TWEED DOCK JETTY TWEEDMOUTH NORTHUMBERLAND

ARCHAEOLOGICAL DESK BASED ASSESSMENT



Prepared for:		By:		
Envirocentre Ltd.		The Archae	The Archaeological Practice Ltd.	
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TWEED DOCK JETTY AND GROYNE TWEEDMOUTH NORTHUMBERLAND

Archaeological Assessment

Prepared by

The Archaeological Practice Ltd



Frontispiece: Part of the groyne structure on the south side of the dock entrance

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SUMMARY

This report constitutes a desk-based cultural heritage and visual impact assessment with respect to a wooden jetty currently standing on the north-east side of Tweed Dock in Tweedmouth, Northumberland. The assessment was undertaken by The Archaeological Practice Ltd at the request of Envirocentre Ltd. The report incorporates an audit of both discrete and more extensive historical landscape components and presents a synthesis of the overall chronology of the defined area. It identifies cultural heritage constraints within the area of the proposed development and makes recommendations regarding further work required to mitigate the impact of the scheme. The report also includes consideration of cultural heritage sites adjacent to the development site with particular consideration given to those sites considered in the context of visual impact constraints.

It is concluded that the proposed works, including removal of the existing jetty, construction of a replacement and repair of the groyne, will have negligible impact on any archaeological structures or deposits other than the jetty itself, including the wooden component to be removed and the much shorter stone element onto which it is built which forms an extension to the quayside. It is unlikely that any other features or finds of cultural heritage significance survive in the assessment area, but any existing are unlikely to be impacted by the works as proposed.

As well as the direct impact upon the existing jetty structure, the visual impacts of new structure as well as during works in progress have been assessed. It is concluded that, while the visual impact of the replacement jetty on other heritage assets and the wider urban landscape is likely to be slightly negative, the distance to other heritage assets is sufficient, given the scale of the replacement structure and its working industrial context, to outweigh this negative impact and that of the loss of this relatively rare kind of marine structure. The visual impact of the repaired groyne is likely to be mildly positive, however.

It is recommended that, should the demolition of the jetty proceed, detailed photographic recording should be carried out in advance in order to mitigate its loss by record. A similar record should be made of the groyne prior to its conservation. Both sets of photographs should be taken at low tide prior to the commencement of works on the site.

It is further recommended that, should the works proceed, an archaeological Watching Brief be carried out during demolition works and during any construction works where groundworks are likely to occur, in order to record any unknown archaeological remains as they appear.

1. INTRODUCTION

1.1 Purpose of Assessment

The following archaeological and cultural heritage assessment of a site at Tweed Dock, Tweedmouth, was undertaken by The Archaeological Practice Ltd at the request of Envirocentre for the Berwick Harbour Commission (BHC). Its purpose is to inform a heritage statement prepared to address the potential impact of the proposed demolition of a wooden jetty structure forming the west side of the riverside entrance to the dock.

1.2 Planning Background

A scoping opinion prepared by the Marine Management Organisation (MMO Ref: EIA/2018/00034) in response to proposals submitted by Envirocentre Limited on behalf of Berwick Harbour Commission (Planning ref. 18/02452/CAN) - Berwick Harbour Alignment Structure Replacement provided conclusions and made a number of recommendations with respect to Archaeology / Cultural Heritage (Section 4.9). In broad terms it was concluded that:

Overall, the scoping report does not accurately assess the impact of the proposal on the historic jetty and any other immediate heritage assets nor does it provide an informed justification for its demolition.

Further,

The MMO consider that a full assessment of Cultural Heritage needs to be undertaken ... in order to provide a fully informed and justified proposal for demolition of the non-designated heritage asset within the Conservation Area, and to inform any potential mitigation proposals.

The MMO report additionally identifies (in Section 4.1: Design and Footprint) that,

... more detail is required on the design option chosen and environmental considerations,

noting that,

the Scoping Report does not provide enough detail to understand the justification for choosing the replacement alignment structure option over other alternatives considered,

and,

More information on the design, dimensions and final footprint of the structure are required, alongside detail on the working area and proposed finish of the site, including the area of the existing drying out berth which the MMO understand is to be demolished.

On the basis of these comments it was determined that an Environmental Statement (ES) should be produced to contain an assessment of the likely effects the proposed development might have upon those elements which contribute to the significance of designated and nondesignated heritage assets and their settings in the area around the site, including Berwick Old Bridge, The Custom House, Shore Gate and the medieval and post-medieval fortifications of Berwick upon Tweed and the Tweedmouth Conservation Area, considered to be 'deteriorating' Heritage At Risk Register. The assessment should also highlight the regional and local significance of Tweed Dock itself (which includes the jetty/alignment structure) and features on the tidal foreshore related to the salmon fishery. It should also take account of the potential impact which associated activities, such as construction, servicing and maintenance, and associated traffic might have upon perceptions, understanding and appreciation of the heritage assets in the area.

The National Planning Policy Framework – NPPF (DCLG 2012; replacing Planning Policy Guideline 5: Archaeology and Planning (EH 2010)) 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. At the heart of the National Planning Policy Framework is a presumption in favour of sustainable development (NPPF - Note 14), which effectively means that local planning authorities should positively seek opportunities to meet the development needs of their area; and will tend to favour granting planning permission to developments which meet this criteria, unless any adverse impacts of doing so would significantly and demonstrably outweigh the benefits.

NPPF states that:

"Local planning authorities should identify and assess the particular significance of any heritage asset that may be affected by a proposal (including by development affecting the setting of a heritage asset) taking account of the available evidence and any necessary expertise. They should take this assessment into account when considering the impact of a proposal on a heritage asset, to avoid or minimise conflict between the heritage asset's conservation and any aspect of the proposal" (DCLG 2012, Note 129).

The NPPF makes it clear that the significance of a heritage asset derives not only from its physical presence and historic fabric but also from its setting. Although consideration of setting is somewhat subjective and necessarily a matter of informed judgement, guidance is provided to assist decision-making by ensuring it takes place within a clear framework and is as transparent and consistent as possible.

Points to be considered include the following:

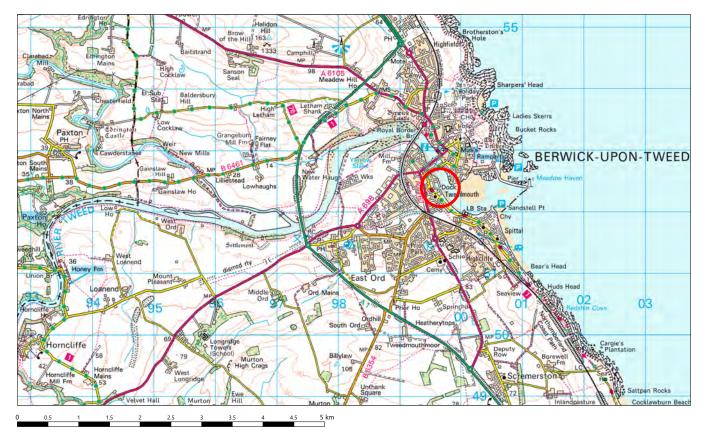
- Intervisibility Some archaeological or historic landscape features were intended to be seen from other historic sites, and any modern development should respect this intervisibility
- Vistas and sight-lines designed landscapes (such as, in the present case, the Battle of Flodden memorial and visitor trail) often involve key vistas, panoramas and sightlines, or the highlighting of topography to aid interpretation. The location of turbines should avoid such key views.

1.3 Methodology of Assessment

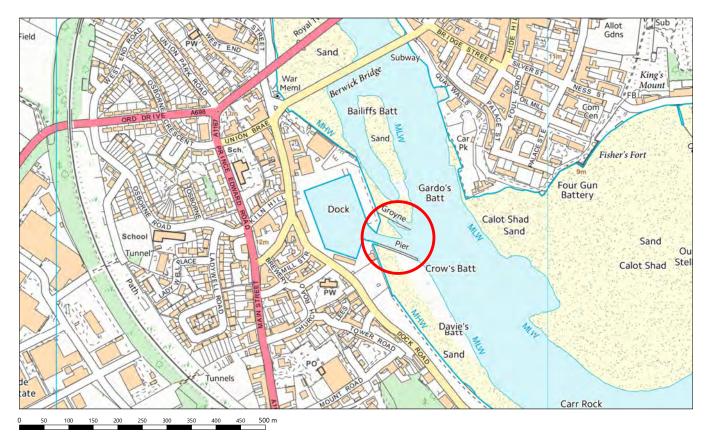
The assessment will:

• Define the principal sources of information available for archaeological assessment (Section 3).

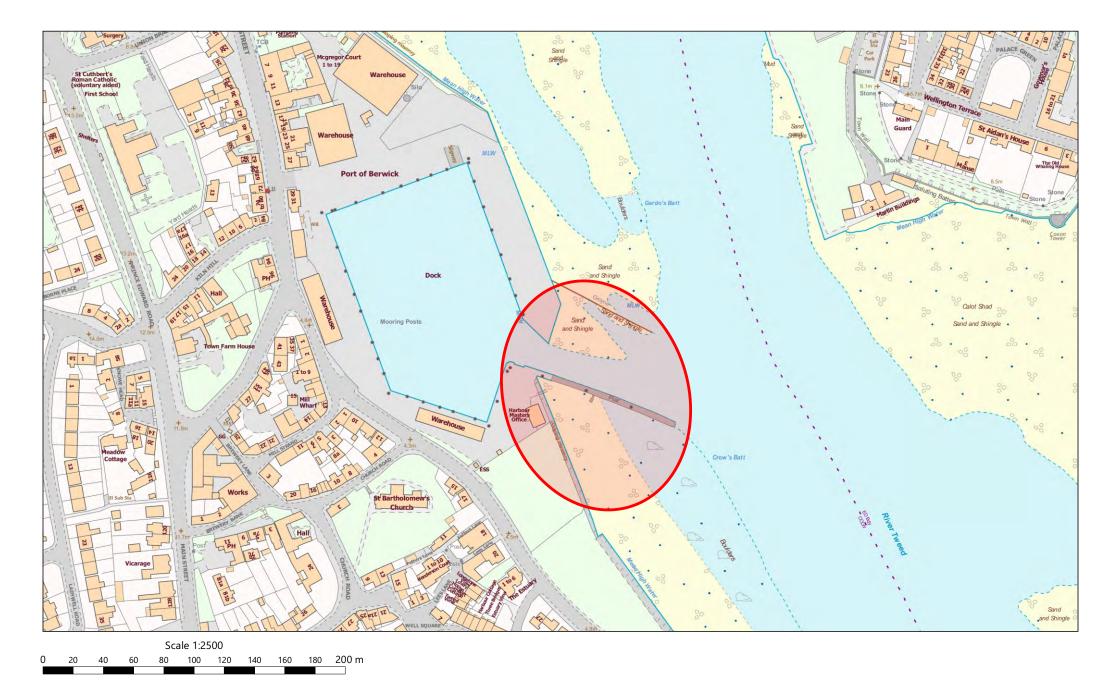
- Present a catalogue (Section 4) and chronological synthesis (Section 5) of archaeological data derived from various sources. Accompanying base maps will locate established structures and features within, or in close proximity to, the assessment area.
- Provide an assessment of archaeological potential and likely direct and indirect impacts upon the proposed development site and with respect to the setting of other heritage assets in its wider environs (Section 6).
- 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: Regional view, showing the assessment area (circled in red) at Tweedmouth, near Berwick upon Tweed in the northeast of England.



Illus. 02: Town view, showing the assessment area (circled in red) at Tweedmouth Dock.



Illus. 03: Site view, showing the assessment area (highlighted in red) at Groyne Pier, Tweedmouth Dock.

2. ASSESSMENT CONTEXT

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

The assessment focuses on a site set at the mouth of Berwick Harbour on the east side of Tweed Dock, Tweedmouth in North Northumberland, directly opposite the larger town or Berwick, which it serves. Berwick lies on the north bank of the River Tweed on a coastal peninsula, surrounded by water to the east, south and west and joined to Tweedmouth by three iconic bridges over the River Tweed. The River Tweed is relatively shallow at Berwick, limiting the navigability further upstream by substantial vessels but formerly allowing the fording of the river at low tide in several positions at and upstream of the current 'old' road bridge.

The site of interest at Tweed Dock comprises two main components, a wooden approach jetty, or pier which serves partially as a silt deflector but principally as a navigational aid to vessels accessing the dock, and a wooden groyne on the opposite, north side of the Tweed Dock entrance which prevents silting of the dock entrance. However, the proposed works will include a larger area than that of the principal component structures described above and the works area will be visible from a wider area around, the indirect impact of which must also be assessed.

2.2 Nature of Proposed Developments

The timber jetty alignment structure on the south side of the dock entrance is now considered beyond repair and, it is argued by the dock owners, requires replacement by a structure capable of withstanding the impacts of vessels much larger than those in use when the original structure was conceived and built.

The proposed reconstruction, 10-11 m wide and 70 m in length, is a solid sheet piled and filled structure founded on the mudstone bedrock. In order to keep the harbour open during construction it is proposed to construct the alignment structure from land, rather than floating platforms. This will involve the removal of the existing timber alignment structure of braced piles from a temporary access way of geotextile fabric, laid on a rock capping layer on the shore immediately south of the structure. Timber will be recovered to shore but the poor condition of the piles means that they are unlikely to removable without extensive excavation, which would compromise the foundation of the adjacent quay structure and cause unnecessary disturbance and displacement of foreshore deposits and infilling of the harbour access channel, so it is anticipated that they will be cut off at shore level and the remaining buried sections subsequently contained within the walls of the replacement structure. On completion of the demolition, the access track rock capping will be recovered and reused as rock infill to the new alignment structure. Construction of the new structure will also be undertaken from land, commencing at the harbour end and progressing seawards.

The Timber Groyne Structure of timber post and rail construction which protects the north side of the dock entrance channel is also now in some disrepair due to decay caused by weathering and damage or loss of some of its posts and rails. It is proposed to repair this structure using hardwood planks and posts, with steel fixings, matching the original groyne features and dimensions, accessing the structure on foot at low tide in order to carry out the work.

3. SOURCES FOR ASSESSMENT

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:

- The Archaeological Practice archive (AP)
- Northumberland Historic Environment Record (HER)
- Northumberland Archives, Woodhorn (NRO)
- National Monument Record (NMR)

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 Protected Sites and Monuments and those listed in the County HER

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 Monuments within or immediately adjacent to the harbour area, the nearest being Berwick Bridge (see Gazetteer, Site 10), built 1611-34 as the successor to several earlier wooden bridges, c. 350 m north of the alignment structure, and the medieval and later fortifications at Berwick upon Tweed (see Gazeteer, Site 60), located c. 210 m north of the alignment structure at their nearest point.

Listed Buildings

Particularly well represented in the Gazetteer are Listed Buildings, defined as buildings of special architectural or historic interest in the Planning (Listed Buildings and Conservation Areas) Act 1990. The Act states that "the planning authority, in determining any application for planning permission for development that affects a listed building or its setting, is required to have special regard to the desirability of preserving the building, or its setting, or any features of special architectural or historic interest which it possesses." With respect to 'setting', Section 66 of the Act states (in part):

"In considering whether to grant planning permission for development which affects a listed building or its setting, the local planning authority or, as the case may be, the Secretary of State shall have special regard to the desirability of preserving the building or its setting".

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 I listed structures (*sites 10 and 60; the latter comprising of more than one listed building*) close to and within potential visual range of the proposed development site, namely Berwick Bridge and the Medieval Town Defences, as well as a large number of Grade II listed

buildings, the majority on the north bank of the Tweed in Berwick upon Tweed.

Sites Appearing on the Northumberland Historic Environment Records (HER)

The Northumberland HER has been interrogated for entries within and in close proximity to the assessment area that may be impacted by proposed developments. The record comprises approximately 64 entries which lie within a 0.50 km radius of the study area (see *Illus. 14*).

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.

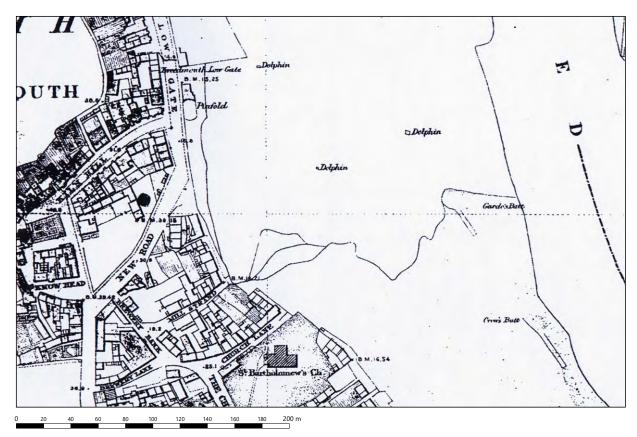
3.2.4 Map Evidence (see *Illus. 04-07*)

The study of early maps provides invaluable evidence for the historical development of the area. Although the jetty was not constructed until after the publication of the first edition Ordnance Survey plan, earlier maps were consulted due to their potential to indicate sites of importance removed during the construction of Tweed Dock in the 1870s as well as those on sites adjacent to it which may still survive in some form. This, the following maps were consulted in compiling the present report:

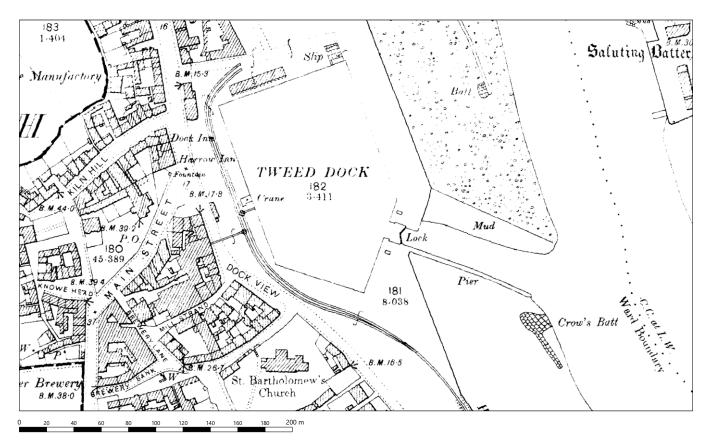
- > Armstrong's Plan of Northumberland, 1769
- Fryer's Plan of Northumberland, 1820
- > Greenwood's Plan of Northumberland, 1828
- > The Ordnance Survey Northumberland Series from c 1860 to the present.

3.2.5 Historic Photographs and Images

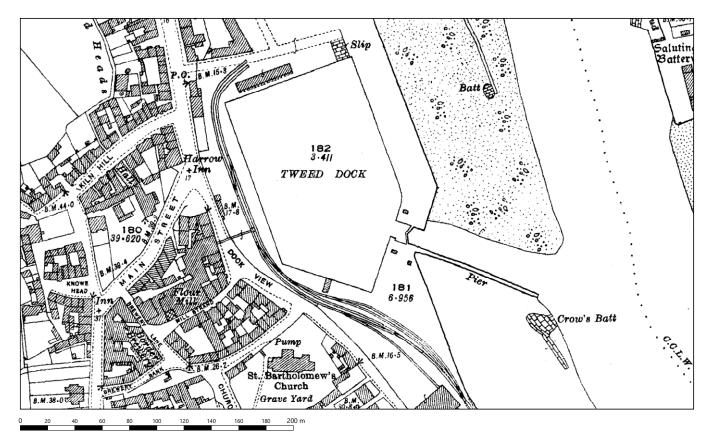
Historic images of the site were sourced during research for the present report in secondary sources and from Berwick Record Office, including photographs of the dock opening in 1876 (in Cowe 1976) and later aerial views, but none provides information additional to that available from other sources.



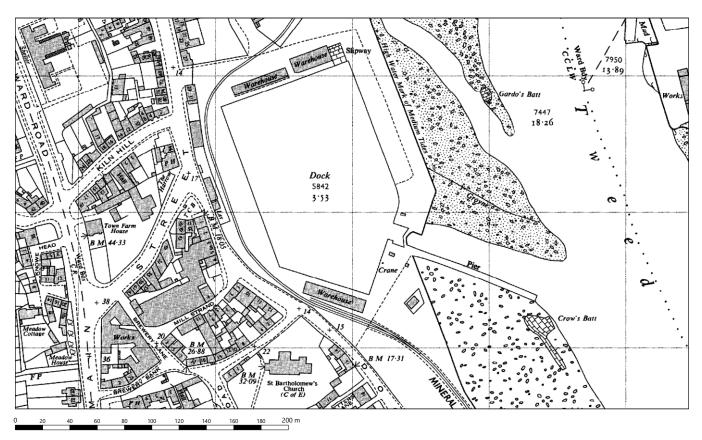
Illus. 04: Plan of the Towns of Berwick upon Tweed, Tweedmouth and Spittal, surveyed for the Board of Health, 1852.



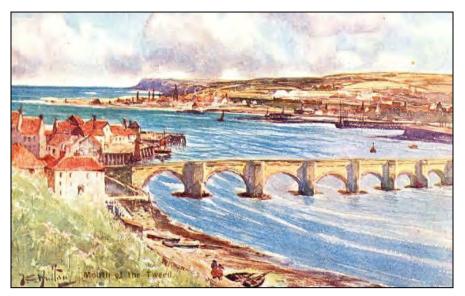
Illus. 05: Extract from the 2nd Edition Ordnance Survey Plan of 1898, showing the assessment area.



Illus. 06: Extract from the 1924 Edition Ordnance Survey Plan, showing the assessment area.



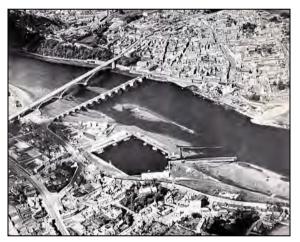
Illus. 07: Extract from the 1960s Edition Ordnance Survey Plan, showing the assessment area.



Early 20th century watercolour showing the jetty beyond Berwick Bridge

3.2.6 Aerial Photographs

The NMR was consulted for aerial photographs covering the area, but none provided information additional to that derived from other sources (see below and *Illus. 08-13*).



Mid-20th century aerial view of Tweed Dock © *Berwick Record Office.*

3.2.7 Site Inspection and Local Information

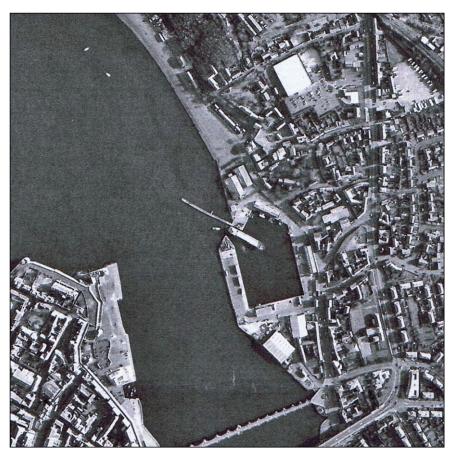
A site visit was made by the author of this report during November, 2018. The area was inspected closely and photographs taken of all features and structures of potential cultural heritage significance (see *Photographs 1-20*), as well as general views showing the context of the site.

No additional sites of major cultural heritage significance were identified during these visits, but some additional observations were made of the jetty structure.

Considerable attention was paid to the views from the jetty site; in particular with respect to other sites or landscapes of cultural heritage value, the setting of which could be impacted as a result of the proposed development.



Illus. 08: Aerial photograph of the assessment area, taken in June 1987. (Ref: OS-87123-V-550)



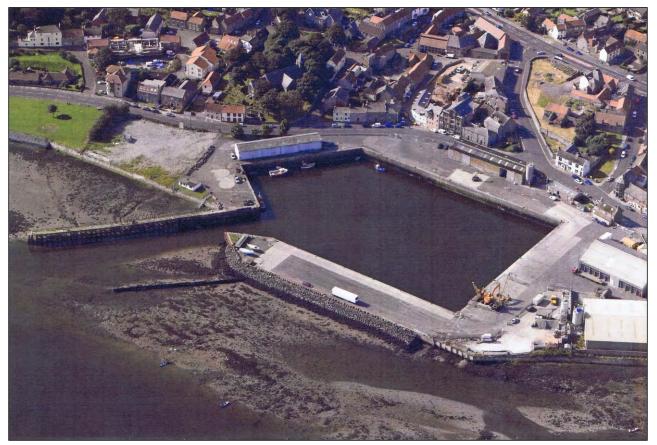
Illus. 09: Aerial photograph of the assessment area, taken in April 2000. (Ref: OS-00965-V-2440)



Illus. 10: Aerial photograph of the assessment area, taken in September 2007. (Ref: NMR-20685-15)



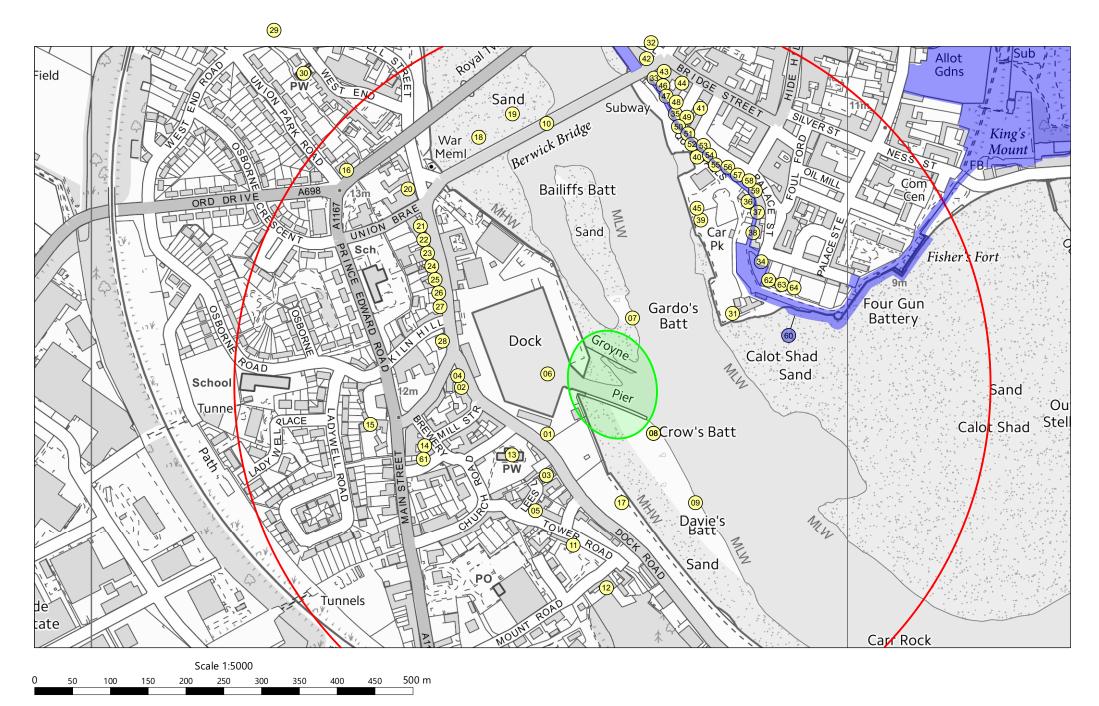
Illus. 11: Aerial photograph of the assessment area, taken in September 2007. (*Ref: NMR-20685-28*)



Illus. **12:** Aerial photograph of the assessment area, taken in September 2007. (Ref: NMR-20687-46)



Illus. **13**: Aerial photograph of the assessment area, taken in September 2007. (Ref: NMR-20688-06)



Illus. 14: Plan showing the distribution of sites of known cultural heritage significance within 0.50 km of the study area boundary (thick red line surrounding green area at centre) - keyed to site Catalogue, Section 4.1. The extent of Berwick's medieval and post-medieval fortifications [60], are represented in blue.

4. CATALOGUE

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 64 assets of known cultural heritage significance in the vicinity of the site identified from HER records and English Heritage Listings, although many more sites lie within a 3 km radius, principally within the historic core of Berwick-upon-Tweed. The site numbers catalogued below are keyed to *Illus. 14*.

A Cultural Heritage Asset is defined as "A building, monument, site, place, area or landscape identified as having a degree of significance meriting consideration in planning decisions, because of its heritage interest. Heritage asset includes designated heritage assets and assets identified by the local planning authority." Cultural heritage assets listed in the following Gazetteer include man-made features included in the Northumberland County Heritage Environment Record (HER) and English Heritage lists of Scheduled Monuments and Listed Buildings. Some are upstanding, visible structures such as houses, churches, bridges and quay walls, while others are represented by the sites of such structures which appear on historic maps and may survive in physical form as foundations, while others are known only from documentary records of buildings, isolated finds or events. In the present context such cultural heritage assets include submerged archaeological resources and palaeo-environments as defined by the United Nations Convention on the Law of the Sea 1982 (UNCLOS, 1982) provides international protection of archaeological and historical objects located on the seabed. the ICOMOS Charter (1996) on the Protection and Management of Underwater Cultural Heritage and the UNESCO Convention on the Protection of the Underwater Cultural Heritage 2001 (UNESCO 2001), which provides an international legal framework to regulate underwater cultural heritage resources (with particular reference to Berwick, see also Derham 2013).

4.1 Monuments and Features in Tweedmouth.

The following includes cultural heritage assets inside the assessment area and others in Tweedmouth within approximately half a kilometre of the area which may be regarded as closely associated with it and may be visually impacted by any development there and/or provide pertinent contextual information. All lie within a designated Conservation Area.

[01] Tweed Dock; HER 2722; NGR NT 996 523 (at centre).

The Dock was constructed by Messrs. A. Morrison & Son of Edinburgh under the auspices of the Berwick Harbour Commissioners between 1872-6 to provide a permanent deep water trading facility, based on plans drawn up by the engineering firm, D. & T. Stevenson, also of Edinburgh. Its original components comprised a dock basin, entrance gates, entrance pier and terrestrial area which included warehouse, cranes and a railway connection with Tweedmouth Station and the NER Network. The Dock basin and pier survive intact but the dock gates and most of the other original features have been lost or replaced.

[see additional description and historical information in Section 6.3.2, below)

[02] Mill Wharf; HER 24708; NGR NT 99492 52373.

Mill Wharf is the remaining part and main frontage of a late 19th century corn or flour mill associated with Tweed Dock. The surviving part was a warehouse or granary with rail track running into it from the adjacent dock. It stood on the site of an earlier, smaller mill. The main part of the mill was demolished in the late 20th/early 21st century and replaced with new flats; the remaining warehouse is now apartments.

The recent Mill Wharf development of apartments incorporates the most ornate parts of the former Tweed Flour Mills, formerly part of a warehouse or granary. The main elevation is well-detailed and shows evidence for taking-in arrangements and including a ground-floor opening through which railway wagons were received. The building was converted 2006 to 2007. The internal survival of original features is uncertain, but likely to include the main structural components.

The building was assessed for designation as a Listed Building, but it failed to meet the listing criteria. The building at Mill Wharf is only a small fragment of the original mill. It has also lost both the main working parts of the mill and associated features such as the railway track which led into it from the adjacent dock. The conversion work has affected the character in inserting new glazing into all the openings. Internal features are unlikely to have survived and the surrounding new buildings have also affected the fabric. The frontage of the building is architecturally interesting and impressive for its setting, but it is small in scale and standard in quality. It does not meet the national criteria for listing of corn mills, though is an interesting local remnant of the industrial past of the area.

[03] Bailiff's Shiel; HER 24736; NGR NT 99595 52262.

In Lees Lane is a stone building with wooden doors that was used by the bailiff's who police the salmon fisheries. From 1861 to 1885 the gunboat 'Ariel' also patrolled for poachers. The building at Lees Lane is the only remaining part of a formerly more extensive early to mid-19th century industrial complex depicted by the Ordnance Survey first edition which formed

19^{"'} century industrial complex depicted by the Ordnance Survey first edition which formed three sides around an open central courtyard. The buildings were altered through the 19th and 20th centuries.

The building is situated adjacent to the Tweed Estuary and fronts onto Dock Road. It is constructed of rubble sandstone under a hipped roof of corrugated asbestos. The main visible feature from the exterior is a wide canted entrance containing double-boarded doors and there is evidence of a series of blocked openings and building phases. The building has been assessed for designation as a Listed Building, though it failed to meet the listing criteria. It is only a small fragment of the original industrial complex connected with boat builder. The development at the rear for housing has further compromised the contextual interest of the site.

[04] No 1 Dock Road; HER 25428; NGR NT 99488 52395.

Late 19th century shop or office building, built by 1898, with intact front and including large 'shop' window facing street corner. The office was probably roughly contemporary with, but may slightly pre-date, Tweed Dock. The building is shown by the Ordnance Survey first edition as the south end of a semidetached pair of buildings, and is located on the corner with a main east facing elevation facing Tweedmouth Docks. The building may have been a shop before being turned into an office in connection with the docks.

The stone building is two-storeys and two days with a central ground floor entrance and sash windows to both sides as six-over-one and two six-over-six at first floor level. All the openings have rusticated lintels and the windows have projecting stone sills. The north elevation has a large wooden shopfront containing an entrance and a window to the right; it bears the name 'W. N. Lindsay (Stevedores) LTD'.

The building was assessed for designation as a Listed Building, but it failed to meet the listing criteria, although the use of the building as the dock's offices is of local interest.

[05] No 7 Well Square; HER 25431; NGR NT 99579 52211.

Late 18th century house surviving from surrounding slum clearance in the 20th century. This is the most intact of the surviving earlier, 18th and 19th century, smaller houses of Well Square.

[06] Bailiff's Batt; NGR NT 996 524.

Fishing platform used for netting salmon, associated with a clearly demarcated section of riverside (see also *Section 6.3.2*, below).

[07] Gardo's Batt; HER 24754; NGR NT 99707 52474.

Gardo's Batt is the last fishery in Berwick operated by the traditional method of net and rowing boat, or coble. The batt is where salmon nets are pulled ashore. The Batt is shown on the first edition Ordnance Survey map of c.1860 and at that time it lay about 85 m SSW of its current position. It seems to have been moved northwards when Tweed Dock and its entrance channel to the River Tweed was created in the later 19th century (see also *Section 6.3.2*, below).

[08] Crow's Batt; HER 24755; NGR NT 99735 52312.

Crow's Batt was part of a salmon fishery and the place where salmon nets were pulled ashore. It is shown on the first edition Ordnance Survey map (see also *Section 6.3.2*, below).

[09] Davie's Batt; HER 24756; NGR NT 99786 52229.

Davie's Batt was part of a salmon fishery and the place where salmon nets were pulled ashore. It is shown on the first edition Ordnance Survey map (see also *Section 6.3.2*, below).

[10) Berwick Bridge; SAM no. 9; HER no. NT 95 SE JO; Listed Building (Grade I); NGR NT 996 527.

Erected between 1611 and 1624 and remains in use as a road bridge.

[11] Tower House, Mount Road, Tweedmouth; Listed Building (Grade II); NGR NT 9964 5217.

Late eighteenth or early nineteenth century building.

[12] Tweedmouth Tower; HER no. NT 95 SE 7; NGR NT 9968 5211.

A small castle or fort built before 1202; last referred to in 1753 and since destroyed.

[13] Church of St Bartholomew and St Boisil; HER 2568; Listed Building (Grade II* - List entry no: 1041677); NGR NT 9956 5228.

Built in 1783; Gothicised in 1866. The church is visible on all maps of the area from 1800 onwards. Listing amended in 2009 to Church of St Bartholomew and St Boisil, Grade II. The current building replaces earlier churches on the site dating back to at least the 12th century (first reference 1145). The earliest parts of the building date to 1783 when earlier ruins were removed and the tower and nave built, possibly using some earlier fabric. The gallery dates to this period. The north transept was added in 1841, originally containing a gallery for the 'poors' and later the choir. The chancel and vestry were built in 1866-8 to designs by F R Wilson, and the south porch added in 1907-8 at which time the nave and transept were re-roofed. It also contains two Gravestones included in the HER:

- John Mackay Wilson, St Bartholomew's churchyard (*HER 24031; NGR NT 99540 52261; List entry no: 1393565*). Born in Tweedmouth in August 1804 and died at the age of 31 in October 1835. He worked, with varying degrees of success, as a printer, lecturer in literature and as editor of the Berwick Advertiser.
- William and Mary Stephenson, St Bartholomew's Churchyard (*HER 25442; NGR NT 99562 52268*). William Stephenson has local significance as the engine driver of the first Tweedmouth to Newcastle passenger service in 1847.

[14] The Old Brewery; NT 95 SE 38; Listed Building (grade II); NGR NT 9944 5230. An extensive eighteenth century maltings and brewery.

[15] Possible Site of Tweedmouth Castle; HER no. NT 95 SE 300; NGR NT 9937 5233. A castle at Tweedmouth, built by King John of England and destroyed in the early thirteenth century is well-documented, but its site remains uncertain. Knowe Head is one of several possible locations.

[16] Bronze Age Cist; HER no. NT 95 SE 17; NGR NT 9934 5266.

A Bronze Age cist containing two femurs and charcoal fragments was found in 1927 close to a footpath about 20 metres from the south end of the bridge.

[17] Foundry; NGR NT 99 52.

Marked as a single large building on the Enclosure Map of 1800 and as two buildings in 1818 (BRO 10/1/220), but subsequently disappears. It occupies a waterside location somewhere in the vicinity of Davis' Batt and Crow's Batt - on the earlier map it appears between the two, on the junction of their enclosed foreshore areas, while on the later map it appears a little downstream of Davis' Batt. Any surviving remains of this structure will lie underneath later deposits along the north side of Dock Road.

[18] Wooden Bridge; HER no. NT 95 SE 13; NGR NT 995 527.

Wooden bridges are mentioned in documentary sources between 1199 and 1610; this site is suggested on the basis of timbers exposed in 1927.

[19] Stone Causeway or Jetty; HER no. NT 95 SE 35; NGR NT 9955 5273. No traces visible during recent inspections.

[20] No. 6 (Clifford House), Main Street; HER no. NT 95 SE 196; Listed Building (Grade II); NGR NT 9942 5264.

Seventeenth Century house, now part of a hotel.

[21] No. 20, Main Street; HER no. NT 95 SE 197; Listed Building (Grade II); NGR NT 9944 5259.

An eighteenth century house, formerly 'Tweed House'.

[22-28] Nos 46, 48-52, 56-62, 64-66, 68-70, 72-80 & 84, Main Street; SMR nos. NT 95 SE 198-204; Listed Buildings (Grade II); NGR NT 99450 52585 to NT 9946 5243. Early to mid-eighteenth century dwellings.

[29] Presbyterian Chapel; HER no. NT 95 SE 291; NGR NT 9925 5284. Built c.1783, demolished in 1970.

[30] Presbyterian Chapel; HER no. NT 95 SE 292; NGR NT 9928 5279. Built c.1844; recently used as the Kingdom Hall of Jehovah's Witnesses.

4.2 Additional Monuments and Features Liable to be Visually Impacted by the Proposed Developments.

The following includes sites and monuments on the north side of the river outside the area of proposed development, within a designated Conservation Area. Although several lie within half a kilometre of Tweedmouth Dock jetty, none will be impacted directly by the proposed developments or related activities (such as provisions for site access by works traffic). However, many are in visual association with the assessment area and will be impacted to some degree by any development there. The following list also provides information of a contextual nature about the nature of historical settlement and activities along the lower Tweed waterfront.

[31] Custom's Lookout; HER 25181; Listed Building (Grade II - List entry no: 1410505); NGR NT 99849 52477.

This building is considered to be of later 18th or early 19th century in date, and is depicted on the 1850 tithe map, where it forms the southern section of a long, rectangular range aligned

roughly north south. It is also present on the 1852 Board of Health map situated opposite two slipways, subsequently removed, and on 1898 Ordnance Survey map. Other single storey buildings had been added to the east elevation by the latter date, also visible on historic photographs and as building lines on the masonry today. These buildings were demolished in the mid or later 20th century, leaving only the present building standing. Although the building is sometimes described as a coastguard watch tower, a Land Registry map dated 1901 describes it as a Customs Watch House, part of a wider Customs complex which also includes a Customs Boathouse attached to the east side. The building's location immediately at the mouth of the Tweed Estuary is an ideal situation for such a building. The Navigation Acts (1650-1697) sought to protect national commerce, and after 1651 required imports to be carried by Englishowned ships or ships owned by the nation of origin of the cargo. One of the Acts also required that all European goods bound for America or other colonies must be shipped through England first and duties imposed; imports of certain type including sugar, indigo, rice and molasses also had to be landed and tax paid before the vessels could continue their way to other countries. From the late 18th century custom regulation was enforced by ships operated by the Customs Service. The effects of this can be recognised in the operation of The Berwick Customs House which saw an increase in custom revenue from £1000 in 1728 to £6000 in 1798, and in 1799 the Customs House (listed Grade I) employed thirty one people including six 'tide waiters' and twelve 'coast waiters and preventative officers along the coast'. This provides the context for the construction of the Berwick Customs Watch House. The Navigation Acts were repealed in the mid 19th century. The building is also sometimes referred to as The Mortuary, which suggests that the building may have more recently served as a mortuary for washed up bodies similar to the example on the beach at Saltburn.

[32] Chapel of Ravenside; HER no. NT 95 SE 30; NGR NT 9973 5284.

[33] Hospital of Domus Dei or Maison Dieu; HER no. NT 95 SE 31; NGR NT 9974 5279.

[34] The Old Guardhouse; HER no. NT 95 SE 54; Listed Building (Grade II); NGR NT 9988 5254.

[35] Nos. 4 & 5 Quay Walls; HER no. NT 95 SE 55; Listed Building (Grade II); NGR NT 9977 5274.

[36] The Custom House, No. 18 Quay Walls; HER no. NT 95 SE 56; Listed Building (Grade I); NGR NT 9987 5262.

[37] Nos. 19 & 20 Quay Walls; HER no. NT 95 SE 57; Listed Building (Grade II); NGR NT 9988 5261.

[38] Nos. 21, 22 & 23 Quay Walls; HER no. NT 95 SE 58; Listed Building (Grade II); NGR NT 9987 5258.

[39] Power Station; HER no. NT 95 SE 76; NGR NT 998 526.

[40] Berwick Quayside; HER no. NT 95 SE 82; Listed Building (Grade II); NGR NT 9980 5268.

[41] The Granary, Dewar's Lane; HER no. NT 95 SE 83; Listed Building (Grade II); NGR NT 9981 5275.

[42] Nos. 2 to 12 (even) Bridge End; HER no. NT 95 SE JOO; Listed Building (Grade II); NGR NT 9973 5281. **[43] Nos. 3 & 7 Bridge End plus No. 1 Quay Walls and Railings**; HER no. NT 95 SE 101; Listed Building (Grade II); NGR NT 9974 5279.

[44] Sally Port; HER no. NT 95 SE 129; Listed Building (Grade II); NGR NT 99775 52790.

[45] Quayside Granary; HER no. NT 95 SE 243; Listed Building (Grade II); NGR NT 998 526.

[46-59] Nos. 2, 3, 6 & 7, 8, 8a, 9, 10-13, 15 (Gathehouse) and 16 & 17 Quay Walls; SMR nos. NT 95 SE 244-52; Listed Buildings (Grade II); NGR NT 9975 5278 to 9988 5264.

[60] The medieval and post-medieval fortifications at Berwick upon Tweed; Scheduled Monument Number: 1015968; NGR NT 99463 53218, NT 99537 53073, NT 99990 52472 (for map of the extent of the defences see: https://historicengland.org.uk/listing/the-list/list-entry/1015968).

The monument, which is divided into three separate areas, includes the full extent of the Elizabethan ramparts with their bastions, gateways and earthworks as well as parts of the medieval town defences, including the earthen mound, wall and ditch, in addition to the Henrician earthwork and masonry fortification known as Lord's Mount. The core of the site is in the care of the Secretary of State. The monument also includes other earthwork artillery structures and additional parts of the medieval defences which survive as extant earthworks and buried remains. Further remains such as Berwick Castle and Spades Mire linear earthwork are the subject of separate schedulings.

[61] 2 and 2A Brewery Bank; Listed Building (Grade II); List Entry Number: 1276449; NGR NT 99439 52281.

[62] 1 Wellington Terrace; Listed Building (Grade II); List Entry Number: 1276502; NGR NT 99899 52521.

[63] 2 Wellington Terrace; Listed Building (Grade II); List Entry Number: 1233749; NGR NT 99912 52517.

[64] Wallace Green Manse (3 Wellington Terrace); Listed Building (Grade II); List Entry Number: 1233679; NGR NT 99931 52512.

5. SYNTHESIS

5.1 Early Prehistoric

Mesolithic hunter/gatherers and early farmers (8000BC to 2500BP)

There is no known artefactual evidence for human activity within the bounds of the assessment area from the Mesolithic or Neolithic periods, but it should be assumed that some level of activity, whether involving periods of permanent settlement or sporadic land-use for hunting and low-intensity farming occurred within the assessment site over the several millennia of known human presence in the area dating from the recolonisation of northern England after the last Ice Age. The lack of evidence for such activity is not unexpected, since it is not usually marked by substantial structures or dense scatters of material and, in this case, the site is heavily developed with deep medieval and later overburden over any earlier remains, which have not been explored by archaeological field investigation in the area. The earliest attested indication of early land-use in the vicinity of the assessment site is a Bronze Age cist (HER no. NT 95 SE 17 at NGR NT 9934 5266) excavated in 1927 close to the southern end of Berwick bridge, some 500 metres north of the assessment area, while several HER entries are listed for prehistoric features and artefacts in the wider area, notably earthworks three kilometres south-west of the site (NGR NT 968 515) and a cup marked stone in the same vicinity (NGR NT 965 504), some 3.5 kilometres from the assessment area.

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

The nature and density of landholding within this lowland area during the later prehistoric and Roman periods is unknown and settlement within the assessment area undocumented, although it may be assumed that the immediate locality, as an agriculturally resource-rich environment, was farmed, and that the seasonal exploitation of wild resources continued. Aerial photographs provide evidence of discrete late prehistoric or Romano-British farmsteads locally, representative of a class of settlement found in the coastal lowlands of north-east England and the Borders (Jobey 1982, 1- 23). Surviving remains of enclosures at Halidon Hill (SAM no.591; NGR NT 968 548) and Camphill (SAM no. 592; NGR NT 975 547) provide evidence for larger, defensible late prehistoric settlements locally.

The enigmatic question of Roman occupation, or at least a Roman military presence in the area, has remained a matter of some debate since MacLauchlan (1864a & 1864b) mapped the course of the Devil's Causeway Roman Road to a point within two kilometres of Tweedmouth (ending at NGR NU 9985 5060), west of Scremerston, where Springhill Roman Camp (SAM no.341; NGR NU 000 506) lies in close association. It may be assumed that the road continued its course towards the present Berwick Bridge (Margary 1973, 480), site of earlier, medieval bridges of wooden construction, but it is uncertain whether the river was bridged in the Roman period or if the road continued north of the Tweed, as suspected by Bishop (2014 and pers.com.). The balance of evidence suggests that a Roman road ran close to the southern boundary of the present assessment area and it may be suspected that landing facilities and perhaps a bridge once lay in association on the same waterfront. Supporting artefactual evidence for a Roman presence at Tweedmouth is limited to the find of a coin.

There are no features suggestive of pre-enclosure, potentially prehistoric or Romano-British, field boundaries visible on early maps or as crop or soil marks on aerial photographs close to the current site of assessment.

5.3 The Medieval Period

Early Medieval Period (400-1100 AD)

No direct archaeological evidence of early medieval (Anglo-Saxon or Viking) activity has been found within the assessment area, but it is likely that the area was farmed at this time, and several important early medieval settlement sites associated with Bernicia, or the Kingdom of Northumbria (the two kingdoms of Bernicia - the territory north of the Tees - and Deira were unified at the beginning of the 7th century to create Northumbria), are known in what is now northern England and southern Scotland, notably at Yeavering in Glendal, Maelmin near Millfield (which Bede says replaced Yeavering as the palace site), and Thirlings.

Evidence for pre-Conquest activity in the vicinity may be inferred on the basis of place-name evidence and several important early medieval settlement sites associated with Bernicia, or the Kingdom of Northumbria (the two kingdoms of Bernicia - the territory north of the Tees - and Deira were unified at the beginning of the 7th century to create Northumbria), are known in what is now northern England and southern Scotland, notably at Lindisfarne.

As noted by Menuge & Dewar in 2009 (7-8), Tweedmouth has received much less attention from commentators than neighbouring Berwick, but the first documentary evidence of settlement within, or close to, the defined area on the south bank of the Tweed dates to the 12th century. The Norman church of St Boisilius, built in 1143, was probably on the site of an earlier Saxon church (St Boisilius was a Saxon saint who died in 661 A.O.), and it is likely that settlement grew up around this church site from an early period, probably extending the short distance to the riverside. Raine (1852, 277) notes also that a medieval tithe barn probably stood on or near this site, and it is likely that a range of other structures and features associated with small-scale agriculture, industry and fishing were also present, although secure evidence for this is lacking.

In 1279 a meeting occurred between English and Scottish commissioners at an unknown location in Tweedmouth (known in 1209 as Tuedemue) in an attempt to resolve Border differences (Cowe 1998, 53), and trading activity documented at Tweedmouth from 1292 is of a nature suggesting that it was by this time already high in volume and well-established. Bridges linking Tweedmouth with Berwick are attested on or around the present site of Berwick bridge from the twelfth century but much earlier structures may have existed. One of the predecessors of the present bridge was swept away in a flood of 1199 in the reign of Malcolm IV of Scotland.

Although socially, economically and, to some degree administratively distinct from the town of Berwick, the medieval history of Tweedmouth cannot be examined without reference to its larger neighbour. The first historical reference to Berwick-upon-Tweed occurs in a land grant of 1097 (Lawrie 1905, 18-19). The Scottish county of Berwickshire was also created around this time, and soon after the town achieved the status of a Scottish Royal burgh under David I (1124-1153), (Barrow 1973, 37-8). The town appears to have been well settled by c.1200 and remained prosperous as a trading and fishing settlement until its capture by the English in 1296, following which its fortunes declined as changed hands several times in the prolonged

wars between Scotland and England. Increased prosperity following the stabilisation of Anglo-Scottish relations led to the redevelopment and extension of the medieval quay below Berwick Bridge (The Archaeological Practice 1998b and Forthcoming). When the level of trade on the river expanded further, the Tweed Dock facility was constructed to relieve pressure from the Berwick quay and provide a deep water anchorage.

Notwithstanding the importance of riverine trade, the role of salmon netting in the development of riverside settlement at both Berwick and Tweedmouth can barely be overstated. Early references include fishing rights on Berwickstream granted by Acts 107, 131 and 235 of Malcolm IV in the period 1153-65 (Barrow 1973, 176, 193 and 256-7), and it can be considered virtually certain that fishing for Salmon by net and trap has taken place in the lower Tweed continuously since at least the immediate post-Conquest period. A BRO paper notes references to Salmon fishing on the south bank of the lower Tweed from the period 1099-1128, and it is clear from the increasing regulation of the industry that fishing became increasingly lucrative for a period, although the period of Anglo-Scottish hostility considerably reduced its importance - in 1400 the tithe on south bank fisheries amounted to only two shillings (BRO/Salmon Fishing).

5.4 Post-Medieval and Modern

Until the middle of the nineteenth century it is reasonable to regard Berwick and Tweedmouth – the latter free from the physical constraints of defensive walls - as separate entities, socially, administratively and economically. This situation changed fundamentally with the incorporation of Tweedmouth (along with Spittal) in the old Borough of Berwick in 1835 and the dissolution of the detached portion of County Durham called Islandshire, within which Tweedmouth, but not Berwick, was formally included until 1844. However, the existence of a bridged crossing throughout the medieval into succeeding periods ensured that communication between the two was constantly maintained, particularly between the districts of both settlements closest to the bridge.

In broad terms, Tweedmouth village and parish, which included Spittal, while smaller than Berwick was by no means insubstantial and accounted for 32% of the total population of the three settlements in 1801, rising to 38% by 1911. Tweedmouth evolved as a separate village with different character to its larger neighbour, its residents engaged principally in fishing and farming. As noted by Meruge and Dewar (2009, 8), with more space, a pool of potential labour, fewer wealthy residents and, especially before union with Berwick, less stringent regulation of trades and industrial activities, Tweedmouth was attractive to those wishing to set up large, noisy or polluting industrial enterprises; this tendency was accentuated in the 19th century as the scale of industrial activities grew and the developing railway and port infrastructure was concentrated on the Tweed's southern bank. More recently, Tweedmouth and Spittal absorbed much of Berwick's physical expansion as overcrowding within the walls was relieved by the building of housing estates, many of them on the south side of the Tweed.

The opening in 1624 of the present 'old' bridge, probably the fifth on the site (see Marlow 2009, Section 4.11 and Cowe 1984, 43-4, marked the beginning of a period of political stability and economic prosperity for Tweedmouth and its neighbours that has continued to the present. Below the bridge on the south side of the river is the site of a late eighteenth century shipyard run between about 1799-1810 by Joseph Todd (Figure 2), which may be seen as one of the first in a series of moves to alleviate pressure on the heavily developed Berwick riverside by

developing the potential of Tweedmouth, culminating in 1877 in the opening of the Tweed Dock.

Other notable industries in the vicinity of the assessment area include those concerned with ceramic production, in the form of brick, tile, and earthenware pottery manufactories which operated on a small-scale at several locations in and around Tweedmouth during the eighteenth and nineteenth centuries. Production locations are known on parts of the riverside, in Pudding Lane and below Mill Farm, where bricks and earthenware were made until the early nineteenth century (Cowe 1998, 53-4), perhaps based on an earlier tradition of pottery-making which saw the production of decorated slipwares in the 18th century between Tower Street and Well Road and perhaps to the east. An 'old tileyard' is shown at Sunnyside adjacent to a (clay?) quarry known as the King's Quarry which was already partly occupied by the Tweedmouth Cemetery in the 1860s and by the 1920s is described as 'disused'; an associated property known as brickfield lodge stood until the middle part of the last century on the north side of Cemetery Lane. This brick & tileworks stood close to the Berwick town coal mine at Sunnyside, which itself marked the northern edge of a coalfield spreading from the coast north of Scremerston westwards to Ord and beyond. Additionally, Tennant's Clay Pipe Factory operated until at least the late 19th century in premises behind Main Street, north of Kiln Hill, using imported materials to supply a predominantly local market; indeed, stamped examples commonly occur throughout Northumberland.

The nature and location of structures and features associated with settlement and other activities within and adjacent to the site presently under investigation can not be determined securely before the late eighteenth and early nineteenth centuries, when detailed maps of the area were produced for the first time. On the Enclosure Map of 1800, the church lies towards the eastern end of the settled part of Tweedmouth, with a cluster of settlement on its western side and a line of houses close to the shoreline to the north, apparently extending as far as Crow's Batt. East of this the only building recorded is a foundry, which may have been deliberately placed there in order to minimise the impact of smoke upon populated areas. Both the line of houses and the foundry are located along what is now the south side of Dock Road, since it is clear from maps of the mid-nineteenth century that the border between the tidal mudflats of the Tweed and the area enclosed for settlement traced almost precisely the line presently followed by the south side of Dock Road. The Board of Health Map of 1852 (Illus. 04) shows clearly that the structural layout of the area centred upon St Bartholomew's church, including roads and field boundaries, including what may be interpreted as medieval burgage plot divisions (such as between Church Lane and Mill Strand), has changed little in the intervening period. The churchyard, for example, is shown bordering the tidal mudflats in 1852 where today, though unchanged in shape, it borders Dock Road. It is clear, therefore, and confirmed by close observation of the first and second edition Ordnance Survey Series (Illus. 04 & 05), that Tweed Dock was constructed entirely within the tidal riverside area which formerly served, as far as can be ascertained from the historic map evidence, only as the location of fishing batts.

5.4.1 Salmon Fisheries

The importance of Salmon fishing at an early date has already been noted (above, Section 6.2). Certainly by the early sixteenth century, but probably much earlier, this lucrative industry had become closely regulated, with the fishing rights divided along the waterfront into clearly defined sections and closely controlled by the Guild at Berwick, who maintained a virtual

monopoly. Thus, by 1562 many of the fisheries on the south bank of the Tweed are listed as being rented by the Burgesses of Berwick from the Bishops of Durham. Salmon netting was the only known activity in the area prior to the construction of the Dock in the 1870s.

The fishing platforms, known locally as batts, from which net fishing was carried out were placed at the edge of the main river course in the tidal margins of each section, and the traditional names given to these also came to serve for the sections of riverbank within which they occurred. Thus, Gardo's Batt referred to the fishing platform and its associated section of riverbank and foreshore. A nineteenth century photograph of fishermen at Gardo's Batt (also known as The Gardo) gives an impression of its appearance and method of use at this time (Barrow 1995, 37). Batts on the Tweedmouth shore south of Berwick bridge appear to have been fixed in name and location by the eighteenth century, when several are named on maps and plans of the district, providing evidence for the continuity of named batts during the last two centuries. One of these, Crowe's batt, is the only known site of recognised historic importance existing within or bordering the present assessment area before the construction of Tweed Dock and the infilling of the coastal margin south of its eastern pier. A mid nineteenth century map shows the wide range of fishing devices and types of nets then present upon the river, both in the tidal and non-tidal stretches, although by this time several traditional fishing methods and net types had already been banned; four Acts were passed in the 1830s to regulate the use of various nets and traps. In 1857 the Tweed Fisheries Act amalgamated and extended earlier acts, but was deeply unpopular, being particularly severe on poaching.

The development of new port facilities on the Berwick side of the river in the mid-eighteenth century enhanced the value of fishing batts on the surviving tidal foreshore at Tweedmouth. However, this was disrupted in 1872 by the Berwick Harbour act (Wet Dock and other Works Specifications, Section 18) which granted rights to purchase fisheries at Tweedmouth, wherever and whenever expedient, beneath Berwick bridge (see Appendix 9.1). The subsequent sale of the Crowe's Batt fishery, leased at that time to the Berwick Shipping Company - which, also in 1872, became the Berwick Salmon Fisheries Company - is recorded in documents held at the BRO. The documents suggest that ownership of (Crowe's Batt) fishing rights had by this time become a matter of confusion - in one document ownership is divided between three named parties, while in another, nine parties are named (BRO 14/Box 9/5 & 8) - and that its profitability had suffered in consequence of division is indicated by the recorded abode of James Lough, one of the fishery owners, then an inmate of the Berwick workhouse. Crow's Batt survives, at least in name, on the present Ordnance Survey map of the area, as do Gardo's Batt and Davie's Batt, some 100 metres north and south-east of the survey area, respectively. In 1988 the Berwick Salmon Fisheries Company ceased trading, having sold its fishing rights to the Atlantic Salmon Conservation Trust the previous year, thereby effectively ending almost a thousand years of regulated salmon netting on the banks of the lower Tweed (see Watts 1986 for lists and descriptions of such fisheries on the rivers of Northumberland in the medieval period).

5.4.2 Tweed Dock

In the second half of the eighteenth century the Port of Berwick developed its trade with London from reliance on salmon to other commodities, notably grain and eggs. Passenger vessels also sailed from an old quay below the bridge. By about 1800, however, inadequate port facilities meant that much of this trade had been lost to Leith, leading to the promotion of an Act of Parliament for rebuilding the pier and improving the harbour. This act, passed in 1808, allowed the newly-formed Harbour Commissioners to build a new pier, extend the

existing quay and build a stone jetty at the Carr Rock, Spittal. The harbour remained unsuitable , however, particularly for the needs of new industries established in Tweedmouth and Spittal, and a second Harbour Act was passed in 1862, which contained provisions for the election of fifteen Harbour Commissioners, and ten years later another Act of Parliament empowered them to make a wet dock on the shore of Tweedmouth between Berwick Bridge and St Bartholomew's Church, and an embankment from the west end of Berwick Bridge to the landward end of the Carr Rock pier. They also had powers to construct coal staithes and to enter into an agreement with a railway company for the construction of a railway line to the new dock. The proposed dock would replace a large mud bank which was exposed at low tide. Work began in 1873 with the building of a coffer dam within which the dock walls - of concrete with the upper portions faced and capped with granite - were constructed.

Tweed dock was constructed as a 5-sided wet dock enclosing 1.4 hectares, with a gated entrance lock, entrance pier with associated groyne, harbour jetty and riverside quay, as well as a terrestrial area which included warehouses, cranes and a railway connection with Tweedmouth Station and the NER network. The floor of the Dock was puddled with blue clay to make it watertight, allowing a water depth of twenty-one feet at ordinary spring tides. It was equipped with a forty feet wide entrance and a channel was dug from the wooden dock gates to the main stream of the river, its course marked by a wooden quay or jetty.

On the landward side of the dock, and formerly served by it, is the Victorian mill and warehouse of Ho Short Ltd., the front entrance of which formerly admitted railway wagons, hauled across Dock road from the Dock by a winch and cable. The site of Short's Mill is on that of a long series of water mills powered by a small stream which still runs underground into the Tweed. Dock road was built at the same time as the Dock, along what had previously been the shoreline of the estuary.

The adjacent Dock Road was built at the same time as the Dock, along what was the shore of the estuary, probably removing any remains of medieval and earlier settlement/activity formerly surviving in this area. The tidal shore was also used for dumping traces of which may lie beneath the present ground surface.

The original dock gates at the entrance to the dock, which allowed water levels to be maintained at low tides, were removed in 1993 when the entrance to the dock was widened. In most other respects, however, the dock remains as originally constructed in 1876, including the survival of an original slipway for timber in the north-west corner. In addition to this, the dock basin itself and surrounding quay walls, two other original structures remain key to the modern dock infrastructure and continued functioning of the port. These structures are the wooden approach jetty which serves as an alignment facility to ensure safe access to the dock, and a groyne outside the opposing north side entrance to the dock which serves as a silt deflector, keeping the entrance channel open. Both of these original structures are now in a poor state of preservation due to the combined effects of age and physical stress caused by the occasional impacts of large, modern vessels which are much heavier than those for which the dock was designed.

i. Wooden Jetty alignment structure

The alignment structure is required to guide vessels safely into the dock without running aground on the south shore. It is built of timber piles, waling and bracings, held together by steel bolts and was originally 86 m until the outer 30m was lost; despite major repairs carried out c. 25 years ago the remainder of the structure has continued to suffer damage due to natural decay – the impacts of weather & waves, flora & fauna - and vessel impacts, and is now considered beyond repair. Should it be lost entirely, the entrance channel is likely to become unsafe for the use of cargo vessels, necessitating its replacement by a structure

capable of withstanding the impacts of vessels much larger than those in use when the original structure was conceived and built, which appears to rule out like for like replacement with a timber piled structure of similar build to the original. The proposed reconstruction, 10-11m wide and 70m in length, is a solid sheet piled and filled structure founded on the mudstone bedrock (see above, Section 2.4)

ii. Timber Groyne Structure

The north side of the dock entrance channel is protected by a low groyne of timber post and rail construction, extending 76 m ESE towards the open sea from a point on the north shore some 44 m north of the dock entrance, which is now in some disrepair due to the degradation by decay and damage to some of its posts and loss of some rails. It is proposed to repair this structure using hardwood planks and posts, with steel fixings, matching the original groyne features and dimensions, accessing the structure on foot at low tide.

5.4.2.1 Comparable Jetty and Groyne Structures

In order to gain perspective on the regional importance of these structures, comparable structures were sought using maps and aerial views, combined with HER references and lists of Scheduled and Listed Buildings on the north-east coast.

A jetty is a structure that projects from the land out into water, most usually a walkway accessing the centre of an enclosed waterbody. Those used for regulating rivers often comprise opposing wing dams extending from each bank to contract and deepen a wide channel. They are more often seen in docks, where openwork timber jetties extend from quaysides or are carried over the sloping bank sides into deep water, but pilework jetties are also constructed outside the entrances to docks on each side, forming an enlarging trumpetshaped channel between the entrance and approach channel, in order to guide vessels entering or leaving the docks. Similar arrangements can be found in the approach channel to some ports on sandy coasts, where parallel jetties guide crafts across the beach. In such cases the lower portion of the jetties protects the channel from the ingress of sane while the upper open portion serves to indicate the channel and to guide the vessels. While Progreso. Mexico, boasts the world's longest pier (to allow cruise ships to dock there) at 6.5 km long, Southend Pier at 2,158 metres, constructed from 1887, is the world's longest pleasure pier and longest wooden jetty, or pier, in Britain. Busselton Jetty in Western Australia, commenced in 1853, carrying a rail lone along its entire length, is the second longest wooden jetty in the world, and longest built for industrial use, at 1841 meters long.

A groyne is a rigid, impermeable or semi-permeable hydraulic structure built from an ocean or river shore to interrupt water flow and limit the movement of sediment, creating and maintaining a wide area of beach or sediment on its updrift side, and reducing erosion on the other. Most commonly, in the ocean, groynes create beaches or prevent them being washed away by longshore drift, while in rivers they slow down the process of erosion, which aids navigation.

Both forms of structure, but particularly jetties, were once common on the north-east coasts (see APPENDIX 2: *Historic North-East Coast Jetties*), principally at the entrances to, and within, docks such as Tyne Dock and the Albert and Edward Dock on the Tyne and Sunderland North, Hudson & Hendon Docks on the Wear as well as those on the Tees, including Hartlepool. Such jetties were particularly common in relation to coal staithes, notably at Sunderland and, particularly, Tyne Dock at Jarrow, once the gratest coal port in the world, where coal-carrying railway waggons were carried to elevated staithes on the dock-side, emulating earlier arrangements found on the Tyne and Wear in relation to 17th and 18th century coal-carrying waggonways. Jetties associated with staithes on the riverside end of 18th and 19th century waggonways include those recorded at the south end of the Backworth Waggonway

(TW HER 113) and the Clarks Walls End Drop (HER 2079), also on Tyneside. Jetties an the entrances to the major rivers and ports of the north-east coast, notably on the Tweed, Blythe, Tyne, Wear and Tees, were often of stone, and better described as piers, but those designed to mark individual dock entrances were more often of wood, as at Tweed Dock. Very few such structures remain on the river Tyne or Wear, however, where modern development has erased most traces of the 19th and early 20th century riverside infrastructure, culminating in the infilling of Tyne Dock and the majority of dry docks. Examples recorded on the Tyne & Wear HER include Hebburn jetty (TW HER 2242), Hebburn Shipyard (TW HER 2504) Sunderland's Pickersgill shipbuilding yard at Southwick (TW HER 2771), Elswick Jetty (TW HER 4900) and Oliver's Shipyard jetty at Lemmington (TW HER 4934).

The only jetty of any length surviving on the Tyne is a piled wooden structure known as North Groyne (TW HER 7999; NGR NZ36406857) on the east side of the harbour at North Shields, which carries a sewer outfall. This feature was consolidated with boulders after 1861 to supplement the piers at the entrance to the Tyne as a further progressive barrier to heavy seas at the river mouth. The timber jetty once accessed a watch-house built in 1902 to record ship movements and is now owned by the Port of Tyne Authority. Another, smaller jetty structure (TW HER 8001; NGR NZ36396841)at North Shields survives at the north-east end of the Fish Quay where it was created partly to carry a tramway but also served as the Fish Quay landing stage and is now used by the RNLI.

Further upstream as far as Newcastle, the virtually the only remaining wooden features surviving on the Tyne are some quayside walkway structures, exemplified by a feature at recently restored by South Tyneside Metropolitan Borouah Hebburn Council (https://www.royalhaskoningdhv.com/en-gb/united-kingdom/projects/hebburn-jetty-regeneration/6032) and two features known as jetties adjacent to the Swing Bridge, one of which is known as the Police Jetty and was used by the River Tyne Police to tie up small boats, while the larger central jetty was positioned to collect fees from passing ships. Although the former police jetty is not included in the Swing Bridge Scheduled Ancient Monument, the area of the bridge is classed as a conservation area and the jetty maintained to preserve its historical status. Further upstream are the Derwenthaugh Staithes (TW HER 1626) at Dunston, part of the 19th century staithes used by the Consett Iron Company who opened the colliery at Chopwell and transported coal along the Garesfield and Chopwell Railway. The Derwenthaugh Marina incorporates the remains of what was the eastern range of the staithes, which are now part of a jetty but remain, despite recent damage, one of the largest timber structures in Europe. Until recently the remains of timber jetties or staithes also survived in Lemington Gut, but these have disappeared in the last decade or so, along with a large number of other such structures, associated with docks, shipbuilding yards and coal transport, many of which are known only from historic maps and recorded in HER references.

Elsewhere in Northumberland, part of the piled, wooden quayside structure of Amble North Jetty in Braid Marina survives in its original wooden form and has recently been repaired to function as part of the modern marina facility. Amble grew in the nineteenth century as a coal port serving the Northumberland and Durham coalfield, and the Warkworth Harbour Commission was created to supervise improvements which subsequently included the construction of breakwaters to the north and the south, completed in 1849. The arrival of the railway led to the construction of coal staithes around the harbour at the Radcliffe and Broomhill Quays, served by an extensive network of high-level railway lines.

On the island of Lindisfarne to the south of Tweedmouth, two jetties used for loading coal to limekilns and exporting lime from them survive in increasingly partial form, one on the west side of the island at Tripping Chare (HER ref. N5366, NGR 412200641900), the other, better preserved example, known as Cocklestone Jetty (HER ref. N5355, NGR 413470641680), in use until 1890, located adjacent to the Castle Point limekilns.

Ruinous and rapidly eroding timber jetties also survive on the Wansbeck at East Bedlington (HER N11847428350582320, where they are shown on the first edition Ordnance Survey map of 1865 and were still in use until 1991, associated with an area of hardstanding (see TAP 1998).

6. ARCHAEOLOGICAL POTENTIAL & IMPACTS

6.1 Archaeological Potential

While the Northumberland Extensive Urban Survey for Berwick upon Tweed (2009), indicates that the site is on the southern edge of an area considered to represent moderate archaeological potential, there are no known sites of cultural heritage significance within the site other than those related to the dock itself. It is possible that fishing batts, while not marked on historic maps within the site area, were once present there and also possible that remains of boats and a range of potential small finds could have been present. The dock and fishing batts potentially have local up to moderate regional significance, while other finds or features potentially present area would likely be of minor or local importance.

Many sites of national, regional and local importance lie within visible range of the site and may be impacted by it. Furthermore, the Berwick and Tweedmouth riverside areas are considered to be crucial to the setting of the cultural assets of Berwick-Upon-Tweed, part of which is a Conservation Area, and the current site of proposed development offers panoramic views of both the town across the River Tweed.

6.2 The survival of potential archaeological remains

It is not considered likely that any archaeological remains, other than those integral to or closely-related to the dock structure, including the jetty, groyne and related parts of the dock quay walls, survive within the site boundary. The only other features potentially surviving in the riverside in the vicinity of the jetty and groyne are fishing batts, but it is unlikely that these, if ever present here, will have survived the original construction of the dock and subsequent dredging works.

6.3 The Impact of the Development

The proposed works within the harbour, including removal of the existing jetty, construction of a replacement and repair of the groyne, will have negligible on any archaeological structures or deposits other than the jetty itself, including the wooden component to be removed and the much shorter stone element onto which it is built which forms an extension to the quayside. It is unlikely that any other features or finds of cultural heritage significance survive in the assessment area, but any existing are unlikely to be impacted by the works as proposed. Further, it is not considered that the proposed development will impact significantly upon the structural integrity or overall appearance of the historic dock facility.

As well as the direct impact upon the existing jetty structure, and any related features or deposits, caused by its removal, the visual impacts of the works in progress have been assessed. Views of and from a number of significant buildings on Dock Road and the east end of Tower Road will be impacted during and following the works period, but views from roads, pathways and other viewpoints are generally shielded by intervening, dock-side and other buildings. The visual impact of the replacement jetty structure upon the Berwick shore is likely to be more significant, although the position of the working area on the south side of the jetty means that the visual impact during demolition and construction works will be minimal, since it will largely be shielded by the current jetty and its replacement.

6.4 Visual Impacts

(For views of the site taken from Tweed Dock in relation to the wider town- and sea-scape see Site Photographs 01-04, 08-13 & 18-23; for views taken from outside Tweed Dock see Site Photographs 24-30); see also the sequence of view point photographs by Douglas Harman, supplied in a separate document)

In addition to the potential direct impact upon archaeological remains (or other kinds of heritage assets) of carrying out a development, the potential non-material impact of such a development must also be considered in terms of the effect it has upon the setting of a heritage asset, and the potential for a negative change in the visitor experience of the heritage asset through such a change to its setting. The National Planning Policy Framework (NPPF – 2012) makes it clear that the significance of a heritage asset derives not only from its physical presence and historic fabric but also from its setting – the surroundings in which it is experienced, the extent of which is not fixed and may change as the asset and its surroundings evolve (EH 2011 and 2012). Thus, 'Setting' embraces all of the surroundings from which the heritage asset can be experienced that can be experienced from or with the asset. However, it is a somewhat subjective and flexible concept, since it does not have a fixed boundary and cannot be definitively described as a spatially-bounded area or as comprising an area within a set distance of a heritage asset.

The importance of setting with regard to upstanding remains is perhaps more easy to appreciate that those lacking such remains, since it is easier to engage in the rationale for the positioning of a standing building or upstanding defensible earthwork if it can be viewed within its wider landscape context. Heritage assets that comprise only buried remains may not be readily appreciated by a casual observer, but nonetheless retain a presence in the landscape and, like other heritage assets, have a setting which enhances their significance as cultural heritage sites and their potential for appreciation by the observer (EH 2011, 8).

Clearly, as noted above, consideration of setting is somewhat subjective and necessarily a matter of informed judgement, but English Heritage has provided guidance to assist decisionmaking by ensuring it takes place within a clear framework and is as transparent and consistent as possible. In order to assess the implications of developments affecting setting, a systematic and staged approach to assessment is recommended, enabling all interested parties to understand whether the development proposal is in accordance with relevant planning policies. The following broad approach is recommended by English Heritage (EH2011ii):

1: identify which heritage assets and their settings are affected;

2: assess whether, how and to what degree these settings make a contribution to the significance of the heritage asset(s);

3: assess the effects of the proposed development, whether beneficial or harmful, on that significance;

4: explore ways of avoiding or minimising harm.

The area of assessment for a large or prominent development can often extend for a distance of several kilometres and should, as in this case, be guided by relevant planning control officers. While a proposed development may affect the setting of numerous heritage assets, it may not impact on them all equally, as some will be more sensitive to change affecting their setting than others. In the case of the current assessment, a 500 m radius from the site was identified within which it was considered that the setting of cultural heritage assets were most likely to be impacted, although it was not considered that all sites within this area would necessarily be impacted or, indeed, that no sites outside it would not be impacted. In order to carry out the first stage of the assessment identified above, a search of the county HER provided base-line information on heritage assets within 1 km of the proposed development site, while further map study and observation from the site itself indicated whether any sites outside the 1 km zone would be affected. The following summarises the results of this first stage of enquiry.

While Tweed Dock is located outside the Berwick-Upon-Tweed Conservation Area, the entire riverside area is regarded as contributing to the overall visual aesthetic of the town. The construction of the alignment structure and repair work will, therefore, have a minor impact upon the wider urban landscape and seascape. The jetty site is visible principally, though not exclusively, from the Berwick shoreline extending from c. 150 m ENE of the jetty to the site of Berwick Castle some 800 m NNW of the jetty. In addition, the site is also visible from the elevated railway viaduct some 1000 m west north-west. In total, 33 cultural asset sites, most of them forming, or set upon the elevated southern defences, were identified on the Berwick shore with known or likely intervisibility with the jetty, although the elevated town wall and buildings set upon it largely block the view to and from sites or buildings behind them, including the greater part of the historic core of the town, where views within the town, particularly the Conservation Area, are controlled by the topography, the tightly enclosed nature of the development pattern, and the short, contained spatial corridors created by the arrangement of streets.

Amongst the sites potentially impacted, however, are a number of the highest designated cultural heritage value - Scheduled Monuments and Grade I or Grade II* Listed Buildings – including The Old Bridge and Berwick town fortifications; the remainder being Grade II listed buildings and undesignated sites of significance listed on the HER. Although such sites are not in themselves significant enough from a cultural heritage perspective to warrant consideration of visual impact upon them, they each contribute collectively to a significant urban ensemble, or historic landscape, that of the Berwick quayside and townscape.

In addition to its intervisibility with sites on the Berwick shore, restricted intervisibility is also noted with sites on the Tweedmouth shore, notably the remainder of Tweed Dock itself (which blocks views from further west, except from very elevated positions) and the shore between Tweed Dock and Sandstell Point on the northern edge of Spittal, although this are contains relatively few heritage assets. Tweedmouth parish church, however, as well as some lower grade listed buildings have some intervisibility with the jetty. Residential properties and commercial units comprising a mixture of two to three storey buildings on Dock Road, Main Street, Tower Road, Church Road and Brewery Lane are located within close proximity to the proposed harbour works. Properties on Tower Road, Church Road, Well Square and Brewery Lane are those most likely to have views towards the dock as they are situated uphill of the harbour.

In addition to sites on the Berwick and Tweedmouth shores, it should be noted that the site is visible from all three bridges, particularly form the Old Bridge some 350 m north-west of the jetty, and from the entrance to the Tweed including from Berwick north pier.

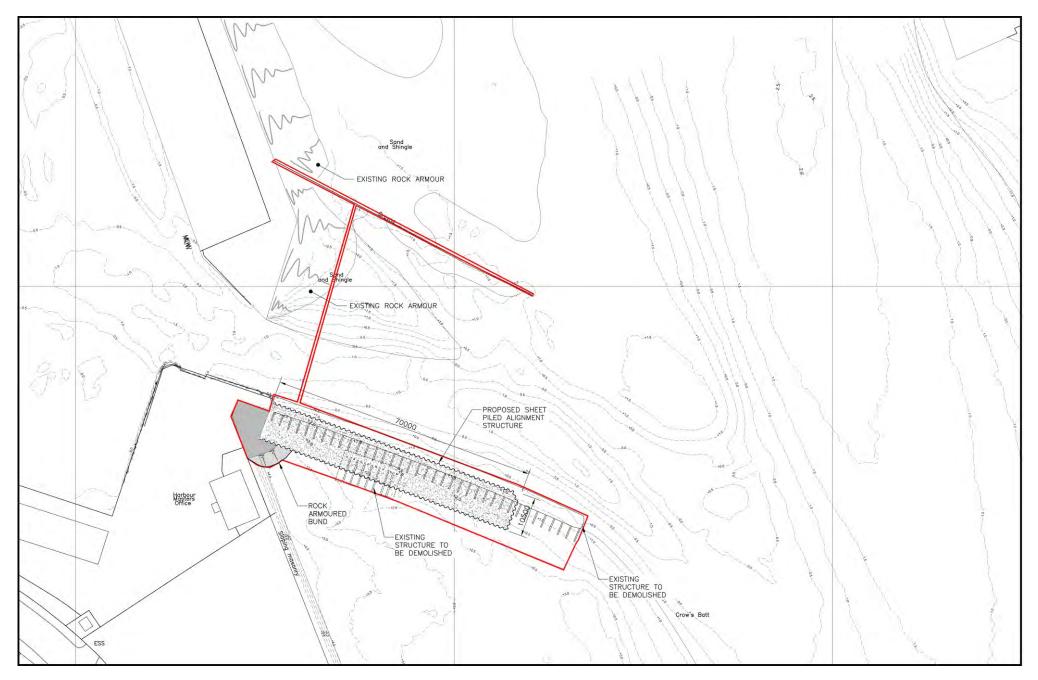
A total of 64 sites of significance have been identified in with regard to potential visible impact, of which 19 are Listed Buildings, all of which are greater than 100 m from the closest point to the jetty. The 19 Listed Buildings area as follows (with listed in Catalogue sequence):

- [10] Berwick Bridge; Grade I; 350 m north of the site with a direct view of all but the southern portion of the bridge.
- [11] Tower House; Grade II; 170 m south of the site; good elevated view of the site.
- [13] Church of St Bartholomew and St Boisil; Grade II; 120 m SW of the site; partial view. Gravestone of John Mackay Wilson; Grade II; 150 m SW of the site; partial view.
- [14] The Old Brewery; Grade II; 250 m west of the site; partial view.
- [21] 20 Main Street; Grade II; 340 m north-west of the site; partial view.

- [22] 46 Main Street; Grade II; 270 m north-west of the site; partial view.
- [23] 48-52 Main Street; Grade II; 260 m NW of the site; partial view.
- [24] 56-62 Main Street; Grade II; 245 m NW of the site; partial view.
- [25] 64 and 66 Main Street; Grade II; 240 m NW of the site; partial view.
- [27] 72-80 Main Street; Grade II; 235 m west of the site; partial view.
- [27 part of] Post Office; Grade II; 240 m SW of the site; partial view.
- [28] 84 Main Street; Grade II; 220 m NW of the site; partial view.
- [31] Customs Watch House; Grade II; 200 m east of the site; direct view across the river.
- [34] The Old Guardhouse; Grade II; 257 m north of the site; partial view.
- [38 part of] Edina House; Grade II; 280 m north of the site; direct view.
- [61] 2 and 2A, Brewery Bank; Grade II; 240 m west of the site; partial view.
- [62] 1 Wellington Terrace; Grade II; 260 m north of the site; partial view.
- [63] 2 Wellington Terrace; Grade II; 275 m east of the site; direct line of sight.
- [64] Wallace Green Manse; Grade II; 300 m east of the site; direct view.

In addition, the site can be seen from the road and track-ways of the other two Berwick bridges, as well as adjacent properties on the north side of the river, albeit from a much greater distance to the north-west.

The most significant sites of major cultural heritage importance which merit close attention from the perspective of the potential impact of the proposed development upon their settings, however, are the old bridge and the south part of the town fortifications, both considered to be of national importance to the Secretary of State and considered to be potential key receptors with regard to the present assessment.



Illus. **15**: Architect's Plan showing existing and proposed structures at Berwick Harbour (Tweed Dock).

7. CONCLUSIONS

The development will replace a prominent, though decayed historic wooden jetty feature, 86 metres long, with a concrete shuttered structure of similar proportions over a period of several months, during which period repair work will be carried out to the adjacent timber groyne. The jetty feature is not under statutory protection but forms a significant component of the riverside landscape, part of which includes the Berwick Conservation Area, from which it is clearly visible. Such jetty features, once relatively common on the north-east coast, are now rare. When considering whether the jetty should be replaced and what form its replacement should take, the rarity of the Tweed Dock jetty and its presence in an important historic landscape must be balanced against its poor state of preservation, potential cost of repair or like-for-like replacement and improved performance attributes of its proposed successor. In addition, the potential impacts of mobile plant operations, installation operations, land and sea-based construction traffic and related facilities will also have to be assessed for their potential sensory impacts on the landscape and seascape, including the temporary visible disturbance caused in relation to the local harbour townscape.

7.1 Historical development

The site of assessment, within and just outside Tweed Dock, built in the 1870s, formed part of the Tweedmouth riverside and is recorded as muddy foreshore prior to the development of the dock. It is unlikely, therefore, that the site was used for anything other than ad hoc landing of small craft and, potentially, fishing stations prior to the construction of the dock.

7.2 Significance of known or potential archaeological remains

There are no known sites of cultural heritage significance within the site other than those related to the dock itself. It is possible that fishing batts, while not marked on historic maps within the site area, were once present there and also possible that remains of boats and a range of potential small finds could have been present. The dock and fishing batts potentially have local up to moderate regional significance, while other finds or features potentially present in the area would likely be of minor or local importance.

Many sites of national, regional and local importance lie within visible range of the site and may be impacted by it. The Berwick and Tweedmouth riverside areas are considered to be crucial to the setting of the cultural assets of Berwick-Upon-Tweed, and the current site of proposed development offers panoramic views of both the town across the River Tweed.

7.3 The survival of potential archaeological remains

It is not considered likely that any archaeological remains, other than those integral to or closely-related to the dock structure, including the jetty, groyne and related parts of the dock quay walls, survive within the site boundary. The only other features potentially surviving in the riverside in the vicinity of the jetty and groyne are fishing batts, but it is unlikely that these, if ever present here, will have survived the original construction of the dock and subsequent dredging works.

7.4 The Impact of the Development

7.4.1 Direct Impacts on the jetty and groyne

The proposed works within the harbour, including removal of the existing jetty, construction of a replacement and repair of the groyne, will have negligible on any archaeological structures or deposits other than the jetty itself, including the wooden component to be removed and the much shorter stone element onto which it is built which forms an extension to the quayside. It is unlikely that any other features or finds of cultural heritage significance survive in the assessment area, but any existing are unlikely to be impacted by the works as proposed.

7.4.2 Visual Impacts of Works Programme

As well as the direct impact upon the existing jetty structure, and any related features or deposits, caused by its removal, the visual impacts of the works in progress have been assessed. Views of and from a number of significant buildings on Dock Road and the east end of Tower Road will be impacted during and following the works period, but views from roads, pathways and other viewpoints are generally shielded by intervening, dock-side and other buildings. The visual impact of the replacement jetty structure upon the Berwick shore is likely to be more significant, although the position of the working area on the south side of the jetty means that the visual impact during demolition and construction works will be minimal, since it will largely be shielded by the current jetty and its replacement.

7.4.3 Visual Impacts of the new jetty structure and repaired groyne

The visual presence of the development will have an effect on the setting of heritage assets in the vicinity, with the principal heritage assets affected being the Old Bridge and structures on the Berwick shore, notably its fortifications. With due regard to recent government policy statements (DCLG 2012) and English Heritage Guidance on the matter (EH 2005, 2011 & 2012), it is concluded that the extent of the indirect negative impact upon heritage assets visible from the site will not be sufficient to merit recommending the abandonment or substantial modification of the scheme, however. However, it is cautioned that models of the proposed new build in its landscape context have not yet been produced to view. While the issue of 'significance' is nuanced and highly debateable, it is of relevance in this regard that NPPF states: "Where a development proposal will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits of the proposal, including securing its optimum viable use" (DCLG 2012 – Note 134).

In the present case, while the visual impact of the replacement jetty on other heritage assets and the wider urban landscape is likely to be slightly negative, the distance to other heritage assets is sufficient, given the scale of the replacement structure and its working industrial context, to outweigh this negative impact and that of the loss of this relatively rare kind of marine structure. The visual impact of the repaired groyne is likely to be mildly positive, however.

8. RECOMMENDATIONS

It is recommended that, should the demolition of the jetty proceed, detailed photographic recording should be carried out in advance in order to mitigate its loss by record. A similar record should be made of the groyne prior to its conservation. Both sets of photographs should be taken at low tide prior to the commencement of works on the site.

Further, it is recommended that, should the works proceed, an archaeological Watching Brief be carried out during demolition works and during any construction works where groundworks are likely to occur, in order to record any unknown archaeological remains as they appear.

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APPENDIX 1:

Site Photographs

1-11:	Views of the jetty from the south side.
12-17:	Views of the quay walls and dock.
18-20:	Views of the north-west facing side of the dock.
21-22:	Views of the groyne from the quayside on the north side of the dock entrance.
23:	View from the quayside end of the groyne to the Old Bridge.
24-26:	Views from the Old Bridge towards Tweed Dock, with the jetty visible.
27-8:	Views towards Tweed Dock form Berwick town fortifications.
29:	View towards Tweed Dock from the south-east side of Berwick castle, with the jetty visible beyond the modern road bridge and Old Bridge to the rear.
30:	View of Tweed Dock beyond the Old Bridge from the modern road bridge.

[N.B. View point photography by Douglas Harman supplied in a separate document]





Photo 1.

Photo 2.







Photo 4.





Photo 5.

Photo 6.







Photo 8.





Photo 9.

Photo 10.







Photo 12.





Photo 13.

Photo 14.

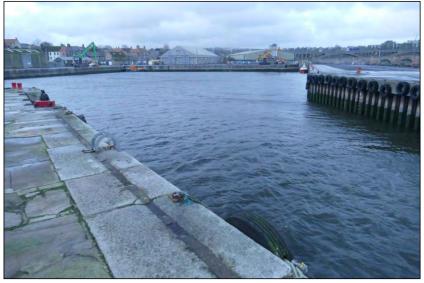


Photo 15.



Photo 16.

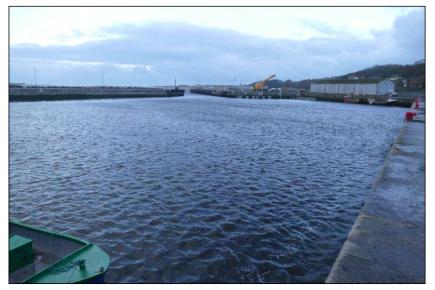




Photo 17.

Photo 18.







Photo 20.

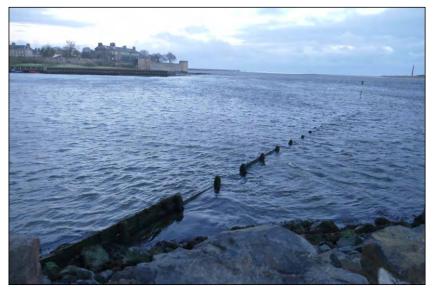




Photo 21.

Photo 22.







Photo 24.





Photo 25.

Photo 26.







Photo 28.





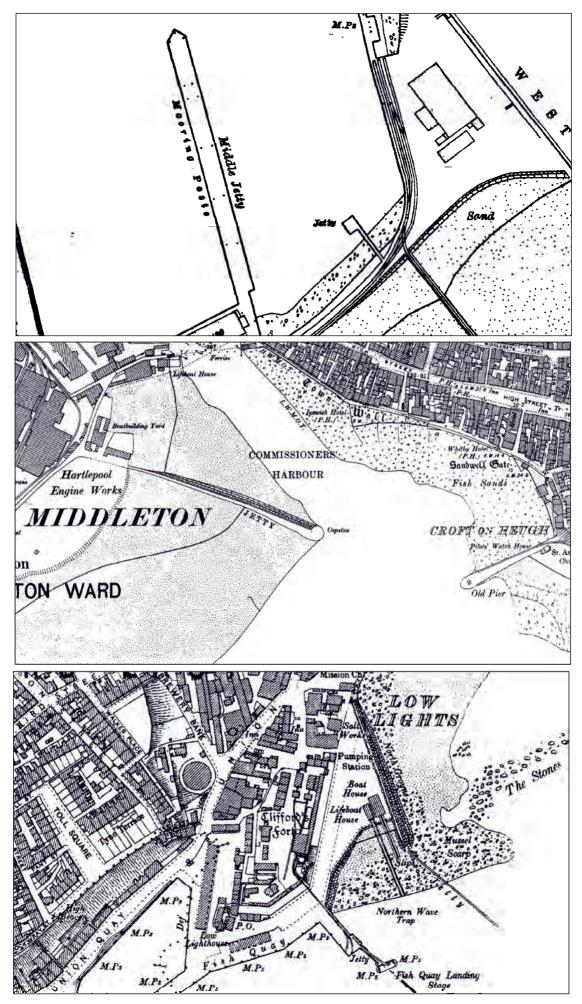
Photo 29.

Photo 30.

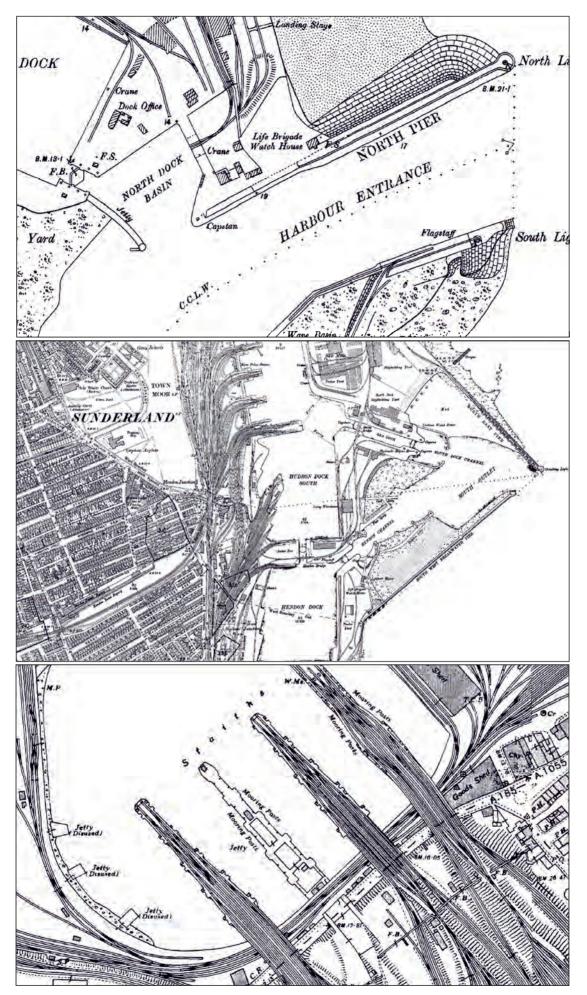
APPENDIX 2:

Historic North-East Coast Jetties

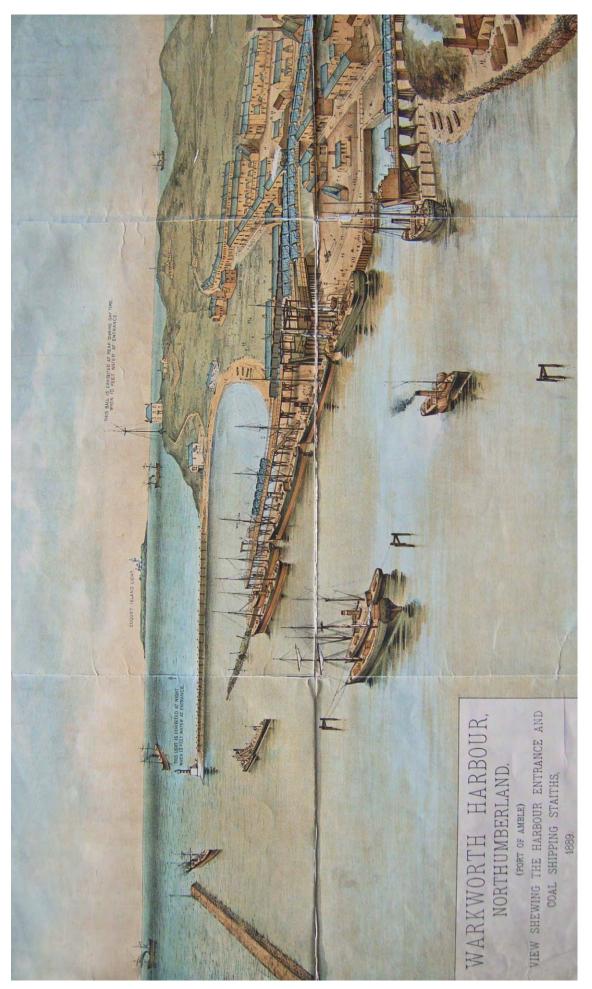
- 1. (top to bottom) Blythe 1920s, North Shields 1890s and Hartlepool 1890s;
- 2. Sunderland Harbour entrance and North Dock 1890s, Sunderland Hudson & Hendon Docks 1890s and Tyne Dock jetties 1940s;
- 3. Warkworth Harbour (Port of Amble) 1889.



Historic North-East Coast Jetties (top to bottom): Blythe 1920s, North Shields 1890s and Hartlepool 1890s.



Historic North-East Coast Jetties (top to bottom): Sunderland Harbour entrance and North Dock 1890s, Sunderland Hudson & Hendon Docks 1890s and Tyne Dock jetties, 1940s.



Historic North-East Coast Jetties: Warkworth Harbour & Port of Amble) 1889

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