YORK ARCHAEOLOGICAL TRUST

Archaeological Investigations at
Carpetright, Layerthorpe, York

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YAT Evaluation Report 2019/111 July 2019

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Abbreviations

YAT – York Archaeological Trust

AOD – Above Ordnance Datum

BGL – Below Ground Level

CBM – Ceramic Building Material

LOE – Limit of Excavation

Non-technical Summary

Between the 18th July and the 2nd August 2019 York Archaeological Trust conducted a trial trench evaluation and borehole monitoring exercise at Carpetright, Layerthorpe, York (SE 60902 52096).

The work was undertaken for CBRE in order to fulfil a scope for archaeological works produced in consultation with City of York Council Design Conservation and Sustainable Development team (CYC), Historic England (HE) and The JESSOP Consultancy. The work was based on a written scheme of investigation produced by YAT. The works initially involved the excavation and recording of six evaluation trenches and the monitoring of six geoarchaeological boreholes and seven geotechnical boreholes. A further trench is to be undertaken once the site has been conditioned and the existing warehouse demolished.

The observations made during the evaluation indicate a clearance event occurred at some point during the 20th century across what is now the car park of the former Carpetright store. The evaluation trenches and boreholes located in the car park revealed the underlying clay dominated geology between 0.52m and 0.64m BGL, which were immediately overlaid by modern deposits of compacted hard core and tarmac - no earlier material, residual or otherwise, was recovered. a late post-medieval wall, thought to be the remains of a pre-1850 building, were found in Trench 2 in the north-west area of the site (Figure 3). Four geoarchaeological boreholes within the footprint of the former Carpet Right store could not be completed due to a concrete obstruction at around 0.5m BGL. However, two geotechnical boreholes were successfully cored near the south-western edge of the site, inside the Carpetright building reached Vale of York till formation which was overlain by a thin alluvial deposit derived from the River Foss, potential ground raising deposits and possible made ground or demolition deposits associated with 19th and 20th century land use.

KEY PROJECT INFORMATION

Project Name	Carpetright, Layerthorpe, York
YAT Project No.	6135
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NGR	SE 60902 52096
Museum Accession No.	Pending
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1 INTRODUCTION

Between the 18th July and the 2nd August 2019 YAT conducted a trial trench evaluation and borehole monitoring exercise at The Former Carpet Right, Layerthorpe, York (SE 60902 52096) (Figure 1).

The work was undertaken for CBRE to fulfil a scope for archaeological works produced in consultation with City of York Council Design Conservation and Sustainable Development team (CYC), Historic England (HE) and The JESSOP Consultancy. The programme of work set out in the project design was... '*required to provide information of the archaeological potential and interest of the site for (the) proposed scheme and is in accordance with the National Planning Policy Framework, policy HE10 of the City of York Local Plan (2005), and policy D6 of the forthcoming Local Plan.'*

The works initially involved the excavation and recording of six evaluation trenches and the monitoring of six archaeological boreholes and seven geoscience boreholes (Figure 2).

In accordance with the Written Scheme of Investigation (WSI) excavation ceased as soon as significant deposits were revealed. Trenches 5 and 6 revealed Vale of York Formation deposits at 0.52m BGL, whilst in Boreholes 17 and 18 these deposits were recorded at 1.00m and 2.81m BGL respectively. The geotechnical boreholes located in the north-west part of the site reflected the results of the trial trenches; naturally lain clay deposits were recorded from 0.64m BGL to 1.55m BGL and were immediately overlain by modern made ground and surface deposits.

Boreholes 5 and 6, located in the footprint of the former carpet store, in the south-west of the site, recorded a slightly different set of results. Till deposits were recorded between 5.20m BGL to 6m BGL, which were then overlain by alluvial clays, recorded from 4.50m to 4.73m BGL. Disturbed alluvial clays were found between 2.73m and 3.42m BGL, which were then overlain by made ground deposits probably associated with the 19th–20th century development of the site, the top of which were recorded at 1.24m–1.27m BGL. Sequential layers of concrete and made ground formed the top metre or so of ground. From these results and of those of boreholes 13–16, it is supposed that the buildings constructed prior to the existing store are still present beneath the current foundations.

Trench 2 located to the north-west of the site, revealed a pre-1850 wall that was abutted by a thick post-medieval deposit. No significant archaeological remains were found.

2 METHODOLOGY

The methodology followed the WSI save where variations were required due to the presence of services and concrete.

2.1 Trenches

A total of six trenches were excavated (Figure 2):

No.	Size (m)	Rationale	Variation
2	10 x 2	To investigate levels within southwest of site: potential area of medieval onwards roadside development.	
3	4.2 x 3.5	To investigate western extent of graveyard	Trench moved and then abandoned due to presence of services and drains
4	12 x 2	To investigate west end of church	Trench abandoned due to presence of service cable.
5	20 x 2 4 x 2	To investigate east end of church and graveyard	
6	10 x 4	To investigate northern end of graveyard	
7	20 x 2	To investigate levels within north of site: potential area of medieval onwards roadside development.	Trench abandoned due to presence of power cable.

The trenches were accurately located by a Leica TS09 Flexiline Plus total station, and triangulated to local permanent features on a 1:2500 OS map. OD heights were taken from a topographical survey provided by the client. The tarmac car park surface and modern made ground were removed by a 14-tonne machine equipped with a toothless bucket and breaker. In Trenches 2, 5 and 6 excavation ceased as soon as naturally lain clay and archaeological deposits were encountered.

All deposits were hand excavated and recorded as per the standard YAT recording system, as detailed in the YAT Fieldwork Manual (YAT 2009). Colour digital photography was used to document archaeological contexts. Finds were retrieved and bagged by individual context number and subsequently processed by YAT.

The excavated trenches have been backfilled at the client's request.

2.2 Boreholes

A borehole evaluation was required in order to evaluate potential deeply buried, waterlogged and organic deposits and to provide a deposit and hydrological model for the prediction of potential preservation of archaeological remains and inform an appropriate mitigation strategy.

A total of six archaeological boreholes (BH's 13–18) and eight geotechnical boreholes (BH's 5–12) were drilled using a windowless sample rig and monitored by the attending archaeologist. The positioning of the boreholes was designed for optimal coverage across the site. The boreholes were positioned as shown on Figure 2.

It was decided on site that it was unnecessary to monitor BH8, due to its location immediately to west of Trench 6, where it had already been determined that there was no archaeology present. Four of the boreholes (BH's 13–16) were drilled to a depth of just 0.5m BGL, due to the presence of concrete at this depth. It is believed that the former buildings that occupied the site before the current warehouse was built are still present beneath the foundations of the existing building. In light of this, boreholes 5, 6 and 9 were initially cored with a 1m deep concrete cutter. Boreholes 17 and 18 were drilled to a depth of 7–8m BGL, whilst boreholes 5–12 were drilled to 5m.

A 2m^2 trial pit was excavated prior to the drilling of BH17 and BH11 to ensure that human remains were not present. The trial pits were monitored and recorded by the attending archaeologist.

The deposit cores were recovered in plastic sleeves, each measuring 1m in length. For the majority of the boreholes the plastic sleeve was opened for inspection on site; however, BH17 was recorded off site at the YAT laboratory Facilities by a suitably qualified geoarchaeologist. The cores were examined by an archaeologist suitably experienced in the deep stratigraphic nature of York's archaeological deposits.

All boreholes were recorded using standardised proforma record sheets and related to the Ordnance Datum. Each context was described in full on the proforma borehole record sheet in accordance with the accepted context record conventions. The boreholes were assigned context numbers corresponding to their designation (BH18 commenced with context 1801 onwards etc.)

Borehole logs were supplemented by use of digital photography, including work in progress and detailed images of the recovered cores. Digital photographs were taken at a resolution of no less than 10 mega-pixels.

No environmental samples were taken during these borehole investigations as there were no archaeological or organic deposits encountered.

The boreholes were located on a 1:12500 OS map (Figure 2). AOD heights were obtained for the interventions from GPS locations provided by the client and from a topographical survey also provided by the client.

3 LOCATION, GEOLOGY & TOPOGRAPHY

The proposal site is located at the former Carpetright, Layerthorpe, York, to the north-east of York city centre and on the eastern bank of the River Foss (Figure 1). The site is bounded on the west side by Layerthorpe, on the south by Foss Islands Road, to the east by Mansfield Road and on the north by a modern commercial unit and car park.

The south-western part of the site, at the corner of Layerthorpe and Foss Island Road, is occupied by a large single-storey commercial warehouse, currently used by Carpetright Plc. The north-eastern half of the site was under tarmac hardstanding of the former car park.

There is a slight slope down from north–south from 10.70m AOD at the northern side to 9.40m AOD at the southern side. The ground level is terraced on the western, Layerthorpe,

side of the warehouse standing at approximately 0.7m above the level of the Layerthorpe pavement.

The underlying geology as mapped by the BGS comprised the Sherwood Sandstone Group (BGS http://mapapps.bgs.ac.uk/geologyofbritain/home.html accessed 26/07/19). This is overlain in the south western part of the site by Holocene Alluvium, derived from the River Foss, and to the north-east by the Alne Glacio-Lacustrine formation. However, the BGS have produced a three-dimensional model of the underlying geology of York which allows predictive boreholes to be carried out and demonstrates that this area should actually be characterised by the Vale of York Formation (clay dominated till). A predictive cross-section of the area demonstrates that the edge of the Alne Formation lies further to the north-east of the site.

Four boreholes undertaken in 1986 recorded superficial silt-dominated alluvial deposits, which have the potential for waterlogged archaeology. These deposits were recorded as approximately 1.0-2.0m thick, and were found to overlie saturated sand deposits, recorded at depths of between 0.5m–3.5m BGL. These sand deposits are likely to represent basal channel sediments or sand bar formations.

Water was struck between 2.00m and 5.00m BGL, whilst standing water was recorded at between 1.65m and 2.30m BGL.

4 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

The following historic and archaeological background has been adapted from the JESSOP Consultancy's project design and desk-based assessment (2019a & 2019b) and York Character Statement 52 (2013).

Prehistoric to Early-Medieval

Whilst there are no recorded remains of prehistoric to early-medieval activity within or immediately adjacent to the site, the potential importance of York's riverfronts to contain information about the development of the city and its history of trade and commerce has long been recognised (Addyman et. al. 1988). Due to the position of the site on the bank of the River Foss and the results of previous borehole surveys in the area, there is considered to be a high potential for deep waterlogged deposits to survive within the site. These have the potential to contain rich and well-preserved evidence for the characterization and morphology of the River Foss, as well as evidence of use of the area from the earliest settlement in the area onwards.

Medieval

The village or hamlet of Layerthorpe was first mentioned in a charter of 1184–9 where it was referred to as '*Leirthorp*'. There was no mention of the place in the 11th-century Domesday Book and the hamlet may have formed part of the village of Heworth. By the early 14th century Layerthorpe bridge and Layerthorpe Road had been created, leading from the city to a small linear settlement at Layerthorpe and onto Heworth.

By the 14th century the settlement had developed sufficiently to warrant its own church. St Mary's church was first documented in 1331 and appears to have been relatively impoverished leading to it being annexed to the church of St Martin by 1443, whilst records

from visitations between 1409 and 1472 further illustrated the poor provision of St Mary's and the decay of its structure. The church was closed in 1549, when the parish was united with St Cuthbert, Peasholme Green and the land was leased or sold. Given previous reports on its condition in the visitations it is possible that the church had fallen into decay by this period, and by the production of Speed's map of 1610 the church was not shown.

In 1855 the foundations of St Mary's Church were uncovered (Raine 1955), and in 1920–21 excavations were undertaken to expose and record the foundations of the church, with the plan published (Associated Architectural Societies Reports and Papers vol.35). By 1986 (YAT 1986.13) it was determined that the site of the medieval church of St Mary and its burial ground had been largely removed. Some burials were recorded along a drainage ditch which ran 2.20m north of the north-western side of the carpet store that was being built at that time. The burials were recorded at between 0.72m and 1.10m BGL.

Following the Norman Conquest the River Foss was dammed in order to form the water defences of York's castle, resulting in an area upstream being turned into a lake, known as *Stagnum Regis*, the King's Pool. The eastern bank of the River Foss was inundated, and the results of the 1986 borehole survey indicate that the flooding reached the south-western part of the site. Speed's 1610 map of York, though not wholly accurate, showed the Kings Pool located to the east of Layerthorpe Bridge, and therefore potentially within the limits of the proposed development site.

The settlement appears to have declined in the later medieval period with only a few buildings shown in the area on Speed's map and appeared to have returned to agricultural use by the 18th century.

Nineteenth and Twentieth Century Development

The site was largely redeveloped within the first half of the 19th century, with documentary evidence indicating a mixture of industries, housing and trades including dealers in fodder, manure and coal, cab operators, a farrier, a whitesmith, a coach works and other professions including labourers, porters and fitters. The development depicted on historic maps is one of piecemeal, likely prospective, development with little evidence of planned expansion.

As is typical for this period, the rate of change in both buildings and occupants was such that much of the initial development at the site had been removed by the end of the 19th century, with the southern end of the site becoming a laundry and Methodist mission room. Works in 1986 (YAT 1986.13) uncovered the base of a footing of a pre-existing building at 2.40m BGL, along with a cobble floor at 1.00m BGL, indicating perhaps that earlier buildings are still present under later buildings.

Boreholes undertaken within the footprint of the current warehouse in 1986 (BGS accessed 25/07/19), recorded modern concrete and rubble infill deposits to depths of 0.50m BGL to the south-east, deepening in depth to 3.50m BGL to the south-west.

5 RESULTS

5.1 Trench Evaluation

Three of the six trenches (Trenches 3, 4 and 7) were not excavated beyond 450mm due to the presence of services and drains (Plates 14 & 19); in all three trenches around 400mm of compacted hard core and concrete was recorded, which was overlain by 10mm of tarmac.

5.1.1 Natural Deposits (Figures 4 & 5; Plates 15–18)

Mid to dark brown clay deposits (C505 & C606) were reached in two of the trenches (Trenches 5 and 6) at depths between 0.52m and 0.64m BGL, or 9.65m and 9.53m AOD. The clay contained lenses and laminations of mid-yellowish brown, fine sand.

5.1.2 Post-medieval activity (Figure 3; Plate 13)

A red brick wall (C204) was recorded in Trench 2, the top of which was recorded at a depth of 0.60m BGL, or 9.65m AOD. The wall was aligned north-west to south-east, was over 5 courses high and 2 courses wide at the top, and measured over 1.40m long, 0.11m wide and over 0.45m deep. A stretcher bond was used on the top two courses, whilst the third course down projected out from the wall. The bricks measured 230mm x 110mm x 70mm and were bonded with a crumbly, soft, light yellowish-brown lime mortar. The wall aligns well with a building depicted on the 1852 OS map of York, and therefore likely relates to the early 19th-century development of the site.

A thick deposit of mid to dark grey silt (C203) containing inclusions of medium stones, CBM fragments and mortar flecks was recorded butting up to the wall C204. Pottery sherds dating to the late Victorian period were observed and then discarded on site. The deposit was recorded at 0.60m BGL (9.65m AOD) and extended deeper than the bottom of the trench at 1.10m BGL (9.15m AOD).

5.1.3 Modern activity (Figures 3–5; Plates 14 & 19)

Modern made-ground and surface deposits were seen in all six of the evaluation trenches. In the five trenches in the Carpetright car park (Trenches 3–7) there were two phases of modern surfacing comprised of two layers of hard core and tarmac between 530mm and 640mm thick.

In Trench 2 a layer of silt and gravel formed a modern bedding soil of (Plate 12) over the early 19th-century wall C204. This material probably relates to landscaping and creation of ornamental beds after the construction of the existing warehouse in 1986.

5.2 Geoarchaeological Boreholes

5.2.1 Boreholes 13–16 (Figure 7)

Concrete and compacted hardcore was present to a maximum depth of 0.60m BGL in all four geoarchaeological boreholes located within the footprint of the existing Carpet Right warehouse.

5.2.2 Borehole 17: 10.27m AOD

Recorded off-site by Kristina Krawiec, YAT geoarchaeologist

The deepest deposit encountered comprised a stiff, dark red grey, silt clay with occasional gravel, representing the Vale of York Formation. This deposit was recorded between 2.80–7.00m BGL, (7.47m-3.27m AOD) which was then overlain by a red-brown, silt clay with

occasional gravel 0.58m thick. This likely represents the weathered upper surface of the Vale of York Formation. This in turn was overlain by a laminated silt sand deposit which trended into a fine structureless sand between 1.00m and 2.00m BGL (9.27m-8.27m AOD). This was then sealed by a laminated dark grey brown silt clay sand, 0.65m–1.40m BGL (9.62m-8.87m AOD), representing the alluvial deposition at the site.

Plate 1 Cores (bottom to top, left to right) 0.65m to 3m

5.2.3 Borehole 18: 10.26m AOD (Figures 8 &10)

Till deposits were observed from 2.81m BGL (7.45m AOD). The earliest deposit was a soft, very wet, mid-orange brown, sand (C1816), recorded at 8.18m BGL (2.08m AOD). Above this were deposits of mid brown boulder clay (C1813 & C1815) interspersed with laminations of silty clay (C1814) which contained occasional rounded pebbles and flecks of sandstone. A thick deposit of stiff, mid-grey brown, clay (C1809–C1812) extended from 2.81m BGL to 7.45m BGL (7.45m-2.81m AOD). The top of the clay deposit (C1809) contained occasional flecks of red sandstone, gravels of very small sub-angular pebbles and sand lenses. From around 4.70m BGL (5.56m AOD) (C1810) onwards the deposit became darker and more compacted, and from 5.00m BGL (5.26m AOD) (C1811) it became increasingly wet with lenses of sand. From 5.25m BGL (5.01m AOD) the clay (C1812) became more sterile, with fewer incidences of gravel and sandstone.

Plate 2 Cores (bottom to top) 5m–6m, 6m–7m, 7m–8m & 8m–9m. Contexts (bottom to top, left to right) C1811, C1812, C1813, C1814, C1815 & C1816. Scale 0.5m

Made ground formed consisting of mid- to dark grey, clay (C1808–1807) containing occasional small pebbles, limestone and sandstone was recorded at 2.35m BGL (7.91m AOD). This was, in turn, overlaid by a series of redeposited clay made ground deposits (C1804–1806), the top of which was recorded at 0.66m BGL (9.60m AOD). The earliest of these deposits comprised mid-brown, wet, coarse sand with small to medium cobbles (C1806), recorded at 2.20m BGL, 8.06m AOD. This was overlaid by a mid-brown clay and clayey sand (C1805; 1m BGL, or 9.26m AOD) and stiff, brown clay (C1804).

Modern made ground (C1803), levelling (C1802) and surface deposits (C1801) made up the top metre of soil below the current ground level.

Plate 3 Cores (bottom to top) 0m–1m, 1m–2m & 3m–2m. Contexts (bottom to top, left to right) C1803, C1804, C1805, C1806, C1807, C1808 & C1809. Scale 0.5m

5.3 Geotechnical Boreholes

5.3.1 Boreholes 5 & 6: 10.40m AOD & 10.39m AOD (Figures 6 & 9)

Boreholes 5 and 6 were both placed inside the Carpetright building close to the Foss Island Road.

The earliest deposit recovered in both boreholes was glacial till (C5008 and C6009), recorded at depths between 5.20m BGL (5.20m AOD; BH5) and 6.00m BGL (4.39m AOD; BH6). Above this laid a deposit of very dark to mid grey, very soft, silty alluvial clay (C5.7 and C6.8), the top of which was recorded at 4.73m BGL (5.67m AOD) in BH5 and 4.50m BGL (5.89m AOD) in BH6.

Plate 4 Borehole 6, Core 4m–5m, contexts (left to right) C6007 & C6008. Scale 0.5m

Mid- to very dark grey alluvial silty clays containing small fragments of crushed CBM and mortar (C5006 and C6007) were recorded above the till deposits. This material was very similar to the deeper alluvial deposits. However, the presence of building material within the clay suggests disturbance of the alluvium, potentially by human activity. The tops of these deposits were recorded at 2.73m BGL (7.67m AOD) in BH5 and 3.42m BGL (6.97m AOD) in BH6. None of the CBM recovered was large enough to date the deposits.

Plate 5 Borehole 5, core 2m–3m, showing very dark grey redeposited alluvial clay C5006 to far left of core, scale 0.5m

Above the redeposited alluvial clays were a series of made ground/demolition deposits consisting of mid-grey clay (C5005 & C6006) and black clayey silt/silty clay (C5004, C5003, C6005 & C6004) containing frequent mortar and CBM fragments with rare occurrences of oyster shell, coke/cinder, crushed concrete and ash. The tops of these deposits were recorded at 1.24m BGL (9.16m AOD) in BH5 and 1.27m BGL in BH6 (9.12m AOD). The deposits likely date from the development of the site in the early 19th–late 20th century.

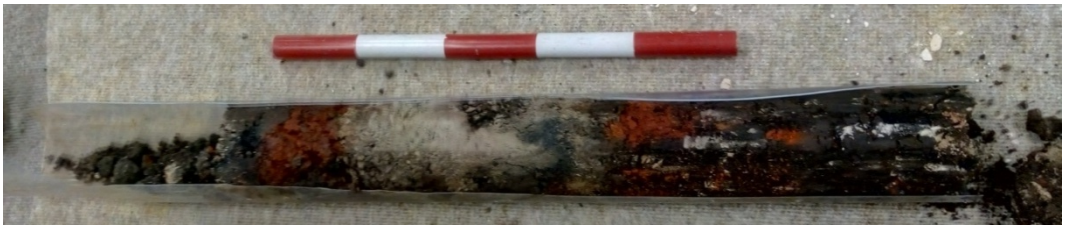

Plate 6 Borehole 6, core 1m–2m, contexts (left to right) C6004 & C6005. Scale 0.5m

Modern levelling and surface deposits comprising Type 1 (C5002 & C6002) and concrete (C5001, C6003 & C6001) were present in both boreholes from the present ground level to 1.24m BGL (9.16m AOD) in BH5 and 1.05m BGL (9.34m AOD) in BH6.

5.3.2 Borehole 7: 10.37m AOD (Figure 6)

This borehole was located in an area that is thought to have been the location of a petrol tank (Jessops 2019a), on the north-west side of the site, close to Layerthorpe.

The earliest deposit recorded was a mid-brown clay (C7006), the top of which was at 2.28m BGL (8.09m AOD).

Plate 7 Core 3m–4m, context C7006

Above this was a series of modern made ground deposits, likely the back fill from when the petrol tank was removed. The earliest of these deposits comprised a stiff, mid-grey brown clay (C7005) containing small fragments of sandstone and small angular pebbles, along with rare fragments of CBM. The top of this deposit was recorded at 1.52m BGL (8.85m AOD). Above C7005 was a loose, clean, mid-orange brown sand (C7004), the top of which was recorded at 0.75m BGL (9.62m AOD). The latest of these made ground deposits was a stiff silty clay (C7003) which contained occasional small flecks of CBM and had an odour of hydro-carbon. The top of this deposit was recorded at 0.60m BGL (9.77m AOD).

Plate 8 Core 1m–2m, contexts (left to right) C7005 & C7004

A modern levelling deposit of compacted Type 1 (C7002) and a tarmac ground surface (C7.1) was present from the current ground level to 0.60m BGL.

5.3.3 Borehole 9: 10.46m AOD (Figures 6 & 10)

This borehole was situated close to BH16, and was installed with a dipwell for water monitoring. The deposit sequence was similar to that recorded in other boreholes located in the north-west part of the site.

The borehole reached clay deposits (C9005) at 1.50m BGL (8.96m AOD). The earliest deposit reached was a stiff, grey brown clay (C9007), which contained a lense of sand, the top of which was recorded at 4.65m BGL (5.81m AOD). Above this was a mid-orange brown fine sand (C9006), present from 3.66m BGL (6.80m AOD), which in turn was overlaid by a thick, mid-brown clay deposit (C9005) which contained frequent thin silt laminations. Water breached the core at 3m BGL (7.46m AOD).

Plate 9 Cores (bottom to top) 3m–4m & 4m–5m. Contexts (bottom to top, right to left) C9005, C9006 & C9007. Scale 0.5m

A layer of modern made ground formed from a wet and soft mid-brown silty clay (9004) containing frequent fragments of CBM, coke, tarmac and mortar overlaid the naturally lain deposits at 1.20m BGL (9.26m AOD).

Plate 10 Core 1m–2m, contexts (right to left) C9004 & C9005. Scale 0.5m

Modern deposits of concrete (C9003 & C9001) and type 1 made ground (C9002) made up the top 1.20m of the borehole core.

5.3.4 Boreholes 10, 11 & 12: 10.28m AOD, 10.19m AOD & 10.36m AOD (Figures 6 & 10)

The sequences observed in the geotechnical boreholes located in the north-west of the site were very similar to one another and are therefore discussed together in this section.

Deposits of clay (C1107 & C1204), sand (C1106) and silty clay with silt and sand laminations (C1004, C1105 & C1203) were recorded from 0.64m BGL (9.55m AOD) (BH11) in the centre of the car park, and to 1.55m BGL (8.81m AOD) (BH12) in the north-west corner.

Plate 11 BH10, core 1m–2m, context C1004

Modern made ground deposits consisting of Type 1 hardcore (C1003, C1104, C11.2 & C12.2), concrete (C10.2) and tarmac (C10.1, C11.3, C11.1 & C12.1) overlaid the natural York Formation deposits.

Plate 12 BH11, core 0m–1m, contexts (left to right) C1102, C1103, C1104 & C1105

CONCLUSION

The interventions in the north-western part of the site, within the Carpetright store car park, suggest that a large clearance event occurred sometime during the mid to late 20th century. In none of the trenches or boreholes was there any evidence that any fabric of the medieval church of St Mary or any of the inhumations within its graveyard survived the changes the site has undergone since these were recorded in the 1920s. All the evidence indicates that beneath the modern carpark there is nothing other than glacial till deposits.

Only three boreholes were successful within the existing building. The sequence recorded in these correlates well with the borehole records of 1986; laminated alluvial sand clays were present along the edge of the site closest to Foss Island Road, and the River Foss, whilst to the rear of the building, to the north-west, the ground deposits mirror those found in the car park.

The alluvial sand clays were likely evidence of flooding which took place in the area after the formation of the water defences of the Norman castle and of the King's Fishpool during the medieval period. It is unclear from the borehole records whether these alluvial deposits were from the Fishpool itself or just from the resulting widening of the river. Above the alluvial deposits there was evidence of subsequent disturbance in the alluvium, followed by past efforts to raise ground levels along this edge of the site. These deposits are not currently well understood as it will not be possible to excavate Trench 1 until after the demolition of the Carpetright building.

The boreholes undertaken as part of this evaluation indicate that the underlying deposits are of the Vale of York Formation rather than the Alne glacial lake deposits that are shown to occupy the majority of the area by the BGS 2-dimensional mapping. The results of this work correlate well with the more recent BGS 3-dimensional model of York which shows the Alne deposits to be located further to the north-east of the site. The alluvial deposits encountered here are mainly sand dominated and exhibit a degree of desiccation. No organics were recorded and therefore the deposits are deemed to be of low Palaeoenvironmental potential.

The presence of concrete and brick over half a metre below ground level in this area strongly suggests the survival of 19th–20th century building remains at the site, particularly fronting onto Foss Islands Road in the area of the Carpetright building. This is supported by the uncovering of a brick wall in Trench 2 that aligned well with buildings depicted on the 1852 OS map of York.

LIST OF SOURCES

BGS (British Geological Survey) www.bgs.ac.uk

YAT archive site: 1986.13

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ACKNOWLEDGEMENTS

The author would like to thank CBRE for their cooperation and assistance throughout the project. Thanks are also given to the site team; Katie Smith and Sam Grimmer for their help on site and contribution to the post-excavation work and illustrations for this report.

APPENDIX 1 – INDEX TO ARCHIVE

Item	Number of items
Context sheets	19
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Written Scheme of Investigation	1
Report	1

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APPENDIX 2 – CONTEXT LIST

Context Number	Intervention Number	BGL	AOD	Description
200	Trench 2	-	-	Unstratified material
201	Trench 2	0m	10.25m	Topsoil. Compact dark brown silt with frequent gravel and roots. Overlaid a fabric membrane.
202	Trench 2	0m	10.23m	Modern inspection chamber. Brick built square chamber with concrete top. Measured 1m x 1m x 2.70m deep.
203	Trench 2	0.61m	9.64m	Modern ground build-up. Firm mid to dark greyish brown silt with moderate inclusions of medium sized stones, CBM fragments and mortar flecks. 20th century pottery recovered and discarded on site. Over 0.42m in thickness.
204	Trench 2	0.59m	9.66m	19th century brick wall. NW-SE aligned, linear in plan. Over 1.4m long x 0.11m wide and 0.45m+ deep. Five courses deep, two courses wide at the top. Stretcher bond on top two courses, third course juts out forming a lip and is also in a stretcher bond. Bottom courses to LOE are random. Possibly rendered with lime mortar. Bonded with a crumbly/soft light yellowish brown lime mortar. Brick dimensions: 230mm x 110mm x 70mm. Truncated by service at SE end.
500	Trench 5	-	-	Unstratified material
501	Trench 5	0m	10.17m	Modern tarmac surface. Hard dark grey tarmac, around 100mm thick.
502	Trench 5	0.10m	10.07m	Modern surface make-up. Compact light whitish yellow sandy rubble with frequent large fragments of crushed limestone. Around 250mm thick.
503	Trench 5	0.33m	9.84m	Previous tarmac surface. Compact dark grey tarmac, around 80mm thick.
504	Trench 5	0.40m	9.77m	Late 20th century surface make-up. Compact, light yellowish-brown sandy rubble with frequent large fragments of angular stones. Around 260mm thick. Cut by a number of modern services.
505	Trench 5	0.64m	9.53m	Natural deposit. Firm mid to dark brown clay with lenses and laminations of firm mid yellowish-brown fine sand.
506	Trench 5	0.66m	9.51m	Modern services. Generic number assigned to various services running through trench. Truncate natural and late 20th century makeup but covered by late 20th century tarmac surface.
600	Trench 6	-	-	Unstratified material
601	Trench 6	0m	10.14m	Modern tarmac surface. Hard dark grey tarmac, around 80mm thick.
602	Trench 6	0.08m	10.06m	Modern surface make-up. Compact light whitish yellow sandy rubble with frequent large fragments of crushed limestone. Around 170mm thick.

Context Number	Intervention Number	BGL	AOD	Description
603	Trench 6	0.24m	9.90m	Previous tarmac surface. Compact dark grey tarmac, around 90mm thick.
604	Trench 6	0.30m	9.84m	Late 20th century surface make-up. Compact light yellowish brown sandy rubble with frequent large fragments of angular stones, around 220mm thick. Cut by a cable.
605	Trench 6	0.50m	9.64m	Modern service. Electric cable truncated make-up C604 but sealed by tarmac C603.
606	Trench 6	0.53m	9.61m	Natural deposit. Firm mid to dark brown clay with lenses and laminations of firm mid yellowish-brown fine sand.
5001	BH5	0m	10.40m	Modern concrete.
5002	BH5	0.18m	10.22m	Modern make-up. Compact light whitish yellow sandy rubble with frequent large fragments of crushed limestone.
5003	BH5	1.24m	9.16m	Made ground/demolition deposit. Loose black clayey silt with frequent mortar, crushed concrete and brick fragments.
5004	BH5	1.70m	8.70m	Made ground/demolition deposit. Friable black clayey, ashy silt with very occasional mortar and CBM fragments and lenses of brown sand.
5005	BH5	2.20m	8.20m	Made ground/demolition deposit. Moderate mid grey clay with frequent mortar and lenses of brick fragments.
5006	BH5	2.73m	7.67m	Redeposited alluvial. Possible evidence of ground raising/land reclamation. Very soft dark grey, slightly organic smelling, clay with lenses of crushed mortar and CBM.
5007	BH5	4.73m	5.67m	Natural alluvial deposit. Very soft, very dark grey, damp silty clay.
5008	BH5	5.20m	5.20m	Natural till deposit. Stiff mid brown clay. Seen in last STP test.
6001	BH6	0m	10.39m	Modern concrete.
6002	BH6	0.14m	10.25m	Modern make-up. Compact light whitish yellow sandy rubble with frequent large fragments of crushed limestone.
6003	BH6	0.86m	9.53m	Modern concrete
6004	BH6	1.27m	9.12m	Made ground/demolition deposit. Soft black silty clay with frequent fragments of loose mortar, crushed concrete and brick fragments.
6005	BH6	1.84m	8.55m	Made ground/demolition deposit. Friable black clayey silt with frequent mortar, CBM fragments, coke and oyster shell. Water was recorded from 2.90m BGL to 3.42m BGL.

Context Number	Intervention Number	BGL	AOD	Description
6006	BH6	3.42m	6.97m	Made ground. Soft, mid grey silty clay with occasional small CBM fragments.
6007	BH6	3.55m	6.84m	Redeposited alluvial. Possible evidence of ground raising/land reclamation. Very soft, wet, mid grey clay with rare very small CBM fragments and minute grit.
6008	BH6	4.50m	5.89m	Natural alluvial deposit. Very soft mid to dark grey clay. Very similar in make-up to 6.7.
6009	BH6	6m	4.39m	Natural till deposit. Stiff mid brown clay. Seen in last STP test.
7001	BH7	0m	10.37m	Modern tarmac surface. Hard dark grey tarmac.
7002	BH7	0.10m	10.27m	Modern surface make-up. Compact light whitish yellow sandy rubble with frequent large fragments of crushed limestone.
7003	BH7	0.60m	9.77m	Modern made ground. Stiff dark grey silty clay that smelt a bit of hydro-carbons. Contained occasional small flecks of CBM
7004	BH7	0.75m	9.62m	Modern made ground. Loose, clean, mid orange brown sand.
7005	BH7	1.52m	8.85m	Modern made ground. Stiff mid grey brown clay with occasional small fragments of green sandstone, small angular pebbles and rare small fragments of CBM.
7006	BH7	2.28m	8.09m	Natural deposit. Mid brown clay with occasional, well sorted minute gravel, red sandstone and rounded pebbles.
9001	BH9	0m	10.46m	Modern concrete.
9002	BH9	0.18m	10.28m	Modern make-up. Compact light whitish yellow sandy rubble with frequent large fragments of crushed limestone.
9003	BH9	0.60m	9.86m	Modern concrete.
9004	BH9	1.20m	9.26m	Modern made ground. Soft, wet, mid grey and mid brown mottled silty clay with occasional fragments of CBM, tarmac, coke and mortar.
9005	BH9	1.50m	8.96m	Natural deposit. Stiff mid brown clay with silt and sand laminations. Water was recovered between 3.00m and 3.25m BGL.
9006	BH9	3.66m	6.80m	Natural deposit. Mid orange brown fine sand.
9007	BH9	4.65m	5.81m	Natural deposit. Stiff mid grey brown clay with a lense of sand.
1001	BH10	0m	10.28m	Modern tarmac surface. Hard dark grey tarmac.
1002	BH10	0.10m	10.18m	Modern concrete.
1003	BH10	0.50m	9.78m	Modern made ground. Moderately compacted brick fragments and crushed concrete with sandy rubble and limestone.
1004	BH10	0.90m	9.38m	Demolition deposit? Crushed brick fragments.
1005	BH10	1.20m	9.08m	Natural deposit. Stiff mid brown clay with silt and sand laminations.
1101	BH11	0m	10.20m	Modern tarmac surface. Hard dark grey tarmac.

Context Number	Intervention Number	BGL	AOD	Description
1102	BH11	0.10m	10.10m	Modern make-up. Compact light whitish yellow sandy rubble with frequent large fragments of crushed limestone.
1103	BH11	0.33m	9.87m	Modern tarmac surface. Hard dark grey tarmac
1104	BH11	0.46m	9.74m	Late 20th century surface make-up. Compact, light yellowish-brown sandy rubble with frequent large fragments of angular stones.
1105	BH11	0.64m	9.56m	Natural deposit. Stiff mid brown clay with silt and sand laminations.
1106	BH11	2.42m	7.78m	Natural deposit. Loose, wet, orange brown fine sand.
1107	BH11	3.67m	6.53m	Natural deposit. Stiff, grey boulder clay.
1201	BH12	0m	10.36m	Modern tarmac surface. Hard dark grey tarmac.
1202	BH12	0.10m	10.26m	Modern make-up. Compact light whitish yellow sandy rubble with frequent large fragments of crushed limestone and grey clay.
1203	BH12	0.50m	9.86m	Natural deposit. Stiff mid brown clay with silt and sand laminations. Water recovered between 1.00m and 1.55m BGL.
1204	BH12	2.32m	8.04m	Natural deposit. Stiff mid brown clay with very occasional small, subangular pebbles and sandstone. Water recovered between 4.00m and 4.80m BGL.
1701	BH17	0.65m-1.40m	9.62m	Grey brown clay silt with fine sand laminations, less laminated with depth
1702	BH17	1.40m-1.85m	8.87m	Mid orange brown fine sand occasional clay lenses
1703	BH17	1.85m-2.00m	8.40m	Grey brown sand with clay laminations
1704	BH17	2.0m-2.58m	8.27m	Red brown silt clay, stiff occasional gravel
1705	BH17	2.58m-2.80m	7.69m	Red brown becoming grey stiff silt clay occasional gravel
1706	BH17	2.80m-7.00m	7.47m	Very stiff red brown silt clay, structureless
1801	BH18	0m	10.26m	Modern tarmac surface. Hard dark grey tarmac.
1802	BH18	0.14m	10.12m	Grey concrete.
1803	BH18	0.21m	10.05m	Modern made ground. Dark grey gritty silt and crushed concrete.
1804	BH18	0.66m	9.60m	Made ground. Stiff, mid brown clay.
1805	BH18	1.00m	9.26m	Made ground. Mid brown clayey sand, which became increasingly sandy and wet as the deposit deepened.
1806	BH18	2.20m	8.06m	Made ground. Mid brown, wet, coarse gritty sand with medium to small rounded pebbles.
1807	BH18	2.35m	7.91m	Made ground. Stiff, mid grey clay with small pebbles, including limestone and ironstone.
1808	BH18	2.40m	7.86m	Made ground. Stiff, dark grey clay with occasional pebbles/gravels and small angular pieces of limestone/sandstone.

Context Number	Intervention Number	BGL	AOD	Description
1809	BH18	2.81m	7.45m	Natural deposit. Very stiff, mid grey/purple brown, slightly sandy clay, with occasional flecks of red sandstone, very small gravel of subangular pebbles, well sorted.
1810	BH18	4.70m	5.56m	Natural deposit. Same as 18.9 but slightly darker and sandier.
1811	BH18	5.05m	5.21m	Natural deposit. Same as 18.10 but very wet with occasional lenses of sand.
1812	BH18	5.25m	5.01m	Natural deposit. Firm mid grey brown silty clay with frequent gravel towards base of deposit.
1813	BH18	7.45m	2.81m	Natural deposit. Very firm mid brown clay.
1814	BH18	7.65m	2.61m	Natural deposit. Very firm, laminated, mid grey brown silty clay with occasional pebbles and flecks of sandstone.
1815	BH18	7.77m	2.49m	Natural deposit. Very firm mid brown clay.
1816	BH18	8.18m	2.08m	Natural deposit. Soft, very wet, mid orange brown silty sand.

Table 2 Context list

PLATES

Plate 12 Trench 2, view north-east showing brick-lined inspection chamber to the left, scale 1m

Plate 13 Trench 2, view south-west, showing wall C204, scale 1m

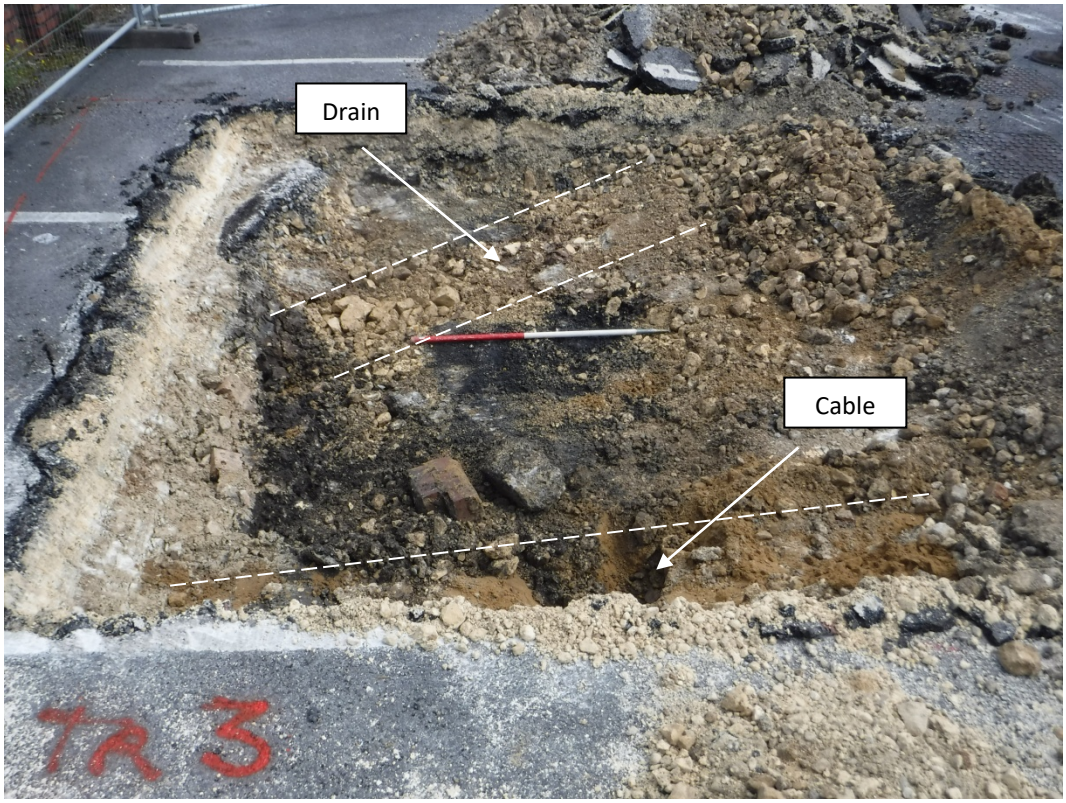


Plate 14 Trench 3, view east, showing cable and drain cut, scale 1m

Plate 15 Trench 5, view north, showing natural brown clay C505, scale 1m

Plate 16 Trench 5 representative section, view west

Plate 17 Trench 6, view south, showing natural clay at southern end of trench and cable in foreground. Water present after rain

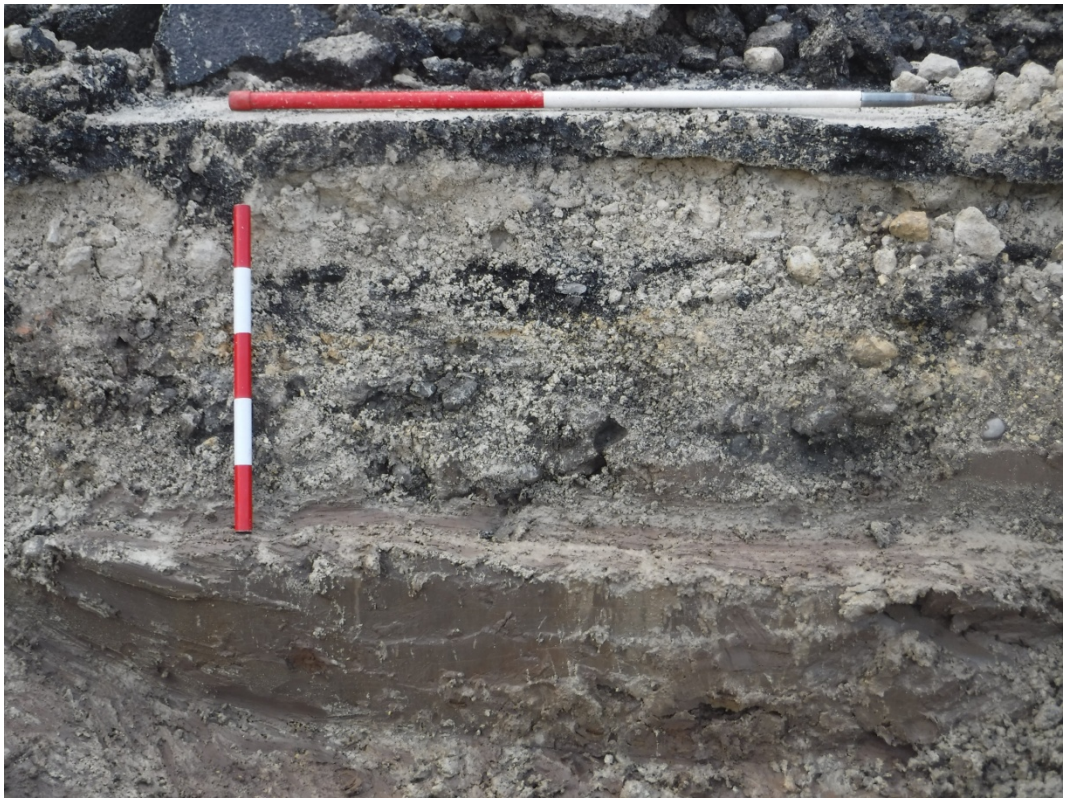


Plate 18 Trench 6 representative section, view south-east. Scales 1m & 0.5m

Plate 19 Trench 7, view south-east, showing cable running along length of trench, scale 1m

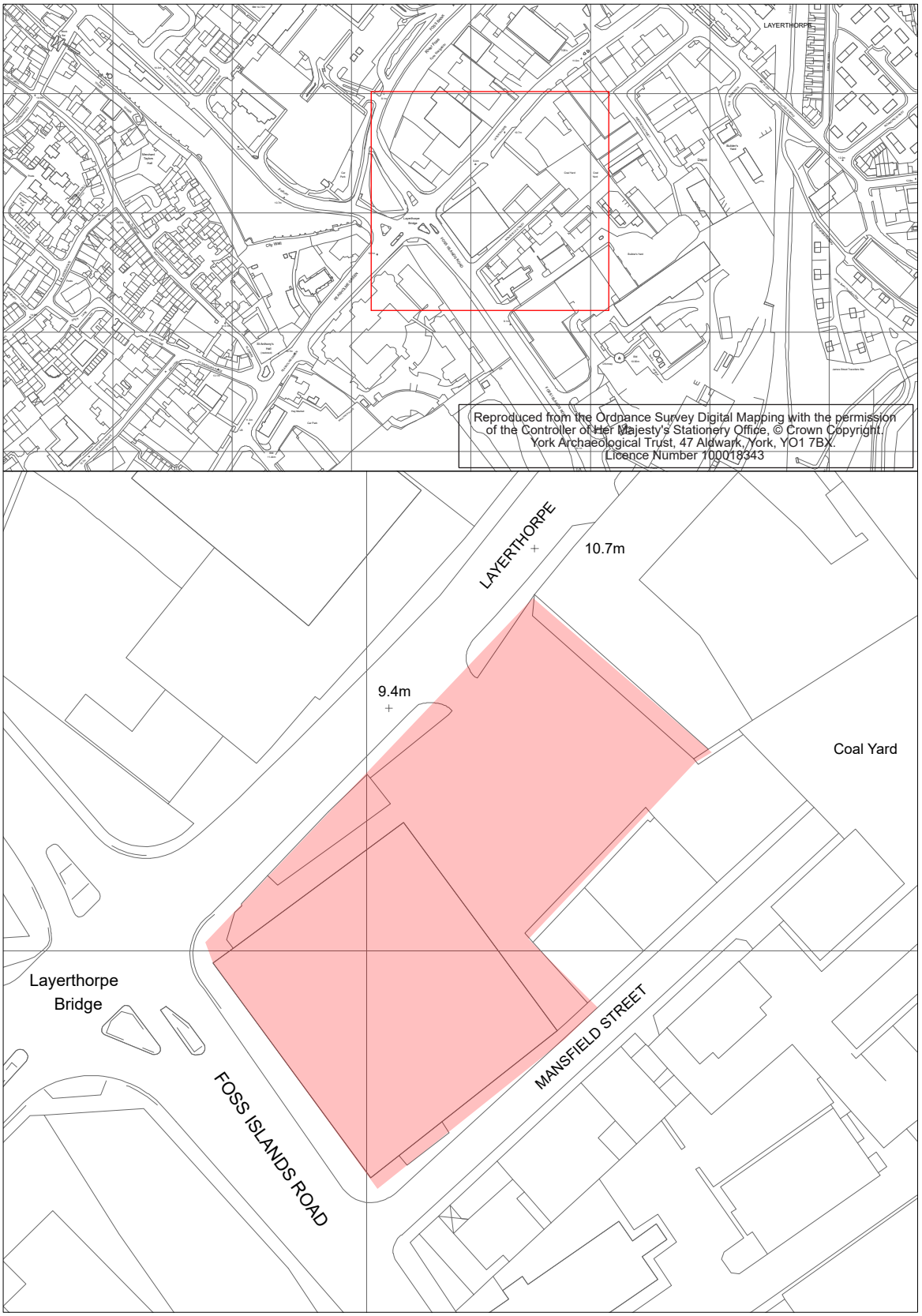
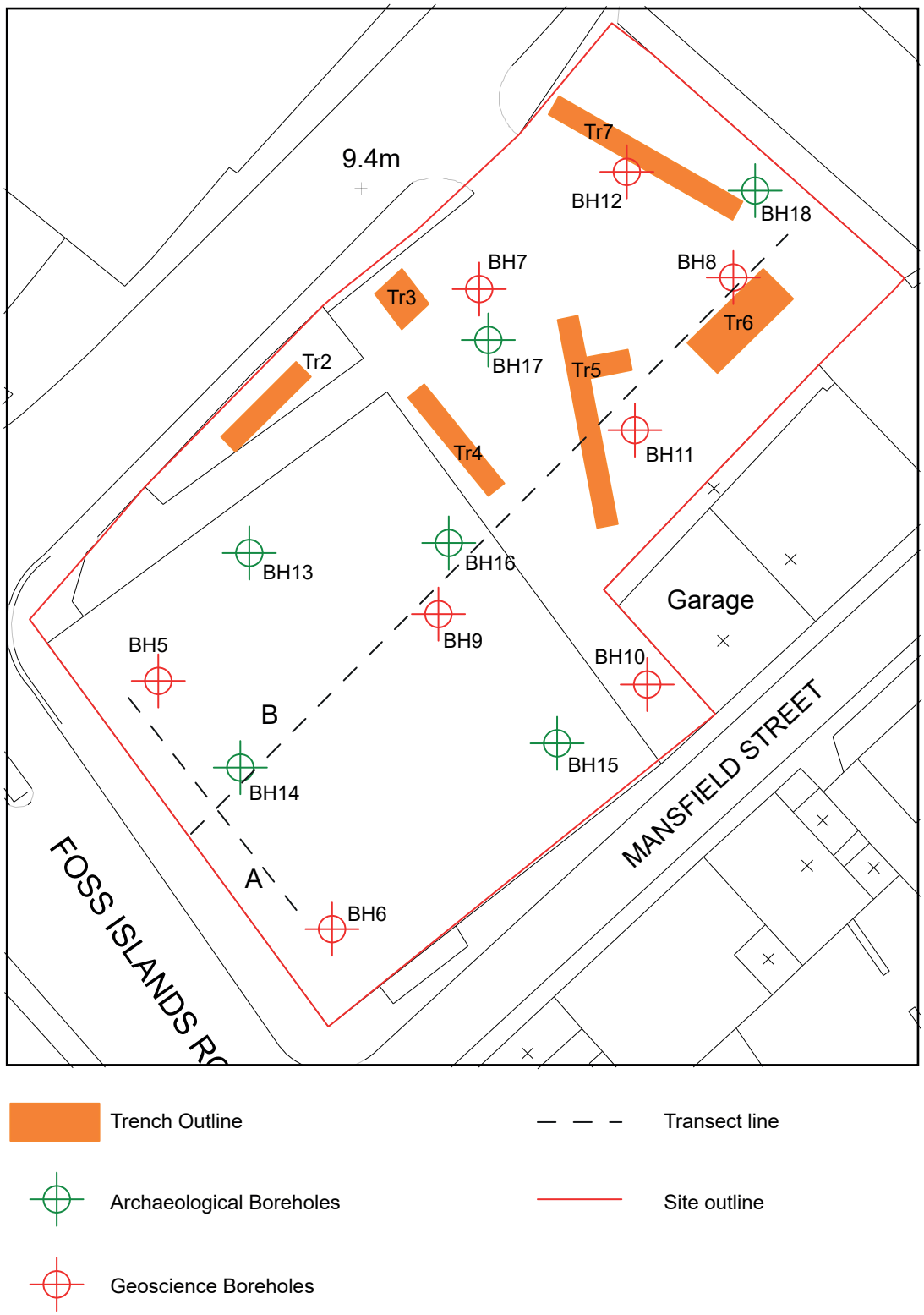


Figure 1 Site Location 1:5000 & 1:1000 @A4



Scale 1:600

Figure 2 Works Location

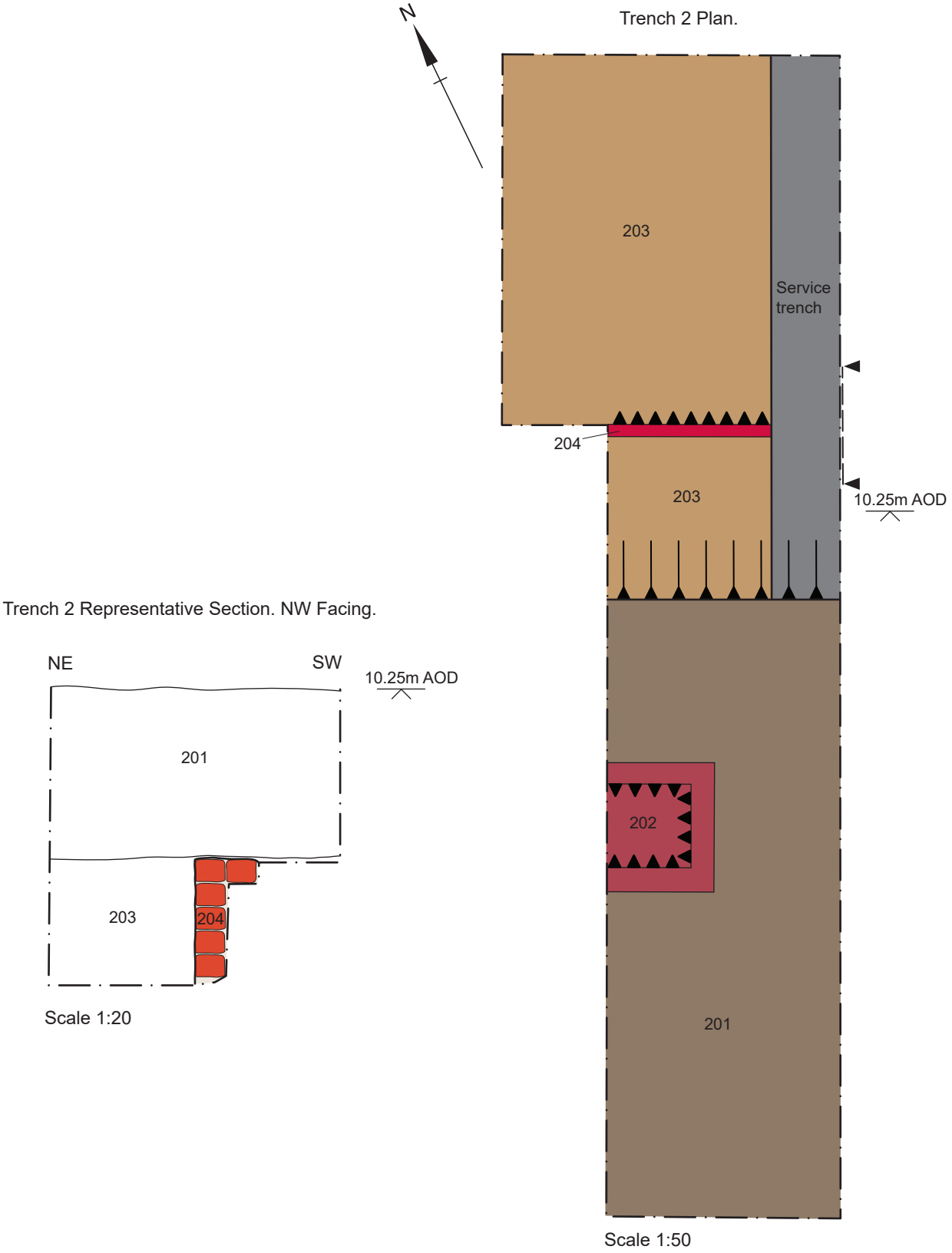
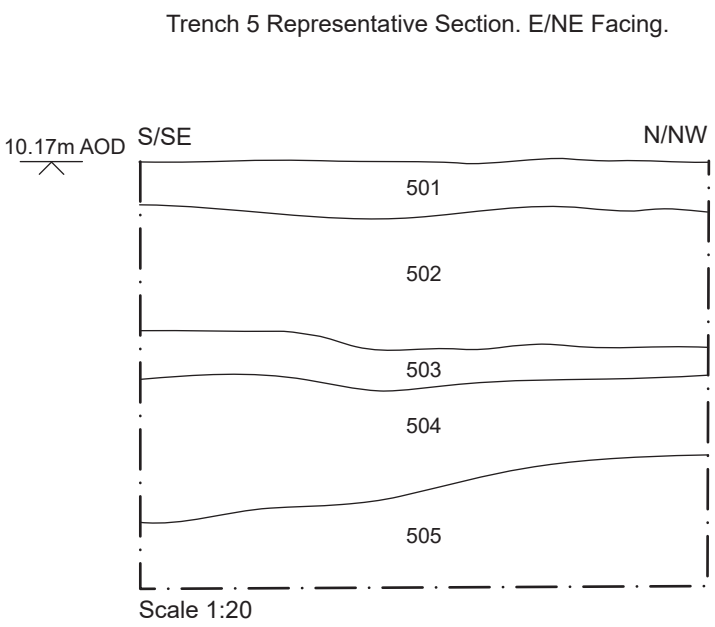
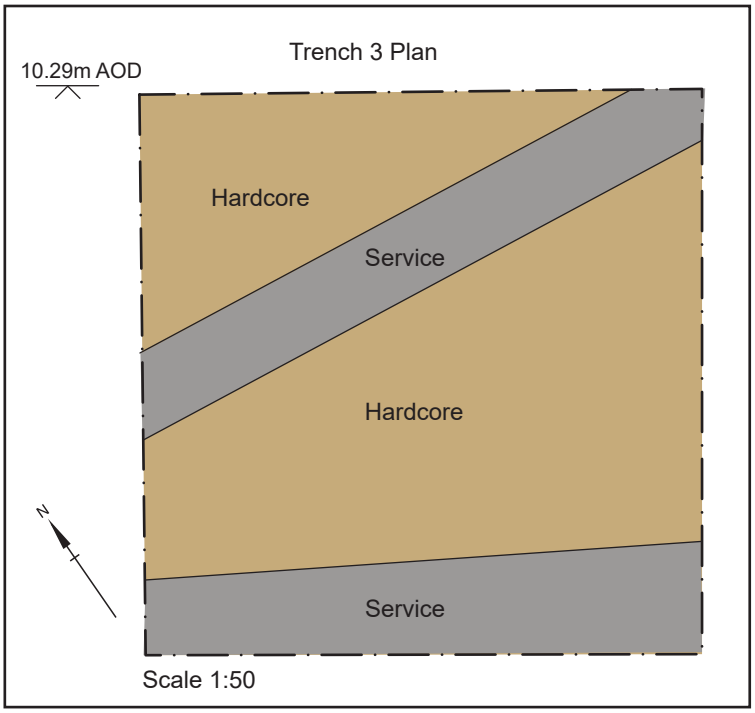


Figure 3 Trench 2 Plan and Section





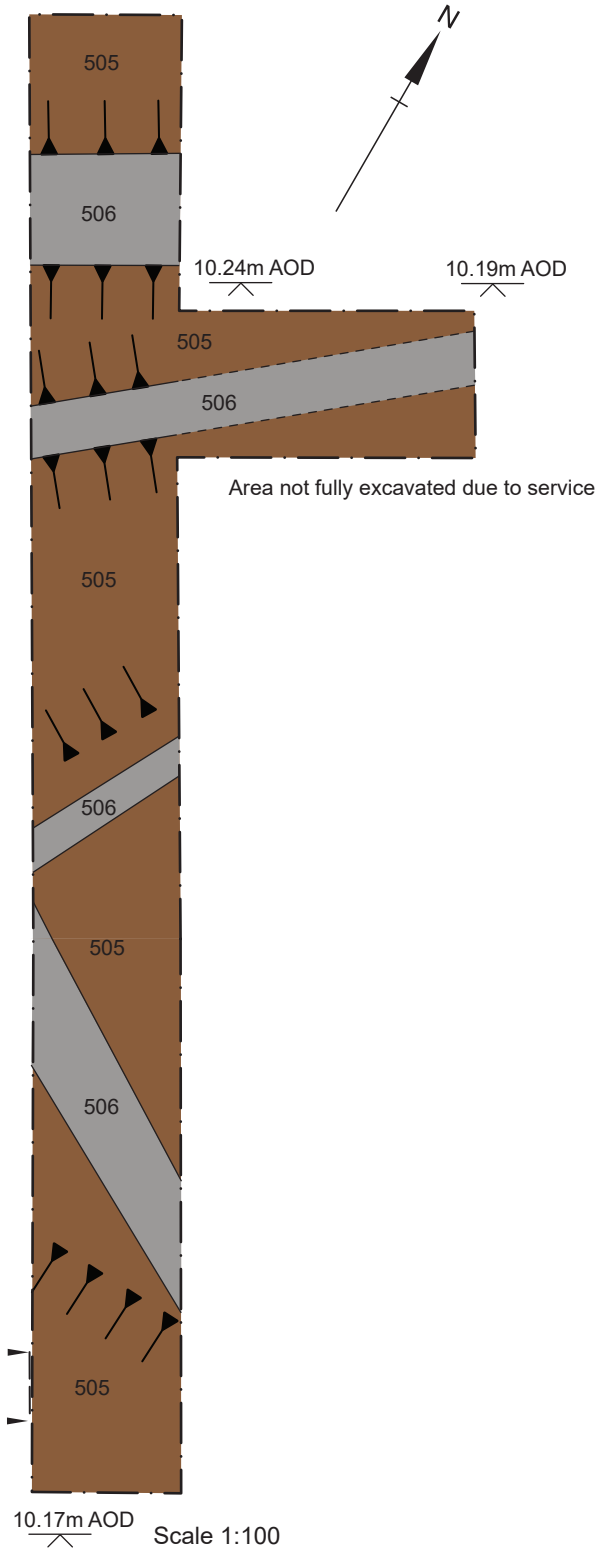


Figure 4 Trench 3 Plan and Trench 5 plan and Section

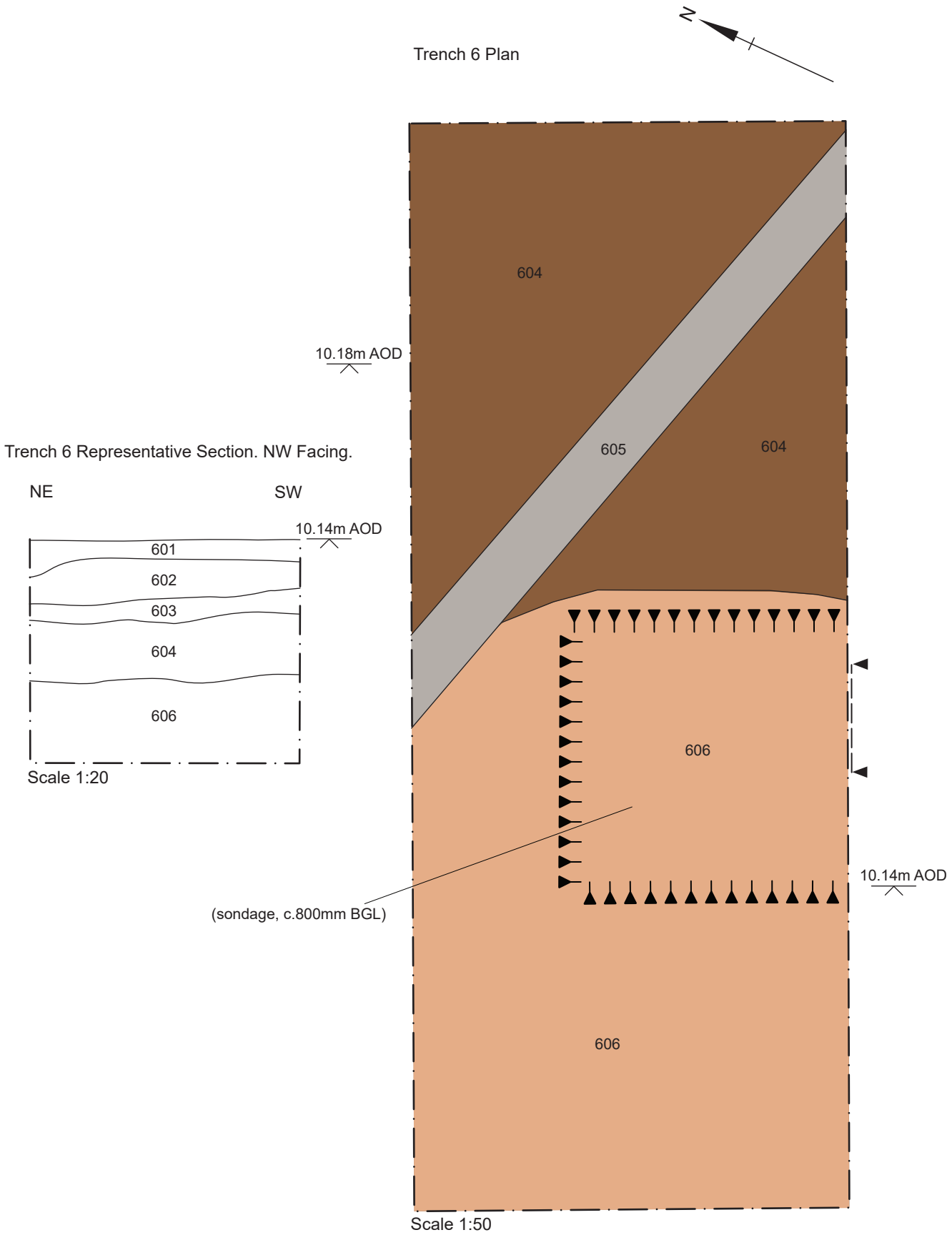
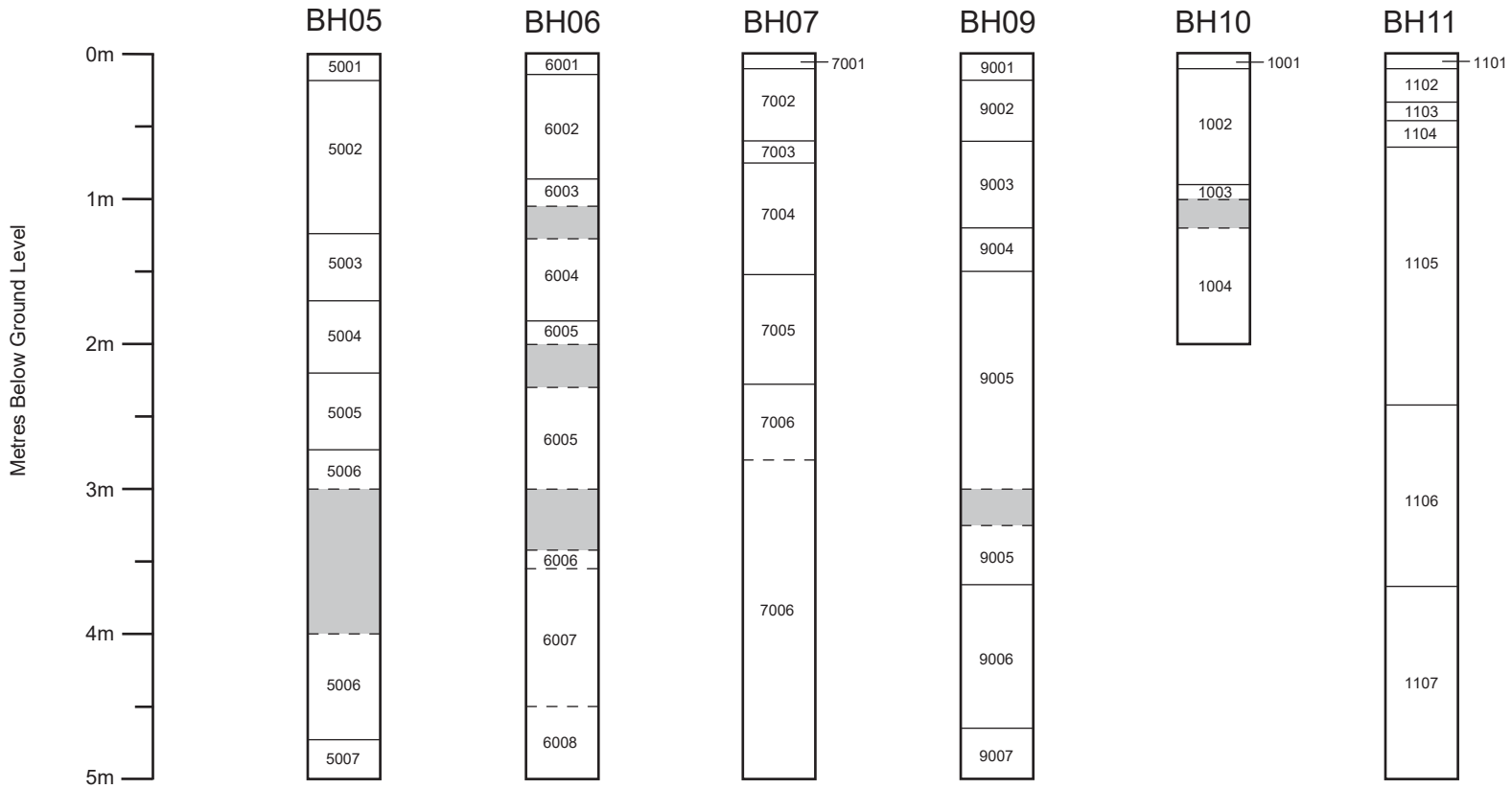


Figure 5 Trench 6 Plan and Section



Key

Limit of context

Limit of context (uncertain)

Void in borehole

Figure 6 Borehole Profiles BH's 5-11

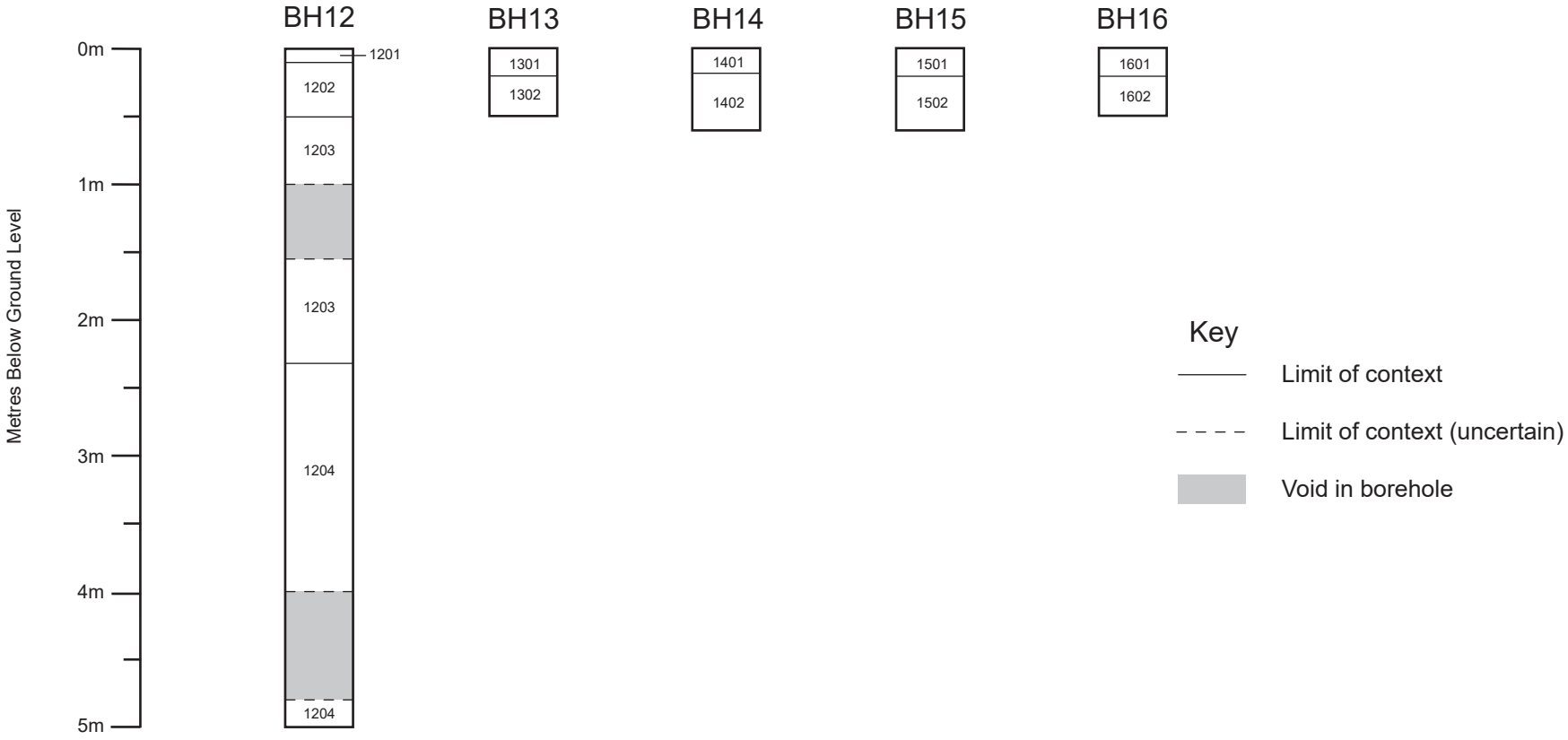


Figure 7 Borehole Profiles BH's 12-16

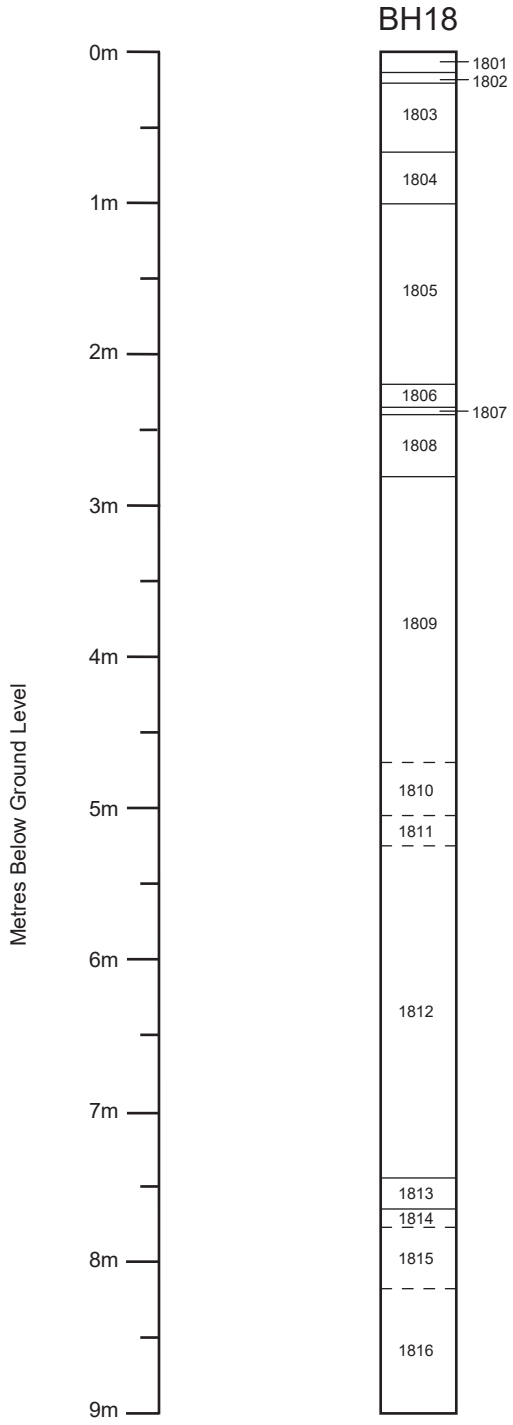


Figure 8 Borehole Profile BH18

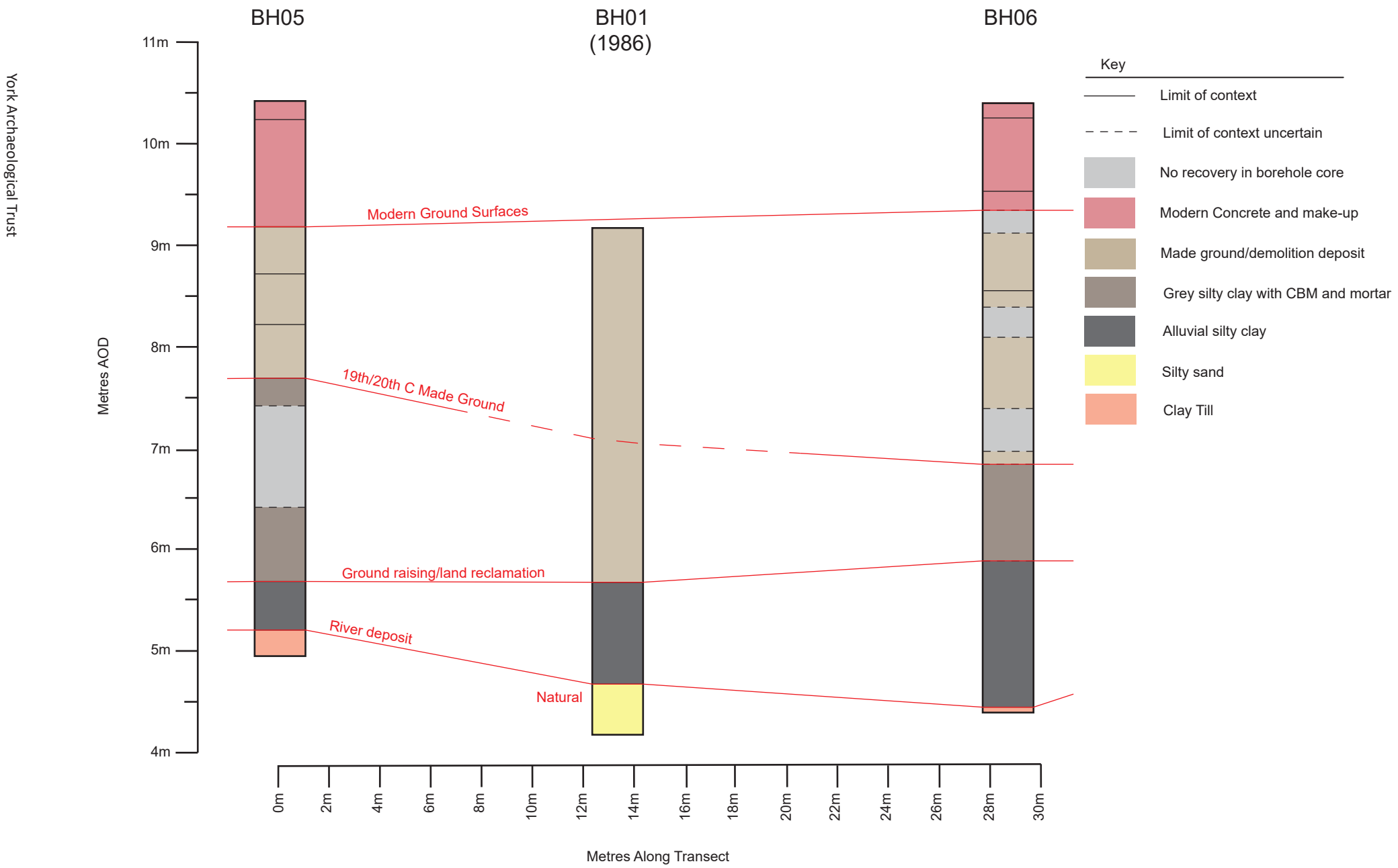


Figure 9 Transect A Deposit Model

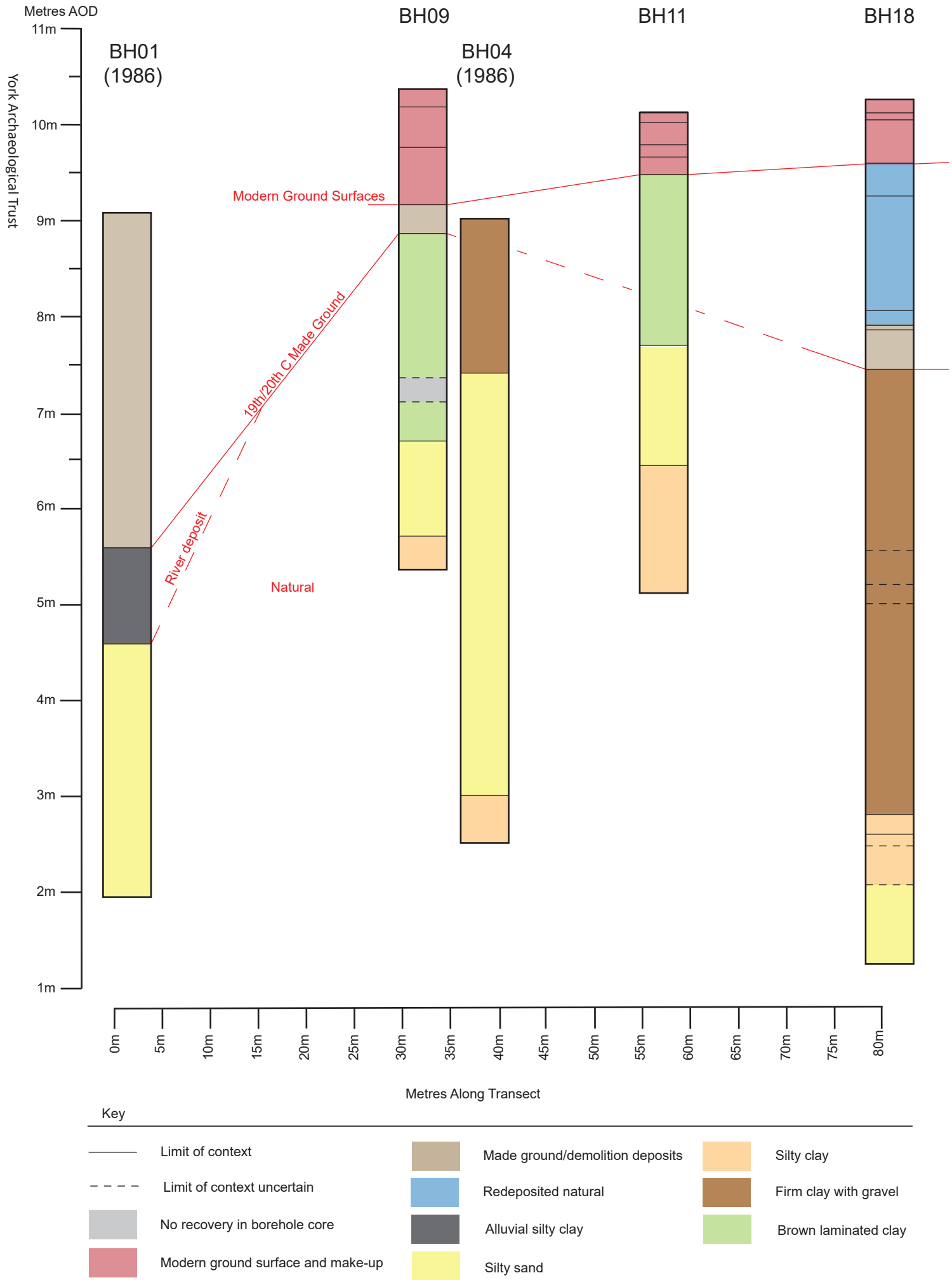


Figure 10 Transect B Deposit Model

WRITTEN SCHEME OF INVESTIGATION

WRITTEN SCHEME OF INVESTIGATION FOR

ARCHAEOLOGICAL INVESTGATIONS, FORMER CARPET RIGHT, LAYERTHORPE, YORK

Site Location: Former Carpet Right, Layerthorpe, York

NGR: SE 60902 52096

Proposal: Demolition of the existing buildings on the site and the development of a hotel with associated parking, landscaping and service provision

Prepared for: The JESSOP Consultancy

Document Number: 2019/55

Version	Produced by		Edited by		Approved by	
	Initials	Date	Initials	Date	Initials	Date
1	CJ/TK	25/04/19	IDM	26/04/19	IDM/BR	26/04/19

SUMMARY

The JESSOP Consultancy, in consultation with City of York Council Design Conservation & Sustainable Development team (CYC) and Historic England (HE), have produced a scope for archaeological works at the Former Carpet Right, Layerthorpe, York (SE 60902 52096) (JESSOP Consultancy, 2019). The programme of work set out in the project design is 'required to provide information of the archaeological potential and interest of the site for (the) proposed scheme and is in accordance with the National Planning Policy Framework, policy HE10 of the City of York Local Plan (2005), and policy D6 of the forthcoming Local Plan.'

This Written Scheme of Investigation (WSI) has been prepared in response to the project design supplied by The JESSOP Consultancy (TJC), alongside subsequent consultation with the Historic England Regional Science Advisor, TJC and the City of York archaeologist, Claire MacRae. The work will be carried out in accordance with the project design and this WSI, and according to the principles of the Institute for Archaeology (CIfA) Code of Conduct and all relevant standards and guidance.

SITE LOCATION & DESCRIPTION

The proposal site is located at Former Carpet Right, Layerthorpe, York to, to the north-east of York city centre and on the eastern bank of the River Foss (Figure 1). The site is bounded to the west by Layerthorpe Road, to the south by Foss Island Road, and to the east by Mansfield Road. The site is bounded to the north by a modern commercial unit.

The site contains a large single-storey commercial warehouse, located in the south-western part of the area, on the corner of Layerthorpe Road and Foss Island Road. The north-eastern half of the site is paved and is currently used as a car park.

There is a slight slope down from north to south, with height levels on the site ranging from 10.70m AOD to the north and 9.40m AOD to the south. The levels are terraced along the western side of the warehouse, facing Layerthorpe, such that they are approximately 0.7m above the level of the pavement.

The underlying geology is sandstone of the Sherwood Sandstone Group (BGS http://mapapps.bgs.ac.uk/geologyofbritain3d/index.html? accessed 25/04/19). Four historic boreholes undertaken in 1986, before the construction of the existing warehouse showed that thick superficial alluvial deposits overlie the bedrock. These boreholes also illustrated that inconsistent depths of made ground were present within the western side of the site, with silt recorded at depths of between 0.5–3.5m. All indicate waterlogged deposits survive at depths from 3m within the site.

DESIGNATIONS & CONSTRAINTS

The site lies within York's Area of Archaeological Importance (AAI). It is also located within the City of York Characterisation Area 52: Layerthorpe. This area is characterised by 20th- century commercial premises built across a former industrial landscape.

ARCHAEOLOGICAL INTEREST

The following historic and archaeological background has been adapted from the JESSOP Consultancy's project design and desk-based assessment (2019 a & b) and York Character Statement 52 (2013).

Prehistoric to Early–Medieval

Whilst there are no recorded remains of prehistoric to early-medieval activity within or immediately adjacent to the site, the potential importance of York's riverfronts to contain information about the development of the city and its history of trade and commerce has long been recognised (Addyman et. al., 1988). Due to the position of the site on the bank of the River Foss and the results of previous borehole surveys in the area, there is considered to be a high potential for deep waterlogged deposits to survive within the site. These have the potential to contain rich and well-preserved evidence for the characterization and morphology of the River Foss, as well as evidence of use of the area from the earliest settlement in the area onwards.

Medieval

The village or hamlet of Layerthorpe is first mentioned in a charter of 1184–9 where it is referred to as 'Leirthorp'. There is no mention of the place in the 11th century Domesday Book and the hamlet may have formed part of the village of Heworth. By the early 14th century Layerthorpe bridge and Layerthorpe Road had been created, leading from the city to a small linear settlement at Layerthorpe and onto Heworth. By the 14th century the settlement had developed sufficiently to warrant its own church. St Mary's church is first documented in 1331 and appears to have been relatively impoverished leading to it being annexed to the church of

St Martin by 1443, whilst records from visitations between 1409 and 1472 further illustrate the poor provision of St Mary's and the decay of its structure. The church was closed in 1549, when the parish was united with St Cuthbert, Peaseholme Green and the land was leased or sold. Given previous reports on its condition in the visitations it is possible that the church had fallen into decay by this period, and by the production of Speed's map of 1610 the church is not shown.

The settlement appears to have declined in the later medieval period with only a few buildings shown in the area on Speed's map of 1610 and appeared to have returned to agricultural use by the 18th century.

19th & 20th Century Development

The site was largely redeveloped within the first half of the 19th century, with historic evidence illustrating a mixture of industries, housing and trades including dealers in fodder, manure and coal, cab operators, farrier, whitesmith, coach works and other professions including labourers, porters, and fitters. The development depicted on historic maps is one of piecemeal, most likely prospective, development with little evidence of planned expansion. The character and function of this phase is not well understood from historical records, and any archaeological remains surviving within the site would be of local significance in furthering our understanding of the development of the area.

As is typical for this period, the rate of change in both buildings and occupants was such that much of the initial development at the site had been removed by the end of the 19th century, with the southern end of the site becoming a Laundry and Methodist Mission Room. The history of these later developments is well documented in historical records, and details survive of their form in historic photos and drawings submitted with the planning application for their demolition in 1984. As such, remains associated with this phase of development are considered to be of local significance.

There have been three previously recorded archaeological investigations at the site, comprising;

- 1855 foundations of St Mary's church uncovered (Raine, 1955), possibly during the laying of connections to the new mains sewers being installed at this time. No further detail is known.
- 1920–21 excavation to expose the foundations of the church, with the plan published (Associated Architectural Societies Reports and Papers vol.35).
- 1986 watching brief during excavations of test pits in advance of the construction of the extant development that revealed the site of the medieval church of St Mary and its burial ground had been largely removed. Occasional fragments of burials were recorded around both sides of the site (YAT archive, site code 1986.13).

AIMS

The aims of the evaluation are:

- to determine the extent, condition, character, importance and date of any archaeological remains present

- to provide information that will enable the remains to be placed within their local, regional, and national context and for an assessment of the significance of the archaeology of the proposal area to be made
- to provide information to enable the local authority to decide any requirements for further archaeological mitigation for the site
- To provide information that will contribute to the answering of the following research questions as outlined in the JESSOP Consultancy project design (2019):
    - What remains of the Church of St Mary and what can be determined of its date, character and development?
    - What is the extent and character of the graveyard associated with the Church of St Mary and do any burials survive?
    - Is there any evidence to support the theorised abandonment of the medieval settlement at the site?
    - What evidence is there for the extent and character of 18th century and earlier development at the site?
    - Is there any evidence for how the landscape at the site has changed through time and how it might have been utilised by previous societies?
    - Is there any evidence for the previous courses of the River Foss?
    - What is the survival, character and significance of waterlogged archaeological deposits at the site?

EXCAVATION METHODOLOGY

The evaluation will comprise the following elements:

- Trial trenching
- Geoscience borehole evaluation
- Archaeological borehole evaluation
- Water monitoring
- Reporting

Please note that further stages of work or other mitigation measures could be required by the local authority, depending upon the results of the evaluation.

Seven trenches will be excavated in the locations shown in Figure 2. Trenches will be stepped if necessary, to ensure their stated size at the base of the trench. Trench 1 is to be conditioned for excavation following demolition of the warehouse building.

No.	Size (m)	Rationale
1	As per works location (Figure 2)	To investigate levels at south of site and impact of warehouse and earlier laundry on archaeological deposits. This trench will be conditioned for excavation following demolition of the warehouse building
2	As per works location (Figure 2)	To investigate levels within southwest of site: potential area of medieval onwards roadside development.
3	As per works location (Figure 2)	To investigate western extent of graveyard

4	As per works location (Figure 2)	To investigate west end of church
5	As per works location (Figure 2)	To investigate east end of church and graveyard
6	As per works location (Figure 2)	To investigate northern extent of graveyard
7	As per works location (Figure 2)	To investigate levels within north of site: potential area of medieval onwards roadside development.

The trench locations will be accurately plotted using either an EDM Total station, by measurement to local permanent features shown on published Ordnance Survey maps, or by GPS as appropriate. All measurements will be accurate to +/-10cm, and the trenches locatable on a 1:2500 Ordnance Survey map. This is to ensure that the trenches can be independently relocated in the event of future work.

Overburden such as turf, topsoil or other superficial fill materials would be removed by a machine fitted with a toothless bucket. Mechanical excavation equipment would be used judiciously, under archaeological supervision down to the top of archaeological deposits, or the natural subsoil, whichever appears first. If archaeology is present machining will cease and excavation will normally proceed by hand. Where deep homogenous deposits, or deposits such as rubble infill, are encountered, these may be carefully removed by machine under archaeological supervision.

The use of mechanical, air-powered, or electrical excavation equipment may also be appropriate for removing deep intrusions (e.g. modern brick and concrete floors or footings) or through deposits to check that they are of natural origin. The machine will not be used to cut arbitrary sondages through archaeological deposits down to undisturbed natural deposits.

All trenches will be sufficiently cleaned by hand to enable potential archaeological features to be identified and recorded; areas without archaeological features will be recorded as sterile and no further work will take place in these areas. The stratigraphy of all trenches will be recorded on trench record sheets even where no archaeological features are identified.

A sufficient sample of any archaeological features and deposits revealed will be excavated in an archaeologically controlled and stratigraphic manner in order to establish the aims of the evaluation.

Discrete features will be half-sectioned in the first instance.

Linear features will be sample excavated (to a minimum of 25% of their length) with each sample being not less than 1m in length

Deposits at junctions or interruptions in linear features will be sufficiently excavated to allow relationships to be determined.

Structures will be sample excavated to a degree whereby their extent nature, form, date, function and relationships to other features and deposits can be established.

RECORDING METHODOLOGY FOR EXCAVATION

All archaeological features will be recorded using standardised pro forma record sheets. Plans, sections and elevations will be drawn as appropriate and a comprehensive photographic record will be made where archaeological features are encountered.

Archaeological deposits will be planned at a basic scale of 1:50, with individual features requiring greater detail being planned at a scale of 1:20. Larger scales will be utilised as appropriate. Cross-section of features will be drawn to a basic scale of 1:10 or 1:20 depending on the size of the feature. All drawings will be related to Ordnance Datum. Where it aids interpretation, structural remains will also be recorded in elevation.

Each context will be described in full on a pro forma context record sheet in accordance with the accepted context record conventions. Each context will be given a unique number. These field records will be checked and indexes compiled.

Photographs of work in progress and post-excavation of individual and groups of features will be taken. This will include general views of entire features and of details such as sections as considered necessary. The photographic record will comprise of digital images. All site photography will adhere to accepted photographic record guidelines.

Areas which do not contain any archaeological deposits will be photographed and recorded as being archaeologically sterile. The natural stratigraphic sequence within these areas will be recorded.

All finds will be collected and handled following the guidance set out in the CIfA guidance for archaeological materials. Unstratified material will not be kept unless it is of exceptional intrinsic interest. Material discarded as a consequence of this policy will be described and quantified in the field. Finds of particular interest or fragility will be retrieved as Small Finds, and located on plans. Other finds, finds within the topsoil, and dense/discrete deposits of finds will be collected as Bulk Finds, from discrete contexts, bagged by material type. Any dense/discrete deposits will have their limits defined on the appropriate plan.

All artefacts and ecofacts will be appropriately packaged and stored under optimum conditions, as detailed in the RESCUE/UKIC publication First Aid for Finds, and recording systems must be compatible with the recipient museum. All finds that fall within the purview of the Treasure Act (1996) will be reported to HM Coroner according to the procedures outlined in the Act, after discussion with the client and the local authority.

Other samples will be taken, as appropriate, in consultation with York Archaeological Trust specialists and the Heritage England Regional Science Advisor, as appropriate (e.g. dendrochronology, soil micromorphology, monolith samples, C14, etc.). Samples will be taken for scientific dating where necessary for the development of subsequent mitigation strategies. Material removed from site will be stored in appropriate controlled environments.

Should human remains be discovered they will be left in-situ, covered and protected pending notification of the discovery to City of York's archaeologist, Claire MacRae and the submission to the Ministry of Justice of an application for excavation. Exhumation of human remains will take place in compliance with environmental health regulations and only with a valid licence from the Ministry of Justice.

Any disarticulated human remains that are found will be identified and quantified on site. If trenches are being immediately backfilled, the remains will be left in the ground. If the excavations will remain open for any length of time, disarticulated remains will be removed and boxed, for reburial as close as possible to the location of their discovery.

Any articulated human remains that are found will be excavated in accordance with recognised guidelines (see 7.10) and retained for assessment.

Any grave goods or coffin furniture will be retained for further assessment.

Human remains will be removed in accordance with the Burial Act 1857 and the Ministry of Justice exhumation licence, and with the guidance of CIfA Technical Paper 13 (1993) and APABE (2017).

BOREHOLE SURVEY METHODOLGY

8no Geoscience boreholes and 6no Archaeological boreholes will be drilled within the proposal area with a compact tracked rig. The proposed locations of the boreholes are shown on Figure 2.

The external borehole locations will be accurately plotted by GPS working at an accuracy of no less than 100mm.

Boreholes located within the current warehouse will be located with reference to the external wall of the building.

The Geoscience boreholes will be drilled by a contractor supplied through CBRE. The Geoscience boreholes are nos 5–12 inclusive (Figure 2).

The Geoscience borehole sleeved cores will be opened and recorded on-site by the contractor (Kate Bourdouane, CBRE, pers.com.). The attending archaeologist will observe and record these cores.

Geoscience borehole no.11 will have a 1m² trial pit excavated at the start of the investigation to ensure human remains, if present, are not disturbed. The trial pit will be monitored and recorded by the attending archaeologist.

The Archaeological boreholes will be drilled by GA Site Investigations Ltd, sub-contracted to YAT. The Archaeological boreholes are nos 13–18 inclusive.

Boreholes 16 & 17 are to be fitted with dipwells (see section 9). The cores from these boreholes will be sealed and opened in the YAT laboratory facilities for detailed recording of the sequence and sample recovery.

Boreholes 13–15 and 18 will be opened on-site by the attending archaeologist to record the sequence and recover samples.

Archaeological borehole no.16 will have a 1m² trial pit excavated at the start of the investigation to ensure human remains, if present, are not disturbed. The trial pit will be monitored and recorded by the attending archaeologist.

A soil sampling programme will be undertaken for the recovery and identification of charred and waterlogged remains where suitable deposits are identified.

General Biological Analysis (GBA) samples will be taken from the cores as required. Up to 5 sealed REDOX samples will be taken and analysed by Geolabs Ltd. The purpose of the GBA samples is to establish baseline conditions regarding preservation of organic remains, by characterising the potential organic deposits via the recovery of charcoal, burnt seeds, bone, artefacts, macrofossils and microscopic remains such as pollen and insects. The purpose of the REDOX samples is to establish baseline conditions regarding the redox, permeability, porosity and ph conditions.

HYDROLOGICAL AND WATER QUALITY MONITORING

Recently published Historic England guidance on Preserving Archaeological Remains (Historic England 2016) has informed the City of York to evaluate potential deeply buried, water- logged and organic deposits by borehole.

A six-month programme of water monitoring work will be undertaken to understand the site hydrology and potential impact of the development. The monitoring and assessment will encompass both hydrology and water quality over the course of the stipulated time frame.

An interim report will be prepared after three months, using data collected to that point. Upon completion of the six-month monitoring, a final tier two hydrological report will be prepared, and the water monitoring equipment will be recovered for re-use.

Dip-wells will be protected during the re-development and re-cored if necessary to facilitate the required 5-year post-construction water monitoring programme required by CYC.

Six of the boreholes will have a 50mm diameter dipwells with lockable caps fitted. Five of these - nos 5, 6, 8, 16 & 17 are for archaeological hydrological and water quality monitoring. Borehole 7 is solely for Geoscience requirements, to assess and monitor ground contamination associated with a buried fuel tank.

Five remote sensors will be installed for water level monitoring in boreholes 5, 6, 8, 16 & 17. 4x TROLL units and 1x BARO TROLL unit will record water levels and barometric pressure, giving a diagonal transect across the site.

Water levels will be automatically logged using in-situ data-loggers. The data will be assessed with reference to the levels measured by the Viking Recorder on the River Ouse (the closest Environment Agency monitoring station, along with weekly rainfall levels recorded at the University of York Heslington Campus and hosted by the Electronics Department. Alternative data sources will be used if these are not available.

Up to two of the dipwells be also used for the installation of REDOX sensors. The location of these sensors will depend on the sequence recorded, focussing on potentially water-logged organic deposits. It is anticipated that either borehole no. 4 or 5 will receive a REDOX sensor, and potentially also borehole no.8.

REDOX sensors will measure four variables: Conductivity, Redox, PH level and Dissolved Oxygen level. These measures provide an accurate assessment of what the current organic conditions are, how they change and why they vary over time. This will allow an impact

assessment to be made, in accordance with CYC policy as informed by Historic England guidelines. The sensors can potentially be re-used if monitoring is required elsewhere on the site at a later date.

RECORDING METHODOLGY

All boreholes will be recorded using standardised pro forma record sheets and related to Ordnance Datum. Borehole cores will be examined in the field by an archaeologist suitably experienced in the deep stratigraphic nature of York's archaeological deposits.

Each context will be described in full on the pro forma borehole record sheet in accordance with the accepted context record conventions. Each context will be given a unique number. These field records will be checked and indexes compiled.

Photographs of work in progress and recovered cores will be taken. The photographic record will comprise of digital photographs of not less than 10 mega-pixels. All site photography will adhere to accepted photographic record guidelines.

All finds will be collected and handled following the guidance set out in the CIfA guidance for archaeological materials. Finds of particular interest or fragility will be retrieved as Small Finds. Other finds will be collected as Bulk Finds and bagged by material type.

All artefacts and ecofacts will be appropriately packaged and stored under optimum conditions, as detailed in the RESCUE/UKIC publication First Aid for Finds, and recording systems must be compatible with the recipient museum. All finds that fall within the purview of the Treasure Act (1996) will be reported to HM Coroner according to the procedures outlined in the Act, after discussion with the client and the local authority.

The collection and processing of environmental samples will be undertaken in accordance with Historic England guidelines (Campbell, Moffatt and Straker 2011).

General Biological Analysis (GBA) samples from the potential waterlogged organic deposits will be processed and assessed by specialist staff at Palaeoecology Research Services (PRS).

Sealed REDOX samples from potential waterlogged organic deposits will be processed and assessed by GEOLABS Ltd.

If suitable material is identified within the GBA samples then it will be assessed and submitted for AMS dating. This will be conducted by SUERC and will aim to date samples from the top and bottom of the sequence of potential waterlogged organic deposits, with at least one intermediate point, to contribute to the understanding of the archaeology.

SPECIALIST ASSESSMENT

The stratigraphic information, artefacts, soil samples, and residues will be assessed as to their potential and significance for further analysis and study. The material will be quantified (counted and weighted). Specialists will undertake a rapid scan of all excavated material. Ceramic spot dates will be given. Appropriately detailed specialist reports will be included in the report.

Materials considered vulnerable should be selected for stabilisation after specialist recording. Where intervention is necessary, consideration must be given to possible investigative

procedures (e.g. glass composition studies, residues on or in pottery, and mineral-preserved organic material). Allowance will be made for preliminary conservation and stabilization of all objects and a written assessment of long-term conservation and storage needs will be produced. Once assessed, all material will be packed and stored in optimum conditions, in accordance with Watkinson and Neal (1998), CIfA (2014) and Museums and Galleries (1992).

All finds will be cleaned, marked and labelled as appropriate, prior to assessment. For ceramic assemblages, any recognised local pottery reference collections and relevant fabric Codes will be used.

Allowance will be made for the recovery of material suitable for scientific dating and contingency sums will be made available to undertake such dating, if necessary. This will be decided in consultation with CYC Principal Archaeologist, Claire MacRae.

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Allowance will be made for the recovery of material suitable for scientific dating and contingency sums will be made available to undertake such dating, if necessary. This will be decided in consultation with Claire MacRae.

REPORT & ARCHIVE PREPARATION

Upon completion of the site work, a preliminary report will be prepared to include the following:

- A non-technical summary of the results of the work.
- An introduction which will include the planning reference number, grid reference and dates when the fieldwork took place.
- An account of the methodology and detailed results of the operation, describing structural data, archaeological features, associated finds and environmental data, and a conclusion and discussion.

- A selection of photographs and drawings, including a detailed plan of the site accurately identifying the areas monitored, trench locations, selected feature drawings, and selected artefacts, and phased feature plans where appropriate.
- Specialist artefact and environmental reports where undertaken, and a context list/index.
- Details of archive location and destination (with accession number, where known), together with a context list and catalogue of what is contained in that archive.
- A copy of the key OASIS form details
- Copies of the Brief and WSI
- Additional photographic images may be supplied on a CDROM appended to the report

After three months, this report will be updated to include an interim assessment of water level and quality data recorded to that point.

After the six-month water quality recording is completed, a Tier Two Hydrological report will be prepared, as per the scope of works (TJC 2019.28) and in accordance with Historic England guidance (Preserving Archaeological Remains; Decision-taking for Sites under Development, 2016). This report will be incorporated into a final version of the site report.

A digital copy of the report will be submitted direct to CYC for planning purposes, and subsequently for inclusion into the HER.

A field archive will be compiled consisting of all primary written documents, plans, sections and photographs. Catalogues of contexts, finds, soil samples, plans, sections and photographs will be produced. York Archaeological Trust will liaise with the Yorkshire Museum prior to the commencement of fieldwork to establish the detailed curatorial requirements of the museum and discuss archive transfer and to complete the relevant museum forms. The relevant museum curator would be afforded access to visit the site and discuss the project results.

The owner of the Intellectual Property Rights (IPR) in the information and documentation arising from the work, would grant a licence to the Local Authority and the museum accepting the archive to use such documentation for their statutory functions and provide copies to third parties as an incidental to such functions. Under the Environmental Information Regulations (EIR), such documentation is required to be made available to enquirers if it meets the test of public interest. Any information disclosure issues would be resolved between the client and the archaeological contractor before completion of the work. EIR requirements do not affect IPR.

Upon completion of the project an OASIS form will be completed at http://ads.ahds.ac.uk/project/oasis/.

POST EXCAVATION ANALYSIS & PUBLICATION

The information contained in the evaluation report will enable decisions to be taken regarding the future treatment of the archaeology of the development site and any material recovered during the evaluation.

If further archaeological investigations (mitigation) take place, any further analyses (as recommended by the specialists, and following agreement with Claire MacRae) may be incorporated into the post-excavation stage of the mitigation programme unless such analysis

are required to provide information to enable a suitable mitigation strategy to be devised. Such analysis will form a new piece of work to be commissioned.

In the event that no further fieldwork takes place on the site, a full programme of post-excavation analysis and publication of artefactual and scientific material from the evaluation may be required by Claire MacRae. Where this is required, this work will be a new piece of work to be commissioned.

If further site works do not take place, allowance will be made for the preparation and publication in a local and/or national journal of a short summary on the results of the evaluation and of the location and material held within the site archive.

HEALTH AND SAFETY

Health and safety issues will take priority over archaeological matters and all archaeologists will comply with relevant Health and Safety Legislation.

A Risk Assessment will be prepared prior to the start of site works.

PRE-START REQUIREMENTS

The client will be responsible for ensuring site access has been secured prior to the commencement of site works, and that the perimeter of the site is secure.

The client will provide York Archaeological Trust with up to date service plans and will be responsible for ensuring services have been disconnected, where appropriate.

The client will be responsible for ensuring that any existing reports (e.g. ground investigation, borehole logs, contamination reports) are made available to York Archaeological Trust prior to the commencement of work on site.

REINSTATEMENT

Following excavation and recording the spoil from the trenches will be backfilled unless requested otherwise. The backfill material will be levelled and compressed as far as possible with the mechanical excavator bucket, but will not be compressed to a specification. York Archaeological Trust are not responsible for reinstating any surfaces, including reseeding, unless specifically commissioned by the client who will provide a suitable specification for the work.

TIMETABLE & STAFFING

The timetable is to be agreed with the client.

Specialist staff available for this work are as follows:

Human Remains – Malin Holst

Palaeoenvironmental remains – PRS Ltd

Head of Curatorial Services – Christine McDonnell

Finds Researcher – Nicky Rogers

Pottery Researcher – Anne Jenner

Finds Officers – Nienke Van Doorn

Archaeometallurgy & Industrial Residues – Dr Rod Mackenzie

Conservation – Ian Panter

MONITORING OF ARCHAEOLOGICAL FIELDWORK

As a minimum requirement, Claire MacRae will be given a minimum of one week's notice of work commencing on site, and will be afforded the opportunity to visit the site during and prior to completion of the on-site works so that the general stratigraphy of the site can be assessed and to discuss the requirement any further phases of archaeological work. York Archaeological Trust will notify Claire MacRae of any discoveries of archaeological significance so that site visits can be made, as necessary. Any changes to this agreed WSI will only be made in consultation with Claire MacRae.

With the client's agreement illustrated notices will be displayed on site to explain the nature of the works.

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For the latest Historic England guidance documents see:

https://historicengland.org.uk/advice/latest-guidance/

YORK ARCHAEOLOGICAL TRUST

York Archaeological Trust undertakes a wide range of urban and rural archaeological consultancies, surveys, evaluations, assessments and excavations for commercial, academic and charitable clients. We manage projects, provide professional advice and fieldwork to ensure a high quality, cost effective archaeological and heritage service. Our staff have a considerable depth and variety of professional experience and an international reputation for research, development and maximising the public, educational and commercial benefits of archaeology. Based in York, Sheffield, Nottingham and Glasgow the Trust's services are available throughout Britain and beyond.

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