

BENWELL PUMPING STATION  
NEWCASTLE UPON TYNE  
ARCHAEOLOGICAL ASSESSMENT  
AND HISTORIC BUILDINGS RECORD

February 2008

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Prepared for: <i>MWH UK Ltd</i>	By: <i>The Archaeological Practice Ltd.</i>
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<i>Project code:</i> AP08/03	<i>Stage:</i> Final	<i>Compiled by:</i> RJC	<i>Control:</i> AR	<i>Completion date:</i> 08/02/08
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NEWCASTLE UPON TYNE

Archaeological Assessment

*Prepared by*

The Archaeological Practice Ltd



***Frontispiece:*** *The lodge on the south-east edge of Benwell waterworks complex, viewed from the east.*

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## SUMMARY

*This report constitutes a desk-based cultural heritage assessment of an area of land occupied by Low Benwell Water Works, Benwell, Newcastle upon Tyne, undertaken in conjunction with a photographic recording of the exterior of the structures associated with the former water works. The assessment was undertaken by The Archaeological Practice Ltd at the request of MWH UK Ltd on behalf of Northumbrian Water Ltd to accompany a planning application for the proposed redevelopment of the site.*

*The purpose of the assessment report is to identify cultural heritage constraints within the area of the proposed development and makes recommendations regarding the work required to mitigate the impact of the proposed development scheme upon significant archaeological remains.*

*The report collates evidence from a wide range of sources, including site visits, historic maps, secondary historical works, excavation reports and the Tyne and Wear Heritage Environment Record (HER). This work has resulted in the identification of a total of 4 sites and monuments bordering or in the vicinity of the proposed development, as well 32 in the wider vicinity which provide contextual information regarding the archaeological and historical development of the area. On the basis of the above, conclusions are provided regarding the extent and significance of the archaeological remains in the development area, and an outline provided of the consequent cultural heritage impact of the scheme.*

*The site of Benwell Waterworks appears to have remained undeveloped until the mid 19<sup>th</sup> century when the waterworks was constructed by the Whittle and Dean Water Company. Although it had been undeveloped there is no direct evidence for previous human activity on the site, apart from post-medieval farming, despite the close proximity of Conderdum Vicus and the early medieval village. Due to the destructive nature of the construction of several pumping stations and reservoirs and the relatively small scale of the proposed new pumping station no further archaeological work is recommended in relation to this scheme.*

# 1. INTRODUCTION

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## 1.1 Purpose of Assessment

This assessment, prepared by the Archaeological Practice Ltd. has been commissioned by MWH UK Ltd on behalf of Northumbrian Water Ltd. Its purpose is to accompany a planning application for the proposed construction of a new pumping station and associated services and access, and the redevelopment of the existing water works structures. This report will inform the planning process of any impact the aforementioned proposals are likely to have on any surviving archaeological deposits. The study represents the first stage in a programme of archaeological work which may subsequently include evaluation and mitigation works.

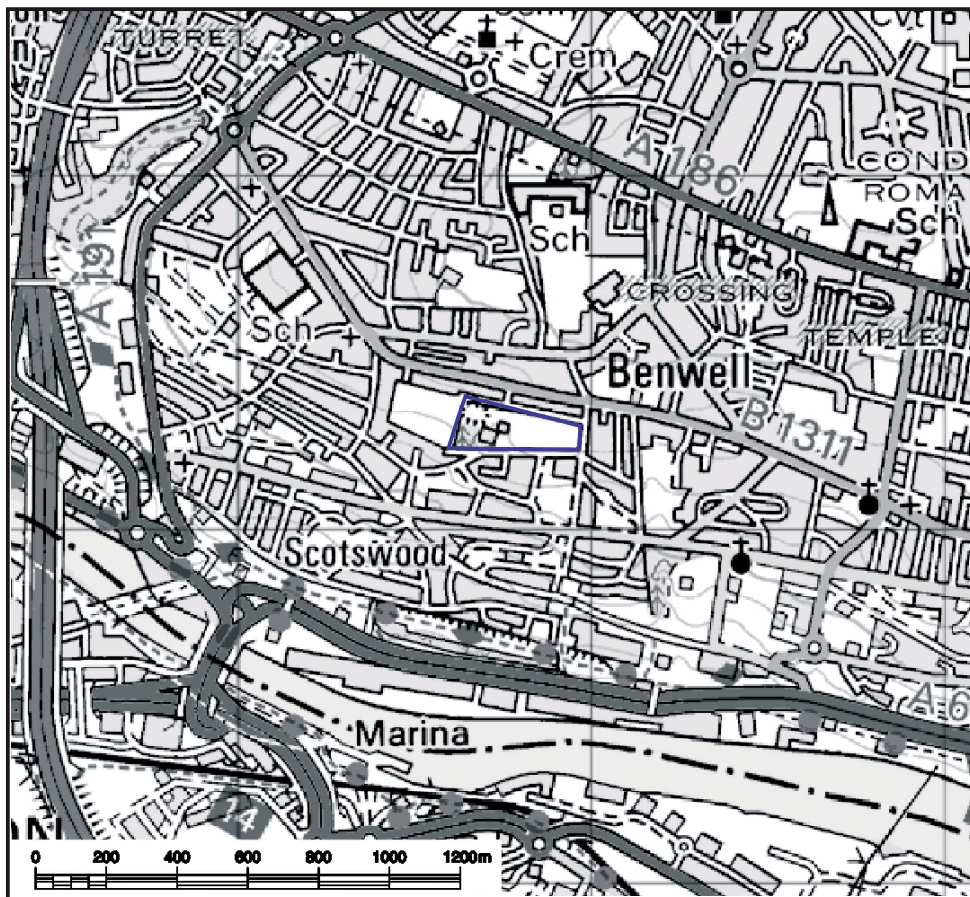
## 1.2 Planning Background

Planning Policy Guideline 16: archaeology and planning (1990), enables planning authorities to request assessments of archaeological potential in order to ascertain the nature and extent of any remains likely to be impacted by development, and inform upon appropriate mitigation measures. Implementation of the guideline has been requested by the planning authorities in the present case for a number of reasons, particularly because of the potential for the area to contain archaeological deposits relating to Benwell Vicus relating to the nearby Condercum Fort and the medieval village of Benwell.

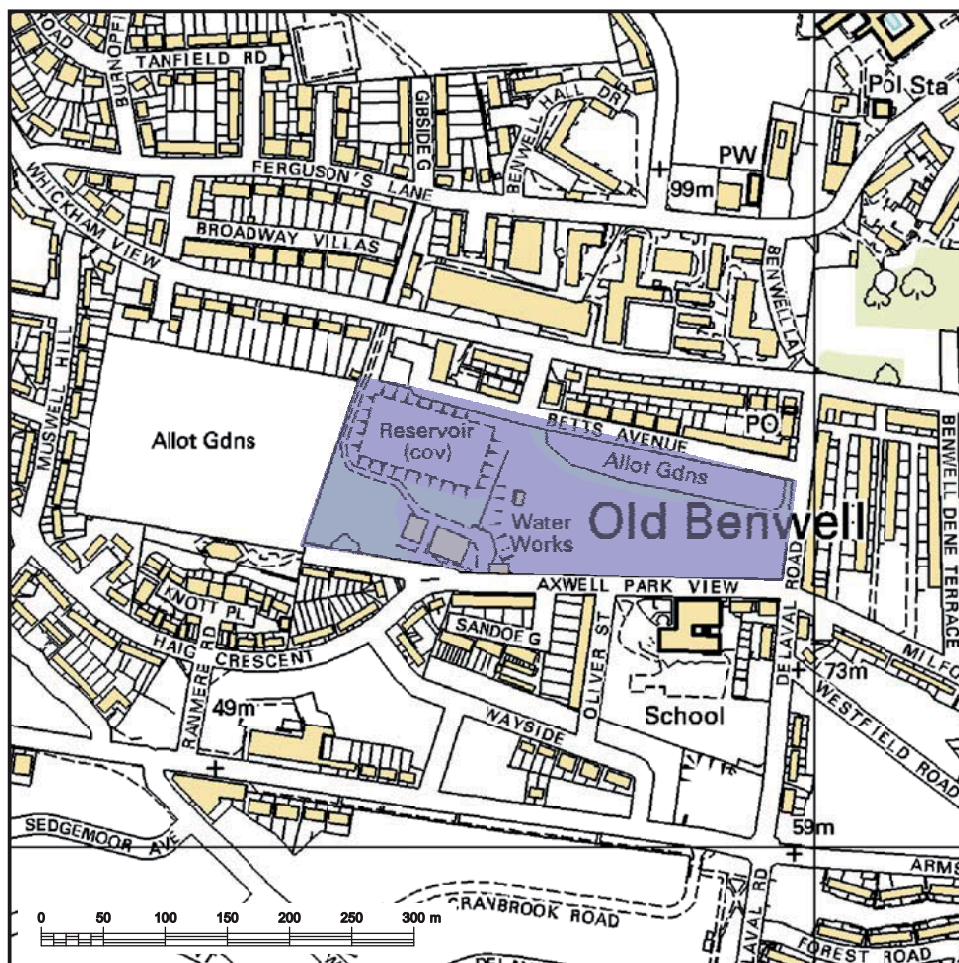
## 1.3 Methodology of Assessment

The assessment will:

- Define the principal sources of information available for archaeological assessment (Section 3).
- Present a catalogue (Section 4) and chronological synthesis (Section 5) of archaeological data derived from various sources. Accompanying base maps will locate established structures and features within, or in close proximity to, the assessment area.
- Provide an assessment of archaeological potential with respect to the development area.
- Provide conclusions with respect to the known and potential archaeological significance of the assessment area (Section 7).
- Recommend further work to define more clearly the nature of the archaeological record and facilitate management or mitigation of this resource (Section 8).



*Illus. 01: The location of Benwell to the west of Newcastle upon Tyne. The area of assessment is shown in blue.*



*Illus. 02: The location of the assessment area within Benwell shaded in blue.*



## 2. ASSESSMENT CONTEXT

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### 2.1 Location and Extent of the Assessment Area (*Illus. 01-03*).

The assessment focuses on an area of land (centred on Grid Reference NZ 207644) on an area of land currently occupied by 19<sup>th</sup> century water works and reservoirs approximately 4km west of Newcastle city centre.

The area under assessment in this report is approximately 80m in length and 60m wide. The size of the new building to be constructed within that area is 15.9m by 18m.

The waterworks site is bounded by a mixture of modern metal fencing and early 20<sup>th</sup> century and mid 19<sup>th</sup> century stone walls. It is surrounded by the residential streets of Betts Avenue to the north, Delaval Road to the east, and Axwell Park View, formally Waterworks Road to the south. An area of allotments joins the site to the west.

### 2.2 Geology & Topography

Benwell Low Water Works stands on the solid geology of Upper Carboniferous coal measures overlain by up to 10m of glacial deposits (Johnson 1995). The waterworks is on the north bank of the River Tyne on a relatively steep south facing slope leading to the river. The area of the proposed new pumping station is currently a tarmac area on the same level as the waterworks buildings. The reservoir areas to the north and east of the pumping station and chimney are on grassed banks rising some 9m above the ground level of Axwell Park View.

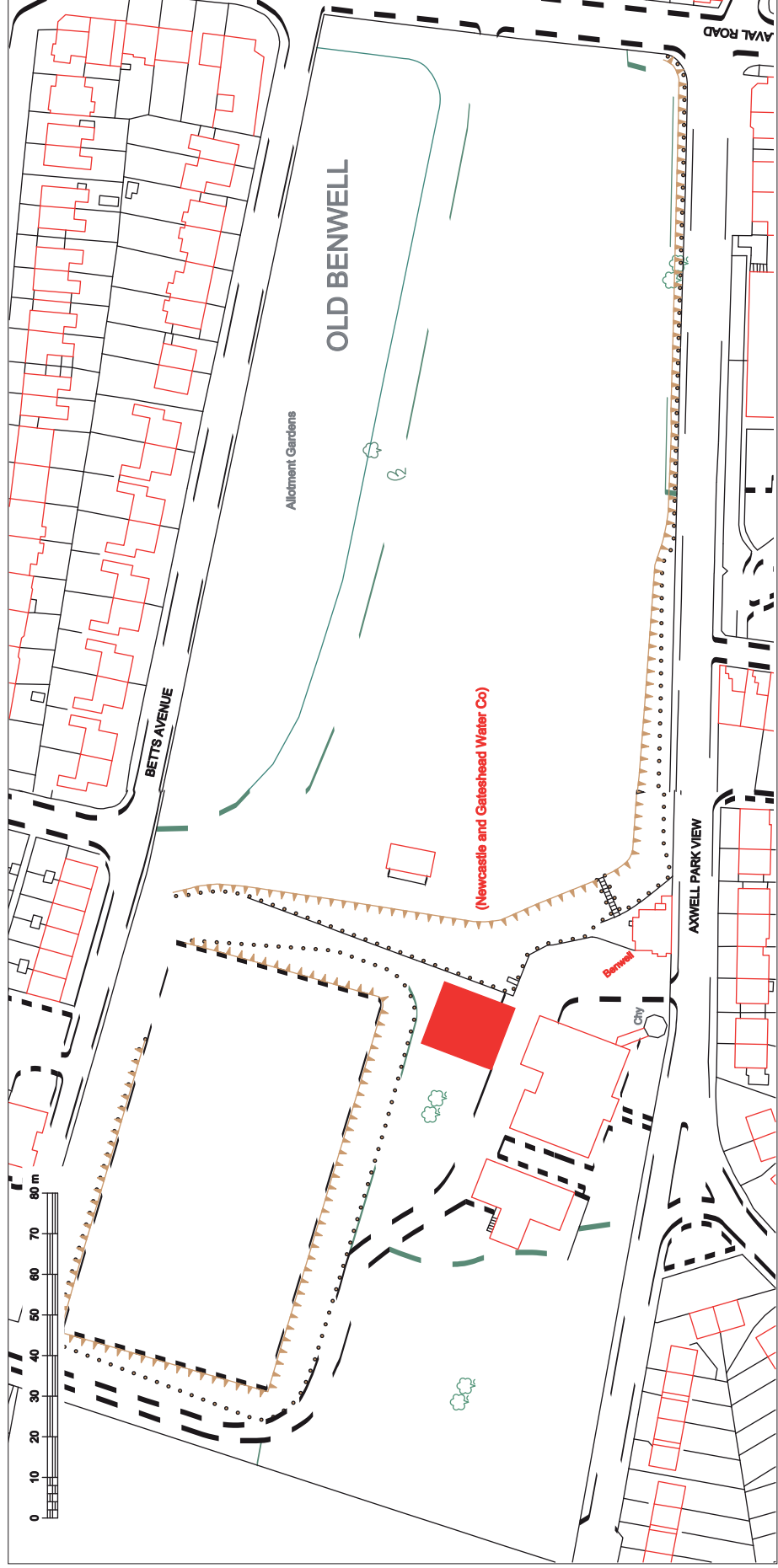
### 2.3 Previous Archaeological Assessment and Investigation

No archaeological investigations have taken place within the bounds of the proposed development site, although a number have previously been carried out within and in the vicinity of Benwell, most notably:

- Pendower School Desk Based Assessment 1993 (TWHHER 1993/2)
- Pendower School Excavation 1994 (TWHHER 1994/5)
- The Green Inn & Hawthorn Inn Desk Based Assessment 2006 (TWHHER 2006/93)
- Scotswood Expo, Desk Based Assessment 2006 (TWHHER 2006/120)
- The Green Inn Evaluation 2006 (TWHHER 2006/153)
- The Hawthorn Inn Evaluation 2006 (TWHHER 2006/154)

### 2.4 Nature of Proposed Developments

The proposed development consists of the construction of a new pumping station, approximately 16m by 12m, located on the north side of the larger existing pumping station (1904) with associated services and access. The demolition of a small later addition to the pumping station will also be undertaken. These works are permitted development and will not form part of the forthcoming planning application.



**Illus. 03:**  
A detailed modern plan of the area surrounding Low Benwell Water Works, with the site of the proposed new pumping station infilled red.



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## 3. SOURCES FOR ASSESSMENT

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### 3.1 Archival Material and Secondary Sources

The report collates evidence from a wide range of published, documentary and cartographic sources consulted in the following archival repositories:

- *Tyne and Wear Historic Environment Record (HER)*
- *The Archaeological Practice archive (AP)*
- *Tyne and Wear Archives (T&W)*
- *Newcastle Library (NL)*
- *Northumberland Archives, Woodhorn (NRO)*

### 3.2 Types of Information

Included amongst the various kinds of information used from each of the above sources to assess the significance of the assessment area are the following:

#### 3.2.1 HER and Listed Buildings Records

##### ***Scheduled Ancient Monuments***

The scheduling of a site by the Secretary of State denotes it is of at least national significance and provides statutory protection over a defined area. There are no scheduled sites within the vicinity of the proposed development although Condercum Roman Fort (Cat. No. 29, HER 208) and the line of Hadrian's Wall run some 1.5km to the north east. These form part of the Hadrian's Wall Complex, a UNESCO World Heritage Site.

##### ***Listed Buildings***

The listing of structures by the Secretary of State denotes historical or architectural interest but does not necessarily include all buildings of significance or local importance. There are two Grade II Listed Buildings within the assessment area of the waterworks. These are the mid 19<sup>th</sup> century lodge (Cat. No. 2, HER 8895) and the chimney associated with the pumping engine in 1904 (Cat. No. 3, HER 9039). The chimney has been listed due to its landmark value.

##### ***Sites Appearing on the Tyne and Wear Historic Environment Record (HER)***

The Tyne and Wear HER has been accessed for entries within and in close proximity to the assessment area that may be impacted by proposed developments. Consideration of sites outside the defined area enables better evaluation of its archaeological and historical context, highlighting the nature of potential remains within the assessment area. There are 3 entries directly within the defined development area but 35 sites on the HER record (incl. Listed Buildings, above) lie in close proximity.

#### 3.2.2 Primary documentary sources

No primary documents of significance to the present assessment were used in compiling the present report.

### 3.2.3 Secondary and Published Information

Published works which shed general contextual light upon the assessment area or upon particular aspects of its archaeology or history were consulted, and cited where relevant in the synthesis included in the full assessment report.

#### **Trade Directories consulted:**

Christies Directory 1874  
 Ward's Directory, 1885  
 Kelly's Directory, 1886  
 Ward's Directory, 1889  
 Kelly's Directory, 1965

### 3.2.4 Map Evidence (see *Illus. 04-15*)

The study of early maps provides invaluable evidence for the historical development of the area. The following maps were used in compiling the present report:

- *1629 Survey of the Manors of Northumberland belonging to the City of London (TWM L/PA/341)*
- *Oliver's 1830 reproduction of 1637 plan of Manor of Benwell (after Graham 1984)*
- *Sketch plan of Shafto's sale plan c.1781 (TWM 2092 MBE V.3)*
- *A reproduction by Frank Graham 1952 of the Benwell Estates based on Shafto's 1780 plan and Bowes 1808 estate plan*
- *1843 Tithe Plan (NRO DT 36M)*
- *First Edition Ordnance Survey plan 1:2500, c.1866, Northumberland Sheet XCVII.6.*
- *Second Edition Ordnance Survey plan 1:2500, 1897, Northumberland Sheet XCVII.6.*
- *Third Edition Ordnance Survey Plan 1:2500, 1920, Northumberland Sheet XCIV.10.*
- *Fourth Edition Ordnance Survey Plan 1:10560, 1938.*
- *1952 National Grid plan.*
- *1957 National Grid plan.*
- *1989 National Grid plan.*

### 3.2.4 Aerial Photographs

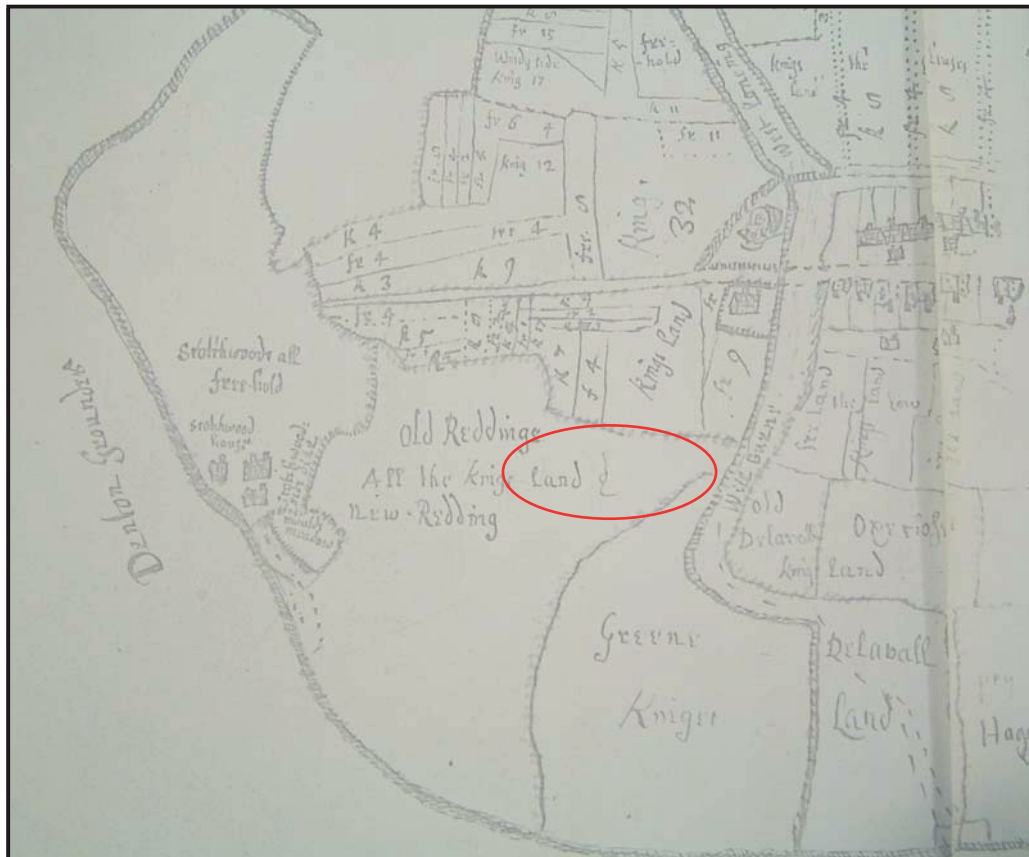
Due to the urban nature of this site aerial photographs were not consulted.

### 3.2.5 Other Photographs

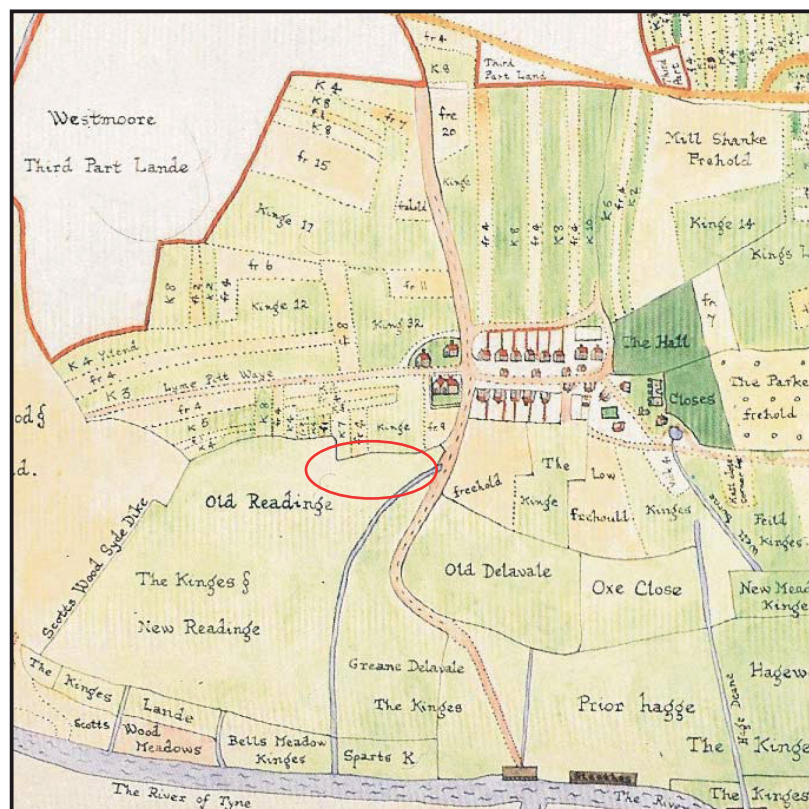
Approximately 70 historic photographs of Benwell were consulted at Newcastle Library although none covered the current assessment area. Several images were seen in the HER and in general publications of which 3 are reproduced in this report. A photograph of the pumping engines was located in Tyne and Wear archives and has also been reproduced here.

### 3.2.6 Site Inspection and Local Information

A site visit was made on the 18<sup>th</sup> January 2008 by Richard Carlton and Claire MacRae of The Archaeological Practice Ltd. accompanied by Peter Ryder, historic buildings consultant. The entire area of the site was examined closely and photographs were taken of its principal surviving historic remains.

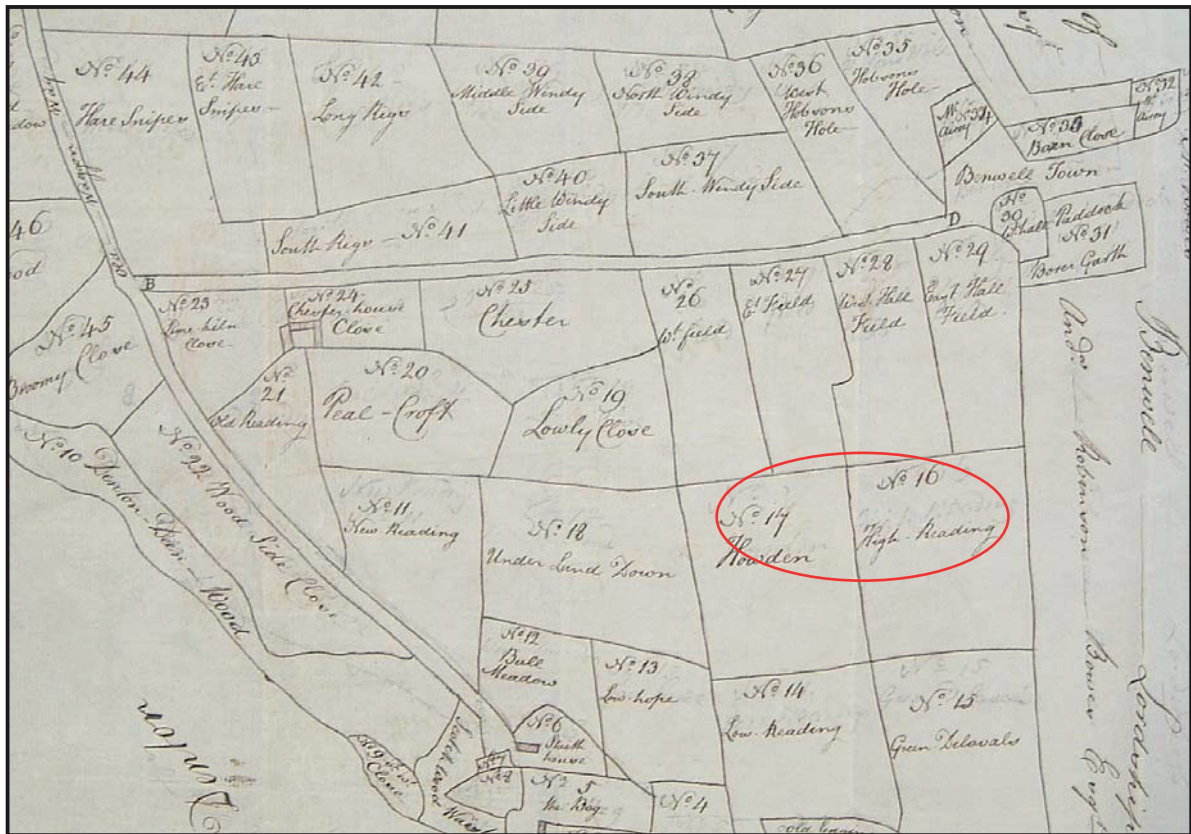


**Illus 04:** Extract from 1629 Survey of the Manors of Northumberland belonging to the City of London (TWAS L/PA/341). The approximate area of the current assessment is circled in red probably in the field marked 'Old Reddinge' belonging to the Crown.

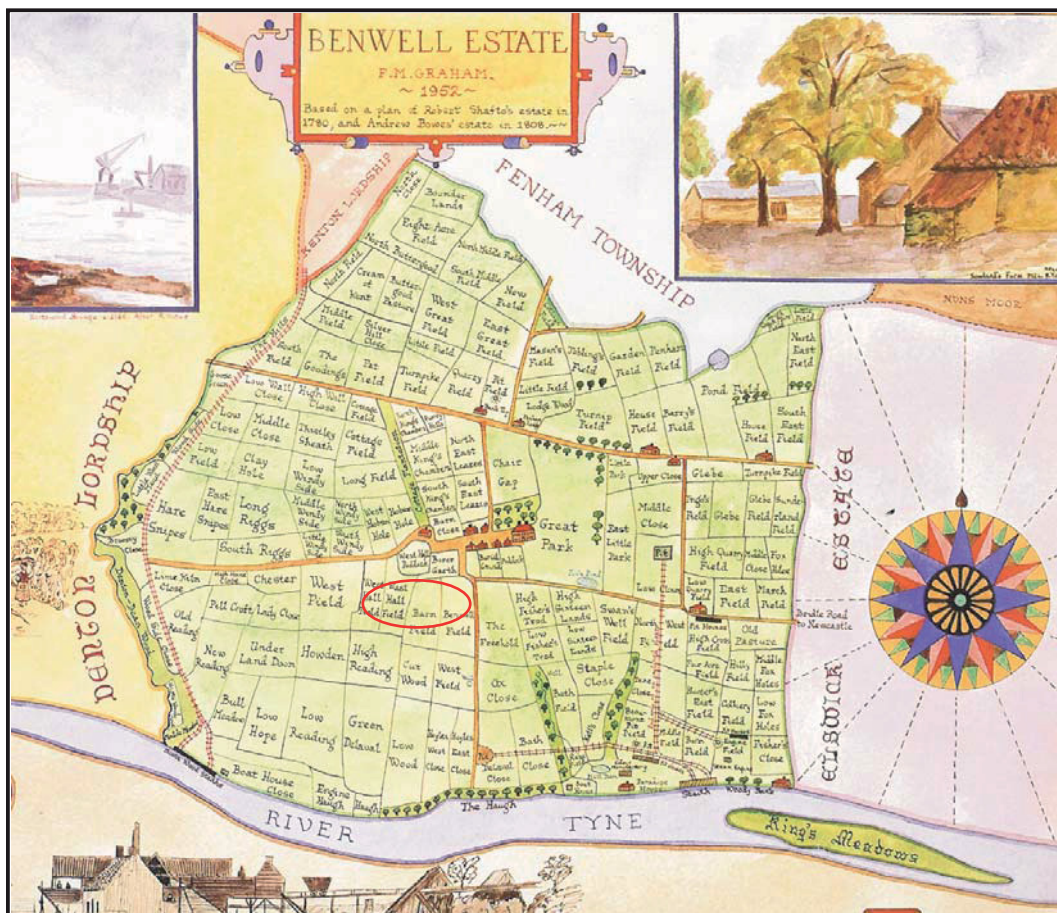


**Illus 05:** Oliver's 1830 reproduction of a 1637 plan of Manor of Benwell, reproduced here to more easily interpret the above plan (after Graham 1984). The approximate area of assessment is circled in red.



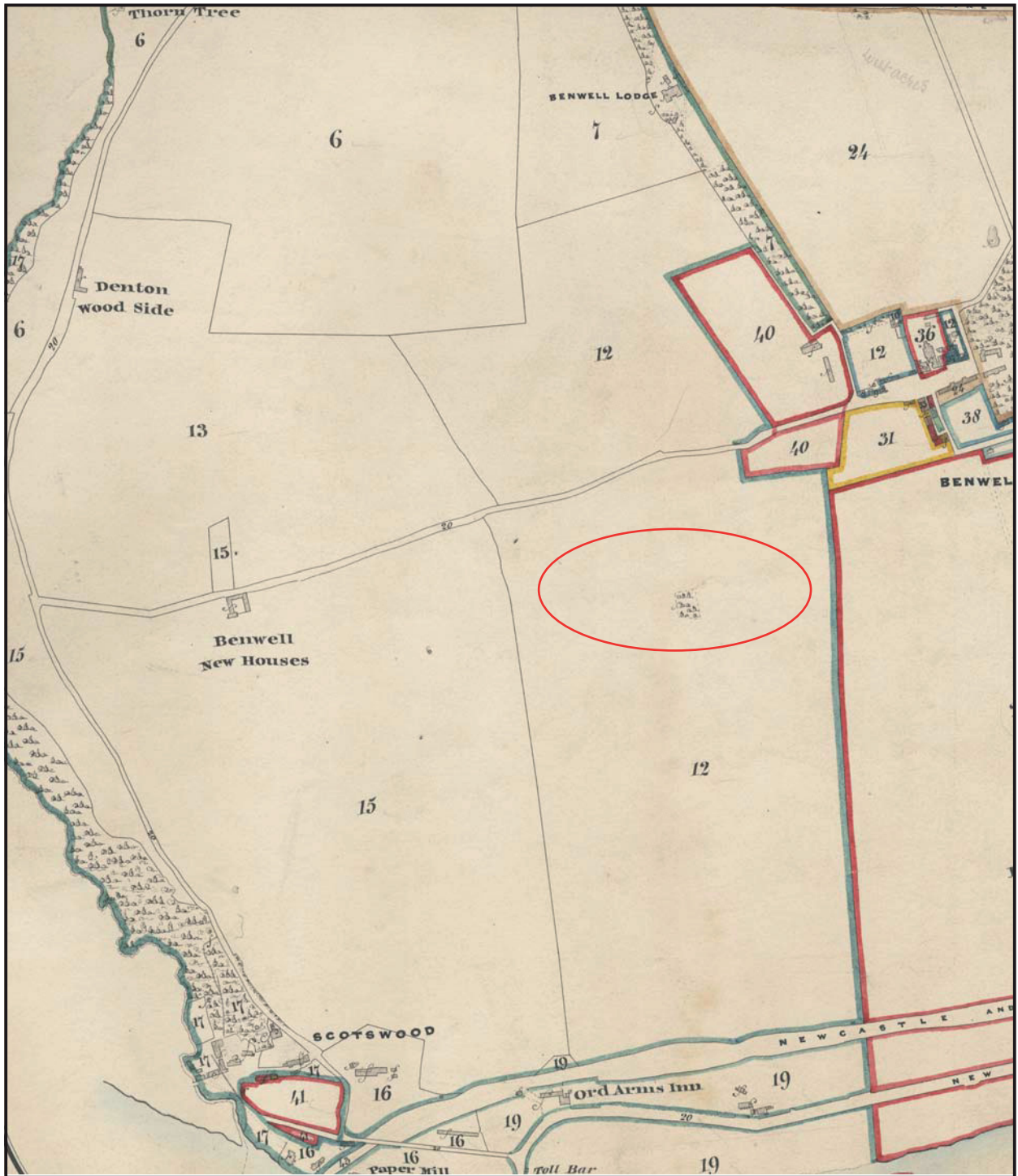


**Illus 06:** Extract from a sketch plan of Shafto's sale plan c.1781 (TWAS 2092 MBE/V.2). The approximate area of the current assessment is circled in red in the area labelled Howden and High Reading and possibly into West and East Field, West and East Hall Field.



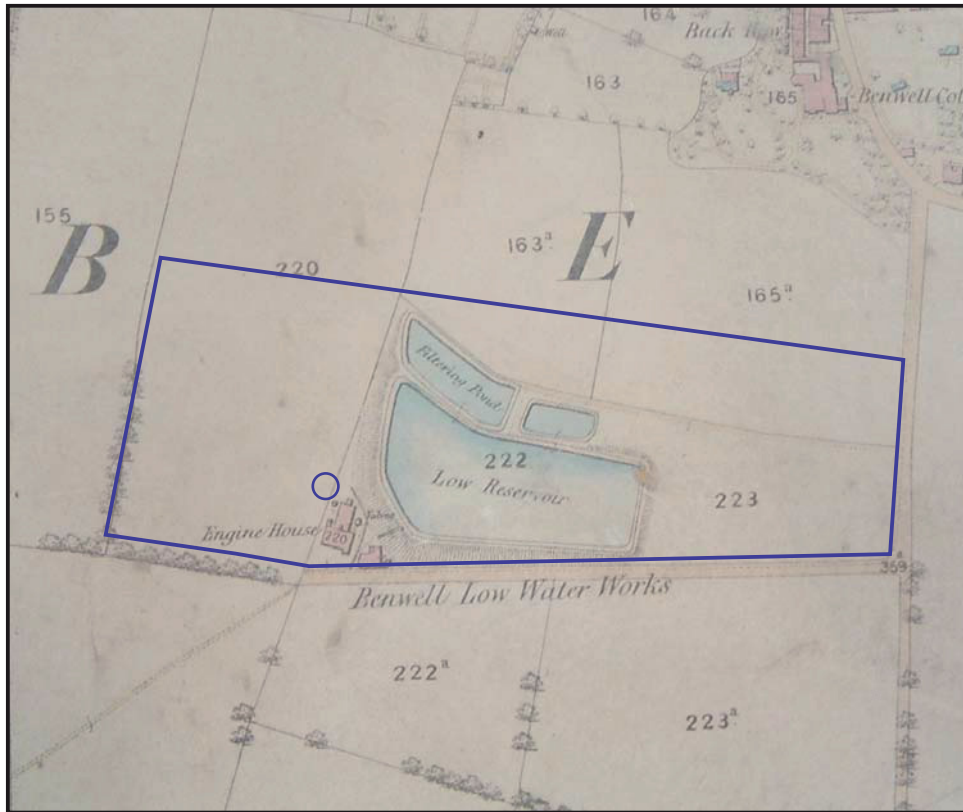
**Illus 07:** A reproduction by Frank Graham 1952 of the Benwell Estate based on Shafto's 1780 plan (above) and Bowes 1808 estate plan reproduced here for further clarity of Shafto's plan (after Graham 1984). The approximate area of the current assessment is circled in red although the field names stated here differ from the Shafto's plan.



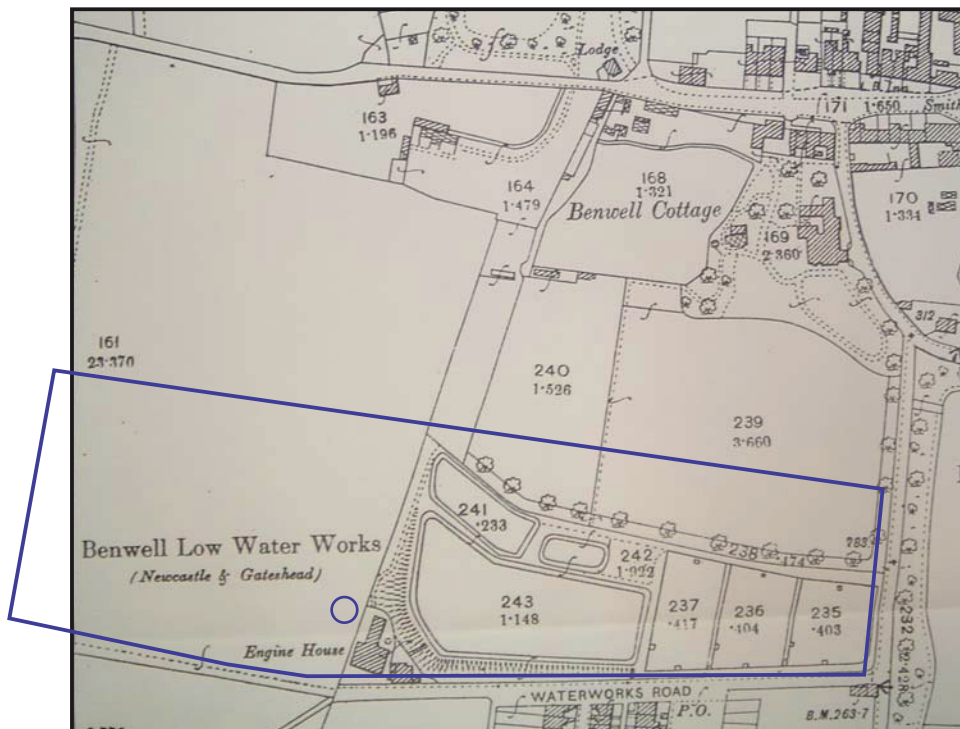


*Illus. 08: Extract from 1843 Tithe Plan (NRO 36M). The approximate assessment of Benwell Waterworks is circled in red in the area of field 12 owned by William Ord, leased to James Huntley as part of Benwell Farm..*

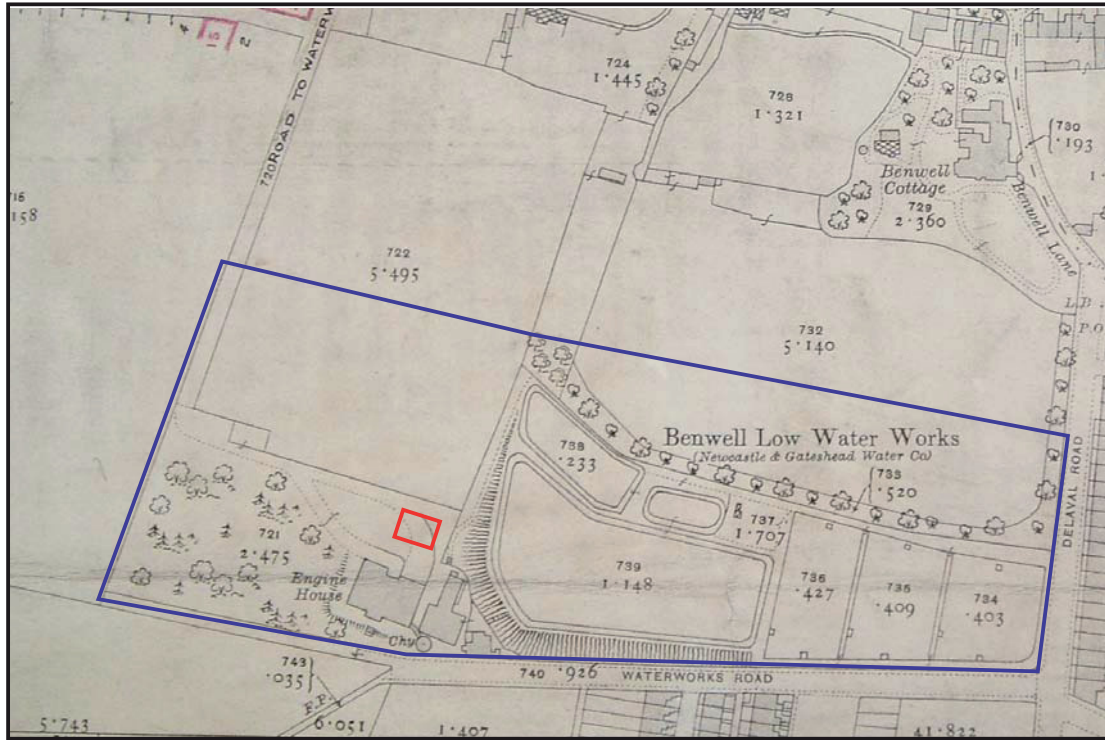




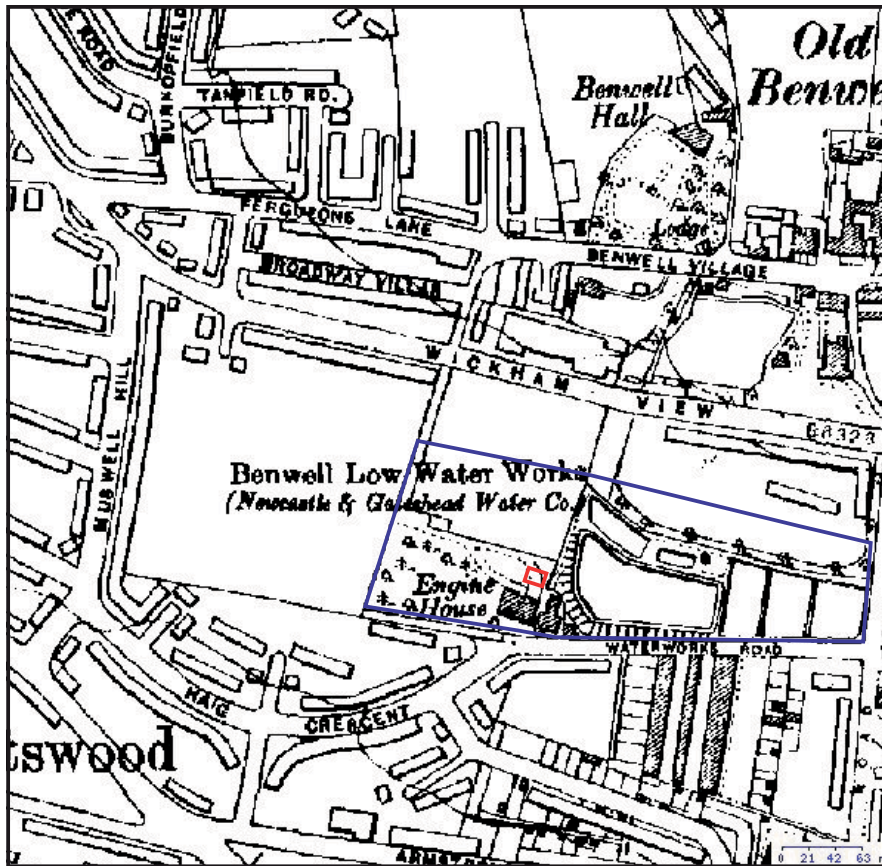
**Illus. 09:** Extract from First Edition Ordnance Survey plan 1:2500, c.1866, Northumberland Sheet XCVII.6. The assessment area is outlined in blue, the blue circle shows the approximate area of the proposed new building.



**Illus. 10:** Extract from Second Edition Ordnance Survey plan 1:2500, 1897, Northumberland Sheet XCVII.6. The assessment area is outlined in blue, the blue circle shows the approximate location of the proposed new building.

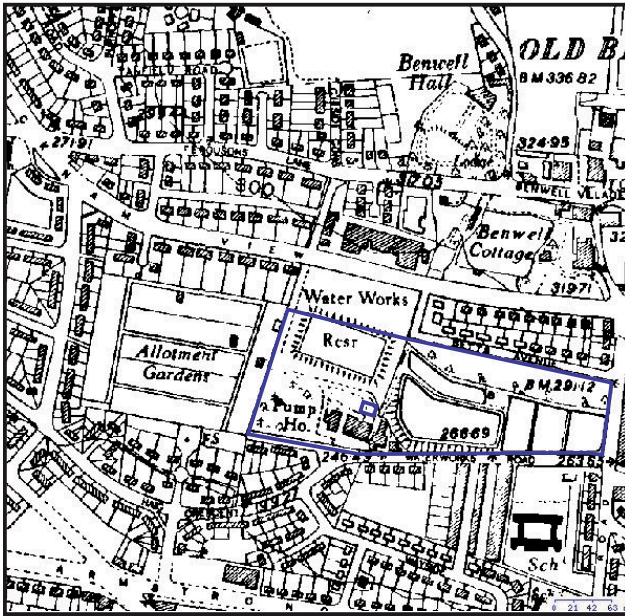


**Illus. 11:** Extract from Third Edition Ordnance Survey Plan 1:2500, 1920, Northumberland Sheet XCIV.10. The assessment area is outlined in blue with the red square marking the approximate position of the proposed new building.

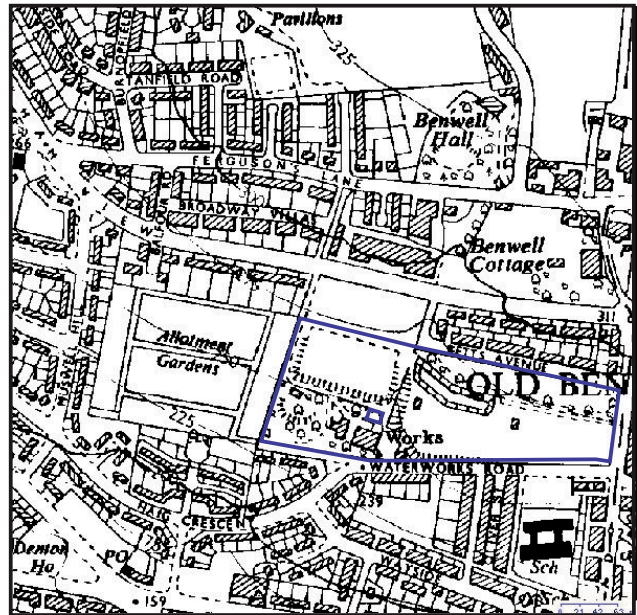


**Illus. 12:** Extract from Fourth Edition Ordnance Survey Plan 1:10560, 1938. The assessment area is outlined in blue with the red square marking the approximate position of the proposed new building.

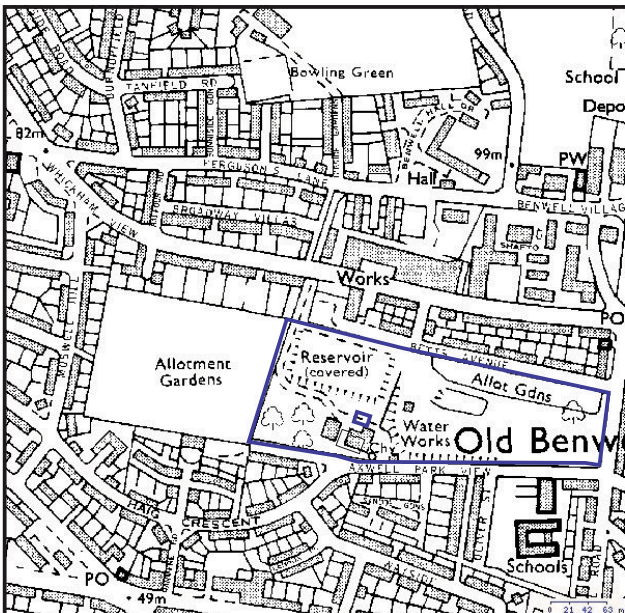




Illus. 13: Extract from 1952 national grid plan

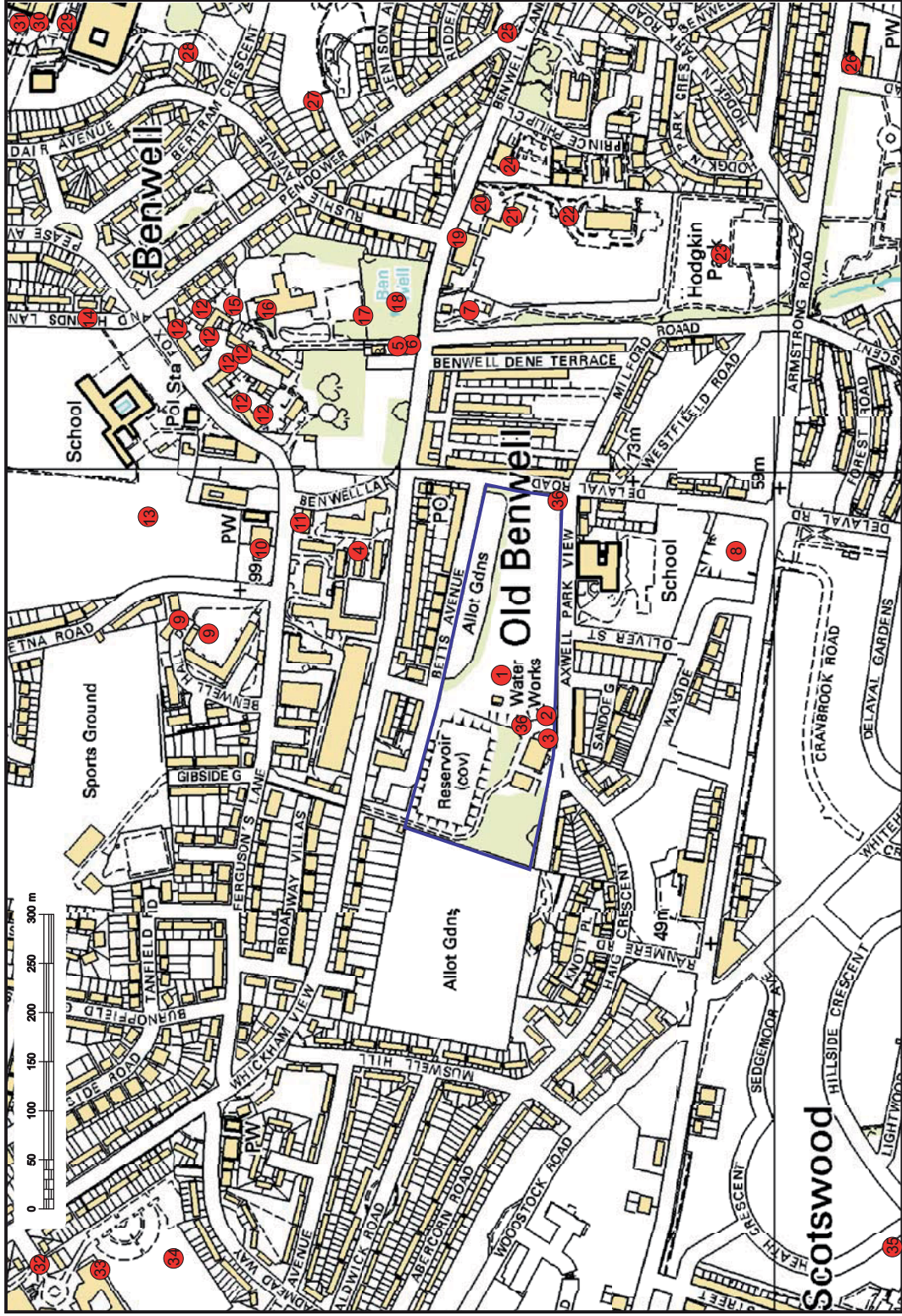


Illus. 14: Extract from 1957 national grid plan



Illus. 15: Extract from 1989 national grid plan





**Illus. 16:** Sites identified on the Tyne and Wear Historic Environment Record (HER) and by The Archaeological Practice Ltd within and in the vicinity of the proposed development area.

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## 4. CATALOGUE

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Archaeological assessment requires consideration both of the area likely to be materially affected by developments and sites in the immediate vicinity which may be visually affected. The course of investigation outlined above identified 3 sites of known cultural heritage significance within the defined assessment area but 32 other sites of known or potential importance in the vicinity of the site were identified from HER records. A further site of interest was identified during site visits. The catalogue numbers of sites listed below are keyed to *Illus. 16*.

*Site no. 01: **Benwell Low Water Works**; Grid Reference NZ20826427; HER ID 4069*

The 1<sup>st</sup> Edition OS plan (*Illus.09*) shows an engine house and filtering pond within the site. The site also includes Benwell Pumping Station built in 1857. The original engines were replaced with electrically driven pumps in 1924. For further description see Appendix 1.1., below.

*Site no. 02: **Lodge to Benwell Low Water Works**; Grid Reference NZ20746422; HER ID 8895; Grade II Listed Building*

Lodge probably dating to 1857 built for the Whittle Dean Water Company. For further description see Appendix 1.1., below.

*Site no. 03: **Benwell Low Water Works Chimney**; Grid Reference NZ20726422; HER ID 9039; Grade II Listed Building*

The pumping engine chimney built in 1904 for the Newcastle and Gateshead Water Company. The chimney has been listed for its landmark value. For further description see Appendix 1.1., below.

*Site no. 04: **Benwell Cottage**; Grid Reference NZ20946493; HER ID 1861*

Built in 1844 by William Hawthorn, a civil engineer, the house stood on the south side of Ferguson's Lane. It was demolished in 1972 and has been replaced by sheltered housing.

*Site no. 05: **Wellburn House**; Grid Reference NZ21126440; HER ID 9019, Grade II Listed Building*

Mid 18<sup>th</sup> century house.

*Site no. 06: **Benwell Towers Gate Piers**; Grid Reference NZ21126440; HER ID 8900, Grade II Listed*

19<sup>th</sup> century gate piers associated with Benwell Towers

*Site no. 07: **Benwell Ice House**; Grid Reference NZ21156431; HER ID 4070*

An Ice House in the grounds of Benwell House (HER 1862).

*Site no. 08: **Benwell School**; Grid Reference NZ20926403; HER ID 6362*

Site of 19<sup>th</sup> century school.

*Site no. 09: **Benwell Hall**; Grid Reference NZ20846461; HER ID 1863*

Little trace of Benwell Hall remains today. The hall was built of brick, probably during the second half of the 18th century. Later extensions were added during the 19<sup>th</sup> century, possibly to the designs of Dobson. The house was demolished in 1982.

*Site no. 10: **Misson Hall**; Grid Reference NZ209645; HER ID 8640*

Site of 1820 Mission Hall; it was demolished c.1943.

*Site no. 11: **Benwell Village**; Grid Reference NZ210645; HER ID 140*

Earliest reference, to 'Bynewalle', is c.1050. From the 16<sup>th</sup> century the fields of Benwell were mined for coal. In the 19th century it was for a time an area where Newcastle businessmen built



grand houses. It was originally a two-row village, the rows being separated by a wide street running west from the manor house. Though the general street pattern survives, there are no buildings earlier than the 19<sup>th</sup> century, and most of the south side has been rebuilt very recently. The original streets are represented by Benwell Village, Benwell Lane, Ferguson's Lane and Fox and Hounds Lane.

*Site no. 12: **Pendower School Air Raid Shelters**; Grid Reference NZ21116456; HER ID 7678*  
Site of World War II proposed air raid shelters shown on plans of school.

*Site no. 13: **Benwell Deer Park**; Grid Reference NZ2064; HER ID 4622*  
Medieval deer park; but its form and boundaries are no longer evident. Licence to Impark was given to John Scott in 1370.

*Site no. 14: **Pendower Cottage**; Grid Reference NZ21166470; HER ID 6363*  
Shown on the Second Edition Ordnance Survey plan.

*Site no. 15: **Benwell Manor**; Grid Reference NZ21186450; HER ID 1361*  
In 1472 Robert Rodes, the Newcastle merchant, gave his property in Benwell to Tynemouth Priory who retained it until the Dissolution in 1538. It was held by the crown, and leased out, until - in the first half of the 17<sup>th</sup> century - it was split up and sold.

*Site no. 16: **The Mitre Public House**; Grid Reference NZ21176448; HER ID 9042, Grade II Listed Building*  
A 19<sup>th</sup> century house and chapel now a house.

*Site no. 17: **Benwell Tower**; Grid Reference NZ21186450; HER ID 139*  
The earliest reference to a tower is in the ministers' or bailiffs' accounts 1538-39 where it is one item in a list of property lately belonging to the priors of Tynemouth. Both then and in the 1608 Survey of Crown Property it is described as the manor house. 17<sup>th</sup>-19<sup>th</sup> century drawings show a plain oblong tower three storeys high with a crenellated parapet. In the mid 18<sup>th</sup> century the house was largely rebuilt and domestic offices added. House and tower were demolished in 1831, and replaced by the present Benwell Tower.

*Site no. 18: **Benwell Chapel**; Grid Reference NZ21156439; HER ID 138*  
Evidence for a medieval chapel is a 13<sup>th</sup> century documentary reference to a vicar of Benwell. This may be an error, but that there must have been a parochial chapel here, and - because of the graves - it presumably possessed the privilege of burial. It did not have to be the same as the chapel later attached to the tower. Served by the curate of St. John's, Newcastle, it survived until demolition by Stoney Bowes in c. 1780. There is no information at all about its appearance or precise site. The recorded gravestones date between 1684 and 1759, i.e. the period of ownership of the Shaftoes.

*Site no. 19: **Roman Vessel Findspot**; Grid Reference NZ21236433; HER ID 5267*  
A complete Roman pot was found in Benwell Lane while digging a sewer near Benwell Dene House (now the School for the Blind) in 1887.

*Site no. 20: **Victoria School for the Blind, Lodge**; Grid Reference NZ21276430; HER ID 9020, Grade II Listed Building*  
Mid 19<sup>th</sup> century lodge.

*Site no. 21: **Royal Victoria School for the Blind**; Grid Reference NZ21256427; HER ID 6361, Grade II Listed Building*  
A house built in 1865, now a school.

*Site no. 22: **Benwell House**; Grid Reference NZ21386422; HER ID 1862,*



This was built for John Walker of Wallsend shortly before 1825 on the south side of Benwell Lane. In 1901 the house was sold to J. Lamb Ltd., brewers, after which it became the Benwell House Hotel. The Hotel closed in 1968 and the house was demolished in 1972. A Chapel of Rest was built on the site.

*Site no. 23: **Hodgkin Park**; Grid Reference NZ21256387; HER ID 9884,*  
Benwell Dene, better known as Hodgkin Park, opened on 8 August 1899. The land was used for allotments during the Second World War.

*Site no. 24: **Benwell Old House**; Grid Reference NZ213642; HER ID 8641,*  
Site of an early 18<sup>th</sup> century house, demolished c.1955.

*Site no. 25: **Benwell Lane Fish Pond**; Grid Reference NZ21466426; HER ID 6309,*  
Site of a 19<sup>th</sup> century fish pond.

*Site no. 26: **Church of St. Joseph**; Grid Reference NZ21436391; HER ID 9821,*  
1929 RC Church.

*Site no. 27: **Condercum Roman Fort Vicus**; Grid Reference NZ21606460; HER ID 5262,*  
The precise extent of the vicus is not known, but it appears to have been a very large settlement, gathered around the road leading south from the fort. The bath house (HER 5263) was circa 274 metres south-west of the fort, the temple of Antenociticus (HER 5265) and associated burials circa 91.5 metres east. There may have been another temple in the vicinity of Condercum House, as indicated by a column shaft and 3 pieces of sculpture (or alternatively these may have merely been brought in to ornament the grounds of the house). A tombstone was found circa 500 yards (circa 458m) east of the fort, suggesting that this area included a cemetery. Pottery has been found as far as 450m from the southern defences. It seems unlikely that the vicus spread far to the west of the fort as trial trenching at Pendower Hall in 1977 and 2001 found no evidence of Roman activity. It is therefore possible that a very large vicus lay to the south and south-west of the fort. The vicus probably originated in timber under Severus, and was rebuilt in stone in the early C3. The southward road was lined with buildings north and south of the vallum, including a mansio (HER 5264). Excavations in the 1930s showed that the development of the vicus can be divided into 3 phases.

*Site no. 28: **Roman Pottery Findspot, Pendower Hall**; Grid Reference NZ21426456; HER ID 5272,*  
Pottery was found during building work in the grounds of Pendower Hall School, just north of Bertram Crescent, between Adair Avenue and Lismore Place (Museum of Antiquities 1970.2).

*Site no. 29: **Condercum Roman Fort**; Grid Reference NZ21606478; HER ID 208, Scheduled Ancient Monument and UNESCO World Heritage Site*  
The Roman fort at Benwell measured 581 feet north-south by 417 feet east-west, and covered 5.64 acres. Though its existence has always been known, its hill-top site proved irresistible for the location of a reservoir, which was built over the northern third in 1858 and enlarged in 1957. The West Road crosses the fort from east-west, lying over the gates and the north front of the principal buildings, from east-west the C.O.'s house, HQ building (notable for underground strong-room and settling tank), twin granaries, workshop. Behind was the Via Quintana, running between the minor gates, and south of that a ? hospital, 2 barracks etc.; with behind again 2 probable double stable blocks inside the twin-portalled S gate and rampart. Other buildings, Vallum crossing etc. have been found outside the fort and are indexed separately. After 1920s-1930s excavations S two-thirds of the fort became a housing estate. A dedication tablet suggests building began 122/124; pottery indicates rebuild at end of the 2<sup>nd</sup> century, and that occupation lasted into the late 4<sup>th</sup> century.

*Site no. 30: **Pendower Hall**; Grid Reference NZ21466474; HER ID 5329,*

A large house, first occupied in 1867, Pendower Hall became a school in 1920 and then a Teacher's Centre. There was originally a large lawn to the south front of the house, another to the west, and kitchen gardens. To the north-east were stables and a coach-house (demolished in the 1920s), and a lodge/gatehouse. Most of these 60 acres have been swallowed up by modern housing and another school. The majority of the interior has been changed significantly from the original scheme, however the entrance hall and library in particular still present a comparatively 'original' appearance.

*Site no. 31: **Pendower Open Air School**; Grid Reference NZ21465600; HER ID 9259,*  
Site of an open air school built to combat the high rate of serious illness amongst school children. Built in 1925 but no longer extant.

*Site no. 32: **Gate Piers relating to Whickham View School**; Grid Reference NZ20186474;  
HER ID 8771, Grade II Listed*  
20<sup>th</sup> century gate piers to Whickham View School.

*Site no. 33: **Whickham View School**; Grid Reference NZ20106471; HER ID 8770, Grade II  
Listed Building*  
20<sup>th</sup> century school.

*Site no. 34: **Scotswood Natural Community Garden**; Grid Reference NZ20176462; HER ID  
9887,*  
Community garden.

*Site no. 35: **Scotswood Park**; Grid Reference NZ1964; HER ID 1354,*  
"In 1367, Richard, son of John Scot, obtained licence to enclose and make a park of his wood in Benwell called the West Wood containing 200 acres. This is no doubt the origin of the name of Scotswood for the west part of Benwell township". The enclosure led to quarrels with the neighbours who broke into the park at intervals in the 14<sup>th</sup> century to cut down trees, dig up coal, carry off cattle and deer, corn and hay, and take herons from their nests. The park was bounded on its west side by Denton Burn, on the south by the Tyne, and on the south-east by a dyke.

*Site no. 36: **Waterworks Boundary Wall**;*  
A stone wall running the length of the southern and eastern boundary of the current assessment site and around the area of the original reservoir area. Shown faintly on the first edition ordnance survey plan and more clearly on the second edition.

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## 5. SYNTHESIS

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### 5.1 Early Prehistoric (*hunter/gatherers and early farmers - 8000BC to 2500BP*)

A great quantity of prehistoric finds have been recorded on the banks of the River Tyne. In Benwell, prehistoric finds such as a perforated axe hammer (HER 1376) have been noted at the site of the Roman Fort Condercum approximately 1km north east of the waterworks site. Cists have been recorded in Elswick (HER 1374-5) and a socketed axe (HER 1254) and bronze bowl in Newburn, approximately 5km to the west. On the south side of the river finds are even more numerous with several inhumations and a barrow recorded in Axwell Park (HER 504-507), 2.5km to the south west of Benwell and flints, arrowheads and cup & ring stones in Ryton (HER 529-591).

Therefore, while there is no known artefactual evidence for human activity within the bounds of the assessment area from the Mesolithic, Neolithic or Bronze Age periods, it may be assumed that the area would have been exploited and settled during early prehistory.

### 5.2 Later Prehistoric and Romano-British Period (*2500BP to 400AD*)

There is no known evidence of later prehistoric or Romano-British activity within the grounds of the waterworks site. However, Roman finds are well documented in Benwell which lies a short distance south of the course of Hadrian's Wall and its defensive *vallum*.

Condercum Fort (Cat. No. 29, HER 208) and its civilian settlement, or *vicus* (Cat. No. 27, HER 5262), lie approximately 1km and 700m to the north east of the assessment area, respectively. The extent of the *vicus* is unknown although it seems to have gathered around the road leading south west from the Fort in the direction of the waterworks. The Fort dates to 80 AD and was the third fort on the Roman Wall. It is believed that the *vicus* grew around the fort in the later second century (NL Notes on Benwell Vol.1:34).

Associated buildings of the Vicus that have been located include the Bath House (HER 5263), *Mansio* (HER 5265), possible parade ground (HER 5328), Temple of Antenociticus (HER 5266), *vallum* crossing and gateway (HER 5264) along with many tombs, altars and building stones. The closest recorded findspot to Benwell waterworks is that of a Roman vessel discovered in Benwell Lane approximately 350m to the north-east (Cat. No. 19, HER 5267).

### 5.3 The Medieval Period

#### *Early Medieval Period (400-1100)*

There is no evidence for activity within the assessment area from the early medieval period. The earliest reference to 'Bynnewalle', meaning 'by the wall', allegedly dates to the mid 11<sup>th</sup> century (TWM 2006:8). The area of the early village lies c.200m north east of the waterworks (Cat. No.11, HER 140).

#### *Medieval Period (1100-1600)*

There is no recorded activity for the medieval period within the bounds of the assessment area.

During this period Benwell village was a member of the barony of Bolbec, and part of these lands were given to Reginald de Kenebelle in exchange for the manor of Heddon. Indeed, the Benwell lands were known as 'Keneboll' in the 1242 Book of Fees (Hope Dodds 1930:216). During the late 13<sup>th</sup> century the lands were passed to the Scot family of Newcastle. The 1296-7 lay subsidy notes the main taxpayer as Henry Scot (*Ibid.*). The Scot's held the land, enclosing the woods to create a park in 1367, thereby creating the area known as Scotswood (TWM 2006:8). A deer park licensed to John Scott in 1370 existed to the north of the waterworks site (Cat. No. 13, HER 4622).

Various landowners held the remaining two parts of the township, notably the Swinburnes, Delavals and Whitchesters. Robert Rhodes, a merchant from Newcastle bought the Delaval and Whitchester lands in 1454, including Benwell Tower and Manor (Cat. No. 17 & 15 HER 139 & 1361). The lands and tower passed to Tynemouth Priory in 1472 (*Ibid.* 8). This land subsequently passed to the crown and then to Sir Thomas Hilton after the dissolution (HER 140). The Shafto family around this time also bought lands from the Swinburnes and inherited lands through marriage.

#### 5.4 Post Medieval and Modern Periods

The lands of Thomas Hilton were divided up in 1628 and purchased by a number of landowners, including Robert Shafto and Sir Peter Riddell of Newcastle (HER 140). By the early 17<sup>th</sup> century the majority of Benwell, including the Manor and Tower was owned by the Shaftos (Hope Dodds 1930:231). Portions of the Shafto estate were sold off during the late 18<sup>th</sup> century. A few of the grand residences of the village survived well into the 20<sup>th</sup> century with one 18<sup>th</sup> century house, Wellburn House, remaining extant (Cat. No.5, HER 9019).

The 18<sup>th</sup> and 19<sup>th</sup> centuries saw an explosion in industrial development and in the later 19<sup>th</sup> century a growth in population. The fields surrounding Benwell had been mined for coal since the 16<sup>th</sup> century and by the 18<sup>th</sup> and 19<sup>th</sup> centuries, particularly in the Scotswood area, associated industries included Copperas Works, Firebrick Works, Enamelling and glazing works as well as Delaval Colliery and associated railways. Most of the industrial works and factories developed near to river, however, enabling Benwell to maintain something of its rural character. In 1880 Benwell, a village surrounded by open fields, was referred to as a 'healthy resort' in Council (Bond 1992: unpag.). By 1883, however, the growth of engineering firms such as William Armstrong and Stephenson's works at Elswick meant that the construction of more housing developments was inevitable. This led to the creation of New Benwell, which was officially incorporated as a suburb of Newcastle upon Tyne in 1904.

The need for water was increasing as Benwell and the industrial concerns surrounding it grew and it was becoming more difficult to rely on local springs for fresh supply. In 1797 the Newcastle Fire Office, an insurance company took over the water supplies in the area and started pumping water from underground sources (Rennison 1979: xvii). By 1836 the fire office was purchased by Newcastle Subscription Water Company who took water from the Tyne for domestic and industrial uses. Ten years later the Whittle Dean Water Company which later became Newcastle and Gateshead Water Company bought the Subscription Water Company (*Ibid.*).

#### 5.5 Development of the Assessment site as revealed by historic map analysis

The earliest plan available of the area of the waterworks is a survey of the Manors of Northumberland belonging to the City of London, c.1629 (Illus. 04). Although it is difficult to relate this plan to contemporary plans, the waterworks were probably situated in the area marked 'Old Reddinge' which was owned by the King. The c.1781 Shafto Estate Sale plan





*Illus. 17: The construction of Benwell pumping station c.1902. The older building and chimney is shown to the right of the photograph (Rennison 1979, fig 38).*



*Illus. 18: Benwell pumping station open day 1903. The company engineer, Alfred Forster, is fourth from the left (Rennison 1979, fig 40).*

(Illus. 06) shows the approximate area of the waterworks in the fields labelled 'Howden' and 'High Reading' then leased by William Pattison. By this time the older strip fields and larger areas of common have been split into small fields. The reproduction by Graham in 1952 (Illus. 07) is compiled from Shafto's plan and Bowes 1808 plan, therefore, it is unclear which field names are correct on this plan. The tithe plan of Benwell 1843 (Illus. 08), shows that the area of the waterworks remains as open fields devoid of structures, although the field boundaries have changed due to enclosure creating larger fields. At this time the area is owned by William Ord and was occupied by James Huntley.

The area of assessment was part of the village field system until the mid 19<sup>th</sup> century when the land was purchased by the Whittle and Dean Water Company for the development of the waterworks and reservoirs. The site of the reservoir at Benwell was purchased from William Hawthorn in the mid 19<sup>th</sup> century for £2000 as the Company attended to the problems of water distribution in the higher areas of Benwell and Fenham. In 1858 the construction of the pumping station at Benwell including a 6 million gallon reservoir and 3 million gallon reservoir at Benwell top began (Rennison 1979:84). The Low Benwell Waterworks (Cat. No. 1 HER 4069) consisted of the pumping station along with chimney and a lodge (Cat. No. 2, HER 8895) for the engineer Robert Nicholson.

The First Edition Ordnance Survey c.1866 (Illus. 09) shows that the field pattern of Benwell had changed again from the 1840s. The first phase of Benwell Low Waterworks is shown with the filtering beds, low reservoir and engine house labelled. The wall (Cat. No. 36) running around the southern boundary of the lodge and eastern side of original reservoir area, which probably dates to the late 1850s, is faintly shown on the first edition plan although is more obvious on the second edition. Waterworks Road, now known as Axwell Park View, has been created as an access road to the waterworks although it is not named. The area of the proposed new pumping station is devoid of structures.

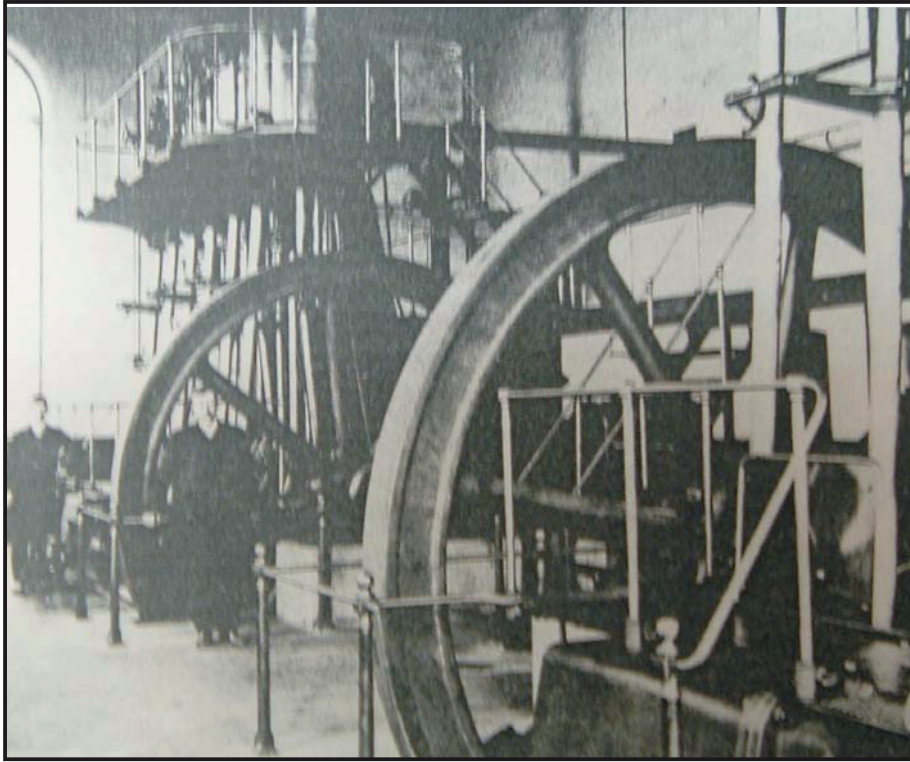
Kelly's 1886 directory lists the owners of the reservoir as Whittle and Dean Water Company, but this had changed to Newcastle and Gateshead Water Company by the time of the Second Edition Ordnance Survey plan of 1899 (Illus. 10). This plan shows no change in the building layout of the waterworks, although by this time the area to the east of the reservoirs has been divided into three small areas the use of which is unknown. The access road to the south has become Waterworks Road with accompanying rows of terraced housing running north-south.

By 1891 it was clear that due to increasing demand for water supply the original 50 horse power horizontal cylinder engines from Morrison's Ouseburn Engine Works, were insufficient. In 1900 a tender for £11,000 for the installation of triple expansion engines by Tangyes was accepted (Rennison 1979:87). The new pumping station was completed in 1901, although the engines and chimney (Cat. No. 3, HER 9039) were not ready and tested until 1904 (see Illus. 17-20). The engineers at this time were Charles Hawksley, with the resident engineer Alfred Forster (HER 9039). These new buildings are depicted on the Third Edition Ordnance Survey 1920 (Illus. 11) whereas the original 1850s chimney had been demolished. This plan shows the area of the proposed modern pumping station as a small access road.

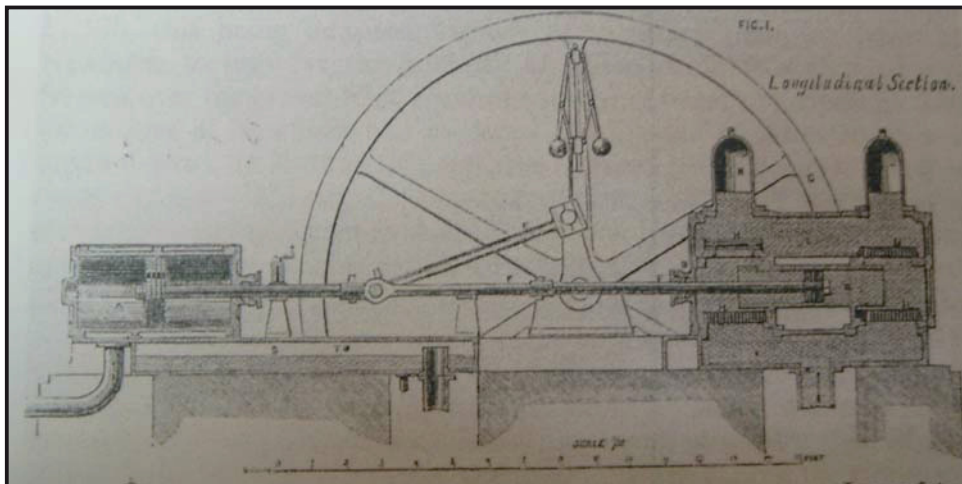
The 1904 engines were replaced again before electrically driven pumps were installed in 1924 in a newly erected building to the west of the other structures (see Illus. 22-24). This building is not shown clearly on the Fourth Edition Ordnance Survey 1938 (Illus. 12). Nothing else seems to have changed on the site but the surrounding area has developed in terms of roads and housing estates. Axwell Park Road remains as Waterworks Road.

By 1952 the fields to the west of the waterworks had become allotments. On the assessment site itself all five structures (including the chimney) were still present, with the area of the proposed pumping station still in use as an access area. A further reservoir had been added to the north of the pumping houses. On the northern boundary of the assessment area Betts Avenue had been created and the area as a whole surrounded by housing. The 1957 plan (Illus.

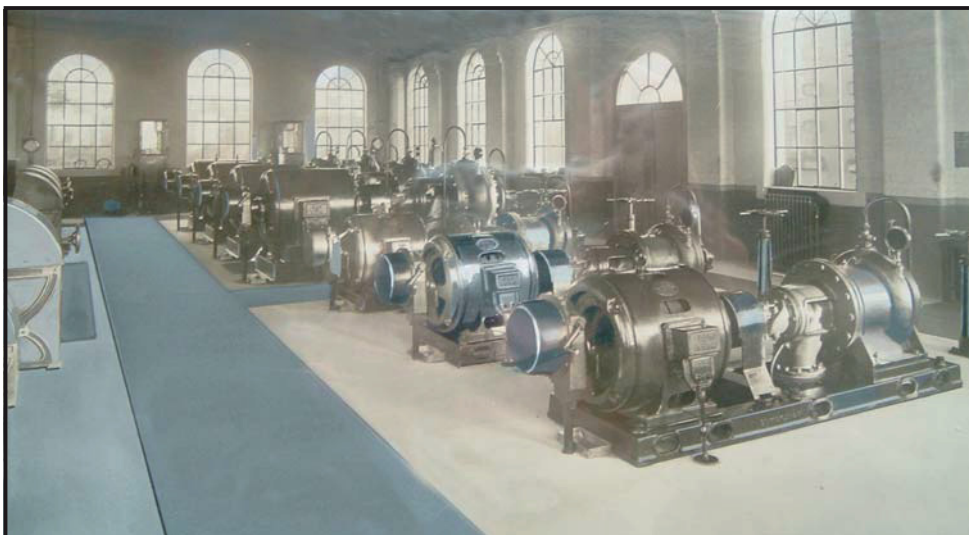




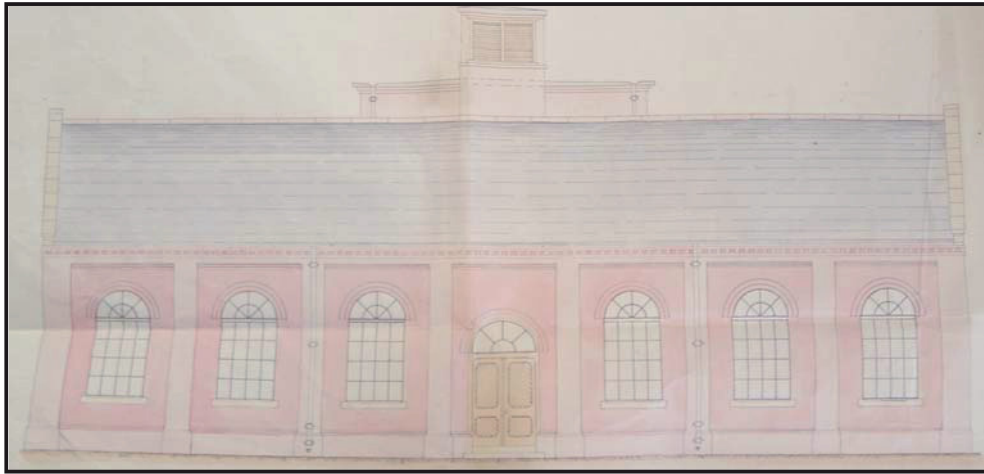
**Illus. 19:** Tangye's triple expansion engines at Benwell (after Rennison 1979 fig 39)



**Illus. 20:** Illustration of Tangye's triple expansion engines (after Rennison 1979)



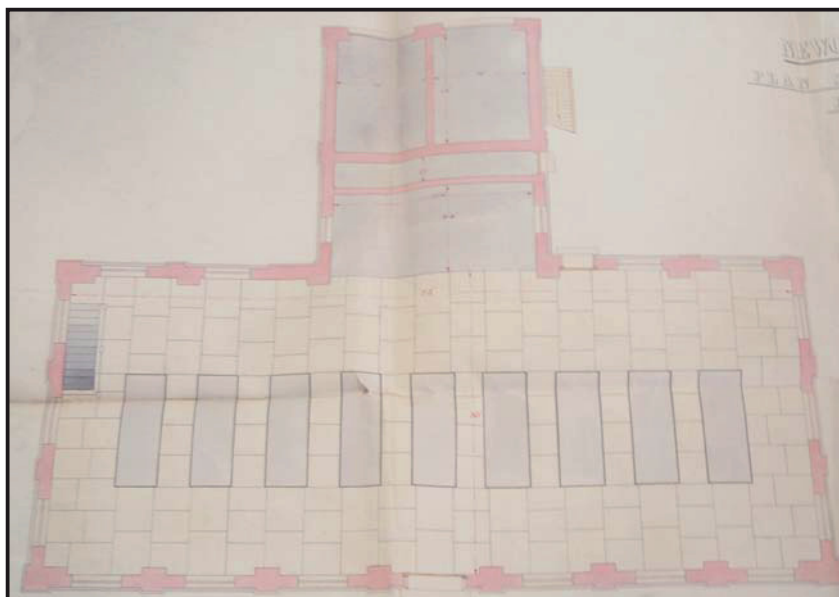
**Illus. 21:** Early 20th century photograph of the Benwell pumping engines (TWM DU/EB/58/1)



**Illus. 22:** Building plan showing the front elevation of the new electric pumping house as proposed in January 1923 for Newcastle and Gateshead Water Company (TWM T186/2070).



**Illus. 23:** Building plan showing the end elevation of the new electric pumping house as proposed in January 1923 for Newcastle and Gateshead Water Company (TWM T186/2070).



**Illus. 24:** Building plan for the new electric pumping house as proposed in January 1923 for Newcastle and Gateshead Water Company (TWM T186/2070). (Note the blue rectangular spaces for the engines shown on Illus. 19).

14) shows that the original pumping building had been demolished leaving the building layout as it remains today. The main original reservoir is no longer depicted and a tree lined area in the north east corner has been created along with the erection of a small structure in the area where the old reservoirs stood. The 1989 plan (Illus. 15) shows this area as allotment gardens and depicts only one main covered reservoir to the north of the buildings. It is unknown exactly when in the period between 1957 and the 1980s that Waterworks Road assumed its modern name.

Although the area of the proposed pumping station seems to have been vacant throughout its known development history it has been disturbed by at least two pipes running to and from the pumping station known through modern construction plans. Test pits excavated at the time of the present Buildings Survey in the area of the proposed station revealed one of these pipes and disturbed ground to a depth of at least 1.75m.





**Illus. 25:** The assessment site viewed from the north.



**Illus. 26:** Reservoir bank north of the assessment site, looking west.



**Illus. 27:** View towards the waterworks complex from the north.



**Illus. 28:** View from north of the assessment site looking eastwards over reservoir site.





**Illus. 29:** East gable end of the Lodge, with main waterworks complex beyond.



**Illus. 30:** The Lodge, with main waterworks boundary wall extending to the east.



**Illus. 31:** Test pit within the area of the proposed new development, showing water pipe at c.2m depth.



**Illus. 32:** Test pit within the area of the proposed new development, showing disturbed ground to over 2m depth.

## 6. ARCHAEOLOGICAL POTENTIAL & IMPACTS

### 6.1 Archaeological Potential

While the possibility can not be entirely dismissed, there is no direct evidence that the area is likely to contain prehistoric remains. Despite the likely close proximity of the Roman *vicus* there is no evidence that its boundaries extended to the waterworks area. The early medieval settlement of Benwell situated to the north-east of the assessment area seems to have developed along a west-east axis running away from the waterworks. The site appears to have been part of the surrounding farmland of the village rather than as part of the main village itself, this may have allowed earlier archaeological remains to have survived. The archaeological potential of the site is assessed as low to moderate.

### 6.2 Survival of Archaeological Remains

Test pits in the area of the proposed modern pumping station revealed that the ground had been disturbed to a depth of at least 1.95m and is likely to have been truncated at sub-soil level.

The impact of the disturbance caused by the construction of the pumping stations, reservoirs and associated pipes which have run through the area since the mid 19<sup>th</sup> century is likely to have had a negative impact upon the survival of any archaeological remains.

### 6.3 Impacts of the proposed development

It is proposed to demolish part of the 1904 pumping station and erect a new small pumping station with associated access some 20m to the north of it. The area of the new pumping station has been heavily disturbed and its construction is unlikely to have archaeological implications

### 6.4 Visual impacts

The waterworks site is surrounded by a mixture of housing developments. Betts Avenue to the north and Axwell Park View to the south consist of 1940s housing while Delaval Road to the east contains early 20<sup>th</sup> century terraced housing which is mostly derelict. Views beyond the waterworks site are restricted, except for limited views to the river Tyne from the south side of the complex (see *Illus. 33*). The industrial nature of the waterworks buildings and the size and position of the proposed new pumping station within it means that the new build will have minimal visual impact and no negative impact on the surrounding area.



*Illus. 33:* View southwards over the River Tyne from the south side of Benwell



## 7. CONCLUSIONS

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### 7.1 Historical development

There is no direct evidence for human activity within or close to the bounds of the assessment area from the later prehistoric or Romano-British period. However, it is known that prehistoric man was active in the area and that the *vicus* accompanying Condercum Roman Fort lay nearby.

The village of Benwell dates to the mid 11<sup>th</sup> century or earlier, but seems to have developed along a west-east axis running away from the waterworks site. The area of assessment was part of the village field system until the mid 19<sup>th</sup> century when the land was purchased by the Whittle and Dean Water Company for the development of the waterworks and reservoirs. There is no evidence from the medieval or post-medieval period within the bounds of the assessment area.

### 7.2 Significance of known or potential archaeological remains

Any prehistoric or Romano-British remains found on the site are likely to be of regional significance due to the proximity of the Condercum Fort and Vicus.

Any early or later medieval remains found on the site are likely to be of local significance.

Any remains of post-medieval or modern structures or features are considered to be of local significance. The waterworks themselves are of local interest and the chimney has been listed as it is a local landmark.

### 7.3 The survival of potential archaeological remains

The potential for the survival of archaeological remains within the proposed development site is low. The construction of the large waterworks buildings, reservoirs, associated roads and underground pipes would have had a negative impact on any archaeological remains that may have been present there, although the area seems to have been undeveloped until the 19<sup>th</sup> century. The areas with most potential exist in the north-eastern corner in the area of the wider site area up to Betts Avenue, marked as allotment gardens on some plans, and the allotment area to the west of the buildings. However, these areas may be disturbed by piping and they are not due for redevelopment at present.

### 7.4 Visual impacts

The construction of the proposed new pumping station will not have any significant visual impact on the surrounding area.

## 8. RECOMMENDATIONS

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On the basis of the foregoing it is considered unlikely that the assessment site ever contained archaeological remains of significance and that any remains once existing there will have been heavily disturbed by the construction and maintenance of the waterworks complex since the mid-19<sup>th</sup> century. Therefore, no further archaeological work is recommended in connection with the present scheme.

Any further development of the site, however, may warrant further recording work inside the waterworks buildings and archaeological evaluation in the open grassed areas north and east of the buildings complex and reservoirs.

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## APPENDIX 1: HISTORIC BUILDINGS RECORD

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### Appendix 1.1 Building Description

There are three separate blocks of building at Benwell Water Works, set east to west along the south side of Axwell Park View. The easternmost is a mid-19<sup>th</sup> century stone-built lodge, the central the early-20<sup>th</sup> century Pumping Station, and the western a more recent block.

#### 1.1.1 The Lodge

Described by Pevsner <sup>1</sup> as a 'pleasant Tudor-style cottage' this is thought to have been built c 1857 for the Whittle Dean Water Company. This is a single-storeyed lodge built of snecked horizontally-tooled stone, with tooled-and-margined quoins and plinth, and a modern metal roof. Fronting onto the street is a three-bay block with a central doorway flanked by mullion-and-transom cross windows, all the opening having flattened four-centred heads, and raised surrounds with projecting blocks (all this detail of the openings is now concealed by protective boarding) the end gables have simple hollow-chamfered kneelers and a triangular-section coping, and there is a central stack to the ridge, of ashlar with a chamfered cap. To the right is an attached yard wall with a pair of blocked square-headed openings.

The left (west) return of the front block has a projecting pent-roofed rectangular bay with another similar cross window on the west and narrower arched lights that have transoms but no mullions in the returns. To the rear is a shorter parallel block with a lower pent-roofed section at its west end; the parallel block has similar detail to its gables, the western being topped by an ashlar stack, and has plain square-headed openings without ashlar dressings.

The lodge is listed Grade II.

#### 1.1.2 The Pump House

This is an irregular H-plan building of 1904, built for the Newcastle and Gateshead Water Company (consulting engineer Charles Hawksley, resident engineer A.L.Forster) with a lofty stack close to its south-east corner; the stack is listed (grade II) for 'landmark value', but not apparently the remainder of the building.

The Pump House is built of orange brick in Flemish bond, with sandstone ashlar dressings, and flat roofs. There are rusticated quoins at the angles, a tall chamfered plinth, a moulded impost string and a moulded cornice below the parapets. The west block has a bold cornice and a taller parapet with panelled pilasters, and a moulded coping; the centre and east blocks have a smaller cornice with a simple chamfered coping above, now removed from the northern part of the east block. The openings are all round-arched, with Gibb-style surrounds of raised blocks interrupting both the chamfered jambs and moulded archivolt, which have triple keystones; all are now boarded over.

To the left (west) of the south elevation, facing the road is the tall two-bay front of the single-storeyed west block, which has a bolder cornice than the remainder of the building, topped by a parapet with panelled pilasters at the angles and a moulded coping. The central section is lower, but of two storeys, the lower forms a projecting porch that has a large arched doorway in its front and a small window in each return; the porch was topped by a balustraded parapet which as largely been destroyed by vandals<sup>2</sup>; the recessed wall at first-floor level, behind the

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<sup>1</sup> Northumberland (Buildings of England series, 2<sup>nd</sup> edition) Penguin Books, (1992) 515

<sup>2</sup> Fragments of this are now stacked against the west wall of the Pumping House.

balcony formed by the porch roof, has a pair of round-arched windows. The three-bay eastern block is the same height as the centre but single-storeyed, and of three bays; its impost string is a direct continuation of the cornice below the parapet of the porch; once again it has tall round-arched windows. At the right end a low brick flat-topped flue links to the tall octagonal chimney stack.

The lower section of the stack is in ashlar; it has a big moulded plinth with Classical mouldings, and then a tall brick-infilled panel, with shoulder corners, in each face, below a bold moulded cornice; above this is the main section of the shaft, tapering, in brick <sup>3</sup>, with another ashlar band high up and a richly-moulded ashlar cap.

The east side of the east block is of three irregular bays, with three large arched windows and an inserted square-headed opening to the right; the north elevation is again similar, but its lower section is concealed behind a later flat-topped extension.

The rear (north) elevation of the narrow centre block has three round-arched lights, with slender piers between, on the ground floor and two smaller windows above; all are now bricked up.

The north end of the West Block has a tall square-headed entrance, rising as far as the impost band. The short left (east) return has an arched doorway. The west elevation is of five bays, with big arched windows; the parapet above is however divided by means of panelled pilasters into three broader bays.

### 1.1.3 The Western Block

The main section of this is a single-storeyed block set north-south, with a shallow-pitched gabled roof. It is built of bright orange brick in stretcher bond; its fabric has the appearance of being rather more recent than the main Pump House. The roof is of Welsh slates, with a red tile ridge. There is a double-chamfered plinth, and the walls are articulated by plain pilasters that rise to a double-chamfered oversailing course and a simple cornice formed by a line of inset bricks; the cornice is continued across the gable ends, which have sunk pedimental panels and an ashlar coping on shaped kneelers. All the openings in the main building are round-arched, and the windows have projecting ashlar sills.

The east elevation, facing the yard between the block and the Pump House, is of seven bays, with a central doorway and windows in the flanking bays. The south gable end is divided into three bays; the window in the central bay is slightly taller than the others, and there is a blind oculus in the pediment above. The north end is asymmetric, with a broad bay containing two square-headed openings and a narrower one to the right containing a round-arched window. The central three bays of the rear (west) elevation are covered by the rear wing; the bays to left have round-arched windows and those to the right a doorway (right) and a window later converted into a doorway, both now blocked (left).

The wing is in two parts, a link bay and a taller tower; both have flat felt roofs. The link bay has an external wooden stair on the north, and square-headed doorways and windows, some now blocked; the tower beyond has single-bay elevations, with two levels of big sunk panels, on north and south, and a narrow two-bay elevation to the west where there are two big doorways at the base, sharing a common ashlar lintel. The tower has a taller flat-topped chimney set centrally on the west, above the roof of the link bay.

Peter F Ryder, January 2008

<sup>3</sup> In an unusual bond with a header for every two stretchers.

## Appendix 1.2 Monochrome prints

Photo/ Neg. no.	Internal/ External	Description
1	External	The pump house, east elevation
2	External	The pump house chimney stack and east elevation (south part) of the pump house, viewed from the east.
3	External	Blocked openings in the west elevation of the Pump House Range, west block.
4	External	The Pump House Range, west block, viewed from the north-west.
5	External	East and north elevations of the Western range, east block.
6	External	North elevation of the narrow centre block of the Pump House range (west block to right of view).
7	External	View of the waterworks complex from the north-west.
8	External	The Western Range with attached west wing.
9	External	The Western Range viewed from the north-east.
10	External	The Pump House Range viewed from the north.
11	External	The Pump House Range, east block, east and north elevations.
12	External	The Lodge, west elevation.

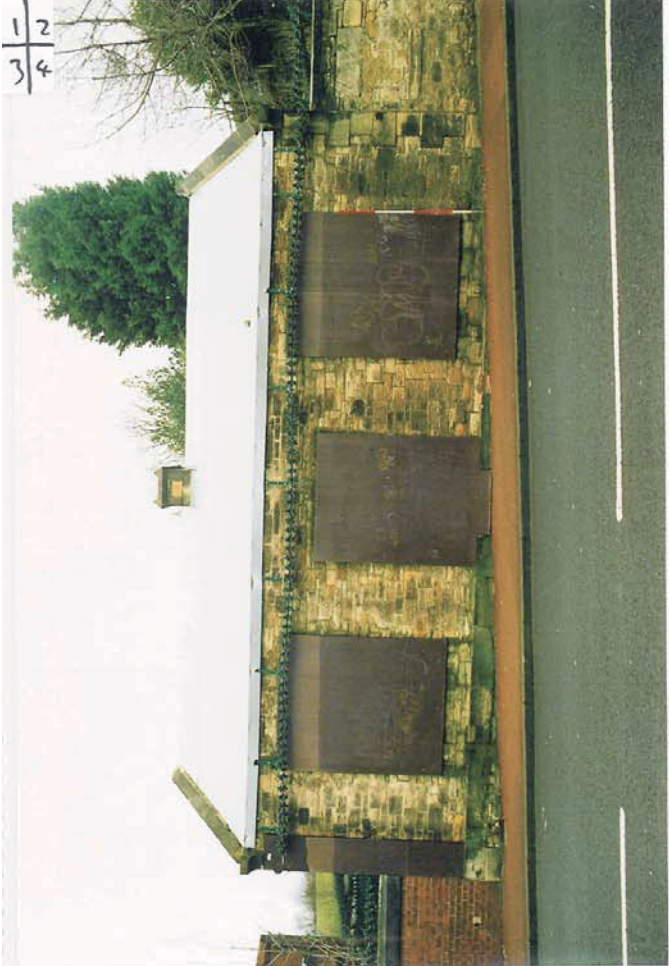
## Appendix 1.3 Colour Prints

Photo no.	Internal/ External	Description
1	External	View from east south-east (ESE) of the east gable ends of the lodge with pump house chimney stack to the rear.
2	External	View of the south elevation of the lodge.
3	External	The west elevation of the lodge.
4	External	Yard wall to the rear (east) of the lodge with waterworks boundary wall attached.
5	External	View of the pump house chimney stack from SSW.
6	External	View of the pump house chimney stack, upper part from SSW
7	External	View of the south elevation of the pump house.
8	External	Detailed view of the central part of the south elevation of the pump house range.
9	External	Detailed view of the west part of the pump house range, south elevation.
10	External	South elevation of the western block.
11	External	The waterworks complex, south elevation viewed from WSW.
12	External	The pump house chimney stack and east elevation (south part) of the pump house, viewed from the east.
13	External	The pump house, east elevation
14	External	The pump house, north elevation
15	External	Brick extension to the east block of the north elevation of the Pump House range.
16	External	North elevation of the narrow centre block of the Pump House range (west block to right of view).

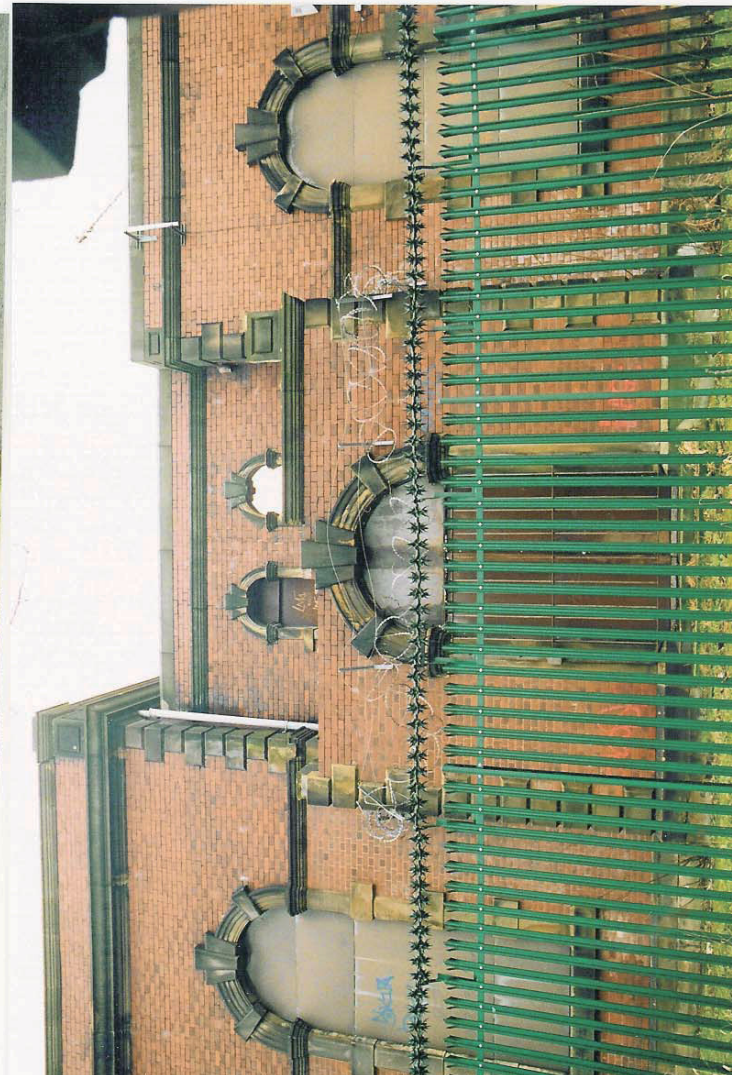
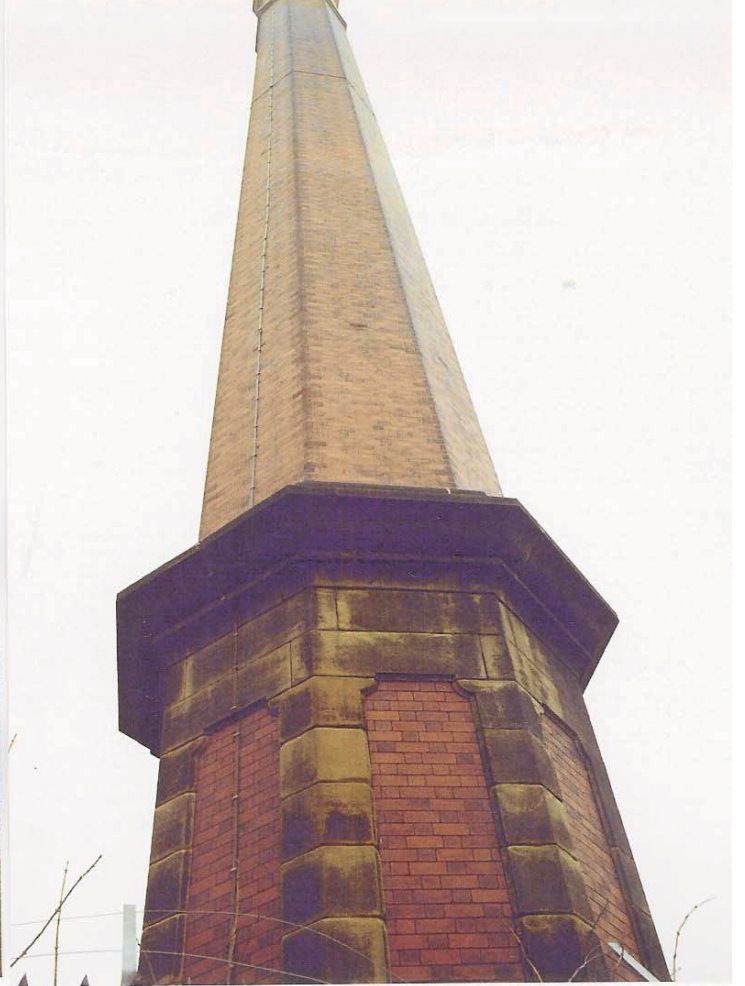


17	External	North elevations of the west, centre and east blocks of the Pump House range, viewed from the north.
18	External	The Western Range with attached west wing.
19	External	View of the waterworks complex from the north-west.
20	External	The west wing of the Western Range, viewed from north-west.
21	External	The west block of the Pump House range, north and west elevations viewed from the north-west, with the east block and chimney stack to rear.
22	External	East and north elevations of the Western range, east block.
23	External	Doorway and blocked flanking openings in the east elevation of the Western range, east block.
24	External	View northwards between the West range (east block) and Pump House range (West block).
25	External	North and west elevations of the Pump House range, west block.
26	External	Openings in the west elevation of the Pump House range, west block.

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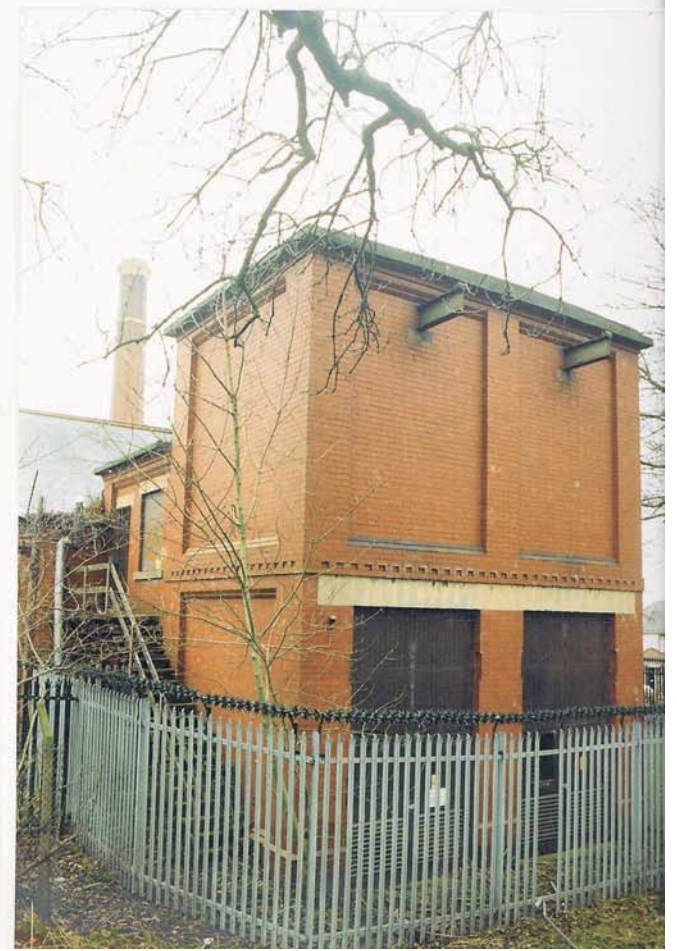




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