



A58 Blackbrook Diversion, St Helens Merseyside

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SUMMARY

This assessment report presents the results of a programme of archaeological investigations undertaken in advance of the construction of the proposed A58 Blackbrook Diversion, St Helens (SJ 5346 9655 – 5437 9749). The development is being undertaken by Birse Limited, and involves substantial earth-moving works that will have an impact on the sub-surface archaeological resource.

Following on from the results of a desk-based assessment of the development area (OA North 2002), which revealed potential for industrial period remains, a programme of archaeological evaluation trenching was implemented in 2004, undertaken by Oxford Archaeology North (OA North 2004), to assess the nature, extent, character and date of buried remains within the study area. This entailed the excavation of 48 evaluation trenches and revealed considerable evidence of industrial activity along the proposed route, represented by a number of sites and the widespread dumping of waste material associated with the industrial processes undertaken in the area. The south-western section of the route, however, could not be evaluated in 2004 because of restricted access at that time. More recently, a compulsory purchase order was issued upon the owner, which has enabled the completion of the remaining archaeological trenches as part of the present programme of investigation, and a further 16 trenches were excavated to evaluate this area and in advance of a series of proposed balancing ponds, along the south-east side of the proposed road; the work was undertaken by OA North in March 2006.

With the exception of Trench 52, the evaluation trenches did not reveal significant archaeological remains, although Trenches 50, 61 and 62 did reveal features that had potential and warranted some further investigation. Trench 52 identified a stone wall aligned east to west across the southern part of the trench, and parallel to it was a stone-lined drain, which was constructed in the same manner as the wall. A further two small square features were encountered north of the stone wall, both containing similar fills of clinker and small angular pebbles. It is possible that the drain/culvert and the wall were associated with the Garswood-Pewfall incline, and may have acted as some kind of boundary around the edge of the incline earthwork.

Of the sites identified by the initial evaluation (OA North 2004) four sites warranted mitigation recording in advance of the road construction. This entailed the excavation of four open-area trenches (Trenches A-D), which were excavated during March 2006.

In Trench A, a wooden platform was identified which was the foundation of a small timber building that probably dated to the nineteenth century. In Trench B, a brick culvert and walls were recorded, which were evidently components of a building. These were of nineteenth-century date, and were probably part of the adjacent Blackbrook Colliery complex.

A small, brick building foundation was revealed in Trench C, of a simple, unsubstantial construction without bonding material. The absence of bonding suggests that it was a temporary structure, and was possibly a small storage shed, dating from the twentieth century, potentially associated with the nearby Stanley Bank Farm. In Trench D were the remains of a cutting associated with the Stanley Bank incline.

A watching brief was maintained in April / May 2006 along agreed sections of the proposed route, in particular along the length of an access road onto the site that would possibly impact on sub-surface deposits associated with the north-eastern part of the

Garswood-Pewfall incline plane, and in the south-western part of the route, where contamination by Japanese Knotweed had prevented the excavation of evaluation trenches.

An assessment of the collated excavation and evaluation archive has been undertaken, to establish the potential for further analysis of the data and the corresponding publication of the results. This identified that there was limited potential for analysis of the finds, but that the stratigraphic and structural data had considerable potential subject to the implementation of a detailed documentary study into the development of the industrial landscape. It recommended publication of the results as an article within the journal, *The Industrial Archaeology Review*.

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Oxford Archaeology North (OA North) would like to express its thanks to Sean Martin of Birse Ltd for commissioning and supporting the work, and to Barry Holliday for logistical support. OA North are also grateful to Sarah-Jane Farr, the Merseyside Archaeological Officer, for her support and advice throughout the project.

The archaeological evaluations were supervised by Caroline Raynor, and the excavations were directed by Sean McPhillips, assisted by Caroline Bulcock, Alastair Vannan, Ged Callaghan and Rebekah Pressler. The watching brief was undertaken by Caroline Raynor. All surveying was undertaken by Marc Storey, the drawings being prepared by Mark Tidmarsh. The report was compiled by Sean McPhillips and Caroline Raynor and was edited by Jamie Quartermaine and Rachel Newman. The project was managed by Jamie Quartermaine.

1. INTRODUCTION

1.1 CIRCUMSTANCES OF THE PROJECT

- 1.1.1 This report presents the results of a programme of archaeological investigations undertaken by Oxford Archaeology North (OA North) in advance of the construction of the proposed A58 Blackbrook Diversion, St Helens (SJ 5346 9655 – 5437 9749). The development is being undertaken by Birse Limited, and involves substantial earth-moving works that will have an impact on the sub-surface archaeological resource.
- 1.1.2 Following on from the implementation of a desk-based assessment of the development area (OA North 2002), which revealed potential for industrial period remains, a programme of archaeological evaluation trenching was implemented in 2004, undertaken by Oxford Archaeology North (OA North 2004), to assess the nature, extent, character and date of buried remains within the study area. This entailed the excavation of 48 evaluation trenches and revealed considerable evidence of industrial activity along the proposed route, represented by a number of sites and the widespread dumping of waste material associated with the industrial processes undertaken in the area. The south-western section of the route, however, could not be evaluated in 2004 because of restricted access at that time. More recently, a compulsory purchase order was issued upon the owner, which has enabled the excavation of the remaining archaeological trenches as part of the present programme of investigation.
- 1.1.3 The recommendations of the original evaluation report (OA North 2004) were that certain sites should be subject to excavation in mitigation of the effects of the development. The sites proposed included a wooden platform in Evaluation Trenches 22 and 44, a circular brick structure in Evaluation Trench 42, a brick foundation in Evaluation Trench 33, and the surviving section of the Stanley Bank incline in Evaluation Trench 10. The Merseyside Archaeological Officer, Sarah-Jane Farr, produced a project brief detailing the required archaeological works in advance of the road construction (*Appendix 1*). A project design was prepared by OA North (*Appendix 2*) in accordance with this project brief, which provided for a programme of further archaeological evaluation to assess the nature, extent and significance of buried archaeological remains in areas that had been denied access during the earlier phase of evaluation, and also detailed a programme of excavation to record the sites identified by the earlier evaluation (OA North 2004).
- 1.1.4 The archaeological evaluation of a further 16 trenches, to examine the south-western end of the route, and in an area of proposed balancing ponds, was undertaken by OA North in March 2006. At the same time four open areas were excavated and subject to full archaeological recording. This work was followed by an archaeological watching brief, maintained by OA North, during the ground works for the road construction.
- 1.1.5 The present report summarises the results of the archaeological evaluation and excavations, and provides an assessment of the post-excavation requirements for the material recorded.

2. METHODOLOGY

2.1 PROJECT DESIGN

- 2.1.1 In response to a request by Birse Ltd, OA North submitted a project design (*Appendix 2*), in accordance with a project brief (*Appendix 1*) from the Merseyside Archaeological Officer, for a programme of archaeological evaluation and excavation, in advance of the proposed A58 Blackbrook diversion road scheme in St Helens. Following the acceptance of the project design by the Merseyside Archaeological Officer, OA North was commissioned to undertake the work.
- 2.1.2 The additional archaeological evaluation comprised the excavation of 16 trial trenches, along the line of the road (Figs 2 and 3). The mitigation excavation comprised four open areas centred on sites identified during the earlier phase of evaluation (OA North 2004). The project design had provided for an archaeological evaluation of the lower ground at the south-western end of the route. However, this was an area where Japanese Knotweed had become rampant, which had to be rigorously sterilised before any other ground works could be undertaken; thus the excavation of four proposed evaluation trenches in this area was prevented. Instead, the ground works in this area were subject to an archaeological watching brief.
- 2.1.3 Mitigation Trench B was initially 5m x 10m in size, but when significant structural remains were exposed the trench was expanded to 10m x 10m. In all other respects the archaeological works were undertaken in accordance with the project design, and all work was consistent with the relevant standards and procedures of the Institute of Field Archaeologists.

2.2 EVALUATION TRENCHES

- 2.2.1 The evaluation trenches were excavated by a combination of mechanised and manual techniques; the topsoil was removed by a JCB excavator, fitted with a 1.8m wide toothless ditching bucket, and deposits beneath were manually cleaned, all archaeological features being manually excavated. The machine excavation did not intrude into any potential archaeological stratigraphy, and all machine excavation was undertaken under careful archaeological supervision. Given that the sites were in an area of previous industrial development, a large proportion of the trenches contained relatively recent dumping, which was also removed by machine. The trenches were, on the whole, not excavated deeper than 1.25m, although a few were excavated to a greater depth, to evaluate the potential survival of archaeological deposits. None of these revealed archaeologically significant deposits, and in these instances, the trenches were either stepped or were examined / recorded from the surface only.
- 2.2.2 The trenches were excavated in a stratigraphical manner, whether by machine or by hand. These were located by use of GPS equipment which is accurate to +/- 0.02m, altitude information being established from an Ordnance Survey Datum. Archaeological features within the trenches were planned by manual techniques.
- 2.2.3 **Recording:** all information identified in the course of the site works was recorded stratigraphically, with sufficient pictorial record (plans, sections and both black and

white and colour photographs) to identify and illustrate individual features. Primary records were available for inspection at all times.

- 2.2.4 Results of the field investigation were recorded using a paper system, adapted from that used by the Centre for Archaeology of English Heritage. The archive includes both a photographic record and large-scale plans and sections at an appropriate scale (1:50, 1:20, and 1:10). All artefacts and ecofacts were recorded using the same system, and will be handled and stored according to standard practice (following current Institute of Field Archaeologists guidelines) in order to minimise deterioration.

2.3 EXCAVATION

- 2.3.1 Following machine removal of the overburden, each site was subject to manual cleaning over the whole excavation area, since extant deposits were fragile and machinery in their vicinity could disturb relatively delicate layers and relationships. Thereafter, structural remains and features were excavated manually so as to investigate all features stratigraphically and to produce a plan of the site. To maximise the information generated from available resources, all features were cleaned, and excavated, to establish their date, function and stratified relationship. Despite the potential significance, it was not considered necessary to excavate every feature in its entirety, and a sampling strategy was applied once the full potential of the site had been established. Localised features, such as pits, were subject to 50% sample excavation, and linear features were subject to 15% sample excavation. For health and safety reasons the mechanical clearance was limited to a maximum depth of 1.2m, after which the sides of each trench were stepped in.
- 2.3.2 **Environmental Sampling:** it was intended that environmental samples should be taken, where appropriate deposits were encountered. No such waterlogged or similar deposits were identified, however, and therefore no environmental samples were taken.
- 2.3.3 **Recording:** archaeological planning was undertaken by hand, in conjunction with a Leica 1200 differential GPS (accurate to 20mm). All planning data were digitally incorporated into a CAD system in the course of the excavation, and were superimposed with the base survey provided by Birse Ltd. This process generated scaled plans which were also subject to manual survey enhancement. Section drawings were generated manually.
- 2.3.4 A complete record of all features and horizons was made, comprising a full description and preliminary classification of features on OA North *pro-forma* sheets, and their accurate location in plan. A photographic record in colour slide and monochrome formats was also compiled. A full and detailed photographic record of individual contexts was maintained, and more general views were also generated, using 35mm cameras on archivably stable black and white print film, as well as colour transparency and digital images. Photographic records were maintained on *pro-forma* sheets.

2.4 FINDS

- 2.4.1 All finds recovered were bagged and recorded by context number. Those that were of archaeological significance were retained and have been processed and

temporarily stored according to standard practice (following the Institute of Field Archaeologists' guidelines).

2.5 ARCHIVE

- 2.5.1 A full archive of the work is in production to a professional standard, in accordance with current English Heritage guidelines (1991a) and the United Kingdom Institute for Conservation *Guidelines for the Preparation of Excavation Archives for Long Term Storage* (UKIC 1990). It is intended that the results obtained from the various investigations will be combined to form a single, integrated archive. A copy of the report will be forwarded to the Merseyside Sites and Monuments Record (SMR), and a summary sent to the National Monuments Record (NMR).

3. BACKGROUND

3.1 TOPOGRAPHY AND GEOLOGY

- 3.1.1 **Topography:** the study area is on the north-eastern outskirts of St Helens, and lies to the north of Blackbrook and west of Haydock, being accessible from the A58 from Junction 24 of the M6 (Fig 1). The land is part of the very shallow Sankey/Black Brook valley, and slopes gently downwards from the north-east to the south-west. The highest point is at the junction of the A58 and A580, at about 50m OD, and the lowest is nearer the St Helens Canal, at approximately 30m OD. The study area extends north-east from south of Stanley House Farm (SJ 5355 9655) to the crossroads of the A58 and A580 (SJ 5440 9750), in an approximate straight line. The general area is defined by the Countryside Agency as the Lancashire Coal Measures (Countryside Commission 1998), which has numerous small streams flowing through it, which eventually flow into the Sankey Brook. These water courses include Clipsley Brook, Stanley Brook, Black Brook and Sankey Brook, and for the most part they have been lessened as water features by the construction of the St Helens Canal, which has affected the drainage of the area. The region is also characterised by several reservoirs, including that at Carr Mill, which in the past have provided water sources for transportation and industrial activity.
- 3.1.2 **Geology:** the solid geology of the region comprises predominantly sandstones and coal deposits, and is of particular significance as much of the more recent history of the area relates to the exploitation of the available mineral resources. The overlying drift geology comprises post-glacial deposits, predominantly boulder clay with some areas of sands or gravels (Countryside Commission 1998), and in the valley areas there are riverine silts. The soils, as mapped by the Soil Survey of England and Wales (1983), are predominantly of the Salop Association series, which are typical stagnogleys, deriving from the underlying geology.

3.2 HISTORICAL BACKGROUND

- 3.2.1 **Introduction:** the historical and archaeological background is summarised from the archaeological assessment (OA North 2002), and topographic survey and evaluation (OA North 2004), undertaken as part of the previous phases of archaeological investigation on the proposed development. As the current investigation comprised the excavation and examination of essentially post-medieval deposits and structures, the historical background of the area has concentrated on this period.
- 3.2.2 During the prehistoric period there was evidence of activity within the wider region; notably a pollen core from nearby Prescott shows forest clearance, combined with the presence of cereal pollen, dating to 2600-2500 BC (Cowell 1991, 37; Innes and Tomlinson 1991), and a Neolithic polished stone axe was found from Ashton in Makerfield (Cowell and Innes 1994). However, none has been found from the immediate environs of the site. In the Roman period there was evidence of activity from the wider region, but again none from the environs of St Helens. In the medieval period the area was largely agricultural land, with

numerous small hamlets and for each there was a lord of the manor occupying a moated manor house. There is putative evidence for one such moated site at Stanley Bank Farm (Lewis 1991, 94); however, this has yet to be confirmed by field evidence.

- 3.2.3 **Post-Medieval Period:** numerous sources provide details of the regional population figures from the sixteenth century onwards, as well as information on economic activities. The majority of the population in the towns of the region, including Ashton-in-Makerfield, Newton-le-Willows (previously -in-Makerfield) and St Helens, was increasingly becoming involved in the processing, manufacture, and distribution of textiles and various minerals, including iron, coal, copper, and other materials such as glass. The distribution of minerals within the Lancashire Coal Measures meant that many of the processing and manufacturing sites were in the vicinity of the extraction sites, since it was more economic and efficient to carry out all the activities at one central place, and to attract a work force to it. This resulted in the construction of large mills and complexes which were increasingly expanded, and the construction of terraced houses for the workers, resulting in the expansion of urban areas (Walton 1987).
- 3.2.4 **Transport:** coincident with the development of the manufacturing base, the transport network developed into a complex system, connecting various modes of transport and serving many locations. The opening, in 1757, of the first modern canal in England, the Sankey Brook Navigation (now the St Helens Canal), revolutionised both the way in which canals were engineered, and the carriage of coal from the Lancashire coalfield (Hadfield 1984). To the immediate west of the study area is the St Helens Canal, which was originally constructed for transporting raw materials, such as coal, and was related to the expansion of heavy and extractive industries. The canals were eventually superseded by the railways, which developed rapidly during the mid-nineteenth century (*ibid*). In recent years the road system has seen major modifications, with the upgrading of roads to A-road standards and the building of the M6. With such a communication system being constructed throughout the county, there has been a continued development of the economy, which has moved away from primary industrial processing towards secondary forms of manufacturing, distribution and retailing.
- 3.2.5 **Stanley Bank Incline:** Stanley Bank incline survives as an embanked track, part of which is now a public right of way, and runs close to the proposed road line, continuing in a north-easterly direction (Cox and Chandler 1993; OA North 2002). It took the form of a tramway, and the field at the fork of the tracks is called 'Rail Road Field' on the Ashton-in-Makerfield Tithe apportionment (LCRO/DRL 1/5, Parcel 30, 1839). The incline was constructed in 1773, in order to ferry materials from Gerards Quay via the site of the Stanley Copper Works, heading north-east beyond the A58. It extended along the gently sloping shoulder on the north-west side of the Stanley Brook valley. The incline was originally surfaced with iron rails and wooden sleepers, which had been dismantled by 1845, suggesting the end of its use.
- 3.2.6 **Garswood-Pewfall Incline:** the relationship between the Stanley Bank incline and the (presumably later) Garswood-Pewfall incline plane, which ran parallel to it, has not been established. The latter brought coal from the Pewfall colliery near Ashton-in-Makerfield, and had been constructed by 1839, since it appears on the Tithe award ((LCRO/DRL 1/5, Parcel 30, 1839). It is described as an incline plane on the

OS map of 1849, and an engine pit, shown at its foot, may have been related to its operation. By c 1891 (OS 1st edition 25" map) it had gone out of use. In c1900 the Garswood Park Pits were operating, and as a result the incline plane had been re-laid as a mineral railway, with a northward extension towards Icehouse Plantation, which lies north of the present A580. By 1929 (OS 4th edition map), however, it was out of use again, and only part of the cutting and embankment around Stanley Bank Farm survives to the present day, where it is utilised as a field boundary.

- 3.2.7 **Stone Quarrying and Brickmaking:** the Ashton Tithe Apportionment (LCRO/DRL 1/5, 1839) shows a number of land parcels (numbered 4, 5, 24-29) east of Stanley Bank Farm as 'Stone Delph Field', with the word 'Delph' or 'Delf' meaning in the North of England a mine or quarry (Jones 1996, 107). The Haydock Tithe Apportionment (LCRO/DRL 1/34) also describes parcel 17 as a stone quarry. These fields lay south-west of the point where the present Vicarage Road crosses Clipsley Brook, and the 1849 OS map convincingly shows the area as a sandstone quarry, and depicts another east of the present A58 / A580 junction. The site of the quarry, beside Vicarage Road, also appears on the later 1909 OS map. 'Old Brick Field' appears on the 1891 OS map, due west of the site of the later St Mark's Vicarage (Cox and Chandler 1993), subsequently occupied by a colliery.
- 3.2.8 **Coal Mining and Conveyance:** small-scale opencast coal mining (by quarry-like delfs) was taking place in the Wigan and St Helens region in the sixteenth and seventeenth centuries, and there are a few earlier, medieval, references to coal and 'cannel' (a locally occurring, highly bituminous coal) working in Lancashire (Knoop 1908). Coal pits are depicted at Blackbrook and Haydock, south of the present A58, on a map of 1786 (Yates 1786), but the only map evidence discovered for early coal working on or adjacent to the proposed road line is a field name, 'Coal Pit Field', north of the Stanley slitting mill site (*Section 3.2.10*). The 1909 OS revision (OS 2nd edition 1909) depicts colliery buildings, shafts and mineral railways occupying the former brick field (OA North 2002), described as 'Blackbrook Colliery (Garswood Park Pits)'. This colliery is not shown on the previous revision (OS 1st edition 25" to 1 mile map, 1891) and was represented solely by two 'Old Shafts' on the revision of 1929. It was presumably a short-lived offshoot of Blackbrook, Garswood or Garswood Park Colliery (Cox and Chandler 1993).
- 3.2.9 **Copper Smelting:** the copper smelting industry of the St Helens area has been the subject of detailed study (Allen 1991; Harris 1950; 1964; Barker and Harris 1954). Its origin was a desire to exploit the Lancashire coalfield in the manufacture of copper brass, originally using copper ore shipped from Cornwall, and calamine from Flintshire. The location of the industry in the St Helens area was due to the opening of the Sankey Brook Navigation (St Helens Canal), which enabled copper 'flats' (and barges) to penetrate right to the edge of the coalfield, and the discovery of copper ore at Parys Mountain, Anglesey, in 1768. During this period, two furnaces were in use near St Helens, at Ravenhead and Stanley. After 1800, however, the supply of copper ore from Anglesey diminished, and both furnaces were abandoned in 1814. The Stanley Copper works was established in 1771, but had ceased production before 1785 (Barker and Harris 1954), although they appear to have prospered again during the period 1785-c1800, and were certainly still in production between 1800 and 1810 (StHLH/M/BA/7). The date of their demolition remains unclear.

- 3.2.10 Of great interest is the depiction on Yates' map of 1786 of the Copper Works, which, when compared to documentary evidence, modern maps and recent excavation results, confirms the position of the works. The works lay on the eastern bank of the St Helens Canal, at the point where Stanley Brook joins the canal. The copper works' pond at Stanley Bank Farm is portrayed on the tithe map of 1839 (LCRO/DRL 1/34), as being more regular than today, and there is a slightly different layout of buildings. The squared, regular nature of the pond has been taken to suggest that this represents the fossilised remains of a medieval moated site (Lewis 2000) but, considering the map post-dates most of the industrial re-shaping of the landscape, it is probable that it may reflect more recent alterations relating to local industrial activity.
- 3.2.11 **Iron Slitting:** machinery for converting iron ingots into rods had existed since the sixteenth century, supplying wire-drawers, coopers, and especially nailers. Nail making was a widespread domestic industry in eighteenth-century Lancashire, concentrated in several places, including Mossbank and Parr, near St Helens (Barker and Harris 1954). Four local investors formed a company and established the Iron Slitting Mill at Stanley in about 1773. Not only was the site adjacent to the Copper Smelting Works, and therefore utilised the same resources and transport system, but one of the investors, an Alexander Chorley, appears to have been the manager at the copper works as well. The smelted iron was obtained from Carr Mill, and transported by canal to the slitting works, where it was heated, rolled into sheets, re-heated, and then passed through the slitting machine, producing rods in a variety of thicknesses. During the 1830s, the building was converted to a corn mill, but went out of use and was demolished *c* 1900 (StHLH/A68(P); Operation Groundwork 1986).

4. RESULTS OF THE SECOND PHASE OF ARCHAEOLOGICAL EVALUATION

4.1 INTRODUCTION

4.1.1 This section presents a summary of the results obtained from the second phase of archaeological evaluation, which follows on from that undertaken in 2004 (OA North 2004). A further 16 trenches were excavated in March 2006, and the results are presented below.

4.2 RESULTS OF THE EVALUATION

4.2.1 Sixteen trial trenches (Trenches 49-64) have been excavated across the study area (Figs 2 and 3), in accordance with the project specification (*Appendix 1*), the numbering of the trenches following the sequence from the earlier evaluation (OA North 2004). Each trench measured 20m in length, and 1.8m in width. Depths quoted are measured from the present ground surface.

4.2.2 **Trench 49:** the trench was aligned north-north-west to south-south-east (Fig 3), and was excavated to a maximum depth of 1.10m. At the base of the trench, the natural material was a compact sandy orange-brown clay, sealed by a medium compact silty grey boulder clay. This was in turn overlain by a relatively thin deposit of compact black clinker (0.3-0.4m), which was sealed by a topsoil/subsoil material up to 0.3m in depth.

4.2.3 The main deposits were dumped by-products of the mining industry in the area. No finds were recovered and no archaeological features or standing structures were observed in this trench.

LENGTH	WIDTH	DEPTH OF NATURAL GEOLOGY	MAXIMUM DEPTH	ARCHAEOLOGY
20.0m	1.8m	1.10m	1.10m	None

4.2.4 **Trench 50:** the trench was aligned south-west to north-east (Fig 3), and was excavated to a maximum depth of 1.35m. At the base of the trench was a compact yellowish-white silty-clay natural deposit (**001**), that was cut by a north-east to south-west orientated foundation trench for a possible wall (**008**). The cut measured 1.8m in width by at least 1.8m in length, and survived to a depth of 0.15m. It was filled with brown clay, mixed with black clinker (**007**), which yielded a single sherd of nineteenth-century pottery and smashed fragments of ceramic building material (*Section 6.5*). The natural clay was also cut by a series of ceramic field drains bisecting the north and south ends of the trench.

4.2.5 Due to the lack of other dating material from the trench, it was difficult to ascertain any further associations for the foundation cut, although it possibly related to the mineral railway or mine workings. The field drains were part of an extensive network encountered in many of the evaluation trenches across the study area.

LENGTH	WIDTH	DEPTH OF NATURAL GEOLOGY	MAXIMUM DEPTH	ARCHAEOLOGY
20.0m	1.8m	1.35m	1.35m	Yes

4.2.6 **Trench 51:** the trench was aligned north-east to south-west (Fig 3), and was excavated to a maximum depth of 1.1m. At the base of the trench was a compact fine greyish-yellow boulder clay deposit, with isolated/discrete patches of coal and clinker. It was cut by a series of parallel field drains, that were orientated east to west. Three field drains were positioned at regularly spaced intervals bisecting the trench, all of which were standard red triangular drains of approximately early nineteenth-century date. A substantial dump of ironstone/clinker and coal was located adjacent to the western section of the trench. No significant archaeological features were observed, and no finds or dating material were recovered.

LENGTH	WIDTH	DEPTH OF NATURAL GEOLOGY	MAXIMUM DEPTH	ARCHAEOLOGY
20.0m	1.8m	1.10m	1.10m	None

4.2.7 **Trench 52:** the trench was aligned north-west to south-east across the line of the Garswood-Pewfall incline (Fig 3), and was excavated to a maximum depth of 1.10m, onto a natural light-orange brown clay, which was exposed across the northern part of the trench.

4.2.8 Excavation of the trench (Fig 4) revealed a stone wall (**018**), aligned in an approximately north to south direction, in the eastern part of trench. It was constructed of roughly cut square pieces of grey stone (probably limestone), with a rubble core, and measured 0.40m wide and was at least 1.8m long. Parallel to this, but approximately 4.5m further east, was a stone-lined drain (**019**), with a width of 0.38m, which was constructed in the same manner as the wall, but was hollow inside. At the centre of the trench was a square cut (**017**), into the natural geology, which was c0.5m deep, containing an homogeneous fill of soft loose medium compact fine clinker (**020**). A further two small square features (**021** and **023**), of similar depth, were encountered west of the stone wall (**018**) and both contained similar fills of clinker and small angular pebbles. All of these 'pits' resembled geological test pits. It is possible that the two stone-built features (wall **018** and drain/culvert **019**) were associated with the embankment for the incline, and may have acted as some kind of boundary around the edge of the earthwork. However, this could not be confirmed as the trench did not provide a clear cross-section through the embankment.

LENGTH	WIDTH	DEPTH OF NATURAL GEOLOGY	MAXIMUM DEPTH	ARCHAEOLOGY
20.0m	1.8m	0.90m	1.10m	Yes

4.2.9 **Trench 53:** the trench was aligned north-north-west to south-south-east (Fig 3) and was excavated to a maximum depth of 1.55m. The natural subsoil comprised orange-yellow silty clay that contained <10% small rounded pebbles and grit

inclusions. There was little variation across the base of the trench, aside from areas of natural banding where the clay varied in colour slightly.

- 4.2.10 The natural material was cut by a 1.8m x 1m rectangular feature, located at the south-west corner of the trench, which contained loose clay, within which were ironstone and clinker. This was heterogeneous, but appeared to have been dumped in a single phase. A small section was excavated across the south end of this feature, but the complete depth was not established due to the rapidity with which it filled with water.
- 4.2.11 No dating material or archaeological features were observed within this trench, since the rectangular cut was not believed to be archaeologically significant, and again may represent some kind of geological test pit.

LENGTH	WIDTH	DEPTH OF NATURAL GEOLOGY	MAXIMUM DEPTH	ARCHAEOLOGY
20.0m	1.8m	1.40m	1.55m	None

- 4.2.12 **Trench 54:** the trench was aligned north-east to south-west (Fig 3), and excavated to a maximum depth of 2.5m, onto the top of an orange-brown silty-clay natural material. This was sealed by a heterogeneous make-up layer comprising a mix of ironstone, clinker, mudstone, and grey silty clay. This was the largest deposit within the trench, and appears to have been a single large dump of material, possibly a product of the nearby mine. No archaeological material or dating evidence was recovered from within this trench.

LENGTH	WIDTH	DEPTH OF NATURAL GEOLOGY	MAXIMUM DEPTH	ARCHAEOLOGY
20.0m	1.8m	2.45m	2.50m	None

- 4.2.13 **Trench 55:** the trench was aligned north-west to south-east across the route of the Garswood-Pewfall incline (Fig 3), and was excavated to a maximum depth of 1.10m. An orange-yellow compact silty clay natural deposit was exposed across the base of the northern part of the trench.
- 4.2.14 The natural material was sealed by a 0.6m thick deposit of compact grey silty clay, mixed with ironstone and clinker, resembling made-up ground. It is probable that this made-up ground was a residue of the incline plane embankment. No other archaeological features or structures were observed within this trench.

LENGTH	WIDTH	DEPTH OF NATURAL GEOLOGY	MAXIMUM DEPTH	ARCHAEOLOGY
20.0m	1.8m	1.10m	1.10m	None

- 4.2.15 **Trench 56:** this trench was aligned north-east to south-west (Fig 3), and was excavated to a maximum depth of 1.10m, onto an orange-yellow compact silty clay natural deposit. The natural material was sealed by a 0.4m thick grey-brown clay,

mixed with ironstone and clinker. The trench contained no archaeological features or datable artefacts.

LENGTH	WIDTH	DEPTH OF NATURAL GEOLOGY	MAXIMUM DEPTH	ARCHAEOLOGY
20.0m	1.8m	0.90m	1.10m	None

4.2.16 **Trenches 57 and 58:** due to the topography of the site, and the presence of a large gas main, it was necessary to relocate Trench 58, and amalgamate Trenches 57 and 58 into a single T-shaped trench (Fig 2). Both trenches were 1.8m wide; Trench 57 was 20m long, and Trench 58 was 15m in length. Both were excavated to a maximum depth of 0.8m, onto an orange-yellow clay natural deposit. Both were extremely difficult to excavate mechanically, as they were placed across one of the steepest parts of the slope, and both contained a ceramic field drain oriented in an east to west alignment, cutting the natural clay. No interventions of archaeological significance were identified in either trench.

TRENCH	LENGTH	WIDTH	DEPTH OF NATURAL GEOLOGY	MAXIMUM DEPTH	ARCHAEOLOGY
57	20.0m	1.8m	0.78m	0.81m	None
58	15.0m	1.8m	0.75m	0.80m	None

4.2.17 **Trench 59:** this trench was orientated north-west to south-east across the slope to the west of Trenches 57 and 58 and the gas pipeline (Fig 2); it was 20m in length, 1.8m in width, and was excavated to a maximum depth of 0.9m. At its base was a natural mid-orange-brown clay, with less than 10% well-sorted sub-rounded and angular stone inclusions. Above this was a mid-brown, compact silty clay subsoil, with small rounded pebble inclusions. The topsoil was a dark brown silty clay with substantial root activity, and was 0.17m deep. A single piece of post-medieval (probably early twentieth century) ceramic was recovered. No structures or negative archaeological features were observed within this trench.

LENGTH	WIDTH	DEPTH OF NATURAL GEOLOGY	MAXIMUM DEPTH	ARCHAEOLOGY
20.0m	1.8m	0.90m	0.90m	None

4.2.18 **Trench 60:** the trench was placed to the west of Trench 59, orientated north-east to south-west, with a length of 20m, and a width of 1.8m (Fig 2). It was excavated to a maximum depth of 0.50m, onto an orange-brown, highly compacted natural clay, with less than 10% well-sorted rounded pebble inclusions and occasional larger stones. Above this was a mid-brown, compact silty clay subsoil, with small rounded pebble inclusions. Above this again was a dark brown-black compact silty clay topsoil with considerable root activity. No archaeological features or dating material was observed, and the subsoils were sterile and relatively shallow down onto the natural subsoil.

LENGTH	WIDTH	DEPTH OF NATURAL GEOLOGY	MAXIMUM DEPTH	ARCHAEOLOGY
20.0m	1.8m	0.50m	0.50m	None

- 4.2.19 **Trench 61:** the trench was 1.8m x 20m in extent, and was orientated north-west to south-east (Fig 2). It was situated to the south of the Stanley farmhouse, and to the west of Trench 60, midway up the valley side of Stanley Brook, near the southern end of the route. It was excavated to a maximum depth of 0.72m, onto an orange-yellow, compact silty sandy clay natural material. Cutting this were three small discrete features, of probable modern date.
- 4.2.20 The first feature was a linear cut, located at the north-west end of the trench, and bisecting this on an east to west diagonal alignment. A slot dug through it revealed that it was 0.37m deep, containing a single homogeneous mid-brown silty compact clay fill, containing red brick fragments, and a single sherd of twentieth-century pottery. The feature was 0.67m wide, and at least 2.65m long, disappearing into both the east and west trench sections. This was probably the cut for a field drain.
- 4.2.21 The other two features were stakeholes located at the southern end of the trench, very similar in size and fill, which were spatially associated and were probably contemporary. Both were 0.15m x 0.1m in size, and there was a 0.07m gap between them. Each contained a single dark-brown silty fill, and had the remnants of wooden stakes. Neither was excavated as it was apparent that they were modern features.
- 4.2.22 Overlying these features was a 0.5m thick layer of mid-brown, silty clay topsoil, which was moderately compact in consistency, with a large amount of root activity. There was no obvious subsoil in the trench.

LENGTH	WIDTH	DEPTH OF NATURAL GEOLOGY	MAXIMUM DEPTH	ARCHAEOLOGY
20.0m	1.8m	0.55m	0.72m	Yes

- 4.2.23 **Trench 62:** Trench 62 was 1.8m x 20m in extent, and was orientated north-east to south-west, to the south-west of Trench 61 (Fig 2). It was excavated to a maximum depth of 1.06m. A natural orange-brown, compacted clay deposit was encountered at a depth of 0.45m. This was cut by a large sub-circular, but insubstantial, tree bole.
- 4.2.24 Overlying it was a linear concrete and stone feature, bisecting the middle of the trench in a north to south direction, which appears to have been a rudimentary footpath or boundary. Ceramic material recovered from around this feature was predominantly of twentieth-century date.
- 4.2.25 Overlying these features was a dark-blackish-brown, fairly loose, silty clay with a large amount of root activity. There was no obvious subsoil deposit.

LENGTH	WIDTH	DEPTH OF NATURAL GEOLOGY	MAXIMUM DEPTH	ARCHAEOLOGY
20.0m	1.8m	0.45m	1.06m	Yes

- 4.2.26 **Trench 63:** Trench 63 was 1.8m x 14.0m in extent, and was oriented north-west to south-east, to the west of Trench 62 (Fig 2). It was excavated to a maximum depth of 2.4m at the south-east end, and contained five deposits of what was effectively made-up ground from approximately 35–40 years of continuous and recent refuse dumping (the pottery at the base of trench was c 1960). The upper layers of debris included rotting material that was not more than a few months old).
- 4.2.27 At the base of the trench was an orange grey natural clay without any obvious inclusions or archaeological material, which was sealed by a 0.48m depth of black grey organic soil; this may have been compressed topsoil from the original ground level. It contained no obvious inclusions or archaeological material. This was in turn overlaid by a 1m deep layer of bin bags and household debris, which was partially degraded. This was interspersed with more organic lenses of mulched rotten leaves and garden waste, and was sealed by a further phase of dumped rubbish, comprising a mid-brown, loose silty layer of organic/garden waste and smaller amounts of domestic waste that including broken ceramics, and car batteries. Overlying this was a thin layer (0.2m) of newly formed topsoil.
- 4.2.28 No archaeological material was observed within the trench, and due to its depth at the south end, and the recent contaminated material forming its upper levels, no access was permitted for health and safety reasons. The considerable depth reflects the fact that the topography of the site has been significantly altered by the build-up of garden waste.

LENGTH	WIDTH	DEPTH OF NATURAL GEOLOGY	MAXIMUM DEPTH	ARCHAEOLOGY
14.0m	1.8m	2.40m	2.40m	None

- 4.2.29 **Trench 64:** Trench 64 was 1.8m x 16m in extent, and was orientated north-west to south-east, across one of the steepest slopes on site, just east of the low-lying area of Japanese Knotweed (Fig 2). It was excavated to a maximum depth of 1m, with an orange-brown, compacted clay natural deposit visible from a depth of 0.45m, cut by part of a ceramic field drain network. This was overlain by a mid-brown, compact silty clay subsoil, and above this was a dark-brown-black medium compact silty clay topsoil. The trench was shortened to the south-east, where the ground was flooded, and severely churned up by the repeated passage of a Moxey dumper vehicle. No archaeological material was observed within this trench.

LENGTH	WIDTH	DEPTH OF NATURAL GEOLOGY	MAXIMUM DEPTH	ARCHAEOLOGY
16.0m	1.8m	1.00m	1.00m	None

4.3 RECOMMENDATIONS FOR WATCHING BRIEF MITIGATION

- 4.3.1 Following the evaluation, it was agreed with the Merseyside Archaeological Officer that a programme of watching brief should be undertaken during the ground works for the road construction as mitigation for the adverse impact of the scheme

on the archaeology. The watching brief should be targeted on areas of potential highlighted by the evaluation, in the areas of Trenches 50, 52, 61 and 62.

- 4.3.2 Four evaluation trenches had originally been planned for the western corner of the road corridor; however, in the event these could not be excavated because of the risk of spreading the Japanese Knotweed contaminants. As a consequence, a watching brief was required by the Merseyside Archaeological Officer to be maintained during groundwork after the Knotweed sterilisation phase.
- 4.3.3 A watching brief was also required at the western terminus of the east/west corridor, which was adjacent to the bridle path that formed by the truncated remains of the Stanley Bank incline.
- 4.3.4 Further to completion of the excavations in Trench B (*Section 5*), a watching brief was also required to be maintained around the colliery buildings.
- 4.3.5 The watching briefs have recently been completed, but did not identify any further significant archaeological resource. The results will therefore not have a significant effect on the post-excavation programme, but they will be combined with the results of the excavations and will be included in the final publication report.

5. SUMMARY RESULTS OF THE ARCHAEOLOGICAL EXCAVATION

5.1 INTRODUCTION

- 5.1.1 The programme of archaeological evaluation trenching undertaken in 2004 (OA North 2004) provided an indication of the nature and extent of buried remains across the route of the proposed road. This revealed four areas that contained potentially significant buried remains pertaining to the industrialisation of the area during the late eighteenth and nineteenth centuries. Following consultation with the Client and the Merseyside Archaeological Officer, it was agreed that these areas should be subject to further archaeological investigation, as mitigation for their destruction in the course of the development. Four trenches (A, B, C and D) were excavated across the areas of highest potential (Figs 2 and 3).
- 5.1.2 The remains within all of these areas date between the eighteenth century and the present, and a provisional phasing of the remains in each trench has been ascribed. This phasing may be refined in the light of evidence produced from detailed analysis of the dataset, when it is anticipated that a single overarching sequence will be established, linking all the trenches together. The results are presented below in chronological order within each trench.

5.2 TRENCH A

- 5.2.1 The trench was initially opened to a size of 20m x 20m, in order to record the site of a wooden platform (**I28**), but was reduced to 11m x 12m (Fig 5), given the constant flooding from a nearby natural spring. The trench was excavated to a maximum depth of 0.66m. The natural subsoil comprised a firm brown sandy clay (**I31**) which contained water-worn rolled pebbles.
- 5.2.2 **Phasing:** Phase 1 broadly corresponds to the eighteenth century, while Phase 2 corresponds to the nineteenth century.
- 5.2.3 **Phase 1:** the platform (Plate 1) was located within a natural hollow in the northern part of the trench, directly above the natural clay. It was almost 6m² in area, and was formed by six rows of treated pine planks, laid horizontally. The individual planks were on average 1.6m by 0.3m by 0.2m, and were edged by substantially thicker timbers (0.38m width) of various lengths. The largest of these timbers, located along the structure's eastern edge, measured 3.65m long, and 0.30m wide. The timbers forming an internal surface across the central part of the platform were thinner and liable to fragment when touched. These thinner planks sealed a 0.3m thick deposit of clinker (**I33**) that formed an interface between the wood and the natural clay, and also functioned as a levelling layer that supported the platform. A similar deposit of clinker was observed along the structure's north-western edge, with a width of 0.7m, separating the platform from a further line of timbers. The timbers forming the internal surface had the appearance of a floor of a building, and a series of timbers and poles around the outside of the platform resembled the remnants of collapsed timber walls (Plate 2). In particular there was a 2.5m long pole attached to the northern edge, and thinner tapered planks were detached around the eastern side. Further evidence suggests that the platform was possibly the remains of a small building, with two small, timber-lined, 'boxes', each

measuring 0.35m by 0.20m, observed behind the northern and southern timber borders, that were sunk to a depth of 0.25m below the level of the platform (Plate 3). These 'boxes' possibly housed timber uprights, although a precise function was unclear. Several iron objects were observed protruding from the southern edge of the platform, that were seemingly part of an integral constructional element, although this could not be fully determined.

- 5.2.4 Several areas of the platform contained evenly laid bricks, that appeared to have been inserted between gaps in the wood, in order to replace missing planks. The bricks were handmade and bonded with a grey ashy mortar.
- 5.2.5 **Phase 2:** the structure was sealed by light-brown, firm sandy clay (**I32**) that contained frequent pebbles, coal inclusions and sherds of nineteenth-century pottery. It would appear that the clay formed a possible make-up layer above the platform, when the site was abandoned. The clay was in turn overlaid by a mid-grey, compact silt subsoil (**I30**), that was spread thinly across the trench, and was in turn sealed by a humic silty-clay topsoil (**I29**). An iron rail fragment was identified from the topsoil overlying the platform, suggesting that there may have been a relationship between this structure and the adjacent incline, which would originally have accommodated rails.

5.3 TRENCH B

- 5.3.1. Trench B (Figs 3 and 6) was placed to the immediate north of a disused mine shaft capped with concrete (Survey Site 15 (OANorth 2004)), and was excavated in order to investigate a brick culvert (**I05**) observed during the 2004 evaluation (OA North 2004). The trench was initially 5m x 10m in size, but was expanded to 9m x 11m, with an additional linear extension on the south-eastern side, in order to investigate a wider extent of the site. It was excavated to a maximum depth of 0.45m (44.47m OD). A yellowish-red natural clay (**I01**), containing frequent sand patches, was observed across the central part of the trench, at a depth of 0.45m below the surface. The clay was sealed by a mixed silty-sand subsoil (**I02**), that was up to 0.41m in thickness, and represented agricultural made ground.
- 5.3.2 **Phasing:** Phase 1 broadly corresponds to the eighteenth century, Phase 2 to the nineteenth century, and Phase 3 to the twentieth century.
- 5.3.3 **Phase 1:** deposits **I01** and **I02** were truncated by a large cut feature (**I16**), along the western edge of the trench (Plate 4). The remains were recorded over an area of 5m by 2m, and extended beyond the north-western edge of the trench. Given the dimensions of the negative feature, its proportions would have been substantial, and this is likely to represent the cutting for the Stanley Bank incline. Its fill (**I17**) comprised crushed brick, sandstone and clinker, and was sealed by solid compact clay that may have been part of a bank running alongside the incline, formed by the upcast from the cutting. It is possible that this had been ploughed away, or more probably was truncated when the site was cleared, following the closure of the colliery.
- 5.3.4 Within the south-eastern part of the trench, a 4.2m long irregular line of bricks (Fig 6), laid directly above the subsoil (**I02**), probably formed part of a collapsed wall (**I06**). This wall was made up of two distinct brick sizes (230mm x 110mm x 80mm, and 170mm x 150mm x 70mm) which were bonded with a buff-coloured lime-rich mortar. Other possible evidence of a pre-colliery building was

represented by a 2.2m long linear cut (**119**), observed to the immediate east of brick surface **113** (Section 5.3.5), which was probably a robber trench for a wall. Although no wall components survived, its presence, along with wall **106**, suggests structures on the site pre-dating the colliery.

- 5.3.5 **Phase 2:** immediately below the topsoil was a 10m length of collapsed wall (**108**), that was observed along the northern edge of the trench, aligned in an north-west to south-east direction. The wall survived to a height of 0.45m, and was constructed from handmade bricks, bonded with a dark-grey, ash-rich mortar, of a type that was commonly used in the late nineteenth century. A possible return of the wall (**110**) was observed extending north for a distance of 1.2m within the south-eastern extension of the trench. This section of wall was also collapsed, and some of its original mortar bonding was lime based, suggesting that it was perhaps an earlier construction. The walls enclosed the remains of a 1.2m wide, brick floor (**113**), that extended 10m across the trench (Plate 5), and was laid directly onto the sandy clay natural subsoil (**101**). A 1.3m² brick column (**123**) was located in the north-eastern corner of the trench (Plate 6), adjacent to wall **110**. The column survived to three courses in height, had two stepped foundations, and was constructed of the same brick type as wall **110** and floor **113**. It is evident that the column formerly existed to a greater height, indicated by a layer of mortar on its upper surviving surface. The function of this structure was not clear. These features were most probably all associated with the Blackbrook colliery, known to occupy the site in the late nineteenth century (Section 3.2.5).
- 5.3.6 Further possible evidence of the colliery survived within the northern part of the trench, in the form of a 4m long by 0.60m wide linear cut (**121**) that resembled a wide, load-bearing wall trench. Other remains possibly pertaining to the colliery included a brick surface (**103**), along the southern edge of culvert **105**, that was clearly a floor from a similarly dated building. The surface comprised two courses of handmade bricks bonded with concrete mortar spread over a distance of 1.6m by 1.4m, suggesting a modern repointing episode. Its original construction was possibly contemporary with the installation of the culvert, although it was more likely to represent the foundation of a platform such as to support an engine winder.
- 5.3.7 **Phase 3:** the incline appeared to have been truncated by culvert **105** (Plate 7), which was probably installed at a similar time as the capping of the mine shaft, suggesting that the culvert was operational after the mine was abandoned. The culvert was 1.45m in width, and at least 9.35m in length, extending along a south-east to north-west alignment across the trench. The culvert walls were slightly concave, and comprised machine-made bricks bonded with ash mortar, with an overall depth of 0.9m. Along the culvert, pairs of stone bases, measuring 0.3m by 0.15m, were set at 3m intervals, and keyed horizontally into the brickwork (Plate 7). The upper surface of each stone was perforated by two small, 0.04m diameter, holes that were presumably intended to house uprights for a metal gate or shutter, as a probable method of controlling water flow through the drain. The cut (**104**) for the culvert was not clearly visible, but a short section exposed on the northern edge suggested that it had steep concave sides providing a curved profile that measured approximately 1.46m wide. The southern edge was obscured by concrete (**118**) that formed the capping of the mine shaft. Its relationship with the incline was not fully established, although it is possible that the culvert was designed to draw water away from the cutting.

5.3.8 Most of the structural remains were truncated by a demolition episode that was probably undertaken during the twentieth century. This was covered by a 0.5m thick deposit of sandy-silt containing large amounts (60%) of brick and other demolition material (**I14**) overlying all the features. The demolition layer was in turn sealed by a 0.22m thick dark-grey humic topsoil (**I15**), that was probably imported as part of a landscaping exercise in the last century, to return the ground to agriculture.

5.4 TRENCH C

5.4.1 Trench C (Figs 3 and 7) was aligned at 45° to the cardinal points, and measured 10m². The excavation was intended to investigate a small building foundation (**I40**) encountered during the evaluation in 2004 (OA North 2004). A natural yellow clay (**I34**) was exposed at a depth of 0.40m (35.56m OD) across the trench, sealed by a 0.17m thick deposit of mid-brown compacted silty clay subsoil (**I43**).

5.4.2 **Phasing:** Phase 1 broadly corresponds to the eighteenth century, while Phase 2 corresponds to the nineteenth century, and Phase 3 to the twentieth century.

5.4.3 **Phase 1:** a linear feature of unknown function (**I35**) was encountered in the central part of the trench, following a north-east to south-west alignment for a distance of 4.25m (Plate 8). The cut had a U-shaped profile, with a width of 0.65m, and a surviving overall depth of 0.36m. Its primary fill comprised an orange-brown compacted clay (**I45**), sealed by grey-brown compact clay (**I36**). The central part of the cut contained a small stakehole that had a maximum diameter of 0.1m, and a depth of 0.6m. The stakehole implies that the feature may have formed a fence-line bounding a field, although this was not determined within the confines of the trench.

5.4.4 **Phase 2:** a bank of clinker material (**I39**) transected the central part of the trench, following a north-west to south-east alignment (Plate 9). The bank clearly post-dated feature **I35**, although there is a possibility that the two were broadly contemporary, and both served as land demarcation features. The bank (**I39**) comprised a 0.35m thick deposit of compacted stone, clinker and fragments of copper ore, laid onto the natural clay. The feature had sharp, sloping edges, with an overall maximum width of 0.25m. The constituents of the bank probably comprised the waste products from the nearby copper works. No dating evidence was recovered from the bank, although it is likely to have been formed after the copper works ceased functioning in the late eighteenth century.

5.4.5 **Phase 3:** structure **I40** was rectangular in plan, measuring 2.3m by 1.6m, with its long axis aligned north-west to south-east. The single-cell structure (Plate 10) was constructed within a shallow construction cut (**I41**), and the bricks were laid directly above clay **I34**. The structure survived as a single brick thick foundation comprising unmortared handmade bricks (250mm x 150mm by 120mm), subdivided to form two small compartments, each no larger than 0.5m wide, which were probably intended to provide storage areas. It was possibly a small storage shed from the twentieth century, and was potentially associated with nearby Stanley Bank Farm.

5.4.6 Two gullies (**I10** and **I37**), aligned in an approximate north-west to south-east direction, are likely to represent drainage features. Each had similar dimensions of 0.4m in width, 0.2m in depth, and a minimum of 2.1m in length. No ceramic drains

were encountered, although the fill of **137** contained abundant loose stone and coal waste within a brown silt matrix (**138**). Both drains were probably installed at the same time, during the twentieth century, to aid drainage across the land around Stanley Bank Farm.

5.5 TRENCH D

- 5.5.1 Trench D (Figs 2 and 8) was excavated to record the remains of the Stanley Bank incline. There was no distinct embankment surviving above ground, and it was found that a substantial cut feature (**150**), extending in a north to south direction across the trench, represented the deep cutting associated with the incline. In order to establish and record the depth of the cutting, the trench was stepped at two 1.2m intervals, to enable safe recording. The cutting for the incline was 10m wide, and the feature was machine-excavated to a maximum depth of 2.1m. Natural clay was exposed at a depth of 0.3m (44.20m OD) along the eastern edge of the trench, and all features were cut through this material. The cutting was exposed for a length of 16m within the trench. According to cartographic sources (OS first edition map 1891), the trench would coincide with the intersection between the Stanley Bank and Garswood-Pewfall inclines. The orientation of the cutting, however, most closely corresponds to that of the Stanley Bank incline, and there was no clear evidence for the Garswood-Pewfall incline within the area of excavation. The original excavation of the cutting (**150**), and its subsequent backfilling, represented two clearly defined phases (Phase 1 and Phase 2).
- 5.5.2 **Phasing:** Phase 1 broadly corresponds to the eighteenth century, and Phase 2 to the nineteenth century.
- 5.5.3 **Phase 1:** the initial activity comprised the excavation of a north to south aligned, 10m wide cutting (Plate 11), through the natural clay (**190**), forming a cutting for the incline (Fig 8). This had steeply angled sides and a flat base, and continued beyond an overall depth of 2.1m below the present turf line, the bottom not being fully excavated, since there was constant water inundation across the trench, caused by natural underground springs. The primary fill within the cutting was a layer of clay (**184**), upon which was built two brick-lined drains, along the eastern and western sides of the incline, possibly intended to draw surface water away from the trackbed. The eastern drain (**185**) was exposed for a length of 5m across the trench, and measured three bricks wide (0.58m), and 0.65m deep (Plate 12), and was capped with stone. A similarly aligned drain (**163**) was observed at the same depth across the western edge of the trench, although it was less distinct. A 0.32m thick deposit of compacted crushed brick (**183**) was laid over clay **184**, possibly to act as a foundation for the track. Similarly, a 0.50m thick deposit of clinker (**175**), spread above **183**, may have acted as a track foundation, but as no direct evidence of a track was recorded, it is possible that the material was part of a backfilling or tipping episode, that took place after the incline fell out of use.
- 5.5.4 **Phase 2:** further tipping layers (**164**, **165**, **167**, **168**, **169**, and **181**) were identified above clinker layer **175**, which collectively resembled the remains of a backfilling event (Fig 9). Towards the north-eastern side of the trench, the tipping layers were overlain by large stone boulders (**192**), which may have been part of a revetment for a bank or upcast material on that side of the cutting.

5.6 CONCLUSION

- 5.6.1 The excavations have revealed the remains of an industrial landscape relating to a range of different industries. The excavation of Trench A revealed the wooden foundation of a small timber building that was immediately adjacent to the Garswood-Pewfall incline, and had a section of fish-bellied rail in the topsoil directly above the platform. This would indicate that the structure had potentially gone out of use by the time the incline was abandoned, and may suggest that their history was linked.
- 5.6.2 Trench B revealed the remains of a multi-phased industrial complex adjacent to a disused mine shaft belonging to Blackbrook Colliery, which was depicted on the OS second edition map (1909). The earliest phase of this complex was the collapsed wall, **106**, of a brick built structure that was either an early phase of the colliery or pre-dated the colliery. It had the same orientation, north-west / south-east, as the other later Phase 2 and Phase 3 structures and there is an implication of some degree of continuity; this may therefore have been a precursor to the later colliery buildings. Phase 2 of the complex comprised a 10m length of brick walling, **108**, a parallel culvert, and an approximately square, brick column, **123**, that was 1.4m x 1.8m in size. The column had a similar build to that of the wall and was probably broadly contemporary. The final phase was a demolition episode when the colliery waste was spread across the area and the land was put back to agriculture.
- 5.6.3 Nearby, Trench D was placed so as to investigate the line of the Stanley Bank Incline which had dropped out of use by the time of the OS second edition map (1909). In this trench, Phase 1 of the incline took the form of a steep-sided cutting, **150**, that extended to 2m below the present surface and had an approximately level base. It is presumed that this surface supported a mineral railway similar to that on the Garswood-Pewfall incline; however, no evidence for it was identified. Phase 2 represented the backfill of the cutting, reflecting the closure of this part of the incline, and clearly pre-dated the establishment of the Garswood Colliery, as the extended line of the incline would have led through the middle of the colliery. The second edition OS map (1909) shows the line of the incline towards the Juddfield Brow road and it is evident that by this date it had been converted to a track supplying Stanley Bank Farm, being diverted so as to avoid the colliery.
- 5.6.4 In Trench C were very insubstantial remains that appear to be a product of an agricultural rather than an industrial economy. The only structure was a small square-shaped structure, **140**, made of unmortared bricks. The fact that they were unmortared would suggest that it had only a temporary function. In addition, there was a north-east/south-west orientated U-shaped ditch, **135**, and a later bank of clinker material, **139**, both of which were potentially boundary markers. However, the presence of the clinker would suggest that the copper works were not far away.

6. ASSESSMENT OF THE RESULTS

6.1 INTRODUCTION

6.1.1 The aim of this assessment was to evaluate all classes of data from the archaeological investigation undertaken, in order to determine the potential of the assemblage for further analysis. A statement of the significance of the results from each element of the archive is given below, based on the work undertaken to date.

6.1.2 The objectives of this assessment correspond to, and are prescribed by, *Appendix 4 of Management of Archaeological Projects 2nd edition* (English Heritage 1991a). They are to:

- assess the quantity, provenance and condition of all classes of material: stratigraphical, artefactual and environmental;
- comment on the range and variety of that material;
- assess the potential of the material to address questions raised in the course of this project design;
- formulate any further questions arising from the assessment of this material.

6.1.3 This assessment will present:

- a factual summary, characterising the quantity and perceived quality of the data contained within the site archive;
- a statement of the academic potential of the data;
- recommendations on the long-term storage and curation of the data.

6.2 PROCEDURES FOR ASSESSMENT

6.2.1 The entire paper, digital and material archive, incorporating all phases of work, was examined for the purposes of this assessment. Quantifications are incorporated within the individual assessments.

6.2.2 The method of assessment used varied with the class of information examined, although in each case it was undertaken in accordance with guidance provided by English Heritage in *Management of Archaeological Projects* (English Heritage 1991a). All classes of finds were rapidly scanned, with observations supplemented by the finds' records generated during the course of the fieldwork. Full details of all the finds reside within the project archive.

6.3 STRUCTURAL AND STRATIGRAPHIC DATA

6.3.1 Provisional phasing has been ascribed to all contexts, and the summary results are described in *Section 5* above, and summarised in *Appendix 3*.

6.3.2 **Quantification:** the site archive from all phases of the fieldwork comprises the following:

Context records	266
Trench records	68
Plans on drawing film	12
Sections on drawing film	4
Digital survey file (AutoCAD)	9
Monochrome photographs	426
Colour transparencies	348
Digital photographs	89 images

6.3.3 **Potential:** the archaeological investigation has allowed as full as possible a stratigraphic record to be made of the development of the landscape. The disturbance and truncation of the area after the industrial activities had ceased was extensive, and no features or structures survived above ground level. This also led to widespread disturbance of the layers that contained the artefactual evidence, which were subsequently not recovered from stratified contexts. The key to understanding the chronology of the different types of activity, and the development of the area, resides within the layout and organisation of each element of the site, interpreted through the stratigraphic evidence and written and cartographic records. Individual contexts, moreover, offer a potential for understanding the evolving industrial landscape and the associated manufacturing processes, in proximity to each site.

6.4 INTRODUCTION TO THE ARTEFACTS

6.4.1 The artefactual assemblage recovered from the investigation comprised finds from various material categories: post-medieval pottery; ironwork; glass vessels; clay tobacco pipe; and wood. These finds are summarised in *Appendix 4*.

6.5 POST-MEDIEVAL POTTERY

6.5.1 **Quantification:** in total, 34 sherds were collected from the evaluation trenches (Trenches 1, 5, 10, 13, 25, 26, 29, 35, 37, 38, 59, 60, and 63), and a further 52 fragments of pottery were recovered from Trenches A and B during the course of the investigation. The material recovered during the evaluation came from pit fills, rubble layers and clinker layers from the incline associated with the colliery. The material recovered during the excavation phase was recovered from topsoil contexts that post-dated the industrial activity on site. The entire assemblage was of a post-medieval date,

6.5.2 **Methodology:** all the material was examined, and recorded by sherd count and weight, and placed within broad groupings of vessel form and type. The data have been input into an Access database, and included comments on the condition of the pottery. Examination of the pottery was based solely on visual inspection of individual sherds, and has been described using the terminology developed by Orton *et al* (1993). In general terms, the material was in fair to good condition, with some fragments clearly rolled and water worn. The date ranges suggested for these fabrics are approximate, and are based on parallels from fabrics discovered within Merseyside.

- 6.5.3 **Evaluation:** the bulk of the assemblage broadly dates to the nineteenth century, with smaller proportions dating to the late eighteenth and twentieth centuries. A limited range of fabric types and vessel forms from these periods were represented across the site, comprising common domestic and utilitarian wares. The pottery forms a fairly coherent group of kitchen and tablewares, the two largest components being late grey stoneware straight-sided jars, and underglaze transfer-printed earthenwares. The eighteenth-century material comprised an early pattern of blue transfer ware saucer from Trench 37 (unstratified), and a hand-painted blue tea bowl rim from Trench 25 (fill 56). Other material that derived from the transitional eighteenth / nineteenth-century period include a grey-bodied brown stoneware bottle fragment from Trench 5. Stoneware of this type was produced over a long period and has a broader date range of between the eighteenth and twentieth centuries.
- 6.5.4 The nineteenth- and twentieth-century pottery was represented by utilitarian brown- and black-glazed red earthenware storage jars, white-glazed earthenware plates and porcelain cups, two white salt-glazed stoneware jam or marmalade jars, and a pearlware plate fragment. Amongst the kitchen and table earthenwares were willow pattern plates, a sponge print vegetable dish lid, and a table jug decorated with an Asiatic pheasant print. These were recovered from pit fill 8 (Trench 1) and fill of land drain 68 (Trench 29). The material derives from a range of sources; it is likely that the dark glazed earthenwares were relatively locally made, although little is known of the small-scale producers of red earthenwares in Lancashire during the eighteenth and nineteenth centuries. The decorative designs and fabrics amongst the tablewares represented are those of the industrial-scale potteries of Liverpool and Staffordshire.
- 6.5.5 **Potential:** the excavations have produced a small assemblage of unstratified material. Much of the assemblage would appear to be associated with domestic activity, and as such may have originated from adjacent tenements, along Stanley Bank Road, or from the southern edge of the study area. None of the pottery assemblage appears to have had a specialist function, and it would therefore seem unlikely that further detailed study could add significantly to the interpretation of the site.

6.6 CLAY TOBACCO PIPE

- 6.6.1 **Quantification and Evaluation:** in total, six small undiagnostic plain stem fragments of probable nineteenth-century date were collected from the excavations.
- 6.6.2 **Potential:** the small sample size and absence of bowls or decorated fragments precludes accurate dating, and further work would add little further information about the site.

6.7 CERAMIC BUILDING MATERIAL

- 6.7.1 **Quantification:** the 18 fragments of building material derived from seven trenches, and comprised glazed roof tile, drain pipe, tile fragments and a sample of seven complete or near complete bricks.
- 6.7.2 All the bricks appeared to be of a mould-thrown construction, with slight differentiations in fabric types, but with a similar purpose and function. The colours

varied from a light coarse orange, to yellow refractory, and dense red. The bricks had similar dimensions of 0.23m by 0.10m and thickness of 0.07m. Although there was a difference in colour, all the bricks had very similar weights varying between 3510g and 3920g. Whilst it can be tentatively suggested that the bricks can be dated in accordance with the lifetime of the colliery, it must be noted that the sample size was too small and that variance in colour was probably a result of the clay source and manufacture. An interesting feature of the bricks was the absence of a frog, as frogged bricks were introduced in the nineteenth century to reduce the weight and use of material (Jones 1996). However, the similarities in weight from the sample collected from the site would imply an industrial or engineering function, rather than a common source of house brick.

6.8 IRONWORK

- 6.8.1 **Quantification:** in total, 13 iron objects were recovered during the evaluation, and nine fragments of iron were recovered from Trenches A and B. Of these, 14 were unidentifiable.
- 6.8.2 **Methodology:** all artefacts were examined for the purposes of this assessment. Outline details of the objects were entered into an Access database in order to prepare a catalogue.
- 6.8.3 **Evaluation:** all the objects were in a fairly poor condition, the burial environments having caused severe surface corrosion, which hindered accurate identification of the assemblage. A preliminary examination of the ironwork revealed that the bulk of the identified objects related to debris from machinery, such as plate fittings, bars, binding strips and nails. In addition, a possible rail fragment, observed within the topsoil above the wooden platform in Trench A, probably derived from the Garswood-Pewfall incline. It appears to be a fragment of fish-bellied type rail, and as such, could easily date to the first part of the nineteenth century.
- 6.8.4 **Potential:** only a small percentage of the iron from the site can be identified with confidence, although X-ray photography of the heavily corroded objects would help to enhance the archive catalogue. The identifiable items demonstrate a remnant of the industrial functions undertaken in the area. A full description of the rail fragment would add to an understanding of the chronology of rails used on the Garswood-Pewfall incline.

6.9 GLASS

- 6.9.1 **Quantification:** in total, 26 fragments of glass, dating to no earlier than the late nineteenth century, were collected in the course of the investigations.
- 6.9.2 **Evaluation:** a large proportion of the fragments (14) were collected from an almost complete clear bottle from rubble layer **44**, in Trench 13. One other vessel was collected from the same context, comprising an enamelled fragment from a small ornament. The rest of the fragments comprised broken clear window panes which had been dumped into the upper fills of pits within Trench 1 (pits **9** and **11**), four pieces derived from blue-green mould-blown vessels, and a small pharmaceutical tube. The assemblage largely dates from the late nineteenth and twentieth centuries.

6.9.3 **Potential:** the small size of the assemblage means that further analysis will add little to an interpretation of the site.

6.10 INDUSTRIAL RESIDUE

6.10.1 **Quantification and Evaluation:** four lumps of slag with a ferrous content and three small pieces of coal and fuel ash waste were recovered from two trenches (1 and 10). A small group of slag, derived from the fill of a cut, also yielded a small collection of iron objects (34 from Trench 10), which seemed to be the result of discarded debris that possibly derived from a local blacksmith's workshop.

6.10.2 **Potential:** the small size of the assemblage, against the background of industrial use of the surrounding landscape, means that further analysis will add little to further interpretation of the site.

6.11 WOOD

6.11.1 **Quantification and Evaluation:** a single piece of an unmodified plank was recovered from the wooden platform in Trench A.

6.11.2 **Potential:** a sample of the wood has been identified by Denise Druce of OA North, as Pinaceae (pine) family, although identification of the individual species would require more detailed analysis. As the approximate date of the platform is known, scientific dating of the specimen is not considered worthwhile.

7. CURATION AND CONSERVATION

7.1 RECIPIENT MUSEUM

7.1.1 The paper and material archive will be deposited with National Museums Liverpool, being the nearest museum which meets the criteria of the Museums and Galleries Commission for the long-term storage of archaeological material. The accession has been agreed with Christine Longworth (Tel 0151 478 4311). The accession number is LIV.2006.48.

7.2 CONSERVATION

7.2.1 There were no immediate conservation requirements in the field, and no other immediate or anticipated conservation requirements, although some material will require storage in controlled and monitored conditions. X-raying of selected ironwork is also recommended.

7.3 DISCARD POLICY

7.3.1 Subject to discussions with the recipient, unprocessed environmental samples and unstratified finds may be discarded prior to the deposition of the archive.

7.4 STORAGE

7.4.1 The complete project archive, which will include records, plans, black and white and colour photographs, artefacts, and digital data, will be prepared following the guidelines set out in *Environmental standards for the permanent storage of excavated material from archaeological sites* (UKIC 1990, Conservation Guidelines 3) and *Guidelines for the preparation of excavation archive for long-term storage* (Walker 1990).

7.4.2 All finds will be packaged according to the museum's specifications, in either acid-free cardboard boxes, or in airtight plastic boxes for unstable material. Ironwork constitutes the only category which is potentially unstable and, although the items will be packaged in airtight plastic boxes, they will need to be stored in controlled conditions.

8. STATEMENT OF POTENTIAL FOR FURTHER POST-EXCAVATION WORK

8.1 OVERALL POTENTIAL

- 8.1.1 In an overview of the region's industrial heritage, Fletcher (1996, 164) remarked that *'the threats to the survival of Lancashire's industrial fabric are both insidious and formidable. Industrial buildings commonly disappear under the constant pressure for redevelopment, or suffer wholesale refurbishment, where evidence for previous use is obliterated without record'*. This holds true despite a surge of interest in the Industrial Period during the last ten years. More recently, the archaeological Research Framework compiled for the North West states that *'one of the major challenges facing archaeologists is to recognise and define the extent and relative significance and distinctiveness of the region's industrial heritage'* (Newman and McNeil 2005). The industrial potential of the Blackbrook area was first highlighted by the archaeological assessment (OA North 2002) and confirmed to some extent by the evaluation (OA North 2004). The remains investigated as part of the mitigation for the impact of the development, represented by foundations and an incline plane cutting, demonstrated a complex industrial landscape history during the nineteenth and early twentieth centuries. These industries utilised a large proportion of the local workforce, involving quarrying and brickmaking, coal mining, copper smelting, and iron slitting (*Section 3.2.6*).
- 8.1.2 The entire study area was affected by the construction of nearby residential and industrial estates, and major roads in the twentieth century, which involved the levelling and landscaping of the area, and had a negative impact on the archaeological resource. The results from the present archaeological investigations, however, when combined with those of previous and ongoing archaeological work in St Helens (eg Krupa and Heywood 2002), still have the potential to provide a significant contribution to our understanding of the development of this industrialised landscape. It also serves to demonstrate that the remains from even the recent past can be ephemeral and fragmentary, and require archaeological investigation to elucidate the finer details that history and cartography cannot provide.

8.2 PRINCIPAL POTENTIAL

- 8.2.1 The greatest potential for analysis lies in the confirmation of the phasing and dating of the sequence of structures and archaeological deposits revealed by the investigation, and to link these to the wider industrial development of the landscape.
- 8.2.2 **Stratigraphic data:** it is not unusual to recover few stratified finds from Industrial Period sites, where cut features are less common and a large part of the evidence is preserved in the form of surfaces and structures. Often, the artefactual evidence represents phases of abandonment, rather than of use. At Stanley Bank, most of the finds recovered represent dumping of rubbish after the site was no longer utilised for industrial activities, and as such cannot add greatly to refining the sequence of landscape development. Further analytical study of the stratigraphic record will,

however, when combined with other sources, potentially establish a more detailed, chronological sequence of events pertaining to the development of the surrounding landscape. In particular, this may inform an understanding of the implementation and development of technical innovations represented by the surviving structures on the site.

- 8.2.3 **Documentary study:** an appraisal of the documentary and cartographic sources available has been undertaken as part of the desk-based assessment (OA North 2002). Further detailed examination of the primary documentary evidence, however, particularly the history of both inclines, and of the undated buildings in Trenches A and C, could provide significant additional information. This could be utilised towards a more thorough combined archaeological and historical study of the industrial landscape of Stanley Bank.
- 8.2.4 **Finds data:** although the finds recovered from the 2006 investigation have limited potential, their presence has some importance in terms of the archaeological record. There is a considerable amount of work to be undertaken before the distribution and consumption of post-medieval ceramics is understood in the North West (Newman and McNeil 2005). It has been acknowledged that ceramics '*are ubiquitous and therefore commonplace throughout the region, but contain messages concerning the basics of everyday life, such as building construction, food preparation, leisure pursuits, consumer choice and social affiliations and emulation*' (*op cit*, 17). The pottery represents a cross section of utilitarian wares that were most likely in use in nearby houses during the nineteenth century. The assemblage therefore represents a useful addition to the corpus of post-medieval ceramics being formulated in Merseyside. This should not be underestimated, as the Regional Archaeological Research Agenda states '*without good baseline data rooted in an understanding of the technologies of manufacture and a typology of products, a clear understanding of the likely relevance of product distribution and use remains difficult to attain*' (*op cit*, 17).

8.3 POST-MEDIEVAL PERIOD

- 8.3.1 **Transport: incline planes and associated structures:** few archaeological remains pertaining to incline planes and mineral railways survive in Britain, and dedicated study of individual systems is still rare (eg Hughes 1990). As such, the truncated remains of the Garswood-Pewfall and Stanley Bank inclines represent a small part of an important historical landscape. Further research on the formation of the sequence and development of the system, including the trackbeds for each incline, and the methods used to transport the materials, would enable comparisons with other plateways and railways in the North West, such as that at Walton Summit, the Stanhope and Tyne Railway near Washington, and Lord Carlisle's Railway, Tindale (*ibid*; OA North 2005; Webb and Gordon 1978).
- 8.3.2 No building was shown on any of the historic maps that had dimensions corresponding to the wooden platform foundation in Trench A. Therefore, at this stage, the remains are archaeologically enigmatic, although its position, in close proximity to the incline, suggests that it may perhaps have been used for storing equipment associated with the mineral railway. Fragments of a fish-bellied-type rail, recovered from the topsoil immediately overlying the platform, are likely to have come from the Garswood-Pewfall incline, and to be one of the original rails

laid down during its construction. Alternatively, the rail fragment may have come from the Stanley Bank incline, suggesting that the original rails for that plateway were replaced, as it is likely to have originally been constructed with flangeless rails (Hughes 1990). Further documentary study of Land Tax Assessments may provide evidence of the ownership of the building.

- 8.3.3 **Blackbrook Colliery:** the collapsed wall (**106, 108** and **123**) in Trench B is the sole structural survivor of the Blackbrook colliery. Several buildings associated with this colliery were shown on the 1909 OS map, at the north-eastern end of the study area. Large amounts of scattered ceramic and stone building materials, no earlier than the late nineteenth century in date, were observed surrounding the site of the colliery during the identification survey (OA North 2002). This would indicate that when the colliery was cleared following its closure, the waste and demolition material was spread over a large area, before the land was subsequently returned to agricultural use.
- 8.3.4 **Stanley Bank Farm:** numerous structural remains, such as brick walls, were observed close to Stanley Bank Farm, that may relate to agricultural or industrial use. The small building foundation (**140**) in Trench C may therefore potentially be associated with a farm outbuilding.

8.4 NATIONAL PRIORITIES ADDRESSED BY THE SITE'S POTENTIAL

- 8.4.1 In 1991, English Heritage produced a document, *Exploring Our Past*, which included a strategy for dealing with the problems and opportunities which would be encountered during the following decade (English Heritage 1991b). Many of the ideas first raised in *Exploring our Past* were developed further in a draft document, *Research Agenda*, circulated to the archaeological profession in 1997. The most recent English Heritage Research Strategy documents are *Exploring our Past Implementation Plan* (2003) and *Discovering the Past, Shaping the Future* (2005), although these are, in effect, strategies for English Heritage itself, but many of the research objectives identified in the earlier documents remain pertinent for a large part of England. Section 7 of *Exploring our Past, The Way Forward*, and Section 3 of *Research Agenda, Archaeological Research Priorities*, outlined a series of broad academic objectives. Those of relevance to the present project are as follows:

Processes of Change

- to enable archaeology to contribute to important debates and controversies which hitherto have been largely the preserve of economic historians (PC7);
- to examine the relationship between traditional and new industries during the period of industrialisation (PC8).

Themes

- to improve our understanding of single monument forms via site-specific study (T6);
- to contribute to an exposition of the remains of industrial archaeological sites (T6);
- to inform the development of new research frameworks for the management of the industrial archaeological resource (T6);

- to contribute to an exposition of the remains of industrial archaeological sites (T6);
- to inform the development of new research frameworks for the management of the industrial archaeological resource (T6);
- to assist analysis of the contrast between urban and rural industrial sites (T7).

8.4.2 Whilst it is debatable whether the complete dataset from the investigated elements of the Blackbrook sites could fully address all of these, they should nevertheless be borne in mind when addressing more local issues.

8.5 LOCAL AND REGIONAL PRIORITIES

8.5.1 The Industrial and Modern period Research Agenda for the *North West Region Archaeological Research Framework* (Newman and McNeil 2005) stated, in July 2005, that the need for data gathering is still an urgent necessity for the industrial (later post-medieval) period. Several key points arose from the agenda that stated the need for further research, and several initiatives outlined are applicable to this project:

- 1** reviews of the characteristic period monument types contained in each town;
- 2** routeway or route corridor studies looking at the technological and social archaeology of roads and canals to investigate their impact as engines of change for both landscape and culture;
- 3** a study or studies of the North West's tram systems focused on both the associated structures and their wider landscape impact;
- 4** examination, mapping and evaluation of the occurrence of vernacular materials and objects in nineteenth-century contexts.

8.5.2 The results of these excavations have demonstrated that significant activity was taking place in the Blackbrook and Stanley Bank area during the eighteenth and nineteenth centuries, which represented an element of the heavy industrialisation around St Helens during this period. The issues raised can be partially addressed by comparing these remains with localised industrial landscapes throughout the region, although, bar a few pioneering projects, few sites focussing on mineral recovery, metal processing and transportation have previously been subject to detailed archaeological investigation in the region (Newman and McNeil 2004). Any research undertaken, where appropriate, on these issues will help therefore to address this seeming imbalance in the vast extent of the archaeological resource from the Industrial Period, and the current level of dedicated archaeological study.

9. UPDATED PROJECT DESIGN

9.1 ORIGINAL AIMS AND OBJECTIVES

9.1.1 The original aims and objectives were specified in *Section 2* of the project design for the evaluation and excavation (*Appendix 2*). These were to:

- implement a programme of mitigative topographic survey of a series of earthwork sites on the line of the A58 Diversion in advance of the road scheme;
- implement a programme of trial trenching examining 7% of the construction corridor, targeted on known sites but also providing an investigation of the background areas where archaeological sites have not yet been investigated;
- submit a written report to assess the significance of the data generated by the programme within a local and regional context, and to make recommendations for further work.

9.1.2 This work ultimately led to a programme of excavation, centred on four sites identified as having potential for further investigation.

9.2 UPDATED RESEARCH AIMS AND OBJECTIVES

9.2.1 The following general aims can be identified as achievable from an assessment of the material records of the A58 Blackbrook Diversion road development. The overall aims are:

- A to secure the analysis and publication of the archaeological and documentary investigations;
- B to present an overview of the industrial development at Blackbrook and Stanley Bank;
- C to contribute to an understanding of the industrial development of St Helens;
- D to deposit the project archive into the public domain.

9.2.2 *Specific objectives*: the specific objectives which the data can address are:

- 1 to elucidate the development and chronological history of the landscape by means of further documentary research;
- 2 to integrate the documentary data with the findings of excavations on the site;
- 3 to characterise the construction and development of the Stanley Bank and Garswood-Pewfall inclines, and their position within the development of the industrial landscape;
- 4 to note the post-industrial use of the landscape, and the processes that led to widespread truncation of industrial archaeological deposits.

9.3 PRESENTATION OF RESULTS

9.3.1 In accordance with the guidelines outlined in the English Heritage document *Management of Archaeological Projects 2* (English Heritage 1991a), it is proposed that the results of the project should be presented in four stages.

- 1 **Documentary research:** a programme of historical and cartographic research will be undertaken, examining evidence held in County Record Offices and Local Studies Libraries, and subsequently locating further identified sources. The synthesised material will form an overview of the industrial landscape, that will form the backbone of the publication text.
- 2 **Post-excavation analysis:** a limited programme of analysis will be undertaken focussing on combining the excavated evidence and the historical record, which will be presented in the final publication text.
- 3 **Publication text:** the dataset generated from the archaeological investigations is of significance in terms of the industrial development of St Helens, and merits dissemination. A short text detailing the results of the excavation will, in the first instance, be prepared suitable for publication as a journal article or note in the *Industrial Archaeology Review*.
- 4 **Project archive:** the completion of the project will result in an integrated archive, which will be deposited with National Museums Liverpool.

9.4 PROGRAMME STRUCTURE

9.4.1 The post-excavation programme will be divided into the following stages:

- documentary research
- analysis
- synthesis
- preparation of draft text and illustrative material
- publication
- archive deposition.

10. METHOD STATEMENT

10.1 INTRODUCTION

10.1.1 This statement relates the tasks outlined in the task list (*Appendix 5*) to the updated research aims and objectives. The programme of works is tailored to address the specific objectives which, when achieved, will address the general objectives outlined in *Section 9.2* above.

10.2 START-UP

10.2.1 *Tasks 1-3*: to facilitate all aims and objectives. All members of the project team will be fully briefed by means of a project meeting, and a timetable will be established.

10.3 DOCUMENTARY RESEARCH

10.3.1 *Tasks 4-5*: to facilitate aims B and C, and objectives 1, 3, 4 and 5. A detailed survey of available records for the study area will be undertaken, entailing study at the Lancashire County Record Office, the Merseyside County Record Office, the St Helens and Local Studies Library, and further sources of information subsequently identified. The gathered information will be synthesised and presented in terms of the development of the industrial landscape.

10.4 STRUCTURAL AND STRATIGRAPHIC NARRATIVE

10.4.1 *Task 6*: to address aims A, B and C, and objectives 1, 2, 3 and 4. The stratigraphic sequence for the site is not complex, although a degree of phasing was evident within the stratigraphic record. The narrative will be based on the refinement of the broad chronological phases and their position within the development of the wider landscape.

10.4.2 Structural analysis will be undertaken on those features identified as being of major interpretative importance to the site, such as the Stanley Bank incline cutting and the building remains associated with the colliery.

10.5 TEXT INTEGRATION

10.5.1 *Task 7*: to facilitate aims A, B, C and all objectives. The synthesised results of the documentary research and the site data will be integrated into a single text, presenting a detailed overview of the development of the industrial landscape at Blackbrook. Notes on the finds from all interentions will also be integrated into the report as appropriate.

10.6 ILLUSTRATION

10.6.1 *Task 8*: a selection will be made of appropriate material for illustration. This will cover general plans, reproduction of cartographic sources, and diagrams.

Experienced illustrators, using standard conventions, will compile these illustrations, either digitally for the plans, or manually, as appropriate.

10.7 FINALISATION OF TEXT AND ARCHIVE

10.7.1 **Tasks 9-13:** to facilitate all aims and objectives. The illustrations will be embedded in the text and the drafts will undergo internal editing at OA North, and then be sent to an external reader for academic refereeing. Any further comments will be addressed the draft subsequently amended, before the text is copy edited and submitted to *Industrial Archaeology Review*. Thereafter, the research archive will be finalised and deposited with the designated museum.

11. PUBLICATION SYNOPSIS

11.1 INTRODUCTION

11.1.1 Following analysis and interpretation of the fieldwork and documentary research, a text will be prepared suitable for publication as a journal article such as the *Industrial Archaeology Review*.

11.2 THE STRUCTURE OF THE REPORT

11.2.1 The following section represents a likely breakdown of the proposed publication. The publication article will address the revised and updated research aims and objectives detailed in *Section 9*.

11.2.2 The text will be supported by a number of graphics, comprising maps, line drawings and photographs to illustrate the evidence, tables to summarise data, and where appropriate, interpretative diagrams.

11.3 OUTLINE SYNOPSIS

THE EXCAVATION BACKGROUND

Circumstances of the project/site location 500 words

RESULTS

Historical Evidence 2000 words

Archaeological features 1000 words

FINDS EVIDENCE

Finds Summary 500 words

CONCLUSIONS

1000 words

BIBLIOGRAPHY

ACKNOWLEDGEMENTS 100 words

12. RESOURCES AND PROGRAMMING

12.1 PROJECT TEAM

12.1.1 OA North staff will comprise the project team. The quality assurance for the project will be maintained by OA North Director Rachel Newman, and the project will be managed by Jamie Quartermaine, Senior Project Manager.

12.1.2 The following staff will work on the project:

Ann Dunkley	Illustrator	AD
Sean McPhillips	Project Officer	SM
Ian Miller	Senior Project Manager	IM
Rachel Newman	Director OA North	RMN
Jamie Quartermaine	Senior Project Manager	JQ
	Project Assistant	pa

12.2 MANAGEMENT

12.2.1 OA North places importance on the tight and effective management of the post-excavation stages of projects, in order to deliver best value to our clients. An element of time is provided to on-going quality assurance and internal monitoring. This is part of our internal quality assurance system and ensures the prompt delivery of the agreed report on time and budget. In addition to the internal team structure, an external referee will appraise the text prior to publication.

12.3 HEALTH AND SAFETY

12.3.1 All OA North post-excavation work will be carried out under relevant Health and Safety Legislation, including the Health and Safety at Work Act (1974). A copy of the Oxford Archaeology Health and Safety Policy can be supplied on request. The nature of the work means that the requirements of the following legislation are particularly relevant:

Workplace (Health, Safety and Welfare) Regulations (1992) – offices and finds processing areas;

Health and Safety (Display Screen Equipment) Regulations (1992) – use of computers for word-processing and database work.

12.4 TASK LIST

12.4.1 The project has been broken down into a series of tasks, which are set out in the Task List in *Appendix 8*.

12.5 TOTAL COSTS

12.5.1 The total costs for the publication stage are set out in *Appendix 9*.

13. BIBLIOGRAPHY

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APPENDIX 1

ARCHAEOLOGICAL BRIEF: SCOPE OF WORK

Compiled with reference to the following documents:

'Brief for Archaeological Investigations on the Route of the A58 Blackbrook Diversion, St Helens, Merseyside'. Merseyside Archaeological Service for St Helens Council, 27th November 2003.

'A58 Blackbrook Diversion, St Helens, Merseyside. Evaluation and Topographic Survey Project Design'. Oxford Archaeology North, December 2003.

'A58 Blackbrook Diversion, St Helens, Merseyside - Topographic Survey and Evaluation'. Oxford Archaeology North Report L9331, June 2004.

A58 ARCHAEOLOGICAL BRIEF : SCOPE SECTION

Deals with:

- Continuation of road corridor evaluation (area not available in 2004),
- Evaluation of 'Balancing Pond area,'
- Open area excavation of features identified during 2004 archaeological evaluation investigations.
- Watching Brief during construction.

1.1 Trial Trenching – Phase 2 (Phase 1 completed in 2004)

- 1.1.1 Construction Corridor - The original Brief for evaluation allowed for a 7% sample of the whole road construction corridor, but part of the south west end of route, above Clipsley Brook, was unavailable for evaluation in 2004. The remaining area of accessible road corridor required for evaluation is 6,250m², of which a 7% sample is 438m².

Trenches to measure c20mx1.8m, but can be varied in line with site conditions and expanded if they produce significant features. This will enable quicker decisions to be made on any further mitigation (i.e. fuller excavation of any features).

- 1.1.2 The overall trench plan will continue in line with the method adopted in the Phase 1 evaluation of 2004, mixing trenches cut parallel to and across the corridor. The exact position of the key trenches can be agreed the Archaeological Officer prior to the start of work.

1.2 Balancing Pond areas

- 1.2.1 The trench plan will include specific evaluation of three 'Balancing Pond' landscape areas which are bounded by the new road and the former route of the Garswood – Pewfall incline (site number 8,OAN report June 2004). It is proposed that an area equivalent of 300m² in trenches is identified for costing purposes.

The exact position of the key trenches can be agreed the Archaeological Officer prior to the start of work and viability/relevance of continuing dependant on findings. At least two should at crossing the route of the Garswood -Pewfall incline to establish any survival, which may be disturbed by balancing ponds.

Note: Not aware of construction depth of balancing ponds. The remains of the Garswood – Pewfall incline earthworks post road construction are to be enhanced within the road scheme and its former continuation north eastwards also proposed as a public access route as part of the environmental improvements to the area.

Also note: Evaluation of the cropmark site (site number 6, OAN June 2004) revealed large scale dumping of shale in this area, notably trenches 16 & 17 (dug to a depth of 1.2 m). Any evaluation needs therefore to take depth to ‘natural’ into account (poss. step back trenches in some areas)

1.3 *Open Area excavation*

1.3.1 Excavation of the following areas identified for further investigations as a result of work in 2004 (OA North Report June 2004):

- ‘Wooden Platform’ area (trenches 22 & 44) – allow for 20mx20m
- ‘Brick Structure’ (trench 42) – allow for 10mx10m
- ‘Brick foundation (trench 33) – allow for 10x10m
- ‘Stanley Bank incline area’ (trench 10) – allow for 20mx10m

1.4 *Watching Brief work*

1.4.1 Watching Brief work will be targeted along particular stretches of the route (unlikely to be all but may be large percentage) and in areas already identified as of particular interest. This will rely on archaeologists and contractor communicating over timetable and work programme. It will also require stoppage time for archaeologist to record any features though to be worthy of investigation.

1.4.2 Aforementioned Watching Brief areas have yet to be wholly confirmed (i.e. await further evaluation and excavation results) but will include monitoring construction works around the Garswood-Pewfall earthwork incline both around and north east of Stanley Bank Farm; road strip as it crosses the Stanley Bank incline towards and at the new road ‘proposed roundabout’.

2. COSTS

2.1 *Please show Watching Brief as a day rate.*

2.2 *Also allow for a contingency amount:*

- A contingency will be allowed to cater for unforeseen circumstances, such as bad weather/ discovery of dangerous deposits/ presence of significantly different deposits than expected etc. that may affect the archaeological resource and/or project objectives.
- Contingency does not cater for provision of staff where this is the result of non- replacement of staff through dismissal or resignation.
- The contingency must be shown as a day rate.
- Contingency is evoked with the agreement of the AO and archaeological Consultant.

Prepared by Merseyside Archaeological Service
on behalf of St Helens Council

APPENDIX 2: PROJECT DESIGN

**Oxford
Archaeology
North**

February 2006

A58 BLACKBROOK DIVERSION

ST HELENS

MERSEYSIDE

EVALUATION, EXCAVATION AND WATCHING BRIEF

Proposals

The following project design is offered in response to a request from Birse for an evaluation, excavation and watching brief in advance of the proposed route of the A58 Blackbrook Diversion, St Helens.

1. INTRODUCTION

1.1 Contract Background

- 1.1.1 Oxford Archaeology North has been invited by Birse to submit a project design and costs for an evaluation, excavation and watching brief on the line of the proposed A58 Blackbrook Diversion, St Helens. This follows on from an earlier evaluation (OA North 2004) which made recommendations for further evaluation on the line of the route and the excavation of selected sites. This project design is prepared in accordance with a scope of work prepared by Sarah-Jane Farr (Merseyside Archaeological Officer).
- 1.1.2 The south-western section of the route could not be evaluated in 2004 because access was not available; however, a compulsory purchase order has now been served on the owner and access will be available to complete the evaluation in this area. In addition it is now proposed to excavate a series of balancing ponds on the south-east side of the road and therefore there is a requirement for additional evaluation trenching in this area.
- 1.1.3 A series of industrial sites revealed by the 2004 evaluation warrant mitigative recording in advance of the road construction. This will require the excavation of four open area trenches in order to provide a record of the structures and associated features.
- 1.1.4 **Archaeological Background:** the earlier assessment (OA North 2002) identified a total of 19 sites from documentary, cartographic and field surveys; these for the most part, related to an industrial landscape, incorporating elements of coal extraction, copper working, iron slitting, and stone quarrying, with an associated communication infrastructure of inclines leading to the St Helens Canal. In addition, there are residual elements of a post-medieval agricultural landscape, which appears to have developed following the abandonment of the industrial works. Only one site was potentially earlier date, a putative medieval moated site (Site 12), which appears to have been substantially damaged as a result of the construction of a pond (Site 14) for the copper works.
- 1.1.5 In addition a pair of aerial photographic sites have been reported to the SMR as being to the south of Stanley Bank Wood. The first is a sub-rectangular enclosure (75m x 50m) and the second is a pair of 2m long parallel linear crop marks.
- 1.1.6 **Evaluation:** the evaluation trenches, excavated in 2004, revealed widespread evidence of the industrial past of the proposed route, through the discovery of a number of structures, and also through the widespread dumping of waste material associated with the industrial processes previously undertaken in the area.
- 1.1.7 A significant number of substantial drains and culverts were revealed during the course of the evaluation, presumably relating to the past industry of the area, and a number of brick structures were also discovered. A substantial circular brick structure, possibly a flue, was uncovered in Trench 42, in close proximity to another brick-built structure, possibly another flue. Two sections were excavated across the Garswood-Pewfall Incline (Trenches 25 and 26), which recorded its manner of construction and a further trench (38), adjacent to the Stanley Bank pond, revealed the incline as a cutting. A substantial wooden platform was revealed in two trenches (22 and 42); this was adjacent to the Garswood-Pewfall incline and there was a possibility that it was related.
- 1.1.8 The three cropmarks, which had been identified from aerial photographs, were examined by the evaluation, but no evidence linking the cropmarks to any significant archaeology was uncovered; indeed two of them appeared to relate to relatively recent dumps of clay.

1.2 OXFORD ARCHAEOLOGY NORTH

- 1.2.1 Oxford Archaeology North (OA North) has considerable experience of the archaeological survey and evaluation of sites and monuments of all periods, having undertaken a great number of small and large projects during the past 20 years. Projects have been undertaken to fulfil the different requirements of various clients and planning authorities, and to very rigorous timetables. OA North has considerable experience of the recording of historic buildings together with the evaluation and excavation of sites of all periods, having undertaken a great number of small and large scale projects during the past 20 years. Fieldwork has taken place within the planning process and construction programmes, to fulfil the requirements of clients and planning authorities, to very rigorous timetables. OA North undertook the earlier assessment (OA North 2002) and the

evaluation (OA North 2004) on the site and has considerable familiarity with the site and its archaeology.

- 1.2.2 OA North has the professional expertise and resources to undertake the project detailed below to a high level of quality and efficiency. OA North is an Institute of Field Archaeologists (IFA) registered organisation, registration number 17, and all its members of staff operate subject to the IFA Code of Conduct.

2. OBJECTIVES

- 2.1 The following programme has been designed, in accordance with a scope of works by the Merseyside Archaeological Officer to provide an evaluation, mitigative excavation and watching brief on the line of the A58 Diversion in advance of the road scheme. The required stages to achieve these ends are as follows:

2.2 EVALUATION TRENCHING

- 2.2.1 To implement a programme of trial trenching examining 7% of the construction corridor. This will entail the excavation of twelve 20m x 1.8m trenches at the south-western end of the route and eight 20m x 1.8m trenches in the area of the proposed balancing ponds.

2.3 MITIGATION EXCAVATION

- 2.3.1 A programme of mitigative excavation will be undertaken to record the site of a wooden platform (Evaluation Trenches 22 and 44), a brick culvert structure (Evaluation Trench 42), a brick foundation (Evaluation Trench 33) and the extended line of the Stanley Bank Incline (Evaluation Trench 10). This will entail the excavation of a 20m x 20m trench, two 10m x 10m trenches and a 20m x 10m trench.

2.4 WATCHING BRIEF

- 2.4.1 A programme of watching brief will be undertaken during the ground works along those sections of the route that are identified as being of particular interest.

2.5 EXCAVATION ASSESSMENT

- 2.5.1 An assessment will be undertaken of the data, artefacts and ecofacts produced by the excavation and evaluation trenching. The costs for completing the post-excavation programme to publication level will be assessed and a report will define the post-excavation programme and costs.

3. METHOD STATEMENT

3.1 EVALUATION TRENCHING

- 3.1.1 **Methods:** the programme of trenching will establish the presence or absence of any previously unsuspected archaeological deposits and, if established, will then test their date, nature, depth and quality of preservation. The evaluation will be undertaken within the construction corridor and the trenches will be of varying length subject to the size and character of the site to be examined.

- 3.1.2 **South-Western Corridor:** the evaluation will examine 7% of the south-western part of the corridor and will entail the excavation of twelve 20m x 1.8m trenches; however, the size of the trenches will be varied according to the site to be investigated and the initial results. The layout of the trenches will be configured with predominant trenches along the line of the corridor in conjunction with a series of trenches across the line of the corridor. The arrangement will be adjusted so as to target surface features of particular significance. The proposed arrangement of the trenches is as shown in Figs 1/2.

- 3.1.3 The four trenches at the most south-western extent of the route is in an area that is excluded from excavation until water voles and Japanese Knotweed have been removed, which will not happen until early April. If at all possible the trenches will be excavated following the removal of the knotweed, but if this is not possible then an archaeological watching brief will be maintained during the top soil strip for the road scheme. In this instance the top soil strip would need to be undertaken using a mechanical excavator rather than a bulldozer, as this will enable examination of the newly excavated ground surface. Should anything be identified during the watching brief then

there would need to be the possibility of some stoppage time to enable the recording of the archaeological features.

- 3.1.4 **Balancing Ponds:** it is proposed to excavate 300m² of evaluation trenching which will be excavated within the area proposed for the balancing ponds. This is equivalent to eight 20m x 2m trenches. The trenches will target specific sites but will also be located so as to examine areas without previously identified archaeology in order to investigate the potential for new sites. Two of the trenches will be excavated across the line of the Garswood-Pewfall incline, and one across the line of the rectilinear crop mark. The others will scattered across the area of the balancing ponds with alternate alignments so as to catch any linears running through the area.
- 3.1.5 The initial layout of the trenches will be agreed with the Merseyside Archaeological Officer following the topographic survey. This layout of trenches will then be subject to the initial results of the evaluation and may be adjusted to provide an appropriate investigation of sites which have a confirmed potential. In particular if an individual trench reveals a resource of particular significance, then it will be expanded up to a width of 10m and this will entail a corresponding reduction in the number or length of proposed trenches elsewhere on the route. For the most part the additional trenching will be gained by reducing other trenches from 20m length to 10m length. The trenches will be excavated down to the level of natural subsoils; where this will entail the excavation to depths below 1.25m, the maximum depth for unshored trenches, the trenches will be stepped out.
- 3.1.6 **Methods:** the trenches will be excavated by a combination of mechanised and manual techniques; the topsoil will be removed by mechanical excavator, fitted with a 1.8m wide toothless bucket, and archaeological deposits beneath will be first manually cleaned and then any features identified will be manually excavated. The machine excavation will not intrude into any potential archaeological stratigraphy and all machine excavation will be undertaken under careful archaeological supervision. Following mechanical excavation the floor of the trench will be cleaned by hoe and Manual excavation techniques will be used to evaluate any sensitive deposits, and will enable an assessment of the nature, date, survival and depth of deposits and features.
- 3.1.7 The trench will be excavated in a stratigraphical manner, whether by machine or by hand. The trench will be located by use of GPS equipment which is accurate to +/- 0.25m, altitude information will be established with respect to Ordnance Survey Datum. Archaeological features within the trenches will be planned by manual techniques.
- 3.1.8 **Recording:** all information identified in the course of the site works will be recorded stratigraphically, with sufficient pictorial record (plans, sections and both black and white and colour photographs) to identify and illustrate individual features. Primary records will be available for inspection at all times.
- 3.1.9 Results of the field investigation will be recorded using a paper system, adapted from that used by Centre for Archaeology of English Heritage. The archive will include both a photographic record and accurate large scale plans and sections at an appropriate scale (1:50, 1:20, and 1:10). All artefacts and ecofacts will be recorded using the same system, and will be handled and stored according to standard practice (following current Institute of Field Archaeologists guidelines) in order to minimise deterioration.

3.2 MITIGATIVE EXCAVATION

3.2.1 Four open area trenches will be excavated centred on sites identified during the earlier phase of evaluation (OA North 2004). The excavation areas will be as follows:

- **Wooden Platform (Trench 44):** an open area excavation, 20m x 20m in extent, will be excavated centred on the former Trench 44.
- **Brick Structure (Trench 42):** a brick structure was identified within Trench 42, which is outside the proposed road construction corridor. It is proposed to excavate a 5m x 10m trench in a location immediately adjacent to Trench 42, but which is within the proposed corridor and at the same time is sufficiently removed from a shaft in that area. Subject to the findings in that trench, it will be appropriately expanded to enable the recording of the archaeology and provisionally will be extended to an overall area of 100m² which is equivalent to a 10m x 10m trench. If no significant archaeology is identified then the trench will not be expanded.

- **Brick Foundation (Trench 33):** an open area excavation, 10m x 10m in extent, will be excavated centred on the former Trench 33 so as to record the structure identified within that evaluation trench.
 - **Stanley Bank Incline (Trench 10):** an open area excavation, 20m x 10m in extent, will be excavated centred on the former Trench 10 so as to record the structure identified within that evaluation trench. The trench will need to extend in places to depths greater than the design limits of the development (2m depth) in order to record the archaeological deposits. The trench will be stepped in to accommodate this.
- 3.2.2 **Excavation Techniques:** the excavation will use a variety of techniques from mechanical excavation to delicate hand excavation, to suit differing conditions. Following machine removal of the overburden, the core site will be subject to manual cleaning over the whole excavation area, since extant deposits may be fragile and machinery in their vicinity could disturb relatively delicate layers and relationships. The aim of this work will be to explore all features stratigraphically and to produce a clear plan of the site. To maximise the available resources, all features will be cleaned and a sample will be excavated, but they will not necessarily be excavated to their full extent if sufficient information can otherwise be retrieved to establish their date, function and stratified relationship. This will result in the excavation of a minimum 50% of discrete features and 20% of linear features.
- 3.2.3 Prior to any ground disturbance the limits of the excavation area will be fenced off to allow safe working without endangering members of the public. The topsoil and any obvious overburden deposits will be removed mechanically under archaeological supervision. Machine stripping of the excavation area will be undertaken using a 360° excavator fitted with a 1.5m - 2m toothless ditching bucket. The work will be supervised by a suitably experienced archaeologist. Machine excavation will then stop at the first significant archaeological deposit. Thereafter, structural remains and features will be cleaned manually to define their extent, nature, form and, where possible, date; all deposits and features will be subject to stratigraphic manual excavation. The deposits encountered during the excavations will be sampled according to the appropriate professional standards to enable environmental analysis if required.
- 3.2.3 For health and safety reasons the depth of the mechanical clearance will be limited to a maximum depth of c1.25m, after which the sides will be stepped in. It is anticipated that natural subsoils will be reached at depths of as much as 2m and therefore there will need to be sufficient step to enable this excavation.
- 3.2.4 **Recording Methodology:** all elements of the work will be recorded in accordance with current English Heritage guidelines (MAP2) and the best practices formulated by English Heritage's Centre for Archaeology (CfA).
- 3.2.5 **Survey Control:** survey control will be established with respect to the control established on site by the developer and will be tied into the National Grid. Survey will be by means of a total station.
- 3.2.7 **Planning:** archaeological planning will be undertaken using a data-logging total station linked to a Penmap computer, utilising AutoCad version R14. All planning data will be digitally incorporated into a CAD system in the course of the evaluation and will be superimposed with the base survey provided by Birse. This process will generate scaled plans which will also be subject to manual survey enhancement. The drawings will be generated at an accuracy appropriate for 1:20 scale but can be output at any scale required. This digital process will go hand-in-hand with the manual enhancement of digital plans. Three-dimensional recording of selected finds' classes will be undertaken using a total station, where appropriate. Section drawings will for the most part be generated manually.
- 3.2.8 **Context Recording:** archaeological stratigraphy will be recorded using *pro-forma* sheets which are in accordance with those used by English Heritage. Similar object record and photographic record *pro-formas* will be used. All written records of survey data, contexts, artefacts and ecofacts will be cross-referenced from *pro-forma* record sheets using sequential numbering.
- 3.2.9 The contextual details will be incorporated into a Harris matrix essentially hand-drawn on site for checking purposes but which is normally generated using specially designed Arched version 2 matrix generation software. In accordance with standard practices the contextual data will be incorporated into the Harris Matrix during the course of the fieldwork.

- 3.2.10 A full and detailed photographic record of individual contexts will be maintained and similarly general views will be generated. Photography will be undertaken using 35mm cameras on archivably stable black and white print film as well as colour transparency. Digital photography will also be undertaken throughout the course of the fieldwork for presentation purposes. Photographic records will be maintained on special photographic *pro-forma* sheets.

3.3 FINDS

- 3.3.1 Finds recovery and sampling programmes will be in accordance with current best practice (following specialist guidelines) and subject to appropriate expert advice. OA North employs a wide range of in-house finds specialists and palaeoecologists, providing considerable expertise in the investigation, excavation, and finds management of sites of all periods and types, who are readily available for consultation and site visits.
- 3.3.2 In addition OA North maintains close contact with Ancient Monuments Laboratory Conservators at the Universities of Durham and York, from whom advice and emergency access to conservation facilities is readily available. Finds handling, management and storage during and after fieldwork will follow professional guidelines (UKIC).
- 3.3.3 Neither artefacts nor ecofacts will be collected systematically during the mechanical excavation of overburden unless significant deposits, for example pottery or clay tobacco pipe waster dumps, are encountered. In such an eventuality, material will be sampled in such a manner as to provide data to enhance present knowledge of the production and dating of such artefacts; ensuing study of these artefacts individually will not, however, be regarded as a major element in any post-excavation analysis of the site. Other finds recovered during the removal of overburden will be retained only if of significance to the dating and/or interpretation of the site or specific features. It is not anticipated that ecofacts (eg unmodified animal bone) will be collected during this procedure.
- 3.3.4 Subsequent to the removal of overburden artefacts and ecofacts will be collected and handled as per best practice. All material will be collected and identified by stratigraphic unit. Hand collection by stratigraphic unit will be the principal method of collection. The location of individual findspots for objects deemed to be of potential significance to the understanding, interpretation, and dating of individual features, or of the site as a whole, will be recorded in 3-D.
- 3.3.5 Finds will be processed and administered at regular intervals (on a daily basis) on site. All finds will be treated in accordance with OA North standard practice, which is cognisant of UKIC Guidelines. In general this will mean that (where appropriate or safe to do so) finds are washed, dried, marked, bagged and packed in stable conditions; no attempt at conservation will be made unless special circumstances require prompt action. In such a case guidance and/or expertise will be sought from a suitably qualified conservator.
- 3.3.6 Any gold and silver artefacts recovered during the course of the excavation will be removed to a safe place and reported to the local Coroner according to the procedures relating to the Treasure Act, 1996.
- 3.3.7 Animal bone will be recovered from stratified deposits only. It will be recovered by hand, with no programme of sieving unless specific and unusual circumstances warrant increased levels of collection.
- 3.3.8 The recovery of human remains is not anticipated, but if encountered they will, if possible, be left *in situ* covered and protected. If removal is necessary, then the relevant Home Office permission will be sought, and the removal of such remains will be carried out with due care and sensitivity as required by the *Burials Act 1857*.

3.4 ENVIRONMENTAL SAMPLING

- 3.4.1 A programme of palaeoenvironmental sampling will be undertaken at the site under the guidance of Sue Stallibrass (the North West regional advisor for English Heritage, based in Liverpool University). Environmental samples (bulk samples of 30 litres volume, to be sub-sampled at a later stage) will be collected from stratified undisturbed deposits and will particularly target negative features (gullies, pits and ditches). Subject to the results of the excavation an assessment of any environmental samples will be undertaken by the in-house palaeoecological specialist, who will examine the potential for further analysis. The assessment would examine the potential for microfossil, arthropod, palynological and general biological analysis.

- 3.4.2 In the event of encountering stratified contexts with the potential for preserved ecofacts, a programme of environmental sampling will be undertaken. The environmental sampling and assessment will follow the English Heritage guidelines for environmental archaeology 2002 and those of Oxford Archaeology 2000. Bulk samples of 30 litres volume (to be sub-sampled at a later stage) will also be collected and will be assessed for waterlogged and charred plant remains and other environmental indicators as appropriate. It may also be appropriate to take a series of monolith samples, which would be assessed for pollen. It is proposed that flotation be undertaken off site following completion of the fieldwork.

3.5 WATCHING BRIEF

- 3.5.1 A programme of field observation will accurately record the location, extent, and character of any surviving archaeological features within the excavation for the proposed cable and jointing chambers. This work will comprise the observation of the process of excavation for these works, the systematic examination of any subsoil horizons exposed during the course of works, and the accurate recording of all archaeological features and horizons, and any artefacts, identified during observation.
- 3.5.2 The watching brief will be targeted along sections of the route or balancing ponds that have been identified as being of particular significance and will be subject to the results of the evaluation and excavation work. It will however include those sections that cross the lines of the Garswood-Pewfall incline and the Stanley Bank incline.
- 3.5.3 During this phase of work, recording will comprise a full description and preliminary classification of features or materials revealed, and their accurate location (either on plan and/or section, and as grid coordinates where appropriate). All archaeological information collected in the course of fieldwork will be recorded in standardised form, and will include accurate national grid references. Features will be planned accurately at appropriate scales and annotated on to a large scale plan provided by the Client. A photographic record will be undertaken simultaneously. The recording techniques and procedures employed by OA North for such detailed recording represent current best practice.
- 3.5.4 It is assumed that OA North will have the authority to stop works to enable the recording of important deposits, and to call in additional archaeological support if a find of particular importance is identified. This would only be called into effect in agreement with the Client and the Merseyside Archaeological Service and will require a variation to costing. In normal circumstances, field recording will also include a continual process of analysis, evaluation, and interpretation of the data, in order to establish the necessity for any further more detailed recording that may prove essential.

3.6 CONTINGENCY

- 3.6.1 **Trench 42 Open Area:** contingency costs are defined for the excavation of the second part of the open area centred on Trench 42. This provides for the excavation of 50m² of open area trench in the event that significant archaeological remains are identified in the initial area.
- 3.6.2 **Evaluation Trenching in the Knotweed area:** four of the evaluation trenches in the south-western part of the route are in an area which will be latterly cleared of Knotweed. While the preferred option is for the excavation of these following the removal of the Knotweed, this may not be possible in which case the area will be subject to a permanent presence watching brief during the topsoil strip. As these trenches will not definitely be excavated they are defined as an option within the contingency section of the costings.
- 3.6.3 **Unforeseen Circumstances:** a contingency is defined in the event of unforeseen circumstances, such as bad weather or the discovery of dangerous deposits or deposits that vary significantly from what was expected. The contingency is defined as a day rate and would be evoked with the agreement of the Archaeological Officer and the client.

3.7 OTHER MATTERS: WELFARE AND FACILITIES

- 3.7.1 **Access:** Access to the site will be arranged via the client/main contractor. The client is asked to provide OA North with information relating to the position of live services on the site.
- 3.7.2 **Health and Safety:** a risk assessment will be prepared by OA North in advance of all stages of field work. All site procedures are in accordance with the guidance set out in the Health and Safety Manual compiled by the Standing Conference of Archaeological Unit Managers (3rd Edition,

- 1997). OA North will liaise with the client/main contractor to ensure all health and safety regulations are met.
- 3.7.3 All personnel will have a Birse Civils Ltd site induction and will have read the method statement, and risk assessment briefing before starting work. No ground will be broken without a Birse Civils Ltd permit to dig.
- 3.7.4 All excavations will be fenced off with Harris fencing overnight.
- 3.7.5 A banksman / archaeologist will be in attendance at all times that the excavator is operating. The excavations will be stepped or battered back to a safe angle and will be inspected by the site director. The excavation will be excavated by ramp or ladder depending on the depth of excavation.
- 3.7.6 **Plant:** no work will be undertaken beneath overhead cables with out a Plant Authorisation permit. All plant operators will have CPCS cards. Plant will have the relevant test and inspection certs available at induction. The plant will have all round visibility mirrors or cameras, and a flashing beacon
- 3.7.3 **Indemnity:** OA North has professional indemnity to a value of £2,000,000, employer's liability cover to a value of £10,000,000 and public liability to a value of £15,000,000. Written details of insurance cover can be provided if required.
- 3.7.4 Normal OA North working hours are between 9.00 am and 5.00 pm, Monday to Friday, though adjustments to hours may be made to maximise daylight working time in winter and to meet travel requirements. It is not normal practice for OA North staff to be asked to work weekends or bank holidays and should the client require such time to be worked during the course of a project a contract variation to cover additional costs will be necessary.
- 3.7.5 **Fencing:** the costs assume that Harris fencing will be set around each trench open at the end of the day for all elements apart from the evaluation trenches that are on the site of the proposed balancing ponds. In this case the costs assume that this will be the last element to be undertaken and therefore there will be fencing around the overall site by this stage. This element does not allow for fencing, as there would be considerable delays to the programme if Harris fencing were to be erected around each trench every day. If overall site fencing will not be available by the time this element is undertaken then there will need to be some adjustment to the costs.
- 3.7.6 **Welfare:** the costs assume that there are welfare facilities on site, provided by the client, and therefore are not allowed for in the costings.
- 3.7.8 **Backfilling:** excavation layers (ie top soil and sub soil) will be stored separately and will be banded and sealed against degradation with the weather. The backfilling of the excavation will be by machine in layers and topsoil will be deposited back on top.
- 3.8 POST-EXCAVATION ASSESSMENT**
- 3.8.1 **Archive:** the results of the fieldwork will form the basis of a full archive to professional standards, in accordance with current English Heritage guidelines (*The Management of Archaeological Projects, 2nd edition, 1991*) and the *Guidelines for the Preparation of Excavation Archives for Long Term Storage* (UKIC 1990). The project archive represents the collation and indexing of all the data and material gathered during the course of the project. The deposition of a properly ordered and indexed project archive in an appropriate repository is considered an essential and integral element of all archaeological projects by the IFA in that organisation's code of conduct.
- 3.8.2 The paper and finds archive for the archaeological work undertaken at the site will be deposited with Merseyside Museums and Galleries, in accordance with their guidelines, as this is the nearest museum which meets Museums' and Galleries' Commission criteria for the long term storage of archaeological material (MGC 1992). This archive can be provided in the English Heritage Centre for Archaeology format, both as a printed document and on computer disks as ASCII files (as appropriate). The archive will be deposited with the Museum within six months of the completion of the overall project. Except for items subject to the Treasure Act, all artefacts found during the course of the project will be donated to the receiving museum.
- 3.8.3 **Assessment:** OA North accords with best practice for the analysis of the excavation results in accordance with the guidelines of English Heritage MAP2. This would involve a brief assessment of the dataset generated by the excavation, followed by a review of the excavation archive to establish the potential for further analysis. This assessment will take place in close consultation

with the client and the format for the final report will also be agreed at this stage of the work. The Harris Matrix, largely produced during the excavation programme will be completed and checked as part of the assessment. The assessment will involve the compilation of a brief archive report, detailing the stratigraphic history of the site, and outlining the significance of the structural, artefactual and environmental evidence. The assessment will examine the post-excavation requirements of the excavation areas only; however, the assessment report will be presented in conjunction with the evaluation report (*Section 3.8.4*) which will present the results of the evaluation trenching.

- 3.8.4 **Evaluation Report:** the results of the evaluation trenching will be presented as an evaluation report in conjunction with the Assessment report (*Section 3.8.2*). One bound and one unbound copy of a written synthetic report will be submitted to the Client, and a further two copies will be submitted to the Merseyside SMR. The report will include a copy of this project design, and indications of any agreed departure from that design. It will present, summarise, and interpret the results of the programme detailed above and will present an assessment of the sites history; the report will include photographs of any significant features. The report will also include a complete bibliography of sources from which data has been derived, and a list of further sources identified during the programme of work, but not examined in detail. The report will include a description of the methodology and the results. A list of the finds, and a description of the collective assemblage.
- 3.8.5 The report will have a summary and a methodological statement, and it will define any variations to the defined programme. It will include recommendations for further work. Illustrative material will include a location map, site map, a trench location map, trench plans, survey maps, and also pertinent photographs. It can be tailored to the specific requests of the client (eg particular scales etc), subject to discussion.
- 3.8.6 **Post-Excavation Analysis:** an appropriate programme of analysis should then be undertaken to prepare a research archive, as detailed in Appendix 6 of *Management of Archaeological Projects (MAP2)*. This will provide for the post excavation analysis of the results of the excavations areas only. The results of the evaluation will be presented in the evaluation report (*Section 3.8.4*). It is not possible to provide a finite quotation of costs for the final analysis and reporting until the results of the assessment are known, but a best estimate of costs has been submitted on the basis of the results of the work to date and is estimated at 50% of the excavation costs. A provisional programme of post-excavation analysis is proposed, on the basis of the anticipated recovery of material from the excavation; however, the extent of the programme can only be reliably assessed on completion of the fieldwork. The proposed programme anticipates analysis of the artefactual evidence and of the site stratigraphy leading to the production of a final report.
- 3.8.7 **Excavation Client Report:** following the analysis of the excavation results, a report will be written which will present, summarise, and interpret the results of the programme and will incorporate specialist reports on artefact assemblages and environmental reports. It will include an index of archaeological features identified in the course of the project, with an assessment of the site's development. It will incorporate appropriate illustrations, including copies of the site plans and section drawings all reduced to an appropriate scale. The report will consist of a statement of acknowledgements, lists of contents, executive summary, introduction summarising the brief and project design and any agreed departures from them, methodology, interpretative account of the site and associated structures, gazetteer of features, a complete bibliography of sources from which data has been derived, and a list of further sources identified during the programme of work.
- 3.8.8 **Publication:** the results of the programme of works detailed above should be placed in the public domain by a number of routes, firstly by publication and secondly by deposition of the archive in an appropriate museum. The cost implication of this element of the programme will be subject to the assessment and review.

4. WORK PROGRAMME

- 4.1 The following programme is proposed:

Evaluation Trenching

14 days will be required to complete this element

Mitigation Excavation

20 days will be required to complete this element

Watching Brief

The timetable is subject to that of the development

Interim Report

An interim report will be submitted within ten days of completion of the evaluation and excavation

Assessment Report

A 30 day period would be required to complete this element

- 4.2 The evaluation and excavation will be undertaken at the same time by two teams of archaeologists, so the fieldwork is programmed for 20 days.
- 4.3 OA North can execute projects at short notice once an agreement has been signed with the client.
- 4.4 The project will be managed by **Jamie Quartermaine BA Surv Dip MIFA** (Unit Project Manager) to whom all correspondence should be addressed. OA North adheres by the IFA's Code of Conduct and the Code of Approved Practice for the regulation of Contractual Arrangements in Field Archaeology.
- 4.4 The processing and analysis of any palaeoenvironmental samples will be carried out by **Elizabeth Huckerby BA, MSc** (OA North Project Officer), who has extensive experience of the palaeoecology of the North West, having been one of the principal palaeoenvironmentalists in the English Heritage-funded North West Wetlands Survey. Assessment of any finds from the excavation will be undertaken by OA North's in-house finds specialist **Chris Howard-Davis, BA, MIFA**.

APPENDIX 3: FIRST PHASE EVALUATION CONTEXT LIST

Context	Trench	Description
1	All	Topsoil
2	All	Subsoil
3	1	Fill of Pit 4
4	1	Rectangular pit
5	1	Fill of Pit 7
7	1	Rectangular pit
8	1	Fill of Pit 9
9	1	Rectangular pit
10	1	Fill of Pit 11
11	1	Rectangular pit
12	4	Irregularly-shaped pit
13	4	Fill of Pit 12
14	8	Ditch
15	8	Fill of Ditch 14
16	8	Fill of Ditch 14
17	8	Fill of Ditch 14
18	8	Gully
19	8	Fill of Gully 18
20	12	Fill of Pit 21
21	12	Pit
22	10	Backfill sealing layer 26
23	10	Layer of stone above 22
24	10	Layer of clay above 25
25	10	Layer of degraded stones
26	10	Possible road surface
27	10	Thin layer of stone
28	10	Possible levelling deposit
29	10	Layer of bricks
30	10	Black silty layer
31	10	Silty clay layer
32	10	Fill of cut 37
33	10	Fill of cut 37
34	10	Fill of cut 37
35	10	Fill of cut 37
36	10	Fill of cut 37
37	10	Substantial cut of uncertain function
38	14	Fill of cut 39
39	14	Linear feature
40	13	Foundation cut for brick structure 41
41	13	Brick structure
42	13	Clinker layer
43	13	Red brick rubble layer
44	13	Brick rubble layer
45	21	Cut of large industrial feature
46	21	Fill of 45

47	22	Clinker layer
48	22	Mid orange brown levelling layer
49	22	Thin spread sealing built-up area
50	22	Material building up bank
51	22	Mixed redeposited material
52	22	Clinker used to build up bank
53	22	Timber platform
54	25	Uppermost deposit of incline
55	25	Uppermost compacted layer of incline
56	25	Compacted clinker layer within incline
57	25	Redeposited clay within incline
58	25	Buried topsoil/subsoil
59	25	Fill of 60
60	25	Land drain
61	25	Fill of 62
62	25	Posthole
63	26	Uppermost incline deposit
64	26	Redeposited natural within clay incline
65	26	Clinker layer within incline
66	26	Redeposited natural layer within incline
67	26	Buried soil
68	29	Fill of 70
69	29	Brick land drain
70	29	Cut of land drain 69
71	29	Dump of industrial material
72	30	Cut for Stone culvert 73
73	30	Stone culvert
74	30	Fill of Culvert 73
75	38	Topsoil
76	38	Heavily disturbed layer
77	38	Black silty clay layer
78	38	Redeposited natural clay
79	38	Dark grey sandy clay
80	38	Tree bole
81	38	Dark grey sandy clay
82	38	Drain cut
83	38	Drain
84	38	Topsoil
85	38	Ditch cut
86	38	Brown clay fill of 85
87	38	Dark orange sandy clay
88	38	Dark grey sandy silt fill of 85
89	38	Boulder clay/grey sandy silt fill of 85
90	38	Grey sandy silt fill of 85
91	38	Dark grey sandy silt
92	38	Natural geology
93	33	Corner foundations of brick building
94	42	Topsoil
95	42	Dark grey silty sand industrial waste layer

96	42	Industrial waste layer
97	42	Brick structure
98	42	Crushed shale deposit; colliery waste
99	42	Black silt and crushed brick layer
100	42	Brick structure
101	42	Clayey sand layer
102	42	Coke layer
103	42	Red crushed brick layer
104	42	Backfill of construction cut for 100
105	42	Fill of 108
106	42	Foundation cut for 100
107	42	Cut truncating structures 97 and 100
108	42	Cut of uncertain purpose
109	42	Mid to dark grey sandy silt
110	42	Cinder fill of 111
111	42	Very large relatively modern truncation
112	44	Wooden platform; timbers
113	44	Wooden platform; bricks

APPENDIX 4: SECOND PHASE EVALUATION CONTEXT LIST

Context	Trench	Description
001	49	Natural yellow silty boulder clay natural with isolated coal deposits and sand
002	49	Topsoil - mid brown medium compact silty clay
003	49	Heterogeneous mid grey clay with clinker
004	49	Subsoil - mid brown silty clay
005	51	Ironstone/clinker/coal deposit
006	51	Field drains (red ceramic in clear cuts)
007	50	Fill of foundation cut
008	50	Linear cut of foundations
009	50	Field drain system (also 006)
010	53	Ironstone/clinker mix
011	53	Clinker
012	53	Lens of brick rubble/crushed brick
013	53	Ironstone fill of 014
014	53	Square test pit (geotechnical testing?)
015	52	Topsoil - mid brown grey silty clay
016	52	Subsoil - mid orange brown silty clay
017	52	Square cut in centre of trench
018	52	Stone wall
019	52	Stone culvert/drain
020	52	Fill of cut 017 - dark grey black, 90% coal/clinker
021	52	Cut of small pit
022	52	Fill of cut 021
023	52	Cut of small pit
024	52	Fill of cut 023
025	54	Topsoil
026	54	Subsoil
027	54	Clinker/mining waste deposit
028	54	Natural orange brown silty clay
029	55	Topsoil
030	55	Subsoil
031	55	Made ground deposit - grey silt mixed with ironstone/clinker
032	55	Natural orange-yellow silty clay
033	56	Topsoil
034	56	Subsoil
035	56	Made ground/mine spoil
036	56	Natural clay
037	57/58	Topsoil
038	57/58	Ceramic field drain network
039	57/58	Natural orange-yellow sandy clay
040	59	Topsoil
041	59	Natural clay
042	60	Topsoil
043	60	Subsoil
044	60	Natural clay

045	61	Topsoil
046	61	Pair of stakeholes (modern/unexcavated)
047	61	Fill of drain
048	61	Cut of drain
049	61	Natural orange compact sandy clay
050	62	Topsoil
051	62	Concrete linear feature - footpath or boundary
052	62	Sterile tree bole
053	62	Natural orange clay
054	63	Topsoil
055	63	Modern rubbish tip deposit
056	63	Bin bag layer (tip deposit)
057	63	Black/grey organic soil
058	63	Orange-grey sandy natural clay
059	64	Topsoil
060	64	Subsoil
061	64	Natural orange clay

APPENDIX 5: EXCAVATION CONTEXT LIST

Context	Trench	Description
101	B	Natural clay
102	B	Subsoil
103	B	Brick surface along the southern edge of culvert 105
104	B	Construction cut for culvert 105
105	B	Brick culvert
106	B	Brick wall along the northern edge of culvert 105
107	B	Construction trench for wall 108
108	B	Collapsed brick wall
109	B	Fill of construction trench 107
110	B	Brick wall along the northern edge of the trench
111	C	Field drain
112	-	Number not allocated
113	B	Brick surface along the eastern face of wall 108
114	B	Demolition layer
115	B	Topsoil
116	B	Construction trench for the Stanley Bank incline, along the western edge of the trench
117	B	Fill of 116
118	B	Concrete surface/mineshaft capping along the southern edge of culvert 105
119	B	Construction cut for surface 113
120	B	Fill of construction trench 119
121	B	Drain along the edge of brick column 123
122	B	Fill of 121
123	B	Brick column
124	-	Number not allocated
125	-	Number not allocated
126	-	Number not allocated
127	-	Number not allocated
128	A	Wooden platform/building foundation
129	A	Topsoil
130	A	Silty-clay subsoil
131	A	Natural clay
132	A	Stony clay layer sealing platform 128
133	A	Crushed brick/clinker foundation layer for platform 128
134	C	Orange-brown compact natural clay
135	C	North-west/south-east aligned drain?
136	C	Grey-orange clay fill of drain 135
137	C	Field drain
138	C	Fill of drain 137
139	C	East/west aligned raised slag/hard-standing footpath
140	C	Small brick structure at the south-east corner of trench
141	C	Foundation cut for brick structure 140
142	C	Fill of foundation cut 141
143	C	Subsoil
144	C	Topsoil

145	C	Redeposited clay at the base of cut 135
146	D	Topsoil
147	D	Pale grey-brown clay subsoil below 146
148	D	Compact orange/yellow silty-clay containing fragments of crushed brick; degraded bank material/upper fill of 150
149	D	Compact orange/yellow silty-clay lens below 148
150	D	Cutting for Stanley Bank Incline
151	D	Brick /rubble and greyish-black heterogeneous clinker deposit; below 149
152	D	Mottled yellow/grey clay and mudstone below 147
153	D	Compact brown/yellow silty-clay below 152
154	D	Greyish-black clay lens with clinker inclusion below 152
155	D	Yellow-grey clay within the lower horizon of 152
156	D	Organic dark grey-brown fine silty clay below 147
157	D	Pink-grey clay below 156
158	D	Pinkish-brown compact silty-clay lens within cutting 150 , below 147
159	D	Clinker lens/make-up layer below 157 and 158
160	D	Compacted crushed brick layer/dump below 157
161	D	Orange ironstone lens in the upper fill of the cutting (150)
162	D	Grey clay fill of drain 163
163	D	Brick drain along the western edge of cutting 150
164	D	Brown clay fill of drain on the western edge of cutting 150 , below 163
165	D	Pink-orange silty-clay make-up layer below 164
166	D	Clinker lens within make-up layer 165
167	D	Pale brown silty-clay below 165
168	D	Mixed clay layer below 157 , and fill of cutting 150
169	D	Make-up layer below 157 and 159 , and fill of cutting 150
170	D	Grey-black clay below 155 and 159 , and fill of cutting 150
171	D	Dark brown-grey clay below 168 and 169 , and fill of cutting 150
172	D	Compacted clinker layer within lower fill of 150 , below 168 and 169 , and fill of cutting 150
173	D	Pale grey clay make-up layer below 169 and 172 , and fill of cutting 150
174	D	Clay lens below 169 and 170
175	D	Substantial clinker deposit/tip within cutting 150 , below 181 and 191
176	D	Yellow clay below 174 and 175 , and fill of cutting 150
177	D	Orange silty-clay make-up layer below 168 , 172 and 173
178	D	Orange-brown silty-clay make-up layer below 168 , 171 and 177
179	D	Pink-orange compact clay below 171 and 178 , and fill of cutting 150
180	D	Pink-grey compact clay make-up layer below 175 and 176 , and fill of cutting 150
181	D	Dark grey organic clay/tree bole within the lower part of cutting, below 153 and 154 , and fill of cutting 150
182	D	Clay lens below 181 , and fill of cutting 150
183	D	Crushed brick within make-up layer 187 , below 175 and 182 , and fill of cutting 150
184	D	Brown-grey clay below 183 , 186 and 187 , and fill of cutting 150
185	D	Cut for drain
186	D	Fill of drain 185
187	D	Orange-grey clay within 189
188	D	Probable tree bole at the eastern corner of trench cut by cutting 150
189	D	Possible re-cut or cleaning of cutting 150

190	D	Natural orange clay below 189
191	D	Crushed brick layer
192	D	Collapsed stone revetment from along the top of cutting 150

APPENDIX 6: EVALUATION FINDS CATALOGUE

Context	Trench	Object	Qty	Material	Description	Date
3	1	1002	1	Pottery	Glazed white earthenware footing	Nineteenth / twentieth century
3	1	1016	1	Iron	Lump	Not closely dated
3	1	1021	1	Industrial debris	Fuel ash waste	Not closely dated
3	1	1026	1	Ceramic	Building material fragments	? Nineteenth / twentieth century
5	1	1018	3	Industrial debris	Fuel ash waste	Not closely dated
5	1	1033	3	Ceramic	Small tile fragments	Nineteenth / twentieth century
8	1	1006	2	Pottery	Asiatic Pheasant and transfer print-style glazed earthenware	Nineteenth century
8	1	1013	2	Iron	Objects; unidentifiable	Not closely dated
8	1	1028	2	Glass	Frosted glass	Twentieth century
10	1	1014	5	Iron	Plate fitting, four objects	Not closely dated
10	1	1020	2	Industrial debris	Fuel ash waste	Not closely dated
10	1	1025	1	Mortar		Not closely dated
10	1	1029	1	Glass	Window fragment	Nineteenth / twentieth century
10	1	1035	4	Textile	Rubber binding	Twentieth century
22	10	1022	1	Clay pipe	Stem with spur	?Nineteenth century
25	10	1030	1	Glass	Window fragment	Nineteenth / twentieth century
25	10	1039	3	Ceramic	Brick fragments; coarse orange with large inclusions	Nineteenth / twentieth century
26	10	1034	1	Ceramic	Drain pipe	Twentieth century
34	10	1007	3	Pottery	Glazed white earthenware bowl, pearlware plate	Nineteenth / twentieth century
34	10	1015	5	Iron	Bar, strip, nail, unidentifiable object	Nineteenth / twentieth century
34	10	1017	3	Industrial debris	Iron slag	Not closely dated
34	10	1019	1	Industrial debris	Slag	Not closely dated
34	10	1027	1	Glass	Clear window pane	Twentieth century
44	13	1003	3	Pottery	Jam jar rim, glazed white earthenware footing	Nineteenth century
44	13	1024	14	Glass	Clear mineral water bottle	Twentieth century
44	13	1032	1	Glass	Enamelled vessel	Twentieth century
56	25	1001	1	Pottery	Hand-painted blue tea bowl	Late eighteenth / mid nineteenth centuries
57	25	1009	5	Pottery	Dark glazed red earthenware storage jar	Eighteenth to twentieth centuries
58	25	1008	1	Pottery	Glazed white earthenware	Nineteenth / twentieth century
65	26	1010	1	Pottery	Brown glazed red earthenware	Eighteenth to twentieth centuries
68	29	1012	3	Pottery	Willow pattern serving dish, black glazed red earthenware, red earthenware	Eighteenth to twentieth centuries
91	38	1011	1	Pottery	Glazed white earthenware	Nineteenth /

						twentieth century
93	33	1038	13	Ceramic	Incomplete red moulded brick	Nineteenth / twentieth century
93	33	1040	1	Ceramic	Incomplete light orange brick	Nineteenth / twentieth century
100	42	1043	2	Ceramic	Complete red brick (heavy)	Nineteenth / twentieth century
Unstrat	37	1000	4	Pottery	Marmalade/jam jar, blue transfer ware, glazed white earthenware	Late eighteenth / mid nineteenth centuries
Unstrat	35	1004	1	Pottery	English porcelain tea cup	Nineteenth / twentieth century
Unstrat	5	1005	1	Pottery	Brown glazed grey bodied stoneware	Eighteenth to twentieth centuries
Unstrat	31	1023	2	Clay pipe	Stems	Post-medieval
Unstrat	31	1031	1	Ceramic	Glazed roof tile	Nineteenth / twentieth century
Unstrat	34	1036	2	Ceramic	Complete coarse orange brick	Nineteenth / twentieth century
Unstrat	22	1037	2	Ceramic	Complete red moulded brick	Nineteenth / twentieth century
Unstrat	22	1041	4	Ceramic	Yellow refractory brick	Nineteenth / twentieth century
Unstrat	22	1042	1	Ceramic	Complete red brick	Nineteenth / twentieth century
Unstrat	59	1044	1	Ceramic	Creamware tableware	mid eighteenth / nineteenth centuries
Unstrat	60	1045	2	Ceramic	Tablewares	Nineteenth century
Unstrat	63	1046	3	Ceramic	Stoneware jar and creamware	Nineteenth century
Unstrat	-	1047	1	Ceramic	Dark glazed earthenware	Nineteenth / twentieth century

APPENDIX 7: EXCAVATION FINDS CATALOGUE

Area	Context	Material	Category	Qty	Description	Period
A	Unstrat	Ceramic	Field drain	2	Small fragments of field drain	Modern?
A	Unstrat	Ceramic	Vessel	4	Glazed white earthenware	Nineteenth century or later
A	Unstrat	Ceramic	Vessel	2	Black-glazed redware, large vessel body fragments	Nineteenth century or later
A	Unstrat	Ceramic	Vessel	1	Grey stoneware bottle	Nineteenth century or later
A	Unstrat	Ceramic	Vessel	5	Grey stoneware jar fragments	Nineteenth century or later
A	Unstrat	Ceramic	Vessel	3	White bone china teacup fragments	Nineteenth century or later
A	Unstrat	Ceramic	Vessel	1	Late brown stoneware body fragment	Nineteenth century or later
A	Unstrat	Ceramic	Vessel	4	Underglaze transfer printed earthenware, (three blue, one green) body fragments	Late eighteenth century onwards
A	Unstrat	Ceramic	Vessel	2	Hand-painted glazed white earthenware, joining fragments	Nineteenth century or later
A	Unstrat	Ceramic	Vessel	1	Late industrial slipware	Nineteenth century or later
A	Unstrat	Ceramic	Vessel	1	Slip-decorated cream fabric earthenware	Nineteenth century or later
A	Unstrat	Ceramic	Vessel	1	White earthenware with brown slip decoration, body fragment	Nineteenth century or later
A	Unstrat	Ceramic	Vessel	1	Glazed white earthenware (Pearlware?), body fragment	Late eighteenth to early nineteenth century
A	Unstrat	Ceramic	Vessel	1	Grey stoneware	Nineteenth century or later
A	Unstrat	Ceramic	Tobacco Pipe	1	Undiagnostic stem fragment	Post-medieval
A	Unstrat	Glass	Vessel	1	Natural blue-green glass, blown vessel, body fragment	Modern?
A	Unstrat	Iron	Fragment	1	Unidentifiable fragment	Not closely datable
A	Unstrat	Wood	Unmodified	1		
A	Unstrat	Iron?	Bar?	1	Bar fragment	Not closely datable
A	Unstrat	Ceramic	Vessel	1	Over-glaze printed white earthenware body fragment	Early nineteenth century or later
A	Unstrat	Ceramic	Vessel	1	White earthenware body fragment	Early nineteenth century or later
B	Unstrat	Ceramic	Vessel	1	Large redware bowl with white internal decoration	Late nineteenth century
B	Unstrat	Ceramic	Vessel	3	Blue and white underglaze transfer printed earthenware, body fragments	Late nineteenth century
B	Unstrat	Ceramic	Vessel	5	White earthenware body fragments	Late nineteenth century
B	Unstrat	Ceramic	Vessel	1	White earthenware with dark blue underglaze painting, bowl	Late nineteenth century

B	Unstrat	Ceramic	Vessel	1	Large self-glazed redware storage vessel	Late nineteenth century
B	Unstrat	Ceramic	Vessel	5	Factory-made slipware	Late nineteenth century
B	Unstrat	Ceramic	Vessel	2	Grey stoneware jar fragments	Late nineteenth century
B	Unstrat	Ceramic	Vessel	1	Black-glazed redware teapot lid	Late nineteenth century or later
B	Unstrat	Ceramic	Vessel	1	Self-glazed redware	Late nineteenth century
B	Unstrat	Glass	Vessel	2	Natural greenish mould-blown vessel	Late nineteenth century or later
B	Unstrat	Glass	Vessel	1	Green with printed decoration	Modern
B	Unstrat	Iron	Fragment	6	Unidentifiable fragments	Not closely datable
B	Unstrat	Ceramic	Vessel	1	Blue and white underglaze transfer-printed base (foot ring)	Late eighteenth century onwards
B	Unstrat	Glass	Tube	1	Blown glass tube	Modern
B	Unstrat	Iron	Rod	1	Rod fragment	Not closely datable
B	Unstrat	Ceramic	Tobacco Pipe	2	Undiagnostic stem fragments	Post-medieval
B	Unstrat	Ceramic	Vessel	2	Green and white underglaze transfer-printed earthenware	Late eighteenth century onwards
B	Unstrat	Iron	Rail	1	Fish-bellied type rail, possibly associated with the Garswood-Pewfall incline	Nineteenth century

APPENDIX 8: TASK LIST

Task No.	Task	Days	Resources
Task 1	Project set up	1	JQ
Task 2	Contact/liaise with Project Team	0.5	JQ/SM/IM/AD
Task3	Archive familiarisation	1	SM
Task 4	Documentary research	5	IM
Task 5	Production of historical text	5	IM
Task 6	Production of site narrative	2	SM
Task 7	Integration of texts	4	SM
Task 8	Publication illustrations	3	Illust
Task 9	Edit publication text	3	JQ/SM
Task 10	Submission of draft publication to externals/ referee	0.25	JQ
Task 11	Quality assessment of publication text	2	RMN
Task 12	Incorporation of edits	2	JQ
Task 13	Prepare archive for deposition	2	pa
Task 14	Project management (to run concurrently)	2	JQ

APPENDIX 9: FINANCIAL BREAKDOWN

A58 BLACKBROOK DIVERSION, ST HELENS, MERSEYSIDE: POST-EXCAVATION COSTINGS

The total cost quoted for the post-excavation is a fixed price which is inclusive of all management, overheads, and other disbursement costs (travel and expenses), to undertake the programme of work as defined in this project assessment. Any other variations from this programme of work at the client's direction will require recosting. All staff costs are inclusive of holiday entitlement, as well as NI and Superannuation.

- Commercial in Confidence
- All costs are exclusive of VAT
- Salaries and wages inclusive of NI, Superannuation and overheads
- Project duration beyond 31-03-2007 will require adjustment for inflation

The costs for publication assume that the results will be published in the Industrial Archaeology Review. The costs for the editing following an external review are not included and similarly the journal costs (printing, desk-top publishing and distribution costs) are not included. Both these costs are subject to the form and output of the publication report and will be submitted once the publication text has been submitted.

Post-excavation Analysis and preparation of Publication Text £ 6370.00

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Figure 3: Location of excavation and evaluation trenches - North

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Figure 7: Plan of Trench C

Figure 8: Plan of Trench D

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PLATES

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Plate 4: Remains of the Stanley Bank Incline in Trench B

Plate 5: Remains of the colliery in Trench B

Plate 6: Brick column **123** in Trench B

Plate 7: Culvert **105** in Trench B

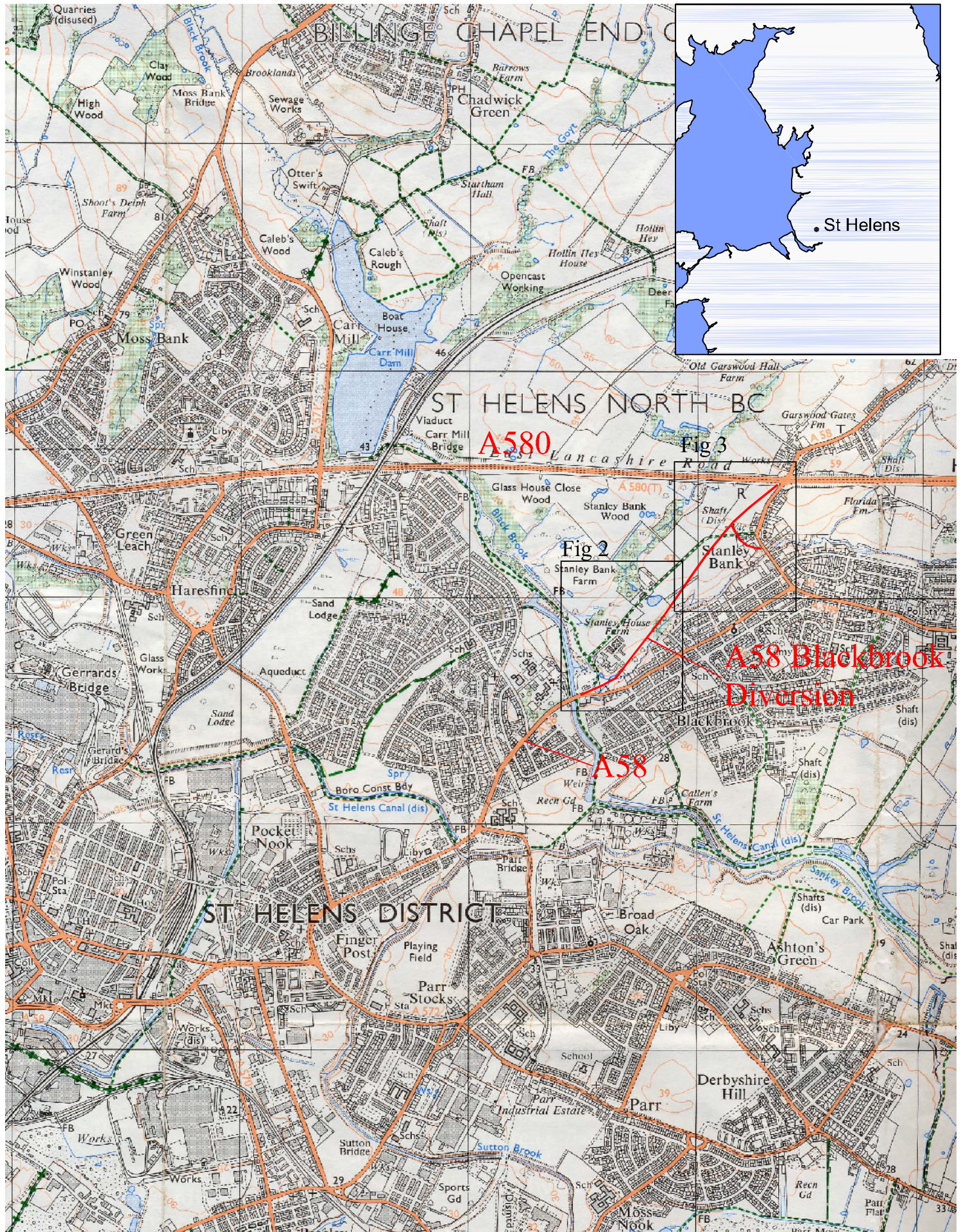
Plate 8: Linear feature **135** in Trench C, looking south-east

Plate 9: View of Trench C showing building **140** and clinker track **139**, looking west

Plate 10: Building remains, **140**, in Trench C

Plate 11: View of cutting in Trench D, associated with the Stanley Bank Incline, looking south-west

Plate 12: Drain **185** along the eastern edge of the cutting for Stanley Bank

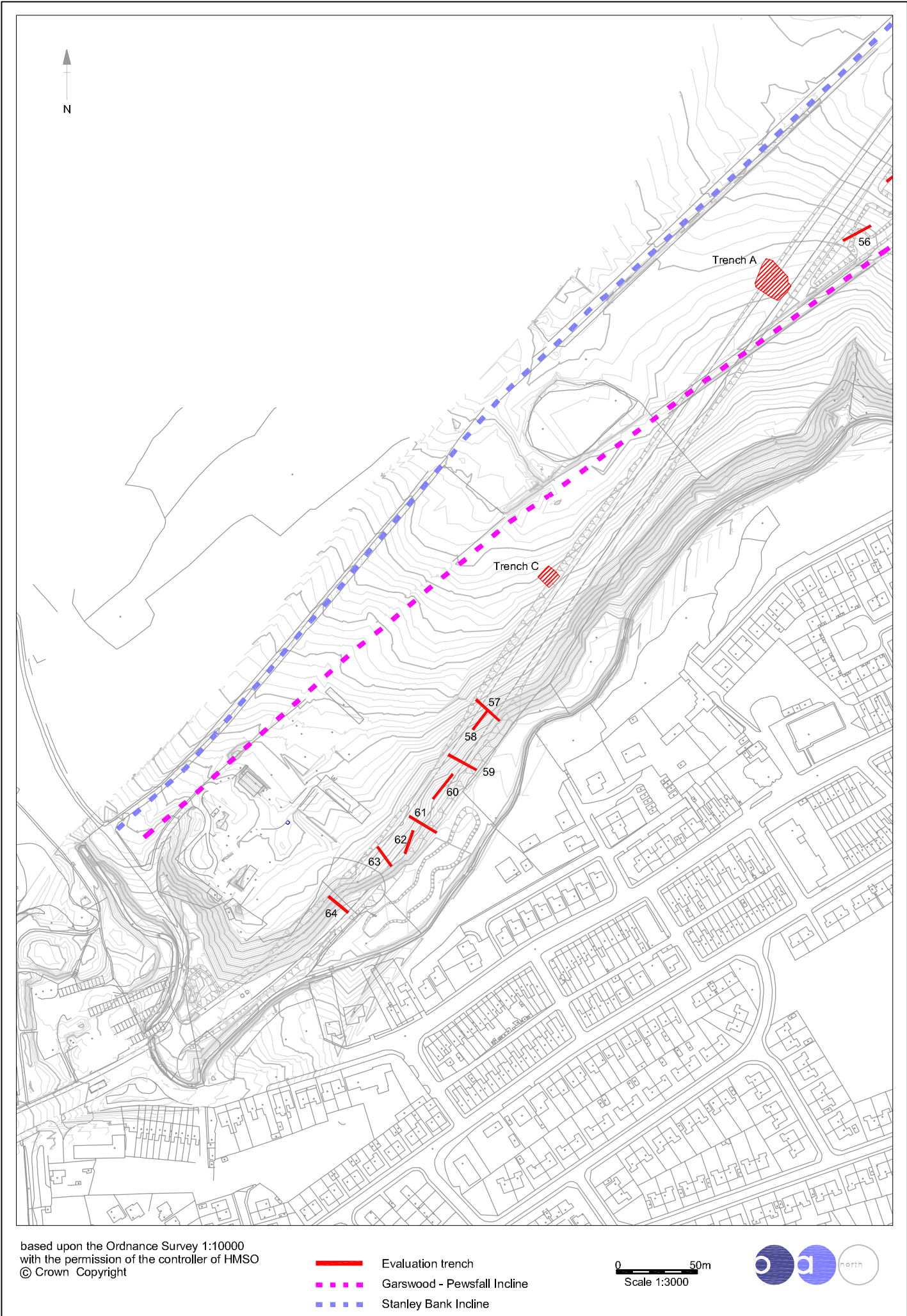


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0 250 500
 metres

Figure 1: A58 Blackbrook Diversion: Location Map



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- Evaluation trench
- - - Garswood - Pewsfall Incline
- - - Stanley Bank Incline

0 50m
Scale 1:3000



Figure 2: Location of Excavation and Evaluation Trenches - South

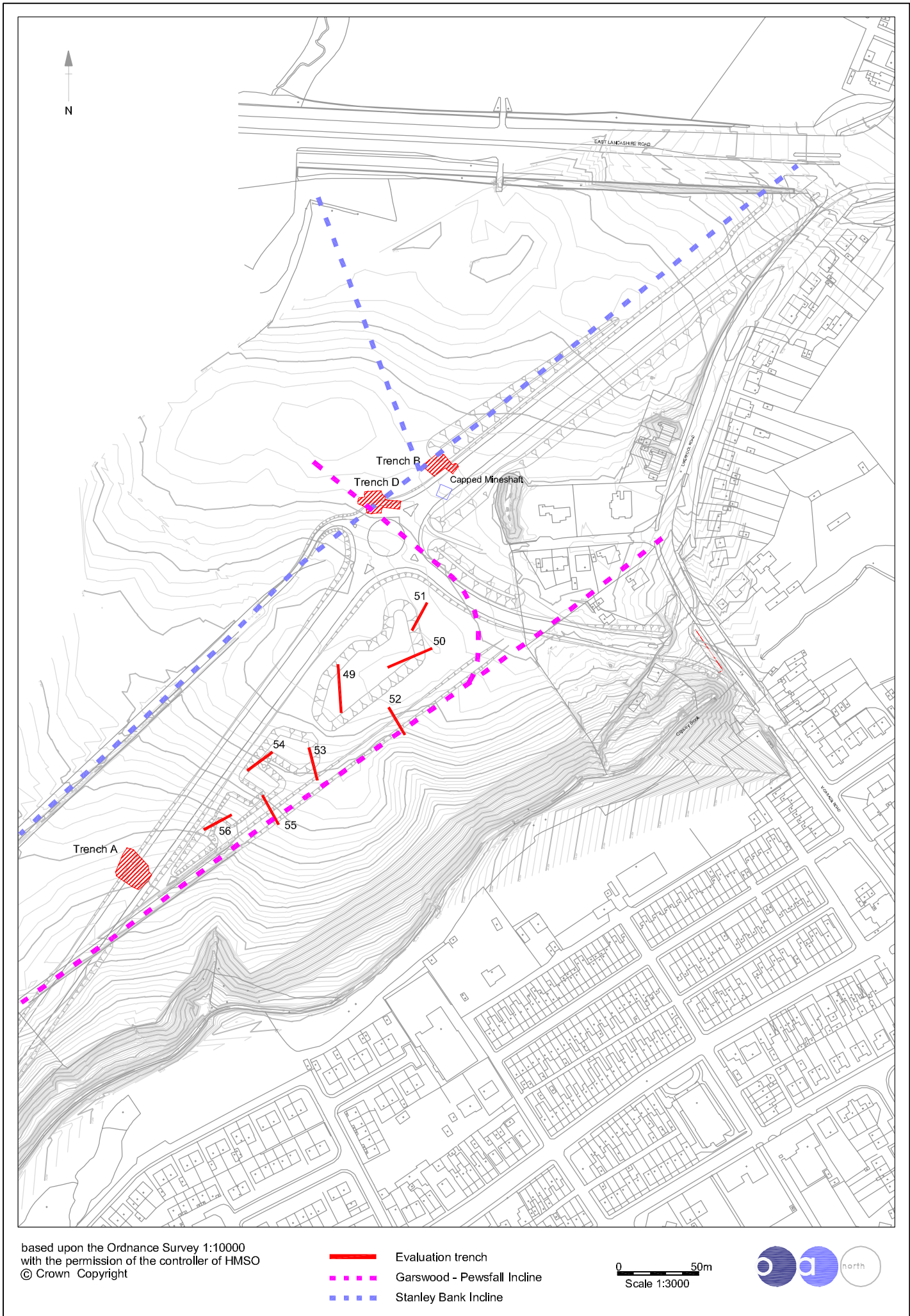


Figure 3: Location of Excavation and Evaluation Trenches - North

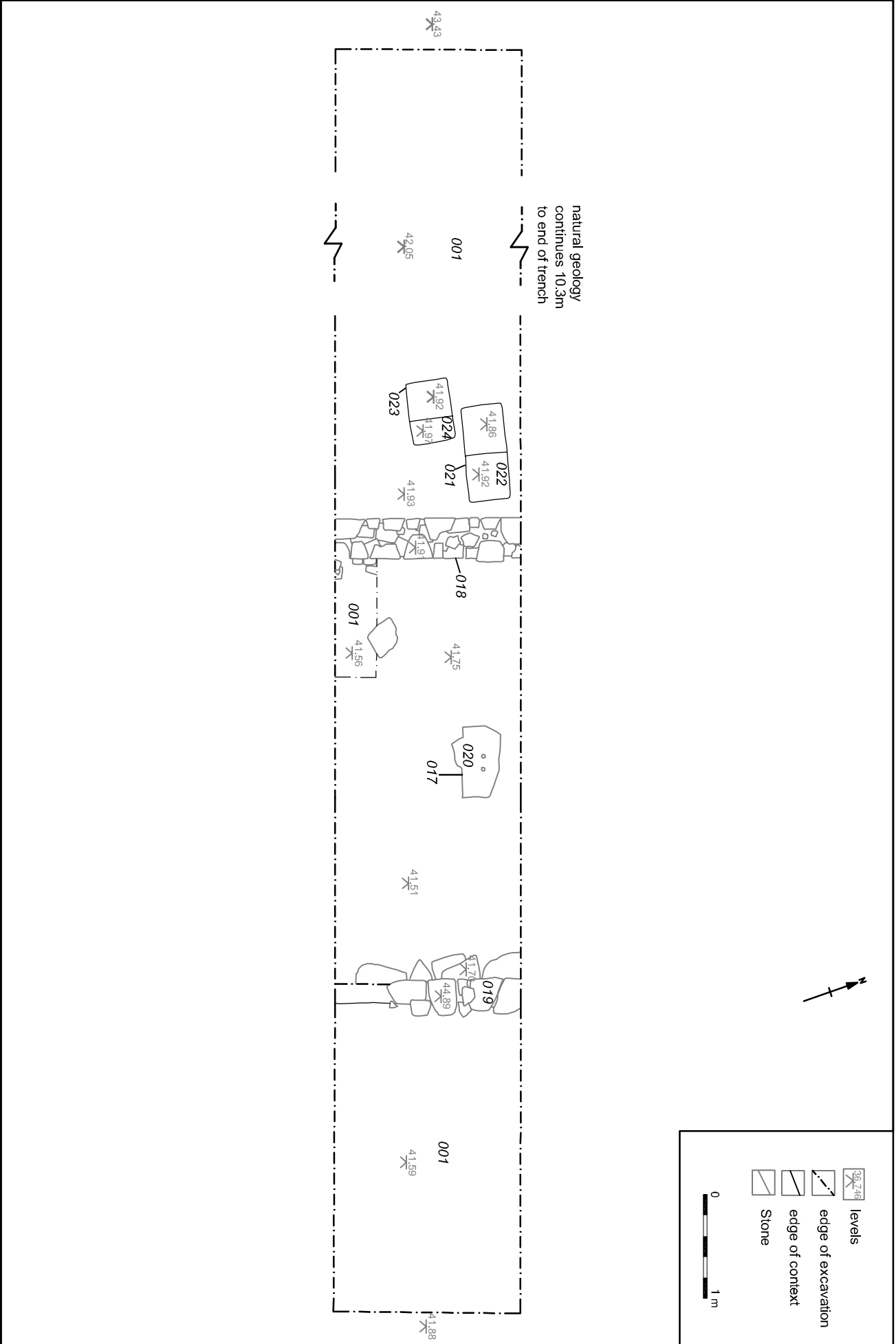


Figure 4: Plan of Evaluation Trench 52

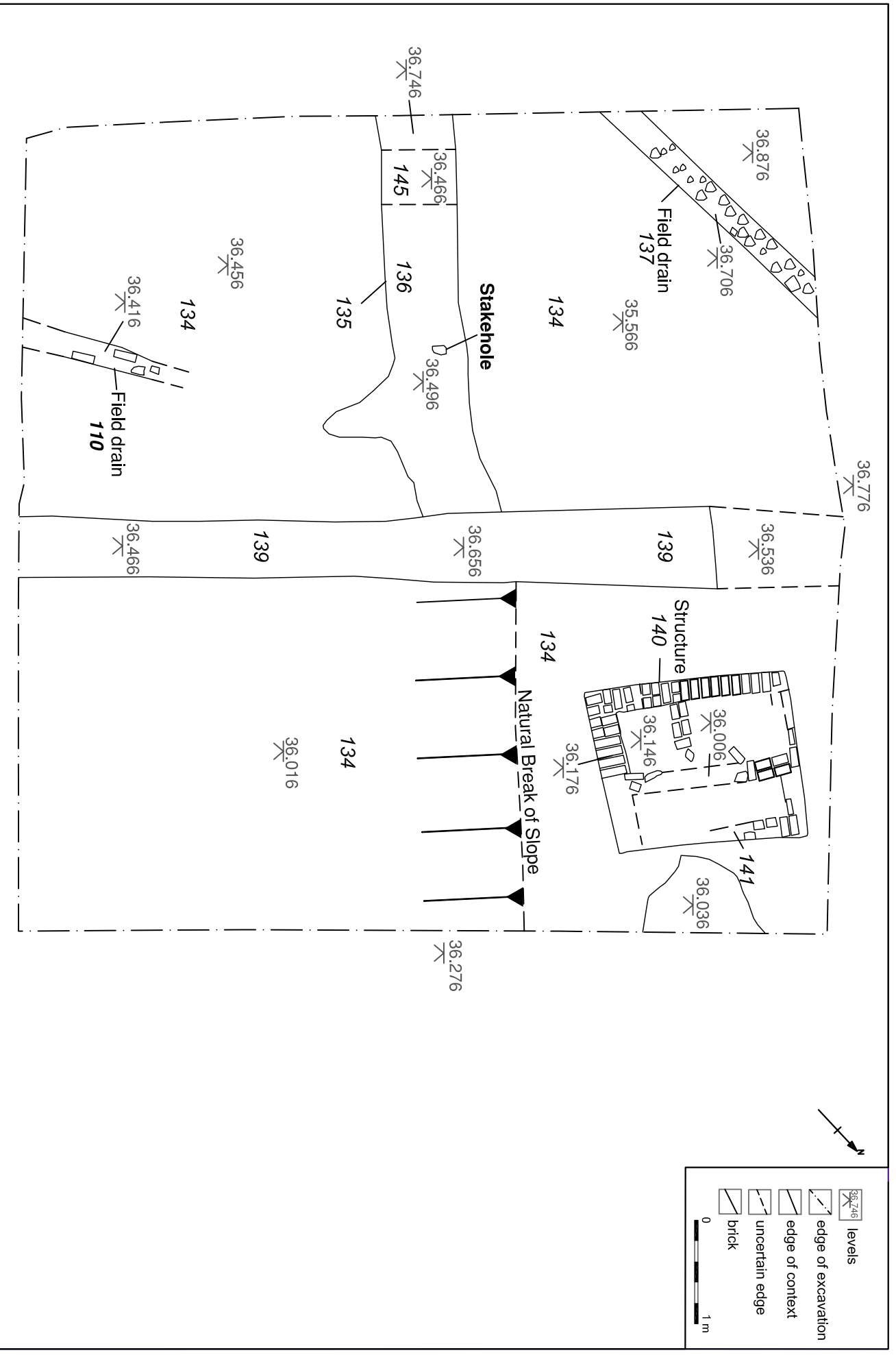


Figure 7: Plan of Trench C

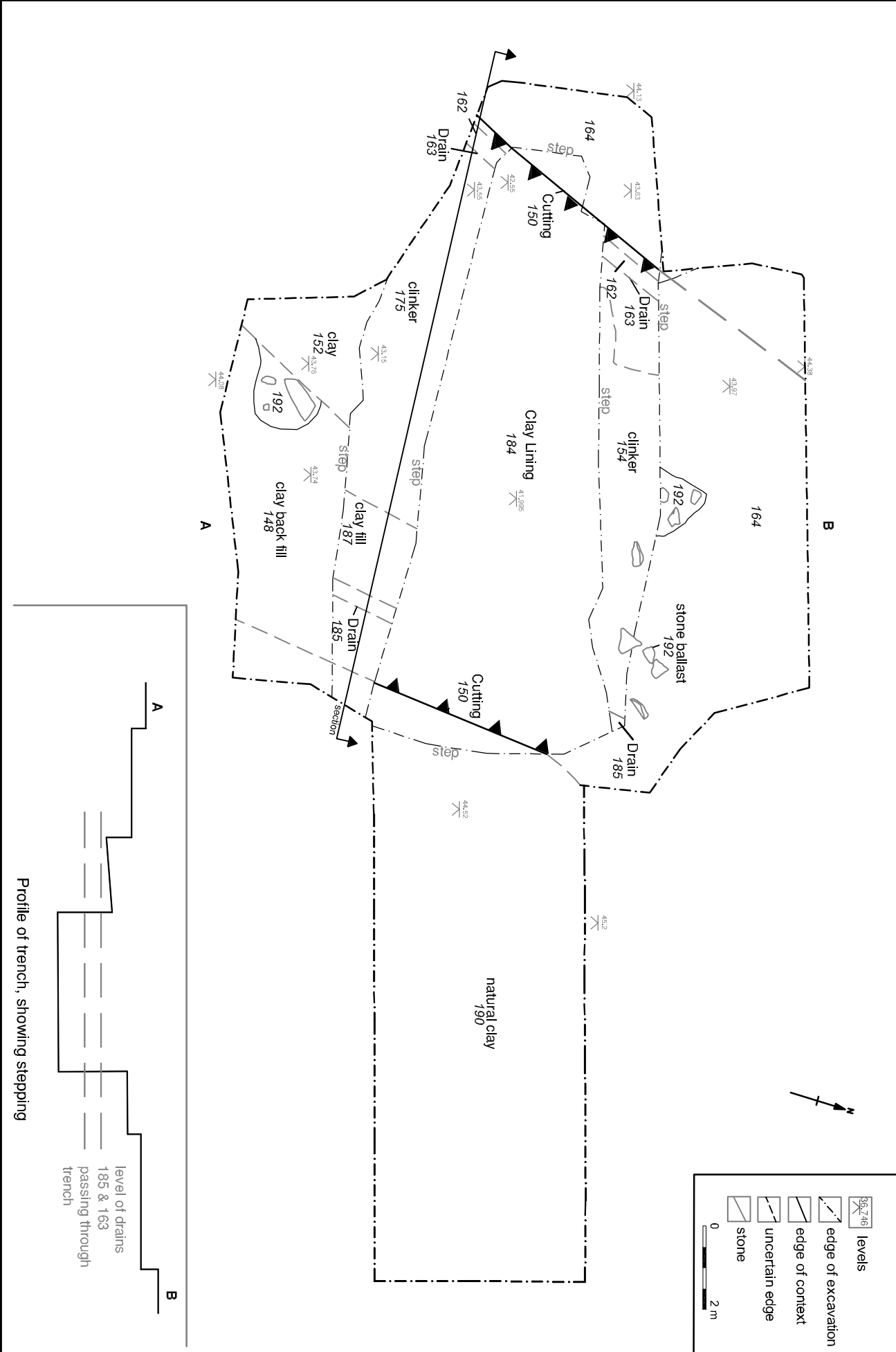


Figure 8: Plan of Trench D



Plate 1: View of wooden platform *128* in Trench A, looking north



Plate 2: View of platform *128*, showing collapsed timbers in the foreground



Plate 3: Timber lined 'post' socket in platform *128*



Plate 4: Remains of the infilled cutting for the Stanley Bank Incline in Trench B



Plate 5: Remains of the colliery in Trench B



Plate 6: Brick column *123* in Trench B



Plate 7: Culvert *105* in Trench B



Plate 8: Linear feature *135* in Trench C, looking south-east



Plate 9: View of Trench C showing building *140* and clinker bank *139*, look



Plate 10: Building remains, *140*, in Trench C



Plate 11: View of cutting in Trench D, associated with the Stanley Bank Incline, looking south-west



Plate 12: Drain *185* along the eastern edge of the cutting for the Stanley Bank incline