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## **SUMMARY**

An archaeological watching brief was conducted by Gerry Martin Associates on behalf of RSK Environment Ltd. along the Quay Walls area in Berwick-upon-Tweed (beginning of Quay Walls: NT 99730 52784; Gable end of 23 Quay Walls: NT 99866 52554) for Northern Gas Networks during an essential gas main replacement. This work took place between the 19<sup>th</sup> May and the 24<sup>th</sup> June 2014. The gas main was replaced by insertion of a new plastic pipe into the former metal one for a length of approximately 300m along the street. Observations were made in 29 small hand dug pits along the new main and at connections to individual properties.

In several test pits wall portions were present: these deposits can be linked to 18<sup>th</sup> century occupation of the Quay Walls area, perhaps belonging to the passage system connecting the Quayside with individual private warehouses or cellars.

## **1 INTRODUCTION**

### **1.1 Project origins**

Ahead of essential gas mains replacement for Northern Gas Network (NGN), Gerry Martin Associates Ltd were commissioned by RSK Environment Limited (RSK) on behalf of NGN to undertake an archaeological watching brief along Quay Walls, Berwick-upon-Tweed, Northumberland.

The archaeological watching brief was requested by English Heritage as potential and significant archaeological remains may have been encountered relating to Medieval and Post-Medieval activity along the waterfront.

As the study area was a Scheduled Ancient Monument; no work could proceed until Scheduled Monument Consent (SMC) was granted by English Heritage, duly issued on 14<sup>th</sup> March 2014.

Previous archaeological excavations in the proximity of the Quay Walls area, had suggested the survival of stratified archaeological material (RSK 2014).

A brief for this work was issued by English Heritage to RSK who responded by preparing a Written Scheme of Investigation (WSI) that was subsequently approved by Rob Young, Inspector of Ancient Monuments at English Heritage (RSK 2014).

The approved methodology was adhered to by the contractor. Fieldwork was monitored by RSK.

### **1.2 Project outline**

The work programme involved replacement of the former iron pipe with a plastic pipe inserted within the existing metal pipe and new gas connections to each of the 23 properties along the pedestrian-only walkway of Quay Walls for a distance of 289m. The study area was located along Quay Walls (Figure 1).

In order to minimise inconvenience to local residents and ease the pipe replacement process, Quay Walls footpath was closed occasionally for sections of 50m in length, a distance corresponding to the location of gas main reception pits.

The project involved several interventions throughout the Quay Walls residential area. Flagstones were removed with a specific non-invasive methodology.

Due to the confined nature of the walkway and the dangers of gas ignition, all the test pits were hand-dug, and then manually backfilled with the previously excavated material. The stone flags were then reinstated, maintaining their original configuration.

The following document presents a summary of the watching brief undertaken during the gas mains replacement.

The report has been prepared in accordance with the relevant standards and protocols of the Institute of Field Archaeologists (*Standard and Guidance for an Archaeological Watching Brief* 2008 and *Code of Conduct* 2013), combined with accepted best practice and in accordance with the brief prepared by the curatorial authority.



Figure 1. Course of the gas main subject to the watching brief

## 2. BACKGROUND

### 2.1 Location, topography and geology

The town of Berwick-upon-Tweed lies on the northern bank of the river Tweed, 77 km south-east of Edinburgh and 90 km north from Newcastle upon Tyne. Its territory comprises the satellite settlements of Tweedmouth and Spittal, located on the southern bank of the river and connected to the town by bridges (figure 2).



Figure 2. Location of study area (OS Copyright, Licence no. 100044205)

Berwick-upon-Tweed occupies a peninsula, surrounded by water on three sides. Superficial geology consists of alluvial clays and sands, resting above glacial tills. The solid geology is represented by sequences of Carboniferous limestone, shale and sandstone. (NCC 2009, 5-6)

The Medieval and Post-Medieval fortifications of Berwick-upon-Tweed, of which Quay Walls are part of, are protected as Scheduled Ancient Monument (UID 28532/List Entry 1015968, figure 3).

Quay Walls extend from Bridge End to Wellington Terrace, where the defensive system continues. The Walls are pierced by gates accessing the Quayside, of which Shore Gate, at the bottom of Sandgate is the most important (Menuge & Whitey 2005, 27).

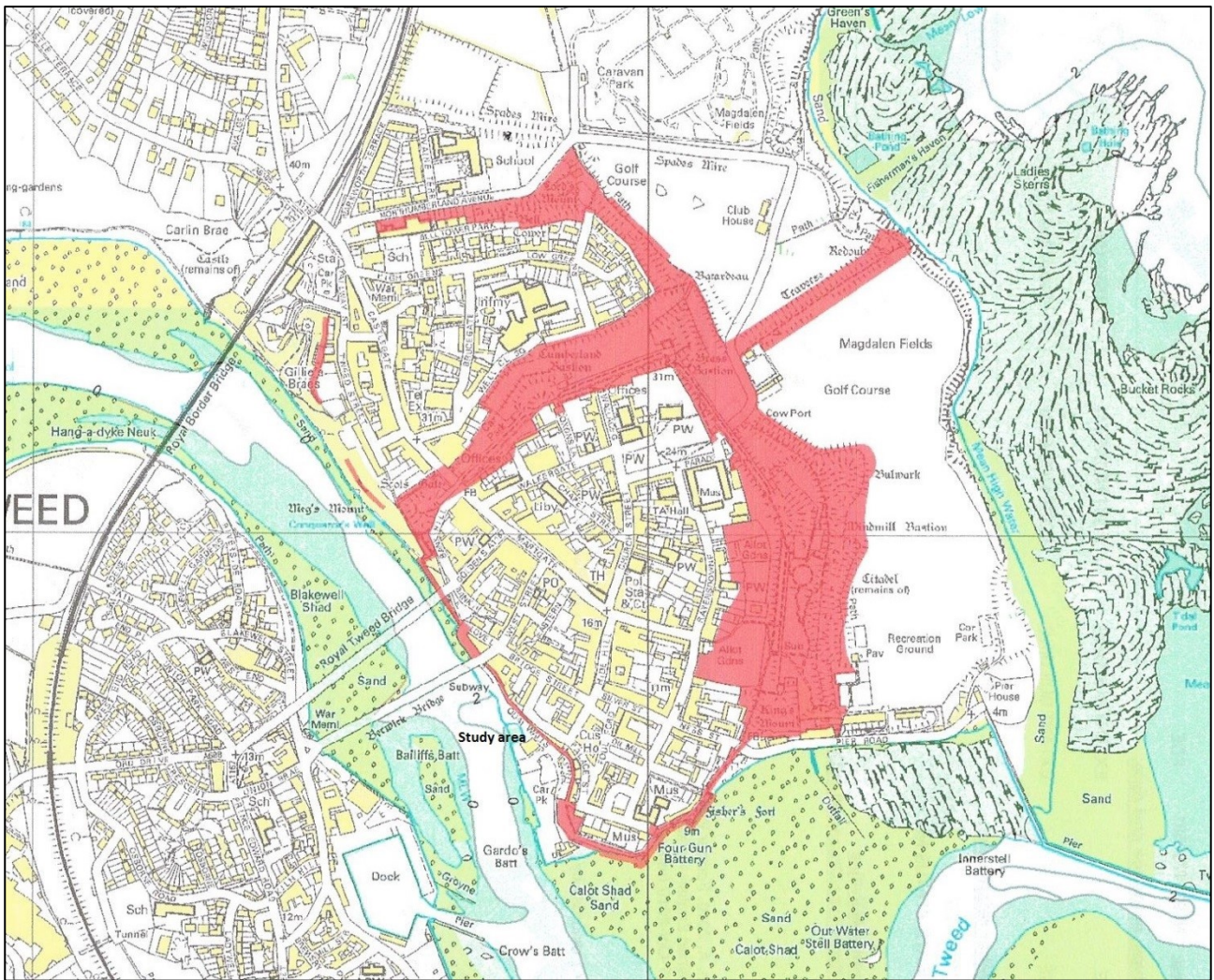


Figure 3. Scheduled area around Berwick-upon-Tweed

### 3. HISTORICAL BACKGROUND

#### 3.1 Historical background

Berwick-upon-Tweed developed on the north-east bank of the river Tweed, a location considered a place of strategic advantage. The importance of this waterway is related to salmon fishery and to its direct access to the North Sea (Menuge & Whitey 2005, 4).

Evidence for prehistoric and Roman activity is sparse.

In the northern area of the town a Neolithic long-barrow and an Iron Age settlement have been recorded, whilst a Bronze Age cist was recovered in Tweedmouth.

A Roman road, known as the Devil's Causeway, that ran towards the mouth of the Tweed, was possibly connected to a fortlet (NCC 2009, 10).

The probable origin of the town could be Saxon or Norse, the first mention not being until the 9<sup>th</sup> century A.D.



In 1018, with the Battle of Carham, Malcolm II claimed the Tweed area as part of Scottish territory. Although the settlement was not directly mentioned, it presumably must have yielded some importance because of its strategic position beside the river (Ellison 1976, 147).

In the 12<sup>th</sup> century under the realm of David I, the town became a Royal Burgh with its own castle. By that time Berwick was already a flourishing trading port, its main export being wool, a commodity dominated by religious houses (NCC 2009, 13).

In 1296, as opening act of the First Scottish Independence War, the Sack of Berwick occurred. At that time, only a ditch and a palisade constituted the urban defence system (*Ibid*, 15).

A stone wall circuit was then built by Edward I, in order to protect the town more effectively.

In 1318, after the Scottish recapture of the town, Robert the Bruce further strengthened the walls (Menuge & Whitey 2005, 6).

Berwick was probably the busiest port in Scotland during the 12<sup>th</sup> and 13<sup>th</sup> centuries, as an international trading centre, demonstrated by the presence of warehouses. During the English occupation, the town served as a staging post for the supply of troops involved in northerly Scottish campaigns (NCC 2009, 31).

Previous archaeological investigations suggest the development of the quayside started in this period.

The earliest port facility was a foreshore area. During the excavations at New Quay, pottery from the 13<sup>th</sup> to 16<sup>th</sup> centuries and artefacts of leather and wood were unearthed. These deposits were interpreted as refuse dumping on the tidal foreshore (Griffiths 1996-1997) as they were sealed by deposits of pure sand, dated to the 18<sup>th</sup> century, the product of dumping ballast from ships arriving at Berwick.

The archaeological excavations conducted during the refurbishment of the Quayside itself, showed a similar stratigraphic sequence. (NCC 2009, 31)

In the 14<sup>th</sup> and 15<sup>th</sup> century Berwick was bitterly contested between the Scots and the English. The town was ultimately conquered in 1482 by the English crown. During the reign of Henry VIII the fortified tower known as Lord's Mount was built (NCC 2009, 34).

The castle was abandoned as a defence and the town walls reconstructed under Edward VI and concluded during the reign of Elizabeth I (Ellison 1976, 150). During refurbishment of the walls, the portion facing the River Tweed was retained (Menuge & Whitey 2005, 27).

The Elizabethan Walls, inspired by Italian military architecture, remained the main defence until the late 18<sup>th</sup> century (Menuge & Whitey 2005,7).

In the 17<sup>th</sup> century the Berwick Royal Bridge and the Holy Trinity Church were built (Ellison 1976, 150).

The post-medieval Quayside developed from the north southwards, comprising the area to the south of Berwick Bridge and to the west of the original defensive wall-line.

The Old Quay was constructed before 1750, whilst the New Quay was built around that period. The southern sector was dated to the early 19<sup>th</sup> century (NCC 2009, 39).

In the 18<sup>th</sup> century Berwick's main exports was wool, eggs and salmon as shown by shiels, ice houses and smoking houses dotted around the town probably continuing an earlier tradition.

In the late 18<sup>th</sup> and 19<sup>th</sup> centuries granaries were built close to the town's quay (Menuge & Whitey 2005, 8). One of these structures, the Dewar's Lane Granary, was constructed against Quay Walls and dates to 1769.

The Customs House, now 18 Quay Walls, was built in 1799. The cellar beneath it, provided a passage leading to the Quayside, probably pre-dating the building above. This cellar along with many others beside Quay Walls were used as warehouses (Walker 1991, 23).

Storehouses and offices belonging to various different companies were located on the quay (Fuller 1799, 410).

By the end of the 18<sup>th</sup> century, the platform above Quay Walls became a promenade. Most of the houses built overlooking the promenade date from the late 18<sup>th</sup> to early 19<sup>th</sup> century. (Menuge & Whitey 2005, 28)

### **3.2 Historic Environment Record**

Respecting the course of the town wall on the landward side are a suite of listed buildings that now form 1 to 23 Quay Walls.

These buildings have immense group value as they not only enhance the harbour landscape but are indicative of late 18<sup>th</sup> and 19<sup>th</sup> century maritime and commercial activity.

Beneath many of these structures, now used primarily as domestic dwellings, are large basements or cellars (figure 4) that once stored salmon and other perishable goods bound for the London market.



Figure 4. Cellar within 18 Quay Walls



Figure 5. Passage between defences and 23 Quay Walls

Before the construction of houses 1-23 Quay Walls, there had probably existed an intra-mural path respecting the course of the town wall. As political calm ensued in the later 18<sup>th</sup> century, formal buildings were constructed adjacent to the town defences but in many cases not against the wall.

In order to allow access to these structures from the harbourside, the town wall was widened to produce a promenade. The underlying pathway therefore became a series of service passages accessing the cellars to these buildings (figure 5).

The physical disposition of known heritage assets are depicted below (figure 6).

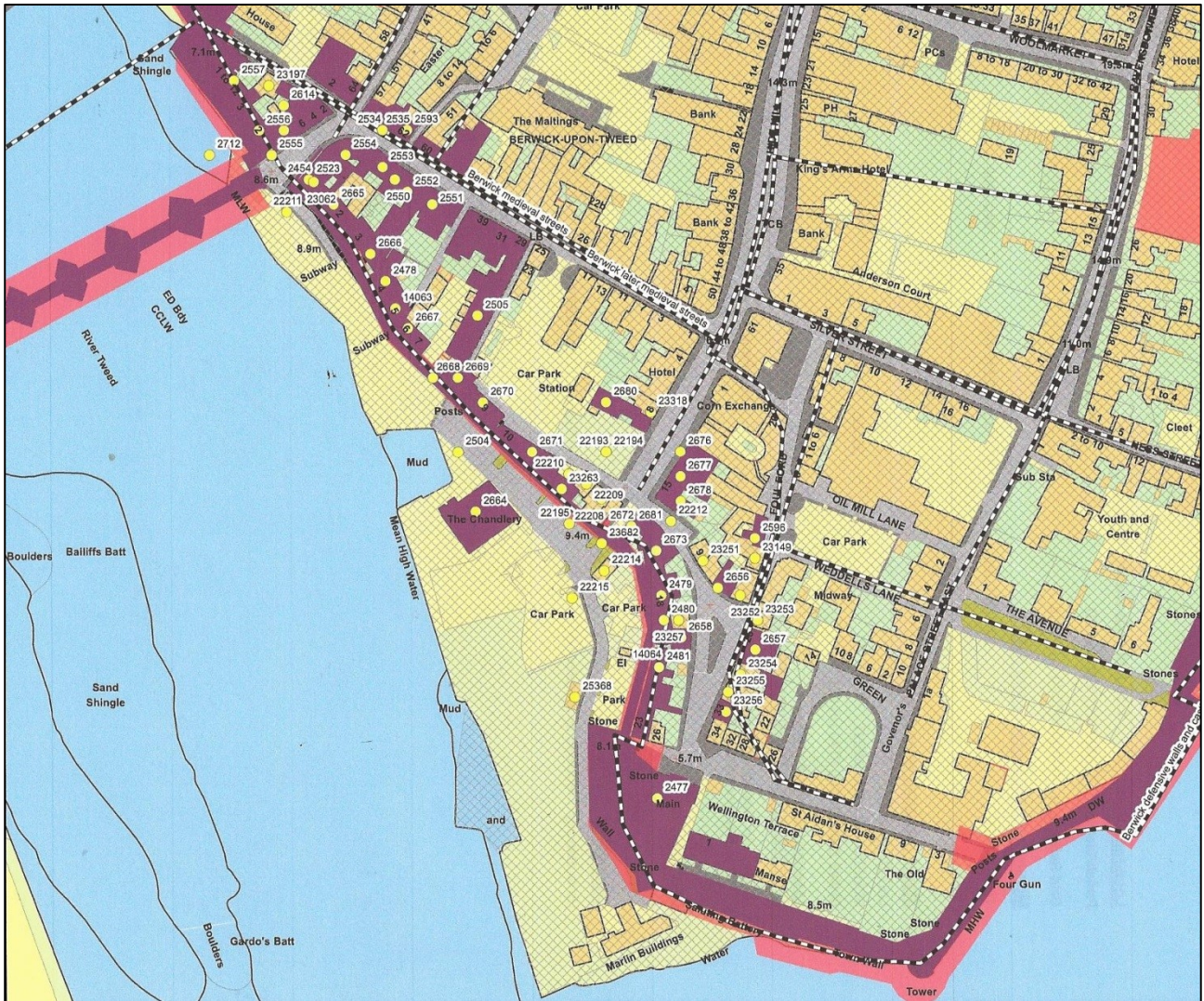


Figure 6. Location of all entries within the Historic Environment Record

A full list of heritage assets recorded in the Historic Environment Record are listed in the following table.

HER No.	Address	Status	Description
2478	4 Quay Walls	II*	Late 18 <sup>th</sup> century stone, three storey reddish sandstone building with basement with 19 <sup>th</sup> century windows and embellished with Doric columns and pediment
2479	18 Quay Walls	I	Late 18 <sup>th</sup> century Adam style house with two storeys and five

	(Customs House)		bays formed from pink ashlar blocks. Used as a dispensary 1862-72 and Custom House 1917
2480	19 Quay Walls	II*	Late 18 <sup>th</sup> century building with two storeys and basement
2481	21-23 Quay Walls	II*	Group of three late 18 <sup>th</sup> century ashlar buildings. No. 21 has three storeys and basement, Nos. 22-23 two storeys
2504	Berwick Quayside	N/A	Possible reference from 1333, a stone walled quay depicted c 1580, Little Dock was built and the quay extended c 1760, reconstruction in 1993-94. Quay extends for c 350m and divides into two parts: northern section (Old Quay) varies between 12m-30m in width, southern section is broader and contains the old shipyard
2505	Granary, Dewar's Lane	II	Eleven bay random rubble-walled building consisting of five storeys and attic dated to c 1780, rebuilt following fire in 1815. Free-standing timber frame within the building. 19 <sup>th</sup> century tunnel through the town wall.
2523 & 23062	1 Quay Walls	II	Dated 1869, two storeys and basement forming a grey ashlar building includes Nos. 3 and 7 Bridge End
2530	Sallyport	II	Narrow tunnel passage between Quay Walls and Bridge Street
2664	Quayside granary	II	Early to mid-19 <sup>th</sup> century quayside granary
2665	2 Quay Walls	II	Early 19 <sup>th</sup> century building built into the Elizabethan defences; two storeys to rear, one storey on Quay Walls
2666	3 Quay Walls	II	Early 18 <sup>th</sup> century building with additions and alterations used as a granary. Comprises three storeys and eight bays, rear elevation has an extra storey at lower level. Structure built into the Elizabethan town defences.
2667	6-7 Quay Walls	II	Early 19 <sup>th</sup> century domestic style building with two storeys and basement used formerly as a granary
2668	8 Quay Walls	II	Late 18 <sup>th</sup> -early 19 <sup>th</sup> century coursed sandstone with ashlar dressed building. Three storeys with rear basement.
2669	8A Quay Walls	II	18 <sup>th</sup> century building
2670	9 Quay Walls	II	Late 18 <sup>th</sup> century building containing earlier fabric: two low storeys, three bays with rear basement
2671	10-13 Quay Walls (Quayside Buildings)	II	Suite of coursed, square, sandstone buildings c 1825, two storeys and rear basement. No. 13 used as the Custom House from 1825 to 1917
2672	15 Quay Walls (Gate House)	II	18 <sup>th</sup> century building
2673	16-17 Quay Walls	II	Late 18 <sup>th</sup> century with c 1870 remodelling with ashlar front and coursed rubblestone rear. Three storeys with five storeys fronting onto Palace Street
14063	5 Quay Walls	II*	Late 18 <sup>th</sup> century stone building with three storeys and basement, extensively repaired and restored in 1975-76
14064	20 Quay Walls	II*	Late 18 <sup>th</sup> century ashlar building with three storeys and basement

23623	14 Quay Walls	None	Rear wing of No. 5 Drover Lane
25368	Former warehouse Quay Walls	None	Three-storey warehouse, rectangular plan, 19 <sup>th</sup> century building, coursed rubble, sandstone. East elevation onto Quay Walls is blind

Table A. Historic Environment Record entries

### 3.3 Historic mapping

One of the earliest maps illustrating the town of Berwick dates back to *circa* 1580, showing the Elizabethan defences under construction (Figure 7). Although this bird's eye view is not a faithful plan, Quay Walls and a bridge are recognisable. Buildings seem to be located along Bridge Street and Sandgate.



Figure 7. Map of Berwick, 1580

Speed's map of 1610 (figure 8) erroneously dated 1564, itemises principal landmarks within the urban topography of Berwick. It illustrates development in the eastern quarter of the town and what may be a foreshore on the western side of Quay Walls. As with the 1580 map, no buildings are visible along the waterfront.

In the northern third of the town there is a strip of development backing onto the medieval wall, which is likely to represent the existing line of High and Low Greens. Apart from ribbon development along the line of Scotsgate, this northern expansion is not present on the plan of c.1580, as was cleared in order to

complete the bastion system (NCC 2009 37).

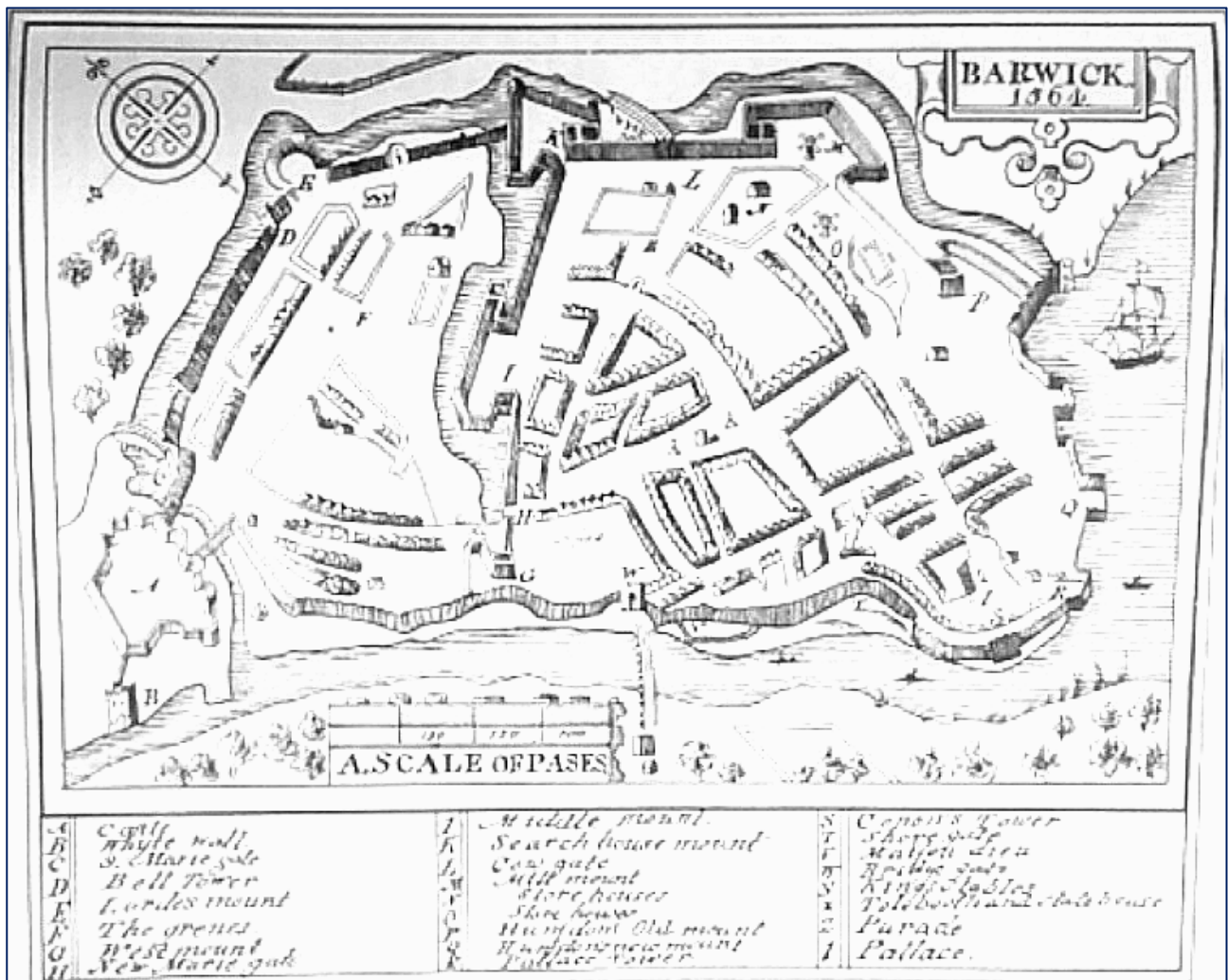


Figure 8. John Speed's Map of Berwick, 1610 (From Ellison 1976, 146)

By the mid-18<sup>th</sup> century the defensive significance of Berwick had significantly diminished. Military influence and associated control within the town was effectively reduced, allowing commercial and economic development alongside the harbour to flourish.

The Armstrong map of 1769 illustrates that buildings were erected alongside Quay Walls but a narrow path separated the wall from the encroachment (figure 9). It is unclear if these structures possessed a residential or industrial purpose (Menuge & Whitey 2005, 27). Most probably the development served both functions serving a burgeoning maritime trade with London.

A dock or basin is illustrated on the 1769 map, a feature that re-occurs in all maps up to the present. A quay is also mentioned demonstrating that a formal waterfront and harbour had been established.

The 1799 map (figure 9) displays greater detail than that of Armstrongs 1769 version, illustrating individual houses. The major topographic alteration was that the land bounded by Bridge Street, Sandgate (shore gate on the 1769 map) and Quay Walls had become unified as one block whereas the 1769 map shows a north-south street dividing the tenement.



Figure 9. Armstrong's map of 1769

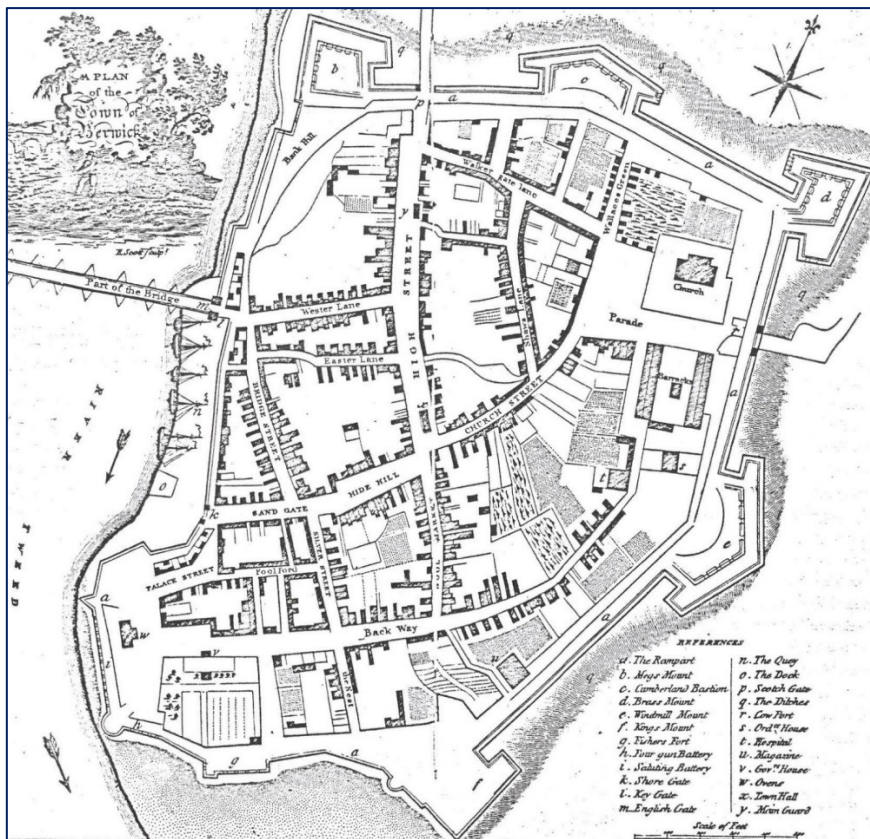


Figure 10. Map of 1799

*Archaeological Watching Brief: Quay Walls, Berwick-upon-Tweed*

The intra-mural track between Quay Walls and the houses respecting the wall had disappeared replaced by a wider street that represents the promenade still extant on Quay Walls.

The area comprising Marygate, Hide Hill, Bridge Street and Eastern Lane remained under-developed (NCC 2009, 38).



Figure 11. John Wood's Map, 1822

John Wood's 1822 map depicts individual properties that have been fully developed, buildings extending back to Bridge Street (figure 11). This process appeared to be repeated elsewhere in the town suggesting rapid expansion within a generation. However, under-representation on the 1799 map may also explain this difference.



By that time the Quay Walls already had achieved its built-up character, even if buildings appear to be smaller or different in size compared directly to the present urban landscape.



Figure 12 Tithe map of 1850.

The tithe map of 1850 (figure 12) does not list ownership of properties along Quay Walls and only illustrates generic occupation, presumably because the area was exempt from church tithes that were to be commuted to rates.

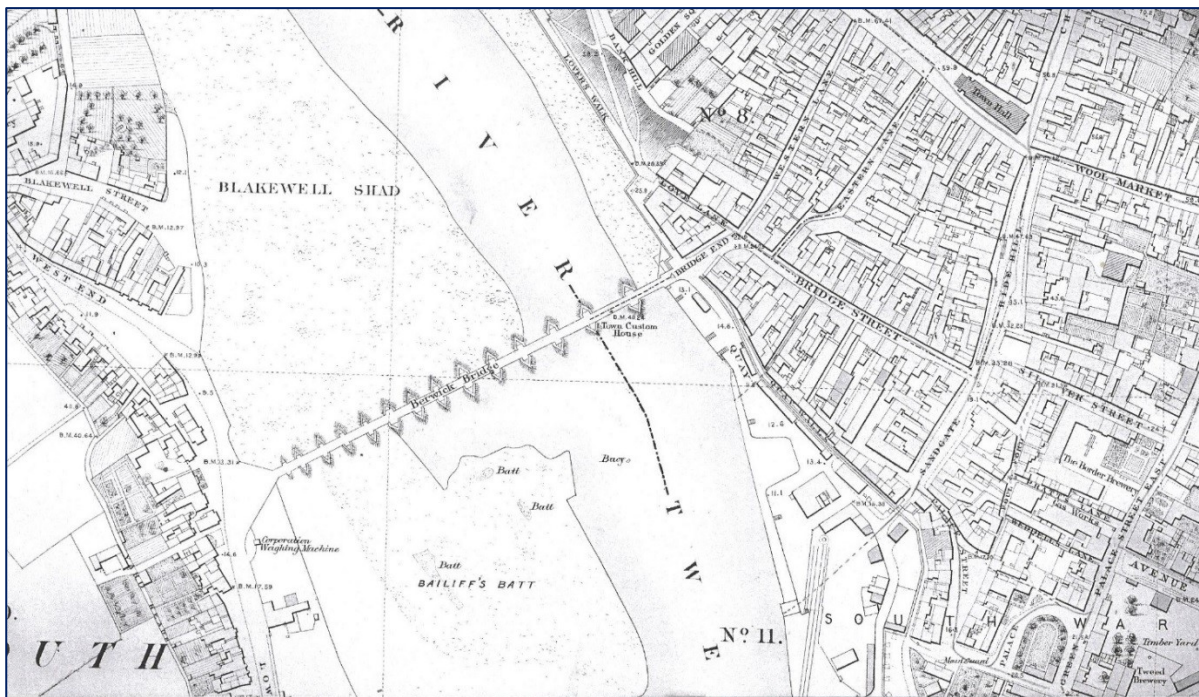


Figure 13. Board of Health map of 1852

The Board of Health 1852 plan (figure 13) together with the 1862 and 1898 Ordnance Survey maps (figures 14 and 15) displayed no substantial changes for the Quay Walls area from the early 19<sup>th</sup> century.

The present disposition of houses along Quay Walls had become established as articulated in the later Ordnance survey maps of 1862 and 1898 (figures 14 and 15).

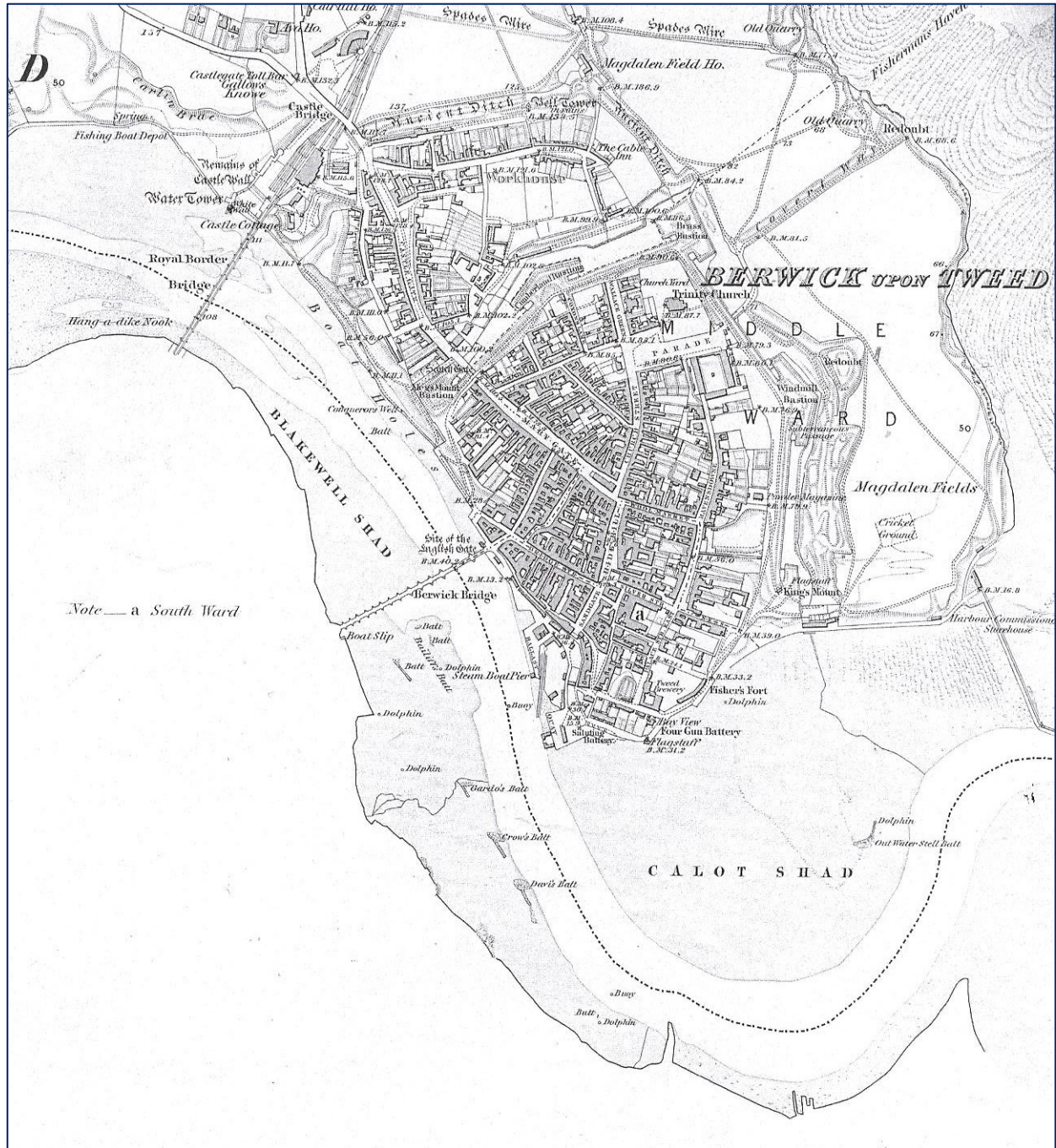


Figure 14. Ordnance Survey first edition map, 1862

The 1822, 1850 and 1852 maps and the 1862 and 1898 Ordnance Survey maps (figures 11-15) all illustrated buildings on the seaward side of Quay Walls suggesting that the harbour had become formalised by the early 19<sup>th</sup> century.



Figure 15. Ordnance Survey second edition map, 1898

## 4 METHODOLOGY

### 4.1 Project design

The objective of the watching brief was to carry out a formal programme of archaeological observations and investigations during any gas mains replacement operations on site that could have disturbed or damaged archaeological or architecturally informative deposits or remains (cultural remains). The specific aims of the work were to:

- Provide a record of those works associated with the removal of the overburden
- Provide a record of any significant archaeological or architectural features encountered by intrusive activities
- Invoke the requirements of the Scheduled Monument Consent (SMC)

In order to achieve these objectives, a record of all archaeologically informative deposits encountered during the ground operations was made, consisting of detailed context records on individual pro-forma sheets, according to the protocols set out in the GMA manual (Martin 2004).

The gas main replacement involved insertion of a new plastic pipe into an existing metal one, entailing a series of pits to be excavated entirely by hand.

The resident archaeologist inspected the sides of the test pit for any past cultural remains below the overburden. The removed spoil was inspected in order to recover any past cultural artefacts.

Within the trenches as appropriate, each layer, fill and cut was individually described in terms of soil detail, stratigraphic position, dimensions, artefact content, environmental sampling and interpretation. The context system was cross-referenced to other records. Registers were maintained for all photographs, drawings, finds and environmental samples gathered in the field.

Plans drawn were at scale and related to a base plan to the OS grid. All photographs were numbered and labelled with subjects, orientation and scale and cross-referenced to film numbers. General shots of the site were also taken.

All finds from stratified deposits (with the exception of modern ceramic building material) were collected, processed and recorded as expressed in the GMA Manual, forming an individual section within the final report where relevant.

Sealed and anaerobic deposits would if stratigraphically secure, have been environmentally sampled as appropriate and according to the GMA manual (Martin 2004), in order to examine past environmental conditions. If relevant, this element would form an individual section within the final report.

The watching brief aimed to provide an opportunity, where applicable, to recover any exceptional archaeological finds.

#### **4.2 Location of the interventions**

The pits were located along the Quay Walls walkway, starting at 1 Quay Walls and finishing at 23 Quay Walls gable end.

Twenty-nine interventions were observed within a 300m stretch of pipeline (figure 16), the area protected by the scheduling.

The programme of works required replacement of the gas main. A plastic pipe was inserted within the existing gas pipe and pulled through as a series of 50m lengths. Every 50 metres, a reception pit was excavated to receive the oncoming pipe.

New connections were required for the majority of properties along Quay Walls.

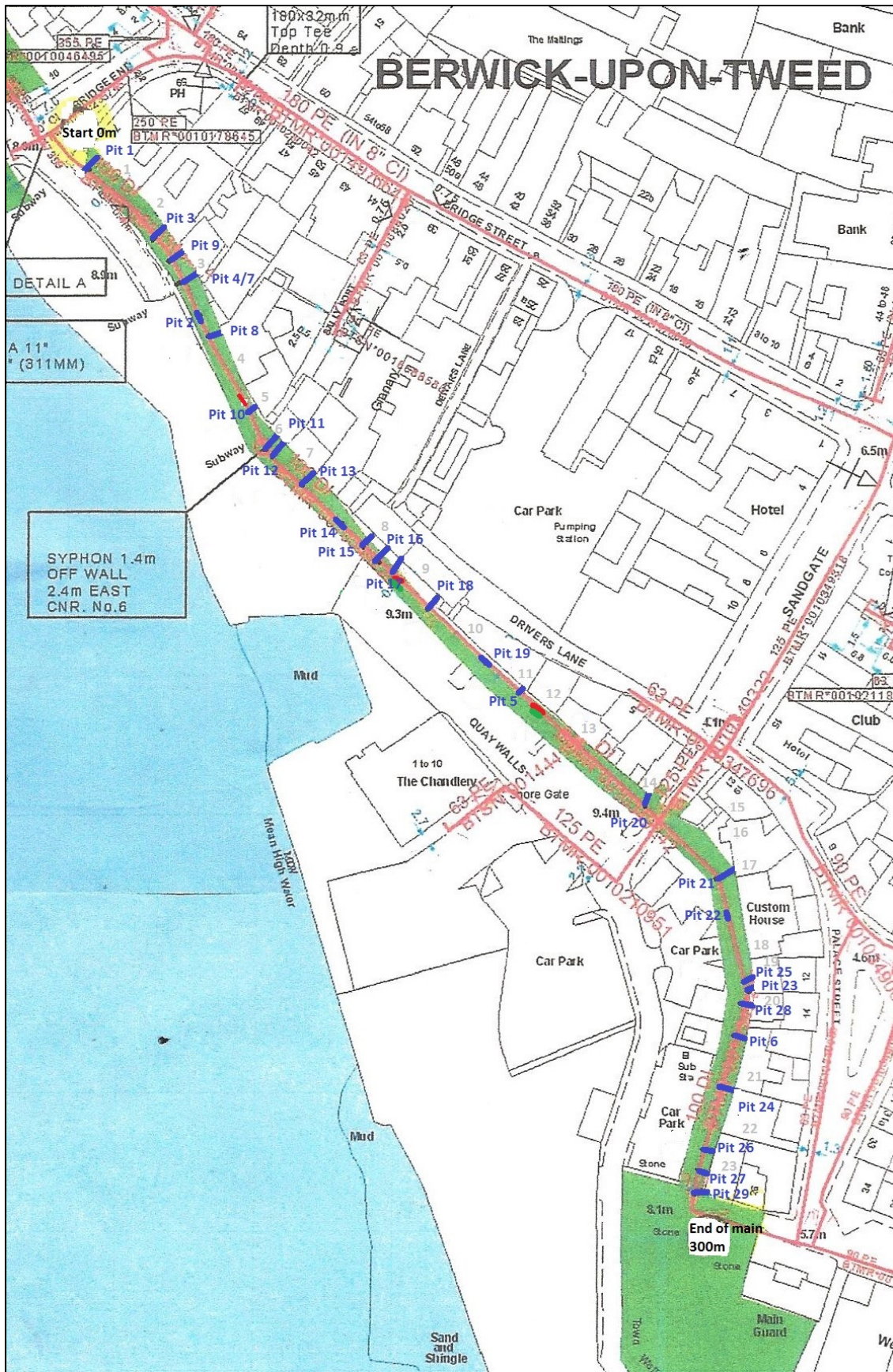


Figure 16. Location of interventions

Pit	Distance (m) from Bridge End	Location	Further Observations
1	10m	Connection to 1 Quay Walls	
2	49m	In front of 3 Quay Walls (flat 2)	Reception pit for 50m length
3	31m	Connection to 2 Quay Walls	
4	42m	Connection to 3 Quay Walls (flat 1)	Part of Pit 7
5	154m	Connection to 11 Quay Walls	
6	252m	Connection to 21 Quay Walls	
7	42m	Connection to 3 Quay Walls (flat 1)	Part of Pit 4 separated by modern steps
8	53m	Connection to 4 Quay Walls	
9	35m	Connection to 3 Quay Walls	Pit excavation compromised by an unforeseen pipe obstruction
10	68m	Connection to 5 Quay Walls	
11	76m	Connection to 6 Quay Walls	
12	78m	Connection to 6 Quay Walls	Pits 11-12 are connected to the same building
13	86m	Connection to 7 Quay Walls	
14	97m	Opposite Dewar's Lane Granary step access	Reception pit for 100m length
15	104m	Connection to 8 Quay Walls	
16	110m	Connection to 8 Quay Walls	
17	116m	Connection to 8 Quay Walls	
18	124m	Connection to 9 Quay Walls	
19	140m	In front of 10 Quay Walls	Reception pit for 150m length
20	192m	Connection to 14 Quay Walls	
21	213m	Connection to 17 Quay Walls	
22	224m	In front of 18 Quay Walls	Reception pit for 200m length
23	243m	Connection to 19 Quay Walls	
24	262m	Connection to 22 Quay Walls	
25	240m	Connection to 19 Quay Walls	
26	277m	Connection to 23 Quay Walls	
27	282m	In front of 23 Quay Walls	Reception pit for 250m length
28	247m	Connection to 20 Quay Walls	
29	289m	Connection to 23 Quay Walls (gable end)	

Table B . Location of the salient interventions 1-29

## 5 RESULTS

### 5.1 Observations 1-29

A formal archaeological watching brief was undertaken between May 19<sup>th</sup> and June 24<sup>th</sup> 2014 by Gerry Martin Associates Ltd (GMA) in order to monitor the renovation and insertion of a new gas main within a Scheduled Ancient Monument: List Entry No. 1015968.

The purpose of the fieldwork was twofold:

- To produce a paper record of all the intrusive activities conducted within the Scheduled Ancient Monument leading to the production of an archaeological archive and report of the proceedings
- To implement the conditions of the Scheduled Monument Consent (SMC), effectively providing a policing presence to ensure the integrity of the monument was upheld

A site presence was maintained for 26 days whilst the ground-works were undertaken.

Rather than open-cut trenching, renovation of the gas main comprised of a series of reception pits, that allowed the new 90mm plastic main to be inserted through the existing 100mm metal gas pipe. Connections to the new main from existing gas pipes from houses along Quay Walls were also conducted. In total there were 29 formal interventions.

It was anticipated that deposits within the study area along Quay Walls were likely to be truncated by previous services that included a gas and a water main.

Due to the lack of stratigraphic security and homogeneity of the fill within the reception pits, each intervention has been identified by a single unique feature number.

Clearly, *per se* the backfill of the recent gas main has little archaeological merit. However, the gas main re-routed itself around obstructions including the fabric of the Wall. In certain locations, it was possible to record sections of internal wall fabric that may merit architectural and historical interest.

These observations are summarised as follows:

Pit	Length	Width	Depth	Description	Summary
1	1.30m	0.80m	0.60m	Sand with occasional elements of grey silt and modern debris	Modern backfill
2	3.00m	0.90m	0.70m	Stone wall	Post-Medieval
3	0.70m	0.80m	0.60m	Brown silt, highly mixed	Modern backfill
4	2.30m	0.70m	0.60m	Type 2 aggregate mixed with brown silt	Modern backfill
5	1.85m	1.25m	0.70m	Stone wall portion	Post-Medieval
6	0.80m	0.80m	0.60m	Type 1 aggregate	Modern backfill
7	1.25m	0.55m	0.18m	Brown silt and sand, occasional modern debris	Modern backfill
8	2.36m	0.55m	0.88m	Grey-brown silt, with occasional modern building debris	Modern backfill
9	0.00m	0.0m	0.73m	Grey silt, with occasional modern	Modern backfill

				building debris	
10	1.97m	0.55m	0.89m	Brown silt, with modern building debris	Modern backfill
11	1.02m	0.97m	0.86m	Brown silt with occasional building debris	Modern backfill
12	1.22m	0.95m	0.68m	Brown silt, mixed	Modern backfill
13	2.00m	0.69m	0.85m	Brown silt, highly mixed	Modern backfill
14	3.50m	1.00m	0.90m	Stone wall	Post-Medieval
15	0.63m	0.80m	0.78m	Brown silt, with occasional modern building debris	Modern backfill
16	0.84m	0.62m	0.61m	Brown silt layer, highly mixed	Modern backfill
17	1.16m	0.75m	0.98m	Grey silt, with occasional modern building debris	Modern backfill
18	0.95m	0.96m	0.78m	Grey silt, highly mixed	Modern backfill
19	4.00m	0.98m	0.79m	Stone wall portion	Post-Medieval
20	1.65m	0.55m	0.71	Brown silt, with occasional modern building debris	Modern backfill
21	1.96m	1.20m	0.78m	Brown silt, highly mixed	Modern backfill
22	3.14m	0.80m	0.70m	Brown silt, highly mixed	Modern backfill
23	2.77m	1.86m	0.98m	Stone wall portion	Post-Medieval
24	1.30m	0.75m	0.92m	Brown silt, highly mixed, with occasional modern debris	Modern backfill
25			0.23m	Light-brown sand	Modern backfill
26	0.60m	1.58m	0.78m	Brown silt, with occasional modern debris	Modern backfill
27	3.20m	0.45m	0.95m	Stone wall	Post-Medieval
28	0.86m	0.69m	0.63	Brown silt, with occasional modern debris	Modern backfill
29	1.86m	0.90m	1.16m	Brown silt, with occasional modern debris	Modern backfill

Table C. Description of the salient observations 1-29

The archaeological watching brief at Quay Walls, Berwick-upon-Tweed monitored the insertion of a replacement gas pipe. The ground had previously been disturbed by earlier and extant gas pipes as well as other services such as water pipes, electricity cables and telecommunications services. The effect of this action had been to destroy any putative or potential archaeological remains forming what is now an archaeologically sterile horizon between 0.60m and 0.90m in depth.

The new gas main was inserted into this disturbed horizon comprising of brick, stone and other debris within a principally brown silt and sand matrix. Additional extraneous material was make-up for the current path with sand and gravel (Type-2) for various services.

The archaeological sequence observed in all the reception pits along Quay Walls was as follows:



1. Disturbed generic backfill to various modern services within numerous and therefore largely undefinable service trenches. The backfill consisted of brown greyish silty soil highly mixed with occasional modern building debris over 0.60m in depth. There did not appear to be any significant variation within this horizon along Quay Walls.
2. Make-up for the pavement with sand and stone debris approximately 0.20m in depth
3. Flagstones

As the pipe trench was following the course of its predecessor (renovated approximately thirty years ago) in order to replace the gas main, at no time did the new pipe trench cut or disturb virgin ground and thereby expose an alternative stratigraphic sequence.

However, the following minor variations to this sequence were observed:

- In pit 29 flags were replaced by 0.10m deep setts with bedding sand 0.30m in thickness.
- In pit 10 a 0.10m layer of reinforced concrete was present.
- Pit 6 backfill consisted entirely of Type 1 aggregate, sealed by flagstones.

Pits 1, 3-4, 6-13, 15-18, 20,22, 24-26 proved to be archaeologically sterile.

From Interventions 21 and 28-29, a few unstratified artefacts were recovered (See table D). As previously stated, the deposits were disturbed by extant gas and water pipes, therefore all these finds were not in primary deposition (re-deposited), consequently their stratigraphic value is diminished.

The following interventions provided archaeological observations that merit further discussion.

### **Pit 2. Stone Wall**

A yellow sandstone wall, bonded with pink sandy mortar (figure 17). The feature ran along the western side of the pit and was exposed 0.25m below a former cast iron gas main.



Figure 17. Wall 2

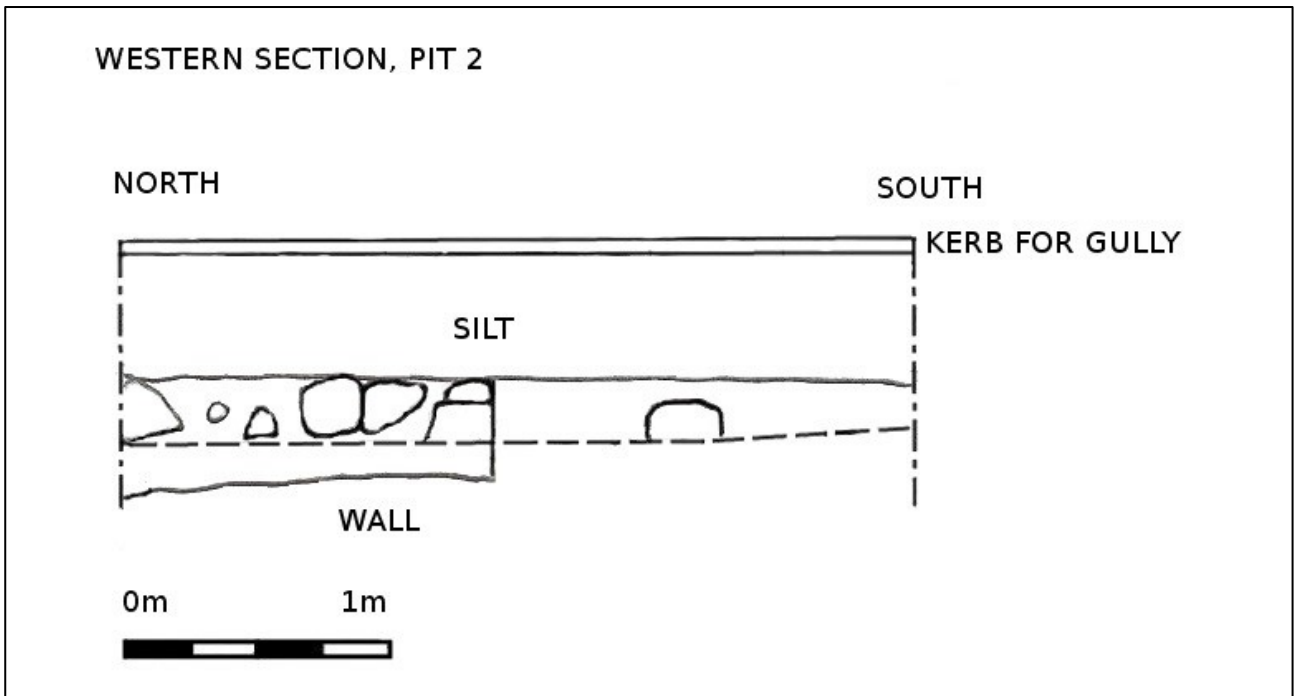


Figure 18. Elevation showing wall 2

The wall measured 3.00m in length and 1.56m in width (figure 18). It represents the inside face of the wall which forms the upper part of Quay Walls walkway. A date between 16<sup>th</sup> to the 17<sup>th</sup> centuries would be consistent with this action.

**Pit 5. Stone Wall Portion**

An east facing yellow sandstone wall bonded with pink sandy mortar, with a north-south alignment (figure 19).

The wall measured 0.44m in length and 0.42m in width. It appeared to be truncated by later intrusions, since it was partially replaced by brown silt, that constitutes probable modern wall robbing (figure 20).



Figure 19. Wall portion 5

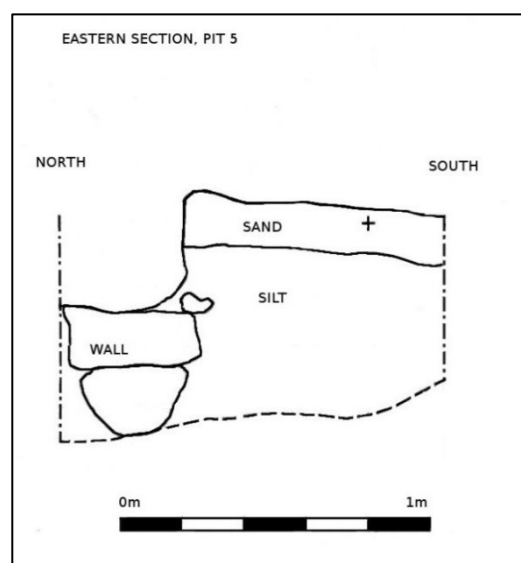


Figure 20. Elevation showing wall portion 5

The remains of this wall probably formed the stone ceiling to an underlying extant passage connecting Quay Walls with cellars or former warehouses.

**Pit 14. Stone Wall**

A yellow sandstone wall bonded with pink sandy mortar, running along the eastern side of pit, orientated north-south slightly damaged by later intrusions (figure 21).

The wall located 0.36m below ground surface, measured 3.50m in length and 0.76m in depth (figure 22).

The remains of this wall probably formed the stone ceiling to an underlying extant passage connecting Quay Walls with cellars or former warehouses.

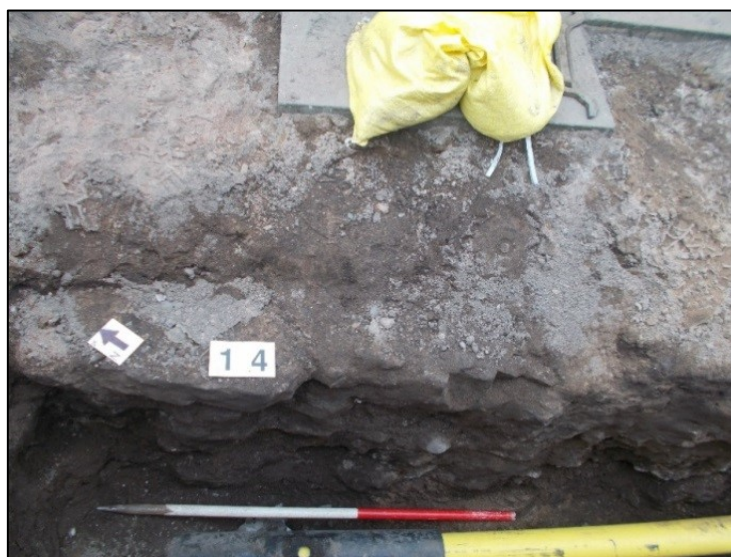


Figure 21. Wall 14

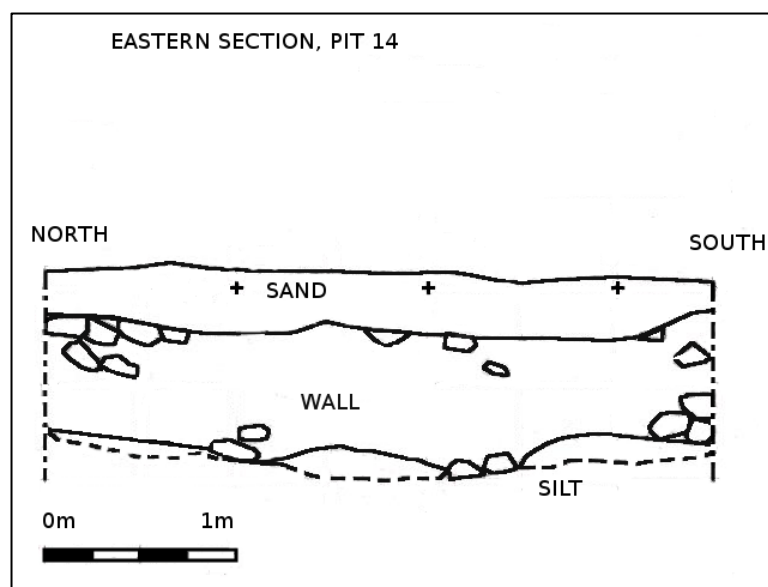


Figure 22. Elevation showing wall 14

**Pit 19. Stone Wall Portion**

A portion of a stone wall facing eastwards. The feature possessed a north-south orientation consisting of sandstone boulders bonded together with pink sandy mortar (figure 23). It measured 0.50m in length and 0.37m in width, located 0.40m below current ground surface.

The remains of this wall probably formed the stone ceiling to an underlying passage connecting Quay Walls with cellars or former warehouses.



Figure 23. Wall 19



Figure 24. Wall 23

**Pit 23. Stone Wall**

A yellow sandstone wall bonded with pink sandy mortar, orientated north-south and running along the eastern side of the pit (figure 24). Measuring 1.68m in length and 0.56m in width, the wall was located 0.36m below current ground surface. Electricity cables and a water pipe were also present.

The wall was not preserved in its entirety. Parts of the wall had been probably removed and replaced by silt backfill (figure 25).

The pattern and configuration of the stones at the southern end of wall may suggest the presence of a vault.

This wall represents the ceiling to a tunnel connecting Number 23 Quay Walls Cellars.

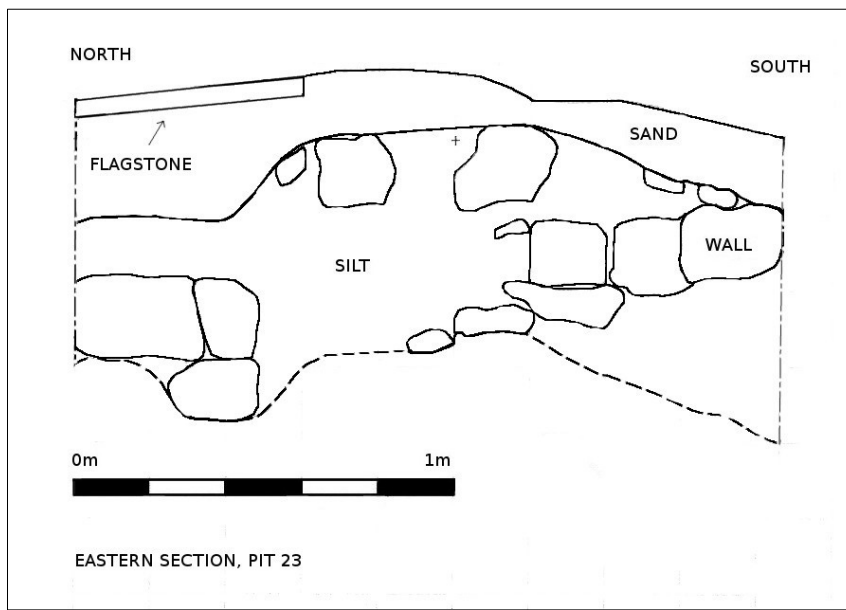


Figure 25. Elevation showing wall 23



Figure 26. Wall 27

#### **Pit 27. Stone Wall**

A yellow sandstone wall bonded with pink sandy mortar lying at the base of the pit, 0.76m below current ground surface (figure 26).

An animal jawbone was recovered from the silt backfill of the pipe trench.

The remains of this wall probably formed the stone ceiling to an underlying passage connecting Quay Walls with cellars or former warehouses.

## 5.2 Archaeological Finds

The finds assemblage recovered comprised animal bones, a shard of glass and pottery, as listed in the table below:

Pit	Finds Description	Proposed date
21	Bottom part of a glass bottle; animal bone; sherd of glazed pottery, with handle	18 <sup>th</sup> -19 <sup>th</sup> centuries
27	Animal bone; seashell	Undated
28	Animal jawbone	Undated
29	Sherd of tin-glaze ware	18 <sup>th</sup> century

Table D. Archaeological finds

The glass artefact (Pit 21) represented the base or punt of an 18<sup>th</sup> century sack bottle.

The pottery handle (Pit 21) represented a light brown glazed earthenware vessel probably a storage jar.

The tin-glaze pottery sherd (Pit 29) represented a fragment of an indented bowl with a blue slip decoration.

All the finds were unstratified within silty soil that represented a modern backfill. No finds provided secure provenance with any of the architectural features described above.

The assemblage was not diagnostic of any functions performed in this area. The small sample size and stratigraphic unreliability meant that no chronological sequence could be recovered .

## 5.3 Discussion

Previous excavations associated with gas mains and other services had greatly compromised archaeological features. The limited nature of the excavations afforded little opportunity to examine the interventions in detail and refine our understanding of the survival of archaeological remains along Quay Walls.

The location of the renovated gas main was precisely known as it had been inserted within the last thirty years.

The main was one of a number of services including water, electricity, telecommunications, and waste water that formed a horizon of disturbed and re-worked rubble, aggregate and soil that lay beneath a bed of sand, forming a blinding for the paved walkway.

The disturbed horizon measured approximately 0.60m-0.70m in depth and penetrated late 18<sup>th</sup> century enhancement of the Wall as dwellings and warehousing encroached from within the town. This archaeologically sterile layer had been disturbed from the mid-19<sup>th</sup> century onwards with the advent of

domestic supplies of gas, water, electricity and telecommunications as well as other *ad hoc* intrusive actions.

The stratigraphic model that summarises the intrusive actions monitored during the watching brief are:

1. Late 18<sup>th</sup> century enhancement of Quay Wall
2. Insertion of services from the mid-19<sup>th</sup> century onwards
3. Formation and reinstatement of the paved walkway

Therefore, the removed fill observed during the watching brief was material surrounding the gas main that had been re-deposited approximately 30 years ago.

No medieval levels were encountered.

Where wall portions were exposed, the same materials and technique were employed, namely yellow sandstone bonded with sandy mortar. This suggested that a uniform programme of construction had been initiated.

Wall 2 formed a skin to Quay Wall itself. Possibly, the presence of soil rather than a stone core within the wall was to absorb a shockwave caused by heavy artillery using cannonballs, a development that could be dated to the 16<sup>th</sup> or 17<sup>th</sup> century. This may indicate a later refurbishment of the town defences as military technology and tactics changed.

Walls 5, 14, 19, 23 and 27 appear to be part of the passage system leading directly onto Quay Walls.

Wall 27 in particular, was the ceiling to a vaulted tunnel.

Initially, due to military considerations, the townside of the wall had been free of buildings or at least monumental structures. As military importance declined, encroachment ensued with stone buildings equipped with cellars built close to the wall. However, an intra-mural track was maintained allowing these structures to be accessed from the town at ground level.

As these buildings became taller and commercial activity prospered, it was desirable to access these structures (probably serving as both warehouses and dwellings) from the quayside and at first floor level. Most probably space had become segregated; commercial activity on the ground floor and cellars, domestic space on the first floor and upwards.

In order to access the houses, a wide stone-built promenade was established on the crest of the wall enclosing the intra-mural path below converting that route into a series of passages. This action probably took place during the late 18<sup>th</sup> century as a map of 1799 (figure 10) appears to depict both the Wall and a suite of houses conjoined whereas an earlier map of 1769 (figure 9) illustrates a spatial division.

The artefacts found come from disturbed deposits and are unreliable determinators of both date and function.

### **5.3 Conclusion**

The dual aims of protecting the monument within the terms of the Scheduled Monument Consent (SMC) and monitoring the unearthened archaeological deposits was fully achieved.

The largely non-invasive technique of replacing the pipe internally was successful requiring only the insertion of reception pits at 50m intervals and thereby minimising potential damage to the monument.

Connections to individual households was necessary and it was at these locations that archaeological deposits could potentially be compromised. Fortunately, the contractors stayed within existing pipe cuts and only modern, re-deposited material was encountered possessing little archaeological merit.

The presence of stone surfaces within Pits 5, 14, 19, 23 and 27 confirms ceilings above passageways related to adjacent buildings butting Quay Walls.

## **6. ARCHIVE**

The archive has been compiled in accordance with the project design and the guidelines set out by English Heritage (1991, 2006) and the Institute of Field Archaeologists (1994, 2008).

The archive will be deposited with the Great North Museum and a copy of the report donated to the County Sites and Monuments Record.

The archive consists of digital photographic images that will be deposited with the Archaeological Data Service (ADS).

A copy of the report will be submitted by the contractor to the online grey literature archive, *OASIS*.

## **7. ACKNOWLEDGMENTS**

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