M54 to M6 Link Road

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Volume 6

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Regulation 5(2)(a)

Planning Act 2008

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

January 2020

Infrastructure Planning

Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

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Development Consent Order 202[ ]

6.3 Environmental Statement Appendices

Appendix 6.2 Archaeological Monitoring and Recording Report

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Archaeological Monitoring and Recording Report: M54-M6 Link Road Archaeological Monitoring of Geotechnical Trial Pits

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Revision History

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01	11/09/2019	Amendments to text following Client's comments

Summary

In July 2019, ADAS carried out an archaeological watching brief for BAM Ritchies. The groundworks carried out comprised the excavation of 19 geotechnical trial pits, as part of initial ground investigation works for a new link road scheme between the M54 and the M6, (NGR: SJ 94186 04686) as shown on Figure 1.

The proposed works for the M54-M6 Link Road scheme are located in an area which is known to contain archaeological material ranging from the Neolithic to the late Iron Age and Romano-British Period.

Although the trial pits were located within a rich archaeological area of potential, no archaeological features or artefacts were identified during monitoring of the groundworks for the trial pits.

The absence of archaeological features recorded during the archaeological monitoring of Trial Pits 1-19 may be attributed to the relatively limited impact of the groundworks.

A desk-based review of the geotechnical borehole logs revealed that twenty of the boreholes contained made ground ranging between 0.7 m and 5.45 m below present ground level. The boreholes that contained made ground were primarily located in the southern area of the proposed route with the exception of three boreholes which were located in the central part of the proposed route. The majority of the boreholes drilled in the northern part of the proposed route also contained made ground ranging between 0.5 m and 4.8 m below present ground level around the existing carriageway. The results of the borehole drilling at these locations indicate that the ground has been extensively landscaped and altered as a result of the construction of the M6 and A460 Cannock Road, and A462 Warstone Road.

Fourteen boreholes did not contain made ground. Boreholes 6, 11, 15, 17, 18, 19, 20a, 20, 22, 22a and 23 contained topsoil between 0.2 m and 0.5 m in depth below present ground level. The natural substrate at these locations consisted of red brown sands overlying natural gravels which overlay natural weathered sandstone, siltstone and mudstone. The natural sands were encountered at a range of 3 -5 m deep. This correlated with the information ascertained from the British Geological Survey which stated that the natural geology of the local area consisted of sandstone and conglomerates of the Chester Formation.

These results indicate that the monitoring methodology used was effective in ensuring that the groundworks resulted in no harm to the historic environment resource.

Acknowledgements

This archaeological watching brief was commissioned by BAM Ritchies and thanks are due in this regard. Fieldwork was carried out by Charlotte Barley. The report and supporting illustrations were prepared by Charlotte Barley, and checked by Andrew Brown. The archive was compiled by Charlotte Barley.

1 Introduction

Project Background

1.1.1 In July 2019, ADAS carried out an archaeological watching brief for BAM Ritchies of nineteen geotechnical trial pits. The trial pits were located approximately 700m to the east of Junction 1, of the existing M54 carriageway and spread north-east towards Junction 11 of the M6 motorway. The objective of the watching brief was to record all archaeological remains exposed during the groundworks between Trial Pit 1 and Trial Pit 19, as seen on Figure 2.

1.1.2 The works were carried out within permitted development rights and therefore were not subject to a planning application.

1.1.3 However, following consultation with Mr Shane Kelleher, the local authority archaeologist for Staffordshire, it was determined that the proposed works had the potential to impact upon unknown buried archaeological remains within the development area. It was recommended that archaeological monitoring should be carried out during the works to identify, assess and record any unknown archaeological remains.

1.1.4 ADAS prepared and issued a Written Scheme of Investigation (WSI) to address the archaeological requirements of the local authority archaeologist. The WSI detailed how ADAS would carry out the required archaeological works and record any archaeological remains during the monitoring of the trial pits (ADAS 2019).

1.1.5 The fieldwork followed the Standard and Guidance for an archaeological watching brief (CIfA 2014), the Management of Archaeological Projects 2 (English Heritage 1991) and the Management of Research Projects in the Historic Environment (MORPHE): Project Manager's Guide (EH 2006) and the RSK Technical Manual (RSK 2018).

1.1.6 In carrying out this work, BAM Ritchies complied with their obligations to the historic environment as outlined in the requirements of the Written Scheme of Investigation.

The Site, Location and Geology

1.1.7 The groundworks comprised nineteen geotechnical trial pits (NGR: SJ 94503 04709 - SJ 95602 06586) to monitor ground conditions for a new link road scheme between the M54 and the M6. The trial pits were located between Junction 1 of the M54 to the north of Wolverhampton, Staffordshire and Junction 11 of the M6 motorway. The locations of the trial pits can be seen on Figure 2.

1.1.8 The underlying geology on the development area is recorded as inter-bedded sandstone and conglomerate of the Chester Formation. This sedimentary bedrock was laid down approximately 247-250 million years ago during the Triassic Period. Superficial deposits of Devensian-Diamicton Till laid up to 2 million years ago when the local environment was dominated by ice age conditions.

The underlying geology at the centre of the proposed route (NGR: SJ 94965 05554) is recorded as the Clent Formation and Enville Formation. Which is comprised of Mudstone and Sandstone formed approximately 272 to 310 million years ago in the Permian and Carboniferous Periods (BGS 2019).

1.1.9 Previous borehole surveys carried out prior to the construction of the M54 (SJ90SW97- Telford Motorway M54 193; SJ90SW85- Telford Motorway M54 186 and SJ90SW93- Telford Motorway M54 189) indicate at that time there was approximately 3 m of boulder clay overlying up to 7 m of glacial sand consisting of compact red silty sand and gravels (BGS 2019).

2 Objectives

Aims and Scope

2.1.1 The aims of this watching brief were:

- *To ensure that any archaeological features/deposits exposed during groundworks associated with the development area were identified, recorded and interpreted to an acceptable standard;*
- *To ensure that any significant discoveries of artefactual evidence were recorded and analysed to an acceptable standard;*

4.1.1 *The specific aim of the fieldwork was to identify and record any unknown buried archaeological remains or artefacts that may be associated with;*

- *The Cannock Turnpike road and general Medieval and Post-medieval remains below the existing carriageway.*
- *To ensure that the fieldwork took place within, and contributes to the goals of the Archaeology of the West Midlands. A Framework for Research* (Watts, S (Ed) (2011).
- *To report the results as appropriate.*

3 Copyright

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4 Geoarchaeological, Archaeological and Historical Background

4.1.2 The geoarchaeological and archaeological background was detailed in the previously prepared WSI (ADAS, 2019), a summary of which is presented below.

4.1.3 A search of the online Archaeological Data Service (ADS) database produced no results for geoarchaeological investigations in the immediate landscape around the proposed development area (ADS 2019).

4.1.4 Within the wider Staffordshire area the Aggregates Levy Sustainability Fund (ALSF) from 2002 to 2006 provided funds to tackle a wide range of problems in areas affected by aggregates extraction. The core objective of the Historic England ALSF programme was to reduce the impact on the historic environment by aggregate extraction. Three studies were undertaken in Staffordshire as part of this scheme. These were the Where Rivers Meet: landscape, Ritual, Settlement and the Archaeology of River Gravels (ALSF 3349) by the University of Birmingham which focused on the Trent and Tame river valleys; Trent Valley: Making Archaeology Matter (ALSF 3863) and the Trent Valley Gravels Geophysics Assessment (ALSF 3887) both produced by Trent and Peak Archaeology (ADS 2019).

4.1.5 Although these studies focused on south-east Staffordshire, they demonstrate that these areas have a rich archaeological record ranging from megafauna from the Late Pleistocene to a Neolithic and early Bronze Age ritual landscape. The later Iron Age and Romano-British settlement landscape was also well preserved and included extensive Anglo-Saxon settlement and cemeteries (Where Rivers Meet 2006).

4.1.6 An online search of the historic environment potential was conducted which assessed the historic environment potential of a 1km Study Area around the proposed works.

4.1.7 The groundworks were located in agricultural land near Junction 1 of the M54 to the north of Wolverhampton and spread north-east towards Junction 11 of the M6, Staffordshire.

4.1.8 Historic England recorded two Grade II Listed Buildings either Medieval or Post-medieval in date within the Study Area. One record is for the Portobello Tower (List Entry: 1374118). The second record is for a Grade II Listed pair of Gate Piers (List Entry: 1039175).

4.1.9 A findspot of a Neolithic polished axe (MST1907) is recorded approximately 792m to the north-west of the proposed groundworks. This was found at Brook House Farm which is noted by the Staffordshire HER as a demolished 18th century farm (MST22307).

4.1.10 The online Staffordshire Historic Environment Record (HER) recorded six non-designated heritage assets within the 1 km Study Area (Staffordshire HER 2019; Heritage Gateway 2019). The closest of these to the groundworks is the recorded route of the former Cannock turnpike road (Turnpike Route 41). This crossed the M54 along a north-south alignment leading from Wolverhampton to Cannock. Although it is possible that remains of the former road surface may survive beneath the

modern M54, it is more likely that any remains of the road will have been truncated or destroyed during the construction of the M54.

4.1.11 The Staffordshire HER recorded the site of the Hilton Main Colliery (MST5761), which was located approximately 371 m to the south of the M54 carriageway. There was a high potential for buried archaeological remains associated with this colliery to be impacted by the trial pits and boreholes.

4.1.12 Approximately 628 m to the west of the proposed groundworks the Staffordshire HER recorded the remains of a possible boundary ditch (MST1666). This boundary ditch was aligned approximately north to south and crosses the modern M54. The Staffordshire HER describes this boundary marker as a low bank approximately 2 m wide and 0.5 m high. It is possible that this bank is referred to in a Charter dated to 994AD as 'Stony Way' and links to another bank in Hilton Park referred to as 'Aethelwig's Ledge' (Staffordshire HER 2019).

4.1.13 The Staffordshire HER also recorded a 19th century farm named Tower Farm (MST22125), which was located approximately 568 m to the west of the proposed groundworks.

4.1.14 Due to the potential for buried remains associated with the Cannock Turnpike road and general Medieval and Post-medieval remains below the existing carriageway archaeological monitoring was recommended.

5 Methodology

Introduction

5.1.1 The fieldwork followed the methodology set out within the Written Scheme of Investigation (ADAS 2019). An archaeologist was present during all intrusive groundworks to carry out the archaeological monitoring of the trial pits.

5.1.2 Where archaeological deposits were encountered written, graphic and photographic records were compiled in accordance with the Chartered Institute for Archaeologists *Standard and Guidance: Archaeological watching brief 2014.*

Artefacts, Human Remains, Treasure and Environmental Sampling

5.1.3 No artefacts or human remains were encountered during the watching brief. No archaeologically significant deposits were disturbed by the groundworks, so no environmental sampling was undertaken.

Post-Excavation Analysis

5.1.4 No archaeological artefacts or deposits were encountered during the watching brief, and therefore no post-excavation analysis was required.

Archives and Deposition

5.1.5 The archive is currently held by ADAS at their office in Milton Park. No artefacts were recovered during the monitoring and therefore no artefacts will need to be deposited with an approved local museum. An ordered and indexed project archive of records and finds will be processed and deposited with The Potteries Museum and Art Gallery, in accordance with The Guidelines for the Preparation of Excavation Archives for Long Term Storage (UKIC 1990) and Standards in the Museum Care of Archaeological Collections (Museum and Galleries Commission 1992).

5.1.6 The archive will be submitted to The Potteries and Art Gallery, whose requirements will be followed (Potteries Museum & Art Gallery, 2019). The archive will be submitted within one month of the completion of the final publication report with a summary of the contents of the archive supplied to the Historic Environment Advisor.

5.1.7 A summary of information from this project, will be entered onto the OASIS database of archaeological projects in Britain. The final report on the archaeological monitoring will be submitted to the Staffordshire Historic Environment Record Office within six to twelve months of the completion of the works.

ADAS Project Team

5.1.8 Fieldwork was undertaken by Charlotte Barley. The report was written by Charlotte Barley. The illustrations were prepared by Charlotte Barley. The archive was compiled and prepared for deposition by Charlotte Barley. The project was managed for ADAS by Diarmuid O'Seaneachain.

6 Results

Trial Pit Summary

6.1.1 This section provides an overview of the monitoring results; detailed summaries of the recorded contexts and finds are to be found in Appendix A.

6.1.2 The nineteen trial pits were located at various locations on mainly agricultural land, as shown on Figure 2. The groundworks were carried out over 9 days between Monday 1st July and Thursday 11th July 2019. The weather was largely dry and bright (Plates 1-4).

Trial Pit 1

6.1.3 Trial Pit 1 was rectangular in plan, measuring approximately 0.7 m by 2.4 m and was approximately 1.4 m deep. The trial pit was located at SJ 94400 04723.

6.1.4 The topsoil (101) consisted of a soft, dark brown silty sand with poorly sorted sub-rounded pebbles. This layer measured 0.2 m in depth. The topsoil overlay 1.2 m of dark brown silty sand

which was interpreted as made ground due to the presence of concrete and modern bricks (102). This made ground continued to the base of the trial pit.

6.1.5 No archaeologically significant features or artefacts were observed or recovered from the trial pit.

Trial Pit 2

6.1.6 Trial Pit 2 was rectangular in plan and measured 0.8 m by 3.5 m and was approximately 4.5 m deep. The trial pit was located at SJ 94318 04852.

6.1.7 The topsoil (201) consisted of a soft mid grey brown sandy silt with poorly sorted sub-rounded pebbles approximately 2-5 cm in size. This layer was 0.25 m deep. The topsoil overlay what has been interpreted as a layer of made ground (202) which consisted of a compact black silty clay, with modern bricks and burnt pieces of wood. This layer measured 3.45 m in depth. The layer of made ground overlay a compact, mid reddish brown clayey sand (203) with no inclusions. This layer has been interpreted as the natural geology. This layer measured 0.8 m in depth to the base of the trial pit.

6.1.8 No archaeologically significant features or artefacts were observed or recovered from the trial pit.

Trial Pit 3

6.1.9 Trial Pit 3 was rectangular in plan and measured 0.7 m by 3.5 m and was approximately 4.5 m deep. The trial pit was located at grid reference SJ 94390 04821.

6.1.10 The topsoil (301) consisted of a soft mid grey brown silty sand, with sub-rounded pebbles approximately 3 cm in size. This layer measured 0.25 m thick. The topsoil overlay a compact mid reddish brown silty sand with large inclusions of modern bricks and concrete (302). This layer has been interpreted as made ground and measured approximately 3.75 m in depth. This overlay a compact orange brown sand mottled with pieces of light blue grey mudstone, with no other inclusions (303). This layer measured approximately 0.5 m in depth of the trial pit.

6.1.11 No archaeologically significant features or artefacts were observed or recovered from the trial pit.

Trial Pit 4

6.1.12 Trial Pit 4 was rectangular in plan and measured 0.7 m by 2.4 m and was approximately 4.5 m deep. The trial pit was located at grid reference SJ 94503 04709.

6.1.13 The topsoil (401) consisted of a soft, dark brown silty sand with no inclusions, and measured 0.1 m thick. The topsoil overlay a layer of made ground (402), which comprised of a soft, dark brown/black, silty sand and contained modern bricks, concrete and pieces of burnt plastic. The layer of made ground measured 4.4 m in depth to the base of the trial pit.

6.1.14 No archaeologically significant features or artefacts were observed or recovered from the trial pit.

Trial Pit 5

6.1.15 Trial Pit 5 was rectangular in plan and measured 0.7 m by 3.6 m and was approximately 2.9 m deep. The trial pit was located at grid reference SJ 94503 04819.

6.1.16 The topsoil (501) is a soft, dark brown silty sand with poorly sorted sub-rounded pebbles ranging from 2-10 cm. The topsoil measured 0.5 m thick. The natural (502) is a friable light yellow grey sand with poorly sorted sub-rounded pebbles. This layer was recorded to be 0.5 m thick. Beneath (502) is a layer of compact, mid red brown clayey sand with no inclusions (503). This layer measured approximately 1.9 m in depth to the base of the trial pit.

6.1.17 No archaeologically significant features or artefacts were observed or recovered from the trial pit.

Trial Pit 6

6.1.18 Trial Pit 6 was rectangular in plan and measured 1.1 m by 4.0 m with a maximum depth of 4.5 m. the trial pit was located at grid reference SJ 94471 04965.

6.1.19 The topsoil (601) is a soft mid grey brown silty sand with poorly sorted sub rounded pebbles 2-7 cm in size and measured 0.35 m thick. The topsoil overlay a layer of made ground (602) which comprised a compact reddish brown clayey sand. This layer was interpreted as made ground due to the presence of modern brick and burnt modern waste. This layer was recorded to be 2.15 m thick. This overlay (603) which comprised a friable, light yellow brown gravelly sand, with moderately sorted pebbles up to 6 cm in size. This layer measured 0.2 m in depth. This in turn overlay (604) which comprised a friable orange brown sandy gravel with moderately sorted pebbles up to 6 cm in size. This layer measured 1.8 m in depth to the base of the trial pit.

No archaeologically significant features or artefacts were observed or recovered from the trial pit.

Trial Pit 7

6.1.20 Trial Pit 7 was rectangular in plan and measured 0.75 m by 4.3 m with a maximum depth of 4.5 m. this trial pit was located at grid reference SJ 94332 05079.

6.1.21 The topsoil (701) comprised a soft mid-grey brown silty sand with poorly sorted pebbles ranging from 3-5 cm and measured 0.3 m thick. This overlay a firm mid orange brown clayey silt (702) with moderately sorted sub-rounded pebbles 2-5 cm. This layer was approximately 1.2 m thick. This overlay (703) which comprised a firm, red brown clayey sand with poorly sorted pebbles 2-6 cm and measured approximately 3 m in depth to the base of the trial pit.

6.1.22 A land drain (704) was located on the west side of the test pit running north-west-south-east and was approximately 0.4 m below ground level.

6.1.23 No archaeologically significant features or artefacts were observed or recovered from the trial pit.

Trial Pit 8

6.1.24 Trial Pit 8 was rectangular in plan and measured 0.7 m by 3.7 m and was 4.5 m deep. This trial pit was located at grid reference SJ 94567 05012.

6.1.25 The topsoil (801) comprised a soft mid-grey brown silty sand with poorly sorted sub-rounded pebbles ranging from 2-5 cm and measured 0.4m thick. The topsoil overlay (802), which comprised a soft mid orange brown silty clay and measured 0.9 m thick. Beneath (8002) was a layer of loose light orange brown sandy gravel with sub-rounded pebbles approximately 2-10 cm in size. This layer was 1.1 m thick. This overlay a soft red brown sand with no inclusions, which measured 3 m in depth as was determined to be the natural geology.

6.1.26 No archaeologically significant features or artefacts were observed or recovered from the trial pit.

Trial Pit 9

6.1.27 Trial Pit 9 was rectangular in plan and measured 0.7 m by 2.6 m, with a maximum depth of 2.5 m. The trial pit was located at grid reference SJ 94395 05314.

6.1.28 The topsoil (901) comprised a soft, mid grey brown silty clay with poorly sorted sub-rounded pebbles 2-10 cm and measured 0.35 m thick. The topsoil overlay a layer of compact mid orange brown clayey sand (902) with poorly sorted sub-rounded pebbles 2-6 cm and measured approximately 0.2 m in depth. This overlay (903) which comprised a compact red brown clayey sand with no inclusions. This layer measured 1.95 m in depth and was determined to be the natural geology.

6.1.29 No archaeologically significant features or artefacts were observed or recovered from the trial pit.

Trial Pit 10

6.1.30 Trial Pit 10 was rectangular in plan and measured 0.7 m by 3.2 m with a maximum depth of 2 m. the trial pit was located at grid reference SJ 94603 05263.

6.1.31 The topsoil (1001) comprised a soft mid grey brown silty sand with poorly sorted sub-rounded pebbles 2-3 cm in size, which measured 0.35 m thick. The topsoil overlay a layer of compact, mid orange brown sand (1002) with poorly sorted pebbles 2-3 cm in size. This layer was 1.65 m in depth and continued to the base of the trial pit.

6.1.32 Trial Pit 10 was halted at 2 m due to the presence of ground water and the sides collapsing.

6.1.33 No archaeologically significant features or artefacts were observed or recovered from the trial pit.

Trial Pit 11

6.1.34 Trial Pit 11 was rectangular in plan and measured 0.7 m by 2.6 m, with a maximum depth of 3.9 m. The trial pit was located at grid reference SJ 9477 0541.

6.1.35 The topsoil (1101) comprised a soft mid grey brown silty sand with evidence of rooting and bioturbation from nearby wildlife as the trial pit was excavated in woodland. The upper most layer was compacted gravel representing the surface of the track. The trial pit was excavated on a used trackway to access a nearby fishing pond and the compact gravels may constitute a layer of made ground. However due to the shallow depth of the topsoil, it is unclear. This layer measured 0.1 m in depth. The topsoil overlay a loose red brown sand (1102) with poorly sorted pebbles 2-5 cm in size. This layer measured 0.4 m in depth. Beneath (1102) was a soft, light yellow brown sand (1103) with poorly sorted pebbles 2-5 cm in size. This layer measured 0.5 m in depth. This overlay a soft, red brown clayey sand (1104) with sub-rounded pebbles 2-10 cm in size. This layer measured 3.5 m in depth to the base of the trial pit.

6.1.36 Excavations of Trial Pit 11 were halted at 3.9 m due to the sides of the trial pit becoming unstable and beginning to collapse.

6.1.37 No archaeologically significant features or artefacts were observed or recovered from the trial pit.

Trial Pit 12

6.1.38 Trial Pit 12 was rectangular in plan and measured 0.7 m by 3.6 m with a maximum depth of 4.5 m. the trial pit was located at grid reference SJ 94892 05589.

6.1.39 The topsoil (1201) comprised a soft mid brown silty sand with poorly sorted pebbles 2-5 cm in size, and measured 0.4 m in depth. The topsoil overlay a soft light yellow brown sand (1202) with poorly sorted pebbles. This layer was 0.8 m thick. This overlay a compact red brown clay (1203) with no inclusions. This layer was 3.3 m in depth and was interpreted as the natural substrate.

6.1.40 No archaeologically significant features or artefacts were observed or recovered from the trial pit.

Trial Pit 13

6.1.41 Trial Pit 13 was rectangular in plan and measured 0.7 m by 3.4 m with a maximum depth of 4.5 m. The trial pit was located at grid reference SJ 95082 05821.

6.1.42 The topsoil (1301) comprised a soft mid grey brown silty sand with frequent sub-rounded moderately sorted pebbles 2-5 cm in size, and measured 0.4 m in depth. This overlay a soft mid orange brown sandy silt (1302) with moderately sorted sub-rounded pebbles 2-5 cm in size. This overlay a compact red brown clayey sand (1303) with moderately sorted sub-rounded pebbles 2-5 cm. This layer was 3.7 m in depth to the base of the trial pit.

6.1.43 No archaeologically significant features or artefacts were observed or recovered from the trial pit.

Trial Pit 14

6.1.44 Trial Pit 14 was rectangular in plan and measured 0.7 m by 3.4 m with a maximum depth of 2.5 m. The trial pit was located at grid reference SJ 95145 06085.

6.1.45 The topsoil (1401) comprised a soft light grey brown silty sand, with poorly sorted sub-rounded pebbles 3-5 cm in size. This layer measured 0.6 m in depth. The topsoil overlay a soft red brown sand (1402) containing poorly sorted sub-rounded pebbles 2-5 cm in size. This layer measured 0.9 m in depth. This overlay a compact red brown clay with no inclusions this layer measured 1 m in depth to the base of the trial pit.

6.1.46 No archaeologically significant features or artefacts were observed or recovered from the trial pit.

Trial Pit 15

6.1.47 Trial pit 15 was rectangular in plan and measured 0.7 m by 3.2 m with a maximum depth of 4.5 m. The trial pit was located at grid reference SJ 95313 06131.

6.1.48 The topsoil (1501) was comprised of a soft, mid grey brown silty sand with poorly sorted sub-rounded pebbles 2-5 cm. This layer measured 0.35 m in depth. The topsoil overlay a soft, mid orange brown sand (1502) with poorly sorted sub-rounded pebbles 2-5 cm in size. This layer measured 0.65 m in depth. This overlay a soft red brown sandy gravel (1503) with moderately sorted sub-rounded pebbles ranging from 5-10 cm in size. This layer measured 3.5 m and continued to the base of the trial pit.

6.1.49 No archaeologically significant features or artefacts were observed or recovered from the trial pit.

Trial Pit 16

6.1.50 Trial pit 16 was rectangular in plan and measured 0.7 m by 3.5 m with a maximum depth of 4.5 m. The trial pit was located at grid reference SJ 95433 06302.

6.1.51 The topsoil (1601) comprised a soft mid grey brown sandy silt with poorly sorted sub-rounded pebbles 2-5 cm. This layer measured 0.4 m in depth. This overlay a soft red brown sand (1602) with poorly sorted sub rounded pebbles. This layer measured 4.1 m in depth to the base of the trial pit.

6.1.52 No archaeologically significant features or artefacts were observed or recovered from the trial pit.

Trial Pit 17

6.1.53 Trial pit 17 was rectangular in plan and measured 0.7 m by 3.6 m with a maximum depth of 2.4 m. The trial pit was located at grid reference SJ 95545 06520.

6.1.54 The topsoil (1701) was comprised of a mid-grey brown silty sand with poorly sorted pebbles 2-5 cm in size. This layer measured 0.4 m. This overlay a soft light yellow brown sandy gravel (1702) with large boulders, approximately 40 cm in size and some moderately sorted pebbles 2-5 cm in size. This layer measured 0.6 m in depth. Beneath (1702) was a layer of mid red brown compact clay (1703) with no inclusions. This layer was 1.4 m deep. Beneath (1703) was a loose mid red brown sand (1704) with poorly sorted pebbles ranging 2-5 cm in size. This layer was 0.4 m in depth at the base of the trial pit.

6.1.55 Trial Pit 17 was halted at 2.4 m due to the presence of groundwater and the sides of the pit becoming unstable and collapsing.

6.1.56 No archaeologically significant features or artefacts were observed or recovered from the trial pit.

Trial Pit 18

6.1.57 Trial Pit 18 was rectangular in plan and measured 0.7 m by 3.6 m with a maximum depth of 2.5 m. The trial pit was located at grid reference SJ 95468 06600.

6.1.58 The topsoil (1801) consisted of a soft light grey brown silty sand with poorly sorted pebbles 2-5 cm in size. This was 0.35 m in depth. This overlay a soft light yellow brown sandy gravel (1802) with moderately sorted pebbles 2-5 cm in size. This layer measured 0.65 m in depth. Beneath (1802) was a compact layer of clayey sand (1803) with no inclusions. This layer measured 1.5 m in depth to the base of the trial pit.

6.1.59 No archaeologically significant features or artefacts were observed or recovered from the trial pit.

Trial Pit 19

6.1.60 Trial Pit 19 was rectangular in plan and measured 0.7 m by 3.9 m, with a maximum depth of 4.5 m. The trial pit was located at grid reference SJ 95602 06586.

6.1.61 The topsoil (1901) was comprised of a soft mid grey brown silty sand with poorly sorted sub-rounded pebbles 2-5 cm in size. This layer measured 0.4 m in depth. This overlay a loose mid orange brown sandy gravel (1902) with well sorted sub-rounded pebbles 2-5 cm in size. This layer measured 1.4 m in depth. This overlay a soft red brown sand (1903) with poorly sorted sub rounded pebbles 2-5 cm in size. This layer measured 2.7 m in depth and continued to the base of the trial pit.

6.1.62 No archaeologically significant features or artefacts were observed or recovered from the trial pit.

Borehole Log Summary Review

6.1.63 The geotechnical borehole drilling revealed that twenty of the boreholes contained made ground. Boreholes 1-5, 7-10, 12, 14, 16, 21, 24-30 all contained made ground between 0.10 m (Borehole 14), and 5.45 m (Borehole 2) below present ground level. The made ground identified was composed of materials such as concrete, bricks, clinker and slag.

6.1.64 The boreholes that contained made ground were primarily located in the southern area of the proposed route (Boreholes 1-5, 7-10; Figure 2a). The made ground was between 0.95 m – 5.45 m. Three boreholes were located in the central part of the proposed route (Boreholes 14, 15, & 16). These three boreholes did not contain made ground and were described as topsoil of a brown sandy gravelly soil. The topsoil ranged from 0.10 m- 0.50 m in depth. The boreholes were located adjacent to the existing carriageway of Hilton Lane, which is a frequently used road and indicates that the area in the immediate vicinity of the road has been recently landscaped.

6.1.65 Boreholes 21, 24, 25, 26, 27, 28a, 29 and 30 were located in the northern part of the proposed route (Figure 2b). Boreholes 24, 25, 26, 27, 28a, 29 and 30 were located along the M6 northbound motorway, along the A460 Cannock Road and A462 Warstone Road. The results of the borehole drilling at these locations indicate that the ground has been extensively landscaped and altered as a result of the construction of the M6 and A460 Cannock Road, and A462 Warstone Road. Made ground was encountered at these boreholes between 0.5 m and 4.8 m in depth.

6.1.66 Boreholes 6, 11, 13, 15, 17, 18, 19, 20, 20a, 22, 22a, 23 did not contain made ground. Boreholes 6, 11, 15, 17, 18, 19, 20a, 20, 22, 22a and 23 contained topsoil between 0.2 m and 0.5 m in depth below present ground level. The topsoil overlay natural substrate from 0.5 m onwards. The natural substrate at these locations consisted of red brown sands overlying natural gravels which overlay natural weathered sandstone, siltstone and mudstone. This correlated with the information ascertained from the British Geological Survey which stated that the natural geology of the local area consisted of sandstone and conglomerates of the Chester Formation.

6.1.67 Boreholes 28 and 28b were not drilled due to the presence of buried services. Boreholes 13 and 22a are not shown on the figures as the grid references for these were not provided.

7 Discussion and Conclusions

7.1.1 No archaeological features, deposits or artefacts were observed during the archaeological monitoring in any of the nineteen trial pit locations.

7.1.2 The archaeological monitoring revealed that below the topsoil, five of the nineteen trial pits contained made ground. Trial Pits 1,2,3,4 and 6 contained made ground comprised of modern

bricks, concrete and plastics. These trial pits are located at the southern end of the trial pit locations (Figure 2), near to the M54 and A460 roundabout.

7.1.3 Trial Pit 7 contained a land drain, located at the west side of the trial pit running north west-south east. The land drain was approximately 0.4 m below ground level.

7.1.4 The ground at thirteen of the trial pit locations were previously undisturbed. Trial Pits 5,8,9,10,11,12,13,14,15,16,17,18 and 19 contained topsoil overlaying natural sands, gravels and clays.

7.1.5 The absence of archaeological features recorded during the archaeological monitoring of the nineteen trial pits may be attributed to the relatively limited impact of the groundworks.

7.1.6 These results indicate that the monitoring methodology used was effective in ensuring that the groundworks for the trial pitting resulted in no harm to the historic environment resource.

7.1.7 The boreholes that contained made ground were primarily located in the southern area of the proposed route with the exception of three boreholes which were located in the central part of the proposed route. The majority of the boreholes drilled in the northern part of the proposed route also contained made ground around the existing carriageway. The results of the borehole drilling at these locations indicate that the ground has been extensively landscaped and altered as a result of the construction of the M6 and A460 Cannock Road, and A462 Warstone Road.

8 References

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[accessed September 2019]

Appendix A: Context Descriptions

Trial Pit 1

No.	Type	Description	Length (m)	Width (m)	Depth/ Thickness (m)
101	Layer	Topsoil – Dark brown silty sand	2.4	0.7	0.2
102	Deposit	Made Ground – Dark brown silty sand with large pieces of concrete and bricks	2.4	0.7	1.2

Trial Pit 2

No.	Type	Description	Length (m)	Width (m)	Depth/ Thickness (m)
201	Layer	Topsoil- Mid grey brown sandy silt	3.5	0.8	0.25
202	Deposit	Made Ground – Black silty clay with modern bricks within the fill	3.5	0.8	3.45
203	Layer	Natural – Red brown clayey sand	3.5	0.8	0.8

Trial Pit 3

No.	Type	Description	Length (m)	Width (m)	Depth/ Thickness (m)
301	Layer	Topsoil – Mid grey brown silty sand	3.5	0.7	0.25
302	Deposit	Made Ground – Mid reddish brown silty sand	3.5	0.7	3.75
303	Layer	Natural – Orange brown sand with mottling of light blue grey mudstone	3.5	0.7	0.5

Trial Pit 4

No.	Type	Description	Length (m)	Width (m)	Depth/ Thickness (m)
401	Layer	Topsoil- Dark brown silty sand	2.4	0.7	0.1
402	Deposit	Made Ground – Dark brown/black silty sand with inclusions of modern brick and concrete	2.4	0.7	4.4

Trial Pit 5

No.	Type	Description	Length (m)	Width (m)	Depth/ Thickness (m)
501	Layer	Topsoil – Dark brown silty sand	3.6	0.7	0.5
502	Layer	Natural - Light yellow grey sand	3.6	0.7	0.5
503	Layer	Natural - Reddish brown clayey sand	3.6	0.7	1.9

Trial Pit 6

No.	Type	Description	Length (m)	Width (m)	Depth/ Thickness (m)
601	Layer	Topsoil – Mid grey brown silty sand	4.0	1.1	0.35
602	Deposit	Made Ground – Reddish brown clayey sand with modern bricks in the fill	4.0	1.1	2.15
603	Layer	Natural – Light yellow brown gravelly sand	4.0	1.1	0.2
604	Layer	Natural – Orange brown sandy gravel	4.0	1.1	1.8

Trial Pit 7

No.	Type	Description	Length (m)	Width (m)	Depth/ Thickness (m)
701	Layer	Topsoil – Mid grey brown silty sand	4.3	0.75	0.3
702	Layer	Natural – Mid orange brown clayey silt	4.3	0.75	1.2
703	Layer	Natural – Reddish brown clayey sand	4.3	0.75	3.0
704	Deposit	Land drain – located on western side of trial pit running NW-SE	-	-	0.3

Trial Pit 8

No.	Type	Description	Length (m)	Width (m)	Depth/ Thickness (m)
801	Layer	Topsoil – Mid grey brown silty sand	3.7	0.7	0.4
802	Layer	Natural – orange brown sand	3.7	0.7	1.1
803	Layer	Red brown sand	3.7	0.7	3.0

Trial Pit 9

No.	Type	Description	Length (m)	Width (m)	Depth/ Thickness (m)
901	Layer	Topsoil- Mid grey brown silty clay	2.6	0.7	0.35
902	Layer	Natural – Mid orange brown clayey sand	2.6	0.7	0.2
903	Layer	Natural – Reddish brown clayey sand	2.6	0.7	1.95

Trial Pit 10

No.	Type	Description	Length (m)	Width (m)	Depth/ Thickness (m)
1001	Layer	Topsoil – Mid grey brown silty sand	3.2	0.7	0.35

1002	Layer	Natural – Mid grey brown silty sand	3.2	0.7	1.65

Trial Pit 11

No.	Type	Description	Length (m)	Width (m)	Depth/ Thickness (m)
1101	Layer	Topsoil – Mid grey brown silty sand	2.6	0.7	0.1
1102	Layer	Natural – Reddish brown sand	2.6	0.7	0.4
1103	Layer	Natural – Light yellow brown sand	2.6	0.7	0.5
1104	Layer	Natural – Red brown clayey sand	2.6	0.7	3.5

Trial Pit 12

No.	Type	Description	Length (m)	Width (m)	Depth/ Thickness (m)
1201	Layer	Topsoil – Mid grey brown silty sand	3.6	0.7	0.4
1202	Layer	Natural – Light yellow brown sand	3.6	0.7	0.8
1203	Layer	Natural – Red brown clay	3.6	0.7	3.3

Trial Pit 13

No.	Type	Description	Length (m)	Width (m)	Depth/ Thickness (m)
1301	Layer	Topsoil – Mid grey brown silty sand	3.4	0.7	0.4
1302	Layer	Natural – Mid orange brown sandy silt	3.4	0.7	0.4
1303	Layer	Natural Reddish brown clayey sand	3.4	0.7	3.7

Trial Pit 14

No.	Type	Description	Length (m)	Width (m)	Depth/ Thickness (m)
1401	Layer	Topsoil – Light grey brown silty sand	3.4	0.7	0.6
1402	Layer	Natural – Reddish brown sand	3.4	0.7	0.9

1403	Layer	Natural – Reddish brown clay	3.4	0.7	1.0

Trial Pit 15

No.	Type	Description	Length (m)	Width (m)	Depth/ Thickness (m)
1501	Layer	Topsoil – Mid grey brown silty sand	3.2	0.7	0.35
1502	Layer	Natural – Mid orange brown sand	3.2	0.7	0.65
1503	Layer	Natural – Reddish brown sandy gravel	3.2	0.7	3.5

Trial Pit 16

No.	Type	Description	Length (m)	Width (m)	Depth/ Thickness (m)
1601	Layer	Topsoil – Mid grey brown sandy silt	3.5	0.7	0.4
1602	Layer	Natural – Reddish brown sand	3.5	0.7	4.1

Trial Pit 17

No.	Type	Description	Length (m)	Width (m)	Depth/ Thickness (m)
1701	Layer	Topsoil – Mid grey brown silty sand	3.6	0.7	0.4
1702	Layer	Natural – Light yellow brown sandy gravel	3.6	0.7	0.6
1703	Layer	Natural – mid reddish brown clay	3.6	0.7	1.4
1704	Layer	Natural – Mid reddish brown sand	3.6	0.7	0.4

Trial Pit 18

No.	Type	Description	Length (m)	Width (m)	Depth/ Thickness (m)
1801	Layer	Topsoil – Light grey brown silty sand	3.6	0.7	0.35
1802	Layer	Natural – Light yellow brown sandy gravel	3.6	0.7	0.65

1803	Layer	Natural – Reddish brown clayey sand	3.6	0.7	1.5

Trial Pit 19

No.	Type	Description	Length (m)	Width (m)	Depth/ Thickness (m)
1901	Layer	Topsoil – Mid grey brown silty sand	3.9	0.7	0.4
1902	Layer	Natural – Mid orange brown sandy gravel	3.9	0.7	1.4
1903	Layer	Natural – Reddish brown sand	3.9	0.7	2.7

Appendix B: The Finds

No artefacts were identified during the course of the archaeological monitoring.

Appendix C: Oasis Report Form

OASIS ID: adasuklt1-350817

Project details

Project name	M54- M6 Link Road Archaeological Monitoring
Short description of the project	In July 2019, ADAS carried out an archaeological watching brief for BAM Ritchies. The groundworks carried out comprised the excavation of 19 geotechnical trial pits, as part of initial ground investigation works for a new link road scheme between the M54 and the M6, (NGR: SJ 94186 04686) as shown on Figure 1. The proposed works for the M54-M6 Link Road scheme are located in an area which is known to contain archaeological material ranging from the Neolithic to the late Iron Age and Romano-British Period. Although the trial pits were located within a rich archaeological area of potential, no archaeological features or artefacts were identified during monitoring of the groundworks for the trial pits. The absence of archaeological features recorded during the archaeological monitoring of Trial Pits 1-19 may be attributed to the relatively limited impact of the groundworks. A desk-based review of the geotechnical borehole logs revealed that twenty of the boreholes contained made ground ranging between 0.7 m and 5.45 m below present ground level. The boreholes that contained made ground were primarily located in the southern area of the proposed route with the exception of three boreholes which were located in the central part of the proposed route. The majority of the boreholes drilled in the northern part of the proposed route also contained made ground ranging between 0.5 m and 4.8 m below present ground level around the existing carriageway. The results of the borehole drilling at these locations indicate that the ground has been extensively landscaped and altered as a result of the construction of the M6 and A460 Cannock Road, and A462 Warstone Road. Fourteen boreholes did not contain made ground. Boreholes 6, 11, 15, 17, 18, 19, 20a, 20, 22, 22a and 23 contained topsoil between 0.2 m and 0.5 m in depth below present ground level. The natural substrate at these locations consisted of red brown sands overlying natural gravels which overlay natural weathered sandstone, siltstone and mudstone. The natural sands were encountered at a range of 3 -5 m deep. This correlated with the information ascertained from the British Geological Survey which stated that the natural geology of the local area consisted of sandstone and conglomerates of the Chester Formation.

	These results indicate that the monitoring methodology used was effective in ensuring that the groundworks resulted in no harm to the historic environment resource.
Project dates	Start: 09-05-2019 End: 11-07-2019
Previous/future work	No / Not known
Any associated project reference codes	M54Link19 - Sitecode
Type of project	Recording project
Site status	None
Current Land use	Transport and Utilities 1 - Highways and road transport
Monument type	NONE None
Monument type	NONE None
Significant Finds	NONE None
Significant Finds	NONE None
Investigation type	'''Watching Brief'''
Prompt	Planning condition

Project location

Country	England
Site location	STAFFORDSHIRE SOUTH STAFFORDSHIRE FEATHERSTONE M54-M6 Link Road Scheme
Postcode	WV10 7AU
Study area	100 Square metres
Site coordinates	SJ 94172 04682 52.639500892147 -2.086134668165 52 38 22 N 002 05 10 W Point

Project creators

Name of Organisation	RSK ADAS Ltd
Project brief originator	Local Authority Archaeologist and/or Planning Authority/advisory body
Project design originator	RSK ADAS Ltd
Project director/manager	Diarmuid O Seaneachain
Project supervisor	Andrew Brown

Project archives

Physical Archive Exists?	No
Digital Archive recipient	Potteries Museum and Art Gallery
Digital Media available	''GIS'',''Images raster / digital photography'',''Text''
Paper Archive recipient	Potteries Museum and Art Gallery
Paper Contents	''Stratigraphic''
Paper Media available	''Map'',''Photograph'',''Plan'',''Report'',''Section''

Entered by	Charlotte Barley (charlotte.barley@adas.co.uk)
Entered on	18 July 2019

Plates

Plate 1: North-west facing section of Trial Pit 1

Plate 2: North facing section of Trial Pit 4

Plate 3: North facing section of Trial Pit 7

Plate 4: North-east facing section of Trial Pit 15

BAM Ritchies

Geotechnical Trial Pits
M54-M6 Link road

Figure 1: Location of the Groundworks

Study Area

Trial Pit Locations

Featherstone, Staffordshire

Drawn by: Charlotte Barley Date: 05.09.2019

Verified By: Andrew Brown Date: 05.09.2019

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Kilometres

Scale 1:15,000 at A3 size

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Abingdon
OX14 4RS

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Geotechnical Trial Pits
M54-M6 Link road

Figure 2: Location of the Trial Pits

■ Trial Pit Locations 1-19

TP 18
TP 19
TP 17
TP 16
TP 15 - Section 4
TP 14
TP 13
TP 12
TP 11
TP 9
TP 10
TP 7 - Section 3
TP 8
TP 6
TP 2
TP 3
TP 5
TP 1 - Section 1
TP 4 - Section 2

Drawn by: Charlotte Barley Date: 11.09.2019

Verified By: Andrew Brown Date: 11.09.2019

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Scale 1:10,000 at A3 size

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Geotechnical Trial Pits
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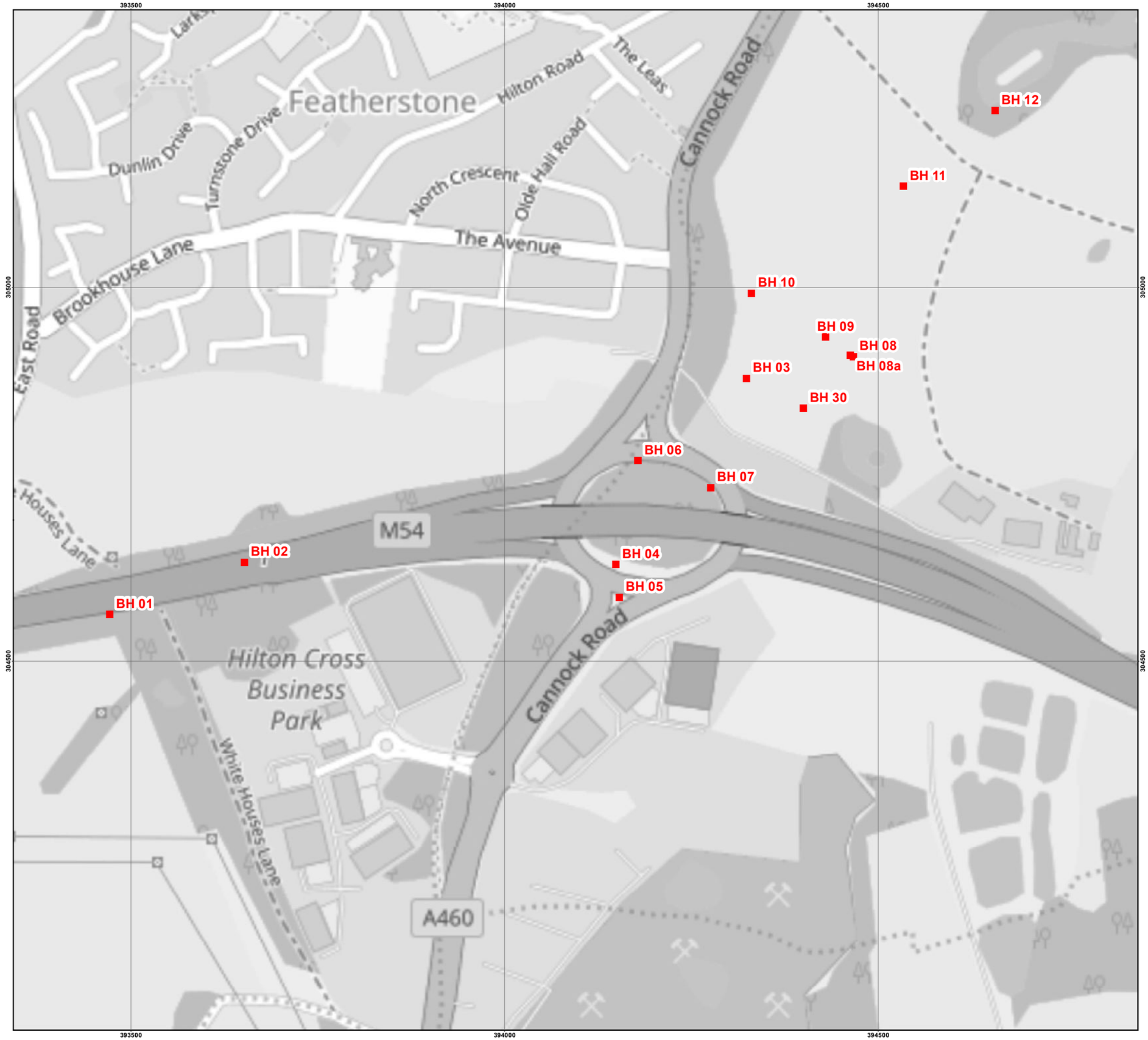
Figure 3A: Location of the Boreholes

■ Borehole Locations



Drawn by: Charlotte Barley Date: 05.09.2019

Verified By: Andrew Brown Date: 05.09.2019

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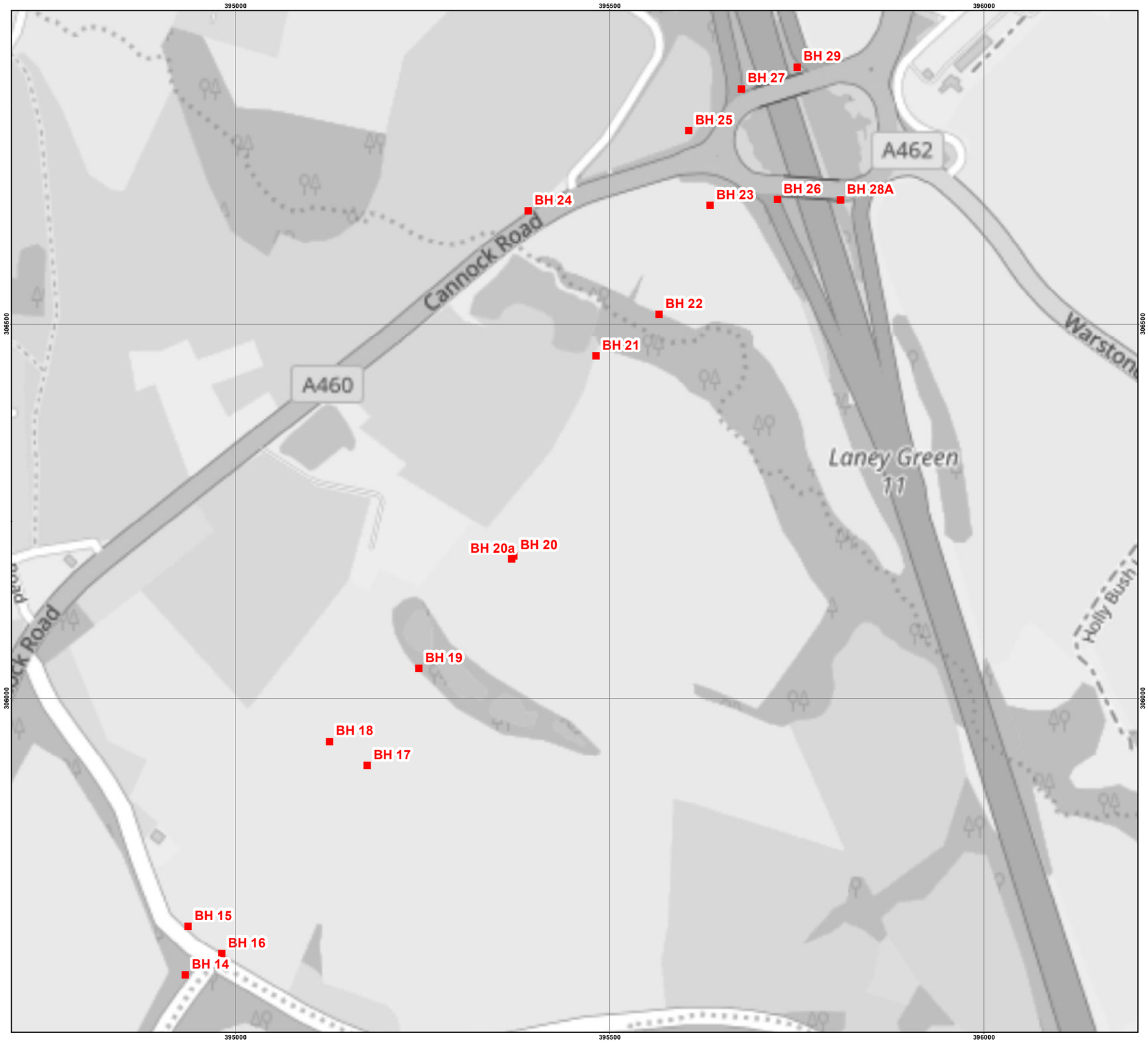

BAM Ritchies

Geotechnical Trial Pits
M54-M6 Link road

Figure 3B: Location of the Boreholes

■ Borehole Locations

Drawn by: Charlotte Barley Date: 05.09.2019

Verified By: Andrew Brown Date: 05.09.2019

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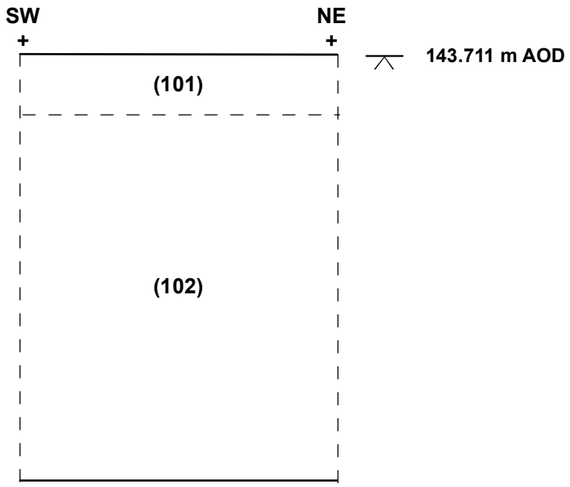

Section 1: North-west facing section of Trial Pit 1

Plate 1: North-west facing section of Trial Pit 1

BAM Ritchies

Geotechnical Trial Pits,
M54-M6 Link Road

Figure 4: Representative Sections of Trial Pit 1

Drawn by: Charlotte Barley Date: 11.09.2019

Verified By: Andrew Brown Date: 11.09.2019

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Scale: 1:20 @ A3 Size

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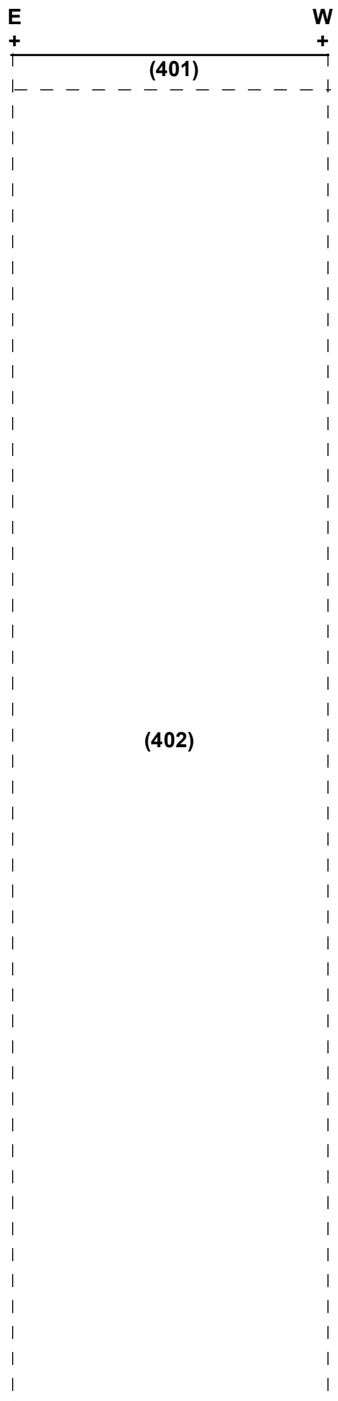

Section 2: North facing section of Trial Pit 4

Plate 2: North facing section of Trial Pit 4

BAM Ritchies

Geotechnical Trial Pits,
M54-M6 Link Road

Figure 5: Representative Sections of Trial Pit 4

Drawn by: Charlotte Barley Date: 11.09.2019

Verified By: Andrew Brown Date: 11.09.2019

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Scale: 1:20 @ A3 Size

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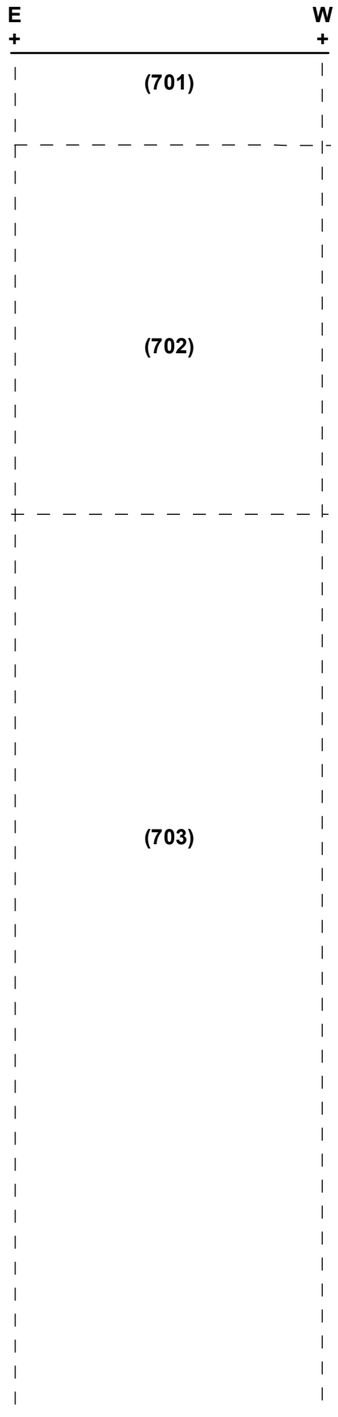

Section 3: North facing section of Trial Pit 7

Plate 3: North facing section of Trial Pit 7

BAM Ritchies

Geotechnical Trial Pits,
M54-M6 Link Road

Figure 6: Representative Sections of Trial Pit 7

Drawn by: Charlotte Barley Date: 05.09.2019

Verified By: Andrew Brown Date: 05.09.2019

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Scale: 1:20 @ A3 Size

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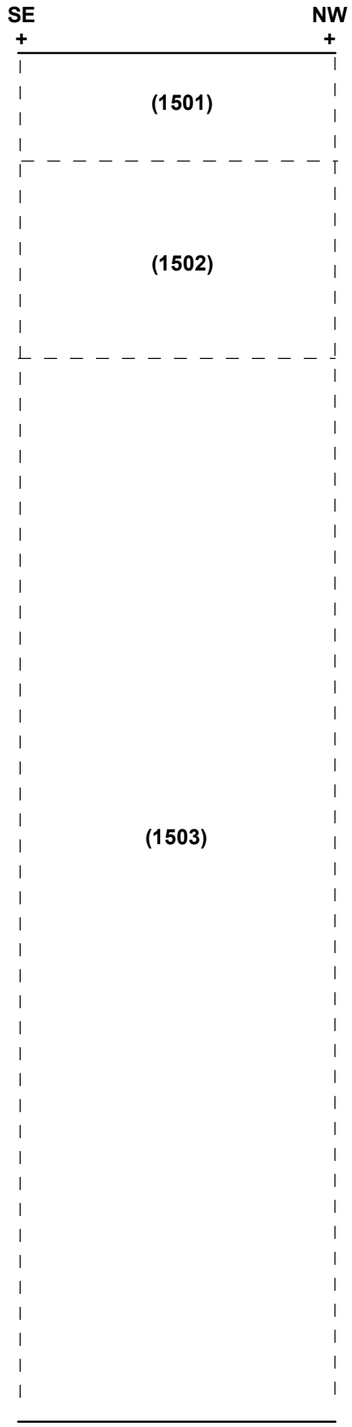

Section 4: North-east facing section of Trial Pit 15

Plate 4: North-east facing section of Trial Pit 15

BAM Ritchies

Geotechnical Trial Pits,
M54-M6 Link Road

Figure 7: Representative Sections of Trial Pit 15

Drawn by: Charlotte Barley Date: 05.09.2019

Verified By: Andrew Brown Date: 05.09.2019

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Scale: 1:20 @ A3 Size

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