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**ARCHAEOLOGICAL EVALUATION AT
SMITHY WOOD, CHAPELTOWN,
SHEFFIELD, SOUTH YORKSHIRE**

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SUMMARY

Wardell Armstrong Archaeology were commissioned by Extra Motorway Service Group, to undertake an archaeological evaluation at Smithy Wood, Chapeltown, Sheffield, South Yorkshire (NGR SK 36833 95132) in advance submission of additional information in relation to a planning application for the construction of a service station and parking facilities at Junction 35 on the M1. Jim McNeil, of South Yorkshire Archaeology Service (SYAS) required a programme of archaeological evaluation to provide further information on the surviving archaeological remains prior to submission of this additional information relating to the planning application for the proposed development. The proposed development area has been subject to extensive mining that has pocked the landscape with bell pits within the northern and central area of the wood.

Mining activity in the area is thought to date from the late eighteenth century but documentary evidence from 1161 suggests iron ore was being mined and smelted by monks from Kirkstead Abbey on Thorpe Common, 1km west of the site. There has been previously no material dating evidence from the mine workings at Smithy Wood to substantiate such an early date, however, the suggestion of medieval iron ore extraction and smelting within the area is particularly significant to Sheffield given its iron and steel industrial heritage.

The archaeological evaluation took place over two weeks, starting on the 3rd of August 2015 and ending on the 15th August 2015. The evaluation involved the excavation of two trenches positioned over bellpits in order to record the shaft as well as to find and record any other associated features related to the pit. The bellpit in trench 7 comprised of a shaft, visible in plan and section with a spoil collar, the bellpit in trench 8 appeared to have been excavated in order to take advantage of a seam closer to the surface. The bellpit in trench 8 was therefore very different in appearance than the bellpit in trench 7, consisting of a complex series of backfilled material. No dateable evidence was discovered during the course of the evaluation.

ACKNOWLEDGEMENTS

Wardell Armstrong Archaeology would like to thank Extra Motorway Service Group, for commissioning the project, and for all assistance throughout the work. Wardell Armstrong Archaeology would also like to thank David Hodgkinson, Archaeological Consultant from Wardell Armstrong LLP and Jim McNeil, County Archaeologist from South Yorkshire Archaeology Service for their assistance throughout the project. Further thanks are extended to the staff at the County Record Office in Sheffield for their help during this project.

The current archaeological evaluation was undertaken by Ric Buckle, Karolina Siara, Sean Johnson and Sue Thompson. The report was written by Ric Buckle and Frank Giecco, and the figures were produced by Adrian Bailey and Helen Phillips. The project was managed by Frank Giecco, Technical Director for WAA. The report was edited by Richard Newman, Post Excavation Manager for WAA.

1 INTRODUCTION

1.1 Circumstances of the Project

- 1.1.1 In August 2015, Wardell Armstrong Archaeology undertook an archaeological evaluation on land at Smithy Wood, Sheffield, South Yorkshire (NGR SK 36833 95132; figure 1) prior to a planning application for the development of a service station. Previous phases of archaeological excavation had taken place in 2013, and revealed evidence of bellpits and drainage channels, possibly pre dating any mining activity. The study area comprised woodland between Thorpe Hesley and Chapelton, to the North of Sheffield, situated on the west side of junction 35 of the M1 motorway. The evaluation area consisted of 15ha of woodland, known as Smithy Wood, to the immediate south of Cowley Hill (A629) and west of the M1 motorway.
- 1.1.2 The proposed development area lies within a landscape containing evidence for medieval and post-medieval industrial activity. In particular there has been significant mining within the area of both coal and ironstone. The Starnell colliery worked the Silkstone coal seam from the mid to late 1800s. Mine workings in Thorncliffe and Silkstone are recorded dating to the early 1800s and the mining of Claywood ironstone may have been undertaken in the 1700s (WAA 2013b). The mining within the area is thought to date from the late eighteenth century but documentary evidence from 1161 (WA, 2013b) suggests iron ore was being mined and smelted by monks from Kirkstead Abbey on Thorpe Common, 1km west of the site. The South Yorkshire sites and monuments record (SMR) contains information relating to a significant number of mining features within Smithy Woods, but the exact function, construction, and date of origin of these features remain uncertain.
- 1.1.3 As the proposed development has the potential to impact on the bell pits as well as any previously undiscovered features relating to the pits, Jim McNeil of South Yorkshire archaeology service requested a second phase of archaeological investigation, in order that further information could be discovered from the bell pits. This is in line with government advice as set out in section 12 of the National Planning Policy Framework (NPPF, 2012).
- 1.1.4 This report outlines the archaeological investigation undertaken on-site, the subsequent programme of post-fieldwork analysis, and the results of this scheme of archaeological works.

2 METHODOLOGY

2.1 Written Scheme of Investigation

2.1.1 A written scheme of investigation (WSI) was submitted to Jim McNeil at South Yorkshire Archaeology Service by Wardell Armstrong Archaeology, in response to a request for an additional archaeological survey of the study area (Giecco, 2014). This also took account of ecological sensitivities. The written scheme of investigation was adhered to, and the work was consistent with ClfA's Standard and Guidance for Archaeological Field Evaluation (2014).

2.2 The Field Evaluation

2.2.1 The evaluation as described in the written scheme of investigation comprised the excavation of two potential bellpits. The overall aim of the evaluation was to establish the nature and extent of below ground archaeological remains relating to the bell pits.

2.2.2 The Yorkshire Archaeological Research Framework (Roskams & Whyman, 2005) identifies areas where archaeological knowledge is lacking and requires more input through developer funded and research based archaeological investigations. The Resource Assessment identifies the threat to the archaeological resource of the early modern period, including the destruction of hidden landscapes of underground mining, and also highlights the need to investigate and record examples of industry, such as quarries and examples of industrial production. The urgency for the need to record industrial sites is exacerbated by recent preference to develop brownfield sites rather the green belt.

2.2.3 The Yorkshire Archaeological Research Framework (Roskams & Whyman, 2007) additionally highlights the necessity of recording mining remains, and integrating above and below ground work with artefact studies, documentary studies and oral materials.

2.2.4 The investigation of early mining deposits is poorly represented in Yorkshire, and also suffers from no or scant dateable material. Not surprisingly, very few bell-pits are dated to the medieval period by tangible evidence. The remnants of mechanism associated with facilitating minerals from mines, such as horse gins or steam engines, may be represented and may also determine a date. Previous work that will be of

assistance in these investigations includes work by Martin Roe, such as Middleton Park Community Archaeological Survey (MAC, 2008).

2.2.5 In summary, the main objectives of the field evaluation were:

- to establish the presence/absence, nature, extent and state of preservation of archaeological remains and to record these where they were observed;
- to establish the character of those features in terms of cuts, soil matrices and interfaces;
- to recover artefactual material, especially that useful for dating purposes;
- to recover palaeoenvironmental material where it survives in order to understand site and landscape formation processes.

2.2.6 Turf, topsoil and subsoil were removed by a tracked mechanical excavator under close archaeological supervision, and took account of ecological protection. This included the removal of three trees over one of the bell pits, in order to allow access to the archaeology. The excavated areas were subsequently cleaned by hand and all features were investigated and recorded according to the Wardell Armstrong Archaeology standard procedure as set out in the Excavation Manual (Giecco 2012).

2.2.7 All finds encountered were retained, and were cleaned and packaged according to standard guidelines, and recorded under the supervision of Megan Stoakley, WAA Finds Officer.

2.2.8 Both excavated areas were backfilled following excavation, recording and observation from the Jim McNeil of South Yorkshire Archaeology Service.

2.2.9 The fieldwork programme was followed by an assessment of the data as set out in the Standard and Guidance for Archaeological Field Evaluation (CifA 2014a) and the Standard and Guidance for the collection, documentation, conservation and research of archaeological materials (CifA 2014b).

2.3 The Archive

- 2.3.1 A full professional archive has been compiled following the specifications according to the archaeological archives forum recommendations (Brown 2011). The archive will be deposited with the relevant authorities and will be available on request.
- 2.3.2 One hard copy and one digital copy of the report will be submitted to the South Yorkshire Sites and Monuments Record. South Yorkshire Archaeological Services and WAA support the **Online AccesS to the Index of archaeological investigations (OASIS)** <http://ads.ahds.ac.uk/project/oasis/>. The overall aim of this project is to provide an online index and access to the extensive and expanding body of grey literature created as a result of developer-funded archaeological work. Details of the present archaeological work will be made available by Wardell Armstrong Archaeology as a part of this national project.
- 2.3.3 The site archive shall contain all the data collected during the investigative work, including records, finds and environmental samples. It will be quantified, ordered, indexed and internally consistent. The curation of the site archive will be undertaken by Museums Sheffield and South Yorkshire Archaeological Services who have already been contacted regarding this project and have issued an accession number for this work (SHEFM 2014:11).

3 BACKGROUND

3.1 Location and Geological Context

3.1.1 The Smithy Wood study area comprised areas of woodland and pasture, between Thorpe Hesley and Chapelton, to the north of Sheffield, situated on the west side of Junction 35 of the M1 Motorway (Figure 1). The wooded northern portion of the site occupies a prominent hill with a high point of approximately 120m aOD, with steeply sloping ground to the west and south, which rises from approximately 99m aOD to 115m aOD. This hill is densely wooded crossed by numerous modern bike and 4x4 tracks. Three fields of pasture lie to the south occupying gently sloping ground with a high point of c.90m aOD in the south and c.80m AOD in the north.

3.1.2 The site is located in an area of former coal and ironstone mines, and the woodland is considered semi-natural ancient woodland. A much larger wood once existed that was split in the seventeenth century into Smithy Wood in the south and Cowley Wood to the north. Construction of the railway, motorway and mining facilities later reduced the size of the woodland and split the remaining woodland further (WAA 2013a).

3.1.3 The solid geology of the area comprises mudstone, siltstone, coal and ironstone and sandstone of the Pennine Lower Coal Measures Formation. This sedimentary bedrock formed approximately 314 to 316 million years ago in the Carboniferous Period (BGS, 2001). As a result there has been significant mining activity in the area. In particular, the Starnell Colliery worked the Silkstone seam from the mid to late 1800s. Mine workings in Thornccliffe and Silkstone are recorded dating to the early 1800s and the mining of Claywood ironstone may have been undertaken in the 1700s (pers. comm. South Yorkshire Mining Advisory Service). Visible evidence for this activity survives across the study area.

3.1.4 The soils of the study area comprise seasonally waterlogged clayey, fine loam over clayey and fine silty soils on soft rock, known as Dale soils (SSEW 1980).

3.2 Historical Context

3.2.1 Extensive amounts of research has been conducted in this area, including an archaeological desk-based assessment of the site which was produced by Wardell Armstrong LLP, a summary of which is provided below (Wardell Armstrong LLP 2014). This is based mostly on secondary sources and is intended only as a brief introduction to the history and archaeology of the site. References to the Historic Environment Record (HER) are included, where known.

- 3.2.2 **Prehistoric:** a single flint blade was discovered at Thorpe Hesley (Ref 00810/01). No date is given within the Sites and Monuments Record but a Neolithic date is assigned to the blade in a desk based assessment for Hesley Wood (Arcus, 2005)
- 3.2.3 **Romano British:** late Prehistoric/Romano-British: To the south east of Smithy Wood late prehistoric/Romano-British agricultural terraces have been observed (ESY947).
- 3.2.4 **Medieval:** evidence of early medieval activity was uncovered in Ecclesfield from the grounds of the Church of St. Mary. Groundworks in 1892 recovered a 10th century Anglo-Saxon cross.
- 3.2.5 No Domesday Book entry exists for early medieval settlement at Chapeltown. The closest Anglo-Saxon settlements are recorded at Ecclesfield, Tankersley and Wentworth which are described as small villages with modest assets (WA 2013a). The woodland at Ecclesfield is estimated at being 13.10 km², an extensive area seeing that the local population consists of a hamlet of four households. This suggests that the woodland was being exploited for its resources within this period.
- 3.2.6 **Medieval:** in 1161, monks from Kirkstead Abbey were granted land on Thorpe common that is 1km east of the site to construct two furnaces and two forges, as well as the rights to exploit minerals and gather wood. At the same time, the monastery was granted land near Ecclesfield. During the construction of the M1 motorway, which bisected Smithy Wood, a number of bell pits were uncovered and believed to be of medieval origin, although no material evidence was recovered (WA 2013a).
- 3.2.7 The name Smithy Wood could possibly derive from the utilization of the iron stone seams that underlie the area and from the production of charcoal from wood coppiced on the site. However, the name may also derive from the old name for Kirkstead Abbey Grange, 1km south-west of the site, which was known as Monks' Smithy Houses (Hall, 1937; Jones, 2013, cited in WA 2013a), though the name Smithy Wood does not appear in the historical record until the early seventeenth century. There are, however, two fields west of Smithy Wood known as Smithy Inge. Either this was an enclosed field belonging to a smithy, or it was enclosed from Smithy Wood. Either may have had a bearing on the naming of Smithy Wood (WA 2013a).
- 3.2.8 To the north of the Site, at Hesley Woods, a number of bell pits and slag heaps were uncovered and are associated with Monk Bretton Priory located to the north-east of Smithy Woods (Ref. 03884/01).

- 3.2.9 **Post-medieval and Modern:** a document dated to between 1590 and 1616 attributes Smithy Wood as ‘belonging to your Lordship’s forges’, and provides the first recorded use of ‘Smithy Wood’. The document refers to the wood as a managed coppiced area that provided charcoal most likely destined for the iron furnace at Chapeltown (known then as Chapel), which was established in the early seventeenth century. The furnace is shown on William Fairbank’s 1784 map of Ecclesfield (Fairbank’s, 1784). Coppicing continued at Smithy Wood until the late nineteenth century when it was decided to convert the Duke of Norfolk’s woodland into high forest (Jones, 1993 & 2013, cited in WA, 2013a).
- 3.2.10 There was abundant mining activity throughout Smithy Wood. Harrison’s 1697 survey (WA 2013a) records extensive shallow workings of coal and iron in the area now occupied by Chapeltown and Hesley Park. Eastwood writes in 1862 that ‘Smithy Wood abounds with pits, chiefly old workings, of no great depth, made in order to get the ironstone’ (Eastwood, 1862). A number of bell pits and associated features ranging from the medieval to modern period are recorded in Hesley Wood (Ref. 03884/01) and Chapeltown Park (Ref. 04775) to the north and east of the site.
- 3.2.11 A renewal of coal leases in 1825 (Locke) refers to the areas of Parkin Wood, Hesley Park and Smithy Wood, with extensive coal and ironstone being mined in the area. Furthermore, it refers to the use of steam engines being used to drain the mine shafts.
- 3.2.12 Numerous workings are shown on early Ordnance Survey maps of Smithy Wood, some of which are accounted by the Coal Authority (2013). Those not accounted for are believed to be older than 1872, and probably date from at least the 1850s (WA 1989). Accordingly, the shallow bell pits at the north of the site are believed to be older than the deeper shafts and spoil heaps at the south of Smithy Woods.
- 3.2.13 The workings in the south of the wood are recorded by the Coal Authority and follow the seam of Silkstone Coal running from east to west. Geological mapping indicates coal and iron stone were mined to the north and south of the site and coal measures in the centre. The area of ironstone at the north of the site is the location of many of the bell pits; this would be in agreement with Eastwood’s observation of shallow iron stone workings.
- 3.2.14 To the north of Site are the Hood Hill bell pits (Ref 03551/01). The site contains a series of shaft mounds, which have formerly been described as bell pits. The form and organization would suggest deep shaft workings characteristic of coal mining in the

early eighteenth century onwards. Particularly distinctive is the layout of the shaft mounds: they were sunk in a planned grid pattern, with approximately 20m shafts in each direction.

- 3.2.15 The area within Smithy Wood is pockmarked with bell pits. No dating evidence exists for these features but is likely that they date to the early post-medieval period when forges are first mentioned in the locality. When the site was visited in 1697 (Eastwood, 1862) the site was described as being full of shallow old workings, indicating that the majority of the mining remains visible in the late seventeenth century must pre date this period.
- 3.2.16 Mining of local ironstone had ceased by 1887, with no leases being renewed. Good quality ore was instead imported from Lincolnshire and Cleveland (WA 1995).
- 3.2.17 During the 1890s a colliery was established on the western edge of Smithy Wood. Smithy Wood colliery first appears on the 1906 OS map as a small colliery with a bank of coke ovens. The site was expanded in the 1930s with a new coke and gas ovens to the east of the original site. The colliery was closed in 1972 and the coking plant closed in the mid-1980s. The site was open-casted and later reclaimed, and is now occupied by Smithy Wood Business Park.
- 3.2.18 In the 1960s Smithy Wood was bisected by the construction of the M1 motorway, during which a number of bell pits were exposed. Construction of the motorway and link road also destroyed Smithy Wood cottage (seen on the 1854 OS map) and most of Chapeltown cricket ground; a surviving part of the ground remains within Smithy Wood as defined by a small bank and dry stone wall in places.
- 3.2.19 **Previous Archaeological Work:** The previous phase of evaluation at Smithy Wood consisted of six trenches over four separate bell pits, revealing that the area had been extensively utilized for mining and coppicing. There was no evidence of winding mechanisms, suggesting another method for the removal of material was used (WA 2013c). There was no artefactual material uncovered by this previous phase and no other archaeological features aside from the bell pits and associated mounds were discovered.

4 ARCHAEOLOGICAL EVALUATION RESULTS

4.1 Introduction

4.1.1 In order to obtain as much information as possible from the excavation of the bellpits it was necessary to devise a strategy that would enable a safe working environment at depth. This strategy involved stepping the trench at every 1.2m by a width of 1.5 metres. This was repeated several times in order to observe the profile of the shaft at greater depths. The area of excavation was limited to a 10 metre square to allow for ecological constraints regarding damage to adjacent trees. The excavation then proceeded in phases until a maximum depth of 4.8m was reached. As six trenches were excavated during the phase one evaluation it was decided to continue this numbering system, resulting in the two trenches of this current phase being numbered trenches 7 and 8 respectively.



Plate 1: Trench 7 pre excavation

4.1.2 After the undergrowth had been cleared from the surface of the pits, the next step was to excavate half of the 10 metre square to a depth of 1.2 metres and record the upper part of the shaft in section. Once this had been done, the remaining 5 metres of the square were excavated to a depth to 1.2 metres. The shaft was recorded in plan before excavating to another depth of 1.2 metres with a 1.5 metre step around 3 sides. Any further excavation below this depth necessitated extra health and safety measures to be undertaken, such as harnesses. This section was recorded from a safe distance, without being hand cleaned.

4.1.3 No archaeological deposits or features were observed during the course of the excavation. Constraints and circumstance meant that minor amendments had to be made to the original methodology these were made without compromising on health and safety or the overall aim of the project.

4.2 Results

4.2.1 **Trench 7:** The extraction site in this trench had the standard form for a bellpit, consisting of a spoil collar surrounding a concave centre to a depth of approximately 0.75m prior to excavation with a loose dark brown topsoil (**100**). No evidence was recorded for any surface features associated with the construction of the shaft of removal of ironstone from within the shaft. Some form of winding system would have been required during the working life of the bell pit/extraction shaft, the lack of any post holes or slots suggesting some form of portable timber framework onto which a framework could be mounted to create a primitive head gear. No datable finds or materials suitable for dating were recovered from trench 7.



Plate 2: Trench 7 showing context (104) and (105)

4.2.2 The natural substrate, deposit (**103**) was made up of a bright yellow very compacted clay. The natural substrate was cut by context (**104**), which was the cut for the bellpit shaft and observed in section to a maximum depth of 3m with an average diameter of 1.2m within the shaft itself (see Plate 3). The earliest deposit associated with the excavation of the shaft was a redeposited orangey brown natural clay (**102**) which formed the primary deposit of the spoil collar and had a maximum depth of 0.30m. This deposit was sealed by a substantial layer of dense grey clay with mudstone

inclusions and fragments of ironstone (**101**), which made up the majority of the spoil collar with a maximum recorded depth of 0.74m.

- 4.2.3 The earliest recorded deposits within the shaft itself were deposits 109 and 107 which may represent periods of slumping from the sides of the shaft and were made up of dumps of redeposited silty clay. Context 107 the later of the two deposits was sealed beneath a compact mid grey clay and mudstone with flecks of coal and small fragments of ironstone (**106**) which measured in excess of 1.3m in depth and was in turn sealed beneath the final layer of infilling (**105**). Context (**105**) was a mixed deposit containing yellow and grey clay with fragments of ironstone, and measured 0.90m in depth.



Plate 3: Trench 7 showing the shaft (104) in plan

- 4.2.4 No evidence of any lining were recorded for the shaft which given the density and strength of the clay would likely of been self-supporting, nor any signs of tooling within the clay sides of the shaft.



Plate 4: Profile of (104) shaft cutting natural

4.2.5 **Trench 8:** the first context within this extraction pit was a loose dark grey brown silty deposit containing decayed organic matter including tree roots and leaves number **(200)**. From initial observations it became apparent that this feature could not be described as a bell pit but was more of a small open cast quarry pit filled by backfilled by numerous tipped deposits from later working which surrounded the site. Context 200 sealed a layer of a densely packed compacted mid grey mudstone and clay deposit **(202)** with a maximum depth of 0.40m that was tipping in from an adjacent extraction pit.



Plate 5: Trench 2. North facing section showing (202) and (203)

4.2.6 The next tipped deposit in this sequence consisted of a redeposited natural yellow grey clay with mudstone fragments **(203)** with a recorded maximum depth of 0.55m. Below this was context **(204)** which was made up of a orangey grey clay layer

containing mudstone fragments this too was an upcast layer of redeposited natural and measured in excess of 0.80m in depth. The southern corner of the cut {205} for this quarry pit became visible following the removal of context 204 with the natural clay (201) visible on the southern and eastern edges of trench with an almost vertical recorded profile.

- 4.2.7 The uppermost fill that could be seen within the quarry pit itself was a grey brown clay with mudstone inclusion (206) measuring approximately 0.50m in depth. The base of this deposit was marked by a thin lens of firm yellow clay containing mudstone fragments (210) which in turn sealed a more substantial deposit of a closely packed mid brown grey clay containing small fragments of mudstone (211) which measured over 1.3m in depth. Although extremely difficult to see in plan it was clear in section that context 211 could be split into three distinct tip layers which the upper two layers being numbered context 212 and 209. The upper layer, context (209) consisted of a mid orange grey clay with mudstone inclusions measured 0.53m in depth and sealed context (212) which was a densely packed mid grey clay containing mudstone fragments and, again was a backfilled deposit measuring 0.70m in depth which in turn sealed context 211 proper (see figure 4). A distinct dump of redeposited natural (213) within context 209 was recorded.



Plate 6: Trench 8 showing (212) and (213)

5 FINDS AND ENVIRONMENTAL ASSESSMENT

5.1 Introduction

- 5.1.1 No archaeological finds were recovered, and no environmental samples were retained during the groundworks.
- 5.1.2 Special attention was given to the recovery of samples from secure deposits within both trenches, however no suitable samples that could have been utilised for dating were recovered from either trench.

6 CONCLUSIONS

- 6.1.1 Trench 7 had a clear circular spoil collar created from the excavation of the shaft with the upcast being placed around the shaft, the centre of the collar was defined by a concave depression giving the feature the typical appearance of a bell pit. The central concave hollow was formed from subsidence within the backfilled material within the shaft. During the course of the archaeological excavation, the shaft was exposed at greater depths in order to record a cross section through it. Contexts **(100)** **(101)** and **(102)** formed the spoil collar and in all likelihood were made up of materials excavated from the shaft as it was being sunk. The cut for the shaft **(104)** was clearly visible against the natural **(103)** as backfilled mine waste and dirty redeposited natural. Within the shaft lenses of different deposits were visible such as **(107)** which was evident on the West side of the shaft only. The process of creating a bellpit was a simple vertical shaft in this instance measuring no more than 1.2m until a seam was reached this would then be exploited until the pit became too unstable to be practical. The spoil created from the excavation of the shaft would be dumped in an adjacent shaft that had become unworkable. The evidence gathered from the excavation of the bellpit within trench 1 conforms to this practice being carried out within the study area.
- 6.1.2 Ascribing a date to a bellpit is extremely difficult due because of the total lack of any datable finds associated with early mining practices and absence of any samples suitable for dating. Any discovery of above ground workings would have been of great use for dating purposes, however no dateable finds or above ground features were encountered within trench 1. The utilisation of the bell pit has a very long history going back to the prehistoric period all the way to the early 19th century when they were still being used for small scale mineral extraction. This adds to the difficulty in dating such features, when there is no clear documentary evidence of datable material.
- 6.1.3 Trench 8 offered more challenges than were encountered within Trench 7, with regard to logistical and ecological constraints. The 10 metre square had to be reduced to an 8 metre square in order to minimise the impact upon the adjacent trees. This feature had also been heavily damaged by off road vehicles and was approximately 2 and a half metres below the adjacent path. This feature was selected as it was typologically different to the bell pit excavated in Trench 7 with no spoil collar evident surrounding

the much larger concave hollow that characterised this feature. It is clear that this feature should be referred to as a quarry pit rather than a bell pit.

- 6.1.4 On reducing the ground level to the first step of 1.2 metres a series of dumped backfilled layers **(203) (204)** could be observed in the East facing section. These layers had upcast mudstone fragments mixed with grey clay, similiar in makeup but not form to the spoil collar observed in Trench 7. It is worth noting that just outside the trench there was another quarry pit which complicated the sequence of fill deposits.
- 6.1.5 The centre of the concave could not be reached until the second step was excavated due to its relative depth and disturbance caused by off road vehicles using the site for recreational use. On excavation of the second step it became clear that there was no narrow shaft cutting through the natural clay as observed in Trench 7 but rather a series of dumped backfilled deposits filling a much larger open cast pit. This was evident in plan and also in section, particularly within the North and West facing section which recorded the near vertical cut of the quarry pit (see figure 4).



Plate 7: Trench 8 West facing section

- 6.1.6 The evidence gathered within this trench may indicate that the iron stone seam had been closer to the surface than in Trench 7, which would then negate the need for a shaft to be sunk. It is possible that the area within Trench 8 was more an opencast surface working because the seam may have been closer to the surface than the subterranean bell pit workings as found in Trench 7.
- 6.1.7 As one of the prime reasons in undertaking this work was to gain a better understanding of the chronology of the mineral extraction at Smithy Wood, some attempt must be made to enhance the known chronology of the site. Without any

absolute dating from any of the fieldwork we need to assess the site on the typology of the features, the geology and the limited documentary evidence that exists for the site. It is clear that the mining remains within the current proposed development area relate to the extraction of Iron Stone, coal mining evidence in the area is widespread but is concentrated to the south of the site and to the north in Hesley Wood.

- 6.1.8 The earliest references to medieval mining in the vicinity to Smithy Wood relate to both Kirkstead Abbey and Monk Bretton Priory which were both involved in the extraction of Ironstone from at least the 12th century. Mineral extraction from this period may have been undertaken within what is now defined as Smithy Wood in this period but there is no conclusive evidence to confirm this.
- 6.1.9 The first reference that can be linked to the site itself relates to a survey of 1697 described by the Rev Eastwood in 1862 that 'Smithy Wood abounds with pits, chiefly old workings, of no great depth, made in order to get the ironstone' (Eastwood, 1862). The fact that he clearly describes shallow working rather than bell pits suggests that this area is likely to occur where the Iron stone deposits are closest to surface. This corresponds the high ground within the north east corner of Smithy Wood and extending to the north into what is now defined as Hesley wood. It is possible that the old workings described in 1697 could be in the area of Trench 8 and refer to this type of feature. It makes sense that the earliest iron stone mining would be concentrated on the high ground where the iron stone was closest to surface and easiest to extract, using quarry pits. If this theory is correct it would then be highly probable that the more obvious bell pits would be targeting the deeper iron stone deposits on the margins of the main outcrop and would therefore be later than the quarry pits.
- 6.1.10 The survey of 1697 states that the workings were chiefly old workings, which indicates that there were some small scale mining still going on in the vicinity. The dating and duration of this later mining is very hard to date with any certainty other than giving it a broad date range from the 17th century through to possibly the early 19th century when small scale mining in the north of Smithy Wood shifts to far larger mining operations to the south and west of Smithy Wood concentrating on the Silkstone Coal seam.

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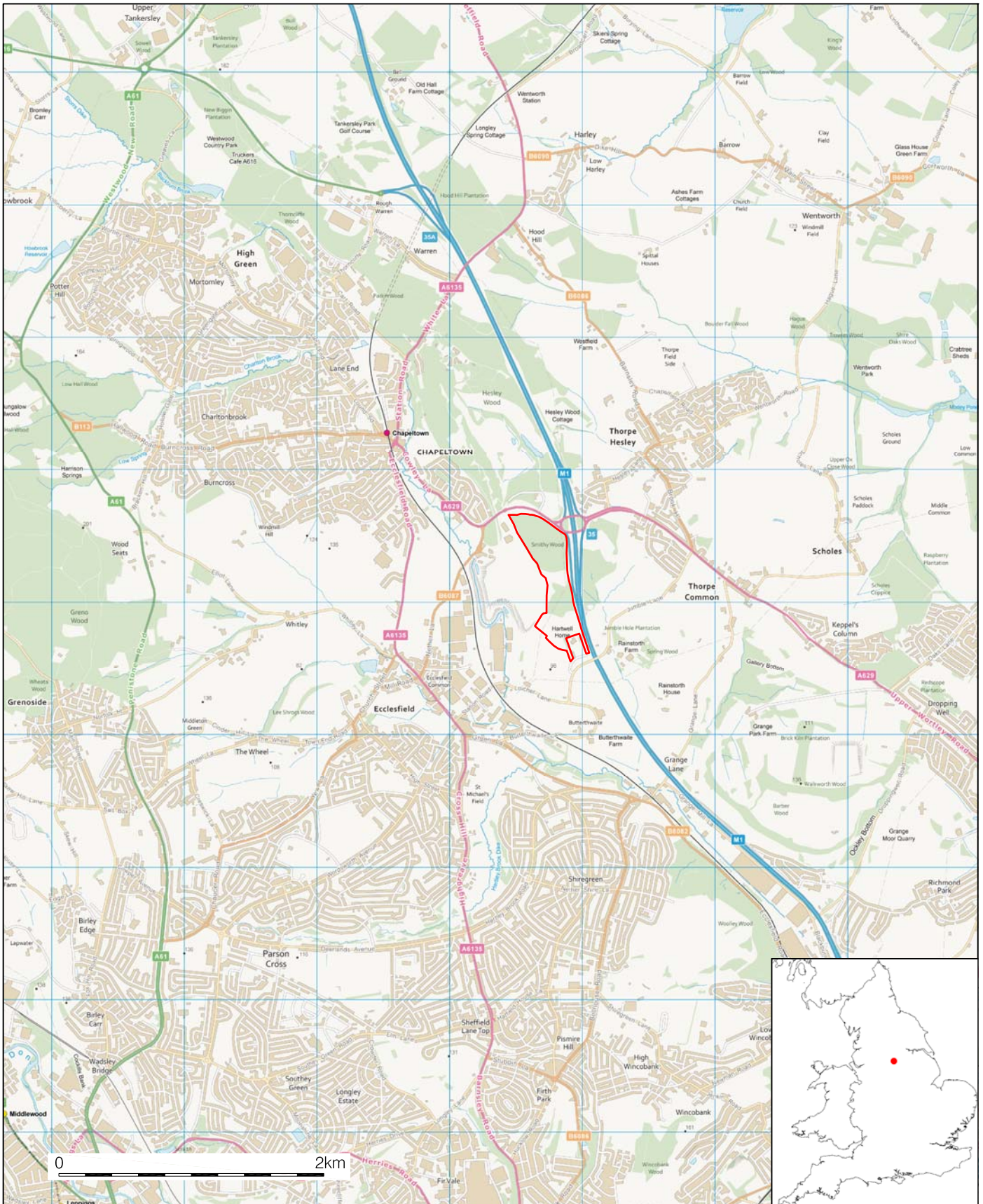
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APPENDIX 1: CONTEXT TABLE

Context Number	Context Type	Description
100	Deposit	Topsoil
101	Deposit	Grey upcast
102	Deposit	Orange brown upcast
103	Deposit	Yellow nat
104	Cut	Shaft
105	Deposit	Grey Backfill
106	Deposit	Mid grey backfill
107	Deposit	Backfill
108	Deposit	Backfill
109	Deposit	Backfill
200	Deposit	Topsoil
201	Deposit	Natural
202	Deposit	Upcast
203	Deposit	Upcast
204	Deposit	Upcast
205	Cut	Cut of backfill
206	Deposit	Backfill
207	Deposit	Disturbed Subsoil
208	Deposit	Wheel rut
209	Deposit	Grey brown deposit
210	Deposit	Yellow clay
211	Deposit	Mudstone dump
212	Deposit	Grey
213	Deposit	Grey brown dump

APPENDIX 2: FIGURES






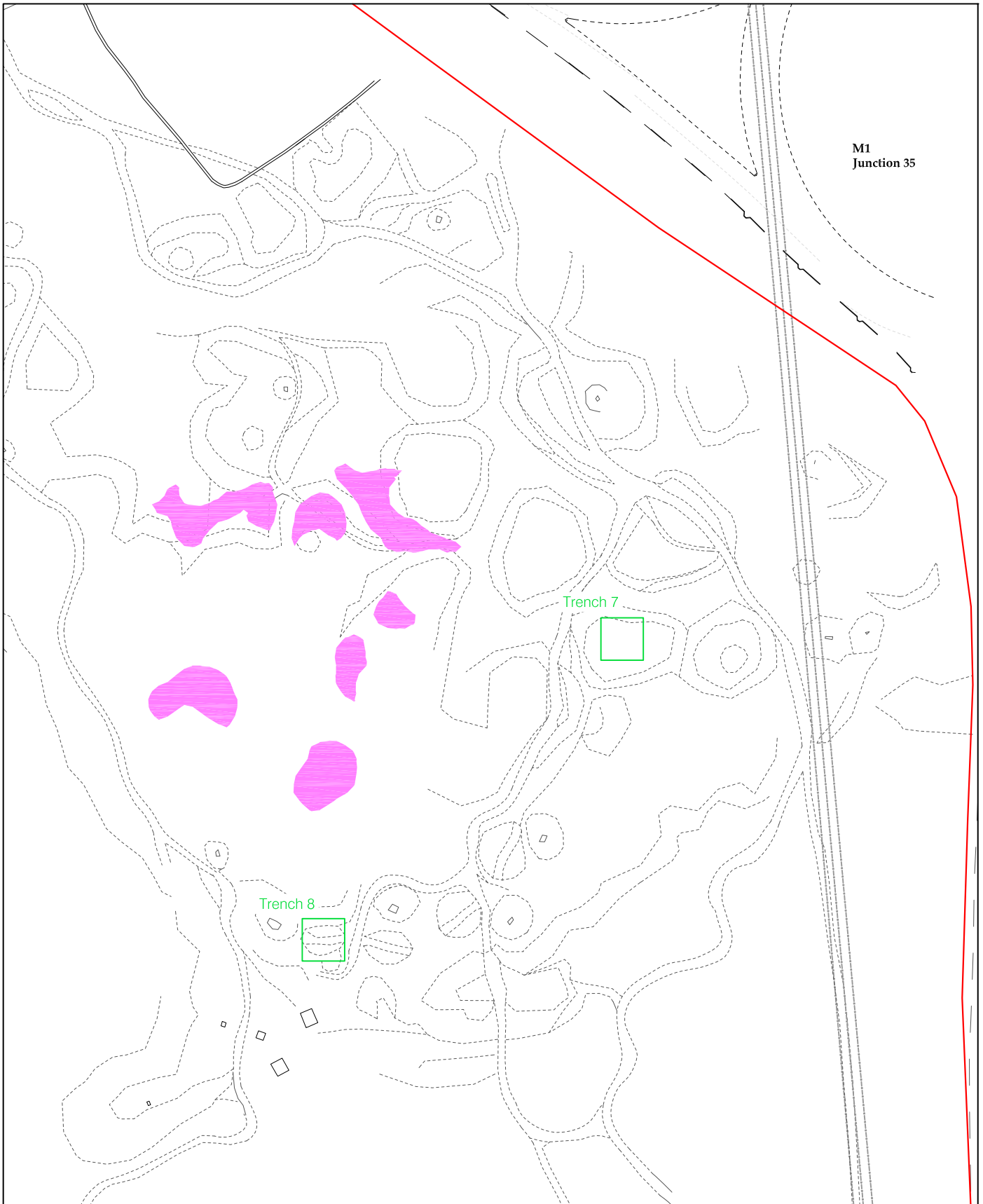
 <p>Wardell Armstrong Archaeology 2015</p>	<p>PROJECT: Smithy Wood, Chapeltown, Sheffield, South Yorkshire</p> <p>SCALE: 1:40,000 at A4</p> <p>REPORT No: CP11348</p> <p>CLIENT: Extra Motorway Service Group</p> <p>DRAWN BY: AB</p> <p>DATE: August 2015</p> <p>FIGURE: 1</p>	<p>KEY:</p>  <p>Site boundary</p>	 <p>Reproduced by permission of Ordnance Survey on behalf of The Controller of Her Majesty's Stationery Office. © Crown copyright. All rights reserved. Licence number 100019512</p>
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Figure 1: Site location.








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Figure 2: Trench location plan.

PROJECT:

Smithy Wood, Chapelton,
Sheffield, South Yorkshire

CLIENT:




Extra Motorway Service Group

SCALE: Plan 1:100/Sections 1:50 at A3

DRAWN BY: HP/AB

DATE: August 2015

KEY:

- (101) Context number
-  Height mAOD
-  Section location
-  Limit of excavation

REPORT No:

CP11348

FIGURE:

3

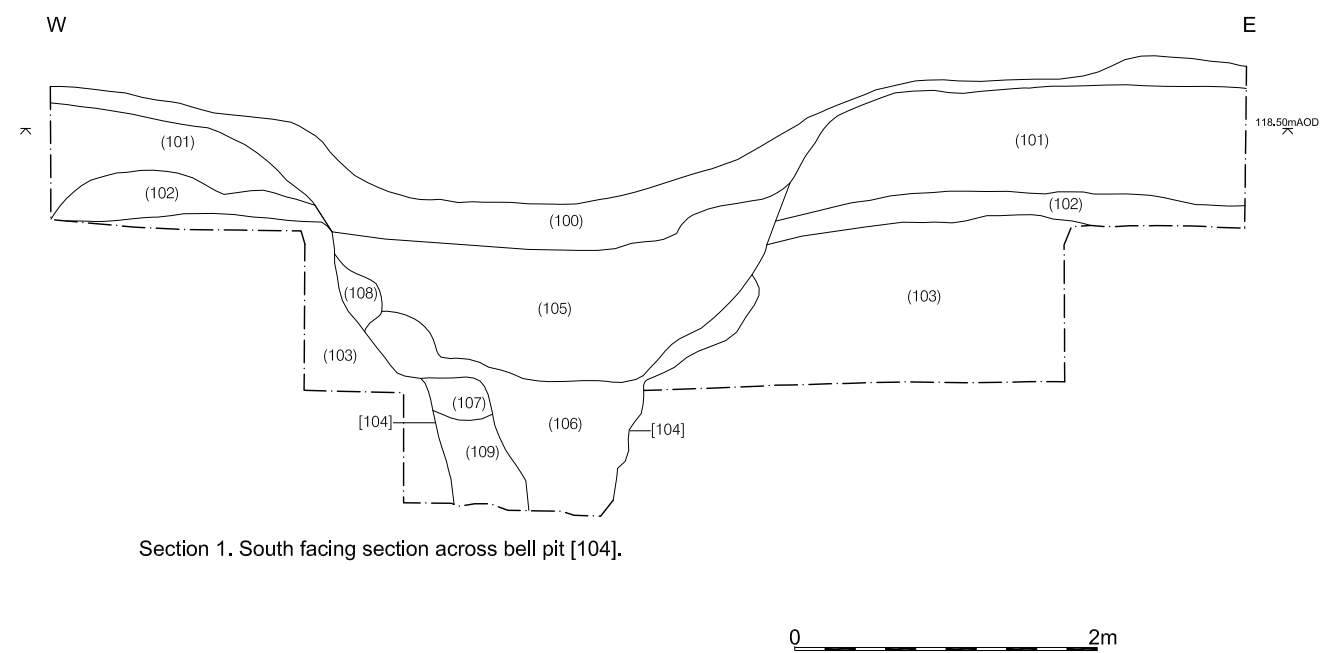
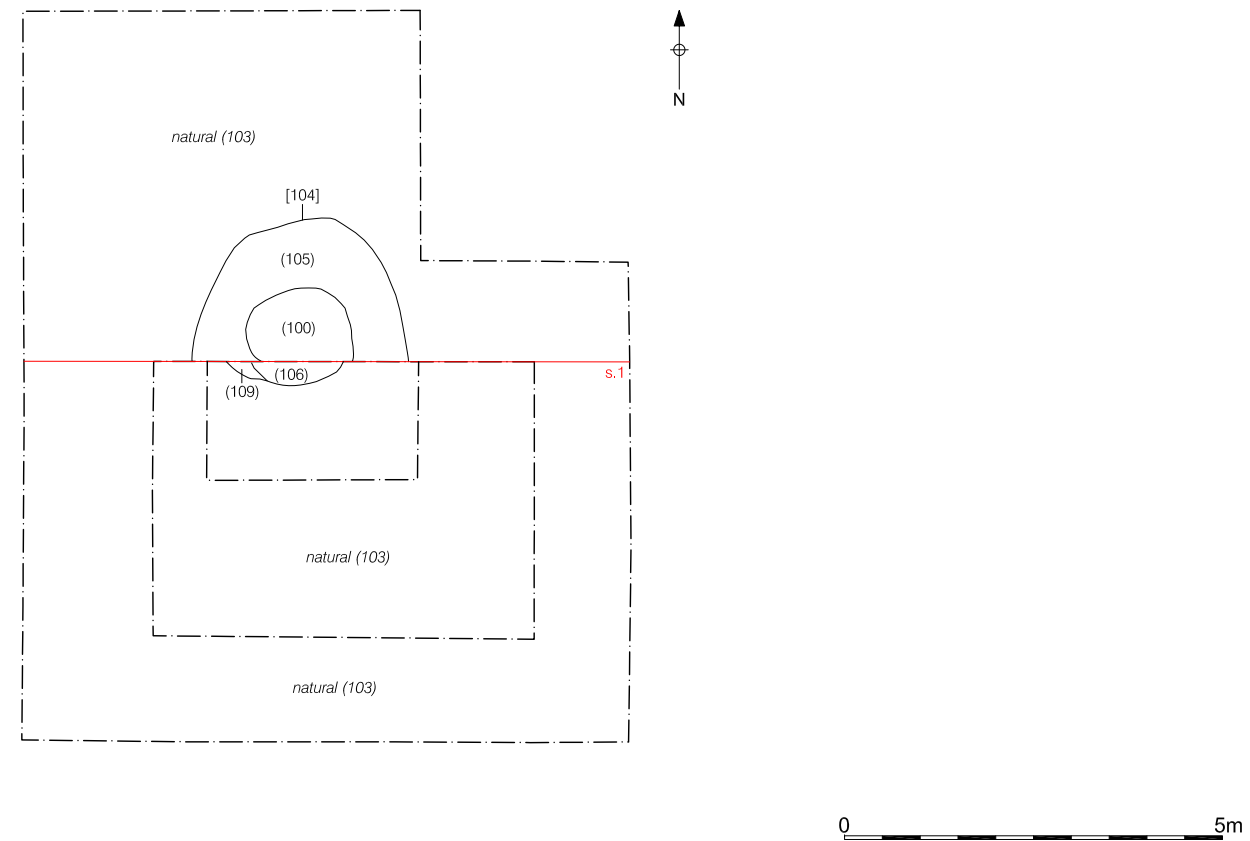


Figure 3: Trench 7; plan and sections.

PROJECT:

Smithy Wood, Chapeltown,
Sheffield, South Yorkshire

CLIENT:




Extra Motorway Service Group

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DRAWN BY: HP/AB

DATE: August 2015

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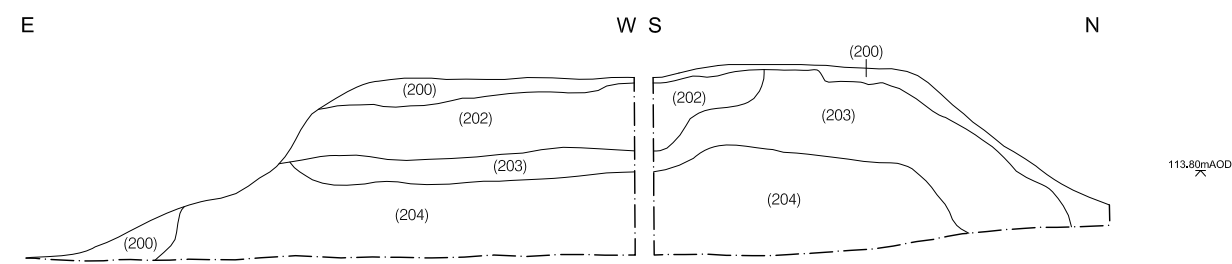
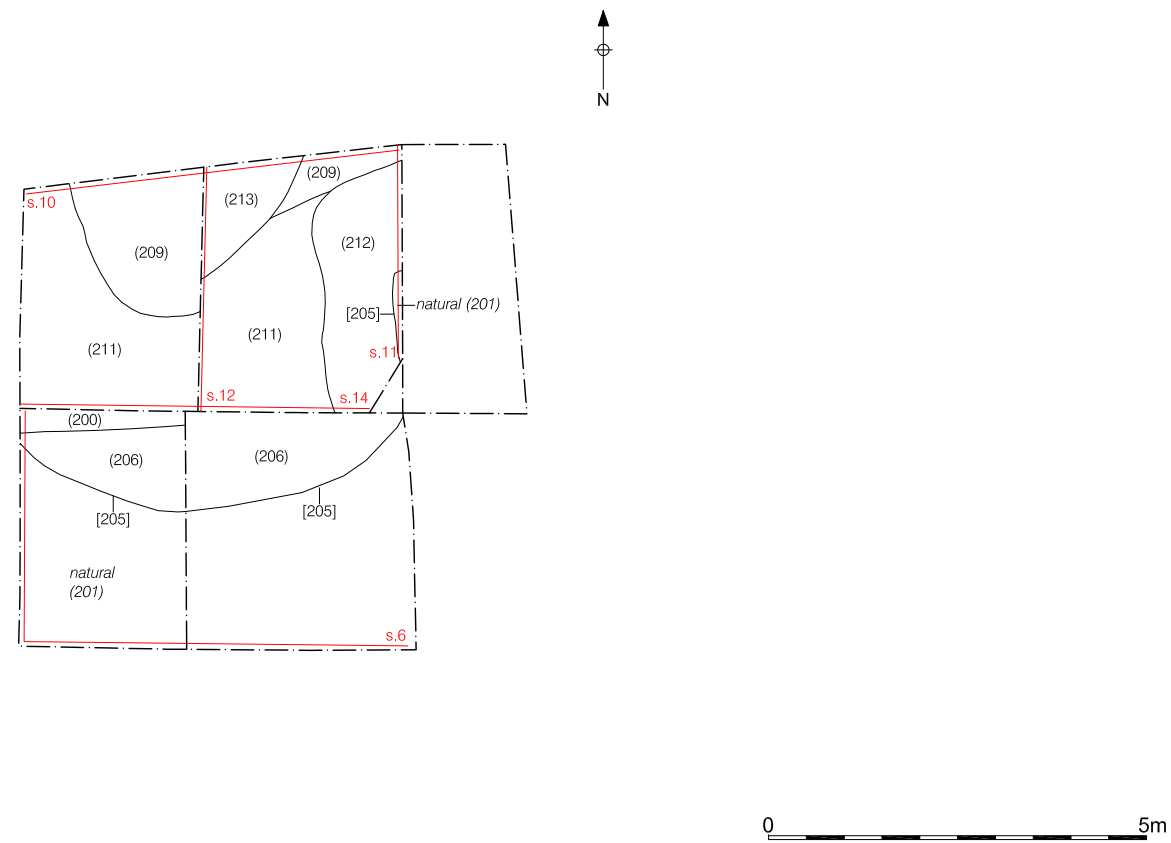
- (101) Context number
-  Height mAOD
-  Section location
-  Limit of excavation

REPORT No:

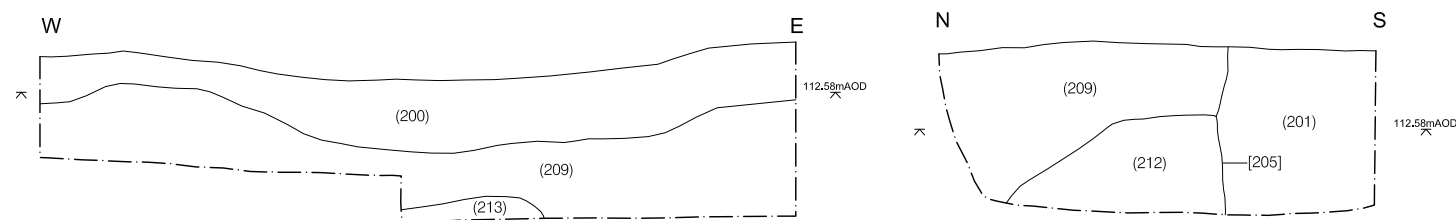
CP11348

FIGURE:

4

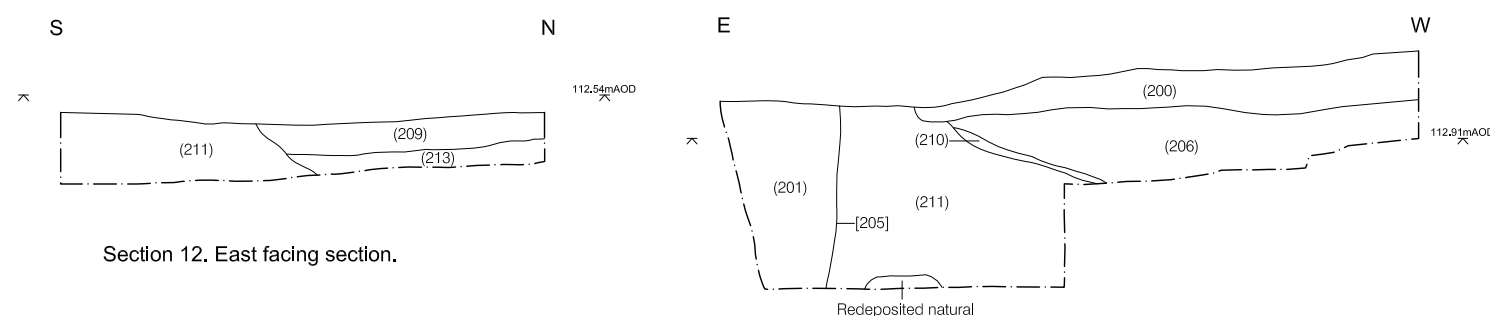


Section 6. North and east facing sections.



Section 10. South facing section.

Section 11. West facing section.

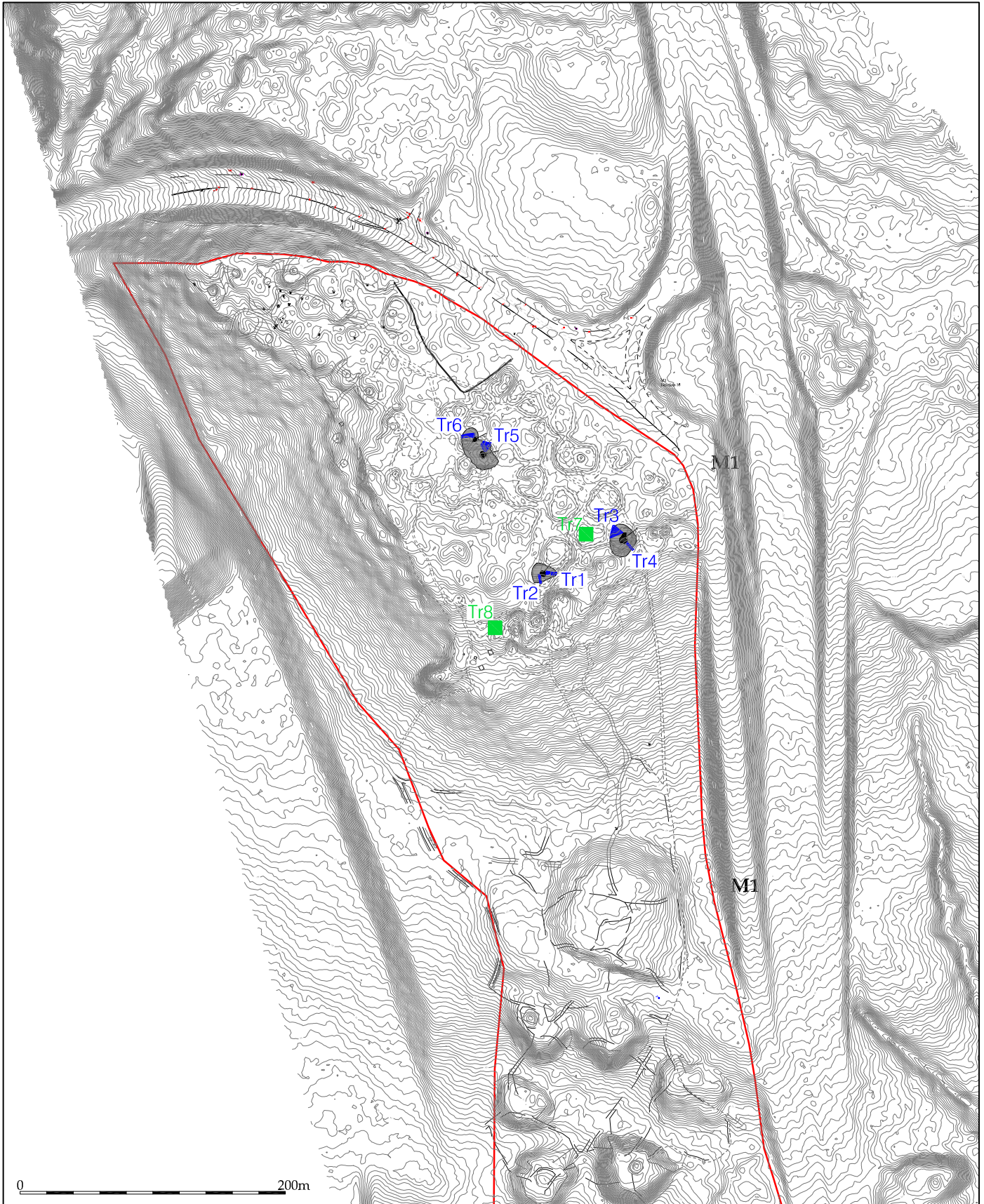


Section 12. East facing section.

Section 14. North facing section.



Figure 4: Trench 8; plan and sections.










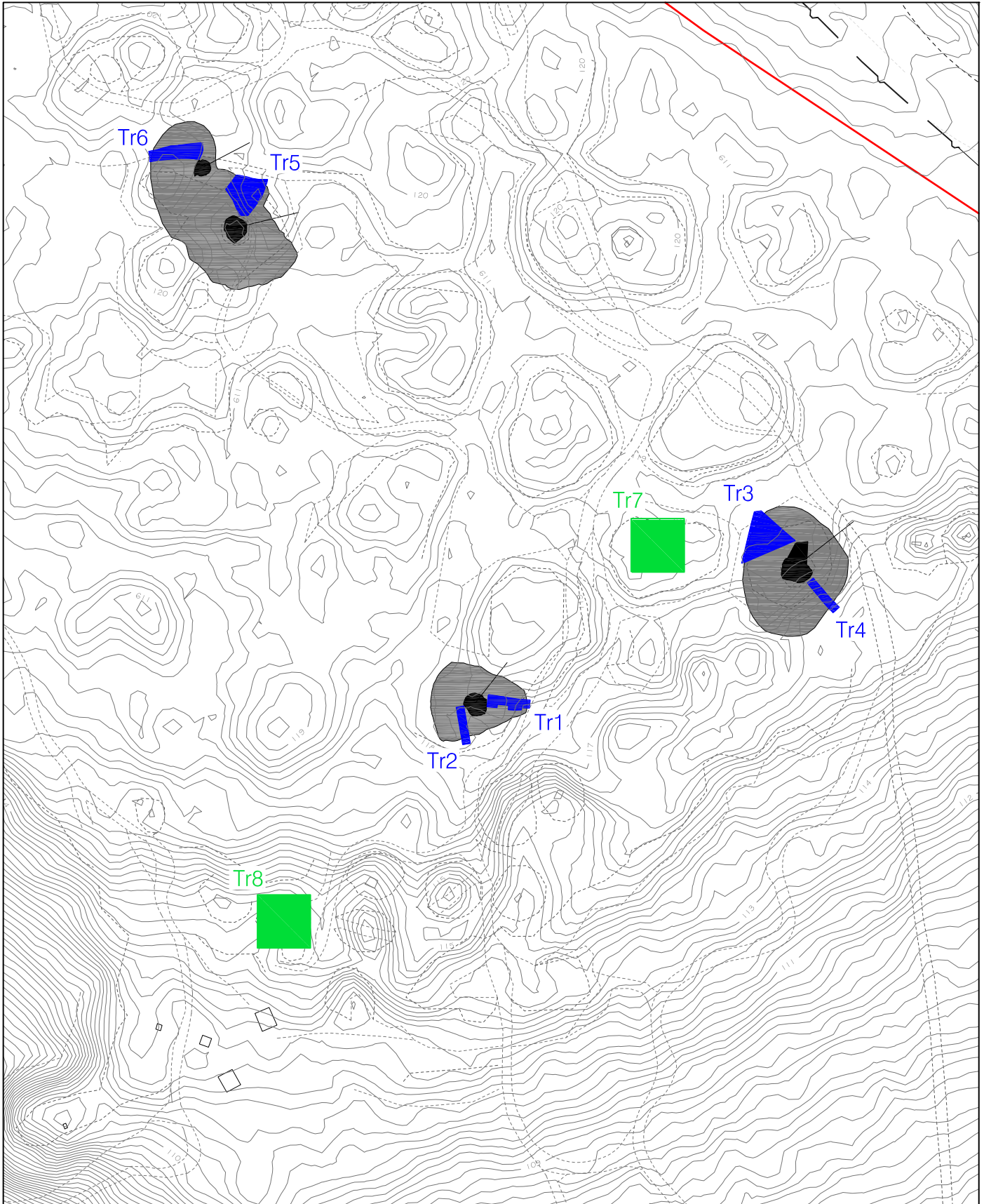
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Figure 5: LiDAR data showing the location of investigated bell pits.










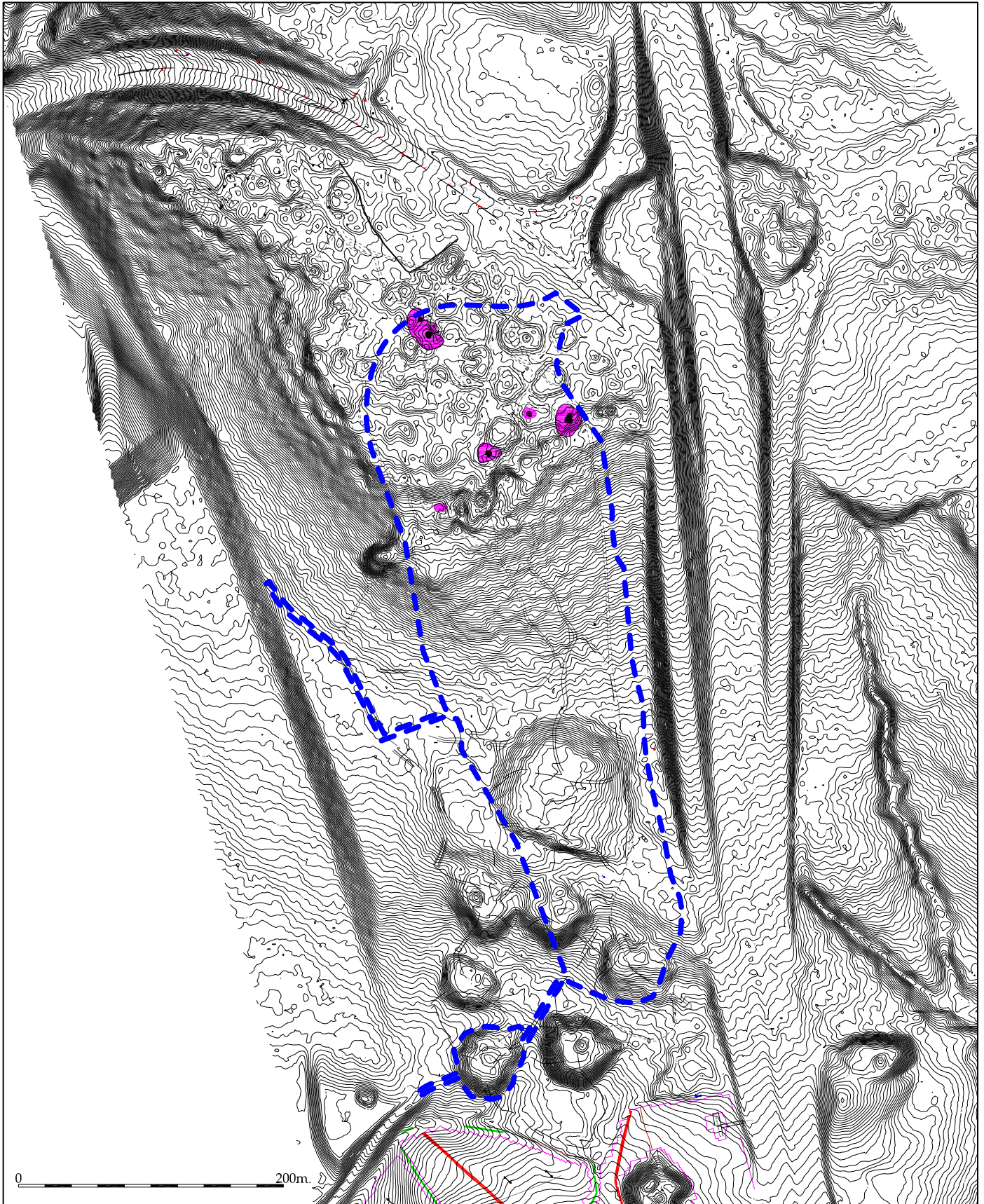
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Figure 6: Contour survey showing the locations of investigated bell pits.







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Figure 7: Location of investigated bell pits within the development area.

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