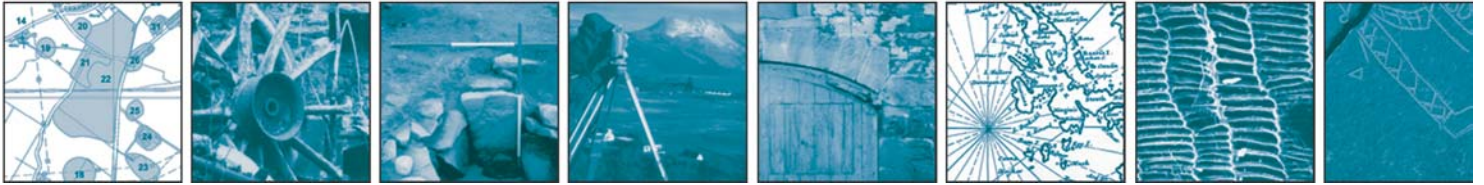


Project Code: MWB06
Client: NorthumbriaWater
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Berwick-upon-Tweed Defences Evaluation Data Structure Report

PROJECT SUMMARY SHEET (MWB06)

Client	Northumbria Water
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Summary

Northumbria Water commissioned Headland Archaeology Ltd to undertake an archaeological evaluation of the line of proposed water main through the eastern side of Berwick-upon-Tweed's defences. The proposed pipeline route runs along the Elizabethan moat and crosses the projected line of the medieval town wall.

Seven trenches were excavated within the designated area. Four of these exposed archaeological features associated with the medieval and Elizabethan defences of the town.

Part of a ditch (cunette) within the Elizabethan moat was uncovered. Map evidence indicates that it ran up to the Batardeau at the corner of Brass Bastion. There are some indications that there is a sluice through the wall at this point. A stone wall belonging to one of two small rectangular structures against the south side of the Batardeau was uncovered in Trench 3. The function of these structures remains unknown, but they are depicted on 18th and 19th century maps.

The footings of the medieval town wall flanked by ditches on either side were uncovered in Trench 6 near the Cowport. No structures associated with the medieval gate were uncovered in the trench.

1. INTRODUCTION (Figure 1)

- 1.1 Northumbria Water commissioned Headland Archaeology Ltd to undertake an archaeological evaluation of the line of proposed water main through the eastern side of Berwick-upon-Tweed's defences (NGR: NU 001 533). The proposed pipeline route runs along the Elizabethan moat and crosses the projected line of the medieval town wall.
- 1.2 The work was carried out following a Written Scheme of Investigation for Archaeological Evaluation submitted by Headland Archaeology Ltd in accordance with Scheduled Monument Consent HSD9/2/7179. It was based on the Brief prepared by Northumberland County Council Conservation Team and English Heritage.

2. AIMS AND OBJECTIVES

- 2.1. The evaluation was carried out to provide information on the route of the pipe before it is installed and was designed to ascertain whether there are any archaeological constraints that may affect the planned development. It aimed to determine the presence/absence, character, extent and quality of any significant archaeological remains affected by the proposed pipe.

3. ARCHAEOLOGICAL BACKGROUND

3.1. Historical background

- 3.1.1. Berwick-upon-Tweed is documented from the 9th century. Situated at a strategic position on the border between England and Scotland meant that it was conquered by the rivalling kingdoms several times during the medieval period. Over a period of 300 years the town was captured some 14 times by the English and the Scots. When it was captured from the Scots in 1296 by Edward I a defensive bank and ditch was constructed, one of the earliest defensive features at Berwick-upon-Tweed. The following years the defences were strengthened by replacing the initial wooden palisade with a stone wall with several towers and a large moat on the north and east sides. The medieval defences were updated during the first half of the 16th century.
- 3.1.2. In 1558 Queen Mary commissioned a radical reconstruction of the defences. These are known as the Elizabethan ramparts as most of the work was carried out during the reign of Elizabeth I. The new defences were built roughly along the existing medieval town wall, but excluded the northern third of the town. The construction lasted for 11 years when the work was halted with only the north and east side completed. The defences were modelled on an Italian design, with five large bastions situated along the north and east side. Outside the ramparts to the north and east is a large ditch, originally filled with water. A batardeau was built across the moat at the northeast corner to retain water at different levels between the higher northern sections and the lower eastern part of the moat.
- 3.1.3. The defences were armed with artillery up until World War I when Berwick was required to appear as a non-fortified town. The Elizabethan ramparts are considered as some of the finest complete 16th century defences in Europe.

3.2. Previous work

- 3.2.1. An archaeological investigation was carried out in the road leading out from Cowport some 35 m east of the gate in advance of installing a septic tank (Young 2001). A trench c 3 m square

was excavated down to a depth of 2.2 m below the ground surface. At this level a section of masonry was uncovered aligned north-west to south-east comprising one course of unbonded roughly squared blocks. The masonry was dated to the 14th century or earlier. The edge of what seems to be a ditch cut filled with a grey clay containing indicators of permanent standing water was exposed on the east side of the masonry. The masonry was thought to possibly be part of an abutment for a bridge across the ditch or perhaps foundations of the medieval town wall. The uncovered remains were preserved *in situ* and the tank moved outside the scheduled area.

3.2.2. A geophysical survey has been carried out largely within the area of the football pitch located in the Elizabethan moat between the Cowport and Brass Bastion. The initial survey was carried out in 2002 with an additional survey in 2005 (Evans 2005). The survey indicated a linear feature possibly indicating the position of the Edwardian wall on the south side of the Brass Bastion. However two large survey areas to the southeast failed to confirm the position of the medieval wall. Using data from a 16th century map the line of the medieval wall was plotted on the modern map and overlaid the survey data. This seemed to show that the wall lay along the line of a faint linear signal near the Cowport and the signal seen south of the Brass Bastion.

4. METHOD

- 4.1 Seven trenches were excavated using a JCB back-actor excavator equipped with a 1.80m wide toothless ditching bucket. The trenches were excavated by machine under direct archaeological supervision to remove the modern cultivation soil. Where large features were encountered, after hand-investigation, a narrow slot trench was carefully machine-excavated into tertiary layers using an 18 inch wide toothless bucket.
- 4.2 The location of Trenches 1-5 was specified in the Brief prepared by Northumberland County Council Conservation Team and English Heritage. The location of Trenches 6 and 7 were agreed on site with Chris Burgess of Northumberland County Council Conservation Team who was monitoring the work on behalf of English Heritage.
- 4.3 Trenches 1-5 was located along the proposed pipe route. Two of these, Trenches 2 and 3 were located up against either side of the Batardeau projecting out from the NE corner of the Brass Bastion to investigate the depth and nature of its foundation. Trench 6 was aligned across the proposed pipeline and the projected line of the medieval town wall. Trench 7 was cut across a low bank to the E of Trench 6, to investigate if it indicated the position of a wall associated with the medieval Cow Port.
- 4.4 Colour transparencies, digital and black and white photographs were taken of all features. All trenches and features were surveyed using an EDM total station linked to tablet computer running Penmap and tied to the National Grid using reference points taken from a digital OS map. The heights of the surveyed points were linked to ordnance datum levels using an OS benchmark at NU 00056 53244 (26.49 mOD).

5. RESULTS

5.1. Introduction

- 5.1.1. A full description of all contexts is given in Appendix 1. The topsoil (01) in all trenches consisted of a dark brown silty soil with some inclusions of stones and occasional modern

finds. The depth of the topsoil varied from 0.15 m to 0.25 m with the exception of Trench 2 where the topsoil (11) was 0.55 to 0.75 m deep. The natural subsoil was a reddish brown silty clay. A summary of the archaeological features is given below.

- 5.1.2. Seven trenches were excavated within the designated area. Four of these trenches exposed archaeological features associated with the medieval or Elizabethan defences of the town.

5.2. Trench 1 (Figure 2)

- 5.2.1. Trench 1 was located in the Elizabethan moat on the N side of Brass bastion. It was 36 m long including a 6 m extension to the W and was aligned NE to SW. The trench crossed a low broad bank on the W side of a wide hollow. The bank was in line with the surviving medieval defences to the N and it was possible that the low bank represented remains of the medieval wall, with the medieval moat forming the hollow to the east. However, no structural remains were exposed in the trench. On removing the turf and topsoil a clayey reddish brown subsoil was exposed with four linear features cut into the subsoil.

- 5.2.2. Ditch [04] was aligned NW to SE in line with the medieval defences to the north. It was a wide shallow cut 3.2 – 3.4 m wide and 0.25 m deep with sloping sides and a flat base. It was filled with angular to sub-angular stones 0.05 to 0.15 m across in a mixed matrix of brown sand, silt and clay. No finds were retrieved from this fill. However, the position and alignment of this feature suggest that it could be associated with the medieval defences.

- 5.2.3. Two modern rubble drains cut diagonally across the trench. One [02] was located at the W end of the trench, the other [06], cut across the middle of the trench. A third cut [08] occupied the eastern end of the trench. It was aligned E-W, 2.5 m wide and 13 m long within the trench and contained a yellow glazed ceramic pipe c 0.25 m in diameter. A smaller red ceramic pipe drained into the main pipe at the east end of the trench. The pipe was leading surface water in the direction of the Batardeau some 11 m further east.

5.3. Trenches 2 and 3 on either side of the Batardeau

- 5.3.1. Trenches 2 and 3 were located opposite each other on either side of the Batardeau which projects out across the Elizabethan moat from the Brass Bastion (Figure 1). They were short 4 m long trenches excavated to investigate the depth and nature of the Batardeau foundations at the point where the proposed pipeline would cross the structure. Unfortunately it was not possible to reach the base of the foundations on either side.

- 5.3.2. Trench 2 on the north side was excavated down to a depth of 1.3 m below the ground surface. From this level a narrow slot trench was cut further down exposing the foundations down to a total depth of 2 m below ground surface (Plate 1).

- 5.3.3. The stratigraphy within the trench comprised a dark brown humic topsoil (11) 0.55 to 0.75 m thick, deepest against the wall, overlying (12) orange brown silty clay, possibly a re-deposited natural subsoil. There were no obvious cut for the Batardeau foundations, but a vague boundary between (12) to the north and a slightly more stony clay against the foundations may represent the backfill [14] of the foundation trench [13].

- 5.3.4. Trench 3 on the south side filled up with water as it was excavated. This made it extremely difficult to investigate the features in the trench especially as the sides started to collapse when the trench got deeper. However, by setting up a station on the edge of the trench it was possible to record the depth and profile of the south side of the Batardeau using the

reflectorless function of the instrument without going into the trench. The collapse eventually exposed the east face of a stone wall [26] built up at right angles to the south side of the Batardeau (Plate 2). The top of the wall was only 0.2 m below the ground against the Batardeau [15] but appeared to slope down towards the south. It was built from roughly squared stones and was over 2.8 m long and 1.3 m high. The junction with [15] was mortared but the rest of the wall comprised random rubble build. Due to the circumstances the wall face was only photographed and its outline surveyed using the reflectorless mode.

- 5.3.5. By surveying from stations on opposite side of the Batardeau it was possible to record a profile of the structure at the point of the proposed crossing (Figure 3). The Batardeau appears to have been constructed with an earthen core lined with masonry on either side and an earthen bank on the top. It has a tapered cross section and is 4.9 m wide at the top of the stone lining widening to 6 m at the level of the Trench 3 base. The north side was exposed to a depth of 3.6 m comprising 15 horizontal courses of different height. The upper five courses (1.2 m high) were straight, while the next five courses formed a series of plinths of different widths, increasing the width of the structure by 0.75 m in total. The lower courses formed a straight wall face. The south elevation was straight, sloping gently outwards and exposed to a total depth of 4.3 m.

5.4. Trenches 4 and 5

- 5.4.1. Trenches 4 and 5 were both 15 m long and located in the Elizabethan moat on the east side of the Brass Bastion (Figure 1). Trench 5 was located outside the southeast corner of the bastion to investigate a low bank roughly in line with the earthwork 'Covered Way' to the east. This location was also chosen to see if there was a second batardeau at the southeast corner of the Brass Bastion.

- 5.4.2. No significant archaeological features were uncovered in the two trenches. Trench 4 contained no features with topsoil (22) 0.2 m deep on average overlying natural subsoil comprising reddish brown silt and clay, with bands of natural bedrock poking through at the north end of trench. The topsoil in Trench 5 was of similar depth as in Trench 4. The low bank at the south end turned out to comprise a low spread of stones in a sandy clay matrix. The bank coincided with the edge of the football pitch to the south, and was probably formed when the pitch was leveled. A modern ditch containing a corrugated plastic pipe cut across the trench at its north end.

5.5. Trench 6 (Figures 4 and 5)

- 5.5.1. Trench 6 was located in the Elizabethan moat to the north of Cow Port (Figure 1). It was 25 m long and aligned NE-SW across the projected line of the medieval town wall in the area where one would expect to find the medieval gate in the wall.
- 5.5.2. Remains of the town wall were exposed in the western half of the trench in the form of rubble wall core comprising sandstones up to 0.3 m across with sand and mortar (Plate 3). The mortar included small pebbles, flint and brick/tile fragments. The rubble deposit appeared to represent the very base of the wall and was probably less than 0.3 m deep. The wall was aligned NS across the trench parallel with its projected line. The wall core had a well-defined east side and a more irregular west side. A shallow cut [30] ran parallel with and on the east side of wall core [29]. It was 0.4 to 0.5 m wide and 0.25 m deep and filled with dark grey silty clay. The feature appears to represent the impression left by the robbed out facing stones on

the east side of the medieval town wall. The surviving remains indicate that the wall was about 2.7 m wide at the base.

5.5.3. Two large ditches, one on either side of the wall were uncovered in the trench (Plate 4). The ditches were over 1.6 m deep and were therefore not fully excavated. However, the cut of the upper part of ditches were exposed on either side of the wall. Ditch [39] on the east side of the wall was over 1.8 m deep. The top of the cut lay some 1.5 m east of the wall face and sloped down at a 45-degree angle. The east side of the cut lay beyond the end of the trench that was some 13.5 m to the east. This ditch presumably represents the medieval moat that ran along the east of the town wall. The estimated width of the ditch is 30 m based on the surviving remains to the north and south. It had two major fills: a mixed reddish brown sandy and silty clay with some stones (35) below a mixed brown deposit of sandy and silty clay (34) with lenses of light grey mortar and stones. The deposits represent rapid infill of the ditches, the upper layers (34) comprising demolition debris while the lower (35) mainly comprised redeposited subsoil.

5.5.4. Ditch [40] abutted the western edge of the town wall. The cut sloped down at a 22-degree angle from the wall. The ditch was over 1.6 m deep and over 8 m wide, the western edge of the cut lying beyond the end of the trench. The fills of the ditch were similar to those of ditch [39] to the east, with redeposited subsoil (43) underlying lenses of demolition debris in a mixed brown deposit of sandy and silty clay (42).

5.6. Trench 7

5.6.1. Trench 7 was located some 5 m west of Trench 6. It was aligned NW-SE across a low broad bank. Topsoil was removed to investigate if the bank indicated the position of a wall associated with the medieval Cow Port. The bank turned out to be entirely made up of topsoil. It was aligned along the line of the south side of the football pitch, and was probably formed during the leveling of the field. Having established the nature of the bank, the trench was abandoned.

6. DISCUSSION

6.1. North of the Brass bastion

6.1.1. John Speed's map of 1610, based on a map from 1570, shows the medieval and Elizabethan defences around Berwick-upon-Tweed. The map depicts the medieval wall crossing the Elizabethan moat and abutting the north side of the Brass bastion. The 1570 original also shows a tower in the ditch next to the Brass bastion. It appears that this map portrays an 'idealised' view of the defences rather than an accurate representation of the defensive structures (*pers comm* Jim Herbert). This interpretation fits well with the lack of structural remains exposed in Trench 1. A more likely location of a tower is on the northern edge of the Elizabethan moat where a slight mound indicates the possible position of the medieval Middle Tower (*pers comm* Jim Herbert). It seems more probable that the excavation of the Elizabethan moat removed all traces of the Edwardian wall immediately to the north of Brass Bastion.

6.1.2. The only feature within Trench 1, which could have been associated with the wall, was a shallow flat-bottomed ditch [04]. The ditch was 3.2–3.4 m wide and filled with rubble in a matrix of sand and clay. However, the Ordnance Survey 1st edition map surveyed in 1852 shows a faint kinked linear feature that abuts the north wall of the Brass Bastion. The feature projects towards Trench 1 at the point where ditch [4] were located. It is therefore most likely that the ditch recorded in the trench is associated with this mapped feature (Figure 2).

6.1.3. The map from 1570 shows an inner ditch or cunette within the moat (*pers comm* Jim Herbert). It ran parallel with the bastions and mirrors the shape of the Elizabethan walls. This feature is not visible today but its northern section was open up to the mid 19th century. It is shown on a map from 1725 as well as John Wood's map of 1822 and the Ordnance Survey 1st edition map surveyed in 1852. The maps show a ditch labelled 'Stank' that ran along the Elizabethan moat from Meg's Mount Bastion to the Brass Bastion. On the 1725 map the feature runs up against the north side of the Batardeau but seems to re-appear on the south side and continues along the moat on the east side down towards the Tweed. The OS survey from 1852 does not show the cunette south of the Batardeau. Unlike the two other maps Wood's map shows the ditch running around the Batardeau. Given the concordance between the two other maps this line is likely to be wrong.

6.1.4. The line of the cunette as shown on the OS map coincides well with the alignment and position of the linear feature containing a ceramic pipe exposed in the east end of Trench 1 (Figure 2). A square manhole cover was noted next to the Batardeau wall roughly where the drain abuts the wall on the 1st edition OS map. It appears that since the mid 19th century a ceramic pipe has been laid along the former open cunette.

6.2. The Batardeau

6.2.1. The Batardeau was built as a dam across the moat to allow different water levels in the moat to the north compared with the lower lying area to the south. It was constructed with an earthen core lined with masonry on either side and an earthen bank on the top. The ground level of the north side was 1.1 m higher than on the south side. The masonry continued at least 2 m below the ground level to the north and was over 1.8 m deep on the south side.

6.2.2. It is likely that there would have been some sort of sluice mechanism to regulate the depth of water on either side of the wall. As there are no visible gaps above the ground, but a possible sluice design could be a duct built through the wall below the current ground surface. There are a couple of indicators that such a duct exists. The only feature visible in the Batardeau walls was a narrow vertical slot on the south side. It has been suggested that this was part of the sluice mechanism. The position of the slot on the south side is exactly opposite the point where the OS map shows the cunette abutting the batardeau on the north side (Figure 2). This configuration suggests that the duct through the wall may be located at this point.

6.2.3. Another indication of the presence of a duct through the wall was noted during the excavation of Trenches 2 and 3 on opposite sides of the wall. Despite having found a pipe leading surface water down to the north side of the Batardeau, the ground was surprisingly dry considering it being at the base of a hollow. Looking at the local topography one would expect the ground to be waterlogged. Trench 2 remained dry although being excavated down to 2 m below ground surface. However, while digging Trench 3 on the south side, water started pouring into the trench while excavating it making the sides collapse. This difference between the two trenches indicates that water still is being channelled through the Batardeau.

6.2.4. The east side of a stone wall [26] was uncovered in Trench 3 abutting the south side of the Batardeau. Its position coincides with the NE side of one of two rectangular structures shown on the 1852 OS map (Figure 2). The map was printed at a scale of 1:500 and clearly shows two structures 3 to 3.5 m long and 2 to 2.5 m wide abutting the south side of the Batardeau. The features are not depicted on Wood's map but are shown on the map from 1725. These features may be part of the original structure. Their function remains unknown; perhaps they were part of structures that were never finished.

6.3. East of the Brass Bastion

6.3.1. The base of the moat to the east of the Brass Bastion appears to have been cut down to bedrock. The low banks seen at the north and south side of the football pitch to the southeast of the bastion were both recent earthworks likely to be associated with the construction of the pitch.

6.3.2. Projection of the supposed line of the medieval moat between Cow Port and Middle Tower (Figure 1) indicate that the east side of the moat should extend into parts of Trench 5. However, no trace of the cut was seen in the trench. The reason for this could be that the Elizabethan moat had truncated the medieval ditch and that its surviving remains, at a lower level as the ground drops to the south, are located further to the west.

6.4. The area around the Cowport

6.4.1. Trench 6 was cut across the projected line of the medieval town wall in order to locate its position and associated defensive ditches. As anticipated, the foundation of the town wall was exposed in the trench (Figure 4). The location is close to where Evans transcribed the line of the medieval wall from a 16th century map. The uncovered remains indicated that the wall was 2.7 m wide at the base and had a very shallow foundation trench. The ditches on either side of the wall extended beyond the limits of the evaluation trench, both being large feature over 8 and 13 m wide and over 1.8 m deep. The ditch to the east of the wall must be the medieval moat while the ditch on the west side correspond to a ditch seen on a 16th century map (*pers comm* Jim Herbert).

6.4.2. The finds from the rapid infill of the trenches are generally of 17th to 18th century date. Only one sherd could be dated to the 14th/15th century and a further two sherds to the 16th century. The remaining datable finds date to the 17th - 19th centuries. Although some of these could be contamination from upper layers the finds seems to indicate that the infill of the ditches seen within Trench 6 are of 17th to 18th century date. The edge of the western ditch was very close if not cutting into the west side of the wall foundations. In view of the more recent finds from the ditch, it is possible that the cut seen in Trench 6 represent a 17th or 18th century re-cut of the ditch.

6.4.3. The edge of the moat on the east side of the wall starts 1.4 m from the wall face and appears to be the original cut. For safety reasons the excavation only cut 1.8 m into its fill only exposing the cut next to the wall. The upper fills in the ditch contained mortar and some rubble and were at first thought to derive from the demolition of the medieval town wall in the 16th century. However, the finds were of 16th to 18th century date possibly indicating that the final infill took place as late as the 18th or possibly 19th century.

6.4.4. Trench 6 was located 10 m to the north-west of Young's trench from the late 1990's. The lowest point of Trench 6 was some 0.2 m above Young's trench and it is possible that the grey clayey *in situ* ditch deposits sampled by Young would survive below the base of our trial trench. From the position of the wall seen in Trench 6 it seems more likely that the masonry seen by Young was part of an abutment for a bridge across the ditch rather than foundations of the medieval town wall.

6.4.5. One of the survey areas investigated by Evans lay just 3 m to the NW of Trench 6 (Figure 4). The area to the east of the wall-line show amorphous area of stony drier ground (yellow and orange) and wetter (blue) areas. This may represent various depths of mortar and rubble infill in the ditch seen in our trench to the south. The southwest part of the survey area shows mainly ditch infill (blue). There is some drier (yellow) ground along the south-eastern area

next to the wall seen in Trench 6. However, a faint linear structure, possibly a wall line, is offset some 2 m to the southwest. It is possibly that this offset marks the position of the medieval Cowport.

7. CONCLUSIONS

- 7.1. The marked earthwork in the Elizabethan moat on the north side of the Brass Bastion did not conceal any significant remains of the medieval wall. The fairly recent ceramic pipe carrying water in a broad trench uncovered in Trench 1 appears to be laid within the cunette running along the Elizabethan moat as seen on 18th and early to mid 19th century maps. The cunette appears to terminate on the north side of the Batardeau at the point where a sluice cut through the wall. The duct appears still to lead water through to the south side.
- 7.2. The foundations of the Batardeau are at least 3 m deep. It appears therefore that a pipe route around the outside of the structure would be preferable to any attempts to borrow beneath the foundations.
- 7.3. Remains of the medieval wall and associated ditches were uncovered in Trench 6 next to Cowport roughly at the position indicated by a 16th century map and a geophysical survey carried out in 2005 (Evans 2005). Finds retrieved from the ditches indicated that the fills exposed in Trench 6 were of 18th to 19th century date. However, the result from this trench did not resolve the question of the exact position of the medieval Cowport although the geophysical survey combined with the results from Trench 6 may indicate its position some 10 m to the north-west of Trench 6.

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9 ACKNOWLEDGEMENTS

Many thanks to Jim Herbert of Berwick Museums who provided very useful information on the layout and development of the Berwick-upon-Tweed defences.

APPENDIX 1: CONTEXT REGISTER

No	Trench	Over	Description
01	T1-T7		Turf and topsoil generally 0.1-0.3 m deep.
02	T1	10	Cut of rubble drain aligned N-S, 0.4 –0.5 m wide, 0.4 m deep. Steep sides, flat base. 2 m long within the trench.
03	T1	02	Fill of drain [02]. Angular to sub-angular stones, 0.05 – 0.15 m across in a matrix of loose brown sandy silt.
04	T1	10	Wide shallow linear cut aligned NW-SE, 3.2 – 3.4 m wide and 0.25 m deep. Sloping sides flat base.
05	T1	04	Fill of cut [04]. Angular to sub-angular stones 0.05 – 0.15 m across in a mixed matrix of brown sand, silt and clay.
06	T1	10	Cut of rubble drain aligned N-S, 1.2 m wide, and 2.7 m long within the trench. Not excavated.
07	T1	06	Fill of drain [06]. Angular to sub-angular stones, mainly degraded sandstone, up to 0.4 m across in a matrix of loose red-brown silt. Contains inclusions of modern pot, glass and animal bone.
08	T1	10	Cut of modern pipe trench aligned E-W, 2.5 m wide and 13 m long within the trench. Contain a yellow glazed ceramic (rainwater?) pipe c 0.25 m in diameter. A smaller red ceramic pipe drains into the main pipe at the east end of the trench.
09	T1	08	Fill of modern trench [08]. Dark brown loosely compacted silty soil. Quite similar to the topsoil in the area. Contains inclusions of rubble, modern pot, glass and small animal bones.
10	T1		Reddish brown clay subsoil.
11	T2	12,14	Mid-dark brown medium compacted silt. Includes occasional stones, otherwise fairly clean except for a band along the foundations that contains various modern debris. 0.55 to 0.75 m deep.
12	T2		Orange brown silty clay. Re-deposited natural subsoil.
13	T2	12	Ill-defined boundary between deposits 12 and 14. 1.4 m wide at the top. Possibly foundation cut for Batardeau.
14	T2	13	Orange brown fairly loose compacted silty clay. Inclusions: 10% sub-rounded to sub-angular stones all less than 0.1 m across. More stony than deposit 12 to the north.
15	T2, T3	13	Batardeau wall built from mortared dressed rectangular sandstone blocks. The wall tapers towards the top where it is 4.9 m wide increasing to 6 m wide 6.5 m from the top course. On the N side 15 horizontal courses of different height were exposed, 3.6 m high. The upper six courses above ground are weathered to a light grey colour. The sixth course formed a plinth 0.12 m wide. Courses 7 to 10 all formed plinths of different widths. The plinth increased the width of the wall by 0.75 m in total. The exposed section on the S was straight with no plinths. The top of the Batardeau comprises an earthen bank.
16	T5	17,18, 19,20	Turf and topsoil. Contains occasional fragments of modern glass, pottery and ceramic drainage pipe.
17	T5		Natural subsoil. Reddish brown silt and clay, with bands of natural bedrock poking through.
18	T5	19	Spread of stones within slight depression [19] at S end of trench forming a slight bank at the S corner of the Brass bastion. Probably formed during levelling of the football pitch to the S.
19	T5	17	Slight manmade hollow
20	T5	21	Gray gravel. Fill of modern pipe trench.
21	T5	17	Cut of modern pipe trench. Contains plastic pipe.
22	T4	23,24	Turf and topsoil 0.2 m deep on average.
23	T4		Natural subsoil. Reddish brown silt and clay, with bands of natural bedrock poking through at N end of trench.
24	T4		Natural subsoil. Orange sand with small stones.
25	T3	26	Brown sandy clay with some stones. Re-deposited subsoil.
26	T3		Rough unmortared wall built up against the S side of the Batardeau at the NE corner of the Brass bastion. Only the east face of the wall was exposed, but the top appears to slope down from the Batardeau wall [15]. The junction with [15] is mortared but the rest of the wall comprise random rubble build. The wall was over 2.8 m long and 1.3 m high. The top of the wall is only 0.2 m below the ground up against the Batardeau.
27	T6	43	Well-compacted dark pink mottled silty clay with inclusions of small stones, flint and charcoal flecks. The majority of the stones were rounded like beach pebbles.
28	T6	27,29	Thin deposit of sand and gravel on top of stones [29].

No	Trench	Over	Description
29	T6	27,30	Rubble wall core comprising sandstones up to 0.3 m across with sand and mortar. The mortar included small pebbles, flint and brick/tile fragments. The wall was aligned NS across the trench. The wall core had a well-defined E side and a more irregular W side. The rubble deposit appeared to represent the very base of the wall and was probably less than 0.3 m deep. The rubble deposit was up to 2.2 m wide.
30	T6	41	Linear cut/depression that runs parallel with and on the east side of wall core [29]. It was 0.4 to 0.5 m wide and 0.25 m deep. The feature may represent the impression left by the robbed out facing stones on the east side of the medieval town wall. Rather than being an impression it could possibly be the east side of a very shallow foundation for the town wall. If so, the west side of the trench has not survived. The surviving remains indicate that the wall was about 2.7 m wide at the base.
31	T6	30	Fill of slot [30]. Dark brown/grey silty clay with inclusions of flint, small stones and fragments of bricks and flecks of charcoal.
32	T6	41	Shallow cut at N side of the trench. The exposed part of the cut is rectangular in plan, 0.75 m wide along the edge, and extends 0.4 m into the trench. The cut had rounded corners and gradually sloping sides down to a wide flat base. The cut was only 0.05 m deep.
33	T6	32	Fill of cut [32]. Dark brown/black well compacted silty clay with inclusions of stones, brick fragments and charcoal flecks.
34	T6	35,39	Upper fills in ditch [39]. Same composition as (42). Medium brown deposit of sandy and silty clay with lenses of light grey mortar and stones. Contains occasional potsherds and animal bones. Demolition deposits representing rapid infill of ditches.
35	T6	39	Lower fills in ditch [39]. Same composition as (43). Pink to reddish clay with some stony areas. Mainly re-deposited subsoil.
36	T7		Brown sandy soil with rubble and mortar. Probably the same as (34) in Trench 6.
37	T7	36	Cut of modern rubble drain.
38	T7	37	Fill of modern rubble drain.
39	T6	41	Cut of ditch on the E side of wall [29]. Only the upper W side of the cut was exposed. The ditch was over 13.5 m wide and over 1.8 m deep.
40	T6	41	Cut of ditch on the W side of wall [29]. Only the upper E side of the cut was exposed. The ditch was over 8 m wide and over 1.6 m deep.
41	T6		Natural subsoil. Compact reddish brown clay.
42	T6	27,43	Upper fills in ditch [40]. Same composition as (34). Medium brown deposit of sandy and silty clay with lenses of light grey mortar and stones. Contains occasional potsherds and animal bones. Demolition deposits representing rapid infill of ditches.
43	T6	40	Lower fills in ditch [40]. Same composition as (35). Pink to reddish clay with some stony areas. Mainly re-deposited subsoil.

APPENDIX 2: DRAWING REGISTER

Drawing no.	Scale	Description
1	1:10	Trench 1. NE facing section across shallow ditch [04].
2	1:20	Trench 6. Plan of medieval wall footings.
3	1:10	Trench 6. SE facing section across medieval wall and the edges of the ditches on either side.

APPENDIX 3: PHOTOGRAPH REGISTER

Shot no.	B&W Prints	Colour Slides	Digital JPG files	Direction facing	Description
1	1	1	MWB06_01.jpg	SE	Trench 1. NW facing section across shallow ditch [04]
2	1	1		S	Trench 1. NW facing section across shallow ditch [04]
3	1	1	MWB06_02.jpg	SE	Trench 1, NW facing section of SW end of trench.
4	1	1	MWB06_03.jpg	SE	Trench 1, NW facing section of SW end of trench. E of photo 3.
5	1	1	MWB06_04.jpg	NE	Trench 2, SW facing section of trench
6	1	1	MWB06_05.jpg	SE	Trench 2. Section of NW facing elevation of Batardeau wall.
7	1	1	MWB06_07.jpg	NW	Trench 1. W end of modern pipe trench [08].
8	1	1	MWB06_06.jpg	NW	Trench 1. Rubble drain [06].
9	1	1	MWB06_08.jpg	NW	Trench 3. Section of SE facing elevation of Batardeau wall. Upper part.
10			MWB06_09.jpg	NW	Trench 3. Section of SE facing elevation of Batardeau wall. Lower part.
11			MWB06_10.jpg	NW	Trench 3. Section of SE facing elevation of Batardeau wall. Lowest part.
12	1	1	MWB06_11-12.jpg	SW	Trench 3. Wall [26] partly exposed in SE side of trench.
13	1	1	MWB06_13-14.jpg	W	Trench 3. Junction between wall [26] and SE face of Batardeau wall.
14	1	1	MWB06_15.jpg	SE	Trench 6. Wall core [29]
15	1	2	MWB06_16.jpg	NW	Trench 6. Wall core [29]
16	1	1	MWB06_17.jpg	NE	Trench 6 with wall [29] and trenches on either side seen from the Elizabethan ramparts.
17	2	1	MWB06_18.jpg	W	Trench 6. Section across ditch [39] on E side of wall [29].
18	1	1		NW	SE facing section of trench 6, E end.
19	1	1		NW	SE facing section of trench 6, W of photo no 18.
20	1	1		NW	SE facing section of trench 6, W of photo no 19.
21	1	1		NW	SE facing section of trench 6, W of photo no 20.
22	1	1		NW	SE facing section of trench 6, W of photo no 21.
23	1	1		NW	SE facing section of trench 6, W of photo no 22.
24	1	1		NW	SE facing section of trench 6, W of photo no 23.
25	1	1		NW	SE facing section of trench 6, W of photo no 24.
26	1	1		NW	SE facing section of trench 6, W of photo no 25.
27	1			NW	SE facing section of trench 6, W of photo no 26.
28	1	1		NW	SE facing section of trench 6, W of photo no 26,27.
29	1	1		NW	SE facing section of trench 6, W end.
30	1	1	MWB06_19.jpg	N	Trench 6. Section across ditch [40] on W side of wall [29].
31	1	1	MWB06_20.jpg	NW	Trench 7
33	1	1	MWB06_21.jpg	NW	SE facing section of trench 6, E end.
34	1	1	MWB06_22.jpg	NW	SE facing section of trench 6, W of photo no 33.
35	1	1	MWB06_23.jpg	NW	SE facing section of trench 6, W of photo no 34.
36	1	1	MWB06_24.jpg	NW	SE facing section of trench 6, W of photo no 35.
37	1	1	MWB06_25.jpg	NW	SE facing section of trench 6, W of photo no 36.
38	1	1	MWB06_26.jpg	NW	SE facing section of trench 6, W of photo no 37.
39	1	1	MWB06_27.jpg	NW	SE facing section of trench 6, W of photo no 38.
40	1	1	MWB06_28.jpg	NW	SE facing section of trench 6, W of photo no 39.
41	1	1	MWB06_29.jpg	NW	SE facing section of trench 6, W of photo no 40.
42	1	1	MWB06_30.jpg	NW	SE facing section of trench 6, W of photo no 41.
43	1	1	MWB06_31.jpg	NW	SE facing section of trench 6, W of photo no 42.
44	1	1	MWB06_32.jpg	NW	SE facing section of trench 6, W of photo no 43.
45	1	1	MWB06_33.jpg	NW	SE facing section of trench 6, W end.

APPENDIX 4: SAMPLE REGISTER

Sample no.	Context	Volume	Description
01	27	10l	Dark pink mottled silty clay with inclusions of small stones, flint and charcoal flecks.
02	33	10l	Dark brown/black silty clay with stones, brick fragments and charcoal flecks.
03	31	10l	Dark brown/grey silty clay with flint, pebbles, fragments of bricks and charcoal flecks.

APPENDIX 5 – FINDS REGISTER

Julie Franklin

Table 1. Hand collected finds

Trench	Context No.	Find No.	Material	Qty	Description	Spot Date
T1	01	1	Iron	1	Chisel, large.	
T1	01	2	CBM	4	Brick sherds, one pan tile	Post-Med
T1	01	3	Lithics	1	Flint/chert flake	
T1	01	4	Glass	2	Window sherd, clear bottle sherd	19 th /20 th
T1	01	5	Clay Pipe	2	Bowl fragment, stem, narrow bore	18 th /19 th
T1	01	6	Pottery	16	Modern whiteware, pearlware, blue trans printed, banded Modern redware, slip lined, unglazed	c.19 th
T1	01		Bone	1	Large mammal bone	
T1	01		Shell	5	Limpet, periwinkle etc	
T2	11	7	CBM	1	Brick fragment	Post-Med
T2	11	8	Bone Obj	1	Spoon. Fiddle pattern teaspoon, made entirely of bone. Baby spoon?	18 th /19 th
T2	11	9	Glass	9	Clear bottle sherds, some embossed marks for Berwick-u-T Green bottle sherds, part of impressed seal	L.19 th /e.20 th
T2	11	10	Pottery	12	Modern redware, brown glazed, slip lined Rockingham, caneware Modern whiteware, plain Modern stoneware, bottle fragment TGE, shaped vessel, painted red, blue and yellow	18 th -19 th
T2	11		Bone	4	Large mammal bones	
T2	11		Shell	1	Limpet	
T3	01	11	Copper Alloy	1	Gun cartridge. Diam 15mm. Unused	m.19 th /e.20 th
T3	01		Bone	1	Small bone	
T6	27	12	Pottery	5	Modern whiteware, creamware Modern redware, brown glazed and slip decorated	m.18 th /e.19 th
T6	27	13	Iron	1	Large square ended plate	
T6	27	14	Clay Pipe	1	Stem, narrow	L.18 th /19 th
T6	27	15	Lithics	1	Gun flint, top missing	L.17 th /e.19 th
T6	27	16	MWD	1	Fe slag lump	
T6	27	17	CBM	7	Brick and pan tile, large sherds	Post-Med
T6	29	18	CBM	7	Pan tile sherds, possibly some brick fragments	Post-Med
T6	29	19	Glass Waste	1	Blue, bubbly glass waste	c.17 th /20 th

Trench	Context No.	Find No.	Material	Qty	Description	Spot Date
T6	29	20	Clay Pipe	1	Stem, wide	17 th
T6	31	21	Pottery	3	Buff gritty ware, olive glazed fragment (14 th /15 th) French/English whiteware, dish/bowl base, yellow glazed (16 th /17 th) Rockingham, caneware fragment (18 th /19 th)	15 th -18 th
T6	31	22	Glass	1	Green bottle sherd, laminating	17 th /18 th
T6	31	23	CBM	1	Brick fragment, tile/	Post-Med
T6	31	24	MWD	2	Fe slag lumps	
T6	31		Bone	2	Large mammal bones	
T6	34	25	CBM	6	Pan tile sherds, brick fragment, large piece of CBM, thick coarse tile, or thin brick	Post-Med
T6	34	26	Pottery	4	Rhenish stoneware, cordoned shoulder (c.16 th) Slipware, pink fabric, flatware, yellow slip-trailed design, possibly local or Dutch (c.17 th) Porcelain, blue painted fragment (17 th /18 th) Modern stoneware, large jar sherd (c.18 th ?)	16 th -18 th
T6	34	27	Clay Pipe	4	Stems, wide	17 th /e.18 th
T6	34		Bone	2	Fragments	
T6	35		Bone	1	Fragment	
T6	43	28	Pottery	3	Modern whiteware, creamware Post-med redware, rim, orange glazed (17 th /e.18 th)	18 th
T6	43	29	Clay Pipe	1	Stem, narrow	L.18 th /19 th
T7	01	30	CBM	2	Brick and ?pipe tile fragments	Post-Med

Table 2. Finds from retents

Trench	Context No.	Sample No.	Material	Qty	Description	Spot Date
T6	027	1	CBM	2	Daub/brick fragments	
T6	027	1	Clay Pipe	1	Bowl fragment	17 th /19 th
T6	027	1	Glass	7	Fragments, bottle sherd	17 th /19 th
T6	027	1	Lithics		Flint fragments, many, abraded	
T6	027	1	Mortar		Small fragments	
T6	027	1	MWD		Fe slag fragments	
T6	027	1	Pottery	2	Modern whiteware, white salt glaze sherd and ?creamware fragment	18 th
T6	033	2	Clay Pipe	4	Bowl and smaller bowl sherds. Large slightly bulbous bowl with broken spur. 1670-1710, possibly Newcastle or local.	L.17 th /e.18 th
T6	033	2	Coal		Fragments	
T6	033	2	Glass	3	Window fragments Bottle sherd, base kick, L.17 th /e.18 th ?	L.17 th /e.18 th ?
T6	033	2	Lithics	8	Flint fragments, abraded	
T6	033	2	Mortar		Small fragments	
T6	033	2	MWD		Fe slag fragments	
T6	031	3	CBM	6	Brick/daub fragments	
T6	031	3	Glass	4	Clear fragments	?
T6	031	3	Lithics		Flint, large lump and small fragments, abraded, few burnt	
T6	031	3	Mortar		Large lumps	
T6	031	3	MWD		Fe slag fragments	
T6	031	3	Pottery	1	Modern redware?, fragment, brown glazed	Modern?

APPENDIX 6 – ENVIRONMENTAL ASSESSMENT

Scott Timpany

SAMPLE STRATEGY FOR BULK SAMPLES

Bulk soil samples ranging from 10 to 20 litres in size were taken from an evaluation trench across the former town defence wall; the subject of the archaeological investigation.

METHODOLOGY FOR SAMPLE PROCESSING

Bulk soil samples were subjected to a system of flotation in a Siraf style flotation tank. The floating debris (flot) was collected in a 250 μ m sieve and, once dry, scanned using a binocular microscope. Any material remaining in the flotation tank (flot) was wet-sieved through a 1mm mesh and air-dried. This was then sorted and any material of archaeological significance removed.

Total number of samples	3
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RESULTS

All preservation was by charring, the results are summarised in Tables 3 and 4.

Charcoal: No wood charcoal was recovered from any of the samples. Coal was found in all samples, suggesting it had replace charcoal as the major fuel used, which is in keeping with the [medieval] period.

Cereal grain and weed seeds: A single charred cereal grain was recovered from Sample 03, with weed seeds present in Sample 01.

Samples identified with an asterisk (*) in Tables 3 and 4 contain sufficient quantities of charcoal for obtaining a single entity AMS date. Samples with larger concentrations of charcoal are less likely to represent contamination (e.g. by earthworms), and would therefore offer the best chances for obtaining reliable AMS dates.

DISCUSSION

All of the charred plant remains recovered (see Table 4) can be found on cultivated ground, with arable weed species such as *Rumex* (docks) and *Chenopodium* (goosefoots), together with the cereal grain of *Hordeum vulgare* (barley). It is likely that the weeds were gathered with crops during harvesting and were then charred along with the cereals. That all the remains were charred suggests they came to rest against the wall after being swept out of commercial buildings within the town and transported by the wind. *Hordeum vulgare* was often used in industries such as baking and brewing. That Berwick was a brewing town during this period suggests they probably originate from the latter.

A single *Ficus carica* (fig) seed was recovered from Sample 02. The seed is uncharred but given the robust nature of the seeds it is possible it may not be modern. *F. carica* seeds have been recorded from a number of medieval sites and appeared to have been a common part of the diet.

RECOMMENDATIONS

Plant remains: The limited plant remains recovered suggests no further work needs to be carried out on these samples.

Table 3. Environmental remains from retents (ST)

Context	Sample	Retent vol (l)	Pottery	Daub	Lithic	Glass	Metallic Waste	Burnt Bone	Unburnt Bone	Charcoal Qty AMS	Comments
27	01	20	+	+	+++	+	+++	+	+	+	1 piece of glass and cinders also present. Lithic not thought to be worked. Bone is fish bone.
33	02	20			++	+	++	+++	++		Piece of clay pipe, plaster fragments, magnetic residue and marine shell also recovered. Bone is mammal and fish.
31	03	10	++		+++	+	+++	++	+		Land and marine shell fragments, and mortar fragments also recovered.

Key: + = rare, ++ = occasional, +++ = common and ++++ = abundant

* = sufficient charcoal for AMS dating

Table 4. Composition of flots (ST)

Context	Sample	Total flot vol (ml)	Cereal grains	Weed seeds	Charcoal Qty AMS	Comments
27	01	25		+		<i>Rumex cf. acetosa</i> +, <i>Chenopodium</i> sp. +, <i>Carex</i> sp. +. Coal +++
33	02	20				<u><i>Ficus carica</i></u> +. Coal ++++
31	03	10	+			<i>Hordeum vulgare</i> + (1). Coal +++

Key: + = rare, ++ = occasional, +++ = common and ++++ = abundant

* = sufficient charcoal for AMS dating

Underlined = non-charred.

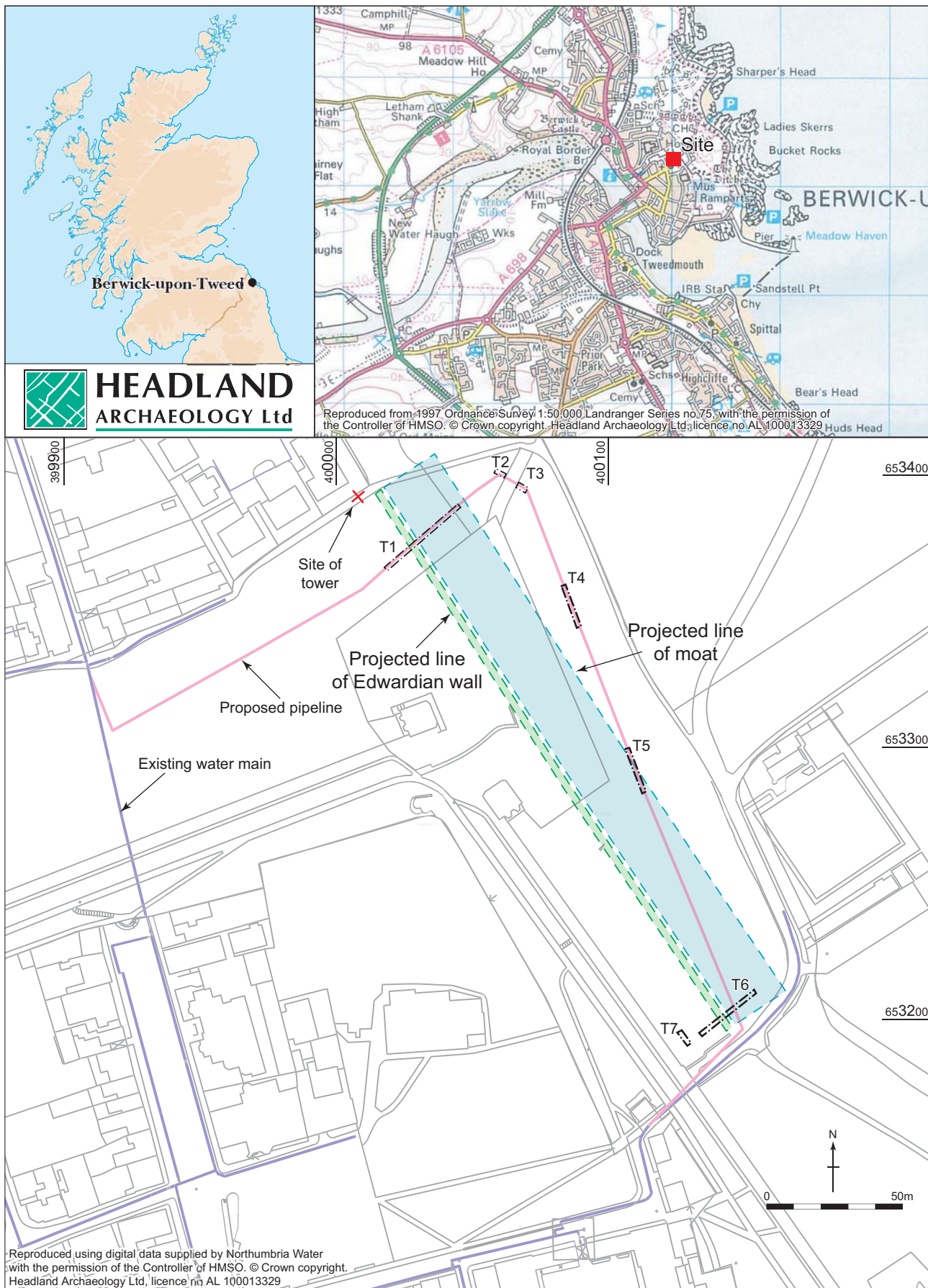


Figure 1. Berwick-upon-Tweed Defences: Site and trench locations

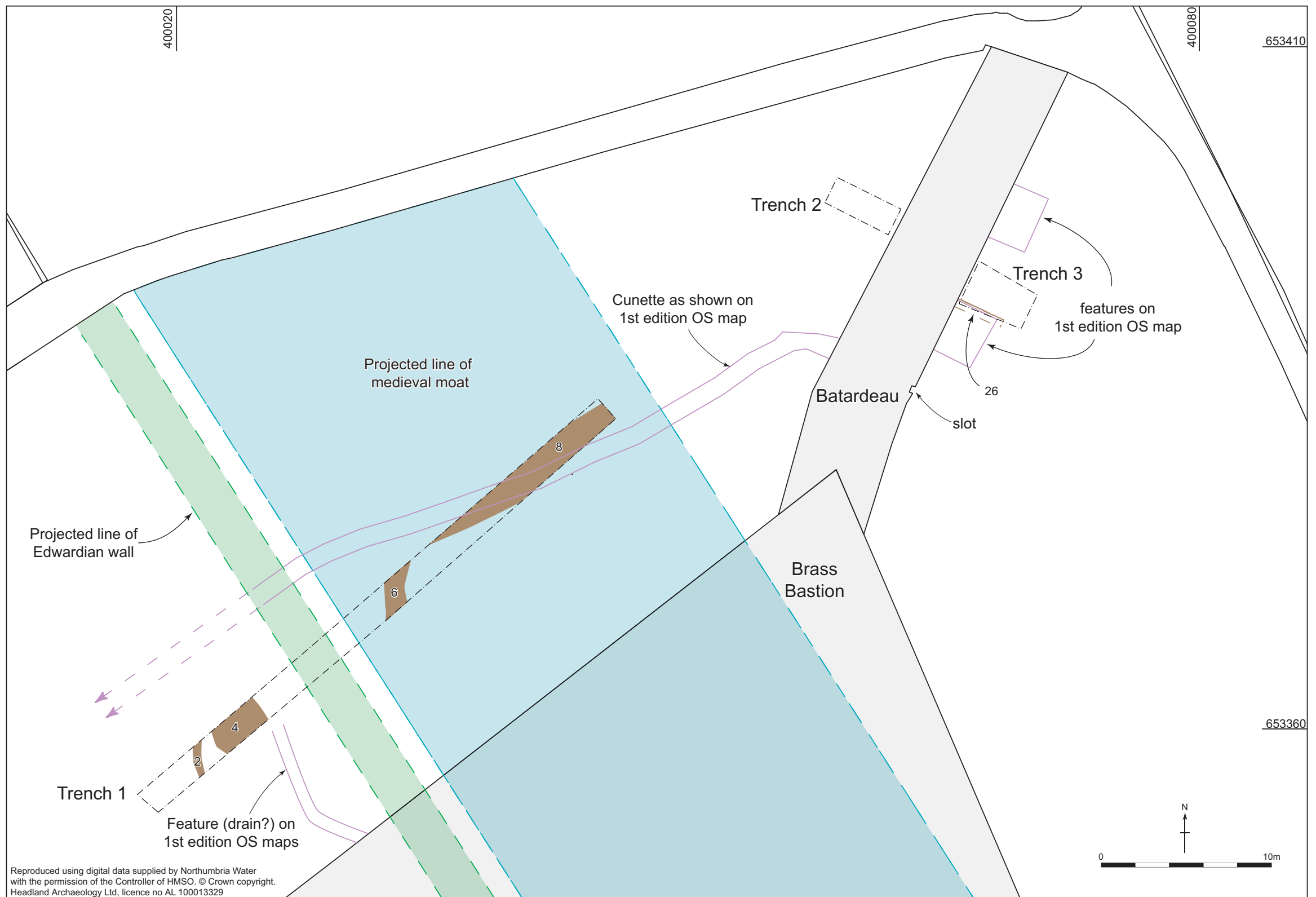


Figure 2. Berwick-upon-Tweed Defences: Trench 1 - 3.

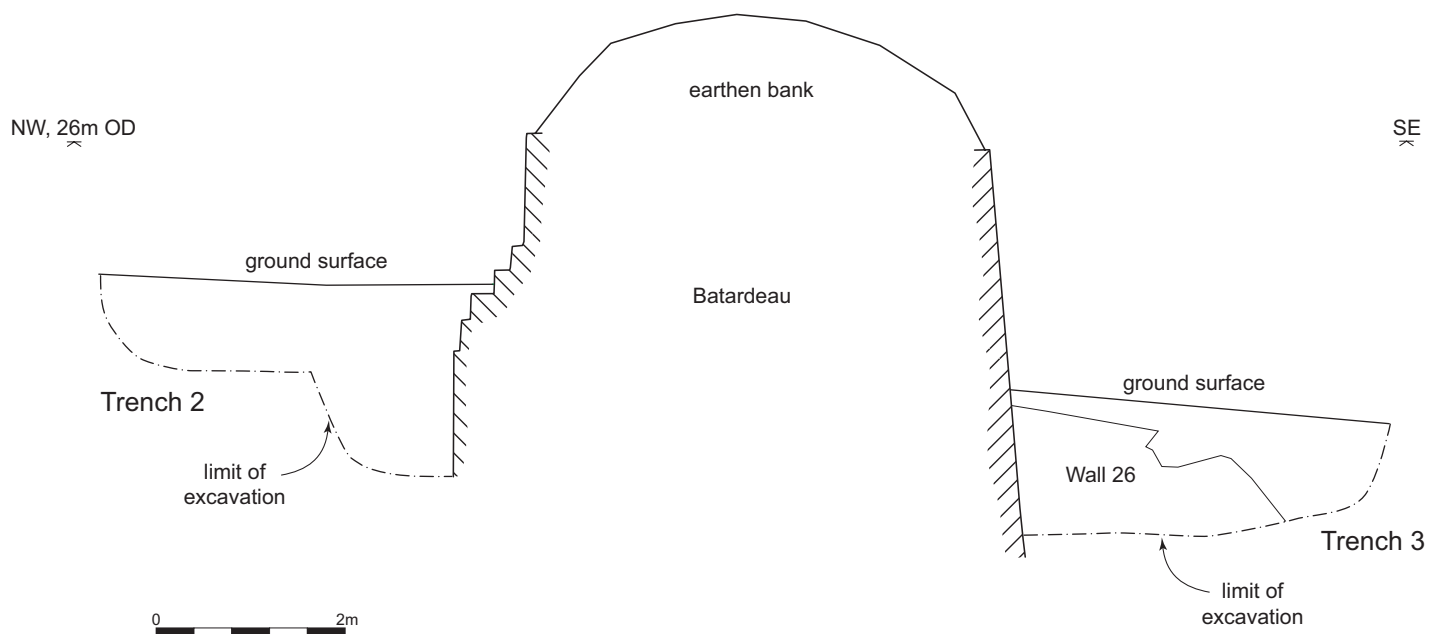


Figure 3. Berwick-upon-Tweed Defences: Southwest facing section across Batardeau

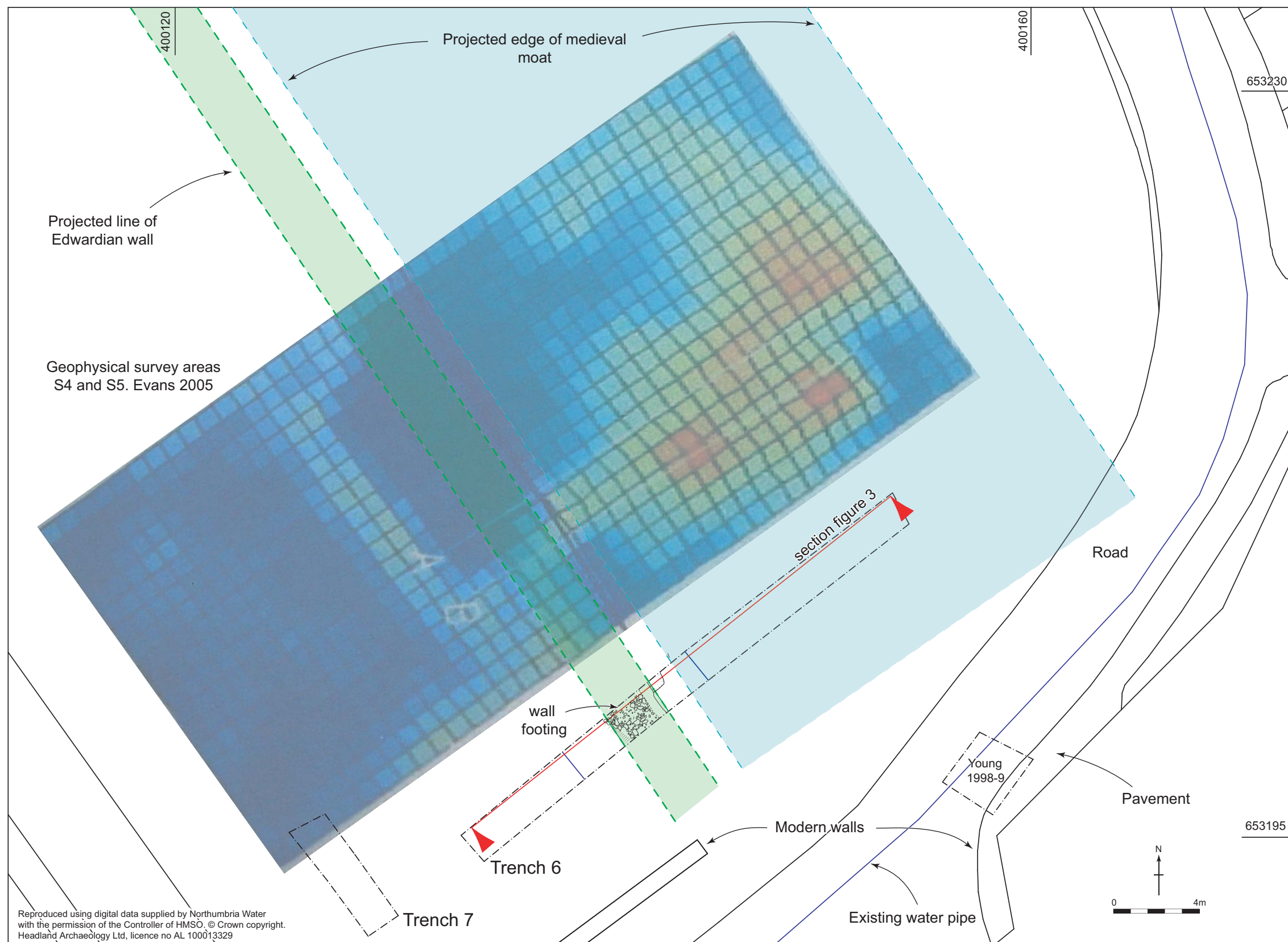
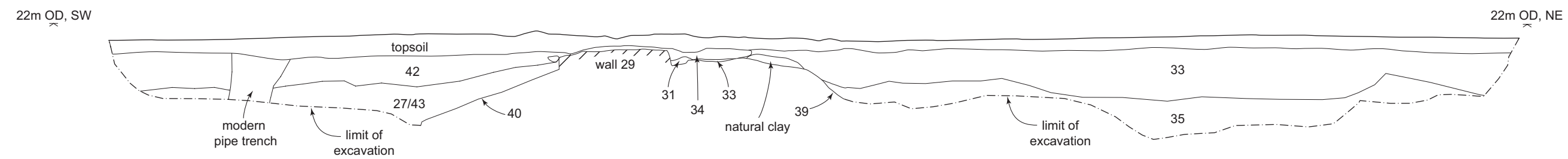


Figure 4. Berwick-upon-Tweed Defences: Plan of Trench 6 and 7 with footings of medieval town wall.



0 2m



Figure 5. Berwick-upon-Tweed Defences: SE-facing section of Trench 6 showing upper parts of medieval trenches.



Plate 1. North side of Batardeau



Plate 2. East face of wall [26] in Trench 3



Plate 3. Footings of medieval town wall [29].



Plate 4. Wall [29] with ditches on either side seen from the Elizabethan ramparts.