into the building. It is 0.2m high at E3 rising to a maximum height of 1.2m at E4 and presumably represents the edge of the excavation. The depth at E4 is probably due to this end of the building being partly terraced into the natural slope.

Mosdale Hall (F1-F4)

Mosdale Hall occupies a terrace set below natural ground level, the edge of which is defined on the north and east sides of the hall by a prominent scarp up to 2.1m high (F1). On the south side the edge of the terrace curves away from the hall cutting across the angle between the hall and the curtain wall (F2) reducing in height 0.5m. There is no evidence of this slope on photographs of the barracks which occupied the site of the hall up until 1914 indicating that the slope is not the original outer edge of the terrace but a modern reconstruction. That the original slope was not as deep is suggested by the fact that a plinth course on the north and east sides of the hall is around 0.7m above the base of the present-day slope.

Beyond the slope on the north side of the hall is a level terrace defined by a back scarp 0.9m high (F3). A range of small buildings belonging to the barracks complex occupied this site in the second half of the 19th century (PRO MPH 364), situated in a walled compound, the north-west side of which ran along the top of F3. However, the terrace could date back much earlier and mark the site of a medieval building. A drawing of the east-facing elevation of the barracks on the site of Mosdale Hall shows blocked up window and door openings on the curtain wall at approximately the same distance north as this terrace, lending some weight to their having been a building on this site in the middle ages. The only surface indication of a building is a slight, 0.1m

high scarp at F4. However, this is more likely to define one of the 19th century buildings on the site than any conjectured medieval structure.

Areas adjacent to the aisled hall and Mosdale Hall (G1-G3)

A straight, south-west to north-east aligned bank with a short right angled spur to the north-west is evident at G1, some 15m to the south of the aisled hall and 20m east of Mosdale Hall. The bank is 0.2m high and could represent the foundations of a medieval building in close proximity to the two known halls. However the 1852 Ordnance Survey map shows that the earthwork exactly follows the north side of a track between the barracks on the site of Mosdale Hall and the cistern next to the site of the Roman signal station. This suggests G1 might represent the side of a building or small enclosure of around the same date as the track which is not shown on any maps before 1852.

Around 30m to the south of the aisled hall, the top of a natural ridge running south-east to north-west has been levelled; the resulting platform (G2), which measures 70m by 20m, is a possible site for activity contemporary with the two adjacent medieval halls. It may have been levelled to make a kitchen garden or to erect a further range of buildings although the only earthworks defining a structure are at the south-east corner of the terrace where a slight rectilinear bank 0.2m high defines three sides of a what could be a square building measuring about 6m across (G3). No building is depicted here on any of the known maps of the castle which possibly indicates it is pre-18th century in date, however this is not conclusive as a temporary structure, perhaps connected with the military use of the headland in the 18th to 20th centuries, could easily have escaped being mapped.

Features 1742-1900 (Figure 11)

Paths and tracks (H1-H16)

The outer bailey preserves fragmentary remains of a network of paths and tracks crossing the headland. The longest traceable route (H1-H6) runs for a distance of just over 100m in a south-easterly direction across the south half of the bailey. It is defined by a discontinuous series of slight scarps no more than 0.1m high on the south-west side of a natural valley about 1.5m deep (H1-H5) and a slight bank 0.1m high further defines the route towards the track's north end (H6). These features may define the route between the north end of the inner bailey and the sallyport mapped on the 1742 copy of Captain Phillips's survey of 1716 (WORKS 31/1138) although in all probability the track is much older than this. The 1852 Ordnance survey map is the next to show tracks across the headland by which date this particular track was no longer in existence. The possibility is discussed below that a cable trench belonging to a Second World War R.A.F. post runs approximately along the line of H1 and H6 which may mean these features are later than the track.

Further north the track is lost because of later disturbance of the area immediately around the north entrance into the inner bailey and to the south, the line of the track is obscured by a more recent dump of material. However a continuation of the track is possibly represented by the slight ramp visible at H7. This is formed by two parallel scarps up to 0.2m high which traverse across the natural slope of the hill in the direction of the sallyport.

A 0.2m high curving bank on the outside of the inner bailey ditch at H8 and an adjacent 0.3m high scarp at H9 facing it define the start of a track from the inner bailey south to Mosdale Hall. At H10 a 0.2m high scarp defines east side of the track around the corner of the excavated hall and further south two scarps at H11 and H12 define a slight terrace across which the track ran. The scarp at H11 is 0.3m high and at H12, 0.1m. The track is depicted on the 1852 Ordnance Survey map where it terminates at the barracks occupying the site of Mosdale Hall and probably dates at least as far back as 1746-8 when the barracks were constructed. The route continued in use until at least 1953 (RAF 1953) having been extended further south-east past the barracks and it is probable that the earthworks defining the route date from the closing years of the tracks use.

On the north part of the headland, two sets of opposed scarps, up to 0.2m high and from 4m to 5m apart, possibly define a route from the centre of the outer bailey to the north tip of the headland (H13-H16). However the two sets of earthworks are not closely linked as they are over 70m apart and the ground between them was the site of a pond up until the turn of the century, so the identification of these as parts of the same feature is somewhat tenuous. No route in this precise direction has been mapped so the date of the two sets of earthworks is uncertain, although from their denuded appearance they are probably not from this century.

Quarries (I1-I9)

The south-east corner of the outer bailey has been extensively quarried and terraced although the site is now landscaped and the original shape of the quarry is not easy to

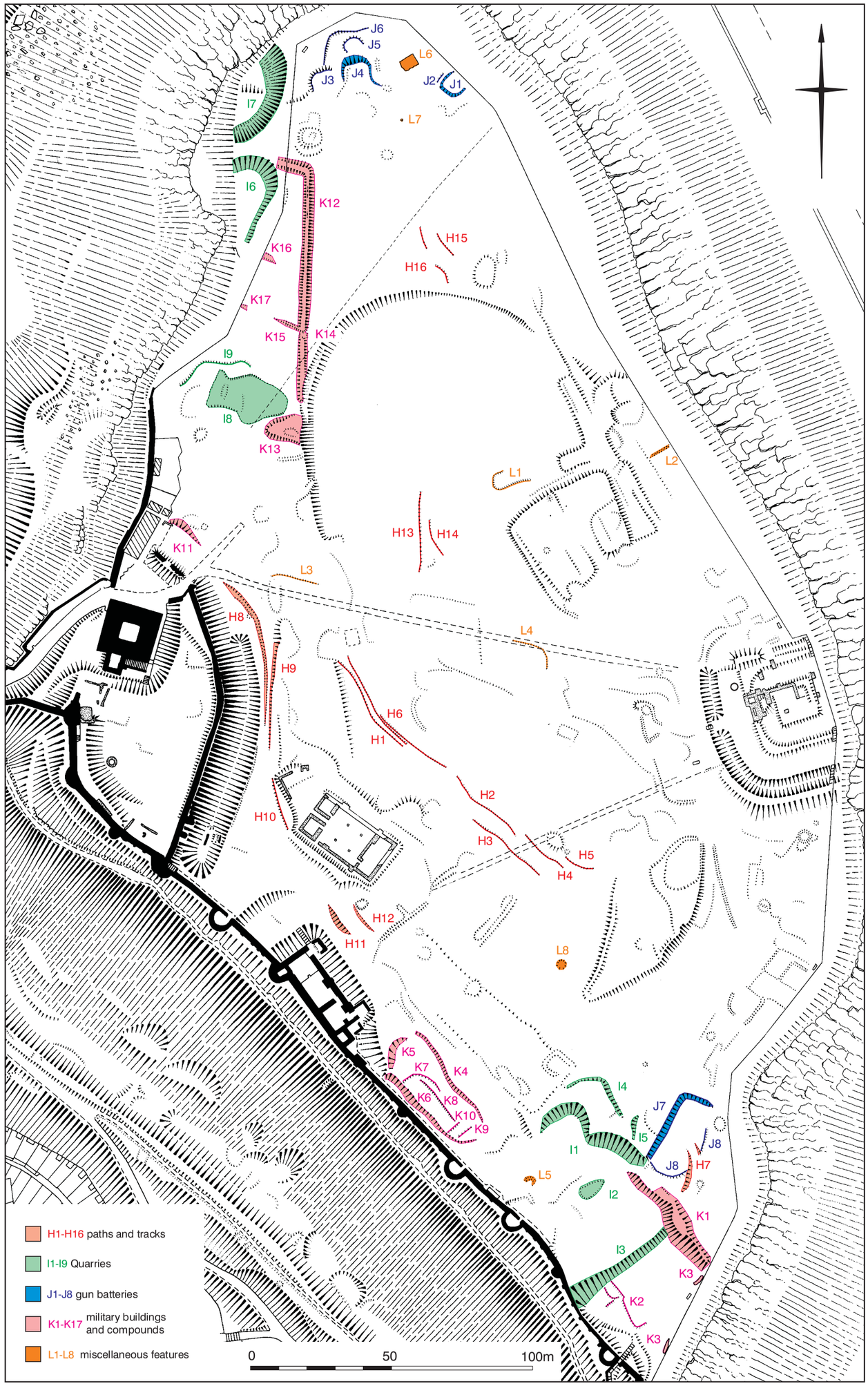

Figure 11. Interpretative plan of the outer bailey at 1:1500 scale showing features 1742-1900 described in the text

define on the ground. However, it is depicted in some detail on the 1892 Ordnance Survey map (1892a) and from this (Figure 12) it is clear that the north-east side of the quarry is represented by the discontinuous curving scarp at I1which is 1.2m high and cut into the slope of the hill. The map shows that it originally curved out as far as the slight 0.2m high mound at I2. The south-east edge of the quarry is defined by a relatively straight, 1.2m high scarp running at right angles to the rear of the curtain wall (I3). Curving scarps to the east of the quarry face at I4 and I5 probably define the edge of upcast from the quarrying. As will be discussed below, the quarry and its environs was transformed by terracing and landscaping during the late 19th and 20th centuries.

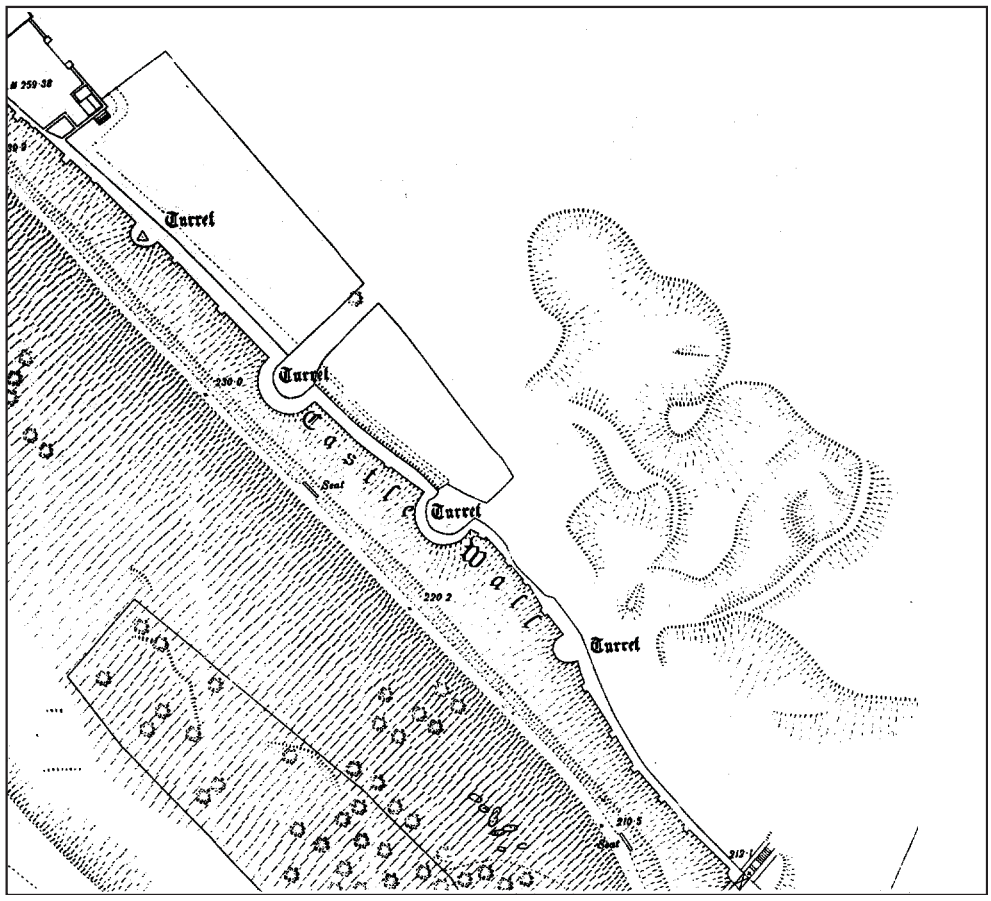

Figure 12. 1892 Ordnance survey map reduced to 1:1000 scale showing military compounds and disused quarries at the south end of the outer bailey (Ordnance survey 1892a)

A map from around the year 1745 marks 'old quarries' in this area (WORKS 31/1137) suggesting quarrying could have began well before the 1740s, perhaps connected with the reconstruction of the south part of the curtain wall after the English Civil War. Further quarrying might have taken place to provide stone for the wall flanking the steps from the sally port down to the South Steel Battery which is believed to date to 1746-48 (York University 1999, section 7.3).

The only other evidence for surface quarries in the outer bailey is on the edge of the north cliff where three possible quarry depressions are visible (I6-I8). The two most northerly are on the edge of the cliff beyond the fence marking the limit of the survey and are defined by steeply sloping sides with an estimated height of around 1.5m (I6 and I7). Without closer inspection, the possibility that these are natural features

caused by slumping of the cliff edge cannot be ruled out. They are depicted on the Ordnance Survey map compiled in 1891 (Ordnance Survey 1892b), the year after a major fall occurred along this part of the cliff edge (Heywood 1891, 62).

The third possible quarry depression is roughly oval shaped and is defined by a discontinuous scarp up to 0.4m high and by an area of coarser vegetation (I8). The remnant of a possible spoil heap up to 0.2m high fringe the west and north-west ides of the depression (I9). The 1892 Ordnance survey map referred to above shows the depression as much more prominent than today indicating that it has been filled and landscaped in the intervening years, though when this occurred is not known exactly. It does not show up clearly on a vertical photograph taken in 1947 (RAF 1947) and may have been filled in by this date. Its proximity to the inner bailey suggests it might have provided stone for construction or repair of the medieval masonry.

Gun batteries (J1-J8)

The 1742 copy of Captain Phillips's survey of 1716 shows two gun positions on the north point of the headland (WORKS 31/1138). The site of one is possibly represented by a square-shaped cut, 0.3m deep (J1) which defines three sides of a level platform measuring 6m by 6m which faces out to sea. There are traces of a bank 0.1m high on the exterior of the north side (J2). There are no records of any structures occupying this site. The gun position does not seem to have been used after 1742 as it is not on any of the later maps of the castle.

At the most northerly point of the outer bailey are the denuded remains of what is probably part of the North Battery (Figure 13). The earthworks consist of three semi-circular mounds between 0.3m and 0.6m high (J3-J5) with an outer curving

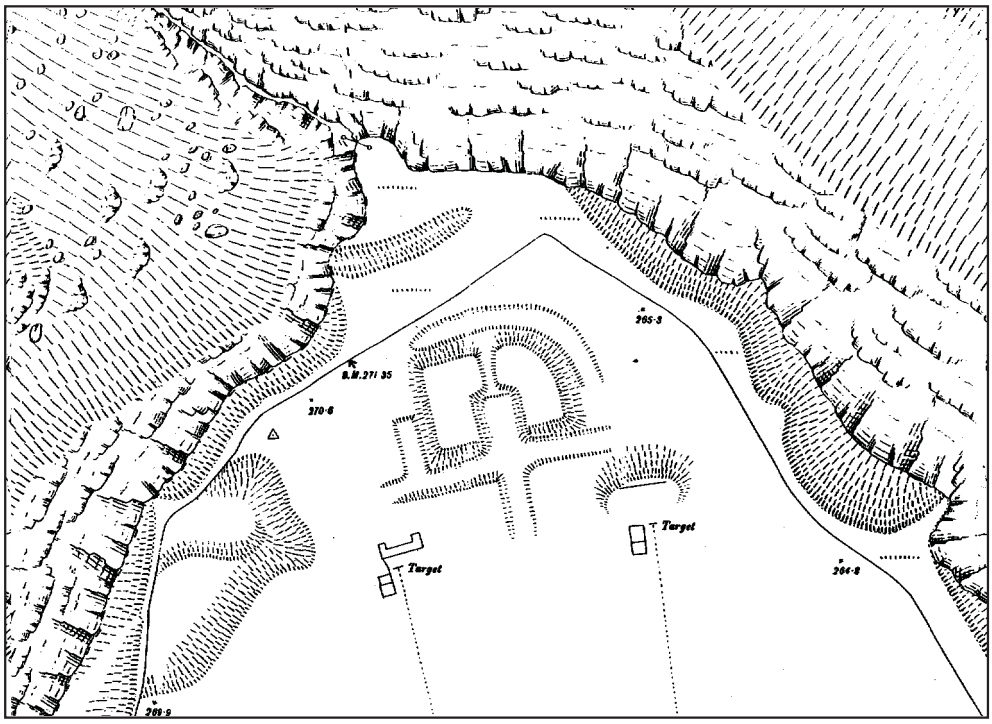

Figure 13. 1892 Ordnance survey map reduced to 1:1000 scale showing the possible remains of the North Battery at the northernmost point of the outer bailey (Ordnance survey 1892b)

scarp 0.3m high defining what may be the edge of a ditch (J6). The earthworks are shown on the 1892 Ordnance survey map (Ordnance Survey 1892b) from which it is clear that the site has been extensively damaged by landscaping during the intervening century. The battery seems to have consisted of two flat-topped, 'L'- shaped mounds divided by a square-sided trench with a crescentic ditch on the north and a further system of trenches to the south; now the earthworks bear little relation to this plan, though more could survive beyond the security fence around the cliff edge. The earthworks are not identified as the North Battery on the 1892 map but are described as such in 1907 ((Mintoft 1907, 41). It has not been noted when the battery was established although the name appears on a number of late 19th century small-scale plans of the town and castle (Anon 1879) but in a position which places it slightly further to the south. This suggests there might have been a succession of gun positions in a short space of time on this part of the cliff. Latterly, the North Battery may have been used by the Naval Reserve as a practice battery, as they also had a rifle range across the headland with targets immediately to the south of the gun position (York University 1999, section 1.3; Ordnance Survey 1892b).

At the south end of the outer bailey a level terrace (J7-J8) facing out to sea possibly marks the site of a battery of three guns established in 1796 and depicted on a map published two years later (Hinderwell 1798, 81; map facing page 1). Two sides of the terrace are defined by a right-angled slope 0.4m high cut into the natural slope (J7). The other two sides are formed by a discontinuous scarp 0.1m high (J8). The battery had been dismantled by 1832 (Hinderwell 1832, 116).

In 1819, a battery of three 18 pounder guns was established on the cliff edge on the north side of the headland (Hinderwell 1832, 116) at a point approximately 90m north of the Mater Gunner's House (Wood 1828). It was called 'Fort Mulgrave' in 1820 (Ainsworth *c*1820, 76) and although no earthworks from the battery survive, the guns may have been situated in a compound defined by the prominent bank at K12 as will be discussed below. The three possible gun platforms shown on the 1852 Ordnance Survey map between 30m and 60m north of the site of the Roman signal station have left no earthwork traces (York University 1999, section 11.3).

Military buildings and compounds (K1-K17)

The naval reserve drill shed

It was mentioned above that earthworks towards the south end of the outer bailey define a quarry of the 18th century or earlier (I1-I3). The redundant quarry was transformed in 1893 with the construction of a range of buildings for the naval reserve which involved levelling and terracing the ground to accommodate buildings on two levels. The division between the two levels is defined by a scarp at (I3) which runs at right angles to the curtain wall and, as was discussed above, marks the south-east edge of the quarry prior to 1893. The north-east side of both the upper and lower terraces is defined by a prominent bank up to 1.4m high (K1), which, north of its junction with I3 is the line of the edge of the quarry (I1). The lower level contains a series of slight rectilinear scarps up to 0.2m high (K2) which define the site of a block of latrines with stores building to its south constructed in 1893 (Scarborough Borough Council 1907b). Two areas of concrete at the cliff edge (K3) may be the remains of platforms for guns used by the naval reserve which had ceased to be used before 1907 (Mintoft

1907, 40). The upper terrace contained a large drill shed aligned north-east to south-west, but no traces of this survive above ground. By 1947 all that was left of the drill shed was a large concrete base identified as 'Old Foundations' on a map of that year (Ministry of Works 1947), and by 1953 it had disappeared (RAF 1953). By 1965 the site of the quarry and terraces had been landscaped (Meridian Airmaps 1965).

The barrack's compound

It has already been mentioned that the possible medieval terrace north of the barracks (F3) was a military compound in the second half of the 19th century. A similar compound on the south side of the barracks which housed latrines and an engine shed in 1879 has left no earthwork traces because of later landscaping represented by the 2.0m high slope at F2. The slight curving scarp at K4 which is 0.3m high and runs parallel with the curtain wall for a distance of 40m defines the rear wall of an enclosure cultivated by the Master Gunner in 1849 (PRO WO44/565). The other slight scarps up to 0.3m high within the area of the former enclosure might represent aspects of this cultivation (K5-K10). The enclosure itself had disappeared by 1947 (Ministry of Works 1947).

Compounds to the north of the Master Gunner's House

A prominent 0.4m high slope immediately to the east of the Master Gunner's House (K11) defines the edge of a small walled compound built out from the adjacent part of the inner bailey curtain wall. The two right angle returns running back to the curtain wall have left no earthwork traces. The compound is shown on the Ordnance survey map of 1852 and may have survived until after the First World War but had gone by 1947 (Ministry of Works 1947). The other walled compounds shown to the north of the Master Gunner's House on the same two maps have left no discernible earthwork traces.

To the north of the walled enclosures mapped in the 19th century is a very prominent flat-topped bank running for 80m almost due north-south (K12). At the north end it turns at right angles towards the cliff but fades out before it reaches the possible quarry (I6) on the cliff edge. The south end is cut by the curving edge of a 1920s football ground and it is not clear if the bank continued further south from this point or turned a right angles back towards the cliff. The 0.4m high mound at K13 possibly indicates the latter as it could well be the spread remains of the bank. The bank itself is up to 0.5m high on the east and 0.3m on the west and appears to be constructed of earth as there is no masonry visible anywhere along its length. Slight rises and falls in the top of the bank suggest it might be of dump construction. It is pierced by a 2m wide gap at K14 which may be a secondary feature as the truncated bank continues across the gap though less than 0.1m high. This entrance is further defined by a 0.1m high bank at K15 angled acutely towards the cliff on the west side of the gap. Slight 0.2m deep depressions at K16 and K17 are the possible remnants of subdivisions within the enclosure.

No documentary or cartographic evidence has been noted to explain this enclosure, though it is suggested above that it might be a compound around a battery of guns established on the cliff edge in 1819. The possible south end of the banked enclosure at K13 is aligned on the corner of a walled compound shown on the 1892 Ordnance

Survey map (Ordnance Survey 1892b)(Figure 8) suggesting it was integrated into the military use of this part of the headland. After the battery was abandoned the area may have been subdivided as gardens explaining the possible subdivisions at K16 and K17 and the reference to the disappearance of a kitchen garden on the north cliff in a landslip in 1890 (Heywood c1891, 21). No evidence was found to support the recent suggestion that the earthwork is the result of medieval cultivation (Atkins 1993).

Miscellaneous features (L1-L8)

At L1 is a curving scarp 0.2m high, which defines a sub-rectangular area 7m by 10m. Its position matches an arm of the eastern of the two ponds occupying the centre of the headland in 1852 (Ordnance Survey 1852). Forty years later this element of the pond had disappeared (Ordnance Survey 1892b) the ponds were probably filled in before the First World War (Scarborough Borough Council 1907d), certainly by the time work began on the construction of a sports ground across the centre of the outer bailey in the 1920s (see below). A 0.2m deep gully at the cliff edge (L2) may mark the line of a soakaway from this pond.

The ponds were a long-standing feature of the outer bailey having been mapped as early as 1746 (WORKS 31/1139) and one was represented schematically on the earliest view of the castle from the 1530s. The fact that their shape is slightly different

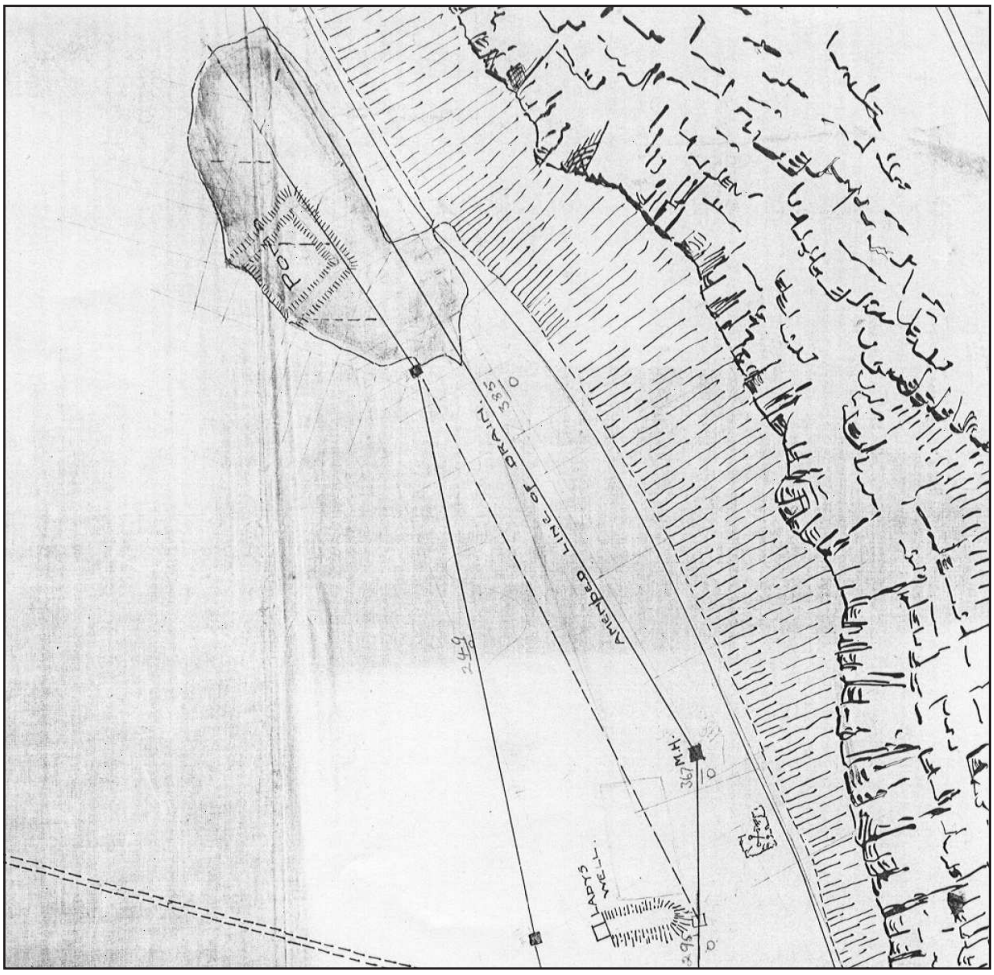

Figure 14
A manuscript map from the early 20th century reduced to 1:1000 scale showing a rectangular earthwork in the east pond in the outer bailey. (Scarborough Borough Council nd. a.)

each time they were mapped suggests they were natural features whose water level was allowed to fluctuate. However, they may have been managed at an early date as that shown on the 1530s view is clearly rectangular in shape. A rectangular embanked enclosure is shown within the eastern pond on an undated map from around the turn of the century (Scarborough Borough Council nd. a.), suggesting an attempt had been made at some time to contain the water (Figure 14).

Map evidence indicates that in the first half of the 18th century the outer bailey was bisected by a prominent east-west bank running from the outside of the inner bailey up to the cistern adjacent to the site of the Roman Signal station (WORKS 31/1138). The bank does not appear on any of the 19th-century plans of the castle suggesting it had disappeared before then, and does not obviously survive as an earthwork. However, two slight linear scarp is up to 0.2m high at L3 and L4 matches the position and alignment of this bank and could be the only portion to survive as an earthwork. The date and purpose of the bank are obscure.

At L5, a semi-circular bank up to 0.2m high is in approximately the same location as a limekiln depicted on the 1742 copy of Captain Phillips's survey of 1716 (WORKS 31/1138). However, it seems unlikely that a feature of this date could have survived the later building and landscaping of this area discussed above.

1890s rifle range

A slab of concrete measuring about 5m by 5m at L6 at the north edge of the headland is visible on aerial photographs as early as 1940 (RAF 1940) and is possibly the same concrete platform it was proposed to re-use in 1920 for a signal station (York University 1999, section 11.3). If it pre-dates 1920 then it is possibly the base of one of the targets for the rifle range shown on the 1892 Ordnance Survey map (Ordnance Survey 1892b). A further small area of concrete visible on the surface at L7 might also be connected with the rifle range. The firing point of the rifle range as marked on the 1892 map as 350 yards (320m) south of the target is exactly at the point where a circular mound 3m in diameter and 0.2m high survives as an earthwork (L8).

Earthworks from 1900 onwards (Figure 15)

Paths and tracks (M1-M6)

The track between the inner bailey and barracks described above (H8-H12) is shown continuing past the barracks on a 1947 map (Ministry of Works 1947) following a route parallel with the curtain wall. It is defined on the ground by two opposing scarps 4m apart and 0.2m high at M1 and M2. The slightly curving scarp at M3 which is 0.3m high probably represents the side of the track furthest from the curtain wall close to the point where it finished. As was mentioned earlier, the route seems to have disappeared sometime after 1953 (RAF 1953).

The same 1947 map noted above shows a route across the middle of the outer bailey curving south to the coastguard station. It also appears on an oblique aerial photograph taken the following year (St Joseph 1948). The track is defined for over 150m on the ground by three sets of earthworks; the first at M4 is a straight linear scarp 0.2m high which marks the south side of the route. The north side is defined at M5 by a curving scarp again 0.2m high, the south end of which deviates from the line of the track shown on the map and the aerial photograph and therefore may be part of a different feature. The third remnant of the track is represented by a slight, curving bank 0.2m high at M6. The track does not appear on an aerial photograph of the headland taken before 1938 (Adshead and Overfield 1938, facing page 80) suggesting it was part of the military use of the headland during the Second World War when an RAF post was established across the south part of the outer bailey as will be discussed below.

Buildings and structures (N1-N17)

The Naval listening post

A bungalow housing a naval listening post was constructed around 1904 immediately to the north of the coastguard lookout which was itself on the site of the Roman signal station (York University 1999, 1.14). The remains of the coastguard lookout were swept away during the 1921-25 excavation of the Roman signal station, but part of the bungalow has left recognisable earthworks. These consist of a 0.3m high rectilinear scarp at N1 which defines three sides of a small room that projected from the east side of the bungalow. The room is labelled as a 'snug' on a plan of about 1913 (Scarborough Borough Council 1913). Further adjacent rectilinear scarps 0.2m high at N2 and N3 are not clearly related to the plan of the bungalow and may be ground disturbance from when the bungalow was demolished. This must have happened prior to 1940 as it is not shown on an aerial photograph of that year (RAF 1940).

The Coastguard stations

A coastguard station was erected to the south of the Roman signal station in the early 1920s and its site is represented by a series of earthworks (N4-N9). The curving bank at N4 together with the linear bank to its east (N5), which are both around 0.2m high, define the site of the coastguard building. The outline of the fenced enclosure to its south is partly represented by the 0.1m high linear scarp at N6 and N7. In 1947 this surrounded an underground air raid shelter which is represented by the 0.2m deep

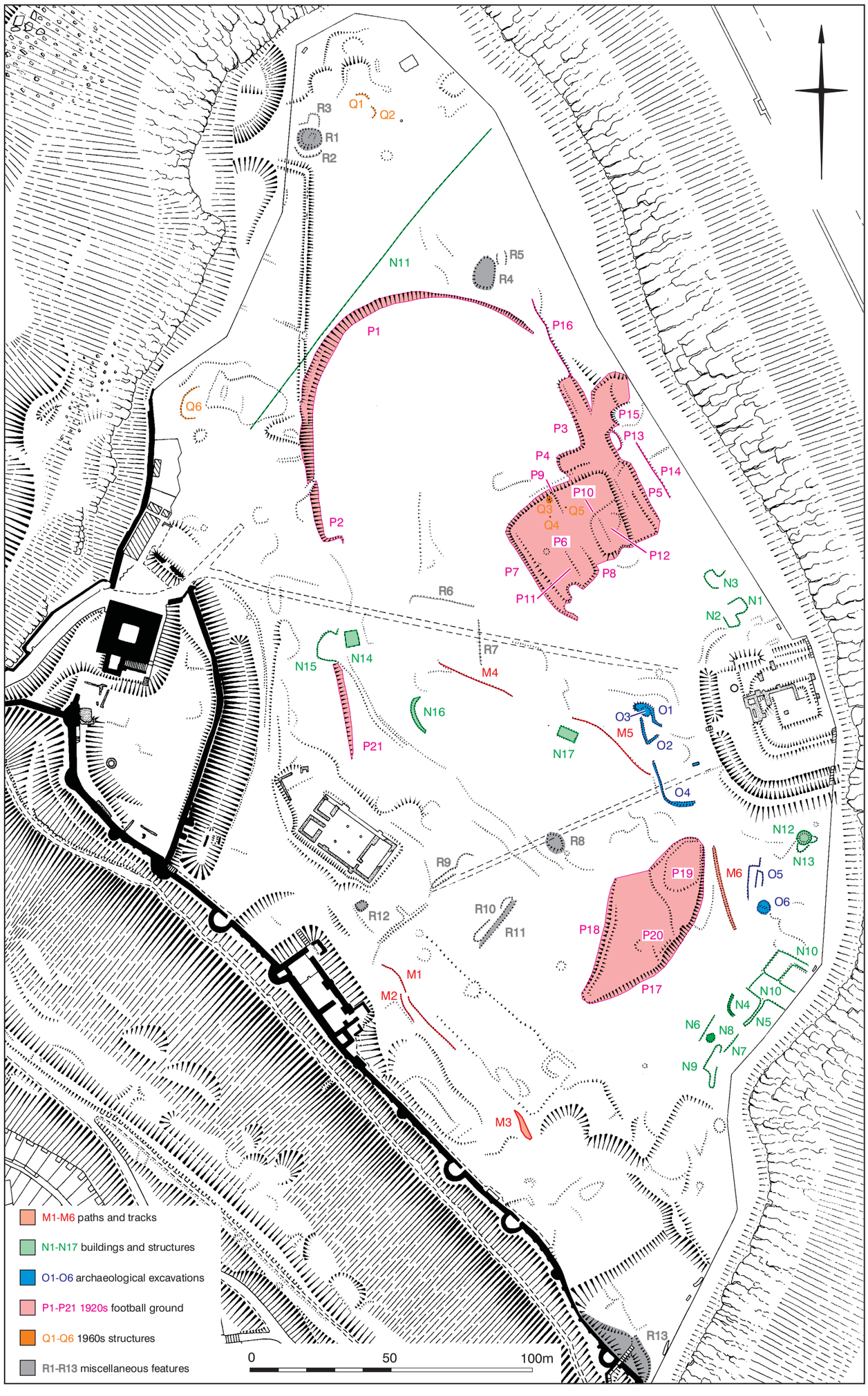

Figure 15. Interpretative plan of the outer bailey at 1:1500 scale showing features from 1900 onwards described in the text

hollow at N8 (Ministry of Works 1947). The adjacent gully (N9) which is 0.2m deep is probably connected with the occupation of the coastguard station, or is from its demolition in 1948 (York University 1999, section 1.14).

An aerial photograph from 1946 (RAF 1946) shows a series of rectangular platforms immediately to the north of the coastguard station. These are partly defined on the ground at N10 by a series of slight rectilinear scarps 0.1m high. The earthworks look like the remains of small rectangular garden plots but they are more likely to have been building foundations. No records of any building on this site have been noted and therefore it is probable that plans to build were aborted.

Aerial photographic evidence indicates that a replacement coastguard station had been constructed close to the north tip of the headland before 1938 (Adshed and Overfield 1938, facing page 80) and is labelled as a coastguard station on the 1947 plan (Ministry of Works 1947). The structure has been demolished within the last few years and its site now lies beyond the safety fence around the edge of the cliff. The course of a possible cable trench running straight out to the coastguard station from the north side of the inner bailey is marked by a distinct line of more verdant grass (N11).

Second World War RAF Post (Figure 16)

Several buildings labelled as 'RAF' appear on a 1947 plan of the headland (Ministry of Works 1947) and were photographed from the air around the same time (RAF 1947; Ministry of Public Buildings and Works 1960, 8). The sites of most of the buildings shown on the map survive as minor earthworks scattered across the south half of the headland. The station provided a high frequency direction finding beacon to help allied aircraft to navigate and which was housed in a polygonal tower-like structure close to the cliff edge. The site is defined by a circular bank 4m in diameter and 0.3m high immediately to the south of the Roman signal station (N12). Two aprons of spoil on the south and east sides of the bank (N13) possibly represent rubble from the demolition of the tower which the aerial photographs suggest was of wood with a brick casing 1-2m high around the base. There was a second, shorter tower to the south but this has not left any earthwork traces.

The rectangular outline of the most westerly of the RAF buildings is preserved by a change to coarser vegetation (N14) and measures 5m by 6m. To its west a shallow scarp at N15, no more than 0.2m high, is possibly defines the outside edge of a small yard attached to the building although nothing is shown on either the map or aerial photographs from 1947. It may have housed a generator and the photographs show what may be a cable trench heading from this building to the coastguard station on the cliff edge. The remains of this trench may be represented by the slight bank 0.2m high at H6 although this has already been mentioned above as possibly defining the side of an earlier track.

A prominent curving bank 0.3m high at N16, south-east of the previous site, marks the position of a rectangular hut shown on the 1947 map. The bank probably defines the north-west edge of the area cleared to build the hut but of the hut itself no trace survives on the surface. It was probably a mess hall or accommodation block. Some 50m to the east, a rectangular platform 6m by 5m is defined by a 0.2m high scarp

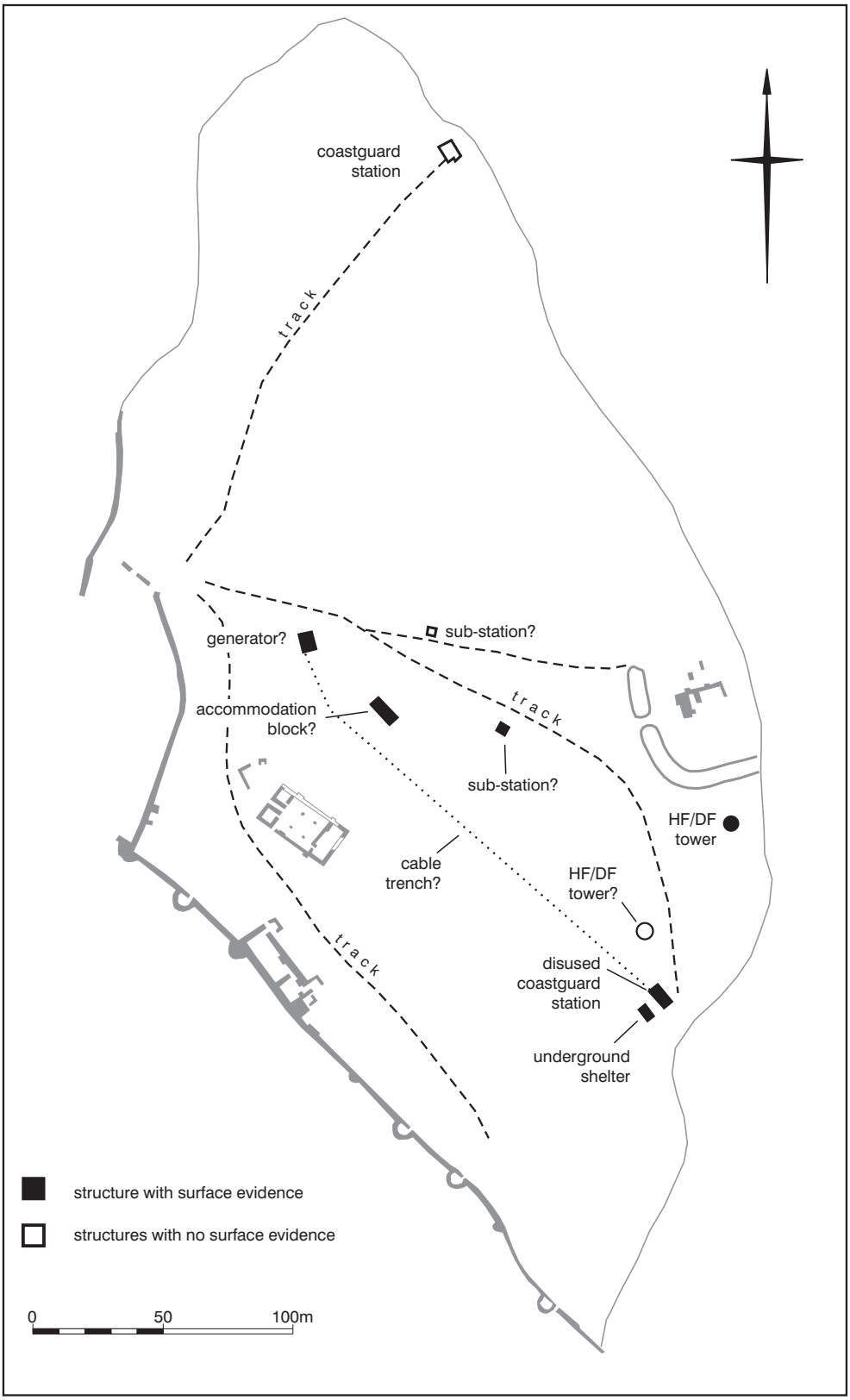

Figure 16. Main components of the Second World War RAF post

(N17). It is the site of one of a pair of small, square buildings on the 1947 map; the other, 40m to the north-west, has not left any earthwork traces. They may have been sub-stations. The earthwork evidence for the track linking these sites has been discussed above (M4-M6).

Archaeological excavations (O1-O6)

1921-25 signal station excavations

Apart from the consolidated remains of the site itself, earthwork evidence for the excavation consists of the truncated remains of a possible spoil heap immediately to the west of the outer ditch. The east and north sides are defined by a curving bank 0.3m high (O1) which widens and flattens to the north, whilst the opposing sides are represented by a bank up to 0.2m high (O2). There is a circular depression 0.3m deep within the area defined by the earthworks (O3). The appearance of the feature and its proximity to the site of the 1921-25 dig suggest it could be a partially levelled excavation spoil heap, although it has been stated that material from the excavation was dumped to the north of the site (Simpson 1997). An alternative possibility is that it is spoil left from the reburial in 1925 of the inhumations cleared from the graveyard overlying the Roman signal station (Rowntree 1931, 148) since the burial pit marked by a memorial slab, lies just to the south of the possible spoil heap. The slight curving scarp 0.2m high and about 13m to the west and south of the memorial slab may represent part of the perimeter of the burial pit (O4).

1953 excavations

A pattern of slight rectilinear scarps up to 0.2m high and between 15m and 30m south of the Roman signal station probably represent the edges of backfilled trenches from the 1953 excavations (O5). A mound 5m in diameter and 0.3m high immediately to the south of these earthworks may be the remnant of an excavation spoil heap (O6). It is traversed by a narrow 0.2m deep trench.

The 1920s football ground (Figure 17; P1-P21)

A curving scarp cut into the natural slope crosses the north half of the outer bailey, describing an arc around 50m in diameter (P1). At the apex of the curve it is 0.4m high increasing in height to the west to 0.6m. On the west side the curve straightens and runs for 40m before turning a right angle to the east (P2) at which point it disappears. The east side of the feature decreases in height from the apex of the curve disappearing before the point where a straight stretch comparable with that on the west side would have begun. The area defined by this slope is devoid of any earthworks suggesting it has been levelled flat.

The feature can reasonably be identified as the remains of an unfinished football ground from around 1920 (York University 1999, section 11.3). A plan detailing the cut and fill required for the north end of the football ground survives and broadly matches the shape of the earthwork (Scarborough Borough Council nd. b) whilst its overall layout was sketched in pencil on an earlier plan of the castle (Scarborough Borough Council 1907b). The pencil sketch shows an area measuring 250m north-south by 100m east-west with two opposed curved ends and a straight-sided

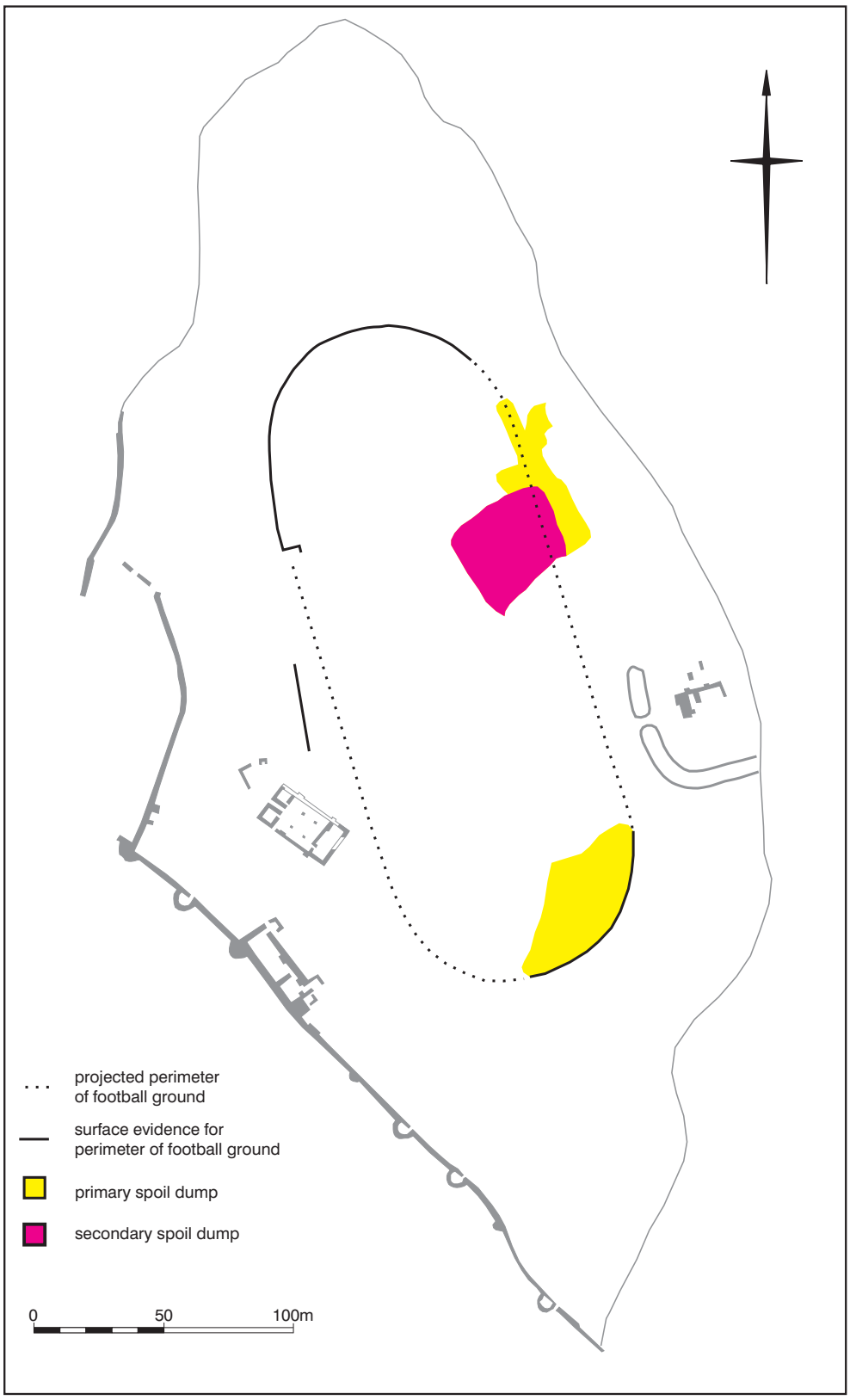

Figure 17. Main components of the 1920s football ground

middle. The interior is subdivided lengthways into three rectangular compartments, the north and south ones measuring about 55m north-south by 80m east-west whilst the central one is larger measuring 65m north-south by 80m east-west. These are probably individual pitches within the football ground, which, with two curved ends, might also have been intended to accommodate a running track.

Using this plan, other probable components of the football ground can be identified on the ground. A straight section of the east side of the football ground survives as the west side of a 0.5m high bank at P3. This bank is one element of a prominent spoil dump which extends south for a maximum distance of 60m and east-west for a maximum of 100m. The earthworks suggest the dump has been raised in at least two phases, with the first consisting of the bank already discussed, with an arm out to the west (P4) and further mounding up to the south and east up to 0.5m high (P5). The second phase is represented by a roughly square mound defined by a 0.9m high scarp on the east and north where it overlies the earlier dump (P6). The west side is only around 0.3m high (P7) and the south is indented by scoops and cut by a ramp leading on to the summit (P8). Slight linear scarps up to 0.2m high on the summit probably represent individual tip lines (P9-P12).

The dump is most likely spoil from the levelled area discussed above which starts immediately to the north and extends as far as the curving scarp marking the end of the proposed football ground. It may have been added to by spoil form the 1921-25 Roman signal station excavations since this is supposed to have been dumped to the north of the dig (Simpson 1997). This may account for the two phases of build up.

The east side of the mound overlies a curved bank 0.2m high at P13 demonstrating the probable survival of earlier features below the mound. The same side of the mound also straddles the line of a fence shown on the 1892 Ordnance Survey map (Ordnance Survey 1892b) which is visible further south as a 0.1m high linear scarp (P14). The east side of the mound has also been quarried into as indicated by the sharply defined 0.7m high curving scarp at P15. A straight 0.2m high scarp which runs north for a distance of 30m from the first phase spoil dump (P16) may be connected with the construction of the football ground though it lies outside the line of the perimeter.

Further evidence of construction work is preserved in the south half of the outer bailey where part of the curved south end of the football ground survives (P17). This area is defined by a dump of spoil up to 35m east-west and 60m north to south and the curved south and east side of the dump, which is up to 0.6m high, mirrors the curvature of the north end of the football ground (P1). The west side of the dump is marked by a bank 0.3m high on the outside (P18), and the north side fades into the slope, whilst several irregular scarps on the summit up to 0.1m high possibly represent former tip lines (P19-P20). The pencil sketch (Scarborough Borough Council 1907b) confirms the south and east edge of the dump as the perimeter of the football ground which presumably needed to be banked up here because it traversed a slight valley running north-west to south-east.

To the north of the aisled hall a 0.5m linear scarp (P21) may mark the east side of the football ground. However the evidence is not conclusive because the projected outline of the football ground places the east side slightly to the west of this feature.

No documentary evidence has been noted to explain why construction ceased, but the earthworks offer a clear indication of how far work had progressed (Figure 17). The initial effort seems to have been concentrated on levelling the north end of the football ground, presumably because this involved cutting into the natural slope and was a way of getting the spoil needed for levelling up other parts of the interior. The mound on the south side of the levelled area presumably is where spoil was initially dumped prior to being redeposited as needed elsewhere. The priority area for building up the ground level seems to have been the south-east corner of the sports ground as indicated by the banked up spoil here. The material used in this had presumably come from the levelling operations at the north end since there is no indication of anywhere else that this quantity of soil could have come form.

1960s structures (Q1-Q6)

Two semi-circular depressions on the north of the headland at Q1 and Q2 possibly define part of the perimeter of a Royal Observer Corps protected shelter, the foundation works for which were observed by staff from Scarborough Museum in 1964. (York University 1999, section 11.3). It appears as a flat rectangular slab on an aerial photograph from 1965 suggesting it was an underground structure (Meridian Airmaps 1965).

The exercise post erected by the coastguard in 1966 (AA 16228/3/106, 108-9) survives on the ground as the base of wooden pole at Q3 in a 0.2m deep hollow. There are two iron looped stanchions 5m to the south, spaced so as to brace the pole (Q4-Q5). The pole is visible on an aerial photograph taken in 1984 but disappeared sometime afterwards (Riley 1984).

The crescentic, 0.2m high scarp at Q6, north of the Master Gunner's house marks the site of a toilet block from the 1960s and 1970s (Meridian Airmaps 1965 and 1972).

Miscellaneous features (R1-R13)

At R1 on the north cliff, a circular mound up to 0.3m high could define the site of an above ground structure, the slight bank around the top of the west side perhaps indicating the existence of a buried wall. Material to build up the mound presumably came from the slight exterior ditch, 0.1m deep, visible on the south (R2) and from the rectangular shaped hollow, also 0.1m deep, on the north (R3). The sharply defined character of the mound suggests it is fairly recent in date, although its function has not been determined.

The possible site of a structure is defined by an oval shaped flat-topped mound at R4 which stands to a maximum height of 0.2m. There is a slight hollow 0.1m deep on its north-east side (R5). Its proximity to the north side of the 1920s football ground suggests it might have been the foundation for a temporary building connected with the construction work.

Two linear scarps broadly at right angles to each other in the centre of the outer bailey may mark two sides of an enclosure possibly surrounding a building or a small cultivated plot (R6 and R7). They are no more than 0.2m high and are across the approximate line of a bank running between the inner bailey and the cistern shown on

a plan surveyed in 1716 (WORKS 31/1138) and, as was discussed above, possibly represented by the earthworks at L3 and L4. As there is no sign of a bank having cut across the suggested enclosure, it suggests this feature post dates the levelling of the bank.

An oval-shaped mound at R8 stands to a maximum height of 0.3m and measures 7m by 5m. It possibly marks the site of a temporary building, perhaps connected with the war time use of the headland by the RAF as it is close to the sites of other small buildings of that period (see above).

Two broadly parallel linear gullies some 20m apart and 20m long and orientated north-east to south west are visible to the south-east of the medieval aisled hall (R9 and R10). They are both 0.3m deep whilst the one on the south has a slight bank 0.1m high on its south side (R11). They are impossible to interprete, although their proximity to the excavated hall suggests they may be the infilled trenches of some undocumented archaeological dig, as might the circular, 0.3m deep hollow at R12 immediately to the south of the hall.

At R13, at the south end of the outer bailey, a mound up to 1.2m high has been piled up on either side of the steps down to the sallyport. In 1947 there was a hollow, not a mound on the south side of the steps (Ministry of Works 1947) indicating that the feature has been built up during the last fifty years.

THE CASTLE DYKES (Figure 18)

The defences (S1-S6)

Upper Escarpment

On the outside of the curtain wall there is a narrow shelf of level ground around 2.0m wide beyond which the upper escarpment of the Castle Dykes falls away steeply, dropping by around 30-40m at a gradient of around 1 in 2. To the south-east the escarpment meets the vertical cliff face forming the east side of the headland, whilst to the north-west it decreases in height as it turns westward to form the southern flank of the barbican. The top of the escarpment is cut through at the apex of the curve forming the narrow ravine over which the entrance to the castle passes (S1).

The upper escarpment is a formidable natural barrier although undoubtedly it has been strengthened by periodic cutting back and steepening of the slope, probably ever since the headland was first fortified. It would also have been kept clear of vegetation and would have been free of the paths which now ascend the slope up to the curtain wall. It is not possible from the appearance of the escarpment to estimate how greatly it has been modified though one can speculate that a great deal of effort must have been directed at steepening the north-west end to deny an attacker passage to the ravine separating the barbican from the rest of the castle.

The ditch

The base of the upper escarpment is fringed by a relatively flat strip of ground between 5m wide at the south-east widening to 10m towards the north-west which is referred to as the castle ditch or moat. However, it is largely a natural step in the profile of the hillslope created by a change in the underlying geology, (as has also caused the level plateau occupied by the South Steel Battery at the south end of the Castle Dykes), and the impression of a ditch is created by the rise of the ground up to the curtain wall on one side and by the counterscarp bank on the other. Consequently beyond the point where the counterscarp bank ends on the south-east end of the Castle Dykes, the ditch bottom is revealed as nothing more than a step in the slope between the upper and lower escarpments with no evidence of any cut. The only evidence for the ditch being a cut feature is provided by a scarp up to 1.2m high, which curves across the bottom of the ditch (S2) and then turns to run south-eastwards along the base of the counterscarp bank. Other cuts in the vicinity are probably later quarries and are discussed below.

There is more evidence for a ditch at the north-west end of the Castle Dykes, in the way the rounded end is cut into the hillside below the castle barbican (S3), although it is now partially obscured by the children's playground first constructed in the late 1940s. The excavation of a ditch here would have enhanced the security of the south side of the barbican and deterred attackers from reaching the defile (S1) separating the barbican from the rest of the castle.

At the opposite end of the Castle Dykes the entrance to the South Steel battery from the Castle Dykes is gained along a narrow defile at the foot of the upper escarpment (S4). On the opposite, south side, the defile is formed by a 2.7m high stone wall which revets the highest part of the plateau occupied by the South Steel Battery. Although

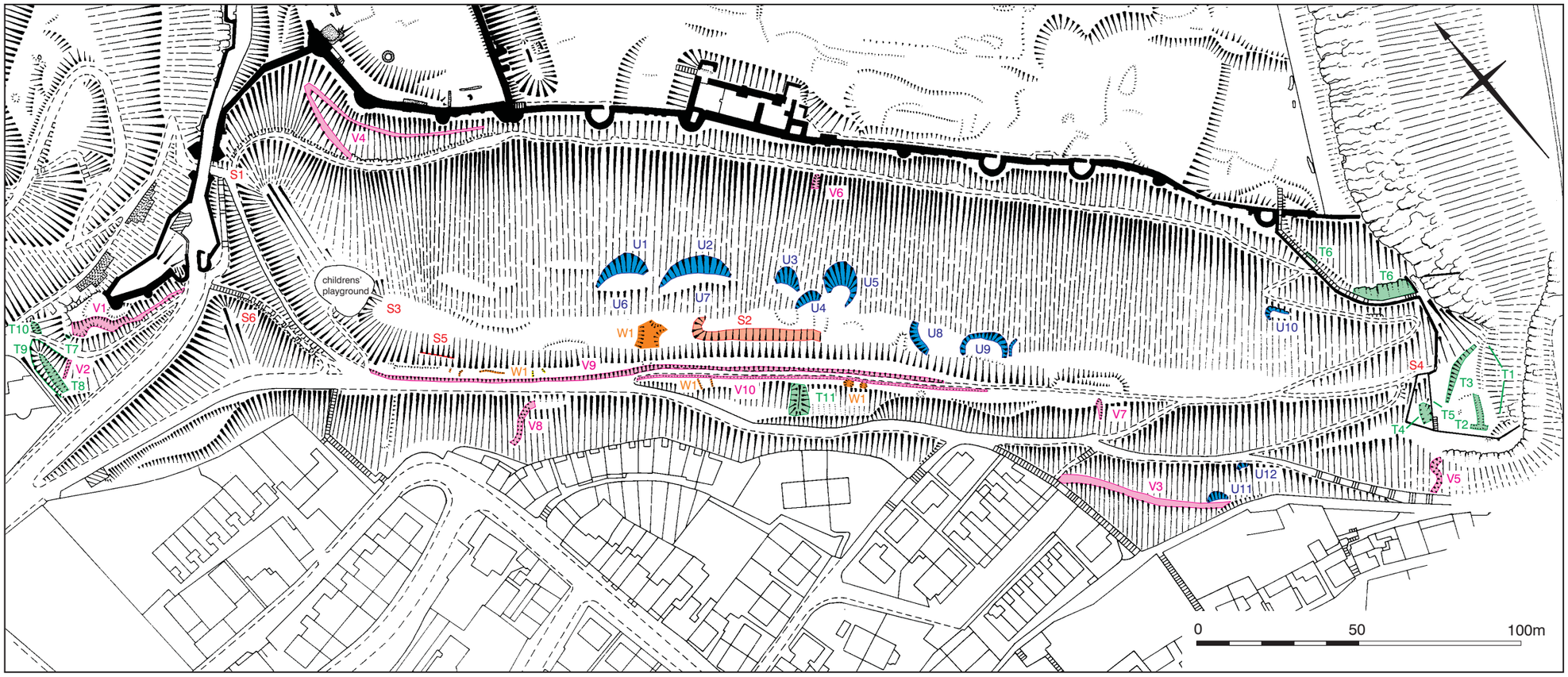

Figure 18. Interpretative plan of the Castle Dykes at 1:1500 scale showing features described in the text

much altered by the construction of the entrance to the battery, it is possible this defile was originally cut as a continuation of the medieval ditch to try and isolate the South Steel plateau from the main escarpment to the north-east.

The counterscarp bank

The bank is flat topped and varies in width from 5m to 8m and runs for a distance of about 250m from the hill below the south side of the barbican to a point about 80m short of the South Steel Battery. The outside face of the bank is contiguous with the lower escarpment of the Castle Dykes and landscaping makes it impossible to determine where the bank ends and the natural slope begins. The inside slope of the bank is quite steep and sharply defined along most of its length and is around 2.0m high. At (S5) there is a break of slope on the inside of the bank which could indicate that the bank has been heightened. It falls in height to the south–east and is just 0.4m high at the point where it disappears. On the north-west it is over 4.0m high where it meets the hillslope below the barbican, but the height has probably been accentuated by the presence of a ditch (S3) on the inside as was discussed above. Modern landscaping of the slope below the barbican makes it difficult to identify where the bank ran into the hillside, though, as Wood's map of 1828 seems to show (Wood 1828), it probably continued up the slope for a distance along the line of the present day path to the castle entrance (S6).

The counterscarp bank is probably medieval in origin, presumably constructed with upcast from the ditch to its rear and with material pushed down slope from smoothing and steepening the upper escarpment. It has probably been built up on a number of occasions since, such as during the English Civil War and at the time of the Jacobite rebellion when it served to screen a covered way along the ditch bottom (Vincent 1747), possibly with a palisade on top (York University 1999, section 8.3). There is no indication of the bank continuing further to the south-east to link up with the battery at the South Steel. Apart from the path, the area is now heavily overgrown and it is possible that earthwork evidence of the bank survives but this seems unlikely as the earliest maps of the castle from the 1740s suggest that the bank ended at around this same point (eg WORKS 31/1139). The conclusion to be drawn is that it was never completed in this section.

The lower escarpment

The slope from the counterscarp bank down to the edge of the town is predominately a natural feature but, like the upper escarpment, it has probably been graded and cut back to make it more of an obstacle to an attacker. Since the 19th century, buildings have steadily encroached on the bottom of the slope and it is now difficult to envisage how formidable a barrier the lower escarpment made.

Outworks (T1-T11)

The South Steel Battery and covered steps

The South Steel Battery occupies a plateau area 32m above sea level at the south-east end of the Castle Dykes. It is a natural vantage point overlooking the harbour and has open views in all directions apart from the north where it is overshadowed by the

slope of the escarpment running up to the castle curtain wall. The south-east side is open to the cliff and is being gradually eroded, whilst a stone revetment wall runs around the south-west, north-west and north-east sides of the plateau. The masonry continues northwards up the slope as a free standing wall with loopholes for muskets, protecting the west side of a flight of steps from the battery to a sally port in the curtain wall. There is a gate at the start of the free-standing section of the wall which provides access onto the Castle Dykes. As was discussed above, this leads out along a narrow defile (S4) which could have been originally cut as part of the medieval defences.

The interior of the battery is on two levels. The greater part is at the lower level and comprises a relatively flat area about 400 square metres in extent. This was the main gun position and the site of store rooms and magazines. A thick concrete base with brick underpinning is exposed in the side of the cliff at T1, about a metre below ground level and the main earthwork visible on the surface is a 'T'-shaped gully 0.2m deep and 1.5m wide, the long axis of which runs parallel with the cliff edge (T2). The gully is sharply defined on an aerial photograph taken in 1945 suggesting it was cut around that time (RAF 1945), though its purpose is obscure. To its north a ridge up to 0.5m high (T3) probably marks the side of a ramp leading up to the first of the flight of steps to the sally port.

The higher part of the South Steel Battery consists of a strip of ground on the north-west side separated from the lower area by a stone revetment wall with a short flight of steps at one end. The higher level slopes quite steeply from north-east down to the south-west and has the appearance of being a natural slope. The only earthwork visible is where traffic to the steps has worn a slight hollow 0.3m deep at T4.

The division of the battery into two levels dates back to at least 1821 when the position is depicted in some detail (PRO WO55/2490). There are no earthwork traces of the store room and guard room shown on the 1821 view nor of the stone platform at the cliff edge marking the gun positions. It is likely that all traces of the gun positions have been lost through erosion of the cliff and the insertion of the concrete base visible in the cliff edge at T1 could have destroyed all traces of the buildings shown in 1821, depending on how far into the interior it extends. This was presumably constructed during the last years of the gun battery when heavier artillery, including a 32lb gun, were put in place (Theakston 1864, 6).

The revetment wall (T5) which divides the interior of the battery probably marks the line at which levelling operations ceased when making the gun positions in the rebuilding of 1746-8 (Binns 1996, 114). Prior to this date the levelled area seems to have been limited to a much narrower strip along the cliff edge judging from the rather stylised depiction on the 1742 copy of Captain Phillips's 1716 survey (WORKS 31/1138), perhaps reflecting the size of the battery constructed here in 1643 (Binns 1996, 114). The steep slope rendered the upper level unsuitable for all but the smallest of buildings as shown on the 1892 Ordnance survey map (Ordnance Survey 1892a) and therefore why it was not levelled to make it more useable remains obscure. Perhaps its mass was planned to help strengthen the north-west side of the battery against artillery fire.

The steps leading from the South Steel Battery up to the castle curtain wall are cut through living rock in places as is evident from the exposures at T6. It is possible that

the steps are the final manifestation of a long-established route from the harbour up to the castle via the South Steel plateau since the name South Steel could have the meaning of 'south stile' (Field 1993, 37). This is how the battery was referred to in 1643 (Binns 1996, 114). Although the wall which protects the side of the steps nearest to the Castle Dykes has been dated to the 1640s (Binns 1996, 114), it is more likely to date to the 1746-8 rebuilding of the South Steel Battery (York University 1999, section 7.3).

Bushell's Battery

Bushell's Battery is a flat promontory immediately outside the castle barbican with commanding views over the North Bay and the main approach road to the castle entrance to the south. It was fortified in the first siege of the English Civil War since when it has been known by the name of its commanding officer, Captain Browne Bushell. The promontory covers around 100 square metres but its size has reduced considerably since it was first mapped by Captain Phillips in 1716 (Works 31/1138) mainly because of erosion of the cliff on its north side. To the west and south the ground falls away more gently though on the west the natural slope has been accentuated by a ditch cutting between the road to the castle entrance and the north cliff as will be described below. To the east is the barbican wall which still bears signs of the blocked up door which was opened through the wall to provide access to the battery (Binns 1996, 114-117).

There are no earthworks belonging to the battery surviving on the promontory, though just below the west side of the summit, the slight foundations of a wall are visible (T7) which is probably the feature shown surrounding the battery on maps of the 1740s (eg Works 31/1137; 31/1139), but by the time of the 1852 Ordnance survey map only one 11m long stretch of wall is shown on the same side as the foundations visible today. The wall is one course thick and one course high which suggests it was only lightly constructed and therefore presumably not part of the civil war defences.

The ditch at the bottom of the west side of the promontory comprises two distinct cuts. The most evident is a 'V'-shaped cut about 1.2m deep and 2m which starts at the north edge of the approach road to the castle entrance and rises northwards with the natural slope where it ends at a modern footpath (T8). It sits within a wider ditch (T9) the east side of which is the result of cutting back the west slope of the promontory occupied by Bushell's Battery. It is approximately 5m wide and 1.5 to 2m deep and also runs between the road and the footpath. There is a slight 'V'-shaped depression 0.6m deep and 2.5m wide at T10 on the opposite side of the footpath on the same line as the two ditches suggesting one or both of them originally continued right up to the edge of the north cliff.

The perimeter of the castle has followed the course of this ditch since the boundary line was first shown on maps in the 1740s, and more recent plans, (Ordnance Survey 1852; Ministry of Works 1947) depict a path along the bottom of the ditch. These are probably secondary uses of what could well have originally been part of the outer defences of the medieval castle, protecting the west side of the barbican from direct assault. The 'V'-shaped cut in the bottom of the main ditch could well be the remnant of the recent path.

Forward works

At T11 a 1.2m high bank with a rounded profile descends the forward slope of the counterscarp bank for a distance of 10m, ending at the cut for a path. The bank is possibly the south-east side of a roughly triangular shaped enclosure shown schematically on the 1742 copy of Captain Phillips's survey of 1716 (WORKS 31/1138) and repeated on other maps of the 1740s where it is shown with greater clarity (eg Vincent 1747). The apex of the triangle is shown projecting forward of the line of the counterscarp bank for up to 20m and the base runs north-west along the crest of the counterscarp for about 40m. Its shape, and the fact that it is built off the crest of the counterscarp bank, both suggest the enclosure is a forward work connected with the defence of the Castle Dykes. It would have been useless as a gun position because the ground inside the enclosure slopes too steeply so it may have been a 'place of arms' where defenders could assemble with relative safety before launching an attack outside the defences. Captain Phillips's survey suggests there was another forward position further to the south-west along the counterscarp bank at a point approximately where the counterscarp comes to an end. It is shown in greater detail on Vincent's survey (Vincent 1747) but it has left no earthwork traces.

These forward works must pre-date the defensive measures implemented in the mid 1740s to counter a Jacobite attack because they are shown on Captain Phillips's survey of 1716. They could have been constructed by the Royalist defenders of the castle in 1643-44 prior to the first siege or during the Commonwealth when the South Steel Battery was refortified (York University 1999, section 7.3).

Quarries (U1-U12)

Evidence of quarrying is focussed along the bottom of the upper escarpment of the Castle Dykes where five crescentic quarries are cut into the bottom of the slope (U1-U5). In each example the quarry face is represented by a curving back scarp ranging in height from around 0.5m (U4) to 2.5m (U5) with a relatively level platform in front. The earthworks are overgrown but evidence of what may be an apron of derbis was recognised in two instances downslope from the quarry face (U6 and U7). Other quarrying may have taken place in the ditch at the bottom of the slope, represented by two semi-circular scoops. That at U8 is 1.0m deep and the second (U9) has a depth of 0.7m. The quarries are not sharply defined suggesting they are unlikely to be recent and they could have been dug to obtain material for the construction or repair of the counterscarp bank or for other purposes within the castle or town. Other slight hollows up to 0.2m high along the bottom of the ditch may represent further evidence of quarrying. A quarry with the rock face still evident to a height of 1.5m is at U10 towards the south-east end of the escarpment. The exposed rock suggests it is fairly recent in date. Two shallow cuts up to 0.5m high towards the base of the lower escarpment might also have been dug recently to get topsoil (U11-U12).

Paths and tracks (V1-V10)

The paths which criss-cross the lower escarpment and counterscarp bank of the Castle Dykes were mostly in existence by the time of the 1852 Ordnance survey map whilst those which ascend the upper escarpment were established by the end of the century (Ordnance survey 1892a). The paths were improved and minor changes made to

some of their routes using the unemployed in 1906 (Scarborough Borough Council 1907c).

At Bushell's Battery the route onto and over the promontory has eroded a 0.3m deep gully (V1) which is marked as a formal path on the 1892 Ordnance survey map (Ordnance survey 1892a). A narrower path defined by a 0.3m deep gully ascends directly up the west side of the battery (V2). The 2m wide break of slope at V3 at the south end of the lower escarpment marks the line of a path which has gradually fallen into disuse since the 1940s (RAF 1947) whilst that marked by the break of slope at V4 at the north end of the upper escarpment has fallen victim to the spread of bushes over the Castle Dykes during the last thirty years. This has also hidden the erosion scars caused by people climbing directly up the side of the Castle Dykes and which stand out on early aerial phtographs (eg RAF 1947). These and other tracks ascending the slope have left shallow 'V'-shaped gullies at various places around the Castle Dykes (V5-V8). The path along the top of the counterscarp bank is defined by a linear scarp on the north-east side up to 0.2m high (V9) and less so by a parallel scarp on the south-west side up to 0.1m high (V10) presumably caused by the wearing down of the path where it is unsurfaced.

Miscellaneous features (W1-W2)

In the bottom of the ditch three shallow scarps up to 0.2m high at W1 are on the site of the 'Castle Dykes Open Air Mission' recorded on a manuscript map of 1912 and possibly result from levelling up to make a dais (Scarborough Borough Council 1912).

There are a series of shallow scoops and circular depressions on the top of the counterscarp bank, none more than 0.2m deep, and they probably mark nothing more than the former postions of benches, posts and small trees or bushes (W2).

THE CASTLE HOLMES

Paths and tracks (X1-X7)

Pre 1852

The earliest evidence for routeways crossing the Castle Holmes is provided by a parallel alignment of banks at the foot of the cliff on the south-west side. Banks X1 and X2 make a direct descent of the slope and are not associated with any of the nearby paths or embankments from the early 20th century landscaping of the Holmes, suggesting they are earlier. Bank X1 is cut by a path, to the south of which it is 0.2m high and to the north it attains a maximum height of 0.5m before it is cut by a flight of steps and is lost. A parallel bank (X2) up to 1.0m high survives 3.0m to the west and descends the slope for a distance of 25m until it is cut by the line of a path. All three features define the sides of a route shown on the 1852 Ordnance Survey map descending from the cliff top to a natural inlet on the rocky shore line called the Coble Landing. This path is shown schematically on a map of 1747 but is probably far older since it is the direct route from the cliff top to the landing. It disappeared as a route when new paths were laid out at the end of the 19th century.

Towards the top of the cliff there is a break of slope (X3) which preserves the line of a path shown on the 1852 Ordnance Survey map descending from the defile below the castle entrance north-eastwards to the shoreline at the north end of the headland. The path is now overgrown and has almost disappeared in places through erosion of the slope across which it traverses, although it was in use well into this century having been incorporated into the layout of new paths which followed the landscaping of the Holmes. The path is shown schematically on Vincent's plan (Vincent 1747) and could be much earlier, perhaps originating as a route to quarries along the edge of the cliff (see below).

1852-1892

An early phase of the landscaping of the Castle Holmes is depicted on the 1892 Ordnance Survey map (Ordnance Survey 1892b) and earthworks of this date can be identified where they were not incorporated into later designs. At X4 two parallel curving banks up to 1.0m high define the sides of a path shown on the 1892 Ordnance Survey map running north-south which was abandoned when the route was re-aligned early the following century (Scarborough Borough Council 1905). At X5 a curving bank up to 1.0m high emerges from below a later embankment and marks the point at which an abandoned path descending from the cliff top turned to run parallel with the shoreline. Also possibly contemporary with this early phase of landscaping is the curving bank at X6. This feature is 2.0m high and defines the west side of path discussed above. It is probably formed from rock debris from adjacent quarrying, cleared to open up access along this path when the route was formalised as part of the pre-1892 landscaping of the Holmes. The 0.8m deep trench X7 down the middle of the bank is probably later in date but is of unknown function.

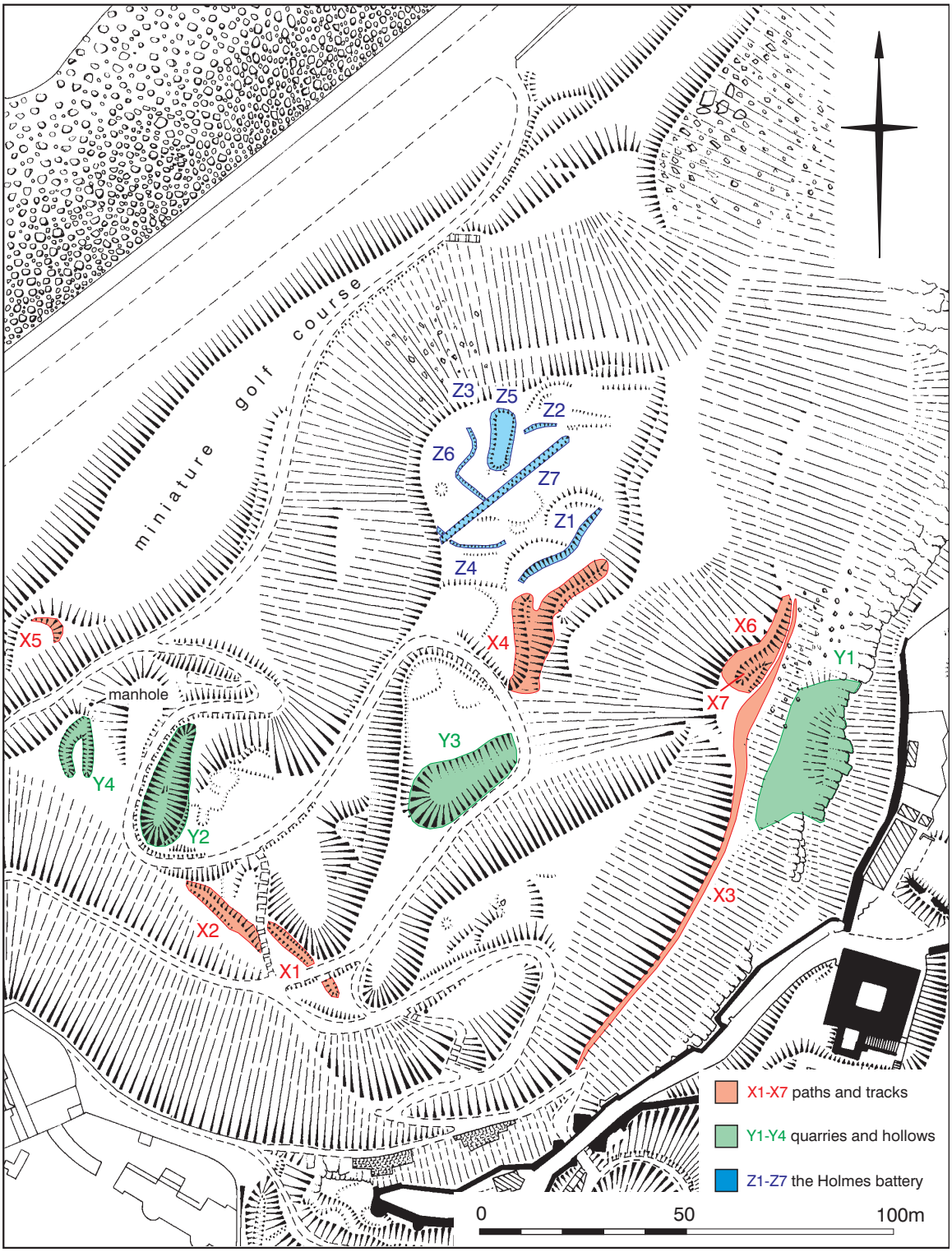

Figure 19. Interpretative plan of the Castle Holmes at 1:1500 scale showing features described in the text

Post 1892

The Castle Holmes underwent more extensive landscaping at the beginning of the 20th century (Scarborough Borough Council 1905) resulting in an expansion of the network of paths descending the slope down to the Marine Drive. These paths continue in use today, and their associated embankments and cuttings are easily identifiable and are therefore not individually described in this report.

Quarries and hollows (Y1-Y4)

The north part of the Castle Holmes is overlooked by extensive rock outcrops forming the north-west side of the headland and it is likely that these cliffs have been quarried for stone. However, cliff falls during the recent past, especially the major collapse documented in 1890 (Heywood 1890, 21) has probably removed most evidence. At Y1 there is a relatively level platform at the base of the cliff which could be the result of quarrying back the rock face at this point. The ground here is more boulder strewn than the immediate surroundings suggesting that naturally fallen material has been added to by quarrying and it is possible the slope below this platform has been formed by debris pushed down the hillside. No quarries are shown here on the 1852 Ordnance Survey map or on subsequent editions suggesting if the rock face has been worked then it occurred before 1852.

At Y2 is an oval, ditch-like hollow up to 2.0m deep and 30m in length, which narrows from south to north. The 1892 Ordnance Survey map shows only the east side of the feature as a curving ridge. Possibly the hollow was excavated as part of the 1905 landscaping but it is difficult to see what function it might have performed in the newly created gardens. A 4 inch diameter surface water drain is shown aligned along the centre of the hollow on the 1905 plan (Scarborough Borough Council 1905) so it is possible that it played some part in the drainage of the Holmes.

There is circumstantial evidence that Y2 might have originated before 1852. Although earthwork detail is lacking on the 1852 Ordnance Survey depiction of the Castle Holmes, the existence of some kind of obstacle here is suggested by the way the path descending to the Coble Landing kinks gently to the west at this point taking it exactly around the south end of the feature. If the feature is this early then it might have been dug as a defensive measure to bar the route from the Coble Landing up to the castle, perhaps during the English Civil War or at the time of the Jacobite rebellion.

A hollow similar in plan to Y2 occurs at Y3. It is up to 0.6m deep and 30m long but as no earthworks are shown in its vicinity on the 1892 Ordnance Survey map nor on the 1905 plan then it is likely to be a later creation, perhaps a windbreak around an area of seating. At Y4 two 'V'-shaped gullies up to 0.7m deep run for 15m down the slope converging near a manhole cover and are therefore likely to be modern drainage features.

Terraces

Successive cliff slips in the Castle Holmes have created a natural landscape of relatively flat-topped terraces with steep front slopes facing out to sea. These were extensively graded, embanked and cut through by paths around the turn of the century

when the Holmes was transformed by succesive episodes of landscaping of which one was mapped in 1891 (Ordnance survey 1892b) and a second in 1905 (Scarborough Borough Council 1905). The earthwork evidence for this is in the smoothed and rounded profile of the terraces and their gently curved outline on plan. They are not individually discussed in this report apart from the terrace marking the site of the Holmes battery (see below).

The Holmes Battery (Z1-Z7)

The only area where extensive landscaping of the Holmes might have occurred before the end of the 19th century is at the site of the Holmes Battery, about half way down the hillside, where four guns were sited in 1794 (Hinderwell 1798, 81). The terrace appears to have been levelled, possibly to create an elevated platform for the guns. The battery was dismantled before 1832 (Hinderwell 1832, 116) and extensively modified earlier this century and there are no earthworks which are obviously part of the gun positions. Landscaping of the former battery took place as part of the 1905 development of the Castle Holmes. The map which serves to illustrate the 1905 scheme (Scarborough Borough Council 1905) specifies that the top was to be "roughly levelled and sown" but the surface evidence suggests the work went much further as comparison with the 1892 Ordnance survey map demonstrates. The 0.3m high curving bank (Z1) on the south-east side of the terrace marks the steep back slope of the platform shown on the 1892 Ordnance Survey map indicating that the ground immediately east of it has been built up considerably from what it was in 1892. A slight 0.1m high scarp (Z2) marks the original edge on the north side, indicating the terrace has been built out by as much as 10m since 1892. This seems to have been done using rock debris judiging by the angular boulders visible at several points in the side of the slope immediately below (Z3). Finally, on the south-west, the edge of the terrace turned through a sharp re-entrant in 1892 but the platform has been extended on this side and part of the line of the re-entrant shown in 1892 is now marked by a 0.1m high scarp (Z4).

At Z5 a rectangular, flat-topped mound up to 0.2m high marks the postion of a long narrow building shown indistinctly on an aerial photograph taken in June 1945 (RAF 1945). The edge of an area of disturbed ground immediately to the west of the building is represented by a rectilinear scarp (Z6), 0.2m high. The reasons for the disturbance are unknown. The 0.2m deep linear depression (Z7) on the south side of Z5 is also visible on the 1945 RAF photograph and could well be contemporary, possibly dug for a drainage channel or to bury a power cable. The building and its associated features may well have been connected with the military defence of this part of the coast during the Second World War. The building had disappeared by November 1947 (RAF 1947).

Minor features

Earthworks up to a maximum of 0.2m high were observed in several of the more level areas of the Holmes, including the summit of the holmes Battery. They are difficult to interprete other than as minor elements of the designed landscape, such as former flower beds, tree holes or fence lines and are all probably of recent origin. Minor features within the miniature golf course at the bottom of the slope along the Marine Drive were noted but not surveyed.

DISCUSSION

Pre-medieval occupation

The survey found no obvious prehistoric earthworks on the headland and therefore shed no light on the suggestion that it was the site of a hillfort. The construction of the castle curtain wall along the west side of the headland and the subsequent building, terracing and quarrying operations noted by the survey along its inner margin would probably have destroyed all surface traces of prehistoric defences along this line. However, as the natural ground surface continues to rise slightly inside the curtain wall, especially immediately to the east and south-east of Mosdale Hall, it is possible that a prehistoric rampart would have taken a more easterly line than the medieval curtain wall. However, no earthwork remains of a rampart were noted along this line either.

No earthwork evidence was found for Roman occupation adjacent to the 4th-century signal station as has been suggested might have occurred (Faull 1974, 20) however the survey confirmed the survival of part of the Roman signal station as an earthwork beyond the area excavated in 1921-25. It was noted that the counterscarp bank at the north-west corner of the signal station appears to partly overlie the projected line of the excavated ditch suggesting the ditch might have been overdug, a possibility strengthened when it's dimensions are compared with the much smaller sizes of the excavated ditches at other Roman signal stations. For example, the ditch at the Goldsborough site, north of Whitby, was 12 feet (3.65m) wide and 4 feet (1.21m) deep (Hornsby and Laverick 1933, 205) and at Filey 3.5m wide and 1m deep (Ottaway 1995, 8), both substantially smaller than at Scarborough which, as was noted above, is 6m wide and 2m deep. There is no reason at Scarborough why the ditch should have been dug deeper and wider than at the other sites suggesting its present dimensions might result from its excavation and subsequent consolidation for display.

The more intriguing possibility is that the counterscarp bank is a later feature constructed partly over the line of the Roman ditch. This finds some support in the fact that counterscarp banks have not been noted for certain at other signal stations in the chain including that recently excavated at Filey (P. Ottaway, pers. comm.). However Filey has produced evidence that the site was re-occupied in the Anglo-Saxon period when an earthen bank was constructed along one side of the curtain wall (Ottaway 1995, 10). At Scarborough a possible context for the construction of the counterscarp bank might be to surround the chapel which was built on the site around the year 1000AD.

The early castle

The survey has drawn attention to the fact that the keep in the north part of the inner bailey is at a lower level than the remainder of the interior which takes the form of a flat-topped mound. The most likely reason for this is that the keep was inserted into the north side of a pre-existing mound, possibly part of the fortification built by William le Gros around the year 1135. The less likley explanation is that the mound post-dates the construction of the keep and results from the build up of deposits within

the inner bailey. The depth of build up is at least 2m next to the keep which probably rules out the gradual accumulation of rubbish, especially on a site where refuse could easily have been disposed of over the edge of the cliff. It would imply instead a concentrated effort to raise a mound around the keep. However, this would have added nothing to the security of the keep and therefore seems improbable.

The survey has therefore brought new evidence to bear upon the early development of the castle. It is suggested that the area of the inner bailey was already defined by a mound, probably with a ditch on the east side, when work began on the construction of the keep in 1157, and that this mound originated in the fortification built by William le Gros around the year 1135. The mound we perceive today may be close to what was constructed by William or it may be the levelled remains of a motte. To accommodate the new keep, the north-west corner of the mound was removed down to ground level presumably so that the foundations of the keep could be built off solid rock. At the same time the north part of the ditch on the east side of the mound was filled in to facilitate access to the construction site from the outer bailey. This part of the mound was never re-constituted after work on the keep was completed, explaining why the north part of the inner bailey curtain wall is at a lower level than the rest of the east perimeter and why the ditch does not continue any further north.

The interior of the medieval castle

The survey has not identified any medieval structures to add to those already known from other sources. In the inner bailey, slight earthworks define the sites of possible medieval buildings known from earlier maps and from features visible in the standing masonry. Immediately outside the inner bailey, there were probably further medieval structures around Mosdale Hall and the adjacent aisled hall excavated in 1888 but these have left no obvious earthwork traces. However, evidence has been put forward that the levelled terrace to the north of Mosdale Hall is one possible site of a building. To the south of the aisled hall, the evident levelling of the top of a natural rise may point to the location of further medieval buildings or possibly garden plots, although the equally likely is that it represents much later activity, perhaps connected with the operation of the barracks which occupied the site of Mosdale Hall.

Medieval buildings on the east side of the headland were focussed around the chapel of Our Lady. The survey has highlighted the possibility that some slight earthworks to the north of the excavated chapel might belong to a range of service buildings known through excavation and that these probably extend eastwards towards the cliff edge beyond the post and wire safety fence. Masonry was visible on the surface here up until a century ago in close proximity to the medieval well of Our Lady which probably disappeared over the edge of the cliff before the end of the 18th century.

The survey noted little evidence for activity elsewhere in the outer bailey during the middle ages. It is possible that the quarries noted on the north-west and south-east sides of the outer bailey date back to the middle ages as might the earthwork defining the edge of one of the two ponds shown on 18th and 19th century maps. No features were noted that might indicate the outer bailey was extensively cultivated in the medieval period. This absence together with the depiction of a bank across the centre of the headland in the middle of the 18th century, might indicate the bailey was divided up for the grazing of stock.

The outer defences of the castle

The survey has demonstrated that the medieval defences on the west side of the headland were designed to enhance the formidable natural barrier of the Castle Dykes escarpment. A defile was cut across the narrow ridge at the north-west point of the headland to sever the natural route onto the summit and possibly also on the south to separate the plateau, (later the site of the South Steel Battery), from the main slope up to the curtain wall. A ditch started at the foot of the slope up to the barbican, but it is debateable how far along the bottom of the main escarpment it carried. There is no trace of it at the south–east end of the escarpment and the counterscarp bank, presumably raised with spoil from excavating the ditch, also disappears in this direction. It is more likely that these elements of the defences were never completed along the full length of the Castle Dykes rather than that they have been destroyed without trace. The survey has noted the presence of a series of undated quarries at the foot of the main escarpment which may also have provided material for the raising or repair of the counterscarp bank

On the west side of the barbican, a ditch cutting between the main approach road to the castle and the cliff edge to the north may be part of the medieval defences designed to defend the flank of the barbican. It presumably played a part in protecting the battery established outside the barbican during the first siege in the English Civil War and other possible elements connected with the defence of the castle at this time were noted by the survey. These consisted of a bank which might be the last remnant of a defensive work on the outside of the counterscarp at the foot of the Castle Dykes and a possible defensive ditch in the Castle Holmes barring the route up to the castle from a natural inlet on the shoreline. The two documented English Civil War gun positions at Bushell's Battery outside the barbican and South Steel Battery on the south, overlooking the harbour, have left no earthwork traces. The latter was refortified in the middle of the 18th century and although the masonry defences constructed at this time still stand, no evidence of the gun positions survive as earthworks. The same is also true of the Holmes Battery on the north side of the headland established towards the end of the 18th century because the site has been extensively landscaped during the past hundred years.

The interior of the castle from the 18th to the 20th centuries

The survey has demonstrated that the majority of earthworks visible in the interior of the castle are from the 18th to 20th centuries with most dating from the latter part of this period. The remains of buildings and other structures are concentrated around the edge of the headland which probably accounts for the fact that fairly ephemeral features, such as possible trackway mapped in the mid 18th century, survive as earthworks in the centre.

The survey has shown that the use of the castle for various military purposes in the recent past dominates the earthwork record in the outer bailey, beginning with two platforms, one at the south end of the headland, the other at the north, marking the positions of documented 18th-century gun batteries. A late 19th-century battery is marked by denuded earthworks at the north tip of the headland whilst at the south end, areas of concrete may mark the location of guns used by the Naval Reserve at the end of the 19th century. The rifle range used by the Naval Reserve is also traceable on the

ground from the concrete base of one of the targets at the north tip of the headland. Finally, the survey has argued that a prominent bank in the outer bailey, to the north of the Master Gunner's House, may be the remains of an enclosure around an early 19th century gun battery looking out over the Castle Holmes.

The 20th century witnessed a change in the military use of the headland with the appearance of installations connected with coastal monitoring and radio navigation. The survey has identified the earthworks of part of a hydrophone listening station dating from before the First World War immediately to the north of the Roman signal station and a coastguard station further south from before the Second World War. The earthworks also survive of various buildings belonging to an RAF direction finding post from the 1939-45 war and more recently of a Royal Observer Corps shelter on the north side of the headland from the 1960s.

Despite the prolonged use of the headland by various military bodies, it was the decision to build a football ground in the outer bailey in the 1920s which has left the most prominent remains. The survey has identified the earthworks of several component parts of this scheme which principally comprise the wide curving slope marking the north end of the football ground and two spoil dumps, the most southerly of which defines the opposite end of the ground. Together these earthworks demonstrate how far work had progressed on the scheme before it was aborted.

The exterior of the castle in the 19th and 20th centuries

The recent past has seen the exterior of the castle transformed into a public amenity chiefly through the provision of a network of paths over both the Castle Dykes and the Castle Holmes. Whilst the former did not involve any extensive landscaping the same is not true of the Castle Holmes where extensive landscaping and terracing took place at the turn of this century. The survey noted that several elements survive from before the landscaping including banks defining a routeway down the slope to the shoreline and a track to the site of a possible quarry immediately below the summit of the headland.

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Christopher Hall, of the Department of Technical Services, Scarborough Borough Council arranged for access to archive material and Adrian Syson of the same department organised the temporary loan of Ordnance Survey digital maps. Access to photographs in the collection of Scarborough Museum was arranged by the registrar, Annie Jowett whilst Jonathan Clark and Kate Giles of the Department of Archaeology at York University made available the source material used in the compilation of their management and conservation plan for the castle, and supplied a draft copy of the report itself. Roger Thomas of the RCHME provided background information on aspects of the 20th-century military activity on the headland and Anthony Crawshaw loaned aerial photographs of the site.

The custodian of Scaborough Castle, Bill Kneale and his staff are thanked for support during the course of the fieldwork which also benefitted from 3D co-ordinate data gathered by Keith Hoffgartner of Trimble in conjunction with Mike McGill of English Heritage and Dave Allen of Survey Supplies.

The survey was researched and written by Trevor Pearson who also prepared the illustrations. The report was edited by Stewart Ainsworth.

METHODOLOGY

The archaeological survey of Scarborough castle was undertaken using a Leica TC1610 total station theodolite on a closed traverse of 13 stations. Observations from the stations were taken to record hard detail and set out a grid of temporary control points marked by plastic pegs and degradeable paint and chalk marks. Additional observations were made to groundfast anchors and rivets. Fibron tapes were then laid between these control points and archaeological detail was measured off and plotted by hand at 1:1000 scale onto the emerging plan on site using standard graphical techniques of baseline and offset. Where appropriate, further detail was added to the plan in the field using a Wild RK1 self-reducing alidade and staff. The digital survey data was processed using mathshop survey software and the results plotted on a Calcomp pen plotter.

Key Terra Firma and AutoCad software was used to produce a contour map of the hilltop from a grid of 6300 three-dimensional coordinate points logged using a Leica single frequency Global Positioning System (GPS). The GPS equipment was also used to fix a base station on site within National Grid OS GB36 coordinates determined via a transformation programme based on its position relative to OS trigonometrical pillar SE97/T88. This base station was then used to establish a local network of three subsidiary stations across the survey area which, with the base station, were station points used during the theodolite traverse. Full details of the survey methodology and full details of the design and accuracy of the survey are contained in the survey archive deposited in the NMR. In addition, a terrain model of the inner bailey was produced from 800 three-dimensional points logged using a Trimble real time Global Positioning System and the data processed through Trimble Survey Office software.

The survey drawing was completed by combining the field plot with the Ordnance Survey Landline 92 digital data and a digitised version of the Rees and Co. survey plan of the castle masonry. The final report has been processed using Corel Ventura DTP software with illustrations using CorelDraw and AutoCad programmes.

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APPENDIX 1

Table of NMR numbers linked to the survey

SITE NAME	COUNTY	DISTRICT	PARISH
Scarborough Castle	North Yorkshire	Scarborough	Scarborough

NMR No.	Unique Identifier	NGR.	Site Name
TA 08 NW 35	79973	TA 0493 8919	Scarborough Castle
TA 08 NW 153	1205436	TA 0494 8922	Master Gunner's House
TA 08 NW 154	1205926	TA 0480 8915	Bushell's Battery
TA 08 NW 155	1205944	TA 0495 8897	Possible English Civil War outwork
TA 08 NW 156	1205978	TA 0485 8930	Castle Holmes Battery
TA 08 NW 157	1206070	TA 0492 8925	Disused quarry
TA 08 NE 115	1205386	TA 0517 8911	Second World War radio direction finding post
TA 08 NE 116	1205399	TA 0505 8919	Unfinished 1920s football ground
TA 08 NE 117	1205422	TA 0516 8906	20th century coastguard station
TA 08 NE 118	1205429	TA 0515 8920	First World War coastal listening station
TA 08 NE 119	1205905	TA 0511 8885	South Steel Battery
TA 08 NE 120	1205970	TA 0500 8902	Ruined 18th century barracks
TA 08 NE 121	1205973	TA 051 891	19th century rifle range
TA 08 NE 122	1205977	TA 0504 8939	Possible site of an 18th century gun battery

TA 08 NE 123	1205981	TA 0512 8900	Possible site of an 18th century gun battery
TA 08 NE 124	1205994	TA 0501 8939	Site of a 19th century gun battery
TA 08 NE 125	1206285	TA 050 890	Parent record for 18th century military activity
TA 08 NE 126	1206288	TA 050 890	Parent record for 19th and 20th century military activity

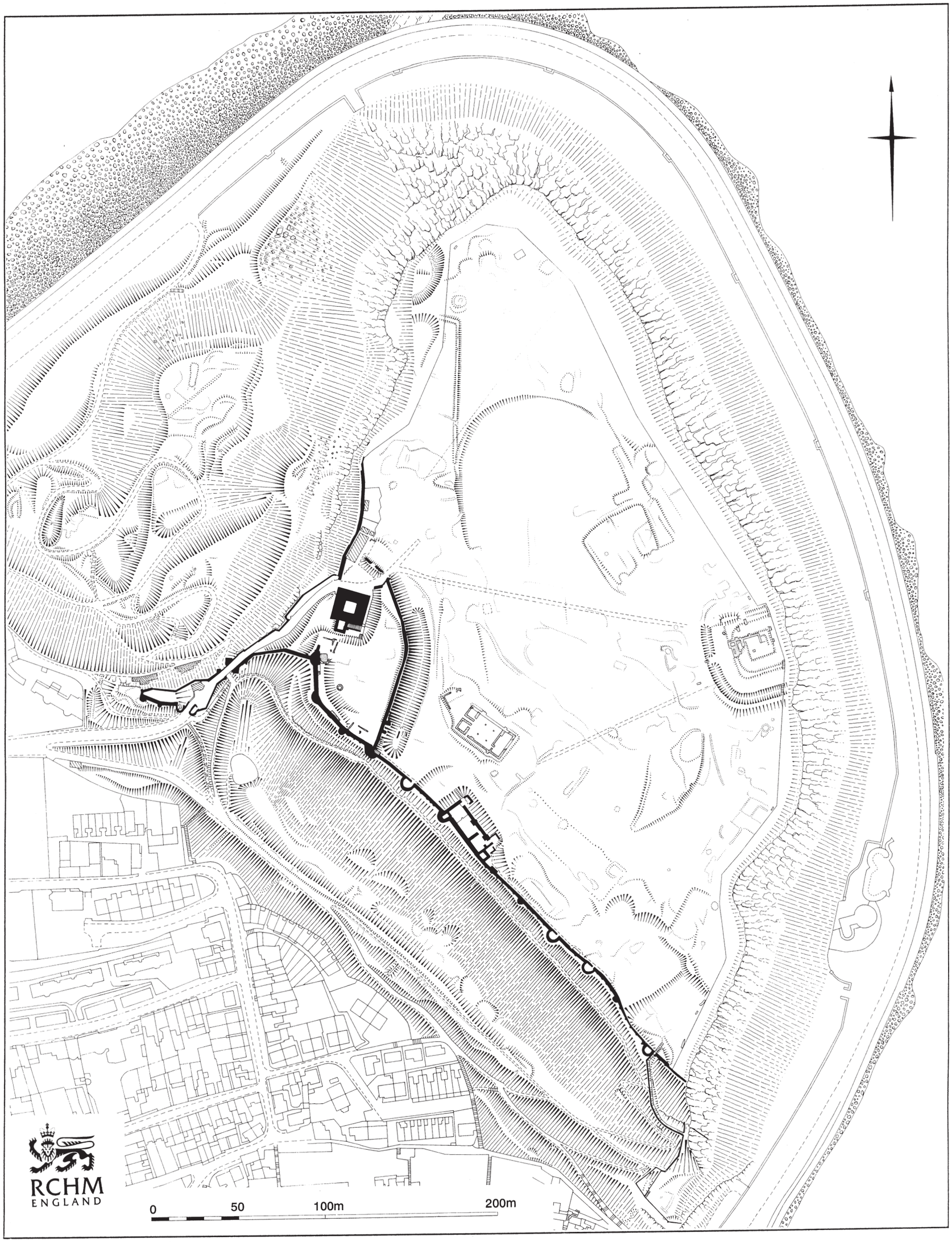

Figure 6. RCHME plan of Scarborough Castle surveyed at 1:1000 scale (reduced to 1:2000)