GUARD ARCHAEOLOGY

Abbots, Kings and Lost Harbours:
Looking for Cambuskenneth Watergate
Data Structure Report
Project 4063

INNER FORTH LANDSCAPE INITIATIVE

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Abbots, Kings and Lost Harbours: Looking for Cambuskenneth Watergate
Data Structure Report

On behalf of:	Stirling Council
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Project Number:	4063
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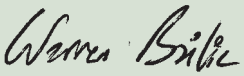
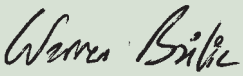
09/11/15		18/12/15	

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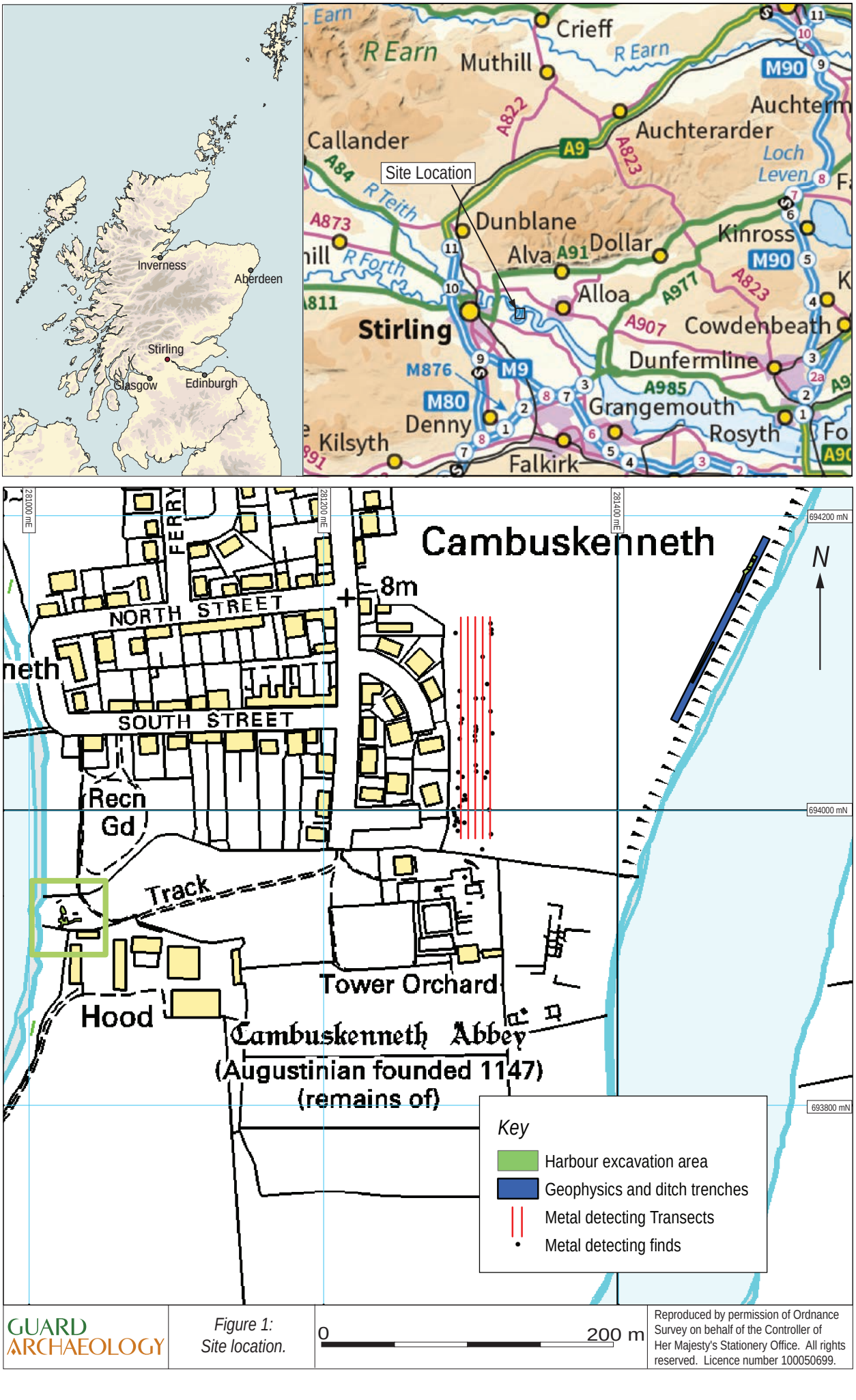

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Figure 1: Site location.

Executive Summary

1.1 Archaeological investigations were carried out by GUARD Archaeology Limited on behalf of Stirling Council at Cambuskenneth Abbey. The investigations were carried out in accordance with the Project Design (Bailie 2015, Appendix 1) from 7th to 18th September 2015 coinciding with the Inner Forth Festival, Door's Open Day and Archaeology Month. The work undertaken involved community volunteers in conducting a geophysical survey, hand excavations, metal-detecting, planning, recording and finds processing. In addition a separate metal-detecting survey was also conducted by SARG to the east of Cambuskenneth Abbey on the Abbot's Ford, a summary of the results are included here. Primary School children from St. Modan's, St. Ninians (Plate 1) and Riverside schools took part in the investigations, students from the Scottish Agricultural College also took part. Dr. Richard Oram and Dr. Richard Tipping visited the site during the investigations and provided expertise on the historical and environmental background of the site.

Plate 1: St. Ninian's Primary School uncovering the harbour.

Introduction

2.1 This report sets out the results of all archaeological investigations undertaken by GUARD Archaeology Limited during these most recent investigations at Cambuskenneth Abbey (Figure 1). The work was undertaken from 7th to 18th September 2015 under the direction of Warren Bailie.

Site Location, Topography and Geology

3.1 Cambuskenneth Abbey is situated on the low-lying flood plain or carse of the River Forth, some 1.5 Km to the east of Stirling Castle at NGR NS 80868 93940. The abbey complex is located within a looping meander creating a holm-like setting, on the north bank of the river, a location that gives it some degree of natural protection/isolation as the river flows by on three sides. Two meanders to the north of the site converge to create a narrow passage at Lady's Neuk.

3.2 The area associated with the remains of the Abbey buildings, of which the bell tower is the most obvious element, are protected as a Scheduled Ancient Monument and the site is maintained by Historic Scotland. The area covered by the schedule and the tract of land immediately to the west, in addition to the current village to the north, lies within a conservation area designated by Stirling Council.

3.3 The main points of access onto the meander and therefore into the Abbey does not appear to have been via dry land across the northern neck of the meanders but via ferries across the western and eastern loop of the river and a fording point, also to the east of the Abbey (Plate 2). Evidence for a link between the western crossing and the Abbey takes the form of an east-west running trackway terminating at the river at a point some 235 metres to the west of the Abbey (Plate 3). A prospect of Stirling drawn from the ruins of the Abbey by John Slezer in 1693 clearly shows this track, with buildings to the left (Plate 4). These structures may be related to buildings on either side of the road which are today suggested by topographic features

3.4 The underlying drift geology consists of Alluvium, Clay, sand, silt and gravel http://www.bgs.ac.uk

Plate 2: Abbot's Ford to east of Cambuskenneth.

Plate 3: Track leading to-from Cambuskenneth Abbey site.

Plate 4: Slezer print of 1693 showing track running west to the river from Abbey ruins and water gate on river's edge (top of frame).

Historical Background

4.1 The Abbey was founded by David I in around 1140, and was originally known as the Abbey of St Mary of Stirling. However, from at least 1201 onwards it was referred to as the Abbey of St Mary of Cambuskenneth (on the basis of Papal Bulls from Innocent III). The place name means the 'creek' or 'field of Kenneth', and is traditionally associated with a battle between the Scots under Kenneth and the Picts – this tradition underpins the location's position at the heart of the idea of a Scottish identity. It was an Arrouasian monastery, where the monks followed a strict interpretation of the rule of St Augustine. The community was composed from a house of canons, i.e. ordained men, priests in their own right, rather than regular monks. The present ruins, which include the bell tower, foundation walls and elements of upstanding walls, have been dated no earlier than the 13th century. The bell tower, probably built after the church, is unusual in being free standing and would have been relatively new at the time of Bannockburn (RCAHMS 1963, 122). It is possible that an earlier structure stood on the site, but there is as yet no archaeological evidence for this.

4.2 The Abbey is associated with some key events from the Scottish Wars of Independence and indeed was to repeatedly suffer the privations of wars during the late thirteenth and first half of the fourteenth century as these raged. A close association with the Scottish crown is evident through much of the pre-Reformation period, partly no doubt due the Abbey's proximity to the royal castle at Stirling (RCAHMS 1963, 120). This connection was most clearly established by the

burial there of James III after his death under suspicious circumstances following the Battle of Sauchieburn in 1488. In 1303-4 however, Edward I, King of England, was at the Abbey, and here he received Robert Wishart, the Bishop of Glasgow as he swore an oath of fealty, for the fifth time, to the English king. On 11 June 1304 Robert the Bruce and William Lamberton, the Bishop of St Andrews, came to the Abbey to enter into a treaty with one another; it was the start of a partnership which was to climax with Lamberton placing the crown on Bruce's head (according to some) in 1306, following the murder of the Red Comyn. In 1308 Sir Neill Campbell, Sir Gilbert Hay and others swore fealty to the Bruce on the High Altar, swearing then to defend the liberty of Scotland against all enemies.

4.3 The Abbey was also the location for a series of important parliaments during the rule of Robert I. The first of these, in November 1314, saw Robert disinherit all the nobles holding lands in Scotland who were not present at the parliament; this included the sons of those who had died fighting for Edward II at Bannockburn, while any who were not present were judged to have declared themselves as Edward's subjects rather than Robert's. This act set the seal on the nature of future conflicts, creating the Disinherited who were the catalyst for the Second War of Independence. Then, in 1326 the entire clergy of Scotland (though presumably only its upper echelons), the earls and barons, but also importantly a good number of lesser individuals, assembled in the presence of the Bruce to swear fealty to his son David on the event of his death, and indeed also to his grandson Robert Stewart, lest David should die without issue. The parliament is notable not just for this but also because it is the first time that the lower order of burgesses are mentioned as having a seat. In short, it can perhaps be regarded the first sign of democracy in an otherwise monarchical system of government – as if to highlight the latter, another order of business was the signing over to the king of ten percent of the revenues of all laymen in the kingdom (Cruden 1953).

4.4 Cambuskenneth is one of the few places actually named in the near contemporary sources relating the story of the Battle of Bannockburn in 1314. The best known of these, Barbour's The Bruce, describes how Bruce's baggage was looted by the Earl of Athol, who bore a grudge due to past events and his association with the rival Comyn faction through marriage. The relevant stanza (lines 491-504) goes:

His awyne wyff dame Ysabell.

And tharfor sa gret distance fell

Betwix him and the erle Davi

Off Athole, brother to this lady

That he apon Saynct Jhonys nycht,

Quhen bath the kingis war boun to fycht,

In Cammyskynnell the kingis vittaill

He tuk and sadly gert assaile

Schyr Wilyam off Herth and him slew

And with him men ma then ynew.

Tharfor syne intil Ingland

He wes bannyst and all his land

Wes sesyt as forfaut to the king

That did tharoff syne his liking.

4.5 The buildings were reduced to ruins during the Reformation and were quarried for stone until the site was excavated in 1864 by William Madison (Alexandria 1868), who also restored the bell tower. The present plans of the ruins are based on his work. From the plans alone it is clear that not all of the Abbey has been excavated. No ancillary structures, other than buildings A and B have been identified, the whereabouts of the medieval graveyard is unknown, neither are the bounds of the precinct known. The present field boundaries are a modern construct placed on the landscape, which probably follow the limits of the 1864 excavations.

Archaeological background

5.1 The Abbey was the subject of antiquarian interest in the 19th century and underwent excavation in 1864, partly motivated by the desire to locate the remains of James III. Prior to this time only limited evidence of the once impressive medieval complex of buildings were visible, thanks to the success of the Abbey's destruction sometime after 1559 during the Scottish Reformation, though denudation through stone robbing no doubt took place over a long period of time following that date (it is said to have been used as a quarry). The most obvious feature was the bell tower, which stood apart from the church as a campanile and this underwent renovation at the same time as the excavation, both operations being under the supervision of William Mackison, Town Architect of Stirling (Alexander 1858).

5.2 The excavation resulted in the exposure of lengths of foundation wall marking out a number of structures, including the church, the arched doorway of which is still upstanding, south cloister with sacristy, slype and chapter house on east side, with refectory and kitchen to south. These can be seen on the ground today, though there is doubt as to the accuracy of the site plan thus portrayed or the date of the buildings represented (RCAHMS site record). Much of the stone work present appears to represent later masonry elements used to portray the site on the basis of the excavation results – the work having been carried out in the main by local labourers.

5.3 A series of photographs taken in the 1920s and 1930s appear to show excavation work possibly associated with the renovation/consolidation of the foundations first laid out by Mackison in the wake of his original 1864 excavations (see section on historical research below). As yet no report or account of this work, which appears to have included removal of turf and topsoil over a considerable area, thus exposing architectural features either recreated by Makison or re-buried at the close of his investigations. It is possible that a trawl through Ministry of Works archives at Historic Scotland may shed some further light on this fascinating set of photographs.

5.4 The Abbey, both within the scheduled area and outside it, has been subject to investigation in recent years. Topographic and geophysical survey along with a limited programme of excavation was carried out by GUARD in 1997. These areas included the eastern limit of the scheduled area, where the remains of two ancillary buildings are visible, one of these including a remnant of a dovecot attached to the end of a long building (see below). The anomalies thrown up by the geophysical survey to the west of the Abbey suggested building foundations – in the form of rubble spreads created by collapsed walls (Etheridge 1997). It has been suggested that these remains relate to buildings within the Abbey precincts, including houses for agricultural workers.

5.5 Trial trenching of a crop mark anomaly to the south of Hood Farm revealed no sign of the possible enclosure but did reveal remnant ridge and furrow and a stakehole. Geophysics of the land to the east of the Abbey buildings, close to the river, established the presence of buried elements to the northern building (A) and a possible river wall.

5.6 Investigations in 2012 were undertaken by GUARD Archaeology Limited in collaboration with the Centre for Battlefield Archaeology at Cambuskenneth Abbey. These investigations involved the local community, SARG and Detecting Scotland metal detecting club throughout and included a Geophysical Survey, a Metal Detecting Survey and Targeted Evaluation Trenches over potential anomalies. These investigations revealed evidence of surviving medieval strata immediately west of the scheduled area with finds included a small fragment of carved stone detailing, medieval floor tile and pottery. There was also a tangible incline to the layers encountered here, perhaps

indicating that a wide gully or bank existed outside the Abbey at one point. The investigations also revealed ephemeral remains of small structures which may be remnants of turf dwellings or banks used to control water flow across the site. A ditch of post-medieval date was also revealed alongside the current main track leading to Hood Farm. The investigations uncovered built remains at the west end of the track which are attributable to the ruined Watergate and range of building shown on Slezer's 1697 etching. The metal-detecting survey covered an area of 17 hectares across the fields to the south and west of Cambuskenneth Abbey. There were a total of 1044 finds retained; these included 36 coins, one of which was identified as an Edward I/II coin giving a late thirteenth to early fourteenth century date for its minting. In addition 44 musket balls, some of which were distorted or partial, were recovered during the survey. These varied in size from small shot of 5 mm diameter to larger shot of approximately 15 mm. Two possible cannon shot were also found, as were 22 buttons and 3 buckles.

5.7 The most recent investigations in proximity to Cambuskenneth Abbey took place in Spring 2015 where GUARD Archaeology Limited undertook an evaluation to the east, across the River Forth from the Abbey, at Borrowmeadow. Here the remains of a cobbled medieval track or road were discovered in one trench immediately south of the boundary of Borrowmeadow farm. This was interpreted as the medieval road that led to/from the Abbey Ford to the west and was possible the route to Throsk Palace further east. Finds from the evaluation included medieval pottery from the cobbled surface and a small metal pendant cross.

Aims and Objectives

6.1 The aims and objectives of archaeological trenching are as follows:

- establish the presence or absence of any archaeological remains, and their character, date, extent and significance if surviving,
- excavate and record any significant features and recover any significant artefacts and ecofacts for subsequent analysis,
- establish through field-walking whether there are patterns of artefact distribution that reflect the use of the sites and their environs through time,
- tie the Watergate, and Abbot's Walk into their wider historical and geographical context within the Stirling and Inner Forth area,
- provide informative content for display boards and/or information leaflets.

Methodology

7.1 The strategy employed during the excavation consisted of the following:

- A walkover survey was conducted initially to more accurately define the nature of the ground-breaking work.
- A metal-detecting survey was conducted across the harbour locations and their vicinity.
- Geophysical survey was conducted on a targeted strip 5 m in width and 120 m in length (600 m² area), over six grids of 5 m by 20 m. Resistivity was carried out using a Geoscan RM15 Advanced Resistivity Meter with a twin probe array and probe separation of 0.5m. The gradiometry survey used a Geoscan FM256 Fluxgate Gradiometer. The sample interval was carried out at 0.5 m and traverse was at 1 m, allowing a high resolution of detail. Volunteers were involved throughout the process in order to provide survey training.
- The trenches and test pits were laid out across each of the proposed areas of investigation and their position surveyed.

- Trenches were placed to investigate and characterise the nature of each location and to reveal any significant archaeological remains relating to the area and its use through time.
- Trench locations were modified to avoid services, public access or obstructions.
- Trenches in the field to the north of Cambuskenneth were initially stripped of turf and overburden using a small back-acting machine with a smooth-edged bucket.
- The back-acting machine was under the constant supervision of a professional archaeologist.
- Excavation were by hand and undertaken by volunteers under the constant supervision of professional archaeologists at all times.
- Areas of trenching were demarcated by road irons and hazard tape to restrict unaccompanied public access and reduce the likelihood of accidents. A buffer of 5m was maintained from the river's edge throughout the investigations.
- The topsoil was removed in spits to the first archaeological horizon or, where none is found, to the natural subsoil. Any archaeological features encountered were cleaned by hand to determine the date of the deposits, their character and extent. Such features were recorded by written description on pro forma recording sheets, by photograph and by measured drawing.
- All turf and spoil were stored separately by material on tarpaulins, so that reinstatement could be achieved adequately at the end of the project.
- All archaeological features encountered were dealt with by the on-site archaeologists. Where negative-cut features were encountered they were 50% sample excavated in order to determine their significance, date and function. Recording included pro forma sheets, drawings and photographs.
- All archaeological finds were dealt with by the on-site archaeological team. The general practice was to bulk recover all artefacts by context which date from the later phases of activity (eg modern waste materials). Where finds were encountered from the earlier occupation phases of the site they were three-dimensionally recorded prior to up-lifting.
- No samples were retained for palaeo-environmental evidence as the material removed to reveal the archaeology was disturbed and contained relatively modern refuse. Deposits revealed on the lower slope of the harbour area where deemed relatively modern by the Environmental specialist and therefore were not sampled. Grey riverine clay below the harbour structure was organically sterile.
- The trench locations were surveyed using a sub-centimetre GPS. This information will inform any further work that may be required.
- All trenches will be backfilled with turf re-laid on completion of recording. If a trench is left open it will be demarcated with hazard tape to restrict access.
- Fieldwalking was undertaken, where appropriate, in the environs of the areas of investigation and neighbouring fields along the Forth.
- All artefacts were catalogued by site and were surveyed using a sub-centimetre GPS.

Results

8.1 The investigations at Cambuskenneth involved a metal-detecting survey covering approximately 180 m², a geophysical survey covering x m² and eight targeted hand and machine excavated trenches totalling 110 m² (Figure 2).

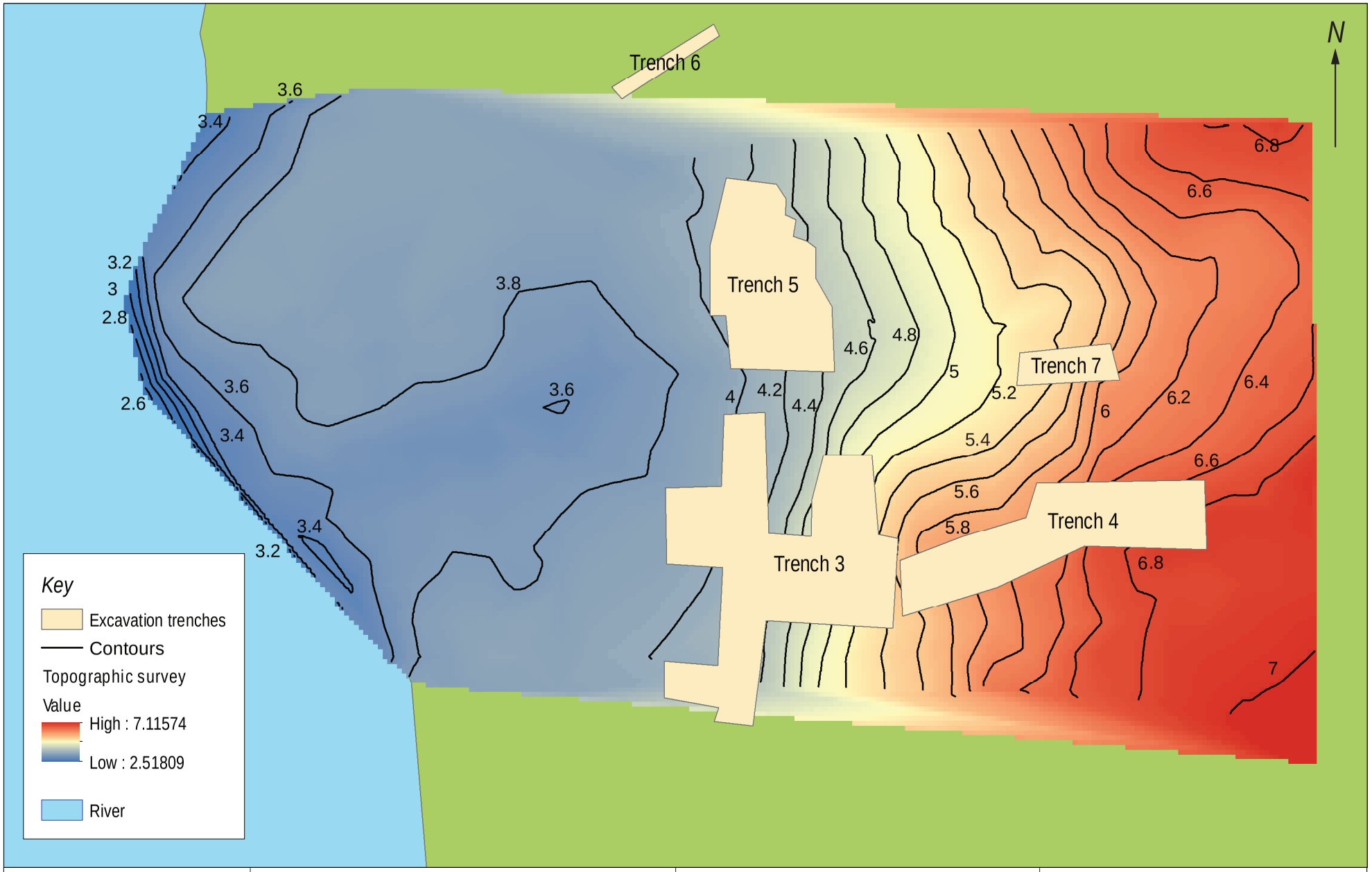

Figure 2: Watergate excavations and topographic survey

0 5 m

8.2 Metal-detecting results

North of Cambuskenneth

8.2.1 The metal-detecting survey covered an area of 180 m² across the field to the north of Cambuskenneth Abbey (Figure 1). There were a total of 44 finds recovered, none of which were retained. All finds were of nineteenth to twentieth century date and after the position of each item was surveyed and a note was taken of the item it was returned to the ground in it's original position. The material consisted mainly of agricultural discard such as machined plough pieces, hitches, bolts, barbed wire and round-wire nails; several late twentieth century coins were also recovered.

Abbey Ford- Independent SARG survey

8.2.2 The Scottish Artefact Recovery Group (SARG) conducted an independent metal detecting survey on the Abbey ford which is located on the Forth immediately east of Cambuskenneth Abbey. The survey was conducted on two occasions, 13th and 15th September. The initial day was a test run to determine any risks associated with the inter-tidal survey. The main survey took place on 15th September under particularly low tide conditions. Three key finds from the survey were a Robert II groat, a George II coin, a medeival horseshoe fragment, a horseshoe of possible late-medieval/early post-medieval date, several lead line weights and net weights as well as a large assemblage of more recent and lighter metal waste.

8.3 Geophysical Survey Results

8.3.1 The geophysical survey was targeted over a strip running north-east/south-west along a section of the river bank to the east of the existing Cambuskenneth settlement, specifically targeted to locate two possible ditch features which had been previously identified on aerial photos from the 1940s thought to indicate an earlier crossing point. Two anomalies of potential archaeological interest were identified in the resistivity survey in roughly the correct locations to represent these features running across the survey strip (Plate ??; features 1 and 2). The gradiometry survey showed no anomalies as distinct, with a single more ephemeral feature tentatively identified as running in the right direction (Plate ??; feature 3). Gradiometry survey across one grid was unsuccessful, containing a series of abnormally high readings; as a result these are omitted from the processed data. Both surveys show a level of disturbance to the east side, interpreted as resulting from soft ground here where the land begins to fall away towards the river bank.

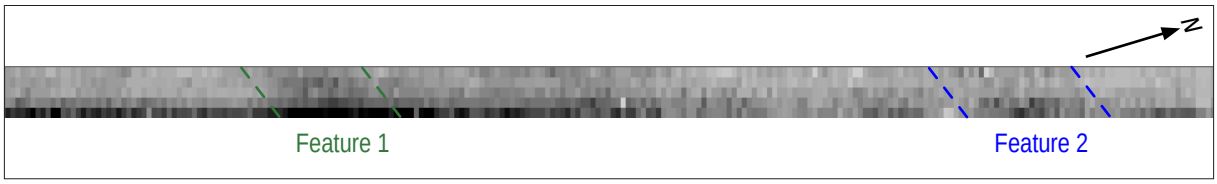

Plate 5: Results of the resistivity survey.

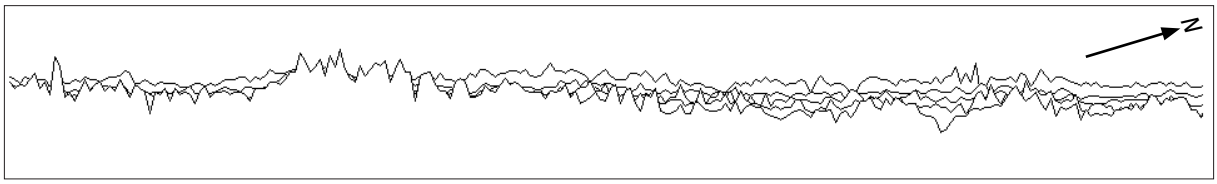

Plate 6: Resistivity results (raw data).

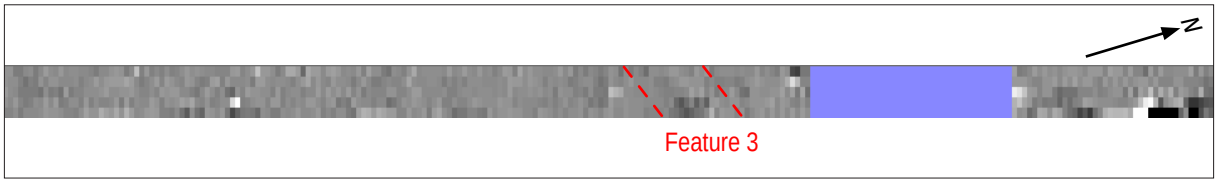

Plate 7: Results of the gradiometry survey.

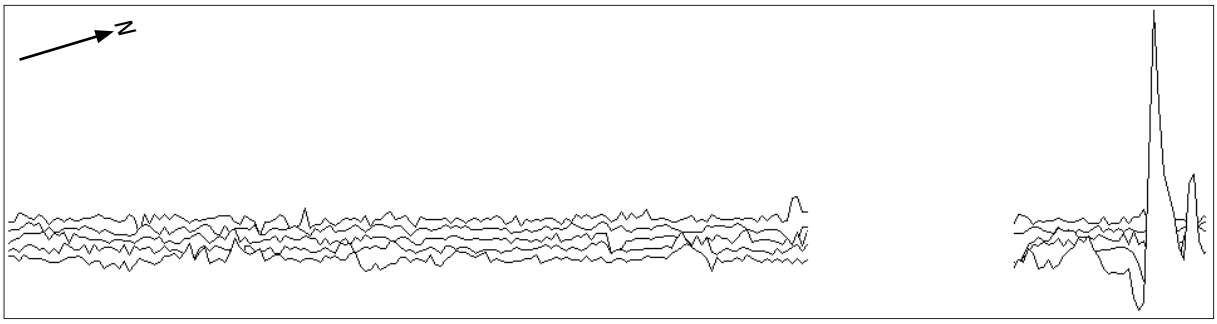

Plate 8: Gradiometry results (raw data).

8.3.2 Both surveys provided opportunities for volunteers to partake in the process, receive training and view the results, fulfilling this outcome of the exercise.

8.4 Archaeological Excavation Results

8.4.1 There were two areas of trenching, to the north of Cambuskenneth Abbey (Trenches 1 and 2) and over the Watergate and harbour position (Trenches 3 to 8). These will be described in detail below.

Trench 1

8.4.2 This trench was located over the position of one of two possible ditch features established through field observation, geophysical survey and topographic differentiation (Figure 1). The trench measured 1 m by 28 m initially and was later expanded by 16 m ² to facilitate a more thorough investigation (Plate 9). Topsoil 050 overly a transitional mixed layer 052 which subsequently was removed to reveal subsoil 051. On initial inspection a linear feature 053 measuring approximately 5 m in width extended NW/SE across the trench. It was surmised that this was the ditch feature sought by the investigations. On investigation this was confirmed to be a band of coal dross waste. This band of material was removed to reveal underlying parallel east/west orientated linear features 056 and 057. Both were of similar form and scale, they lay 7 m apart and were filled by similar light brown silty clay material (054 and 055 respectively). Feature 056 measured 1.6 m wide and 0.25 m deep, feature 057 measured 1.9 m wide and 0.3 m deep (Plate 10) One small piece of lead SF015 was recovered from feature 054 and one fragment of clay pipe was recovered from 055. Three other finds were recovered during a metal detecting sweep along the base of the trench; an unidentified iron fragment SF1, a lead fragment SF2 and an iron nail SF3.

Plate 9: Trench 1 widened to north, view from NNW.

Plate 10: Linear feature 057 exposed in Trench 1, taken from east.

Trench 2

8.4.3 This trench was located to the south of Trench 1 over the southernmost ditch position established through field observation, geophysical survey and topographical differentiation (Figure 1). This trench measured 1 m by 28 m, the topsoil 050, transitional layer 052 and subsoil 051 were consistent with that observed in Trench 1 to the north. No archaeological features

were uncovered during the investigation of this trench. A copper alloy pin SF4, an unidentified fragment of iron SF5 and small sherd of pottery of uncertain date were recovered during a metal detecting sweep along the base of the trench.

Plate 11: Trench 2 after stripping of topsoil and testing at intervals, taken from north.

Watergate trenches (Trenches 3-8)

Plate 12: Revetment along lower edge of harbour, taken from north.

Plate 13: Harbour 006 taken from north.

8.4.4 A series of trenches (Trenches 3-8) were opened over the position of the Watergate depicted in Slezer's drawing of 1693 (Pollard 2012) and the slope leading down onto the banks of the River Forth to the west (Figure 1 and 2). The trenches revealed a series of built remains of probable medieval date. At the base of slope there was a revetment of rounded and irregular shaped stones 016. This revetment was set into the grey river clay 007. This revetment extended for approximately 8 m in a north/south orientation within the excavated area (Plate 12). This revetment supported the lower edge of a harbour structure 006 which also extended north/south but curved upslope to the north in Trench 3 (Figure 3, Plate 13). The structure measured approximately 5 m east to west and up to 8 m north to south. This same structure extended into section to the south along the river bank so it's full extent remains unknown. Extending downslope from the top to bottom breaks of slope was a small mortared wall 015 which extended east to west leading between the mortar foot 003 and the lower edge of the harbour 006. The harbour structure was overlain by a rubble layer 005 which consisted of loose irregular stones. At least two steps where established in the harbour structure 006, one approximately 0.6 m east of the lower harbour footing and the other on the upper slope marked by a low wall 015 adjacent to the footing of the Watergate structure 003. Construction layers 010 and 009 were discovered below the lower and upper steps respectively. Both these layers consisted of firm mid-grey silty clay with frequent small fragments of sandstone and both contained medieval artefacts; medieval ceramic sherds SF19 and SF 25 from 010 and a fragment of a

medieval horseshoe SF46 from 009. The Watergate footing was shown to truncate the wall immediately to the north and east in the 2012 excavations, numbered Wall 013 in the present excavation. The upper level of the footing consisted of a rounded mortar footing 003 (Plate 14) with occasional large stones set into the shell-rich mortar for strength. This footing measured 0.2m thick and approximately 1.4 m in diameter.

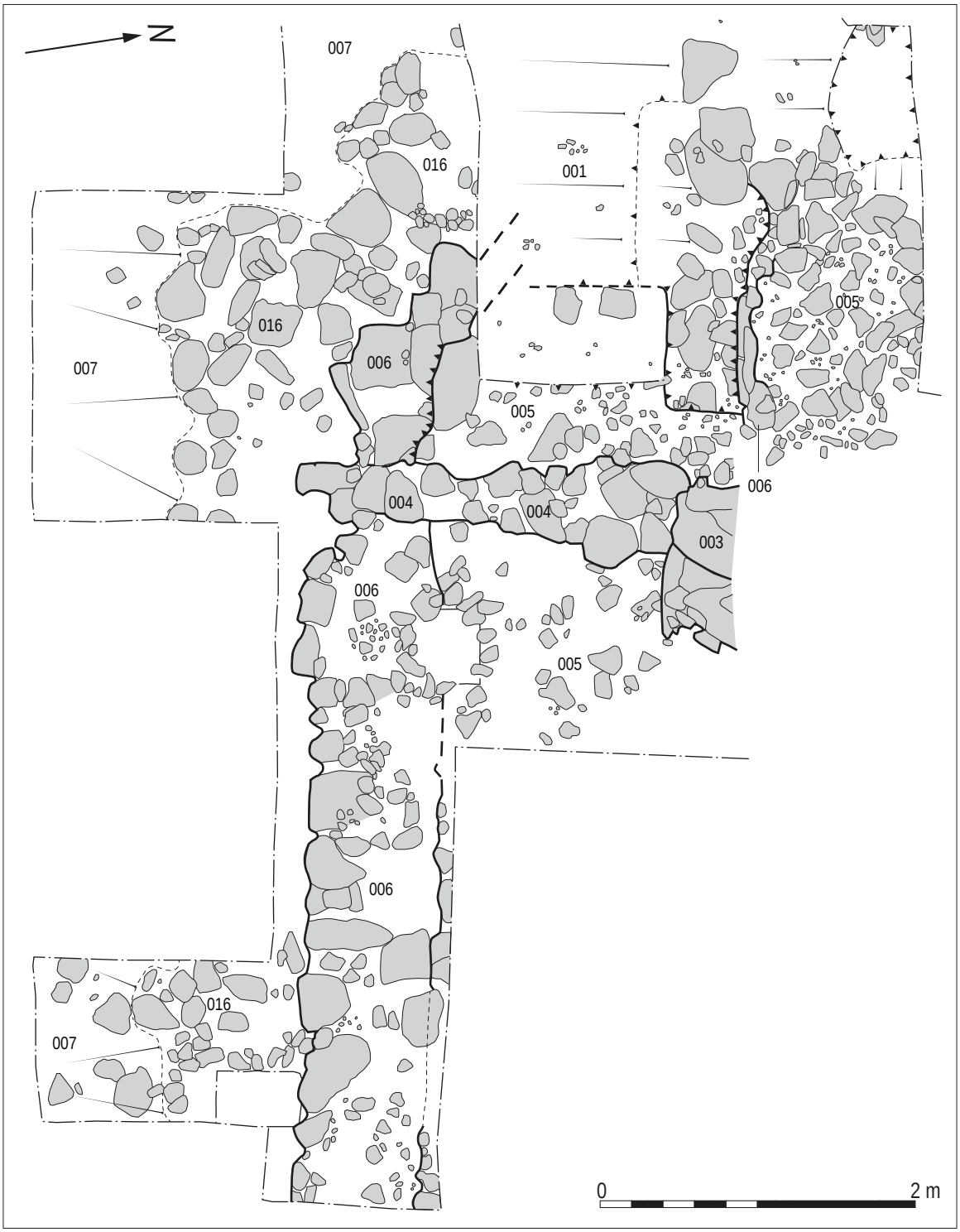

Figure 3: Trench 3 excavations - Medieval harbour structure.

8.4.5 On the plateau above the footing and harbour structure there were two walls (Figure 4), both of which had been discovered previously in 2012, although they were not expanded upon during those investigations. The earliest of these walls 014 only survived as one intact course and was orientated east/west and was constructed of unbonded sandstone, some dressed, and other stone types set directly on natural orange grey clay subsoil (Plate 15). This wall measured a

maximum of 1.08 m wide and it was followed for up to 8.1 m as a visible above ground feature although only the western 4.3 m was exposed during these investigations. This wall was truncated to the west by the corner of another wall 013. This wall extended from the right angled corner to the north and west, the angle of the western arm of this wall differing slightly from the line of the east/west truncated wall 014 (Figure 4, Plate 16). Wall 013 was also constructed of unbonded mixed rounded, sub-angular and dressed stones and measured 0.8 m wide, one course high and 3.2 m east/west was exposed during these investigations. As previously stated, the footing for the Watergate 003 truncated this wall at it's western end.

Plate 14: Rounded mortar footing 003 at top of slope.

Plate 15: Wall 014 taken from east.

Plate 16: Wall 013 taken from west.

Plate 17: Trench 5- Loose built remains 019 and modern pipe disturbance.

8.4.6 A series of three trenches were opened to the north of Trenches 3 and 4 to establish further evidence of the wider harbour structure. Trench 5 revealed extensive modern distubance in the form of a cast iron pipe and possible rough surface leading downslope to the edge of the river (Plate 17). Some loose stone-built remains 019 in the north-east corner of trench may represent remnants of the continuation of a harbour structure. Some rubble 020 of a similar nature to that observed in Trench 3 was also observed around these remains. Trench 7 revealed further evidence of rubble including some dressed sandstone blocks. Trench 6 revealed a low wall 023 which extended toward the river's edge, this wall was set into the upper topsoil levels and the material culture over and within the stonework were wholly twentieth century in date.

8.4.7 As part of the investigations a survey of the topography was undertaken to provide accurate figures for comparison to mean tide heights in this area. The top break of slope which coincides with the upper edge of the harbour and Watergate footing is 6.5 m OD, the bottom break of slope which lies at 3.8 m OD and the lowest harbour edge lies at approx 3.5 - 3.6 m OD (Figure

Figure 4: Trench 4 excavations - Watergate remains.

2). A series of three cores were also taken leading from the harbour edge to the river edge. These cores established that the river silt lay at approximately 1 m below current ground surface meaning that this river clay lies at 2.8 m OD. The material overlying these river silts had also accumulated over the harbour edge and lower slope. In section the material consisted of 011 a dark organic rich peaty silt layer overlain by dark grey brown topsoil. Both layers contained a quantity of relatively recent material. This location is close to the river's edge and is prone to both erosion and deposition perhaps accounting for the frequent modern material in topsoil levels.

Discussion

9.1 The metal detecting survey in the field north of Cambuskenneth revealed only agricultural material. No significant artefacts were recovered during this survey. These areas may have been detecting before, this may in some way account for the lack of earlier artefacts recovered. The metal detecting survey conducted by SARG on the Abbot's Ford recovered a Robert II groat, a George II coin, a medieval horseshoe fragment, a horseshoe of possible late-medieval/early post-medieval date, several lead line weights and net weights as well as a large assemblage of more recent and lighter metal waste.

9.2 The geophysical survey did reveal potential anomalies on the resistivity and gradiometer plots and in the case of Trench 2 a possible large feature seemed to coincide with the possible continuation of one of the ditches observed from aerial imagery and field observation. On excavation of both trenches (1 and 2) there appeared to be only bands of dumped industrial waste, probably partly from coal mining, in underlying topsoil levels.

9.3 There are obvious above ground undulations demarking two banks/ditches leading in a slight curve from east to west and these features probably at one time stretched between the east and west river banks, effectively closing off Cambuskenneth from the north. These features are likely to have marked the outer precinct of the Abbey although each may originate from different periods in the Abbey's history. On Joan Bleau's Map (1654) showing the '*Starling*' (Stirling) area, at least one palisade is shown around the landward side of Cambuskenneth. It should be noted that Bleau's maps were largely based on Timothy Pont's work from the mid to late sixteenth century which explains why Bleau shows Cambuskenneth Abbey intact almost a century after the reformation. The two curving features in the landscape later became used for a foot track (southern feature) and a carriage track (northern feature), both of which are annotated as such on the mid-nineteenth century deeds of Hood Farm (Pers. Comm. Mr Andrew Rennie, current tenant farmer). A pier and ferrying service are also shown leading north and eastwards across and along the Forth River at this point.

9.4 The investigations on the Watergate and harbour revealed a surprisingly intact medieval stone-built structure on the edge of the Forth. This part of the River Forth has seen minimal major development beyond the foot bridge that replaced the ferry in 1935 and recent housing development on the west bank. The location of the harbour and the river bank has therefore remained relatively unchanged since probably the later medieval period. The east river bank leading south from the current harbour investigations also appears undisturbed suggesting the possibility of further medieval harbour remains surviving here.

9.5 The evidence from the topographical survey during these investigations suggests that this harbour could not feasibly function using the current mean tide levels. This indicates that the mean levels could have been up to 2 m to 3 m higher than they are today in order for the harbour to be viable. The river level therefore must have changed considerably in recent centuries. Given that the Watergate is shown in ruins in Slezer's drawing of 1697 the harbour may have already been abandoned before this point, especially considering that the Abbey no longer functioned soon after 1559 during the Scottish Reformation. Other possible evidence of the harbour being out of use is the two-masted boat shown moored further upriver close to the point of a cutting for a road/track leading from the river's edge across what now is the southern extent of Cambuskenneth village. The water level in Slezer's print appears higher than today with much of the area between Cambuskenneth and Stirling Bridge being under water, this may

be down to perspective, especially considering how low the moored boat in the foreground is shown. There is at least one other discrepancy in the etching, no Campanile tower is shown at the Abbey which we know existed from probably the thirteenth century. From this evidence we cannot accept that the etching is wholly accurate but it can be accepted as a representation of the scene at that time.

Recommendations

10.1 Given the rarity of surviving medieval harbours in Scotland and indeed further afield, further analysis, research and publication are recommended. In light of a number of unidentified iron finds of potential significance, a quantity of medieval pottery, clay pipe fragments and a small quantity of animal bone, it is recommended that they are analysed by the relevant specialists in their respective field. This may contribute to our understanding of the role that Cambuskenneth Abbey played in wider medieval Stirling and can give some insight into the economy of the Abbey during this period. The aim will be to tie the Watergate and harbour into their wider historical, archaeological and geographical context within the Stirling and Inner Forth area.

10.2 Beyond this current study an area for further research would centre on the bank/ditch features of the outer precinct which may hold evidence of the Abbey's earliest beginnings. Beyond the immediate interpretation of the findings here and putting aside the chronology of events throughout the medieval period, this site is a naturally defensive location and as long as the meanders have taken their current form. And yet, we know of only one specific event where Cambuskenneth Abbey was used defensively as the location of the baggage train for Bannockburn but this location may well have served a similar purpose for figureheads and societies through the ages.

Acknowledgements

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Abbots, Kings and Lost Harbours:
Looking for Cambuskenneth
Watergate
Data Structure Report

Section 2: Appendices

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Appendices

Appendix A: References

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Appendix B: List of Contexts

Context No.	Area	Description	Interpretation
001	W/ Gate	Firm, dark grey brown silty clay with occasional tile frags, drainage pipe and recent finds. Measured 0.15 – 0.20m thick.	Topsoil overlying rubble (005) over harbour (006).
002	W/ Gate	Very compact grey clay (on lower slope) with orange mottling consisting of predominantly clay with some silt content and occasional very small stones. Measured 0.15 to 0.20 m thick around harbour area.	Subsoil – Grey clay, possibly aluvial in origin but now sitting above current water level of Forth.
003	W/ Gate T3	Mixed stone type and form – sandstone, dolerite, slate. Bonded with mortar containing frequent small shell fragments. Angular shape to east, more irregular to west at riverside. Wide variance in size of components from small irregular and rounded stones to very large stones of varying form. Wide range of shapes of components, none appear dressed. Height approx 0.5 m, length 2.1 m, width 1.45 m. Oriented E-W. Possibly in ruins from late seventeenth century – robbed of upper stones.	Footing for one side (south) of watergate archway.
004	W/ Gate T3	Mixed stone structure bonded by mortar. Linear with variable sized components and varying shaped components including angular, rounded and sub-angular stones. Measure 0.15 to 0.20 m in height, 2.10 m in length and 0.45 m in width at widest. Oriented E-W.	Possible low wall leading down slope on harbour (006) from structure (003). Wall tied into watergate?
005	W/ Gate T3	Loose compaction of mixed colour from broken sandstone and other stones with brown silty clay. Composed of silty clay with frequent sandstone and other stone fragments and inclusions of frequent small sandstone fragments. 0.2 to 0.3 m thick, in excess of 5 x 10 m across harbour.	Rubble / collapse layer over harbour. Has accumulated downslope over harbour feature.

Context No.	Area	Description	Interpretation
006	W/ Gate T3	Stone structure, unbonded with stepped structure – possibly three faces; top edge, middle and bottom single course along harbour river edge. Sub rectangular shape in plan. Size of components varies considerably from first slabs on steps to large rounded dolerite stones especially on edge of harbour at base. Shape of components varies widely.. Length around 8 m N-S although mayextend further south. Width approximately 5 m. Oriented N-S. Some truncation as rubble is present. Also may be truncated to north. Some silting between stones.	Possible medieval harbour / riverside boat mooring structure. Medieval pot sherds recovered from basal construction layer as well as upper construction level near top of harbour.
007	W/ Gate	Firm, light to mid grey clay with some silt. Homogenous with v. occasional small stones. At 1 m below ground level to west of harbour represents rivers edge. Present along current rivers edge. Augered and sectioned on edge of excavation.	Grey clay representing rivers edge of Forth.
008	W/ Gate T3	Firm, mixed colour from sandstone and other stone fragments with brown silty clay. Composed of silty clay with frequent sandstone and stone fragments. Contained frequent small sandstone fragments. Measured 0.20 to 0.30 m thick, petering out to north over (009). In excess of 5 x 10 m across harbour.	Rubble layer over harbour. Petering away to north on one edge of harbour (006).
009	W/ Gate T3	Firm, mid grey silty clay with frequent small frags of sandstone.	Construction layer for harbour (006). Sealed by rubble layer (005) to north of harbour. Medieval in date – based on pottery finds.
010	W/ Gate T3	Firm, mmid grey silty clay with frequent small fragments of sandstone.	One step of harbour (006). Construction layer – similar to (009) further up slope. Medieval in date based on pottery finds.
011	W/ Gate T3	Soft, very dark brown peaty clay with occasional small stones.	Peat like layer below topsoil (001).
012	W/ Gate T5	Firm, mid grey silty clay with occasional small stones. Truncated by drain (021).	-
013	W/ Gate T4	Structure composed of various stones, some dressed. Unbonded. Linear shape in plan, size of components varies widely from cobble size to stones of approximately 0.4 x 0.25 x 0.25 m. Shape of stones varies widely; rounded, sub angular to dressed cuboids. Heaight 0.14 m (only one course visible), length 3.20 m E/W, 1.90 m N/S. Width 0.80 m. Oriented approximately E-W. Appears to truncate wall (014) to east.	Wall leading E-W meeting (003) mortar pillar footing. Part of greater watergate structure?
014	W/ Gate T4	Stone structure composed of sandstone and other. Unbonded construction, linear in shape. Size of components varies widely from cobble sized to large dressed stones and the shape of components varies, including rounded, subangular and cuboid. Height 0.23 m, but only one course surviving. 4.30 m length exposed, further 3.80 m not excavated to the east. Width 1.08 m. Oriented E-W and truncated by (013) to west towards watergate.	Wall leading east beyond (013).
015	W/ Gate T3	Stone construction of sandstone and other. Bonded by mortar. Linear shape in plan, size of components varies with some small dressed stones and cobble sized rounded and sub angular stones. Shape of components varies, including rounded, sub anglar and dressed cuboid. Oriented E-W.	Small 2 stone wide wall leading downslope from (003) on (006). Bonded with similar mortar to (003).
016	W/ Gate T3	Large, rounded dolerite stones, unbonded. Irregular shape in plan along front edge (west) of harbour (006). Size of components varies, large rounded boulders. Shape of components are rounded and irregular. Oriented approximately N-S. Reveting for harbour lower edge.	Reveting at base of harbour edge. Seen in (007), overlain by (011) and (006).
017	W/ Gate T3	Very firm, grey and orange banding. Clay with iron panning. Includes occasional small stones. Truncated by animal burrowing.	Below medieval layer (009). Natural clay with iron pan bonding.
018	W/ Gate T5	Firm grey brown silty clay with frequent small pebbles, sub anggular cobble sized stones. Truncated by drain (021).	Possible surface leading downslope - to north of harbour (006).

Context No.	Area	Description	Interpretation
019	W/ Gate T5	Stone construction, sandstone and other. Unbonded, irregular shape in plan. Size of components varies. Large stones >0.4m across and smaller 0.2m across stones. Components are rounded, sub angular and irregular in shape. 0.2 m of height exposed. 2 m W-E exposed and 0.5 m N-S. Approximately 0.5 m width exposed. Appears to be oriented W-E.	Remains of opposing harbour structure to north of (006). Possibly.
020	W/ Gate T5	Loosely compacted mid brown silty clay with frequent fragmented stones and rubble. Truncated by drain (021).	Rubble from (019). Possibly from robbing out of harbour?
021	W/ Gate T5	Modern drain cutting (020) and (018).	Modern drain. Cut approximately 1.5 m wide. Cast iron pipe.
022	W/ Gate T7	Loose mid brown rubble and silty clay. Included one large dressed cuboid stone. Only exposed in 1m² trench 7.	Rubble layer - probably collapse from robbing out of watergate?
023	W/ Gate T6		Wall - approx E-W leading to Forth north of T5.
050	T1/T2	Firm mid grey brown silty clay. 0.32 - 0.4 m thick. Contaminated by ploughing, frequent coal fragments.	Topsoil layer. Ubiquitous in field north of Cambuskenneth
051	T1/T2	Very, very compact grey with orange mottling silty clay with very occasional small stones. Located at 0.32 - 0.45 m below. Truncated by field drain.	Subsoil, mainly clay.
052	T1/T2	Very firm, light brown silty clay with occasional coal fragments. Approximately 50 mm thick.	Transition layer between topsoil and subsoil.
053	T1	Firm grey brown with frequent black mottling silty clay and frequent coal fragments, occasional red brick fragments. 50 to 100 mm thick, 4 m wide and extends >2 m NW-SE. Truncated by ploughing.	Layer of dumped material found in around 4 m wide band extruding NW-SE
054	T1	Firm light brown silty clay with occasional coal flecks. 0.25 m thick, 1.6 m wide and extends E-W.	Fill of shallow ditch cut [056]. Possibly a former field division in post medieval period.
055	T1	Firm light brown silty clay with occasional flecks of charcoal. Max width 1.90 m and max depth 0.30 m.	Fill of ditch cut [057].
056	T1	Linear shaped cut, 0.25 m deep, 1.6 m wide. Extends west and east. Very gradual top break of slope and very gentle sloping sides. Basal break of slope is very gradual and the base is flat. Oriented approximately W-E. Inclined to east. Fill is (054).	Cut for linear feature - former field division. Pre dates transition layer (051) before topsoil. Transition layer (051) contains coal and red brick fragments and may have been dumped here during the 19th/20th centuries.
057	T1	Linear shaped cut measuring 1.90 m wide and 0.30 m deep. Gradual top break of slope, gently sloping side to north and moderate slope to south. Gradual break of slope at base and the base is flat. Oriented NE-SW. Contained fill (055).	Cut for a linear feature filled by (055).

Appendix C: List of Finds

Site Name	Find No.	Area	Context No.	No. of Pieces	Material	Type	Description
CH	1	TR2	050	1	Metal	Iron	Fragment
CH	2	TR2	050	1	Metal	Lead	Fragment
CH	3	TR2	050	1	Metal	Iron	Possible nail
CH	4	TR1	-	1	Metal	Cu Alloy	-
CH	5	TR1	-	1	Metal	Iron	-
CH	6	TR1	-	1	Ceramic	?	Small frag with glaze
CH	7	-	-	28	Ceramic	China	Body, handle and base vessel sherds
CH	8	-	-	15	Bone	Unidentified	Rib, long bone, epiplyseal and tooth fragments
CH	9	-	-	41	Glass	Vessel and window frags	Vessel frags, bottle stopper and window glass

Site Name	Find No.	Area	Context No.	No. of Pieces	Material	Type	Description
CH	10	-	-	24	Ceramic	Pot frags	Body sherds
CH	11	-	-	18	Metal	Fe, Cu Alloy and unidentified	Nails x 15, Fe lump x 1, button x 1, unidentified x 1.
CH	12	-	-	1	Ceramic	Clay pipe	Clay pipe fragment
CH	13	-	-	2	Shell	Marine	Two small shells
CH	14	-	-	1	Unidentified	Unidentified	Bottle stopper x 1
CH	15	-	054	1	Metal	Lead	Very small piece
CH	16	TR1	055	1	Ceramic	Clay pipe	Clay pipe fragment
CH	17	W/Gate	011	1	Metal	Coin	1914 one penny
CH	18	W/Gate	008	1	Metal	Fe	Square head nail
CH	19	W/Gate	010	1	Ceramic	Pottery	Green glaze sherd
CH	20	W/Gate	008	1	Organic	Leather	Leather fragment
CH	21	W/Gate	008	1	Ceramic	Pottery	Green glaze jug handle
CH	22	W/Gate	007	1	Ceramic	Pottery	Green glaze sherd
CH	23	W/Gate	008	1	Metal	Fe	Nail
CH	24	W/Gate	011	2	Ceramic	Clay	Clay stoppers
CH	25	W/Gate	010	1	Ceramic	Pottery	Possible medieval sherd
CH	26	W/Gate	Unstrat	3	Ceramic	Tile	Orange tile - above (008)
CH	27	W/Gate	007	1	Ceramic	Pottery	Green glaze sherd
CH	28	W/Gate	008	2	Ceramic	Pottery	Medieval? Sherds
CH	29	W/Gate	008	1	Ceramic	Pottery	Green glaze sherd
CH	30	W/Gate	011	1	Ceramic	Tile	Tile fragment
CH	31	W/Gate	011	1	Ceramic	Clay pipe	Clay pipe bowl fragment
CH	32	W/Gate	011	1	Metal	Fe	Small fragment of metal
CH	33	W/Gate	011	1	Glass	Bottle	Small bottle
CH	34	W/Gate	008	1	Ceramic	Pottery	Green glaze sherd
CH	35	W/Gate	007	1	Metal	Thimble	Small thimble
CH	36	W/Gate	Unstrat	1	Ceramic	Pottery	Green glaze sherd
CH	37	W/Gate	Unstrat	1	Ceramic	Pottery	Orange / brown sherd
CH	38	W/Gate	Unstrat	2	Ceramic	Possible pot	Green glaze sherds
CH	39	W/Gate	Unstrat	1	Ceramic	Pottery	Green glaze sherd
CH	40	W/Gate	Unstrat	1	Ceramic	Pottery	Green glaze? Sherd
CH	41	W/Gate	Unstrat	1	Ceramic	Pottery	Brown glaze sherd
CH	42	W/Gate	Unstrat	1	Ceramic	Pottery	White gritty ware?
CH	43	W/Gate	Unstrat	1	Bone	Unidentified	1 piece, possible long bone
CH	44	W/Gate	012	1	Ceramic	Pottery	White gritty ware sherd
CH	45	W/Gate	012	1	Ceramic	Pottery	Green glaze sherd
CH	46	W/Gate	009, beside wall 015	1	Metal	Iron	Horseshoe frag - medieval
CH	47	W/Gate T5	018	1	Stone	Slate	Strip of slate
CH	48	W/Gate T5	018	1	Ceramic	Pottery	Fragment of green glaze
CH	49	W/Gate T5	020	1	Ceramic	Pottery	Fragment of green glaze
CH	50	W/Gate T5	020	1	Glass	Bottle?	Fragment of green glass
CH	51	W/Gate T5	012	1	Ceramic	Pottery	Fragment of green glaze
CH	52	W/Gate T5	012	1	Ceramic	Pottery	Fragment of green glaze
CH	53	W/Gate T5	001	2	Bone	Unidentified	2 maxillary fragments (animal)
CH	54	W/Gate T5	001	6	Metal	Fe	5 x nail frags, 1 x metal strip
CH	55	W/Gate T5	001	3	Ceramic	Pottery	Green glaze fragments
CH	56	W/Gate T5	001	5	Ceramic	Pottery	Modern ceramic frags?
CH	57	W/Gate T5	001	4	Glass	Bottle	Green bottle frags
CH	58	W/Gate T5	001	4	Ceramic	Pottery	Orange pot frags, 2 glazed, 2 unglazed
CH	59	W/Gate T5	001	4	Ceramic	Clay Pipe	4 stem fragments
CH	60	W/Gate T5	001	1	Lithic	Unidentified	Small chalky stone

Site Name	Find No.	Area	Context No.	No. of Pieces	Material	Type	Description
CH	61	W/Gate T4	001	1	Metal	Horseshoe? Shoe heel?	Small horseshoe? Shoe heel?
CH	62	W/Gate T4	001	2	Metal	Nails (Fe)	2 nail fragments
CH	63	W/Gate T4	001	1	Ceramic	Tile	1 tile fragment
CH	64	W/Gate T4	001	7	Ceramic	Pottery	Pottery fragments x 7
CH	65	-	-	1	Stone	Structural	Piece of dressed stone.
MDS	500	-	050	3	Metal	Fe and Pb	2 iron nails and 1 lead fragment
MDS	500	-	050	1	Metal	Fe	1 bolt fragment
MDS	500	-	050	1	Metal	Fe	Frag of iron rod
MDS	500	-	050	1	Metal	Fe	Flat frag of iron
MDS	500	-	050	1	Metal	Fe	Fragment of iron rod
MDS	500	-	050	1	Metal	Fe	Fragment of iron nail
MDS	500	-	050	2	Metal	Fe	1 nail fragment and one iron band
MDS	500	-	050	1	Metal	Fe	1 big metal frag - agricultural?
MDS	500	-	050	1	Metal	Fe	Fragment of iron
MDS	500	-	050	1	Metal	Fe	Nail
MDS	500	-	050	1	Metal	Fe	Nail
MDS	500	-	050	2	Metal	Fe	2 fragments of iron
MDS	500	-	050	1	Metal	Fe	Fragment of iron
MDS	500	-	050	1	Metal	Fe	Iron loop
MDS	500	-	050	1	Metal	Fe	Lump of iron
MDS	500	-	050	1	Metal	Fe	Iron bolt
MDS	500	-	050	1	Metal	Fe	Frag of iron bolt
MDS	500	-	050	1	Metal	Fe	Iron fragment
MDS	500	-	050	1	Metal	Fe	Iron rod
MDS	500	-	050	1	Metal	Fe	Nail
MDS	500	-	050	1	Metal	Fe	Nail
MDS	500	-	050	1	Metal	Fe	Nail
MDS	500	-	050	1	Metal	Fe	Iron fragment
MDS	500	-	050	1	Metal	Fe	Iron bolt
MDS	500	-	050	1	Metal	Fe	Iron fragment
MDS	500	-	050	1	Metal	Fe	Iron bolt
MDS	500	-	050	1	Metal	Fe	Fragment of iron bolt
MDS	500	-	050	1	Metal	Fe	Fragment of metal
MDS	500	-	050	1	Metal	Fe	Fragment of iron bolt
MDS	500	-	050	1	Metal	Fe	Lump of iron
MDS	500	-	050	1	Metal	Fe	Fragment of iron nail
MDS	500	-	050	1	Metal	Fe	Lump of iron
MDS	500	-	050	1	Metal	Fe	Fragment of iron
MDS	500	-	050	1	Metal	Fe	Lump of iron
MDS	500	-	050	1	Metal	Fe	Link of a chain
MDS	500	-	050	1	Metal	Fe	Bolt
MDS	500	-	050	1	Metal	Fe	Bolt
MDS	500	-	050	1	Metal	Fe	Flat fragment of iron
MDS	500	-	050	1	Metal	Fe	Nail
MDS	500	-	050	1	Metal	Fe	Fragment of iron
MDS	500	-	050	1	Metal	Fe	Fragment of iron rod
MDS	500	-	050	1	Metal	Fe	Fragment of nail
MDS	500	-	050	1	Metal	Fe	Lump of iron
MDS	500	-	050	1	Metal	Fe	Lump of iron
SARG	200	Abbey Ford	-	-	Metal	Coin	Queen Victoria six pence 1874
SARG	201	Abbey Ford	-	-	Metal	Musket ball	One musket ball
SARG	202	Abbey Ford	-	-	Metal	Masonry tool	Masonry chisel tip
SARG	203	Abbey Ford	-	-	Metal	Masonry tool	Masonry chisel tip

Site Name	Find No.	Area	Context No.	No. of Pieces	Material	Type	Description
SARG	204	Abbey Ford	-	-	Metal	Horseshoe	Medieval horseshoe fragment
SARG	205	Abbey Ford	-	-	Metal	Weapon fragment	Possible pistor butt
SARG	206	Abbey Ford	-	-	Metal	Musket ball	One musket ball
SARG	207	Abbey Ford	-	-	Metal	Pistol shot	One pistol shot
SARG	208	Abbey Ford	-	-	Metal	Musket ball	One musket ball
SARG	209	Abbey Ford	-	-	Metal	Horseshoe	Medieval horseshoe

Appendix D: List of Photographs

Frame	Area	Context No.	Subject	Taken from
1	-	-	I.D. Shot - Camera # 2	-
2	T1	-	Possible ditch (053)?	SE
3	T1	-	Possible ditch (053)?	SE
4	T1	-	Possible ditch (053)?	SE
5	T1	-	Possible ditch (053)?	NW
6	T1	-	Possible ditch (053)?	NW
7	T1	-	Possible ditch (053)?	N
8	T1	-	Possible ditch (053)?	N
9	T1	-	Possible ditch (053)?	N
10	T1	-	After removal of (052) and (053)	S
11	T1	-	After removal of (052) and (053)	S
12	T1	-	(054) and (055)	N
13	T1	-	(054) linear	W
14	T1	-	(054) linear	W
15	T1	-	(054) linear	E
16	T1	-	(054) linear	E
17	T1	-	(054) linear	E
18	T1	-	(054) linear	E
19	T1	-	(054) linear	S
20	T2	-	T2 from south	S
21	T2	-	T2 from north	N
22	T2	-	T2 after testing through (052)	N
23	T2	-	T2 after testing through (052)	N
24	T2	-	T2 after testing through (052)	NNE
25	-	-	Abbey ford from NW	NW
26	-	-	Abbey ford from NW	NW
27	-	-	Abbey ford	W
28	-	-	Abbey ford	W
29	-	-	Abbey ford	W
30	T2	-	(055) [057] section	W
31	T2	-	(055) [057] section	W
32	T1	-	(054) [056] section	E
33	T1	-	(054) [056] section	E

Appendix E: Discovery and Excavation Scotland Entry

LOCAL AUTHORITY:	Stirling Council
PROJECT TITLE/SITE NAME:	Abbots, Kings and Lost Harbours: Looking for Cambuskenneth Watergate
PROJECT CODE:	4063
PARISH:	Stirling
NAME OF CONTRIBUTOR(S):	Warren Bailie
NAME OF ORGANISATION:	GUARD Archaeology Ltd.
TYPE(S) OF PROJECT:	Metal-detecting, Geophysical survey and Excavation
NMRS NO(S):	Canmore ID-47271 Site Number- NS89SW 4
SITE/MONUMENT TYPE(S):	Abbey, Bell Tower
SIGNIFICANT FINDS:	Medieval horse shoe fragment, medieval pottery
NGR (2 letters, 6 figures)	NS 80868 93940
START DATE (this season)	07/09/15
END DATE (this season)	18/09/15
PREVIOUS WORK (incl. *DES* ref.)	Etheridge, D (1997) 'Cambuskenneth Abbey (Stirling parish), survey', *Discovery Excav Scot* Page(s): 79-80 Bailie, W (2013) 'Cambuskenneth Abbey Investigations', Discovery Excav Scot Page(s): 182-183
MAIN (NARRATIVE) DESCRIPTION: (May include information from other fields)	The investigations concentrated on the Watergate and harbour to the west of Cambuskenneth Abbey but also investigated areas to the north of the Abbey using metal detecting survey, geophysics and test trenches. A large portion of a medieval harbour was discovered on the slope of the upper river bank of the Forth in association with the Watergate location. Medieval pottery sherds from the twelfth to the sixteenth centuries, a medieval horseshoe fragment, animal bone and clay pipe fragments were recovered from the investigations on the harbour, which comprised of a stepped dry-stone harbour feature bedded into the clay of the river bank. The steps of the harbour would have enabled boats to offload their cargo at varying water levels. The present mean water level is too low for the harbour to function indicating a drop in mean levels here since the medieval period. There was also evidence of the Watergate and additional compartments surviving as low foundation walls leading east away from the river bank. All of the stone-built remains were overlain by a layer of loose irregular rubble, left behind from the robbing out of the structures some time in the late medieval/ early post medieval transition at which time the Watergate and associated harbour may have become obsolete. A separate independent Metal detecting survey was conducted by SARG on the Abbey Ford during the investigations, among the finds recovered were a medieval horseshoe fragment and a Robert II coin, the finds from this survey will be submitted through the Treasure Trove system by SARG.
PROPOSED FUTURE WORK:	Possible
SPONSOR OR FUNDING BODY:	Stirling Council, Inner Forth Landscape Initiative, HLF
CAPTION(S) FOR ILLUSTRS:	N/A
ADDRESS OF MAIN CONTRIBUTOR:	52 Elderpark Workspace, 100 Elderpark Street, Glasgow, G51 3TR
EMAIL ADDRESS:	warren.bailie@guard-archaeology.co.uk
ARCHIVE LOCATION (intended/deposited)	Archive to be deposited in NMRS

Appendix F: Project Design

GUARD 4063: Project Design for Community Archaeological Research and Training Exercise at Cambuskenneth Abbey, Stirling

Introduction

This document provides details of the planned works for the investigation of the Watergate shown in ruins on Slezer's print of 1693 (available at http://maps.nls.uk/slezer/view/?sl=6) (Plate 1) and two other crossing positions in the environs of Cambuskenneth Abbey, Stirling; Abbot's Causeway east of the Forth (Plate 2) and two sites to the north of the Abbey grounds where two ditches meet the Forth (Plate 3). The strategy will involve geophysical survey, metal-detecting, field-walking, hand excavation, survey and recording with the use of up to 30 volunteers each day from the local community throughout the 12 day project. The Watergate and Abbot's Causeway will be investigated by a series of hand-excavated trenches. The field to the north of Cambuskenneth Abbey will undergo a geophysical survey along the Forth edge where two medieval ditches are thought to meet the Forth edge (Plate 3). This will highlight potential sub-surface anomalies that may be then targeted with further investigation using a small machine excavator. Also part of the works will be field-walking exercises around the site locations to retrieve and survey artefacts which may relate to the features and areas being investigated. Metal-detecting, topographic survey and systematic test-pitting will also be conducted to investigate the vicinity of each harbour location.

Plate 1:

Slezer print of 1693 showing track running west to river from Abbey ruins and water gate on river's edge (top of frame).

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This work will provide opportunities for up to 30 volunteers over a 12 day period which will involve activities such as geophysics, field-walking, metal-detecting survey, excavation, recording, cataloguing of artefacts and archiving. There will also be opportunities for school tours, public presentations and publication in the local press, as well as on the Stirling Council and GUARD Archaeology Ltd websites. This will encourage and improve access to the sites with enhanced information and engagement for future visitors.

Plate 2:

Abbot's Causeway, taken from West bank

Plate 3: Watergate and crossing points

Aims and Objectives

The aims and objectives of archaeological trenching are as follows:

- establish the presence or absence of any archaeological remains, and their character, date, extent and significance if surviving,
- excavate and record any significant features and recover any significant artefacts and ecofacts for subsequent analysis,
- establish through field-walking whether there are patterns of artefact distribution that reflect the use of the sites and their environs through time,
- tie the Watergate, Ruddy Pows and Abbot's Walk into their wider historical and geographical context within the Stirling and Inner Forth area,
- provide informative content for display boards and/or information leaflets.

Methodology

The strategy to be employed during the excavation will consist of the following:

- A walkover survey will be conducted initially to more accurately define the nature of the ground-breaking work.
- A metal-detecting survey will be conducted across the harbour locations and their vicinity.
- Geophysical surveys will be conducted where appropriate to highlight any potential anomalies which can then be targeted with further investigation.
- The trenches and test pits will be laid out across each of the proposed areas of investigation and their position surveyed.
- Trenches will be placed to investigate and characterise the nature of each location and to reveal any significant archaeological remains relating to the area and its use through time.

- Trench locations may be modified to avoid services, public access or obstructions.
- Trenches may initially be stripped of turf and overburden using a small back-acting machine with a smooth-edged bucket.
- The back-acting machine will be under the constant supervision of a professional archaeologist.
- Excavation will be by hand and undertaken by volunteers under the constant supervision of professional archaeologists at all times.
- Areas of trenching will be demarcated by road irons and hazard tape to restrict unaccompanied public access and reduce the likelihood of accidents.
- The topsoil will be removed in spits to the first archaeological horizon or, where none is found, to the natural subsoil. Any archaeological features encountered will be cleaned by hand to determine the date of the deposits, their character and extent. Such features will be recorded by written description on pro forma recording sheets, by photograph and by measured drawing.
- All turf and spoil will be stored separately by material on tarpaulins, so that reinstatement can be achieved adequately at the end of the project.
- All archaeological features encountered will be dealt with by the on-site archaeologists. Should negative-cut features be encountered they will be 50% sample excavated in order to determine their significance, date and function. In the event that they are deemed to be important discoveries, they will be fully excavated. Recording will include pro forma sheets, drawings and photographs.
- All archaeological finds will be dealt with by the on-site archaeological team. The general practice will be to bulk recover all artefacts by context which date from the later phases of activity (eg modern waste materials). Should finds be encountered from the earlier occupation phases of the site they will be three-dimensionally recorded prior to up-lifting.
- All excavated feature fills and horizons may be sampled for palaeo-environmental evidence. This will also include micromorphological sampling in order to address key issues on soil development at the site.
- The trench locations will be surveyed using a sub-centimetre or sub-metre GPS or total station EDM. This information will inform any further work that may be required.
- All trenches will be backfilled with turf re-laid on completion of recording. If a trench is left open it will be demarcated with hazard tape to restrict access.
- Fieldwalking will be undertaken, where appropriate, in the environs of the areas of investigation and neighbouring fields along the Forth.
- All artefacts will be catalogued by site and will be surveyed using a sub-centimetre or sub-metre GPS or total station EDM.

On completion of the excavation phase of work, a report suitable for submission to the Planning Authority and the National Monuments Record for Scotland (NMRS) will be produced. This report will be accompanied by the post-excavation research design and costing in order to bring the results forward for analysis and publication should this be required.

Products

The products of a programme of work will be:

- a preliminary data structure report, after completion of all fieldwork suitable for submission to the Planning Authority, the NMRS and the local Sites and Monuments Record;
- a brief summary of results of the fieldwork will be submitted to Discovery and Excavation in Scotland and included within the OASIS online database;
- Post-excavation research design;
- Preparation and disposal of the site archive and finds.

- Publication of the project findings in ARO (Archaeological Reports Online)

Copyright

Copyrights of the reports and all other information, including electronic information will rest on the client but the consultant will have the right to use the report and the survey results free of charge in relation to non-commercial activities or to promote its work.

Archive Arrangements

Once all fieldwork is completed, all materials from the programme of work will be prepared to the appropriate archive standard. GUARD Archaeology will undertake to deposit the resultant archive to the National Monuments Record for Scotland (NMRS) on completion of the report for publication.

All finds will be reported to the Treasure Trove Advisory Panel, and GUARD Archaeology will undertake to ensure their safe deposition within the designated museum at the appropriate time.

Timetable

Works will take place on site between 7th and 18th September 2015 and fieldwork will last a total of 12 days. A draft data structures report will be submitted for comment within 2 weeks of the completion of fieldwork.

Staffing

The excavations will be led by Warren Bailie, one of GUARD Archaeology's experienced project staff. Assisting Warren will be up to four other professional archaeologists from GUARD Archaeology's project staff including a geophysics specialist, Beth Spence and our Surveyor, Diarmuid O'Connor, Assistants Stephanie Glover, Erica Villis and Marta Innis as well as up to 30 volunteers and up to 50 school children each day. The project will be managed on behalf of Stirling Council by Murray Cook, the council's Archaeologist. A full CV for Warren and all other staff involved can be made available on request.

Health and Safety and Insurance

All archaeological working practices will be subject to a risk assessment prior to commencement of the work where likely health and safety issues associated with the site will be highlighted.

GUARD Archaeology adheres to all standard Health and Safety regulations governing fieldwork projects. We also possess appropriate insurance cover, proof of which may be supplied upon request.

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