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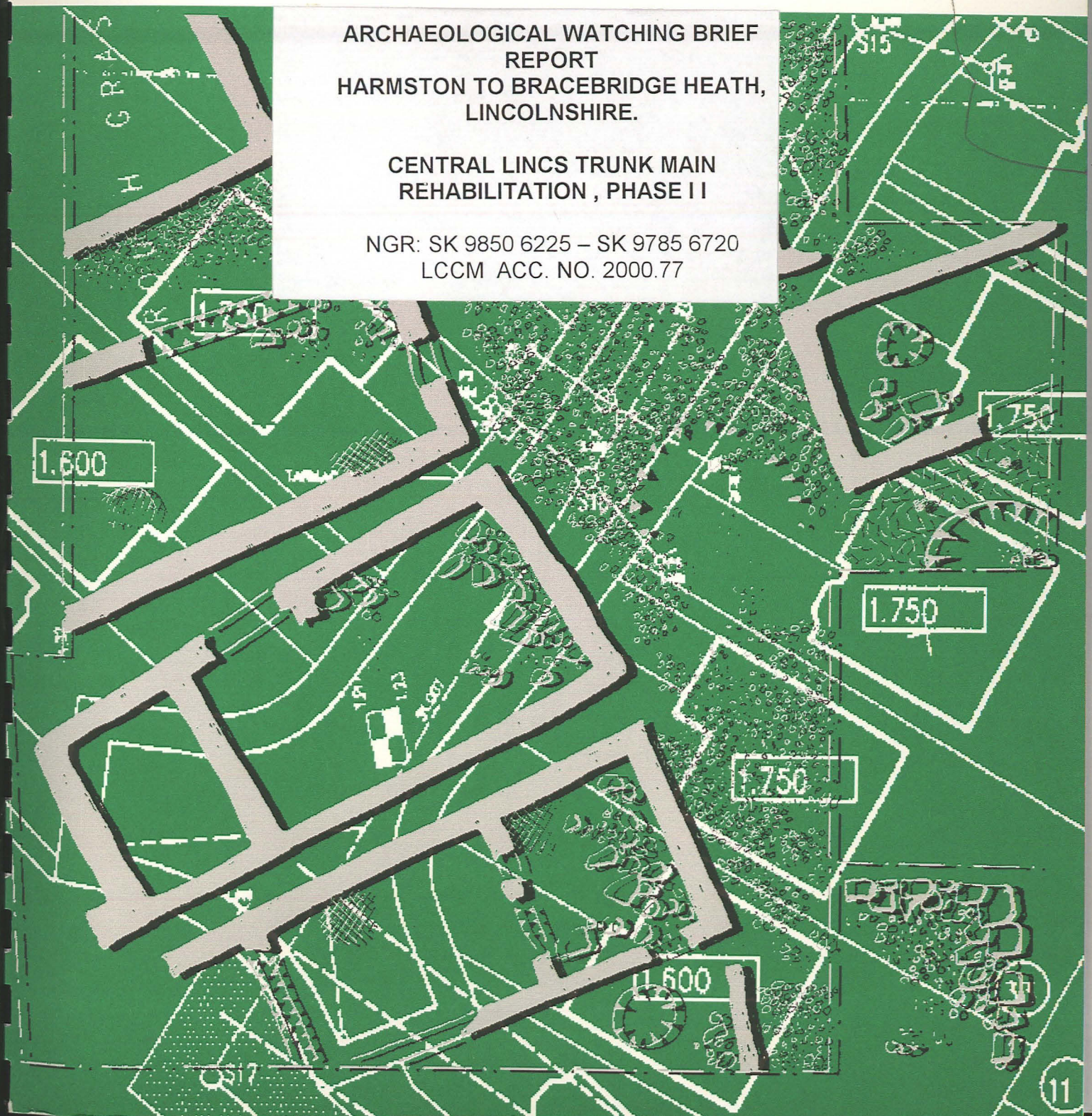
PRE-CONSTRUCT ARCHAEOLOGY

L I N C O L N

ARCHAEOLOGICAL WATCHING BRIEF
REPORT
HARMSTON TO BRACEBRIDGE HEATH,
LINCOLNSHIRE.

CENTRAL LINGS TRUNK MAIN
REHABILITATION , PHASE II

NGR: SK 9850 6225 – SK 9785 6720
LCCM ACC. NO. 2000.77



LCC Museum (The collector) may be able to supply.

fig 3 appears as Plate 2

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NB: figures 2, 3 + 4 are missing



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Report Prepared for
Anglian Water Services Ltd.
by Jim Rylatt and Mark Allen
October 2000

Pre-Construct Archaeology (Lincoln)
61 High Street
Newton on Trent
Lincoln
LN1 2JP
Tel & Fax. 01777 228155

Contents

List of figures	v
List of plates	v
Summary	1
1.0 Introduction	3
2.0 Pipeline location and description	3
2.1 Geology and land use	3
3.0 Planning background	4
4.0 Non-intrusive investigations	4
4.1 Archaeological and historical background	4
4.2 Results of the field walking survey	5
5.0 Pipeline construction methodology	6
5.1 Watching brief methodology	6
6.0 Archaeological results	7
6.1 Plot 01	7
6.1.1 Access Pit 1	7
6.2 Plot 02	7
6.2.1 Access Pit 2	8
6.3 Plot 03	8
6.3.1 Access Pit 3	8
6.4 Plot 04	8
6.4.1 Access Pit 4	9
6.5 Plot 05	9
6.5.1 Access Pit 5	9
6.6 Plot 06	9
6.6.1 Access Pit 6	10
6.7 Plot 07	10
6.7.1 Access Pit 7	10
6.7.2 Access Pit 8	10
6.8 Plot 08	10
6.8.1 Access Pit 9	11
6.9 Plot 09	11
6.9.1 Access Pit 10	11
6.10 Plot 10	11
6.11 Plot 11	12
6.11.1 Access Pit 11	12

6.12 Beneath Grantham Road (A607) through Waddington	12
6.12.1 Access Pit 12	12
6.12.2 Access Pit 13	12
6.12.3 Access Pit 14	12
6.12.4 Access Pit 15	12
6.13 Plot 12	12
6.13.1 Access Pit 16	13
6.14 Plot 13	13
6.14.1 Access Pit 17	14
6.14.2 Access Pit 18	14
6.14.3 Access Pit 19	14
6.14.4 Access Pit 20	14
6.14.5 Access Pit 21	14
6.15 Beneath Grantham Road (A607), between Plots 13 and 14	14
6.15.1 Access Pit 22	14
6.15.2 Access Pit 23	14
6.16 Plot 14	15
6.16.1 Access Pit 24	15
6.16.2 Access Pit 25	15
6.16.3 Access Pit 26	15
6.17 Beneath Grantham Road (A607), through Bracebridge Heath	15
6.17.1 Access Pit 27	15
6.17.2 Access Pit 28	16
6.17.3 Access Pit 29	16
6.17.4 Access Pit 30	16
6.17.5 Access Pit 31	17
6.18 Bracebridge Heath Reservoir	17
6.18.1 Access Pit 32	17
7.0 Discussion and conclusions	18
8.0 Effectiveness of methodology	21
9.0 References	22
10.0 Acknowledgements	22
11.0 Site archive	22
12.0 Appendices	

Appendix 12.1: Colour photographs

Appendix 12.2: Report 66 on the (Roman) pottery from the Harmston to Bracebridge Heath pipeline – by M. J. Darling

Appendix 12.3: Post-Roman pottery archive, Harmston to Bracebridge Heath pipeline – by J. Young

Appendix 12.4: Preliminary analysis of the materials recovered during field walking –
by J.D. Rylatt

Appendix 12.5: Lithic materials, catalogue and assessment – by J.D. Rylatt

Appendix 12.6: Catalogue of small finds – after J. Mann

Appendix 12.7: List of archaeological contexts

List of Figures

Figure 1: Site location at a scale of 1: 10,000.

Figure 2: Three post-medieval quarry pits to the south of Waddington.

Figure 3: Profile across furrow [518].

Figure 4: Profile across furrow [520].

Figure 5: Access Pit 27, west facing section.

Figure 6: Access Pit 29, west facing section.

Figure 7: Access Pit 31, west facing section.

Figure 8: Location of quarry pits and furrows in Plots 6, 7 and 8.

List of Plates

Plate 1: Plot 4, topsoil stripping in progress, note the modern plough scores, running diagonally across the easement, cutting into the subsoil, looking north-west.

Plate 2: Plot 8, furrow [518] running up the middle of the picture, looking north.

Plate 3: Plot 12, pre-excavation shot of furrow [520], showing distribution of finds exposed by topsoil stripping, looking north-east.

Plate 4: Access Pit 29, west facing section, with the possible Roman road surface, (532), visible half way up the red section of the vertical scale, looking east.

Summary

- *An archaeological watching brief monitored a water mains replacement scheme running between Harmston and Bracebridge Heath, Lincolnshire, a distance of approximately 5,400m.*
- *The scheme involved the excavation of a series of access pits and, the removal of topsoil along an easement, where the pipeline traversed agricultural land.*
- *Modest quantities of artefactual material were recovered from the pipeline easement, but very few archaeological features were identified. This is probably largely a result of the masking effects of the subsoil, and does not necessarily equate to an absence of in-situ archaeological deposits.*

1.0 Introduction

An archaeological watching brief was commissioned by Anglian Water Services Ltd to monitor groundworks associated with the replacement of an existing water pipe between Harmston village and Bracebridge Heath, Lincolnshire. The work was conducted according to current national guidelines (IFA, 1994), the methodology being structured to implement the recommendations of the Senior Built Environment Officer (Development Control) for Lincolnshire County Council.

This report details the results of this programme of fieldwork and also incorporates a series of assessments by specialist researchers who studied the archaeological materials that were recovered. The text follows national guidelines (*ibid.*) and the local guidelines set out in the Lincolnshire County Council document *Lincolnshire Archaeological Handbook: A Manual of Archaeological Practice* (LCC, 1998).

2.0 Pipeline location and topography

The pipeline was replaced from south to north between the village of Harmston and Bracebridge Heath, an outer suburb of Lincoln (*fig. 1*).

The southern end of this phase of the scheme began at SK 9850 6225 (c. 72.1m OD), with the pipeline running north-west across farmland for approximately 1km, until it reached the Grantham Road (A607); during this traverse the ground surface rose gradually to c. 79.1m OD. At this point the pipeline turned north, to run parallel to the A607, which was situated to the immediate west. It followed the road for c. 1.2km until reaching the village of Waddington (at c. 77.25m OD). The pipe ran beneath the A607 through the village, for c. 700m.

To the north of the village, it was located in the fields to the immediate west of Grantham Road, which it followed for c. 1.7km. When the pipeline reached the most southerly houses in Bracebridge Heath, it was again diverted to run beneath the A607. The pipe continued under the road, terminating within Bracebridge Heath at a water tower situated at SK 9785 6720 (74.1m OD).

2.1 Geology and land use

The pipeline is situated adjacent to the west-facing escarpment of the Lincoln Edge, a ridge that visually dominates the surrounding landscape. The solid geology comprises the Upper Lias clays at the base of the escarpment, associated with pockets of the Northampton Sand and Grantham Formations, which are all overlain by a thick bed of permeable Lincolnshire Limestone, which forms the ridge (B.G.S., 1973).

Approximately three-quarters of the pipeline route crossed farmland, with the remaining sections running beneath roads where they traversed built-up areas. All the soils encountered were mid grey-brown to mid-brown sandy silty loams, containing large amounts of small and medium sized sub-angular and sub-rounded limestone fragments. These soils are part of the group known as Lithomorphic soils - shallow,

well-drained, loamy calcareous soils. They can be further defined as grey or brown rendzinas formed where the parent material is limestone (Boutwood, 1998).

The land use was almost exclusively arable, containing either cereals (barley) or root crops (brassica). The single exception was Plot 11, a sports field, which had grass cover.

3.0 Planning background

The Senior Built Environment Officer for Lincolnshire County Council requested that an archaeological watching brief be conducted to monitor all groundworks undertaken during the scheme. Archaeological deposits exposed or disturbed as a result of these works were examined and recorded. This approach is consistent with the advice set out in *Archaeology and Planning: Planning Policy Guidance Note 16* (DoE, 1990), and accords with locally formulated guidelines (LCC, 1998).

4.0 Non-intrusive investigations

4.1 Archaeological and historical background

As a preliminary measure, Pre-Construct Archaeology (Lincoln) was requested by the County Council to conduct a search of the County Sites and Monuments Record to locate areas of archaeological potential lying near to, or intercepted by, the pipeline route.

The SMR search revealed a significant density of archaeological remains situated immediately to the west of the route, and a number of cropmarks that were crossed by the pipeline at the southern end of this phase of the scheme, near Harmston (*fig. 1*).

The route broadly follows the putative course of the Jurassic Way, a prehistoric trackway, and at Bracebridge Heath it traverses the projected line of its successor, the Roman road called Ermine Street.

Near Harmston (SK 9845 6230), the pipeline appears to cross the supposed location of a cropmark that was apparently recorded by O.G.S. Crawford, in 1930. The photograph relating to the site could not be traced, although a drawing in the SMR depicts a sub-rectangular enclosure to the west of Ermine Street. Although it has been suggested on morphological grounds that this may have been a fort or other military construction, which would most likely have been of 1st or 2nd century date, only later Roman (3rd and 4th century) pottery has been reported from the area. Other cropmarks crossed by the pipeline near the southern end of the easement include a double linear anomaly running north-east to south-west; this is tentatively interpreted as a prehistoric trackway. A further sub-rectangular enclosure (?Prehistoric/Roman) and a bank running east-north-east to west-south-west lie to the south of the route and are not crossed by the pipeline.

A considerable quantity of Roman material, including coins and pottery, were found to the north of Harmston and west of the pipeline, in 1977. North of this scatter and

immediately west of a disused windmill (SK 9742 6357), was a further concentration of material (including building debris) suggesting the presence of a Roman settlement approximately 250m to the west of the pipeline.

Eleven Anglo-Saxon inhumation burials were uncovered at the southern end of Waddington in 1947; these were situated less than 100m west of the pipeline route. A watching brief undertaken by Lindsey Archaeological Services (LAS) in 1998 uncovered a further four (possibly five) bodies nearby (Tann, 1999). Other finds at Waddington include a Roman coin, as well as Roman and medieval pottery and tile.

An Early Bronze Age stone hammer, Roman pottery and coins have been found to the west of the pipeline in the fields immediately to the north of Waddington. In 1976, Roman and medieval pottery were also found to the east of the A607, at the northern edge of the RAF base (SK 9800 6516).

Further north, Romano-British greywares, colour-coated and shell-gritted pottery was recovered from a quarry site situated less than 150m west of the pipeline (SK 9763 6553). In the next field to the north, a large quantity of Roman roof and flue tile was found (SK 9775 6586), along with a high concentration of grey wares and some fabrics from the Swanpool kilns. It is possible that this material, lying some 50m west of the pipeline, indicates the presence of a tile kiln in the locality.

A quantity of prehistoric artefacts were found to the south of Bracebridge Heath, including a fragment of a Great Langdale (Group VI) Neolithic greenstone axe and a quantity of worked flints of Neolithic and Bronze Age date. Also recovered from this area was evidence for Roman settlement, including large quantities of pottery, roof tile, and two coin hoards (SK 9765 6635). One of the coin hoards was discovered within 70m of the pipeline.

A cremation burial was also discovered at the southern end of Bracebridge Heath, to the immediate east of the A607, whilst digging the foundation trenches for a house in 1978; it was placed in a Romano-British greyware pot (SK 9794 6550). In the same year, an inhumation burial, also probably Roman, was found nearby. A watching brief performed by LAS in 1998 uncovered two further cremations and five inhumations (Tann, *et al.*, 2000).

4.2 Results of the field-walking survey

Initially, the course of the pipeline easement was defined by a double row of fence posts. Following this, a programme of field walking was conducted in order to identify any concentrations of archaeological materials along the route of the enclosed area. This methodology was employed to identify areas of potential archaeological significance.

Although a range of artefacts was recovered, there was no clustering at any point along the route (Appendix 12.4). Consequently, there was no further archaeological investigation of any sector of the pipeline easement prior to the implementation of the scheme of groundworks.

5.0 Pipeline construction methodology

The pipeline was replaced from south to north. To allow accurate recording, each field or plot of land crossed by the easement was allocated a unique number - from Plot 01, south of Harmston, to Plot 14, south of Bracebridge Heath.

Where the route crossed fields, the fenced easement was generally c. 19m wide. A single, tracked excavator stripped most of the topsoil within this corridor, and placed it into a c. 5.5m wide bund, along one edge of the easement. Between Harmston and Waddington the topsoil was situated on the eastern side of the easement, while between Waddington and Bracebridge Heath the soil was banked onto the western side. The remaining area was utilised for the excavation of access pits, the storage of pipes, and for vehicular access.

Concurrent with the programme of soil stripping, a number of access pits were subsequently excavated by a second, smaller tracked excavator. These pits were approximately 2.0m deep and uncovered a c. 4.0m long section of the pipe. Subsequently, the central c. 2.0m section of pipe was removed to enable the inside to be accessed. The existing steel water main was then used as a sleeve for the plastic replacement, which was drawn along it in sections exceeding 500m in length. The intermediate access pits were situated to allow the substitution of valves.

5.1 Watching brief methodology

The intrusive element of the project required continuous observation during the topsoil stripping, combined with a thorough inspection of all surfaces exposed, in both plan and section, as a result of the excavation of access pits. Any archaeological deposits or features identified were investigated.

For the purpose of artefact recovery, each of the plots was arbitrarily sub-divided into 'groups' to provide a greater degree of spatial control. The length of easement running through any one plot largely determined the number of groups into which it was divided.

The location of all the access pits was plotted and associated archaeological features or deposits were recorded. The written record utilised standard watching brief and pipeline field/plot record sheets. A photographic record was also made and some prints are reproduced in this report (Appendix 12.1). The photographs and paper record will constitute the core of the permanent archive.

A. Hardwick initiated the watching brief on the 31st March 2000, with J. Rylatt monitoring on 1st April. From the 3rd April until the 12th May, fieldwork was conducted by M. Allen. Throughout the remainder of May and up until the 6 June, work was intermittent and was conducted by C. Palmer-Brown and J. Rylatt.

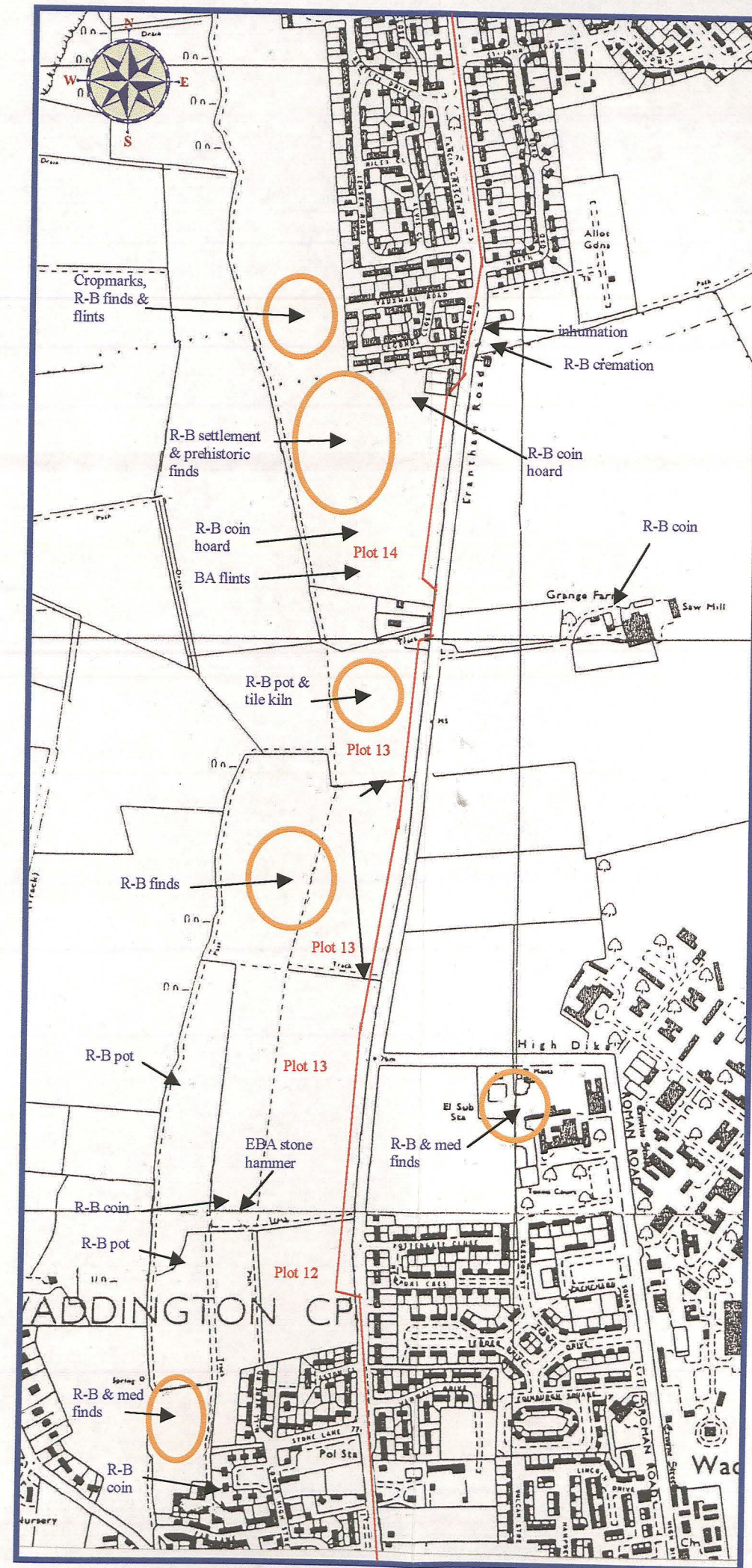
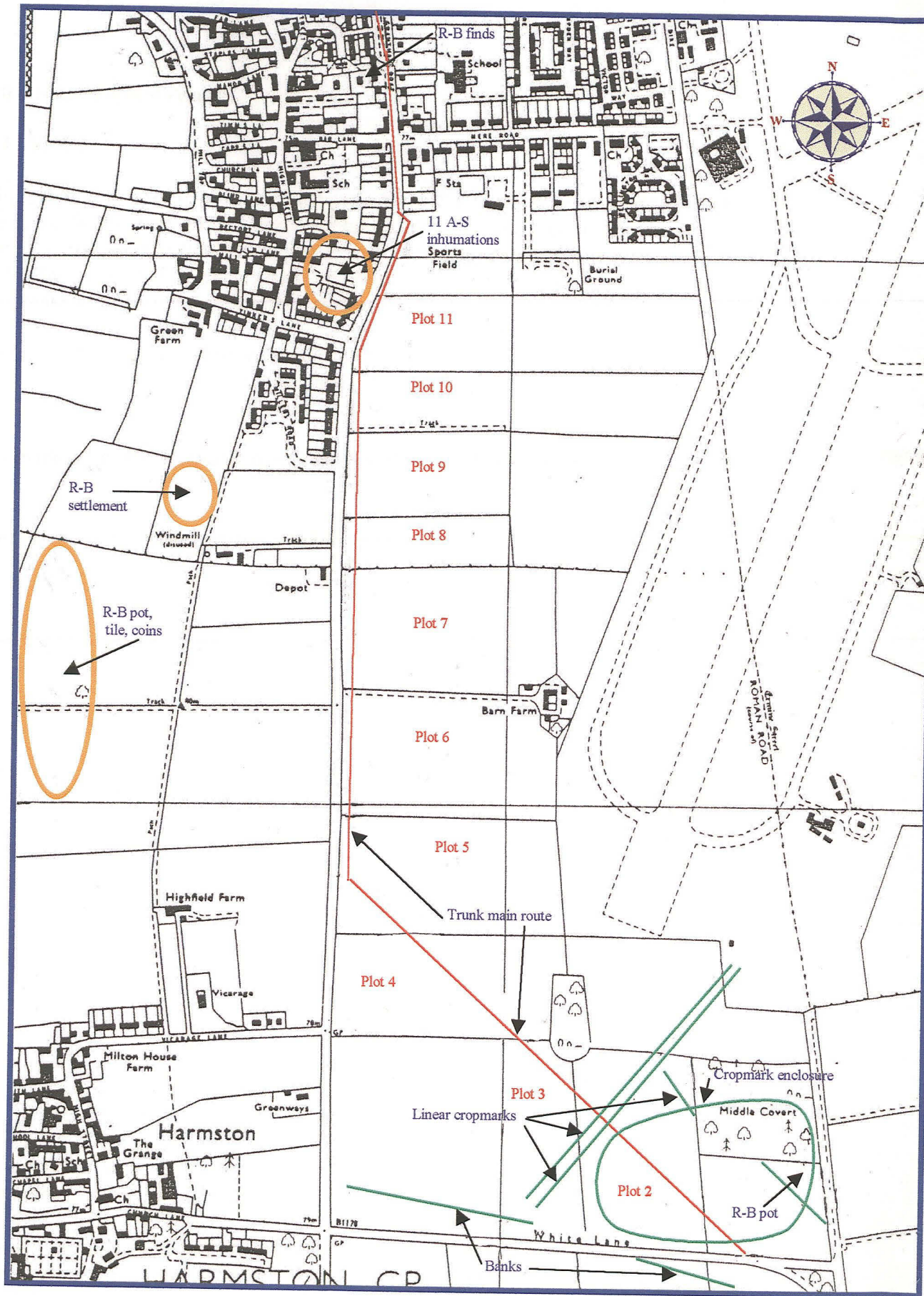


Figure 1: Location of the Central Lincs. Trunk Main Rehabilitation Scheme, Phase II (route and plot numbers shown in red), at 1: 10,000. Also depicted is information gathered from the Lincolnshire SMR (scatters in orange, cropmarks and earthworks in green).
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6.0 Archaeological results

6.1 Plot 01

The pipeline ran south-east to north-west for 180m across the southern part of the field; the field contained an immature cereal crop. A number of cropmarks have been identified within the field, including a large sub-rectangular enclosure measuring c. 350m by c. 250m. This enclosure is recorded as being visible on an aerial photograph (AP) taken in 1930, but now missing. Up until 1964, several low banks were visible in the field. These may relate to the cropmark enclosure. Other APs show a linear anomaly, possibly a prehistoric boundary, running south-east to north-west towards the north-eastern corner of the field. This cropmark probably has a temporal relationship to others visible in Plot 2 (see below).

No evidence of the enclosure was seen after the topsoil stripping, although a low ridge of mid-orange clayey silty sand (506) was noted. (506) ran east-west and appears to be a natural ridge located at some distance from the 1930 cropmark. Alternatively, it may relate to the banks that were visible prior to 1964.

Six or seven sherds of Romano-British pottery and two fragments of contemporary tile were recovered from the field. Also retrieved were three pieces of tile and six sherds of pottery of medieval origin. The latter was all produced between the 13th and 15th centuries.

6.1.1 Access pit 1

This pit was located 10m south of the boundary with Plot 2 and measured 7.5m x 3.0m. The excavation of the pit demonstrated that the subsoil, (501), was approximately 0.4m deep, overlying a partially degraded limestone bedrock (brash), in excess of 1.5m deep, (507). No archaeological deposits were noted within the pit.

6.2 Plot 02

The pipe ran for 324m across the field from near the south-east corner to the north-west corner.

A number of cropmarks were associated with this field, including part of the large sub-rectangular enclosure (see Plot 01 above). Additionally, a double linear anomaly running north-east to south-west was crossed by the easement. Several other associated cropmarks are known, but were not crossed by the pipeline. These include a linear feature running perpendicular to the double ditches and a small rectangular enclosure.

There was no evidence of the features that produced the cropmarks, after the topsoil was removed. However, this may result from masking by the subsoil, (501), which was left *in-situ*.

One sherd of Iron Age or Romano-British pottery, and a further three pieces having a secure Roman provenance, were recovered from this plot. Additionally, there was a

fragment of late Saxon (9th-10th century) pottery, five in medieval fabrics and a further sherd produced in the 17th-18th century. Six scraps of tile, four of Roman origin and two produced during the medieval period, and two pieces of worked flint, completed this assemblage.

6.2.1 Access pit 2

The second access pit was positioned approximately 120m south-east of the boundary with Plot 03. The pit section included subsoil (501), containing quantities of plough-damaged limestone, overlying degraded bedrock (507). No archaeological features or deposits were uncovered within the pit.

6.3 Plot 03

The pipeline cut across the north-eastern corner of the field for c. 106m, the easement being flanked by a young cereal crop. The route did not intercept any cropmarks, but several were noted elsewhere in the field.

A bank formed from an orange silty sand, (508), was situated adjacent to the boundary with Plot 04. On the surface, the bank appeared as a slight ridge of darker topsoil containing fewer limestone fragments than the adjacent area. It appeared that the base of (508) was situated within a fissure in the limestone, (507), and it was therefore probably a natural feature. However, it appeared that the field boundary had been intentionally placed along this natural ridge.

Two flint flakes were collected during topsoil stripping. An abraded sherd of 13th-15th century pottery was also recovered from this field.

6.3.1 Access pit 3

The third pit was located at the junction between Plots 03 and 04. The location was beneficial as it provided further evidence that (508) was situated within a natural hollow. A section through the hedge separating the two fields was also visible in the pit edge.

6.4 Plot 04

The pipeline ran south-east to north-west for c. 290m, across a field containing a young cereal crop. No cropmarks or finds scatters were identified in the field.

No archaeological deposits were uncovered during topsoil stripping. A single worked flint was recorded toward the south-eastern end of the field.

Two fragments of Roman pottery and a scrap of tile were recovered from this plot, along with one sherd of 15th-16th century ceramic. Additionally, there were four pieces of worked flint, one of which was a scraper.

6.4.1 Access pit 4

The pit was positioned c. 60m south-east of the junction with Plot 05. No archaeological deposits were uncovered within the pit; the subsoil, (501), was 0.3m deep.

6.5 Plot 05

The pipe ran north-east for c. 180m, before turning northwards to run parallel with the A607 for c. 100m. The topsoil supported a young cereal crop. No artefact scatters or cropmarks were identified in the field.

A flint side scraper and a total of nine fragments of pottery were recovered during topsoil removal. The latter comprised six pieces of Romano-British material, including a piece possibly Iron Age origin and a probable fragment of 2nd century Central Gaulish samian, and three of medieval wares, produced in the 13th and 15th-16th centuries. While most of this material was found in the northern half of the field, it was not concentrated in one location and consequently is likely to have been introduced during the spreading of manure from Roman and medieval middens.

6.5.1 Access pit 5

An access pit was located at the point where the pipeline changed orientation. The pit section showed that the subsoil, (501), survived to a depth of c. 0.3m, overlying brash, (507).

6.6 Plot 06

The easement ran for 228m along the western edge of a field containing a young brassica crop. There were no associated artefact scatters or cropmarks.

Two quarry pits were found during topsoil removal. Quarry pit [510] was circular in plan, and measured c. 13.9m in diameter; it was not excavated (fig. 2). Although finds were not recovered from the upper fill, (511), it was felt the feature was probably of post-medieval or modern date as it cut through the subsoil, (501). The nature of (511), which resembled the topsoil, suggests that the feature probably survived as a hollow until quite recently.

The second pit, [512], appeared to be sub-rectangular in shape, measuring c. 62m long and over 7m in width. The pit fills were not excavated and finds were not recovered, but as with [510], the feature was cut through the subsoil and the upper fill resembled the topsoil. Again, this suggests that the feature was of fairly recent date, possibly having a general contemporaneity with [510] above.

Only one flake of flint was retrieved from this plot. Romano-British activity was represented by two sherds of pottery, which were accompanied by a further two pieces that were produced in the 17th-18th century.

6.6.1 Access pit 6

Access pit 6 was located next to the boundary with Plot 05. The subsoil, (501), was between 0.3m and 0.4m deep.

6.7 Plot 07

The pipeline continued up the western boundary of this field for c. 220m, through an immature cereal crop. No cropmarks or finds scatters had been identified prior to the groundworks.

Two quarry pits were discovered in Plot 07 (*fig. 2*). Pit [514] was located c. 64m north of the boundary with Plot 06, and measured c. 11.9m in diameter. No finds were recovered and the upper fill was similar to that in the pits located in the field to the south.

Quarry pit [516] was situated c. 40m to the south of the boundary with Plot 08; it was sub-circular and measured c. 13.2m in diameter. A single worked flint was retrieved from the upper fill, but this is likely to be residual. Both of these quarry pits are likely to be of fairly modern provenance, possibly of a comparable date to the pits found in Plot 06.

6.7.1 Access pit 7

The pit was positioned immediately to the north of the boundary with Plot 06. The hedge boundary between Plots 06 & 07 was partially visible at the southern edge of the access pit. The subsoil, (501), was approximately 0.3m deep.

6.7.2 Access pit 8

Located on the boundary with Plot 08, the base of the hedge separating the fields was visible in the section of the pit. The subsoil was c. 0.3m deep.

6.8 Plot 08

The route ran parallel with the western boundary of the field for c. 246m. The field contained a young cereal crop. Although cropmarks or finds scatters are not directly associated with the field, pottery and building debris indicates the presence of a Romano-British settlement situated less than 300m to the west.

A slight east-west ridge was situated approximately 92m north of the boundary with Plot 07. Its location correlated with a former field boundary marked on the 1:10,000 scale map. To the south of this former boundary was a furrow, [518] (*fig. 3*), running north-south, while to the north was a series of furrows, [519], running east-west. The furrows comprising [519] were c. 3.5m wide, with an interval of c. 4m between each. The two sets of furrows lay perpendicular to each other, bracketing the former field boundary; it is therefore probable that the boundary existed during the medieval

period, predating the formation of the furrows. The slight rise visible today could therefore be the remnant of a headland denuded by modern ploughing.

Four sherds of pottery and two flint flakes were recovered from within the easement, representing prehistoric, medieval and 17th-18th century activity.

6.8.1 Access pit 9

The pit was positioned c. 74m to the south of the boundary with Plot 09. The subsoil was c. 0.3 -0.4m deep; archaeological deposits were not identified.

6.9 Plot 09

The pipeline followed the western edge of the field, c. 113m in length, through an immature cereal crop.

There was no evidence of a northern continuation of the east-west furrows, (519), detected in Plot 08. Additionally, no other archaeological deposits were detected in this field.

In comparison with many of the other plots, this field contained a relatively large number of lithic artefacts. However, eight flakes from within an area of this size do not constitute a concentration of finds.

Four fragments of pottery and four pieces of tile were also recovered from the field during soil stripping. These represent prehistoric, Roman, medieval and post-medieval activity.

6.9.1 Access pit 10

Pit 10 was placed on the boundary between Plots 09 & 10; the hedge between the two fields was visible in the pit section. The subsoil, (501), was c. 0.3m deep.

6.10 Plot 10

This field contained a fairly young cereal crop; the easement followed its western boundary, which was c. 143m long.

No artefact scatters or cropmarks have been identified within the field. However, eleven Saxon inhumation burials were found on the other side of the Grantham Road, less than 100m to the north-west. A watching brief by Lindsey Archaeological Services (Tann, 1999) uncovered a further four.

No evidence of any burials or other archaeological deposits was seen after the topsoil stripping, but it is possible that the subsoil masked such features.

A piece of abraded 14th-15th century pottery, were recovered from the topsoil in the northern half of the field.

6.11 Plot 11

This plot is utilised as a sports field, which is covered by well-maintained turf. Consequently, the easement was not stripped and no archaeological deposits were found. The route ran along the western edge of the field, less than 50m to the east of a known Anglo-Saxon cemetery; therefore, it is entirely possible that some evidence of Anglo-Saxon funerary practice does exist within the vicinity of the pipeline.

6.11.1 Access pit 11

The access pit was located at the north-west corner of the field, where the pipe turns sharply toward the north-west to run under Grantham Road. There was no sign of the inhumations or any other archaeological deposits, within the pit.

6.12 Beneath Grantham Road (A607) through Waddington

6.12.1 Access pit 12

Located on the eastern side of the road, to the immediate north-west of Pit 11. Positioned to enable the pipe to change direction and run under the road. There was no evidence of any archaeological deposits exposed in the sides of the pit.

6.12.2 Access pit 13

Situated on the western side of the road, c. 150m north of the junction between Bar Lane/Mere Road and Grantham Road. No archaeological deposits were detected in the exposed sections of the pit.

6.12.3 Access pit 14

Situated on the western side of the road, c. 25m south of the junction between Stone Lane and Grantham Road. There were no archaeological deposits evident in the sides of the pit.

6.12.4 Access pit 15

Situated on the western side of the road, c. 40m north of the junction between Stone Lane and Grantham Road. The pipe turned 45 degrees toward the north-west to enter plot 12. Archaeological deposits were not detected.

6.13 Plot 12

The pipeline left the A607 and entered the field at its south-eastern corner, before running along the eastern boundary, parallel to the road. The topsoil supported a young cereal crop.

No finds scatters or cropmarks are associated with the field, but there are several from surrounding fields, including Roman and medieval finds c. 300m to the south-west, and Roman pottery and a coin found c. 300m to the west.

A single furrow, [520], aligned north-east to south-west, was found c. 34m south of the boundary with Plot 13 (*fig. 4*). The furrow was c. 3.18m wide and had a flattened 'U'-shaped profile, c. 0.30m deep. Seventeen sherds of medieval pottery were recovered from this feature. These represented a fairly homogenous group, which was manufactured in the mid- to late 14th century. Accompanying this collection of domestic ceramics was a quantity of tile, which was produced between the 12th and 15th centuries, and an iron barrel padlock, the latter of late medieval or post-medieval construction.

By comparison, the topsoil was relatively sterile, with stripping producing a mere five pieces of worked flint, six sherds of pottery and a fragment of tile. Two sherds came from Romano-British greyware vessels, while the tile and the other pieces were in medieval fabrics, produced between the 13th and 15th centuries.

6.13.1 Access pit 16

The access pit was located at the south-eastern corner of the field, where the pipe turns sharply to enter it from beneath Grantham Road. The subsoil, (501), was c. 0.25m deep.

6.14 Plot 13

The pipeline ran along the eastern edge of the field for c. 982m, through a young cereal crop. Cropmarks have not been identified within the field, but a number of artefact scatters have been identified to the west of the easement. The latter includes the recovery of an Early Bronze Age stone hammer less than 200m away, at the southern edge of the field. However, most of the material comes from the northern half of the plot, in two significant spreads of pottery and tile representing Romano-British domestic and industrial activity.

No archaeological features were exposed during topsoil stripping, but a large quantity of artefactual material was recovered from the plough zone. Considering the length of this field, it is more informative to outline the distribution of this material in three smaller units.

In the southern third of the plot, one fragment of Romano-British tile and fifteen sherds of pottery were recovered. The latter included one piece that may have been produced in the Iron Age, and a scrap of samian from Central Gaul. Accompanying this material were three fragments of medieval and a piece of post-medieval pottery.

There were slightly fewer artefacts recovered from the centre of the field, but these included eleven scraps of Roman pottery and a piece of medieval ceramic. Toward the northern end of this unit of land, there was a greater density of material. This included

seven pieces of worked flint, ten sherds of pottery and two pieces of tile manufactured during the Roman period, five scraps of medieval pottery, and a fragment of a hone.

6.14.1 Access pit 17

The access pit was located c. 35m north of the south-eastern corner of plot 13. There were no archaeological deposits exposed in the sides of the pit. The subsoil, (501), was c. 0.25m deep.

6.14.2 Access pit 18

The access pit was located c. 290m north of the southern edge of the field, and c. 15m north of the main entrance to RAF Waddington. There were no archaeological deposits evident in the sides of the pit. The subsoil, (501), was c. 0.3m deep.

6.14.3 Access pit 19

The access pit was located c. 225m north of Pit 18: archaeological deposits were not identified. The subsoil, (501), was c. 0.3m deep.

6.14.4 Access pit 20

This pit was situated c. 100m south of the northern boundary of Plot 13. No archaeological deposits were detected in the exposed sections of the pit.

6.14.5 Access pit 21

The pit was located at the north-eastern corner of the field, where the pipe turns sharply toward the north-east and is diverted under Grantham Road in order to avoid a small group of houses (at SK 9784 6600). The subsoil, (501), was c. 0.25m deep.

6.15 Beneath Grantham Road (A607), between plots 13 and 14

6.15.1 Access pit 22

Located on the western side of the road, to the immediate north-east of Pit 21. Positioned to enable the pipe to change direction and run under the road. There was no evidence of any archaeological deposits exposed in the sides of the pit.

6.15.2 Access pit 23

Situated on the western side of the road, c. 95m north of Pit 22. The pipe turned 45 degrees toward the north-west to enter plot 14. There was no sign of any archaeological deposits within the excavations.

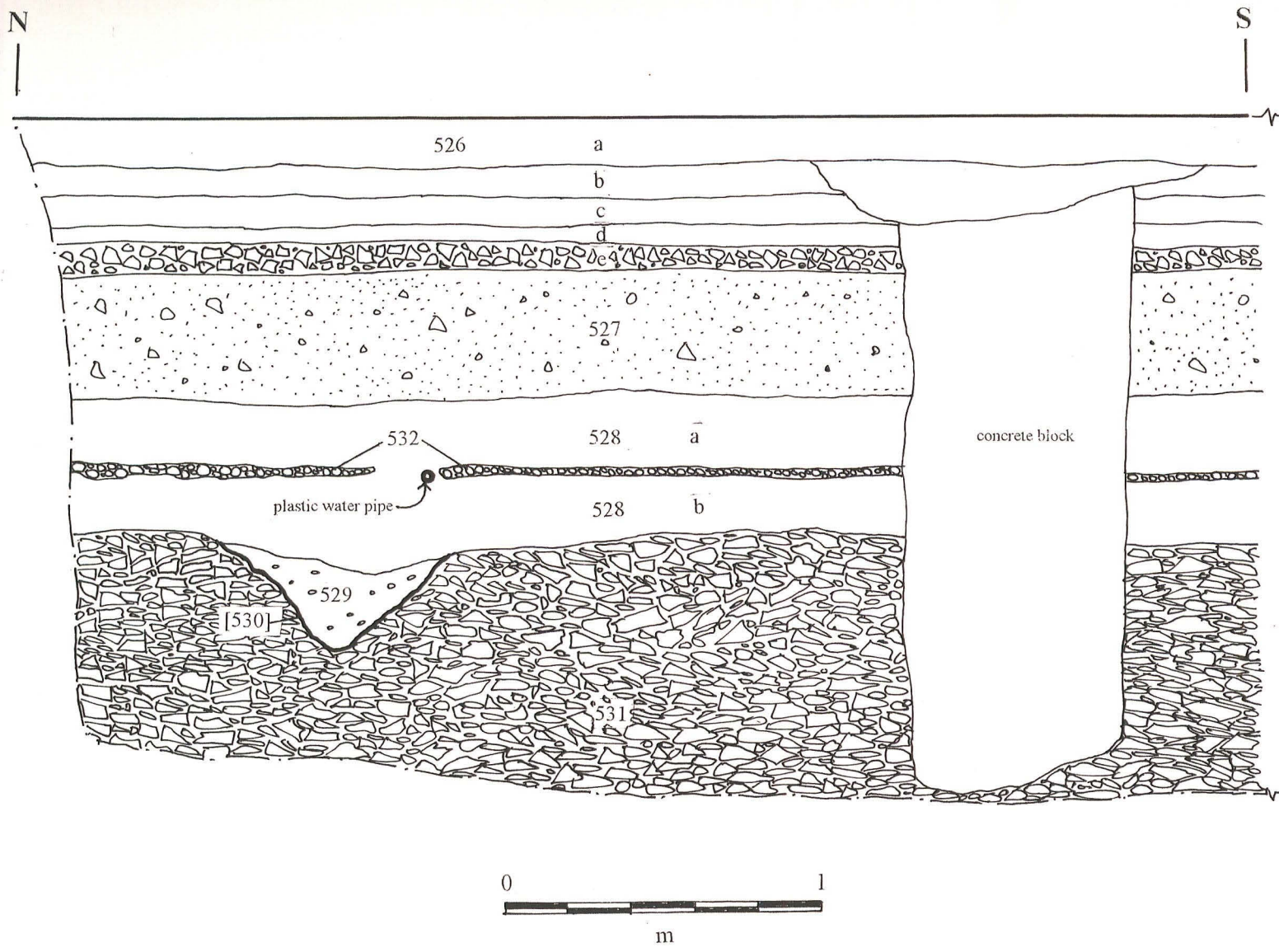


Figure 5: Access Pit 27, west facing section. The possible Roman road surface is deposit [532].

6.16 Plot 14

The pipeline ran along the eastern edge of the field, through a young cereal crop, for c. 330m.

Roman coin hoards have been found c. 150m and 50m to the west of the pipeline, in addition to prehistoric worked flints and other Roman finds, which have been recovered from a zone lying 100m to 250m to the west of the route. This material suggests that a Roman settlement existed to the immediate south-west of Bracebridge Heath.

In-situ archaeological deposits were not uncovered during topsoil stripping. Thirteen sherds of Romano-British pottery were recovered from this plot, with the majority coming from the northern half of the field, in the vicinity of Pit 25. There were also six medieval sherds.

A total of twenty-four pieces of worked lithic material were also recovered, the majority of which came from the southern half of the easement. This distribution is concordant with a scatter already recorded in the SMR.

6.16.1 Access pit 24

The access pit was located c. 10m north of the south-eastern corner of plot 14, at the boundary with a property called 'Redholme'. No archaeological deposits were revealed in the sides of the pit.

6.16.2 Access pit 25

The access pit was located c. 190m north of the southern edge of the field. No archaeological deposits were detected in the sides of the pit. The subsoil, (501), was c. 0.25m deep.

6.16.3 Access pit 26

The pit was located at the north-eastern corner of the field, where the pipe turns sharply toward the north-east and is diverted under Grantham Road, in order to avoid the most southerly houses in Bracebridge Heath. Archaeological deposits were not identified.

6.17 Beneath Grantham Road (A607) through Bracebridge Heath

6.17.1 Access pit 27

Located on the western side of the road, to the immediate north-east of Pit 26. Positioned to enable the pipe to change direction and run under the road. Cleaning of the west facing section revealed two potential archaeological features (*fig. 5*). The top 0.5m of the section was composed of successive layers of tarmac, (526), representing at least 4 road surfaces. Beneath this was a deposit of crushed limestone hardcore, (527), upon which the road had been laid.

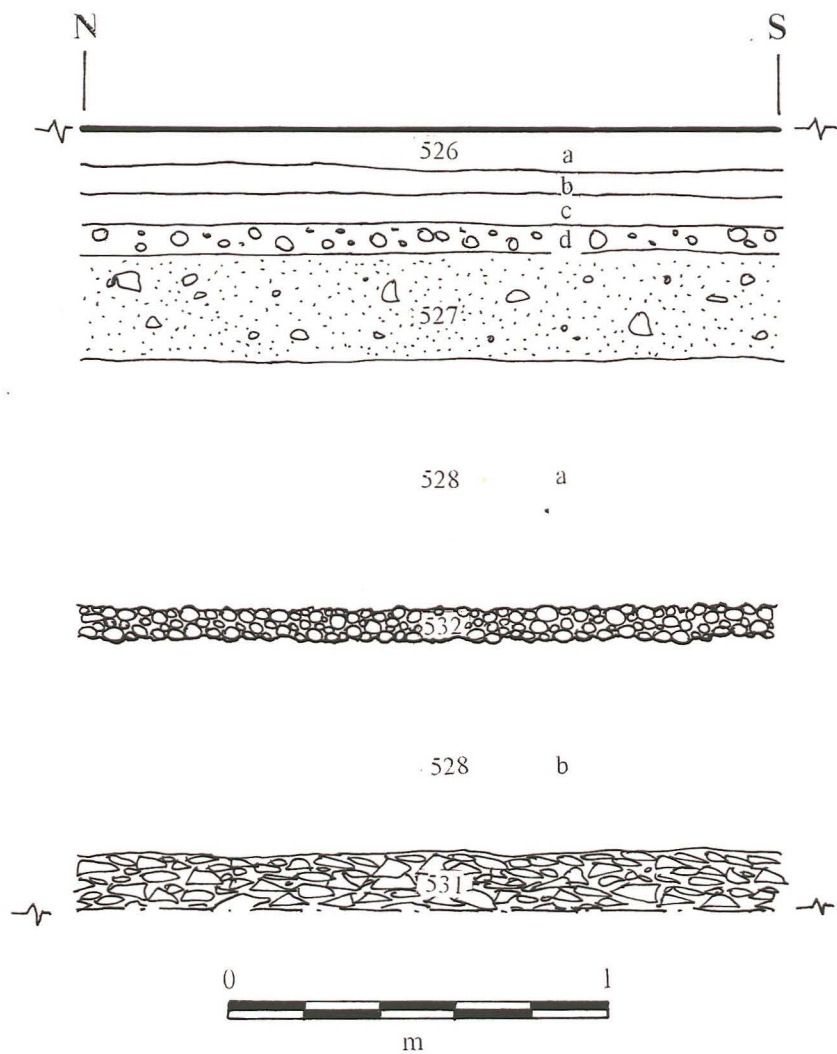


Figure 6: Access Pit 29, west facing section. The possible Roman road surface is deposit [532].

This had sealed a c. 0.42m thick layer of orangey-brown silty sand, (528), which contained occasional charcoal flecks and tile fragments. Within this layer, c. 1.10m below the modern road surface, was a layer of sub-rounded quartzite pebbles, (532), c. 0.02-0.05m thick. It was only possible to examine this layer in section, but it closely resembled the Roman surface of Ermine Street exposed at Navenby (Rylatt, 2000: this volume). Certainly (532) does not have a natural origin as scraps of tile were recovered at the base of (528), c. 0.25m below this 'surface'. Consequently, there is a possibility that (532) represents either the Roman surface of Ermine Street, which would mean that it enters Bracebridge Heath on a slightly different alignment than that currently projected, or that it represents a minor road running perpendicular to this early highway. The latter interpretation has some credibility, as there are significant scatters of Romano-British artefactual material in the fields to the west of this access pit.

Beneath (528) was a small pit or gully, [530], situated near the northern edge of the access pit. Finds were not recovered from the fill, (529), despite excavating into the section.

6.17.2 Access pit 28

Located on the western side of the road, c. 20m north of Vauxhall Road. The upper 0.9m of deposits closely resembled those examined in Pit 27 – tarmac layers and limestone hardcore. The sandy layer, (528), was also present, but there was no evidence of the putative road surface, (532), within this layer.

6.17.3 Access pit 29

This pit was located on the western side of the road, c. 50m south of the junction of Bentley Drive with Grantham Road. Layers of tarmac, (526), comprised the upper 0.34m of material, representing at least 4 road surfaces (*fig. 6*). Beneath this was crushed limestone hardcore, (527), c. 0.28m deep.

The orangey-brown silty sand deposit, (528), was particularly thick in this pit, at c. 1.3m deep. One small crumb of pottery was recovered from this layer, at a depth of c. 0.4m from its upper surface. Also situated within this deposit was a layer of sub-rounded quartzite pebbles, c. 0.08m thick. This layer was indistinguishable in character from that seen in Pit 27 and consequently has been assigned the same number, (532).

This access pit was situated on the section of Grantham Road that appears to be a continuation of Ermine Street, as it is aligned accurately with the known section crossing RAF Waddington, to the south. Consequently, it is tentatively suggested that the layer (532) represents the Roman surface of Ermine Street (spatially at least, the relationship is far less ambiguous than in Access Pit 27).

6.17.4 Access pit 30

Located on the western side of Grantham Road, directly opposite the junction with St. John's Road. This was a small pit that did not damage any stratified archaeological

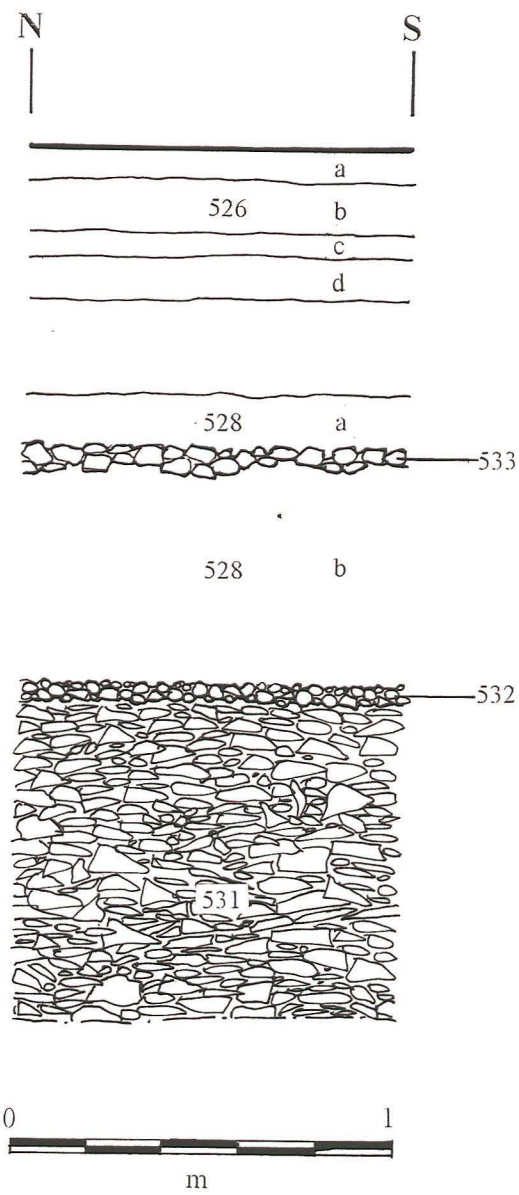


Figure 7: Access Pit 31, west facing section. The possible Roman road surface is deposit [532], with a later surface marked as [533].

deposits, due to the density of utility trenches in this particular location. The western edge had been removed by a gas main, the southern edge by a smaller water main and the northern and eastern sides by the pit created during the fitting of an air valve to the original steel trunk main.

6.17.5 Access pit 31

This pit was situated on the western side of the road, c. 150m north of St. John's Road. The pipe turns sharply toward the north-east to enter to reservoir compound. The top 0.4m was an accumulation of successive layers of tarmac, (526) (*fig. 7*). Beneath this was a deposit of crushed limestone hardcore, (527), c. 0.26m thick. This hardcore was laid upon the silty sand deposit, (528), noted in the access pits to the south, but in contrast to Pit 29, this was only c. 0.66m deep.

Within (528), a mere 0.13m from its upper surface, was a layer of sub-angular rubble, (533), 65% of which was limestone and 35% ironstone. Although only visible in section this appeared to form a relatively level surface, c. 0.08m thick, which probably constituted a road or trackway. It was different in character from (532) and was situated higher up the section. However, there were no associated artefacts, so it is not possible to suggest a date for its construction or use.

The interface between (528) and the limestone brash, (531), was defined by a thin band of sub-rounded quartzite pebbles, c. 1.42m below the modern ground surface (BMGS). Within this layer was a small quantity (c. 15%) of sub-angular limestone fragments, otherwise it appeared to be very similar to (532), noted in Access Pits 27 (1.10m BMGS) and 29 (1.27m BMGS).

Pit 31, like Pit 29, is situated on the same straight length of Grantham Road that appears to supersede Ermine Street (see above); therefore, it is not inconceivable that this band of quartzite pebbles represents another section through the Roman road; such interpretations remain tentative due to the absence of associated artefactual remains.

6.18 Bracebridge Heath Reservoir

6.18.1 Access pit 32

This pit was situated just inside the gates of the reservoir. The pipe entered from the south-west before turning through c. 135 degrees to head north. The sides of the pit had been much disturbed, especially by the construction of a large concrete manhole situated on the northern side. No archaeological deposits were detected.

7.0 Discussion and conclusions

Initially, it is beneficial to outline some of the limitations of the data recovered during this programme of fieldwork. While a fairly large assemblage of artefactual material was collected during the course of the watching brief, it is necessary to remember that this was gathered over a distance of c. 5,400m. Additionally, while there was some spatial and temporal patterning to these finds (see Appendix 12.4), none occurred in a sufficient density to represent a distinct concentration. Rather, the material served to confirm the patterning already noted in the county SMR. It should also be noted that the vast majority of these finds were recovered from the topsoil, (500), or from the top of the subsoil, (501). This is effectively an active soil horizon, where ploughing serves to redistribute, homogenise and degrade archaeological residues. Other finds came from the fills of the few features that were identified, but datable artefacts were absent from the stratified deposits exposed in the series of access pits excavated along the easement.

Aside from four or five sherds of grog tempered pottery, which may have been manufactured during the Iron Age, the evidence for prehistoric activity along the area of the pipeline corridor was restricted to lithic materials. The majority of this material was associated with core reduction, with very little constituting finished tools. Along with two utilised flakes, there were three scrapers. Of these, the thumbnail scraper recovered from Plot 13 is the only item having any diagnostic properties with regard to date of manufacture. It is likely that this implement was fabricated in the late Neolithic or early Bronze Age, but as this is an isolated artefact, any dating must remain inexact.

Relatively high numbers of lithic artefacts were recovered from two plots. Eight pieces were found in Plot 9, comprising a core fragment, four flakes and three chunks of flint. While such a small assemblage provides very little basis for interpretation, it is notable that these constituents are typical of core reduction, which raises the possibility that they represent deposits from an adjacent knapping floor. A larger collection of twenty-four pieces of worked flint came from Plot 14. Much of this came from the southern half of the field, where an earlier programme of field walking had already identified a lithic scatter. Material previously recovered included a fragment of a Neolithic Group VI axe and other diagnostic artefacts produced during the Neolithic and Bronze Age periods.

Low densities of Romano-British ceramics were retrieved from the majority of the plots (Plots 3, 7, 8, 10 and 11 being the exceptions). Much of this material is in a poor state of preservation, suggesting that it has been situated within the plough zone for much of the period following its initial deposition. The relatively small quantities and poor level of preservation imply that much of this material was introduced to the area examined as a constituent of midden material, spread to improve the fertility of the land. This hypothesis permits an additional proposal based on the meagre dating evidence available, namely that much of this area of the Lincoln Edge was utilised for arable farming during the 2nd-3rd centuries AD.

A relatively large collection of Romano-British pottery was recovered from Plot 14, near Access Pit 25, which is situated immediately adjacent to the southern edge of Bracebridge Heath. The presence of this assemblage is unsurprising, as it merely

augments a considerable quantity of Roman material that had already been recovered from this field. The earlier finds consisted of large amounts of roof tile and pottery, which suggests that some form of settlement lies to the west of the easement. Additionally, two contemporary coin hoards have been unearthed in this field, with a series of inhumations and cremations coming from the field immediately to the east of the A607.

Access Pit 27 was situated in the road, roughly parallel with the northern boundaries of these two fields. Examination of the west facing section of this pit revealed the presence of a continuous deposit of unmortared, sub-rounded, quartzite pebbles, (532), situated c. 1.1m below the modern road surface (*fig. 5*). This layer was c. 0.02-0.05m thick, its form and constituents being very similar to the sections of Ermine Street (e.g. (020) and (255)) exposed at Navenby during Phase I of the trunk main rehabilitation (Rylatt, 2000: this volume). It is possible to state that (532) is not a natural deposit, as it was contained within a layer of silty sand, (528), that incorporated occasional charcoal flecks and tile fragments throughout its profile. Additionally, the general absence of similar pebbles within the ploughsoil of the surrounding fields, or elsewhere in the vertical sections exposed in the pit, suggests that these stones are likely to have been imported into the area.

Consequently, it is probable that (532) represents a road surface. The depth of the deposit, the nature of artefactual materials recovered from the immediate vicinity, and the close resemblance to the road exposed at Navenby suggests that this is likely to be a Roman surface. Ermine Street is known to enter the southern end of Bracebridge Heath, but a projection of the alignment from extant sections suggests that this occurs c. 110m to the east of Access Pit 27. Consequently, either Ermine Street follows a slightly different alignment to that currently predicted, or we are looking at an entirely different road. The lack of any evidence for a camber to this surface suggests that it was exposed along its length, rather than across its breadth, which could support the former argument. However, if the latter scenario were correct, then this must be a minor road or track, presumably with a flat profile and probably running perpendicular to the main highway. Such a metalled surface may be expected to run up to the area of structural debris in Plot 14, as any such settlement would probably have been integrated into the communications infrastructure.

Layer (532) was also detected in Access Pit 29 (*fig. 6*), again there was no associated datable material, but the arguments for a Roman date, given above, also hold true for this example. This access pit lies c. 450m to the north of Pit 27, on the section of Grantham Road that appears to overlie or closely mimic the course of Ermine Street. This suggests that in Pit 29, layer (532) is the surface of Ermine Street. Access Pit 31 also overlay this particular alignment. Therefore, a further band of sub-rounded quartzite pebbles situated at the interface between a sandy silt deposit and the limestone brash may represent another section through the Roman road (*fig. 7*).

Evidence for medieval activity was largely restricted to the material traces of agricultural activity. The most tangible of these are the furrows exposed to the north and south of Waddington, which almost certainly represent elements of the open fields surrounding that settlement. The features examined in Plot 8 represent a relatively coherent component of two furlongs, which run perpendicular to each other (*fig. 8*). The southern element, [518], runs north to south, meeting the northern

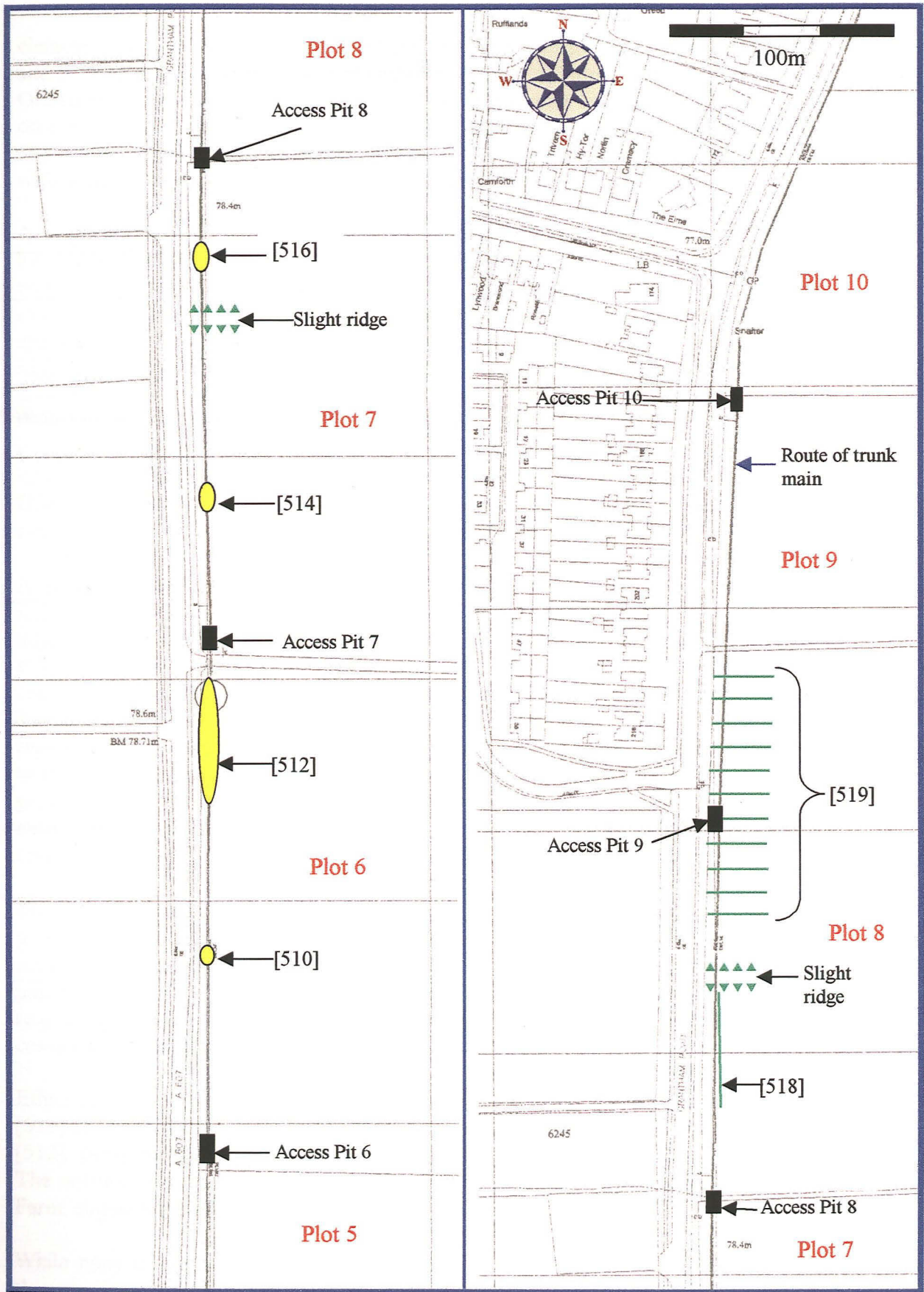


Figure 8: Location of the quarry pits (in yellow) and remains of a medieval field system (green), as found in Plots 6, 7 and 8 (scale 1: 2,500).

element, [519], at a slight ridge, located c. 90 north of the junction between Plots 7 and 8. This ridge is marked as a boundary on recent editions of the 1: 10,000 scale Ordnance Survey map, so the removal of any associated hedge or fence must have occurred within living memory. There is another, parallel, ridge situated in Plot 7, c. 75m to the south of this boundary. This may represent the southern limit of [518], with both of these banks likely to be the vestiges of ploughed-out headlands.

A single furrow, [520], was detected to the north of the village (*fig. 4*). This was located in Plot 12, c. 40m from its northern boundary. This furrow was aligned north-east to south-west, appearing to run under the road. A similar relationship was noted in Plot 8, where [518] ran alongside the road, but along a slightly different alignment, appearing to converge with the latter toward its northern end. This observation suggests that the medieval field system predated the creation of Grantham Road. It is possible that a medieval precursor to this highway followed a more sinuous route, threading its way between the furlongs. Alternatively, the formalisation of the route now known as Grantham Road may have taken place considerably later, possibly in conjunction with Enclosure. In this case, the majority of traffic would have used High Dike/Ermine Street, c. 125m to the east, with the village sitting back from the road; a similar spatial relationship exists between modern Harmston and the A607.

A quantity of artefactual material was recovered from the fill of furrow (520), which suggests that it was partially filled during the second half of the 14th century. This might signify that there was a transformation in the nature of the agricultural regime at this time. That these field systems were under cultivation prior to the end of the 14th century appears to be supported by the pottery recovered from the pipeline easement. The implications of the low densities of material have been discussed above, with regard to the Romano-British assemblage, and the same argument applies with respect to the medieval period. Consequently, as the majority of the medieval ceramics were produced between the 13th and 15th centuries, this is likely to represent the period of extensive and sustained cultivation, requiring the addition of midden material to enhance soil fertility.

The relative paucity of artefacts post-dating the 15th century also supports the proposal that there was a shift in agricultural production. Lack of artefacts effectively equals lack of middening, most likely signifying that much of the land had reverted to pasture. The survival of earthworks in some of the fields to the south of Waddington (e.g. Plot 1) until as late as 1964 may provide further corroborative evidence of the cessation of ploughing.

Effectively, the only evidence of post-medieval activity are the four large pits, [510]/[512]/[514]/[516], located in Plots 6 and 7. Three are sub-oval, with the fourth, [512], being elongated, the long axis of which ran parallel with the A607 for c. 60m. The northern end of [512] appears to terminate just short of the access road to Barn Farm, suggesting that the latter was already in place.

While none of the pits were excavated, their size, as revealed in plan, indicates that they are likely to be quarry pits opened to extract limestone. The top few metres of the latter are comprised of relatively small rubble, which would not be particularly useful as a building material. Additionally, the pits are situated several hundred metres to the south of Waddington, probably making the haulage of such bulk material to a building

site an unviable proposition. It is also possible that limestone was extracted for burning and adding to the land, but this would not happen if the proposed change to a pastoral regime (see above) had actually occurred. It therefore seems likely that the stone was extracted for a far more localised use, namely the construction and/or repair of Grantham Road.

This programme of archaeological fieldwork has supplemented the data already held by the county SMR and, in some cases, has enabled a synthesis of this information to provide further insights into the nature of past utilisation of the Lincoln Edge, to the south of the city. However, the results of this investigation should not be viewed as a complete catalogue of the archaeological remains lying within the pipeline corridor. It seems likely that any features predating the medieval period were not detected, as they probably lay shrouded beneath a blanket of subsoil.

8.0 Effectiveness of methodology

Although an archaeological presence was maintained throughout the period during which all the groundworks were carried out, very few archaeological deposits were uncovered. This was largely due to the fact that stripping only removed the topsoil; if any older archaeological deposits were crossed by the pipeline easement the subsoil would have masked them. Thus, the topsoil strip can be considered not to have damaged any deposits situated below the subsoil.

The access pits provided 'keyhole' views of the stratigraphy along the route. These were positioned along the course of the existing steel pipeline, but were wider than the original, continuous trench cut for the insertion of the latter. Thus, they caused some damage to stratified archaeological and geological deposits, but in the process enabled the observation of newly created vertical sections.

It is concluded that the methodology employed during this phase of works was not entirely effective. The topsoil strip exposed only medieval and modern features and consequently failed to provide any context for prehistoric and Romano-British activity already identified from surface scatters. The latter were augmented by material recovered during the watching brief, but this basically served to confirm the nature and date of previously known distributions, rather than identify new locales of past human activity.

In many respects, the lack of results can be justified by arguing that archaeological deposits were only slightly affected by this scheme of works, and thus were preserved *in-situ*. However, it is apparent with the benefit of hindsight that the stripping of the subsoil, in conjunction with the topsoil, would have been the only means of quantifying the archaeological resource, assessing the level of attrition, and maximising the data recovered.

9.0 References

- B.G.S. 1973 *Lincoln - Sheet 114*, 1:50,000 solid and drift edition. British Geological Survey.
- Boutwood, Y., 1998 The physical landscape of Lincolnshire, in Bewley, R. H. (ed.), 1998, *Lincolnshire's Archaeology from the Air*, The Society for Lincolnshire History and Archaeology.
- DoE, 1990 *Planning Policy Guidance Note 16: Planning and Archaeology*. London, HMSO.
- I.F.A., 1994 *Standard Guidance for Archaeological Field Evaluations*. Birmingham, Institute of Field Archaeologists.
- L.C.C., 1998 *Lincolnshire Archaeological Handbook; A Manual of Archaeological Practice*. Lincoln, Built Environment Section, Lincolnshire County Council.
- Mills, A. D., 1993 *Dictionary of English Place-Names*, Oxford University Press.
- Rylatt, J. 2000 *Archaeological Watching Brief Report, Ermine Street, Navenby, Lincolnshire. Central Lincolnshire Trunk Main Rehabilitation, Phase I. Pre-Construct Archaeology* (Unpublished report).
- Tann, G., 1999 *Waddington Replacements, Grantham Road Water Main Archaeological Watching Brief*, Lindsey Archaeological Services Report 351 (Unpublished).
- Tann, G., Armour-Chelu, R., & Williams, M., 2000 *Dunston Nitrate Blending Scheme, Archaeological Monitoring and Excavations During Groundworks for a Water Pipeline Through Bracebridge Heath, Waddington and Dunston, Lincs.* Lindsey Archaeological Services Report 359 (Unpublished).

10.0 Acknowledgements

Pre-Construct Archaeology Ltd would like to thank Richard Smedmore and Phil Croft of Anglian Water Services Ltd., Russell Dennison of Dean & Dyball Construction (Midlands Region), and all the groundworkers employed by Subterra for their help during the construction phase. Thanks are also expressed to the Built Environment Team at Lincolnshire County Council.

11.0 Site archive

The site archive (documentary and physical) for this project is in preparation and will be deposited at the Lincoln City and County Museum and the Lincolnshire Archives Office (documentary) within six months. Access to the archive may be granted by quoting the global accession number 2000.77.

12.0 APPENDICES

Appendix 11.1 Colour photographs



Plate 1: Plot 4. topsoil stripping in progress, note the modern plough scores, running diagonally across the easement, cutting into the subsoil. looking north-west.



Plate 2: Plot 8, furrow [518] running up the middle of the picture, looking north.



Plate 3: Plot 12, pre-excavation shot of furrow [520], showing distribution of finds exposed by topsoil stripping, looking north-east.

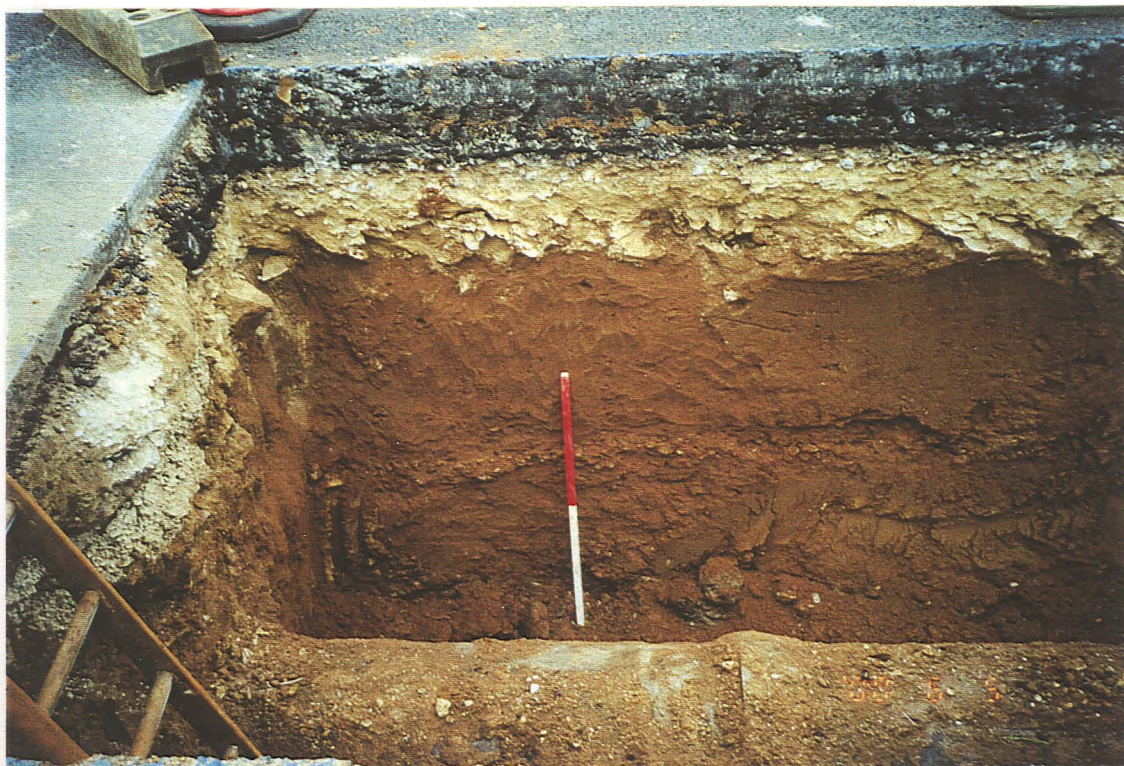


Plate 4: Access Pit 29, west facing section, with the possible Roman road surface, (532), visible half way up the red section of the vertical scale, looking east.

**REPORT 66 ON THE POTTERY FROM HARMSTON TO
BRACEBRIDGE HEATH PIPELINE, HBM00**

for PRE-CONSTRUCT ARCHAEOLOGY

by Margaret J. Darling, M.Phil., F.S.A., M.I.F.A.

6 July 2000

QUANTITY AND CONDITION

The pottery came from 27 deposits, and amounted to 167 sherds weighing 1.768kg. The condition is extremely poor, most sherds being very abraded with considerable loss of surfaces. The average sherd weight is just over 10g. No problems are anticipated for long term storage. The pottery has been archived using count and weight as measures according to the guidelines laid down for the minimum archive by *The Study Group for Roman Pottery*. A copy of the database is attached (and can be supplied on disk), and will be curated for future study.

DISCUSSION

The condition and fragmentary nature of the finds, virtually all of which were found with post-Roman material, precludes much useful information. Most of the sherds are in varying grey fabrics, but shell-gritted fragments, grog-tempered sherds, and a few scraps of samian, all from Central Gaul, also occur. Very little can be dated with any precision.

It is possible that the coarse grog-tempered fragments (GROG) belong to the later Iron Age (from 2D, 500-501 groups 11 & 14 and 501). The shell-gritted sherds are in too poor condition and size for certain identification and dating, and some could be of Iron Age date. The earliest identified Roman sherds are the samian, all 2nd century, and some of the grey vessels, such as a flanged bowl or dish (F3 ? or 3F). A number of fragmentary grey rims appear to be from large jars or possibly wide-mouthed bowls, and there are two plain-rimmed dishes. Most of these could date to the later 2nd century, through the 3rd century. There are no sherds for which a definite 4th century date can be applied.

Four sherds have not been viewed as post-Roman by Mrs J Young, but are debatable as being of Roman date, and are noted as ??ROM in the details field:

1A OX? BD?
1B GREY?
9A OX?
13E OX?

A fragment of a hone came from 13G.

Cxt	Group	Fabric	Form	Manuf+	Vess	D?	DNo	Details	Links	Shs	Wt
F3	-	GREY	BDFL	-	-	-	-	RIM/PT WALL;ABR	-	1	14
NR PIT 24	16	GREY	-	-	-	-	-	BSS;VABR	-	4	31
NR PIT 25	16	GREY	-	-	-	-	-	BSS;VABR	-	20	83
NR PIT 25	16	GREY	J	-	-	-	-	RIM FRAG;VABR LTGRY	-	1	8
NR PIT 26	16	GREY	-	-	-	-	-	BS & FLAKE;VABR	-	2	4
NR PIT 26	16	GREY	DPR	-	-	-	-	RIM FRAG;VABR	-	1	6
1A	-	GREY	-	-	-	-	-	BSS;VABR	-	3	15
1A	-	OX	JB	-	-	-	-	RIM CURVED FRAG;VABR	-	1	6
1A	-	OX?	BD?	-	-	-	-	RIM VVABR;LTRB;MICAC;LOST RB SURF;??ROM	-	1	7
1A	-	SHEL	-	-	-	-	-	BS;VABR;SURFACE LOST;DKGRY;SPARSE SHELL	-	1	6
1B	-	GREY	-	-	-	-	-	BSS;VABR	-	2	8
1B	-	GREY	JB	-	-	-	-	RIM FRAG	-	1	9
1B	-	GREY?	-	-	-	-	-	BS;V.HARD FIRED;THIN WALL;??ROM	-	1	1
2B	-	GREY	-	-	-	-	-	BS VABR	-	1	6
2B	-	GREY	JBK?	-	-	-	-	BS;THIN WALL	-	1	1
2B	-	GREY	JL	-	-	-	-	RIM FRAG;BURNISHED	-	1	47
2D	-	GROG	-	HM?	-	-	-	BS;DKGRY;RB EXT;?BURNT INT	-	1	5
4A	-	GREY	-	-	-	-	-	BSS;VABR	-	2	10
4C	-	GREY	JB	-	-	-	-	RIM FRAG;ABR	-	1	46
5B	-	GREY	JBK?	-	-	-	-	BS THIN WALL	-	1	2
5B	-	SAMCG?	-	-	-	-	-	BS VVABR;NO SURF SURVIVES	-	1	3
5B	-	SHEL	-	-	-	-	-	LUMP;VABR	-	1	1
9A	-	GREY	-	-	-	-	-	BSS VABR	-	3	21
9A	-	OX?	-	-	-	-	-	BS;SURF LOSS;??ROM	-	1	2
9G	-	GREY	-	-	-	-	-	BS VABR	-	1	16
12A	-	GREY	-	-	-	-	-	BS;VVABR	-	1	8
12G	-	GREY	-	-	-	-	-	BS;VVABR	-	1	5
13A	-	GREY	-	-	-	-	-	BS;ABR;BURNT	-	1	11
13A	-	GREY	JL	-	-	-	-	SHLDR PT;THICK;CHALK;FLINT	-	1	34
13C	-	GREY	-	-	-	-	-	BS;VABR	-	2	13
13D	-	GREY	-	-	-	-	-	BSS;VABR	-	2	11
13E	-	GREY	-	-	-	-	-	BS;VABR	-	1	16
13E	-	GREY	-	-	-	-	-	BSS;ABR	-	2	44
13E	-	GREY	JB	-	-	-	-	RIM CURVED FRAG;VABR	-	1	16
13E	-	OX?	-	-	-	-	-	BS;VABR;V.LIMEY;??ROM	-	1	9
13F	-	OX	-	-	-	-	-	BS;VABR;GRY CORE;RB SURFS	-	1	1
13G	-	GREY	-	-	-	-	-	BS;THIN WALL;VBURNT?;SURF LOSS	-	1	4
13G	-	GREY	-	-	-	-	-	BSS;DKGRY FAB;V.LTGRY SURFS	-	3	20
13G	-	GREY	-	-	-	-	-	BSS;VABR	-	3	26
13G	-	ZZZ	-	-	-	-	-	FRAG HONE	-	0	0
16C	-	GREY	-	-	-	-	-	BS;VVABR	-	1	3
100-101	15	GFIN	JBK?	-	-	-	-	BS	-	1	4

Cxt	Group	Fabric	Form	Manuf+	Vess	D?	DNo	Details	Links	Shs	Wt
100-101	15	GREY	-	-	-	-	-	BSS;VABR	-	9	57
100-101	15	GREY	BDFL?	-	-	-	-	RIM FRAG;VABR	-	1	6
100-101	15	GREY	DPR	-	-	-	-	COMP PROF;VABR;DEEP DISH	-	1	58
100-101	15	GREY	J	-	-	-	-	NECK FRAG;VABR	-	1	14
100-101	15	GREY	J	-	-	-	-	RIM FRAG;VABR	-	1	9
100-101	15	SHEL	-	-	-	-	-	BS;VABR;GRY	-	1	3
500	2	GREY	-	-	-	-	-	BS;BURNT?	-	1	19
500	13	GREY	-	-	3	-	-	BSS;ABR	-	3	23
500-501	11	GREY	-	-	-	-	-	BS;ABR	-	1	4
500-501	10	GREY	-	-	-	-	-	BSS LTGRY SANDY	-	2	7
500-501	14	GREY	-	-	-	-	-	BSS	-	3	12
500-501	12	GREY	-	-	-	-	-	BSS;DKGRY FAB;THIN V.LTGY SURFS	-	2	36
500-501	16	GREY	-	-	-	-	-	BSS;VABR	-	30	240
500-501	12	GREY	-	-	-	-	-	BSS;VABR	-	4	36
500-501	5	GREY	-	-	3	-	-	BSS;VABR	-	3	13
500-501	14	GREY	BD	-	-	-	-	BASE FRAG	-	1	15
500-501	16	GREY	CHP?	-	-	-	-	BASE FR;BORE ?PRE-FIRING;VABR	-	1	6
500-501	12	GREY	J	-	-	-	-	RIM FRAG;VABR	-	1	6
500-501	5	GREY	J?	-	1	-	-	BASE FRAG;VABR;SANDY	-	2	18
500-501	-	GREY	JB	-	-	-	-	RIM VABR	-	1	41
500-501	16	GREY	JBK	-	-	-	-	BASE;SMALL VESS;ABR	-	1	8
500-501	14	GREY	JBK?	-	-	-	-	BASE SM.VESS;RB CORTEX	-	1	8
500-501	16	GREY	JCUR	-	-	-	-	RIM FRAG	-	1	18
500-501	12	GREY	JCUR?	-	-	-	-	RIM FRAG;VABR	-	1	6
500-501	12	GREY	JH?	-	-	-	-	HDLE FRAG	-	1	15
500-501	16	GREY	JL	-	-	-	-	BSS;THICK	-	3	136
500-501	12	GREY	JL	-	-	-	-	RIM FRAG;VABR	-	1	68
500-501	16	GREY	JL	-	-	D	-	RIM/SHLDR;RIM GROOVED & LID-SEATED INT	-	1	199
500-501	11	GREY?	-	-	-	-	-	BS;VABR;SANDY ?ROM	-	1	2
500-501	11	GROG	-	-	-	-	-	BS;ABR;LTGRY;CHALK;GROG;?SHEL	-	1	4
500-501	14	GROG	-	HM?	-	-	-	BS;VABR;DKGRY;LTBN EXT;?IA	-	1	2
500-501	-	GROG	JL	-	-	-	-	BS;THICK;VABR;DKGRY;RB EXT	-	1	57
500-501	16	SAMCG	-	-	-	-	-	CHIP;ABR	-	1	1
500-501	12	SAMCG	-	-	-	-	-	FLAKE ONLY	-	1	1
500-501	11	SHEL	-	-	-	-	-	BS;ABR;DKGRY;RB EXT	-	1	2
500-501	14	VESIC	JLS?	-	-	-	-	RIM FRAG;ABR;BURNT;?SHEL	-	1	10
501	4	GREY	-	-	-	-	-	BS;ABR	-	1	8
501	3	GROG?	-	HM?	-	-	-	BS;VABR;DKGRY;GRYBN EXT	-	1	4
520	-	GREY	-	-	-	-	-	BS;VABR	-	1	13
										167	1768

Appendix 12.3 Post-Roman pottery and tile report

Post-Roman Pottery Archive for HBM00

Notes and Glossary

Only one cohesive group of post-Roman pottery occurred amongst the assemblage, that in context 520. This group contains pottery dating to between the mid and late 14th century, mainly glazed Lincoln wares. Dates have been given for individual sherds for all other material from the site.

codename	full name	earliest	latest date	sherds	vessels
BERTH	Brown glazed earthenware	1550	1800	1	1
BL	Black-glazed wares	1550	1750	7	7
BS	Brown stoneware	1680	1850	1	1
CIST	Cistercian-type ware	1480	1650	1	1
LEMS	Lincolnshire Early Medieval	1130	1230	2	2
LLSW	Late Lincoln Glazed ware	1350	1500	3	3
LPM	Late Post-Medieval wares	1750	1900	1	1
LSLS	Late Saxon Lincoln Sandy ware	850	920	1	1
LSTON	Late stoneware	1780	1900	1	1
LSW1/2	12th-13th century Lincoln	1100	1300	1	1
LSW2	13th to 14th century Lincoln	1200	1320	9	9
LSW2/3	13th to 15th century Lincoln	1200	1450	10	10
LSW3	14th to 15th century Lincoln	1280	1450	23	22
MEDLOC	Medieval local fabrics	1150	1450	5	4
MEDX	Non Local Medieval Fabrics	1150	1450	2	2
MISC	Unidentified wares	400	1900	4	4
MP	Midlands Purple ware	1380	1600	2	2
NOTG	Nottingham glazed ware	1250	1500	2	2

period	sherds	vessels
Late Saxon	1	1
Early medieval	3	3
Medieval	51	49
Late medieval	3	3
Late medieval to post-medieval	2	2
Post-medieval	9	9
Early modern	3	3
Not known	4	4

pottery archive hbm00

Jane Young Lindsey Archaeological Services

trench	context	cname	form type	sherds	vessels	decoration	part	description	date	condition
	01A	LSW2	jug	1	1		BS		13th	
	01A	LSW2	jug	1	1		BS		13th	
	01A	LSW2/3	jug	1	1		BS		13-15th	very abraded
	01A	LSW2/3	jug	1	1		BS		13-15th	very abraded
	01A	LSW2/3	jug	1	1		BS		13-15th	very abraded
	01B	LSW3	jug	1	1		BS		14-15th	abraded
	02A	LSLS	?	1	1		BS		9-10th	
	02A	MEDX	cauldron?	1	1		handle	sandy fabric;amber/brown glaze	14-16th	
	02A	NOTG	jug	1	1		BS	light firing	13-14th	very abraded
	02B	BERTH	?	1	1		BS		17-18th	
	02B	MEDLOC	?	1	1		BS		13-15th	very abraded
	02D	LSW2	jug	1	1		BS		13th	very abraded
	02D	LSW2/3	?	1	1		BS		13-15th	very abraded
	03F	LSW2/3	jug	1	1		BS		13-15th	abraded
	04C	MP	?	1	1		BS		15-16th	
	05A	MP	jar	1	1		rim		15-16th	
	05B	LSW2	jug	1	1		BS		13th	abraded

trench	context	cname	form type	sherds	vessels	decoration	part	description	date	condition
	05B	LSW3	jug	1	1		BS		15th	abraded
	08F	LLSW	jug	1	1		BS		15th	abraded
	08F	LSW2	jug	1	1		BS		13th	very abraded
	08F	MISC	?	1	1		BS	vitrified	16-20th	
	09G	LPM	jug?	1	1		handle	black basalt	18th	
	12A	LSW3	bowl?	1	1		base		14-15th	abraded
	12G	LSW2	jug	1	1		BS		13th	vary abraded
	12G	LSW2/3	jug	1	1		BS		13-15th	vary abraded
	12G	LSW3	jug	1	1	thumbed	base	soot	14-15th	abraded
	13G	LSW2	jug	1	1	applied strip	BS		13th	abraded
	13G	LSW2	jug	1	1		BS		13th	abraded
	13G	LSW2/3	bowl	1	1		rim		13-15th	abraded
	520	LEMS	?	1	1		BS			
	520	LEMS	?	1	1		BS			
	520	LSW3	jug	2	1		BS			
	520	LSW3	jug	1	1		BS			
	520	LSW3	jug	1	1		BS			
	520	LSW3	jug	1	1		BS			
	520	LSW3	jug	1	1		BS			
	520	LSW3	jug	1	1		BS			
	520	LSW3	jug	1	1		BS	interior deposit		

trench	context	cname	form type	sherds	vessels	decoration	part	description	date	condition
	520	LSW3	jug	1	1		base			
	520	LSW3	jug	1	1		LHJ			
	520	LSW3	jug	1	1		BS			
	520	LSW3	jug	1	1		BS			
	520	LSW3	jug	1	1		BS			
	520	LSW3	jug	1	1		rim			
	520	MEDLOC	jug	1	1		handle	rod handle	13-14th	very abraded
	520	NOTG	jug	1	1		BS	cu glaze;cream fabric		
group 05	500/501	BL	?	1	1		BS		17th	abraded
group 05	500/501	BL	jar	1	1		rim		late 17th-18th	
group 06	500/501	BL	bowl	1	1		rim		17-18th	
group 06	500/501	LSW1/2	jug	1	1		BS		12-13th	abraded
group 07	501	BL	jar	1	1		BS		17-18th	
group 08	500/501	LSTON	bowl	1	1		rim		18-19th	
group 08	500/501	MEDLOC	jug	1	1		BS		14-15th	abraded
group 09	500	LSW3	jug	1	1		BS		14-15th	abraded
group 10	500/501	LSW3	jug	1	1		BS		14-15th	
group 10	500/501	LSW3	jug	1	1		BS		14-15th	
group 11	500/501	BL	?	1	1		BS		17-18th	
group 11	500/501	MEDLOC	?	2	1		BS		13-14th	very abraded
group 13	500/501	LSW3	jug	1	1		BS		14-15th	

trench	context	cname	form type	sherds	vessels	decoration	part	description	date	condition
group 14	500/501	BL	?	1	1		BS		17-18th	
group 15	100/101	BL	?	1	1		base		17-18th	abraded
group 15	100/101	LLSW	?	1	1	stamped circles	BS		15th	abraded
group 15	100/101	MEDX	jug	1	1		BS	probably NOTG	13-14th	very abraded
group 16	500/501	LLSW	jug	1	1		rim		14-15th	abraded
group 16	500/501	LSW2	jug	1	1		BS		13th	abraded
group 16	500/501	LSW2/3	jug	1	1		BS		13-15th	abraded
group 16	500/501	LSW2/3	jug	1	1		BS		13-15th	very abraded
group 16	500/501	LSW2/3	jug	1	1		BS		13-15th	very abraded
group 16	500/501	MISC	?	1	1		BS		undated	very abraded
group 16	500/501	MISC	?	1	1		BS	shell fabric	undated	very abraded
group 16	500/501	MISC	bowl?	1	1		rim		undated	abraded
group 16	near pit 25	BS		1	1		BS		18-19th	slightly abrade
group 16	near pit 25	CIST	costrel	1	1		lug		16-17th	slightly abrade
group 16	near pit 26	LSW3	jug	1	1		BS		14-15th	abraded

tile archive hbm00

trench	context	cname	frags	weight	description	date
	01A	NIB	1	0	vitrified	Medieval to late medieval
	01A	PNRDISC	2	45		Medieval
	01A	RBRKDISC	1	70		Roman
	01B	PANTDISC	1	25		Early modern
	01B	PNRDISC	4	75		Medieval
	01B	RTILDISC	1	25		Roman
	02A	PNRDISC	6	210		Medieval to post-medieval
	02A	RBRKDISC	1	50		Roman
	02A	RTILDISC	7	155		Roman
	02B	PNRDISC	2	50		Medieval
	02C	RTILDISC	2	80		Roman
	02D	IMBDISC	1	60		Roman
	04A	RTILDISC	2	70		Roman
	05B	PNRDISC	1	15		Medieval
	09A	PNRDISC	1	25		Medieval
	09A	PNRDISC	1	25		Post-medieval
	09G	PNRDISC	1	20		Medieval
	12A	PANTDISC	1	20		Early modern

trench	context	cname	frags	weight	description	date
	12A	PNRDISC	1	30		Medieval
	13C	RTILDISC	1	60		Roman
	13E	PNRDISC	1	25		Medieval
	13G	RTMISCDISC	2	115		Roman or medieval
	13H	RTILDISC	2	50		Roman
	513	PNRDISC	1	10		Medieval
	520	GPNR	1	0		13th
	520	GPNR	1	0	flat early	12 to 13th
	520	NIB	1	0	corner	12 to 13th
	520	NIBDISC	1	65	moulded nib	12 to 13th
	520	PNR	1	0	odd fabric	13 to 15th
	520	PNRDISC	1	100		13 to 15th
	520	PNRDISC	1	60		13 to 14th
	520	PNRDISC	1	95		12 to 13th
group 06	500/501	PANTDISC	1	65		Early modern
group 06	500/501	PNRDISC	1	25		Medieval
group 06	500/501	RTILDISC	2	60		Roman
group 08	500/501	PNRDISC	1	30		Medieval
group 11	500/501	MISC	1	0	semi-vitrified fine clay	undateable
group 11	500/501	PNRDISC	1	25		Medieval
group 11	500/501	TEGDISC	1	75		Roman

trench	context	cname	frags	weight	description	date
group 12	500/501	PANTDISC	1	175		Early modern
group 12	500/501	PNRDISC	2	35		Medieval
group 12	500/501	TEGDISC	1	30		Roman
group 14	500/501	RTILDISC	1	120		Roman
group 14	500/501	TEG	1	0	flange	Roman
group 15	100/101	PANTDISC	3	235		Early modern
group 15	100/101	PNRDISC	2	85		Medieval
group 15	100/101	RTILDISC	9	250		Roman
group 16	500/501	PNRDISC	1	25		Medieval
group 16	500/501	RBRKDISC	1	55		Roman
group 16	500/501	RTILDISC	3	145		Roman
group 16	near pit 24	PNR	1	0		Medieval
group 16	near pit 26	PNRDISC	1	40		Medieval

Appendix 12.4 Preliminary report on field walking data

(compiled March, 2000)

PRE-CONSTRUCT ARCHAEOLOGY (LINC'LN)

Central Lincs. Trunk Main (Phase II) HBM 00

Preliminary analysis of materials recovered during field-walking.

The route of the trunk main crosses a landscape containing a number of documented archaeological sites. These can be related to prehistoric, Romano-British and medieval activity.

Prehistoric artefacts have been recovered on a number of occasions from the fields to the immediate south-west of Bracebridge Heath, and an Early Bronze Age stone hammer was discovered to the immediate north-west of Waddington.

There are more extensive remains associated with Romano-British activity. Aerial photography has detected a rectangular enclosure, which is crossed by the pipeline in fields 1 and 2. This is presumed to have a Romano-British origin due to its morphology and relationship with Ermine Street. Additionally, a large number of sites of this date have been identified from surface scatters of artefacts. These generally occur in the fields to the west of Grantham Road, at intervals of approximately 250m.

The route of the pipeline easement was field-walked on 30th March 2000, prior to the commencement of topsoil stripping by contractors working on behalf of Anglian Water Services Ltd. Artefactual materials were recovered for specialist analysis.

The route was divided up arbitrarily to provide some spatial control in this investigation. Fields were numbered sequentially from south to north, and then further sub-divided into relatively equal lengths, these being assigned a letter as a suffix.

Results

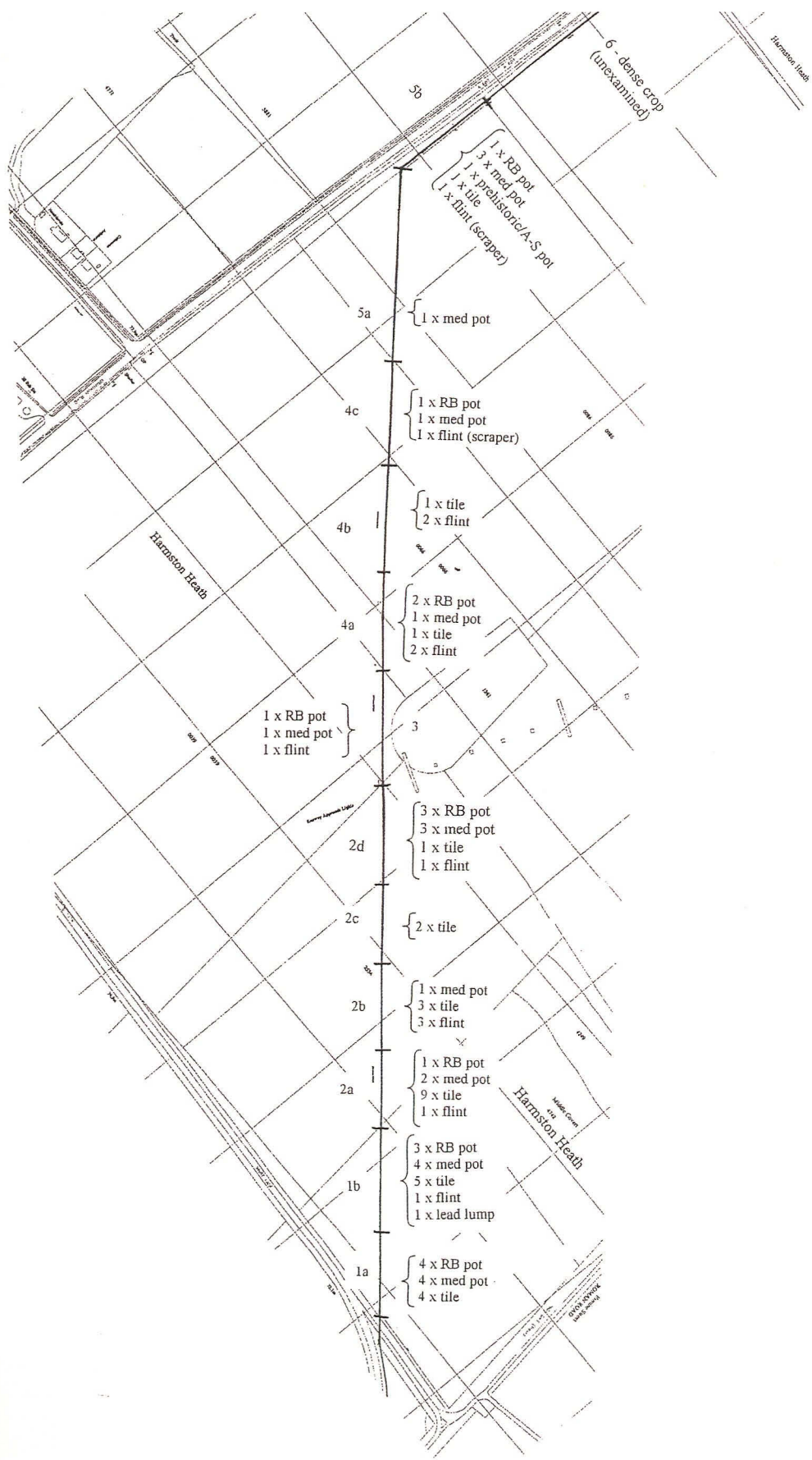
The material recovered has been rapidly assessed to provide some indication of its nature and its density along the route of the easement. This examination should only be considered as providing a very basic analysis: it will now be submitted to specialist researchers for more detailed examination.

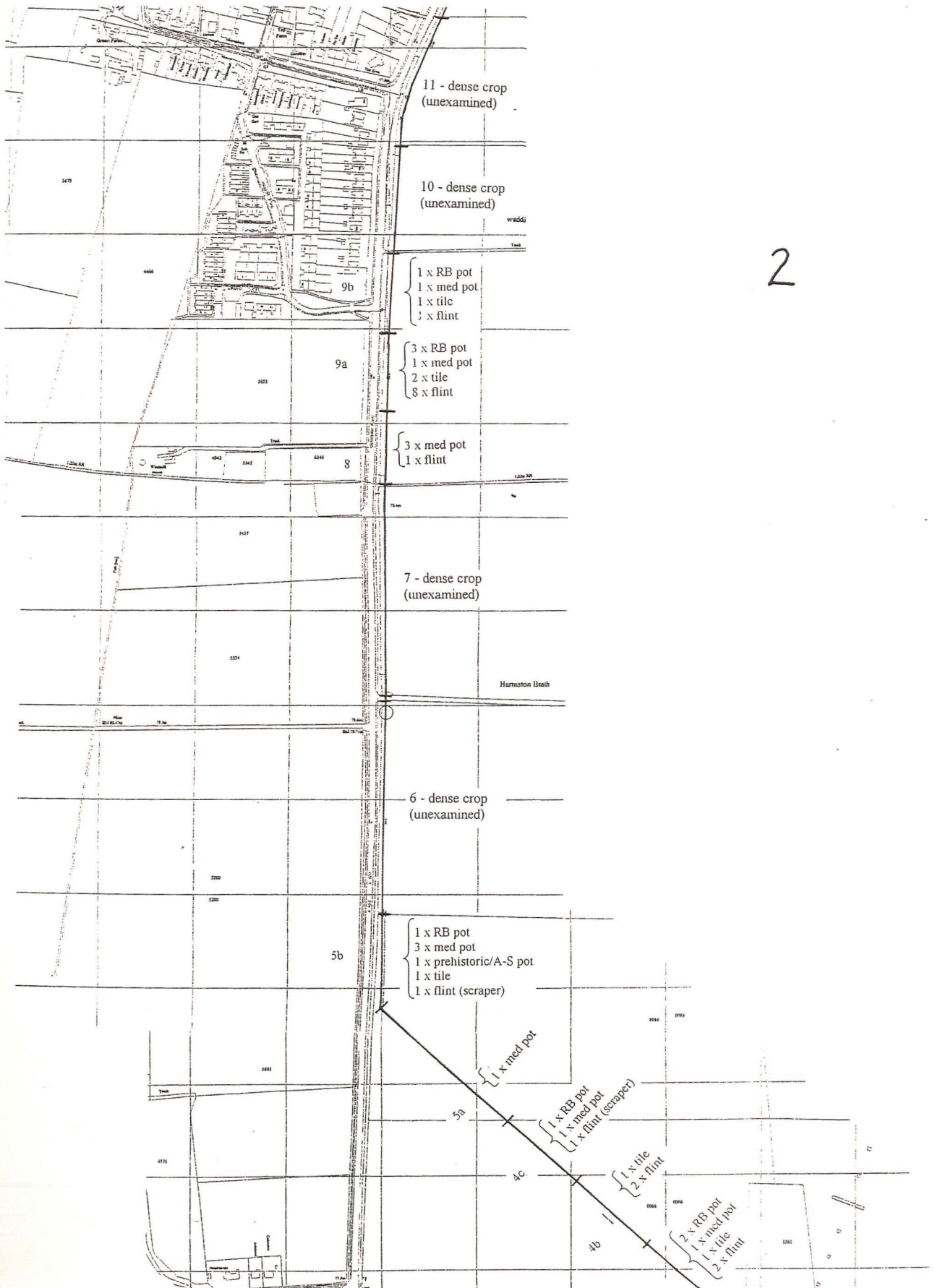
Only very-low to low densities of material were recovered along the route of the pipeline; Certainly, there are no concentrations of material that might give strong indications of the presence of an unknown archaeological site. Although there are slightly higher levels of Romano-British pottery in field 1 and the southern half of field 13, this does not represent quantities that could not be explained away as incidental dispersal of broken pottery in midden material used to fertilise contemporary arable fields.

In a similar manner, it is also noticeable that there was a higher than average quantity of worked flint recovered from area 9a. However, it is difficult to postulate the presence of a knapping floor or other prehistoric focus of activity from a mere 8 pieces of lithic material.

Jim Rylatt

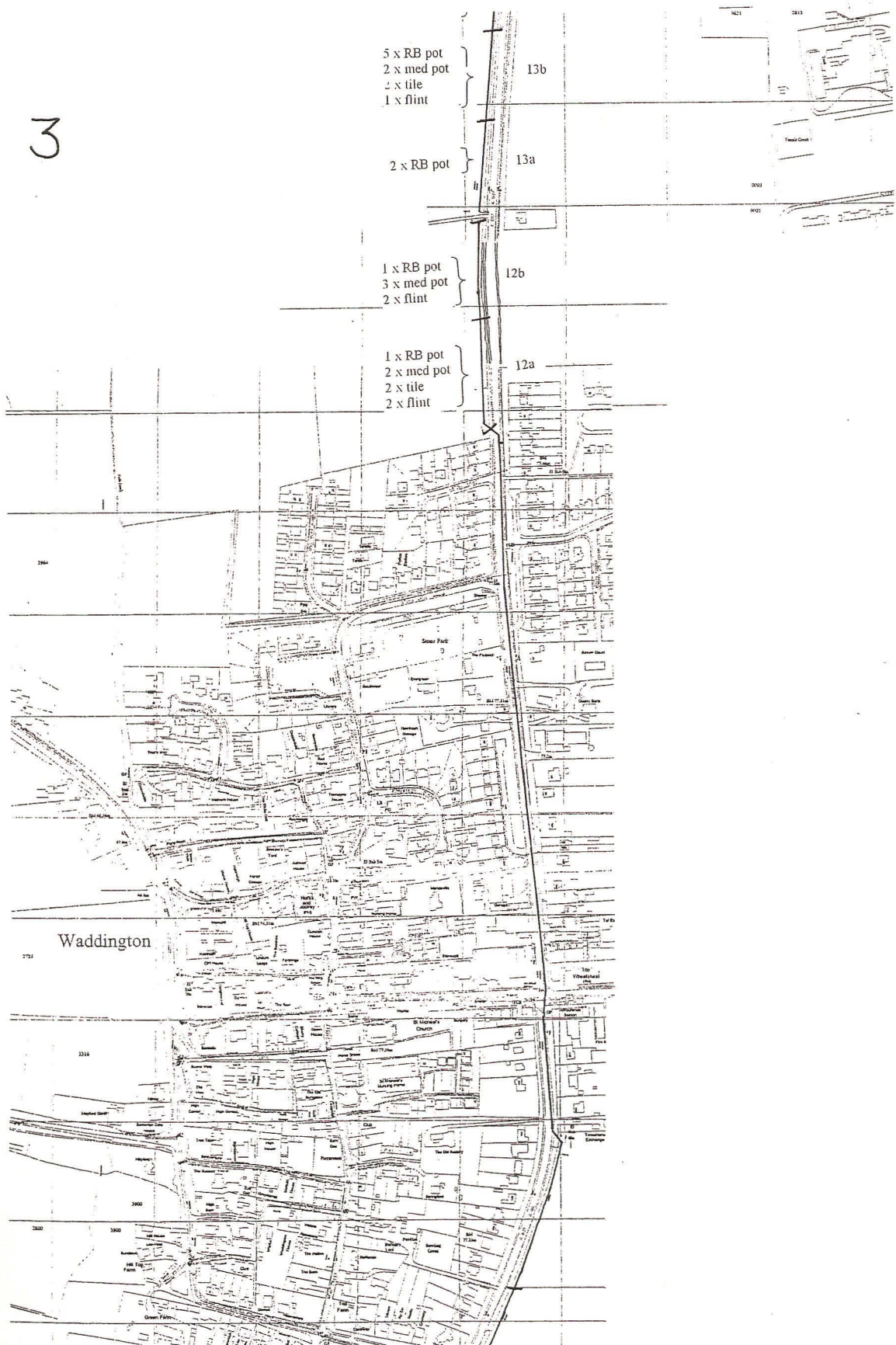
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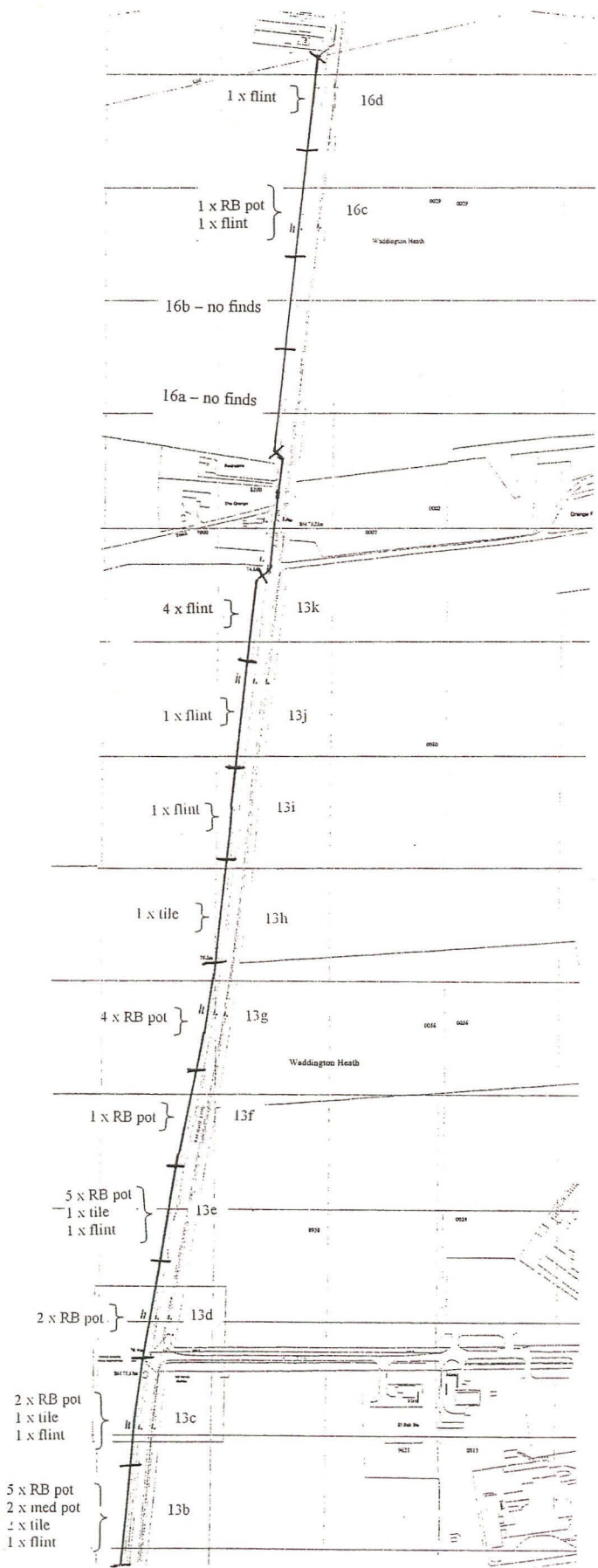


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3



4



Appendix 12.5 Lithic artefacts report

Central Lincolnshire Trunk Main - phase II, Harmston to Bracebridge Heath (HBM 00)

Lithic Materials: Catalogue and Assessment

Report by Jim Rylatt – July, 2000

Catalogue

F = fieldwalking phase; S = soil stripping phase

No.	Plot No.	Sub-division	F	S	Context No.	Description
1	1	B	X			Secondary flake Cortex on c. 5% of dorsal face, which elsewhere shows signs of single-platform working to produce parallel-sided flakes. Some damage, probably due to modern agriculture. Heavily patinated grey-brown opaque flint. 37 x 26mm.
2	2	A	X			Tertiary flake Small notched blade, with faceted butt. Proximal end of one lateral edge has small semi-circular notch c. 7mm wide, produced by removal of 4 small spalls; distal end of other lateral edge shows evidence of possible use-wear. Very diffuse bulb. Semi-translucent grey-brown flint. 19 x 13mm.
3	2	B	X			Tertiary flake Squat flake with damage to both lateral edges, probably due to post-depositional rolling, etc. Terminates in a hinge fracture. Dorsal scarring indicates flake removal. Lightly patinated grey-brown opaque flint. 22 x 22mm.
4	2	B	X			Secondary flake Small, squat flake – probably core rejuvenation. Pale grey opaque Wolds flint with c. 15% cortex. 15 x 21mm
5	2	B	X			Core fragment Core with multi-platform working (4x) (Cb), almost worked to exhaustion. Scars (10+) indicate flake removal: c. 10% of surface is cortical. Heavily patinated flint with some inclusions. 28 x 38mm.

No.	Plot No.	Sub-division	F	S	Context No.	Description
6	2	D	X			Chip/chunk Probable core fragment. Unpatinated on 2 of 5 surfaces, indicating relatively recent, post-depositional damage. Grey opaque Wolds flint with chalky inclusions.
7	3	F	X			Broken secondary flake Proximal fragment, with cortical platform. Diffuse bulb of percussion. Brownish-grey opaque flint.
8	4	A	X			Chip/chunk Possible core fragment. Lightly patinated dark grey-brown opaque flint with occasional inclusions.
9	4	A	X			Broken tertiary flake Proximal fragment, with very diffuse bulb of percussion. Heavily patinated on one surface, possibly indicating opportunistic reuse of discarded core Pale grey opaque Wolds flint with some chalky inclusions.
10	4	C	X			Misc. Scraper Produced on a secondary flake with <5% cortex, which occurs on a projection on one lateral edge – latter does not appear to have been utilised as a borer. Plunging flake, with diffuse bulb – latter partially broken away. Abrupt retouch around distal end and down one lateral edge. Lightly patinated grey-brown opaque flint. 26 x 22mm.
11	4			X	500	Secondary flake Cortex on c.15% of dorsal face, which shows signs of multi-platform working. Relatively diffuse bulb. Patinated grey-brown opaque flint. 33 x 30mm.
12	5	B	X			Side Scraper Produced on a tertiary flake. One lateral edge is very irregular, a product of prior flake removal, while other has been carefully worked, scale-flaking has produced semi-abrupt retouch. Some possible retouch on distal end, but very irregular. Relatively pronounced bulb. Lightly patinated; produced from tabular block of semi-translucent, honey coloured flint. 24 x 26mm.
13	5			X	501	Secondary flake Plunging flake, with small cortical platform (c. 2%). Produced from multi-platform core. One edge serrated, but this is post-depositional damage. Relatively diffuse bulb. Patinated grey-brown opaque flint. 27 x 15mm.
14	5			X	501	Tertiary flake Proximal fragment of blade, with diffuse bulb. Subject to post-depositional damage. Patinated grey-brown opaque flint.

No.	Plot No.	Sub-division	F	S	Context No.	Description
15	7			X	500/501	Secondary flake Majority of dorsal surface (>90%) cortical, but flake had already been removed to create a platform. Terminates in a hinge fracture. Significant post-depositional damage. Patinated grey-brown opaque flint. 42 x 26mm.
16	8			X	501	Secondary flake Cortical platform and diffuse bulb. Dorsal face shows evidence of flake removal. 24 x 18mm.
17	8			X	501	Broken secondary flake Distal fragment of flake terminating in a hinge fracture. C. 20% of surviving piece is cortical. Lightly patinated brownish-grey opaque flint.
18	8	F	X			Broken tertiary flake Distal fragment of a flake, with possible use-wear on the distal end. Lightly patinated dark grey flint with some small chalky inclusions.
19	9			X	500/501	Tertiary flake Blade-like flake with faceted butt and relatively diffuse bulb. Other scars suggest blade removal. Patinated brownish-grey opaque flint. 17 x 13mm.
20	9	A	X			Secondary flake Small blade-like flake, with triangular cross-section. Patinated dark grey opaque flint with c. 20% cortex. 18 x 9mm
21	9	A	X			Broken secondary flake Distal fragment of a flake. Patinated grey-brown opaque flint.
22	9	A	X			Chip/chunk Broken secondary flake or core fragment. Cortical on one surface and unpatinated on 2 of other 4 surfaces, indicating relatively recent, post-depositional damage. Dark brownish-grey opaque flint.
23	9	A	X			Chip/chunk Small fragment of flint, with scarring indicating prior flake removal. Patinated grey-brown opaque flint.
24	9	A	X			Broken secondary flake Distal fragment of a small blade. Very tip is also missing, and dorsal face c. 35% cortex. Patinated grey-brown opaque flint.
25	9	A	X			Tertiary flake Core rejuvenation - plunging flake, with thick, triangular cross-section and significant crushing along facets at distal end. Pale to mid-grey opaque Wolds flint with chalky inclusions.
26	9	A	X			Core fragment Core with working from minimum of 2 platforms, significant post-depositional damage makes more precise determination difficult. Scars (3+) indicate flake removal: No cortex surviving. Patinated brownish-grey opaque flint with some inclusions. 19 x 36mm.

No.	Plot No.	Sub-division	F	S	Context No.	Description
27	9	G	X			Chip/chunk Possible core fragment, with scarring indicating flake removal. Lightly patinated grey-brown opaque flint.
28	10			X	500	Chip/chunk Flake broken by post-depositional processes. Patinated brownish-grey opaque flint.
29	12	A	X			Secondary flake Thick irregular flake, with c. 5% cortex and scar pattern suggesting that it has been struck with very little skill or pre-meditated idea behind working. Relatively diffuse bulb, with bulbar scarring. Grey-brown opaque flint. 20 x 25mm.
30	12	G	X			Core Single platform core, scarring indicating flake removal; opportunistically produced on a thick (secondary) waste flake. Surface is 90% cortical, but pitted and rounded suggesting that nodule/cobble has been retrieved from a river or stream bed. Milky grey opaque Wolds flint with inclusions. 49 x 35mm.
31	12	G	X			Broken tertiary flake Proximal fragment of a large thick (19mm) flake. One lateral edge has number of flakes removed from, and retouch along, dorsal face. Other lateral edge is similar, but with removal from ventral face. Fairly diffuse bulb with bulbar scarring. Dark grey opaque flint with some inclusions - patina is treacle-brown in colour.
32	13	C	X			Chip/chunk Thermally altered fragment; not calcined, but crystalline structure altered throughout thickness of piece. Lightly patinated brownish-grey opaque flint.
33	13	E	X			Core fragment Core with working from minimum of 2 platforms, significant post-depositional damage makes more precise determination difficult. Scars (4+) suggest blade and flake removal: No cortex surviving. Patinated brownish-grey opaque flint with some inclusions.
34	13	G	X			Broken tertiary flake Distal fragment of small, blade-like flake, with triangular cross-section. Only the platform is missing from this flake, which terminates in a hinge fracture. Patinated grey-brown opaque flint.
35	13	J	X			Secondary flake Plunging flake, with c. 25% cortex. Diffuse bulb. Brownish grey opaque flint.
36	13	K	X			Broken secondary flake Distal fragment of a squat, irregular flake terminating in hinge fracture. Cortical near platform (<5%), which is missing due to post-depositional damage. Lightly patinated grey-brown opaque flint.

No.	Plot No.	Sub-division	F	S	Context No.	Description
37	13	K	X			Secondary flake Irregular flake, with cortical platform and diffuse bulb. Lightly patinated grey-brown opaque flint; N.B. - may come from same nodule as '39'. 18 x 17mm.
38	13	K	X			Core fragment Core with working from 3 platforms. Scars (7+) suggest blade and flake removal: no cortex. Lightly patinated grey-brown opaque flint.
39	13	K	X			Secondary flake Small flake with cortical platform, possibly associated with core rejuvenation. Heavily patinated grey-brown opaque flint. 12 x 15mm.
40	13			X	500	Gun flint (wedge technique) Sub-rectangular flake with triangular (scalene) cross-section. Produced by the truncation and 'flake flaking' (creating two ventral faces) of a large flake. Three edges carefully, and quite abruptly, trimmed on one face. The fourth (thinnest) edge has slightly larger flakes, removed at a semi-abrupt angle from both faces - these probably result from use-wear (i.e. when the flint lock is fired). Lightly patinated brownish-grey opaque flint. 22 x 23mm. Example is slightly smaller than average.
41	13			X	500/501	Broken tertiary flake Proximal fragment of possible blade - dorsal scars indicate blade removal. Patinated grey-brown opaque flint.
42	13			X	500/501	?Utilised flake Thick, squat flake with cortical platform (c. 25%). While it may be product of post-depositional processes, one edge, at distal end, appears to have been abruptly retouched, including removal of 2 or more scale-flakes. Mottled dark grey ?Wolds flint. 15 x 19mm.
43	13			X	500/501	Thumbnail scraper Very small example of this type of scraper, produced on a tertiary flake. Two faces are heavily patinated in contrast to others, which may indicate opportunistic reuse of discarded flake. Abrupt to semi-abrupt retouch of distal and lateral edges, primarily through removal of scale-flakes. Patinated brownish-grey opaque flint. 17 x 16mm.
44	13			X	500/501	Broken tertiary flake Proximal fragment of thermally altered flake. Bulbar scarring. Slightly pinkish hue suggests that it has been burnt. Grey opaque flint.
45	13			X	500/501	Broken tertiary flake Proximal fragment of a blade. Bulbar scarring. Heavily patinated flint.

No.	Plot No.	Sub-division	F	S	Context No.	Description
46	13			X	500/501	Utilised flake Secondary flake with cortical platform (c. 10%). Diffuse bulb. Distal edge has abrupt retouch on dorsal face, as does distal end of one lateral edge; the proximal end of this edge is notched. Semi-circular notch produced by removal of 2+ spalls from ventral face, but this could result from use-wear. Lightly patinated brownish-grey opaque flint. 23 x 19mm.
47	13			X	500/501	Utilised flake Secondary flake with c. 5% cortex. Bulbar scarring. Distal edge and one lateral edge has abrupt to semi-abrupt retouch on dorsal face. The other lateral edge has semi-abrupt retouch on ventral face Dark brownish-grey opaque flint. 22 x 29mm.
48	14	C	X			Core fragment Core with working from at least one platform, significant post-depositional damage makes more precise determination difficult. Scars (6+) suggest blade and flake removal: c. 25% cortex. Patinated brownish-grey opaque flint with some inclusions.
49	14	D	X			Core Small core (3b) worked to exhaustion. Scars indicate both fine blade (6) and small flake (3) removal - size of detached pieces possibly indicates that this item is later Mesolithic? Patinated brownish-grey opaque flint with c. 25% cortex. 19 x 23mm.
50	14			X	500/501	Broken tertiary flake Distal fragment of a blade. Patinated brownish-grey opaque flint with some inclusions.
51	14			X	500/501	Secondary flake Majority of dorsal surface (>90%) cortical, but a flake had already been removed to create platform. Some post-depositional damage. Patinated greyish to caramel-brown opaque flint with chalky inclusions. 42 x 37mm.
52	14			X	500/501	Chip/chunk Irregular fragment, with 5 small flake removal scars. Some post-depositional damage, otherwise lightly patinated greyish-brown opaque flint with chalky inclusions.
53	14			X	501-P24	Secondary flake Small flake, with c. 40% cortex. Moderately prominent bulb. Some post-depositional damage. Lightly patinated brownish-grey opaque flint 21 x 15mm.
54	14			X	501-P24	Broken tertiary flake Proximal fragment of relatively large flake, with pronounced bulb and bulbar scarring. Heavily patinated flint.

No.	Plot No.	Sub-division	F	S	Context No.	Description
55	14			X	501-P24	Secondary flake Small flake, plunges slightly., c. 25% cortex. Lightly patinated grey-brown opaque flint. 18 x 11mm.
56	14			X	501-P24	Secondary flake Small squat flake, terminating in hinge fracture, c. 10% cortex. Patinated grey-brown opaque flint. 15 x 22mm.
57	14			X	501-P24	Secondary flake Proximal fragment of flake, with moderately pronounced bulb and bulbar scarring. Heavily patinated flint.
58	14			X	501-P24	Chip/chunk Small fragment of a flake, possibly thermally altered. Patinated grey-brown opaque flint.
59	14			X	501-P24	Chip/chunk Small fragment of a flake, possibly thermally altered. Patinated pale grey- opaque flint with chalky inclusions.
60	14			X	501-P24	Tertiary flake Irregular squat flake removed from a multi-platform core. Diffuse bulb. Lightly patinated grey-brown opaque flint. 16 x 24mm.
61	14			X	501-P24	Secondary flake Thick flake, probable early stages of core reduction, with c. 60% cortex. Some post-depositional damage. Diffuse bulb. Lightly patinated grey-brown opaque flint. 22 x 18mm.
62	14			X	501-P24	Secondary flake Very irregular flake removed from a multi-platform core, probably core rejuvenation. Diffuse bulb, c. 10% cortex. Lightly patinated grey-brown opaque flint. 22 x 18mm.
63	14			X	501-P24	Tertiary flake Thick flake removed from multi-platform core. Some crushing along one edge, diffuse bulb. Patinated grey-brown opaque flint. 24 x 26mm.
64	14			X	501-P24	Secondary flake Small irregular flake, c. 60% cortex. Moderately prominent bulb. Lightly patinated grey-brown opaque flint. 20 x 16mm.
65	14			X	501-P25	Broken secondary flake Proximal fragment of a flake, with triangular cross-section. Diffuse bulb and c. 40% of dorsal face cortical. One lateral edge has use-wear or limited abrupt retouch. Therefore, it is possible that this is a resharpening flake. Patinated brownish-grey opaque flint.
66	14			X	501-P25	Tertiary flake Small trimming flake. Patinated opaque flint. 6 x 10mm.
67	14			X	501-P25	Chip/chunk Irregular fragment, with 2 flake removal scars and c. 5% cortex. Heavily patinated dark grey opaque flint.

No.	Plot No.	Sub-division	F	S	Context No.	Description
68	14			X	501-P25	Tertiary flake Squat plunging flake, possibly core rejuvenation. Diffuse bulb. Coarse grained, patinated (?Wolds) flint. 16 x 35mm.
69	14			X	501-P25	Broken tertiary flake Proximal fragment of flake, with diffuse bulb. Patinated grey opaque flint
70	14			X	501-P25	Broken tertiary flake Proximal fragment of flake, with pronounced bulb. Lightly patinated grey-brown opaque flint
71	14			X	501-P26	Chip/chunk Small fragment of dark grey opaque flint.

NB: Measurements are given only for complete flakes. They were taken at right angles to the platform; the first figure relates to length, the second to breadth. Figures for the percentage of cortex relate to the total area of the dorsal surface and platform.

Discussion

Considering the area from which the lithic material was collected, this is a very small assemblage. This imposes severe constraints upon any attempt to establish its character and chronology. Furthermore, these artefacts were collected from the ploughsoil or the top of the subsoil, indicating that they were no longer associated with the place of deposition due to the effects of a variety of taphonomic processes. These factors will affect the interpretation.

There were no distinct concentrations in the distribution of lithic artefacts, but two plots appeared to slightly exceed the background level. 8 pieces were recovered from Plot 9, consisting of a core fragment, four flakes and three chunks of flint. This provides little basis for interpretation, but it is notable that these constituents are typical of core reduction, suggesting that they possibly represent material dragged by the plough from an adjacent knapping floor. 24 pieces of worked flint (34% of the total) were retrieved from Plot 14, most in the southern half of the field. This had already been identified as an area containing a scatter of lithic artefacts, which included Neolithic and Bronze Age flints and a fragment of a Neolithic Group VI greenstone axe, an import from Cumbria.

Overall, the assemblage is loosely indicative of core reduction and tool production. There were 48 flakes, of which only 3 appeared to have been utilised. Additionally, there were 12 miscellaneous chips or chunks of flint that appeared to have been produced as a bi-product of knapping, and 7 cores or core fragments (nos. 6, 26, 30, 36, 41, 48, 49). A more exacting interpretation is impossible, as fine trimming and pressure flakes are difficult to recover, and cores are known to have been re-utilised in structured deposits.

Of the 48 flakes only 8 (4%) were blades or blade like flakes, which were evenly distributed along the easement. Blades are generally indicative of a late Mesolithic or earlier Neolithic industry. In contrast flake removal is more characteristic of later Neolithic and Bronze Age industries.

The dating of individual artefacts can be quite inexact, as there is an absence of associated debitage and other tools to provide corroborative evidence. A small thumbnail scraper (43), recovered from Plot 13, is the only lithic artefact for which a date may be proposed. Comparable

items are generally found in association with latest Neolithic and Early Bronze Age deposits – particularly ‘Beaker’ material. They may be associated with both domestic and funerary assemblages. The other 2 scrapers (nos. 10, 12) do not have diagnostic features that would provide any clear indication as to date of manufacture.

The gun-flint (40) found in Plot 13 is of a type mass produced in the post-Medieval period for use in flintlock weapons.

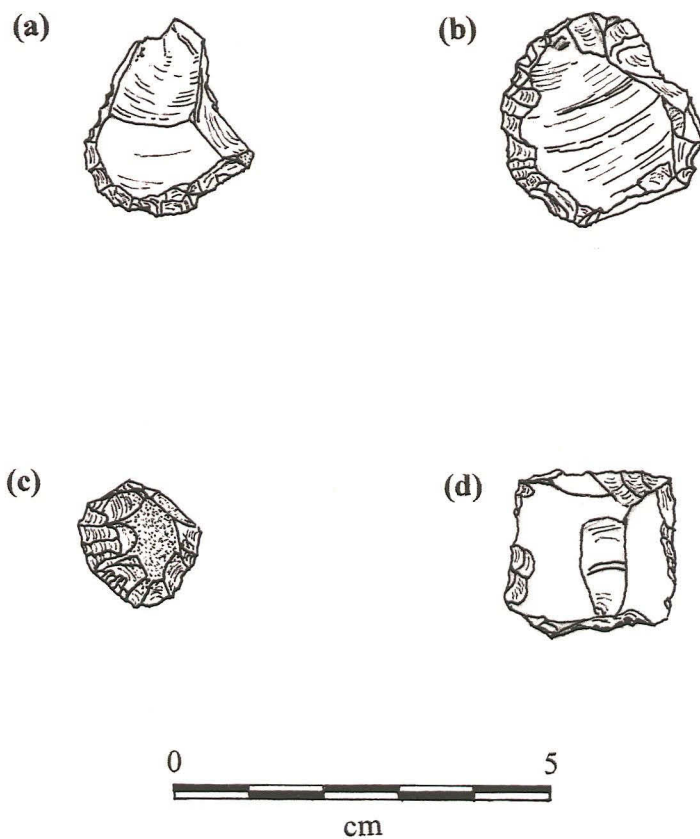


Figure 1: Selection of the lithic material recovered during the Central Lincs Trunk Main Rehabilitation Scheme, Phase II, situated between Harmston and Bracebridge Heath. (a) Scraper, (10), recovered from Plot 4; (b) Side scraper, (12), recovered from Plot 5; (c) Thumbnail scraper, (43), recovered from Plot 13; (d) Wedge technique gun flint, (40) also recovered from Plot 13.

Appendix 12.6 Catalogue of small finds

Harmston to Bracebridge Heath, Central Lincs trunk main, Phase II (HBM 00)

Compiled from data provided by J. Mann, City and County Museum, Lincoln

<i>Context No.</i>	<i>Material</i>	<i>Dimensions (mm)</i>	<i>Description</i>
520 (Plot 12)	Fe	L: 83, Dia: 36	Fragment (<50%) of a barrel-padlock case; the end plate, half the casing, bolt and springs are missing.. Slightly tapered, with three strengthening straps spaced approximately equidistant along its length, but otherwise plain. It may have been a padlock with a shackle attached, in which case the strengthening straps may not have continued right around the circumference of the case. Late medieval or post-medieval in date.

Appendix 12.7 Context summary list

Context No.	Type	Relationship	Description
500	Layer	Seals all	Topsoil
501	Layer	Sealed by (500)	Subsoil
502	Fill		Fill of old water main trench c. 1979
503	-	-	Not used
504	Cut		Periglacial reticulation
505	-	-	Not used
506	Deposit	?Over (501)?	Possible denuded bank: headland or natural feature
507	Layer		Natural – cornbrash, same as (531)
508	Deposit	Sealed by (500)	Fill of natural hollow?
509	Cut	Sealed by (500)	Plot 5 - Probable access pit – widening of (502) where pipeline changes direction from SE-NW to S-N
510	Cut	Filled by (511)	Plot 6 - Quarry pit – probably post-medieval to modern
511	Fill	Sealed by (500)	Upper fill of [510] - similar to (500)
512	Cut	Filled by (513)	Plot 6 - Quarry pit – probably post-medieval to modern
513	Fill	Sealed by (500)	Upper fill of [512] - similar to (500)
514	Cut	Filled by (515)	Plot 7 - Quarry pit – probably post-medieval to modern
515	Fill	Sealed by (500)	Upper fill of [514] - similar to (500)
516	Cut	Filled by (517)	Plot 7 - Quarry pit – probably post-medieval to modern
517	Fill	Sealed by (500)	Upper fill of [516] - similar to (500)
518	Cut		Plot 8 – Furrow: probably medieval, approx N-S orientation, but slightly different to A607
519	Cut(s)		Plot 8: Furrows (group no.) probably medieval, approx E-W orientation
520	Cut	Below (500), cuts (501)	Plot 12: Furrow, medieval, approx NE-SW orientation
521	Deposit	Below (500)	Plot 13: Possible denuded bank: headland or natural feature
522	Layer	Same as 526	Tarmac road surface
523	Layer		Concrete Road make-up
524	Layer	Below (523), above (525)	Access pit 13: Buried soil
525	Layer		Access pit 13: Natural sand deposit
526	Layer	Same as 522	Access pits 17-21: Tarmac road surface
527	Layer	Below (526), above (528)	Road make-up – crushed limestone
528	Layer	Below (527), seals (529)	Silty sand – possible remnant of a buried soil, organic depleted
529	Fill		Fill of [530]
530	Cut		Small pit or gully

531	Layer	Below (523),	Natural – cornbrash, same as (507)
532	Layer	Within (528)	Possible road surface, sub-rounded quartzite gravel layer
533	Layer	Within (528)	Possible road surface, sub-angular limestone and ironstone rubble