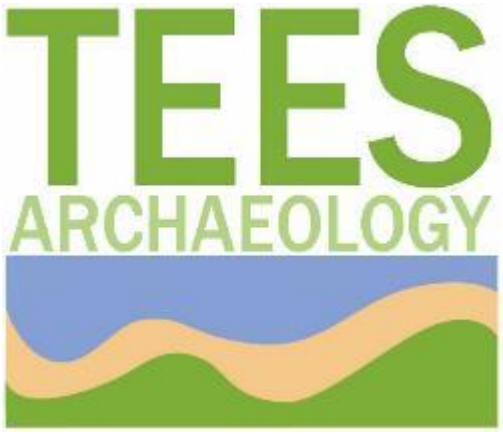
Historic Environment Desk Based Assessment

Energy from Waste Site

Redcar & Cleveland



TA19/10

OASIS ID 366357

Historic Environment Desk Based Assessment

Energy from Waste Site

Redcar & Cleveland

November 2019

R Daniels

TA19/10

OASIS ID 366357

Tees Archaeology, Sir William Gray House, Clarence Road, Hartlepool, TS24 8BT

Tel: 01429 523455, email: tees.archaeology@hartlepool.gov.uk

Contents

List of Figures

Summary

This report describes the methodology and results of a historic environment desk based assessment undertaken by Tees Archaeology at the proposed Energy from Waste site at Grangetown, Redcar and Cleveland. The site is centred on National Grid Reference NZ 544 213. The work was undertaken in November 2019, and the commissioning client was Hartlepool Borough Council.

The site lies adjacent to the settlements of South Bank and Grangetown on the south bank of the River Tees. There is no evidence of Prehistoric or Roman activity within or immediately adjacent to the development area, although this may be concealed under a number of metres of slag that were used to re-claim the land. The place-name evidence suggests there were settlements in the vicinity of the present villages by the 10th century AD but there is no clear archaeological evidence for this. In the medieval period the villages clustered along the foot of the Eston Hills and the area of the development was regarded as marshy ground and used for pasture. This use of the site continued on through the time of enclosure and significant changes only happened with the construction of the railway in the mid-19th century.

The subsequent discovery of ironstone in the Eston Hills led to the industrialisation of the area, with the construction of the blast furnaces of Eston Iron Works in 1853 and their replacement the Bessemer Blast Furnaces as the works led the development of steel production on Teesside. Both sets of blast furnaces and their related hot air stoves, cooling towers and related equipment lie within the development area.

The structures and plant of the steel complex have all been removed and the site presently comprises concrete surfaces which retain a number of features related to the previous use of the site and more significantly the bases of the Bessemer Blast Furnaces whish survive to a degree intact. There has been significant and deliberate tipping of materials across most of the site in a number of discrete piles, including some substantial material such as bridge decks.

The proposed development involves the construction of an Energy from Waste plant on the site, apparently largely using piles as foundations. This will be accompanied by a remediation of the site the extent of which is as yet unknown.

There are no designated heritage assets on the site.

The historic environment desk based assessment has determined that the potential of the site for the presence of archaeological remains of the 19th and 20th century is high and that their potential significance in relation to the development of the iron and steel industry on Teesside is high.

On this basis it is recommended that:-

a) The surviving bases of the late 19th and 20th century blast furnaces should be retained on site and consideration be given to their proper preservation and interpretation.

b) There should be an archaeological survey of the site as at present in order to record surviving features.

c) There should be archaeological analysis of the sequence of trial trenches and boreholes that South Tees Development Corporation is proposing to better understand the archaeology of the site and to attempt to identify the precise location and possible survival of the 1853 Eston Iron Works Blast Furnaces.

d) There should be archaeological monitoring of ground disturbance works in the vicinity of the surviving blast furnace bases and those of the Eston Iron Works to record features related to their use.

Acknowledgements

Tees Archaeology would like to thank Darren Edmends of South Tees development Corporation for his assistance in providing a site visit and supporting documentation and for discussing the history of the site. Janice Adams produced the illustrations.

1. Introduction

A historic environment desk based assessment of land at the proposed Energy from Waste site at Grangetown, Redcar and Cleveland (Figure 1) has been carried out by Tees Archaeology during November 2019 for Hartlepool Borough Council. The research and site visit was carried out by Robin Daniels and Janice Adams.

The historic environment desk based assessment is required to inform a planning application for the construction of an Energy from Waste plant. The site is currently waste ground following the clearance of industrial structures.

The site is adjacent to the settlements of South Bank and Grangetown on the south bank of the River Tees, at NZ 544 213 (Figure 1). It comprises a rectangular plot measuring c.10 hectares, bound to the north by the main Middlesbrough to Redcar railway line, to the east by the site of Lackenby steel works, to the south by industrial units and beyond them the A66 road and to the west by various industrial units.

The site lies on Mercia Mudstone, a sedimentary bedrock laid down over 200 million years ago in the Triassic period. It is overlain by Clay and Silt deposited up to 2 million years ago following glaciation of the area. The site currently comprises waste ground. (http://mapapps.bgs.ac.uk/geologyofbritain/home.html)

The site lies immediately below the 10m contour just above the former High Water mark of the River Tees prior to extensive land reclamation from the mid-19th century onwards (Figures 5 - 9). Borehole logs for the surrounding area indicate at least 1 to 2.5m of made ground before encountering the glacio-lacustrine clays and silts (Figure 4, Appendices 5 & 6).

As far as is known there has been no previous archaeological investigation at the site, however there have been three desktop surveys in the immediate area (Figure 2; R&C HER Event No 597 - Wardell-Armstrong 2007; R&C HER Event No 745 - Atkins 2010; R&C HER Event No 881 - Entec 2011).

A site visit was made by Robin Daniels and Janice Adams on 12th November 2019, with the assistance of Darren Edmends of the South Tees Development Corporation (see Appendix 1).

2. Aims and Objectives

The aims of the assessment are:

- To identify sites with known archaeological or historical remains in the study area
- To identify sites with potential archaeological remains in the study area
- To locate, characterise and date these sites and assess their integrity, state of preservation and relative quality and significance
- To identify the impact of the proposed development on the archaeological

resource and cultural heritage of the study area

- To formulate a mitigation strategy for this impact or a strategy for further investigation where insufficient information is available for mitigation

3. Methodology

The historic environment desk-based assessment will be carried out according to the standards set down in the Chartered Institute for Archaeologists (CIfA) *Standard And Guidance for historic environment desk-based assessment* (December 2014, updated 2017) and according to the guidance provided by Historic England in their Conservation Principles, Policies and Procedure (English Heritage 2008) and recent guidance on analysing significance (Historic England 2019).

The study will cover an area with a radius of 1.5km around the centre of the site at NZ 544 213.

The desk based assessment will:

- define the principal sources and types of information
- catalogue the elements of the archaeological resource identified by interrogation of these sources
- present a chronological synthesis of the known archaeological resource in the study area
- assess the potential of the archaeological resource of the site
- assess the significance of the archaeological resource
- assess the impact of the development on that resource

4. Summary of Historic Environment Results

4.1 Designated Heritage Assets

Designated heritage assets primarily comprise Listed Buildings, Scheduled Monuments and Conservation Areas. These sites and areas are all protected by national legislation. The study area does not include any Conservation Areas or Scheduled Monuments, there are three listed buildings in the search area. These all lie in the nearby settlement of South Bank, in addition there are a further three also in South Bank but just outside the search area. All have been noted for the sake of completeness. These structures are all of 19th or 20th century date and relate to the development of South Bank as a result of the construction of the Iron and Steel works in the area. These are all sufficiently far from the development not to be affected by it and there are modern industrial concerns between the buildings and the proposed development which means that there is no issue of setting (Appendix 3).

4.2 Prehistory

Very little is known about the early prehistoric occupation of the area, although there is evidence for activity on the Eston Hills to the south and beneath the coastal peat beds that survive off Redcar to the east and the northern side of the Tees Estuary. People during this period are likely to have been exploiting the estuarine area for its rich diversity of all-year-round food sources.

The topographic information from boreholes suggest that the northern boundary of the development site was at the southern edge of the river channel, there is no evidence of peat deposits in the area which might contain information about past environments and the impact of people on the environment (Figure 4, Appendices 5 and 6).

The Late Bronze Age and Iron Age was a period of population increase with farming settlements spreading across the area. An Iron Age farmstead has been partially excavated 4.5km to the north east at Foxrush Farm and there is increasing evidence for occupation and activity around the northern edges of the estuary.

The south bank of the river was heavily re-claimed and altered from the mid-19th century and it is probable that this will have destroyed evidence of prehistoric activity in this area.

4.3 Roman

There is increasing evidence for Roman activity in the Tees Valley with the well-known fort and bridge site at Piercebridge being joined by newly discovered forts at Dalton on Tees and Newsham. Military activity along the coast is evidenced by the string of fortlets or signal stations of which the northernmost is at Saltburn.

Higher status civilian activity is now attested by villas at Piercebridge, Darlington, Dalton on Tees and Ingleby Barwick, while many of the Iron Age farmsteads continued in use into the Roman period and new settlements developed.

There is evidence for a Roman presence in the area in the form of stray finds from the Middlesbrough area and it is possible that the high ground adjacent to the Transporter Bridge, which was the site of the medieval settlement of Middlesbrough, may also have hosted Roman activity.

4.4 Early Medieval

Evidence of activity in the early medieval period in this area is restricted to the information that place-names can yield and the presence of sculpture of the Anglo-Scandinavian period (9/10th centuries AD) in a number of locations, usually churches. The majority of settlement names in this area were first recorded in the Domesday Book and are a mix of Anglo-Saxon and Scandinavian elements (Smith 1928):-

Eston - settlement to the east (Anglo-Saxon

Normanby – settlement of the Norwegians (Scandinavian)

Ormesby – Orm's farm (Scandinavian)

Lackenby – Lochan's farm (Scandinavian)

Lazenby – settlement of the freemen (Scandinavian)

There are pieces of Anglo-Scandinavian sculpture at Ormesby Church (Lang 2001) and these together with the place-names clearly indicate a strong Scandinavian presence in the general area.

4.5 Medieval

The earliest documentary information relating to the study area in the Medieval period is the Domesday Book (Page 1912), at this time the area was part of the parish of Ormesby and following the Norman conquest it was held by the Brus family, in addition land in the parish was held by Gisborough and Whitby Abbeys.

The settlements of this period, occupied much the same location as at the present day, around the 30m contour line at the foot of the Eston Hills. To the north the fields ran down to the marshy edge of the River Tees. Field names recorded on the first edition Ordnance Survey map of 1857 give a clear indication of the characteristics of the land up to its reclamation for industrial purposes in the 19th century (Figure 5). 'Swangs' is a name for a bog, while 'Low pastures' and 'The Pastures' clearly refers to the primary use of the land for grazing and the salt marsh was very good grazing land.

4.6 Post-Medieval

The major change between the medieval landscape and the 19th century industrial landscape was the enclosure of the fields which probably took pace in the first decade of the 19th century as it did at Normanby, Wilton, Lackenby and Lazenby (Figure 5).

4.7 Nineteenth and Twentieth Centuries

The 19th century saw the development of intensive industrial activity in the area accompanied by the re-clamation of land through the deposition of slag created by the large iron and steel industry that developed on the banks of the Tees. The historic landscape characterisation for the area reflects this industrial usage of the landscape (Figure 3).

a) Middlesbrough to Redcar Railway, 1846. This ran along the southern bank of the River Tees on an embankment and effectively created a southern limit for the river (Figure 5). The ground level on both sides of this embankment has been raised by later reclamation, this is clear when the bridges beneath the line are seen, with road surfaces well below current ground level. The railway line continues to operate and provides the northern boundary of the proposed development site.

b) Eston Branch Railway, 1851. The discovery of iron ore in the Eston Hills in 1850 prompted further activity in the area and this railway was built by

Bolckow and Vaughan to serve their ironstone mines at Eston. The former line of this railway is cut by the south-western corner of the development area (Figures 6- 10)

c) Eston Iron Works, 1853. With the ability to access a nearby source of ore and using coal from the Durham coalfields, Eston Iron Works was built by Bolckow and Vaughan (Figure 5) and this lies in the development area. The works comprised a line of six furnaces and was the second set of blast furnaces built by Bolckow and Vaughan in the Middlesbrough area. The use of this set of furnaces led to the abandonment of earlier ones in Middlesbrough as the Eston works were closer to the ironstone mines. In 1852 there were three blast furnaces on Teesside and in 1853 a further 113 were built as the development of the Iron and Steel industry on Teesside gathered pace. The construction of the Eston Iron Works marks the start of the iron and steel industry in this area and of the settlements that served them. There are no visible signs above ground of these ironworks but it is possible that remains survive below ground level.

d) Cleveland Works 1874 – 76. Bolckow and Vaughan were the leading firm on Teesside in developing steel production as opposed to iron. This took the initial form of the use of Bessemer conversion vessels, four of these were located on 3.7m high platforms in the north western part of the development area but their precise location is unknown, These were served by a new set of three, 20m high, blast furnaces which were oriented north-south and replaced the original Eston Iron Works, which were demolished (Figure 6; Harrison 1978). The development area was the first location on Teesside at which steel was produced in bulk (Almond 1979, 171 -172).

e) Grangetown and South Bank (formerly 'Tees Tilery'). These settlements were brought into existence in the latter half of the 19th century to provide the workforce for the new industries. Grangetown was very much focussed on the Iron and Steel works while South Bank was also involved in shipbuilding and related industries. Both can be seen as classic late 19th century industrial communities and they have the typical house types and institutions of such communities. While both have seen some change a number of important buildings still survive in both, neither of these communities fall within the development area but three listed buildings in South Bank fall within the 1.5km study area for the projects and a further three are immediately adjacent and are listed here for the sake of completeness (Appendix 3: Figures 6-10).

f) Bessemer Blast Furnaces, *c.*1911. The original three furnaces of the Cleveland Works were replaced by two 'Bessemer' furnaces between 1911 and 1913 (English Heritage unpub). These were known as 'Yankee' furnaces in that they copied American practice. The name of these was taken from their proximity of the Bessemer converters. One of these (No 4) continued in use until 1993. The other was demolished after the First World War and a

further furnace (No 5) was constructed in 1937. The latter continued in use until 1986. These furnaces were served by a 'Hi Line' where the charge was run straight to the top off an elevated rail line. The surviving embankment was part of this rail line and it was carried to the blast furnaces on metal trestles (Figures 7-11, 24, 25).

The Blast Furnaces had Blast Stoves attached to them to provide the hot gases needed to achieve the blast, the location of these also lies in the development area as do the remains of late coke ovens (in the south western part of the site) and part of a rolling mill as well as the former laboratory and welfare facilities. To the immediate east of the furnaces were cooling towers (Figures 10, 11, 24 & 25).

Following the decommissioning of the blast furnaces consideration was given to retaining one of them (No 4, built 1911) as a possible heritage site. As part of this process English Heritage (now Historic England) assessed the historic importance of the furnace and came to the conclusion that it was of national importance. While all the superstructure has gone the bases of these furnaces are clearly visible on the ground and lie within the development area (English Heritage Unpub).

g) In 1913 Bockow and Vaughan replaced the Bessemer converters with a set of open hearth steel making furnaces (North Steel Plant) and a South Steel Plant was constructed during the First World War (OS 25 inch Yorks VI. 12, 1913 pub 1915). These plants lie to the east of the development area, but within the study area. The difficult economic circumstances after the war meant that they were shut down by 1928 (Figures 8 - 11; Malcolm 1990, Cowburn 2016).

h) In 1929 Bolckow and Vaughan was bought by Dorman Long and as the economic situation improved prior to the Second World War changes were made. By the Second World War rolling mills had been established to the east of the development area (Figures 8 - 11; OS 25 inch Yorks VI. 12, 1927).

i) Clearance of structures from the site took place form the late 1980s onwards and had been completed by the end of the 20th century.

5. Impact of Development

The site is characterised by hard surfaces, usually concrete, but tarmac is also present. In some cases there are rail lines embedded in the concrete. Clear evidence of a number of structures are visible despite the later dumping and scrub generation. These include the brick foundations of buildings, concrete lined tanks, concrete bases for structures and the remains of the bases of the late 19th century line of blast furnaces. These bases preserve details of their construction and method of use and contain at least one salamander (Figure 12 – 23).

The development will be based on piled foundations and will be preceded by remediation works to be carried out by the South Tees Development Corporation. It is understood that this remediation will be to a depth of 2-3m.

The remediation and piling are likely to cause severe damage to the visible and below ground remains on the site.

6. Conclusions

6.1 Historical Development

There is currently no evidence for settlement or other activity on the site prior to the post-medieval period, however the absence of evidence cannot be taken as confirmation that the site was not utilised in these periods. It appears to have been used for agriculture from the Post-Medieval period onwards, until its development in the latter part of the 19th century.

In the 19th century the land was used for iron and steel making being one of the earliest sites of blast furnaces on Teesside and at the forefront of the development of steel production in the area. The use of the site for the manufacture of steel continued into the late 20th century. Once this use ceased structures were demolished and the area cleared to ground level with the exception of the late 19th century blast furnace bases which survive. Subsequently the area has seen the deliberate tipping of materials to variable depths across the site and there is natural scrub regeneration.

6.2 Archaeological Potential

Archaeological potential or Evidential Value (see below) is graded from low to high. It is considered that the potential of the site for the presence of archaeological remains (other than field boundaries) of each of the above periods is as follows:

Prehistoric	Low
Roman	Low
Early Medieval	Low
Medieval	Low
Post-Medieval	Low
19th and 20th Centuries	High

The site has been subject to extensive reclamation activities which have raised the ground level significantly and the subsequent creation and demolition of iron and steel works. This will limit the potential for the survival of archaeological remains of pre-19th century date. The actual and potential survival of significant archaeological remains that will throw light on the industrial processes that took place on the site is considered to be high.

6.3 Archaeological Significance

The significance of a heritage asset can be assessed in terms of its Evidential, Historical, Aesthetic and Communal value (English Heritage 2008, 28 -32). Evidential value is the potential of the location to provide information about the past and this is set out in 6.2 above. Historical value derives from its ability to link communities to the past. Aesthetic value relates to the sensory and intellectual stimulation provided by a location, while Communal value looks at the meaning of the place for communities.

Period	Historical Value	Aesthetic Value	Communal Value
Prehistoric	Low	Low	Low
Roman	Low	Low	Low
Early Medieval	Low	Low	Low
Medieval	Low	Low	Low
Post-Medieval	Low	Low	low
19th and 20th Centuries (see below)	High	Low	Medium

6.3.1 Prehistoric to Post Medieval Remains

There is low potential for these and there is nothing to suggest that there are substantive archaeological remains or that they are of any significance.

6.3.2 19th and 20th Century Remains

The core of the 19th and 20th century remains are the sites of the blast furnaces, which are surrounded by a range of ancillary structures which related to their use and the use of their product.

Historic Value

Both the site of the Eston Iron Works and the blast furnaces of the Cleveland Steel Works are of historic significance in terms of the development of processes to produce iron and later steel on a commercial basis.

Their historical significance also lies in their clear proximity to the source of the ore they used and their presence was a major contributing factor to the development of the ironstone mining industry in the Eston Hills and beyond and particularly the mines developed by Bolckow and Vaughan.

The development of the Iron and Steel industry in this location led directly to the creation of the settlements of Grangetown and South Bank, many of the inhabitants of which worked here.

Aesthetic Value

The degree of clearance of the site has removed the industrial structures that once dominated the skyline in the area and provided a clear point of contact with the purpose of the surrounding communities (Figures 24 & 25). The sensory significance of the site is low from that point of view however the remaining blast furnace bases allow an understanding the core processes that took place at the site and as such are intellectually stimulating.

Communal Value

At present the community has no access to the site and no understanding of the remains that survive on site. The demolition of the visible structures of the site has severed its connection to the local communities, however there is a strong possibility that the local community could engage with the surviving blast furnaces as clear and understandable links to the past of their area.

6.3 Recommendations

The extent of land reclamation means that there is little potential for archaeological finds of significance preceding the use of the site for iron and steel manufacture. While virtually all structures and plant have been cleared from the site there are sufficient remains to allow an understanding of the site and some of the processes which took place during its use in the production of iron and steel. There is a high potential for remains of significance relating to the 19th and 20th century use of the site.

On this basis it is recommended that:-

e) The surviving bases of the late 19th and 20th century blast furnaces should be retained on site and consideration be given to their proper preservation and

interpretation. (Figure 26 gives an indication of the area involved, the precise area and size of this needs to be identified through detailed survey)

f) There should be an archaeological survey of the site as at present in order to record surviving features.

g) There should be archaeological analysis of the sequence of trial trenches and boreholes that South Tees Development Corporation is proposing to better understand the archaeology of the site and to attempt to identify the precise location and possible survival of the 1853 Eston Iron Works Blast Furnaces.

h) There should be archaeological monitoring of ground disturbance works in the vicinity of the surviving blast furnace bases and those of the Eston Iron Works to record features related to their use.

Appendix 1: Site Visit

A site visit took place on Tuesday 12th November 2019, this was carried out by Robin Daniels and Janice Adams of Tees Archaeology, assisted by Darren Edmends of South Tees Development Corporation. The visit lasted for 2 hours and involved a walk over of the proposed development area.

There was a general spread of debris across the site and it is clear that there has been large scale deliberate tipping of materials across the site, this is uneven with significant dumps of material up to 2m high in places, while in others the operational ground level is clearly visible. The concrete surfaces of the operational works are visible in a number of occasions and these include both raised and sunken surfaces. As far as it is possible to ascertain it is probable that there is good survival beneath this tipping (Figures 12 – 16).

It was clear from the site visit that considerable evidence of the former use of the site survives. This takes the form of the concrete bases of the former installations. In a number of cases rail line was still clearly visible set into the concrete and brick foundations of buildings were also visible (Figures 12 – 16).

In addition to the concrete features the bases of blast furnaces were visible as significant raised mounds *c.* 2m high with their adjoining raised working surfaces. These occupied an area roughly 100m north south and 50m east-west. There was visible detail in the sides of these mounds with in one case a stone base (of probable 19th century date) clearly visible as were brick built conduits, probably providing access for the blast. There were significant voids in places around the base of these mounds and in some cases dumped material had been pushed up against mounds (Figures 17 – 23).

One plug of iron (salamander) had been removed probably from the site of No 5 furnace of 1937 leaving a hole in the middle and this was sited about 50m away to the west of the mounds (Figure 22). In addition a significant section of concrete bridge decking had been placed against the western edge of the mound (Figure 23).

RD 14/11/2019

Appendix 2: Sources

The desk based assessment reviewed the following sources for information about the area within a 1.5 km radius of the site (the study area):

- The Historic Environment Record (HER) for Redcar and Cleveland
- The online version of the National Record of the Historic Environment (NRHE).
- Written local histories and other published information held by Tees Archaeology (TA)
- Online map resource for Geology and borehole information provided by the British Geological Survey
- Ordnance Survey Maps of the area
- Aerial Photographs of the area

These sources were searched for the following types of information:

- The Historic Environment Record is a register of known archaeological sites and monuments, historic buildings, and isolated artefactual finds, maintained by Redcar & Cleveland Borough Council. The Historic Environment Record identifies 34 sites in the study area.
- The National Record of the Historic Environment (NRHE) is a register of known archaeological sites and monuments, historic buildings, and isolated artefactual finds, maintained by Historic England. The NRHE identifies two sites in the study area, both of which are recorded in the HER.
- Scheduled Monuments are archaeological sites or historic buildings identified by Historic England as being of national importance, and are protected by law from unauthorised disturbance. Any work on a Scheduled Monument requires Scheduled Monument Consent from the Secretary of State for Digital, Culture, Media and Sport. There are no Scheduled Monuments in the study area.
- Listed Buildings are buildings identified by Historic England as being of special architectural or historic interest and placed on a statutory list by the Secretary of State for Digital, Culture, Media and Sport. There are three grades of listing, I II* and II. Alterations require listed building consent from the local planning authority. There are three listed buildings in the study area, South Bank Baptist Church (Grade II*), South Bank Church of St John the Evangelist (Grade II) and South Bank War Memorial (Grade II). These are contained within the Historic England list, https://historicengland.org.uk/listing/the-list/ .
- Other national designations including Lists of Conservation Areas, World Heritage Sites, the Register of Parks and Gardens of special historic interest in England, the Register of Historic Battlefields and any other relevant designations. There are no such designations in the area.

- Local Lists of locally important buildings and structures have been compiled by many local authorities but are not provided by Redcar & Cleveland.
- Primary documentary source, comprising the 1983 demolition plan, provided by Darren Edmends.
- Secondary documentary sources such as published histories are held by Tees Archaeology. Those consulted in this assessment are listed in section 7.
- Historic maps such as Ordnance Survey maps, Tithe maps and Estate maps are held by Tees Archaeology. The full range of Ordnance Survey maps from the First Edition to the present was consulted at Tees Archaeology and online using the National Library of Scotland map resource https://maps.nls.uk/. Only the most relevant have been referenced in this report.
- Aerial photographs taken by the RAF during and after World War II are held by Tees Archaeology.
- Satellite imagery is available from a number of sources including Google and Microsoft, these have been checked.
- LIDAR imagery is available for parts of England and can be found at:

  https://maps.nls.uk/geo/explore/side-by-side/#zoom=16&lat=54.5847&lon=-1.1541&layers=1&right=LIDAR_DSM_1m
- A site visit was made to identify any visible archaeological remains and assess the potential for the survival of archaeological remains on the site (See Appendix 1).

Appendix 3: Listed Buildings within and adjacent to the Study Area

These are all sited within South Bank

National Monument No.	Grade	HER No.	Site_Name	Form
1160408	II*	1253	Baptist Church	Brick Church of 1905
1329634	II	810	King George;s Square War Memorial	War memorial of c. 1920, granite with bronze plaques and figures
1329635	II	5630	Church of John the Evangelist	Brick Church of 1893-5
Outside Study Area				
1310598	II	5399	1 Milbank Street	Brick Presbytery of 1881
1139622	II	879	Church of St Peter	Brick Roman Catholic Church of 1903-5
1160378	II	4706	War memorial to SW of St Peter's Church	Concrete war memorial of 1920

Appendix 4: Catalogue of the sites of archaeological or historical interest within the study area

The catalogue lists all the sites of archaeological or historical interest within the study area recorded on the Redcar & Cleveland Historic Environment Record, of which there are 34 in total, shown on Figure 1.

HER	NGRE	NGRN	Parish	Site_Name	Form	Period (Century)
810	453433	520790	Ormesby	King George;s Square War Memorial	WAR MEMORIAL (Grade II)	20TH
1253	453535	520776	Ormesby	Baptist Church	CHURCH (Grade II*)	20TH
1831	454380	521250	Kirkleatham	Cleveland Ironworks	FURNACE	20TH
4258	453790	521390	Ormesby	Eston Junction	RAILWAY STATION	19TH
4358	453790	521390	Ormesby	Eston Junction	RAILWAY STATION	19TH
4360	454930	521830	Ormesby	Eston Grange (Grangetown)	RAILWAY STATION	19TH
4782	455240	522110	Kirkleatham	Grangetown	SIGNAL BOX	20TH
5341	453820	521050	Ormesby	Cargo Fleet Offices	OFFICE	20TH
5602	456000	523000	Ormesby	Normanby Jetty to South Gare		19TH
5608	453110	521790	Ormesby	Clay Lane Jetty	JETTY	19TH
5612	452850	521750	Ormesby	Eston Jetty	JETTY	19TH
5615	453250	516900	Ormesby	Tees Tilery	BRICK & TILEMAKING SITE	19TH
5618	453600	521200	Ormesby	Clay Lane Slag Works	IRON WORKING SITE	19TH
5619	453700	521250	Ormesby	Clay lane Iron Works	IRON WORKING SITE	19TH
5620	453760	521130	Ormesby	Clay Lane Iron Works Tramway	TRAMWAY	19TH
5624	453952	521823	Ormesby	Antonien Works	AGRICULTURAL CHEMICAL SITE	19TH
5625	453900	521500	Ormesby	South Bank Iron Works	IRON WORKING SITE	19TH
5626	455000	519800	Ormesby	Eston Branch Railway	RAILWAY	19TH
5627	454080	521230	Ormesby	Furnace Row	WORKERS VILLAGE	19TH
5628	454187	521177	Ormesby	Gas Works	GAS WORKS	19TH

HER	NGRE	NGRN	Parish	Site_Name	Form	Period (Century)
5629	454160	521340	Ormesby	Cleveland Iron Works	IRON WORKING SITE	19TH
5630	453523	520721	Ormesby	Church of John the Evangelist	CHURCH (Grade II)	19TH
5631	454350	521390	Ormesby	Eston Iron Works	IRON WORKING SITE	19TH
5632	454200	521800	Ormesby	Spoil Ground	INDUSTRIAL SITE	19TH
5633	454450	521460	Ormesby	Cleveland Steel Works	STEEL WORKS	19TH
5646	455115	521773	Ormesby	Old Clay Pits	CLAY PIT	19TH
5647	455370	522220	Ormesby	Lackenby Station	RAILWAY STATION	19TH
5649	455180	521990	Ormesby	Brick Field	BRICKEARTH PIT	19TH
5908	451970	520660	Ormesby	N.E.R. (Darlington Section)	RAILWAY	19TH
6298	453465	520700	Ormesby	Normanby Road Methodist	CHURCH	19TH
6299	453425	520838	Ormesby	Princess Alice	PUBLIC HOUSE	19TH
6301	453405	520883	Ormesby	The Commercial	PUBLIC HOUSE	19TH
6302	453412	520861	Ormesby	The Erimus	PUBLIC HOUSE	19TH
6304	453278	520628	Ormesby	South Bank	SETTLEMENT	19TH

Appendix 5: Table of Borehole Logs from British Geological Survey (see Figure 4)

Borehole	Colour	Deposit	Thickness in Meters
NZ52SW628	Dark grey	Made Ground	1.3
	Brownish orange	Sandy clay	0.7
	Dark brown	Laminated clay	6.15
NZ52SW629	Dark brown to grey	Made Ground	1.6
	Brown	Sandy clay	1.75
	Dark brown	Laminated clay	8.85
NZ52SW630	Dark grey	Made Ground	2.5
	Orange brown	Sandy clay	1.4
	Dark grey brown	Laminated clay	6.7
NZ52SW624	Dark grey	Made Ground	1.43
	Light brown grey	Sandy clay	0.87
	Orange brown	Sandy clay	0.8
	Dark brown	Laminated clay	8.5
NZ52SW623	Dark grey	Made Ground	2.35
	Orange brown	Sandy clay	1.1
	Dark grey brown	Sandy clay	8.7
NZ52SW622	Reddish brown	Made Ground	2.9
	Dark grey brown	Made Ground	1.9
	Grey brown	Sandy clay	0.7
	Dark grey brown	Sandy clay	Not recorded
NZ52SW621	Dark brown grey	Made Ground	1.2
	Not recorded	Made Ground	1.45
	Black	Void/cavity, infilled with odorous black tar/contaminated slurry.	2.85
		Obstruction prevented further penetration	
NZ52SW620	Dark grey	Made Ground	1.6
	Orange brown	Sandy clay	2
	Dark grey brown	Sandy clay	5.8
NZ52SW131/D	Not recorded	Topsoil and slag	0.15

Borehole	Colour	Deposit	Thickness in Meters
	Brown	Sandy silty clay	0.91
	Brown	Silty clay	4.57
	Reddish brown	Sandy silty clay	3.2
	Grey brown	Sandy clay	0.45 (penetrated only)
NZ52SW131/C	Not recorded	Made Ground	1.88
	Brown	Silty clay	0.81
	Brown	Silty Clay	1.87
	Reddish brown	Sandy silty clay	3.81
	Dark grey	Shale	0.6 (penetrated only)
NZ52SE17/B	Not recorded	Made Ground	1.37
	Brown	Clay loam	2.13
	Brown	Clay loam	1.37
	Red	Clay loam	1.98
	Grey brown	Shale	1.21
	Grey	Shale	1.06
NZ52SE2/C	Not recorded	Rubble	0.3
	Yellow Grey	Clay	0.91
	Brown	Clay	0.91
	Yellow Grey	Clay	0.91
	Reddish brown	Clay	5.18
	Dark grey	Clay	0.91
NZ52SW131/B	Not recorded	Made Ground	1.82
	Grey	Silty clay	0.3
	Brown	Silty clay	3.35
	Reddish brown	Silty clay	2.43
	Greenish grey	Sandy clay	0.3

https://www.bgs.ac.uk/data/boreholescans/home.html

Appendix 6: Table of Entec 2011 Borehole Summaries

Borehole	Surface level (mOD)	Depth to Silt (mOD)	Depth to sand (mOD)	Depth to clay (mOD)	Depth to bedrock (mOD)
T10 38	8.71	Not present	Not present	4.71	-10.29
T10 39	8.62	Not present	5.62	5.32	-11.18
T11 42		Obstruction at 0.2m			
T11 43	8.05	Not present	Not present	6.85	-13.45
T11 44	8.26	Not present	Not present	7.06	-12.74
T12 45	7.66	Obstruction at 0.4m			
T12 47	7.71	Obstruction at 0.2m			
T12 48	7.71	Not present	Not present	6.31	-13.29
T13 49	6.55	Not present	Not present	4.85	-8.45
T13 50	6.63	Not present	Not present	4.43	-8.37
T13 51	6.70	Not present	Not present	2.50	-8.30
T13 52	6.39	Not present	Not present	3.89	-8.61
T14 53	9.24	Not present	Not present	6.04	-1.26
T14 54	9.35	Not present	Not present	4.45	-1.25
T14 55	9.34	Not present	Not present	3.44	-2.46
T14 56	9.25	Not present	Not present	6.75	-1.75

Entec 2011 Electricity Alliance- East; Scheme 15509-02 ZZA Tees Crossing; Geoarchaeological Assessment (Tees Archaeology HER Event No 881)

Appendix 7: Aerial Photographs consulted as part of the study

Reference	Description	Source
EPW010144	The Cleveland Steel Works, Grangetown, 1924	https://www.britainfromabove.org.uk/en
EPW010143	The Cleveland Steel Works, Grangetown, 1924	https://www.britainfromabove.org.uk/en
EPW010142	The Cleveland Steel Works, Grangetown, 1924	https://www.britainfromabove.org.uk/en
EPW010149	The Cleveland Steel Works, Grangetown, 1924	https://www.britainfromabove.org.uk/en
RAF 541/23 4120	Vertical image showing steelworks dated 16/05/1948	Tees Archaeology
RAF 541/23 4121	Vertical image showing steelworks dated 16/05/1948	Tees Archaeology

7. References and Bibliography

Almond, J 1979 *Steel Production in North East England before 1880*, in ed C A Hempstead

Cowburn, J 2016 Teesside Cast Products Its Railways and Origins

English Heritage unpub Cleveland Iron Furnaces, Grangetown, Middlesbrough: Preliminary Position Statement by English Heritage

English Heritage 2008 Conservation Principles, Policies and Guidance

Entec 2011 Electricity Alliance – East; Scheme 15509-02 ZZA Tees Crossing, Geoarchaeological Assessment

Harrison, J 1978 Industrial Archaeology in Cleveland – A Guide

Heggie, J 2013 Middlesbrough's Iron and Steel Industry

Hemstead, C A ed 1979 Cleveland Iron and Steel

Historic England 2019 Statements of Heritage Significance: Analysing Significance in Heritage Assets, Historic England Advice Note 12

Lang, J 2001 Corpus of Anglo-Saxon Stone Sculpture Vol VI, Northern Yorkshire

Malcolm, I C 1990 *Dorman Long and Company Ltd, 1889 – 1967. Notes towards a History,* in The Cleveland Industrial Archaeologist, 20

National Grid 2010 Proposed Overhead Line Works Associated with the Provision of a Realigned Crossing for the River Tees. Teesside Environmental Statement Vol 1 Text

Page, W (ed.) 1912 The Victoria History of the Counties of England: Yorkshire Vol II (TA)

Page, W (ed.) 1923 The Victoria History of the Counties of England: Yorkshire North Riding Vol II (TA)

Petts, D 2006 Shared Visions: The North-East Regional Research Framework for the Historic Environment Durham: Durham County Council (TA)

Smith, A H 1928 The Place-Names of the North Riding of Yorkshire

Taylor, B J et al 1971 British Regional Geology: Northern England London: HMSO (TA)

Wardell Armstrong 2007 South Tees Eco-Park Environmental; Statement

Watts, V. 2002 A Dictionary of County Durham Place-Names Nottingham: English Place-Name Society, Popular Series Volume 3 (TA)

Maps

Ordnance Survey First Edition map of 1857, 6 inches to 1 mile = 1:10560

Ordnance Survey Second Edition map of 1894, 6 inches to 1 mile = 1:10560

Ordnance Survey Third Edition map of 1919, 6 inches to 1 mile = 1:10560

Ordnance Survey Fourth Edition map of 1938, 6 inches to 1 mile = 1:10560,

Ordnance Survey First Edition map of 1895, 1:2500 = 25.344 inches to 1 mile,

Ordnance Survey Second Edition map of 1899, 1:2500 = 25.344 inches to 1 mile,

Ordnance Survey Third Edition map of 1915, 1:2500 = 25.344 inches to 1 mile,

Ordnance Survey Third Edition map of 1929, 1:2500 = 25.344 inches to 1 mile,

Websites

CLEVELAND WORKS BLAST FURNACE GRANGETOWN TEESSIDE DEMOLITION 1994 REMAKE : https://www.youtube.com/watch?v=7DnXcPouT0k

http://www.heritagegateway.org.uk/gateway

http://www.magic.gov.uk/default.htm

https://www.bgs.ac.uk/discoveringGeology/geologyOfBritain/viewer.html

https://britainfromabove.org.uk/en/image/EPW010149

http://www.thelandreader.com/wp-content/uploads/2015/03/Map-Reader%E2%80%99s-Companion-for-Upland-England.pdf

http://enclosuremaps.data-archive.ac.uk/search

Figures

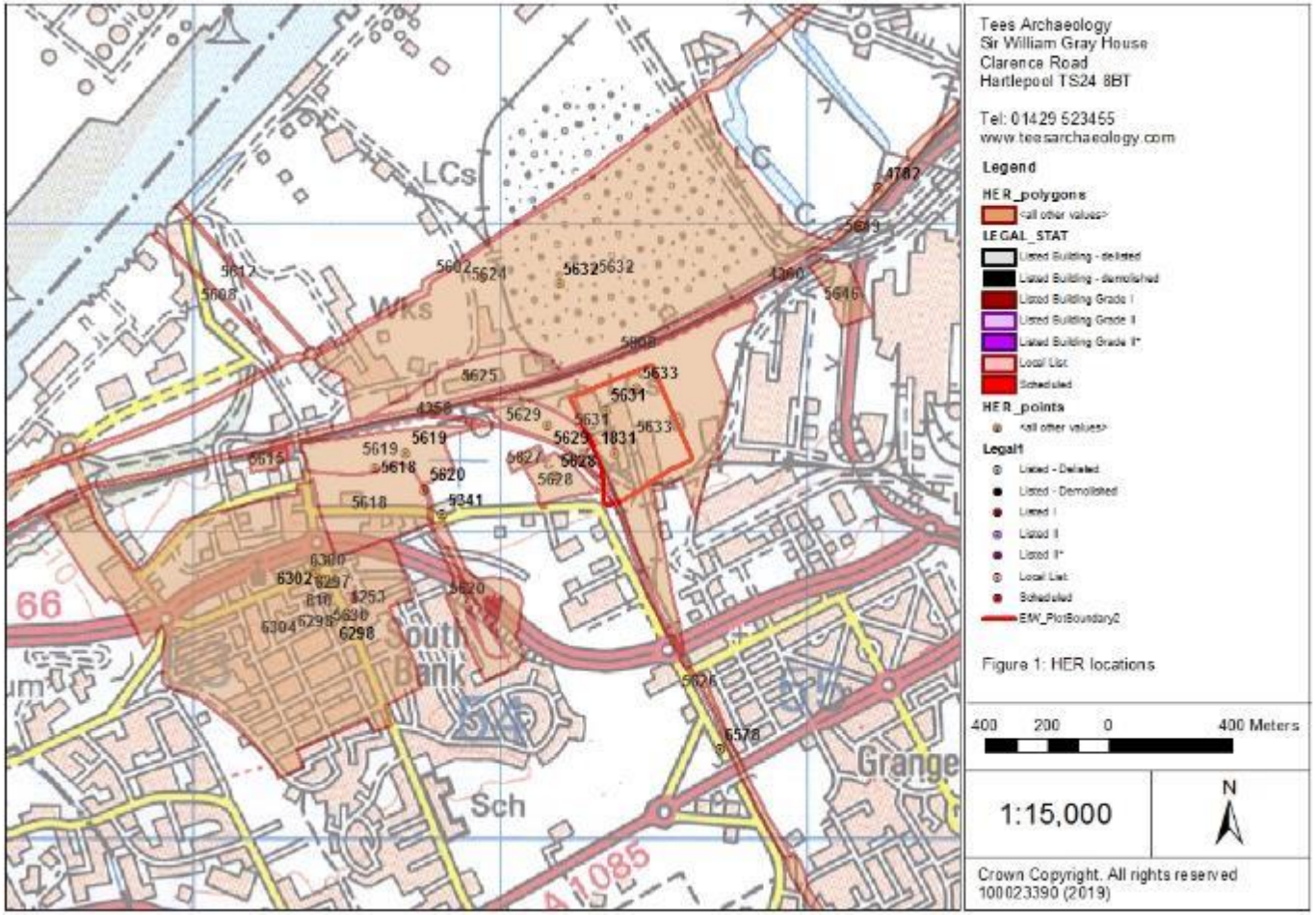


Figure 1: Site Location and Redcar & Cleveland HER records

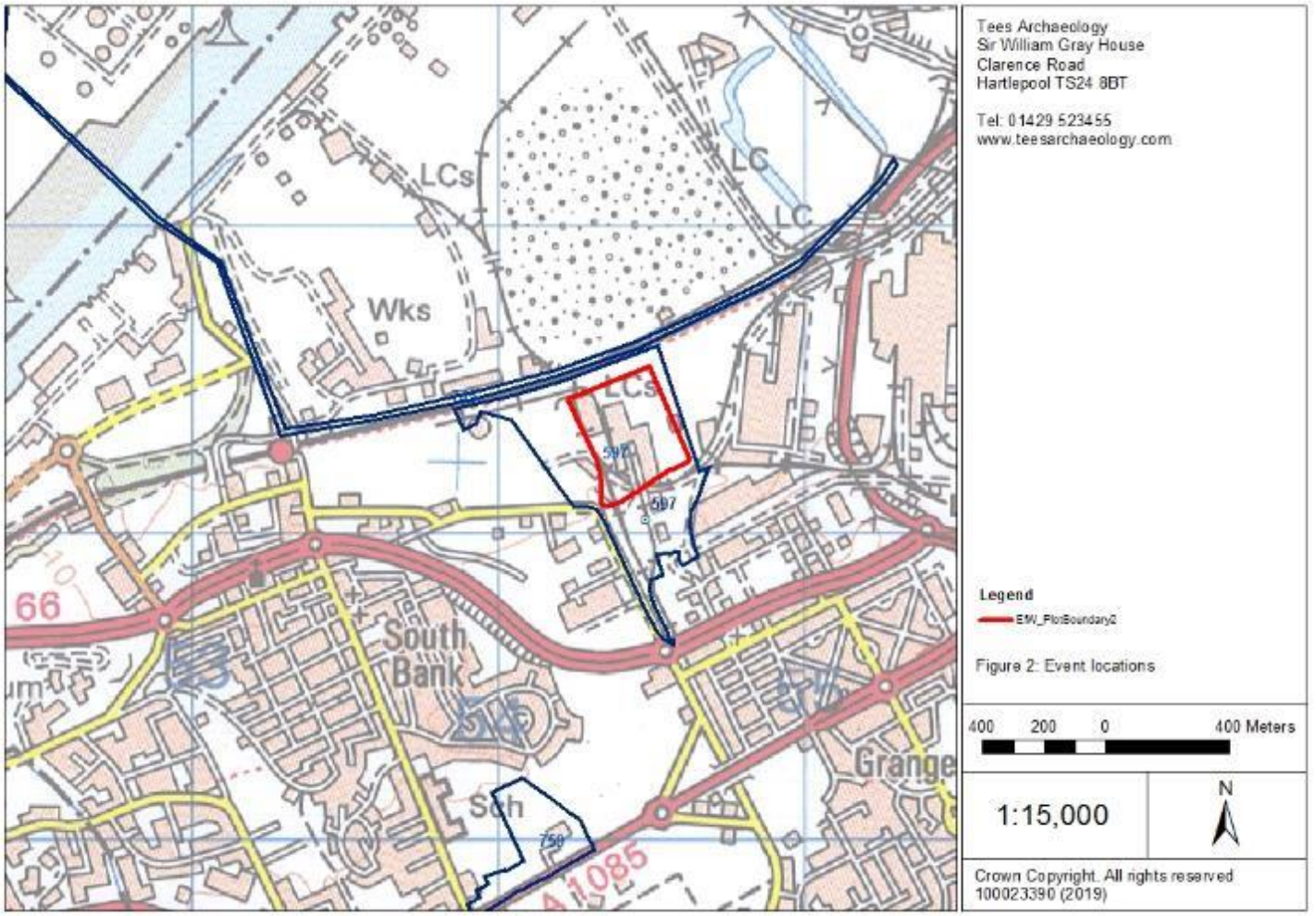


Figure 2: Location of Events recorded on the Redcar & Cleveland HER

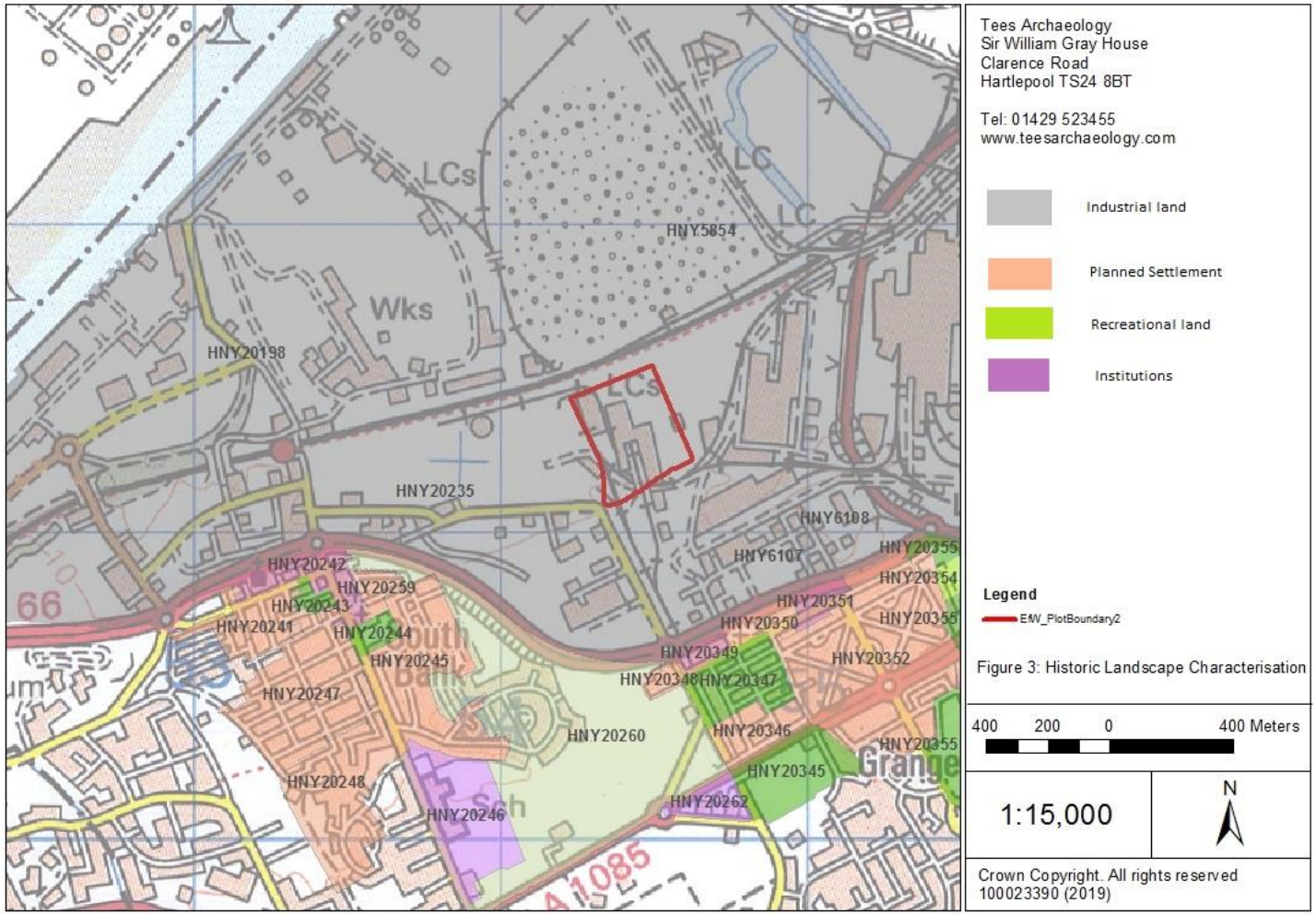


Figure 3: Historic Landscape Characterisation of the area.

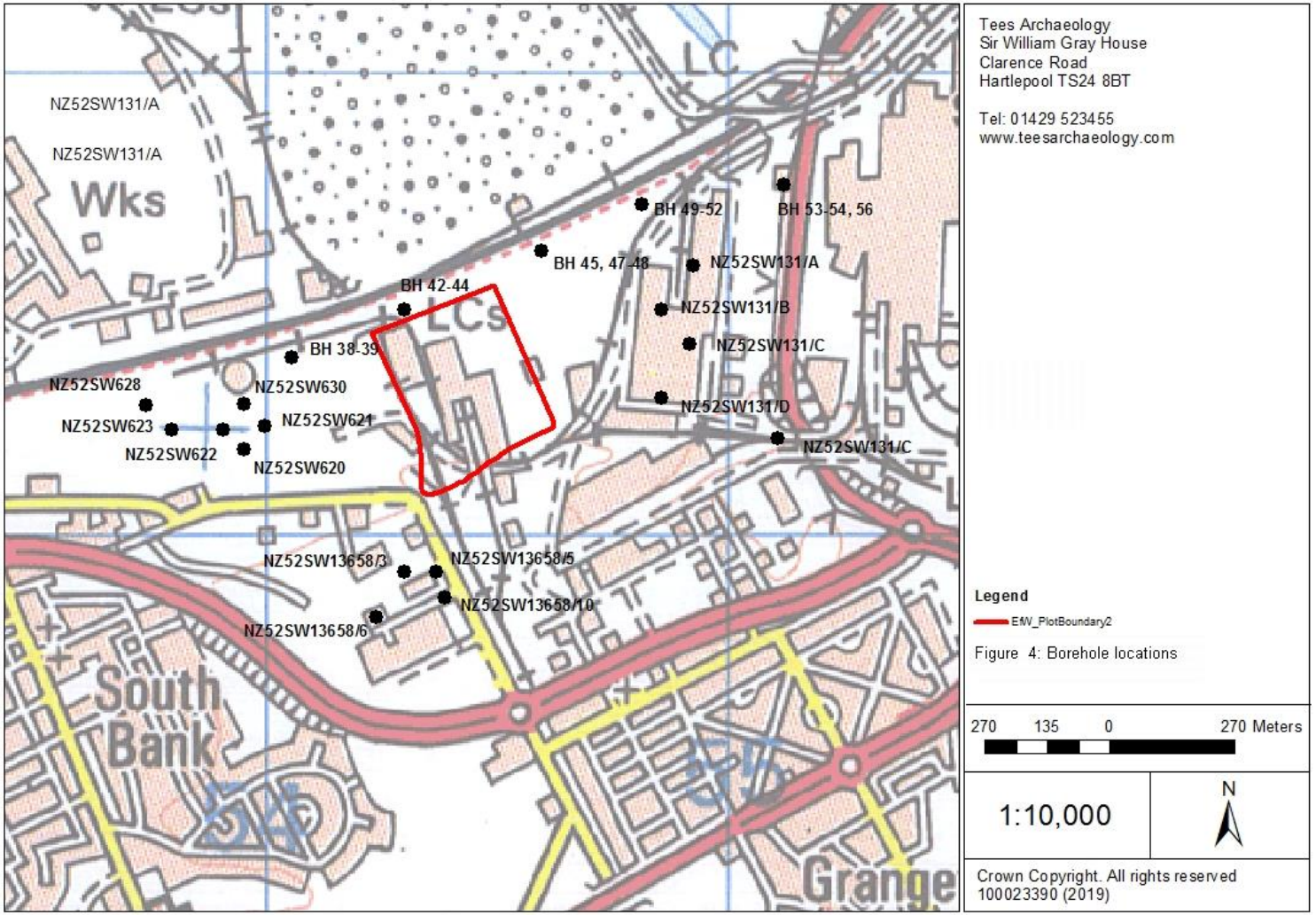


Figure 4: Borehole Locations

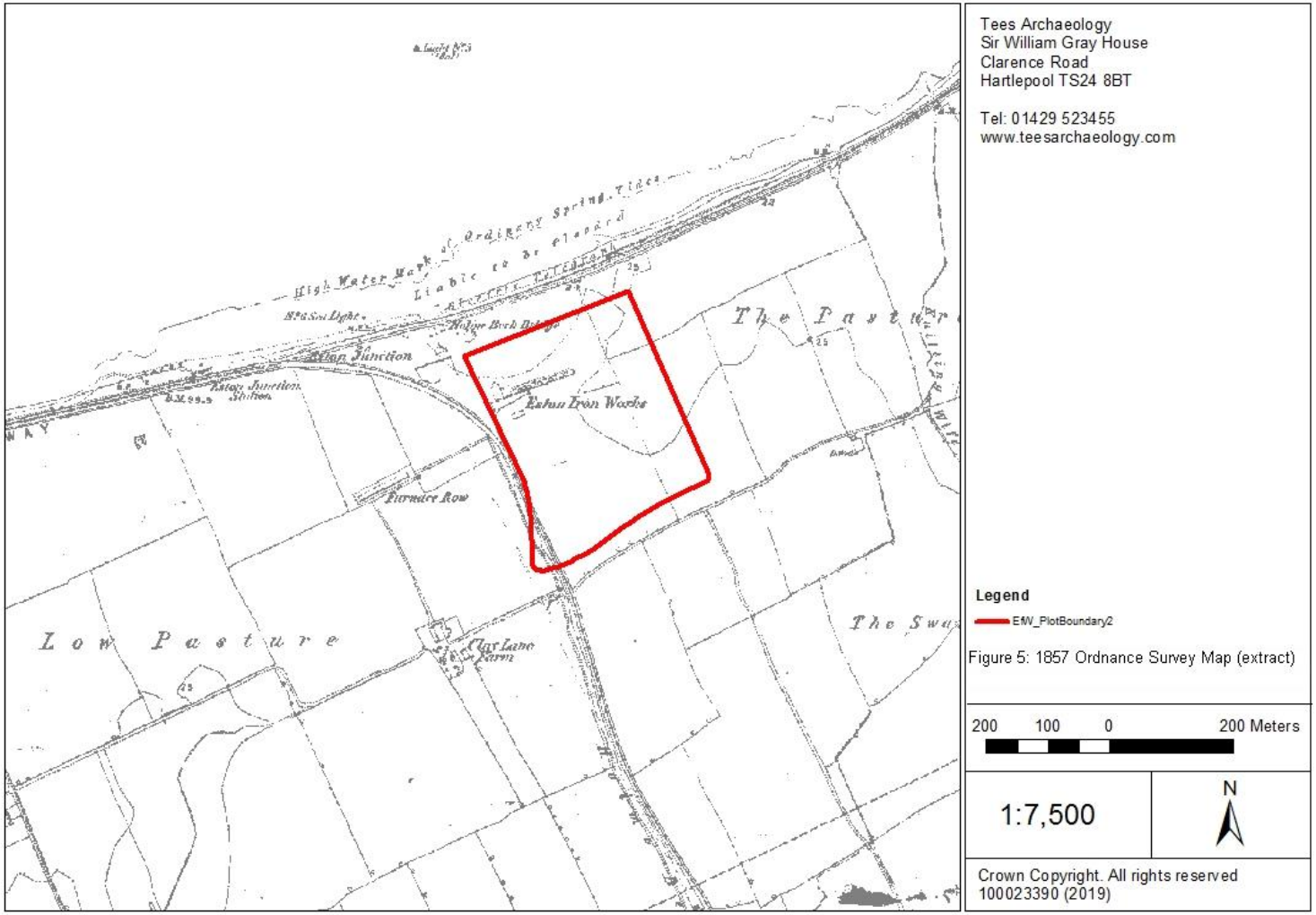


Figure 5: Extract; 1857 Ordnance Survey map, 6 inch to the mile

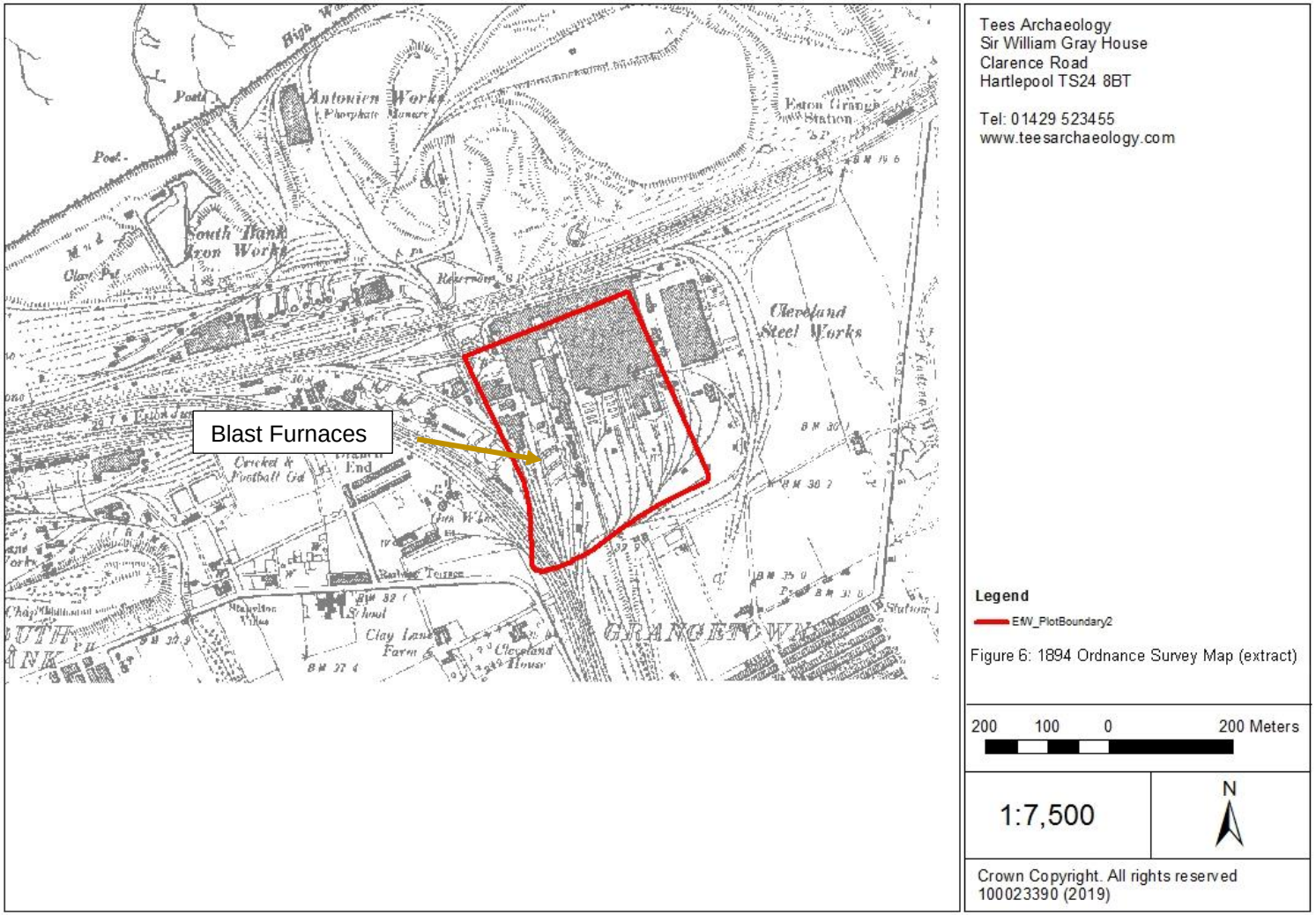


Figure 6: Extract; 1894 Ordnance Survey map, 6 inch to the mile

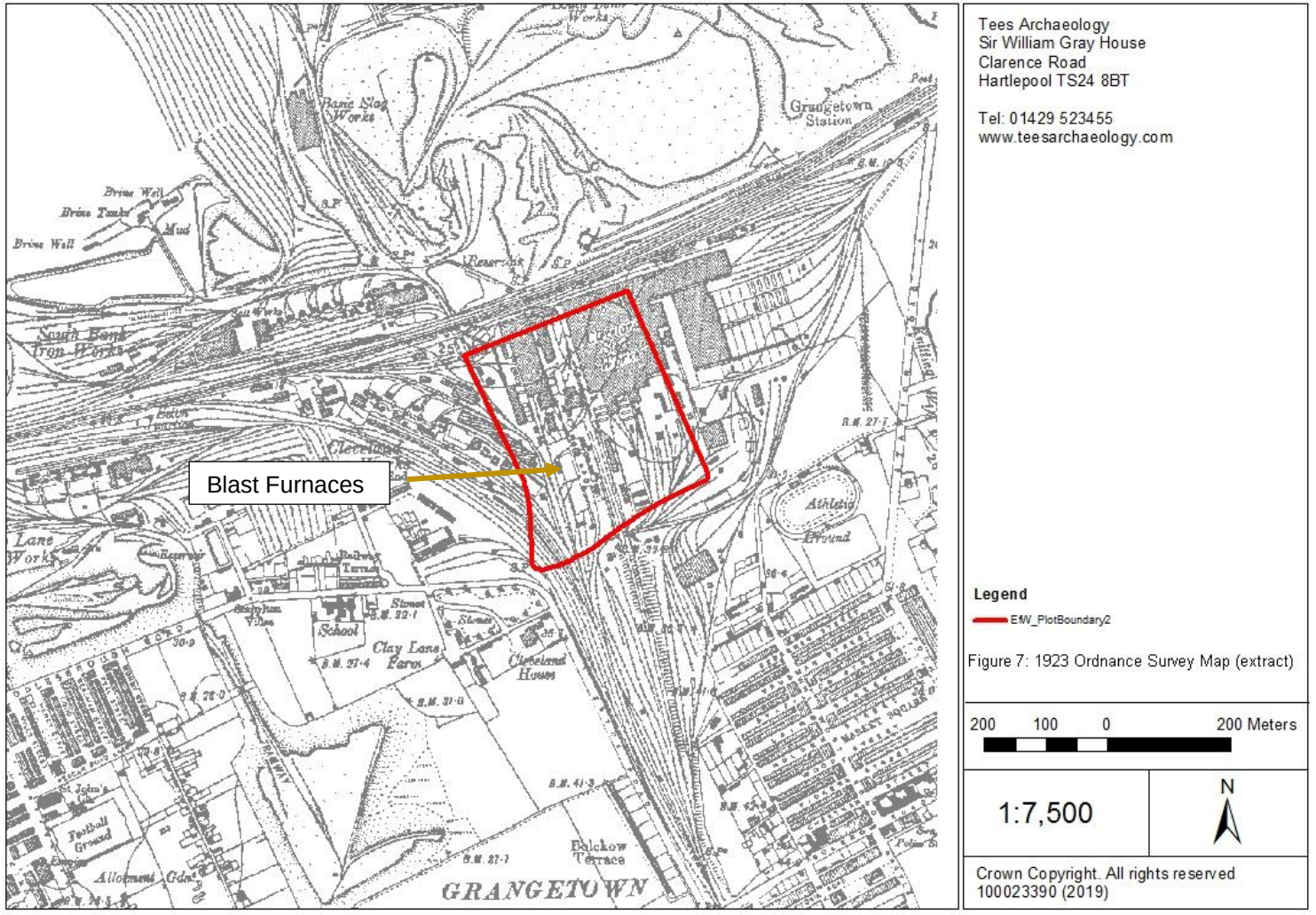


Figure 7: Extract; 1923 Ordnance Survey map, 6 inch to the mile

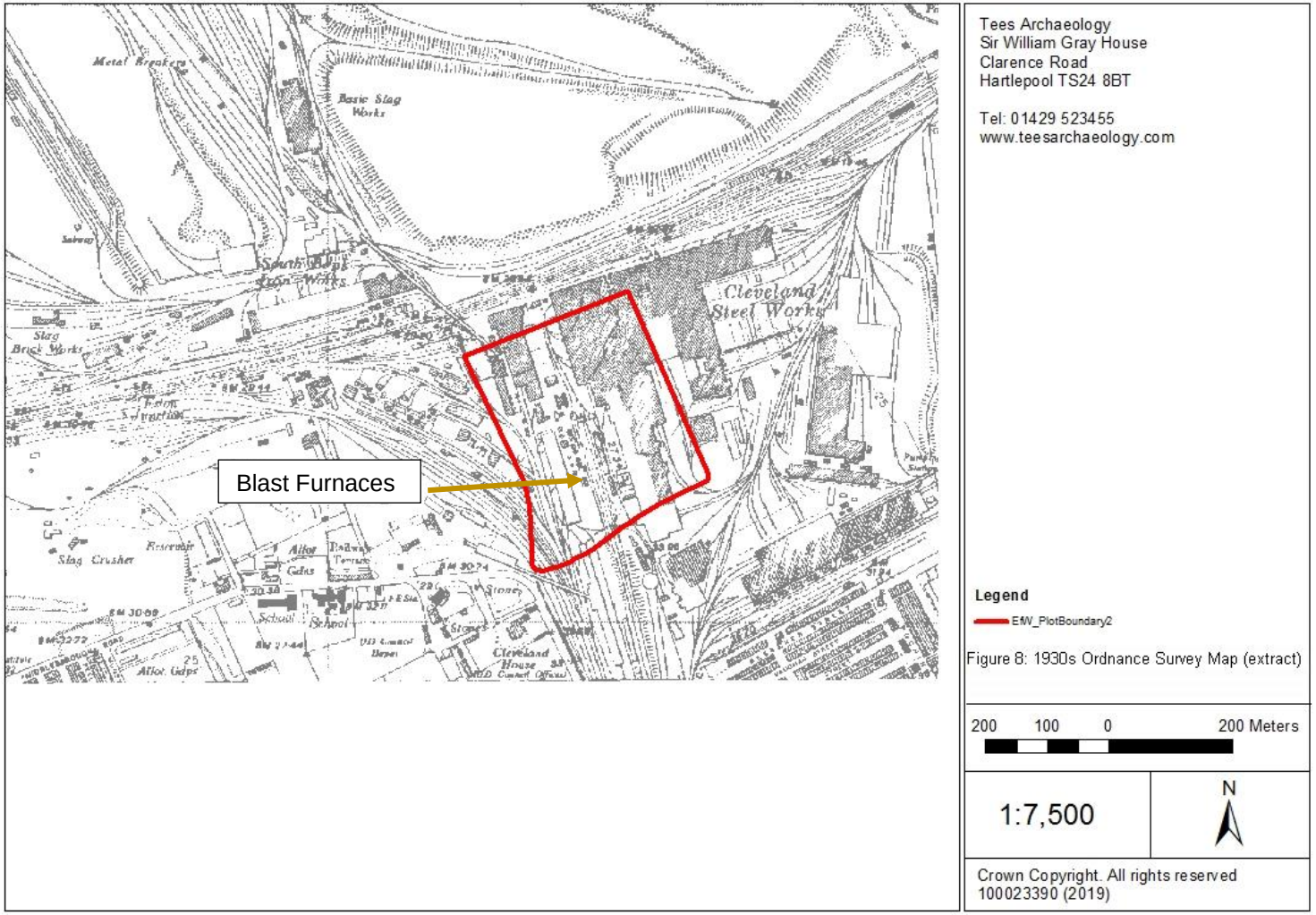


Figure 8: Extract; 1930s Ordnance Survey map, 6 inch to the mile

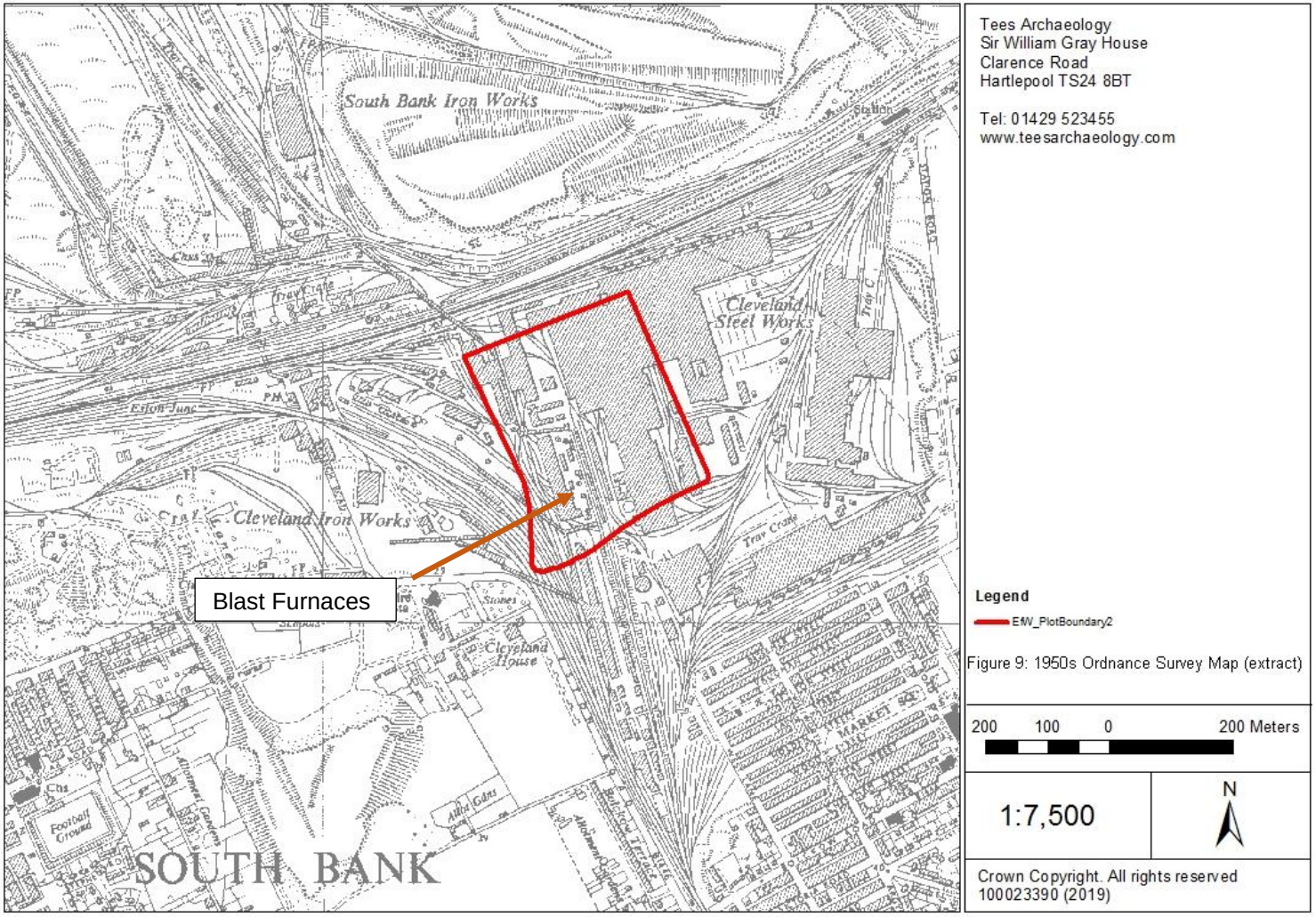


Figure 9: Extract; 1950 Ordnance Survey map, 6 inch to the mile

Figure 10: RAF Aerial Photograph of the site May 1948, Tees Archaeology

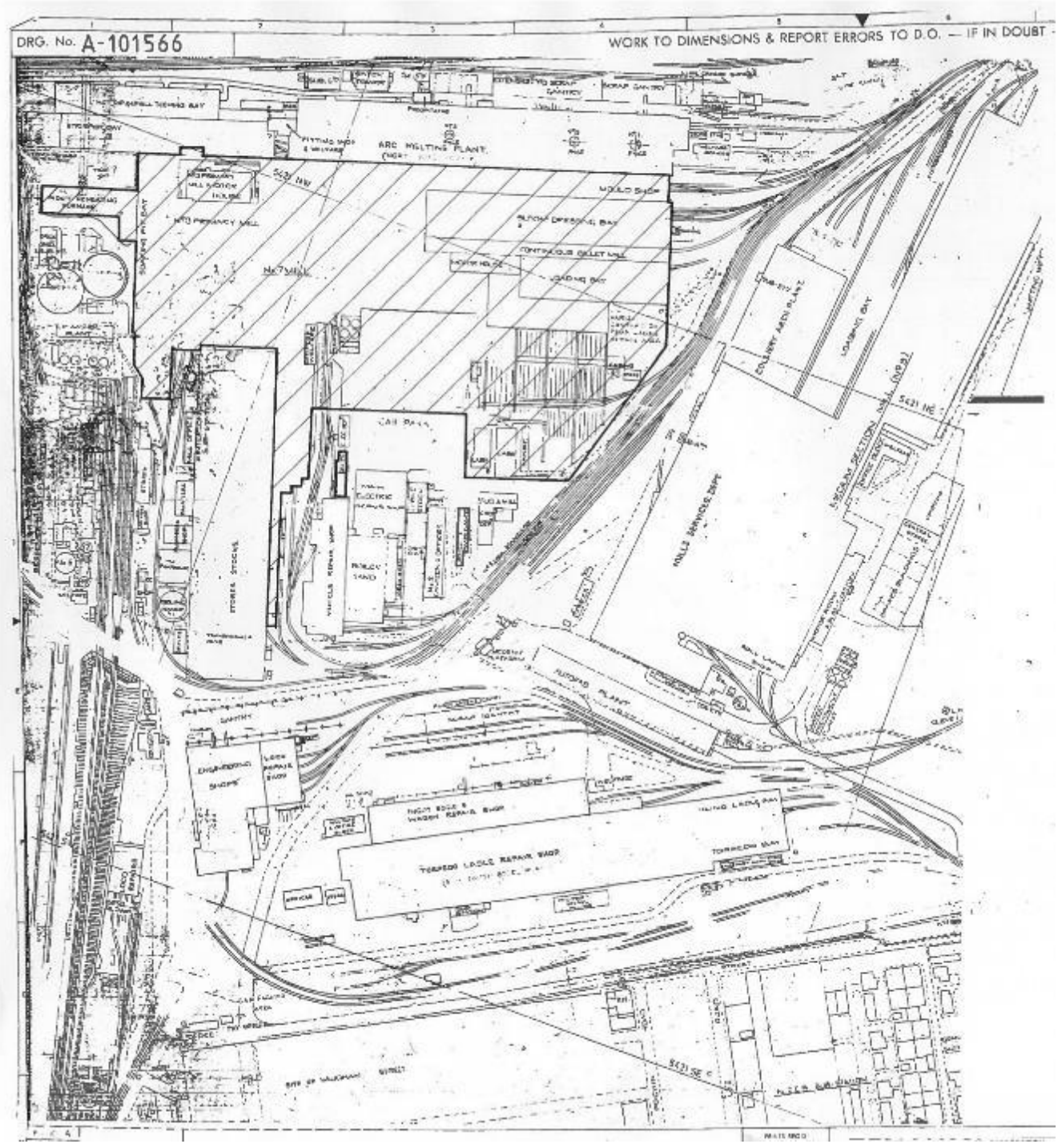


Figure 11: Extract from British Steel Demolition Survey of Site, 1983

Figure 12: General view across site, looking south west

Figure 13: Dumped material over 1m high

Figure 14: Former ground surface, rail lines, brick building foundations and concrete edging visible across the site

Figure 15: Concrete Support

Figure 16: Concrete bases

Figure 17: View across Blast Furnace bases looking south to Railway Embankment

Figure 18: Looking south to Railway Embankment with Blast Furnace bases on the right hand side of picture

Figure 19: Side of Blast Furnace base showing tuyere inlet for blast

Figure 20: Sandstone base of 19th century Blast Furnace

Figure 21: Base of Blast Furnace

Figure 22: Dislodged plug or salamander from base of Blast Furnace

Figure 23: Concrete bridge deck against side of Blast Furnaces

Figure 24: Grangetown No 4 Blast Furnace looking south east (Tees Archaeology)

Figure 25: Grangetown No 4 from the High Line, looking north west (Tees Archaeology)

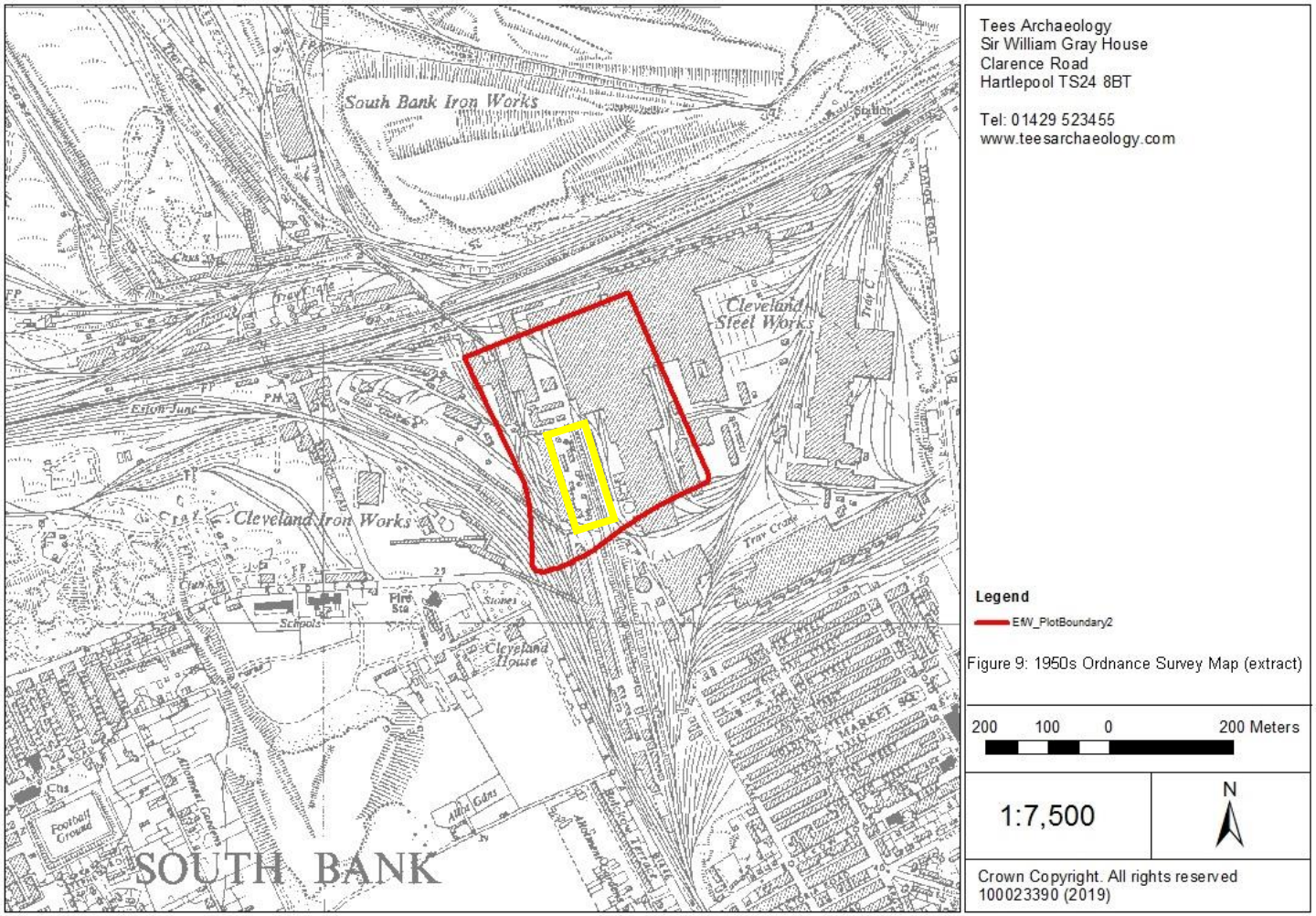
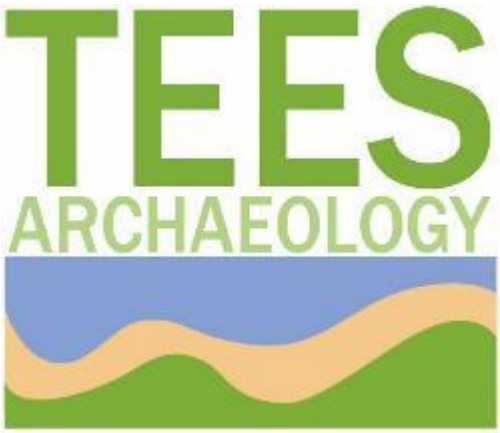


Figure 26: Indicative location of blast furnace bases for preservation


TEES
ARCHAEOLOGY


HARTLEPOOL
BOROUGH COUNCIL