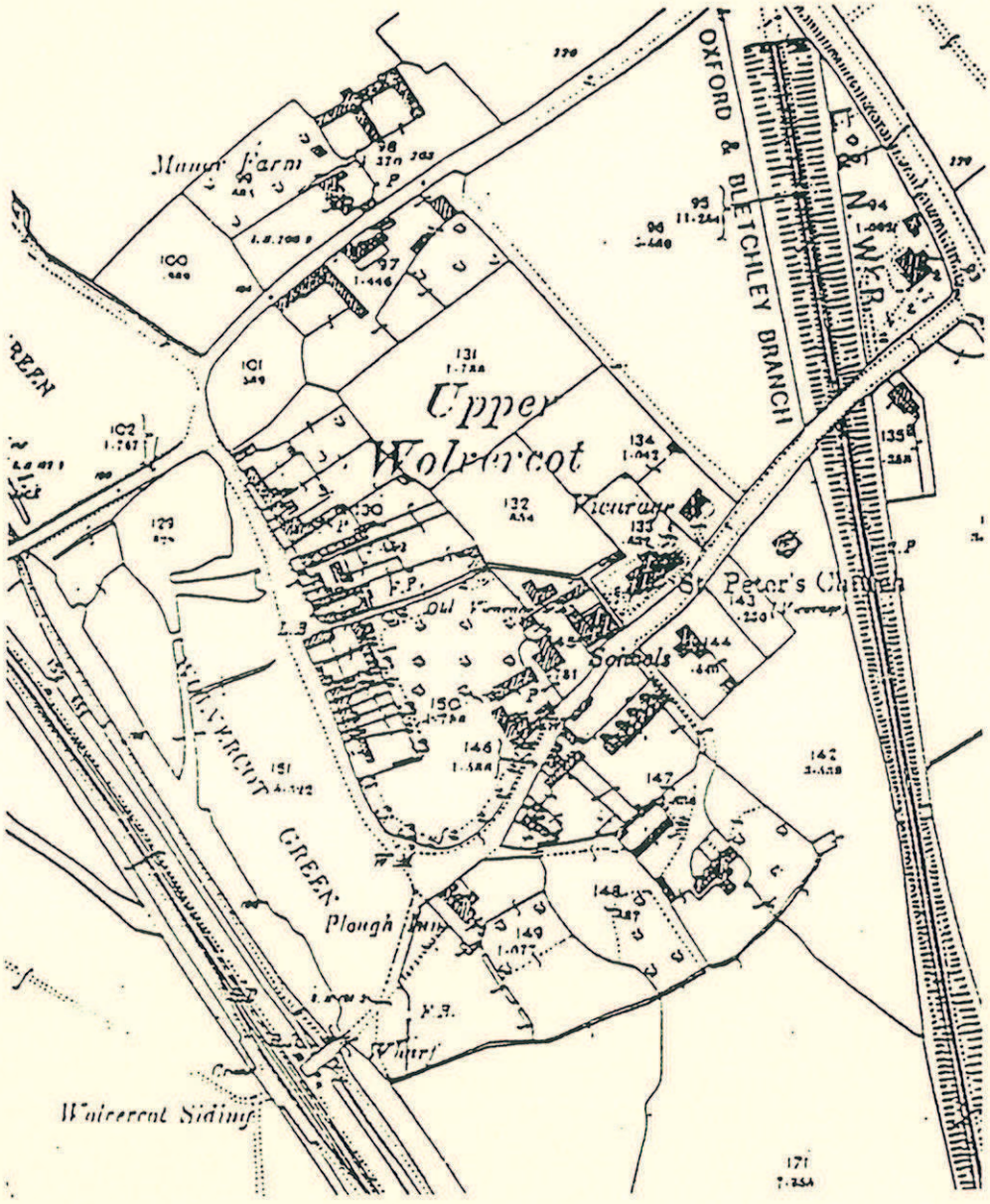
Thames Water Utilities

The West Oxford Sewer Project

NGR SP 5160 0590/NGR SP 4950 1245

ARCHAEOLOGICAL WATCHING BRIEF REPORT



Oxford Archaeological Unit

June 1998

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Summary

During 1997 the Oxford Archaeological Unit (OAU) undertook a watching brief on the West Oxford Sewer Project. In the urban areas made ground, modern disturbance and alluvial clays were identified in the sections of those headshafts inspected. In the rural areas, topsoil directly overlaid alluvial deposits and natural; on Wolvercote Common, which is a Scheduled Ancient Monument and a Site of Special Scientific Interest, deposits and disturbance associated with the creation of the railway were identified.

1 Introduction (Fig. 1)

The development proposal comprised the construction of 9.49 km of sewer main between the Kidlington Sewage Treatment Works (NGR SP 4950 1245) and Oxford City Centre (NGR SP 5160 0590). The proposed work constituted permitted development under the terms of the Town and Country Planning Act, and thus was exempt from the requirement for planning permission by the General Development Order. Approximately 3 km of the sewer was to be placed in an open cut, between the Kidlington Sewage Treatment Works at the north end of the line and the village of Wolvercote. The remainder was to be tunnelled with access headshafts at regular intervals. A subsidiary route was planned to run north-westwards across Wolvercote Common, from the main line to Wolvercote village. This part of Wolvercote Common is both a Scheduled Ancient Monument (SAM 12003) and a Site of Special Scientific Interest. Scheduled Monument Consent was therefore required for this part of the work.

The watching brief was commissioned by Lang Hall Archaeology on behalf of Thames Water Utilities and was necessitated both by the 1989 Water Act, as Thames Water adheres to the Code of Practice on Conservation, Access and Recreation insofar as its activities may affect the historic landscape, and by PPG 16 due to the presence of known sites of archaeological interest in the immediate vicinity of the development. It was undertaken to a brief set by and a WSI agreed with Lang Hall Archaeology, the County Archaeological Officer and English Heritage. The project archive will be deposited with Oxford City and County Museums.

2 Archaeological Background

While few archaeological sites and finds were known from the proposed pipe line, several zones of potential archaeological interest lay adjacent to the pipe corridor. For ease of reference these are divided into the following areas:

North of Oxford

Excavations undertaken by the OAU at Lock Crescent, Kidlington, just to the north of the Sewage Treatment Works, have identified Mesolithic and Neolithic struck flintwork and a late Iron Age penannular gully (Booth 1998).

South of the Kidlington Sewage Treatment Works the pipe corridor crossed gravel terraces and islands with areas of alluvium on the east side of the Thames Valley.

Neolithic and early Bronze Age occupation and ritual monuments have been detected in the area, particularly at Yarnton, in some cases masked by alluvium.

Excavations by the OAU at the Yarnton/Cassington gravel works have identified a complex sequence of landscape use dating from the Neolithic to the medieval period. Neolithic and Bronze Age funerary monuments are located adjacent to contemporary occupation sites in the lower-lying part of the valley. As well as palaeoenvironmental evidence, wooden structures have been retrieved from ancient river courses.

Between the sewage works and the line of the A40 (Cheltenham) road the route crossed an area of cropmarks approximately 400 m across north-south by approximately 500 m across east-west which appeared to form a rectilinear field system of unknown date (PRN 15098).

Work in advance of a new bypass north of Oxford was undertaken by the OAU in 1992. No sites were identified in the course of this work in the vicinity of the pipe corridor (OAU 1992).

Wolvercote Common (SAM 12003) NGR SP 4930 0960 (centred). (Fig. 8)

The archaeological background to this area has been the subject of a separate desk study (OAU 1993), the results of which are summarised below.

Wolvercote Common lies in the north-east corner of Port Meadow, and is separated from it by the Shiplake Ditch. It lies on Thames Gravels in the floodplain of the River Thames. The Common varies in height from 57.5 to 58 m above OD, making it one of the highest points in the Port Meadow area. Generally, there is much less alluvium here than at the south end of Port Meadow and much of the soil cover is thin, suffering severe parching during dry summers (Lambrick and McDonald 1985, 95). The area under investigation is a mixture of Port Meadow Moist Pasture and Port Meadow Dry Pasture (*ibid.* 105, figs 3 - 4). Both types of pasture are currently grazed both by cattle and horses. The Common has been designated as a Site of Special Scientific Interest since 1952.

Port Meadow and Wolvercote Common represent one of the largest areas of ancient common-land left in the country; the Common is an integral part of a larger historical landscape, the preservation of which is exceptional. This subject is covered in some detail elsewhere (Crossley 1979; Lambrick and McDonald 1985).

The topography of the Common has been greatly altered from its 'natural' state. In the area of the watching brief a raised causeway crosses the corner of the site from north-west to south-east, and a water-filled drain lies further to the north-east. On both sides of the raised causeway are uneven areas caused by 16th and 17th century gravel quarrying (Lambrick and McDonald 1985).

The raised causeway is c. 400 m long and runs south-east from Lower Wolvercote across the corner of the Common to the now disused Wolvercote Siding, where there is a railway crossing and a bridge over the Oxford Canal. The causeway varies between 3 and 5 m in width across its upper surface and has irregularly sloping sides. It varies between approximately 0.4 to 0.6 m in height, and its top is about 1 m above

the summer level of the water table as seen in the open drain which lies just to its north.

It seems likely that there has been a track or path of some kind along the line of the causeway from at least the medieval period; it follows a direct route from the bottom of First Turn (the original main thoroughfare of Upper Wolvercote) across the Common to Lower Wolvercote. A meandering track appears on Cole's 'Map of Port Meadow', published in 1720. However, the causeway itself overlies the 16th and 17th century gravel workings, and appears neither on the 1833 1st Edition OS Map nor on the 1834 'Inclosure Map of Woolvercot'. Both of these documents show the Oxford Canal with a bridge at the bottom of First Turn, and it therefore would seem reasonable to assume that the construction of the canal (completed by 1790) did not occasion the construction of the causeway.

No track is mapped until 1851 when a very straight track is shown on the Incorporated Plan of the Oxford, Worcester and Wolverhampton Railway, opened in September 1850. The precision with which the track is shown, running directly from lower Wolvercote to the railway crossing at Wolvercote Sidings, does not suggest that it was a pre-existing feature; it follows exactly the route of the causeway as it exists today. Taking this into account, it would seem most likely that the feature mapped in 1851 is the causeway which today is visible on the ground, and that it was constructed in around 1850 in association with the construction of the railway.

By 1899 a crane and sidings are shown at the south-east end of the causeway. It is probable that it was used as the most direct route in the transportation of goods and raw materials unloaded at the sidings to the Paper Mill at Lower Wolvercote, also shown on the 1899 map. This cannot have been its original purpose, however, as the Mill closed between 1848 and 1855 (Crossley 1990, 319).

Between 1860 and 1861 a causeway was constructed between Sheriff's Bridge (Walton Well Road) and Medley using a subscription to provide work for the poor (Crossley 1979, 282). Other works of this kind took place at the same time (*ibid.*) and could possibly have included the building of the causeway across Wolvercote Common.

An existing underground sewer runs along the line of the causeway, the course of the sewer can be traced on the ground from its access manholes, which indicate a slight divergence to the north of the causeway at its south-east end. A second linear feature, almost certainly another pipe, crosses the causeway near its north-east end. It is visible on the ground for part of its length and also can be traced from the air.

South and east of Wolvercote Common the corridor crossed medieval meads, heys and leys. There was not likely to be any medieval archaeology here, but the topography is very similar to that at Yarnton/Cassington and it was possible that there might have been prehistoric activity on gravel islands, masked by alluvium.

The City (Figs. 2-7)

The pipe was inserted into a tunnel bored horizontally through the natural geology at a mean depth of 12 m below ground level. However, the access headshafts potentially impacted on a variety of sites.

Headshaft K1 was in a location close to the east side of St Aldates that may have resolved the question of the existence of the so-called 'Mercian Bank', suggested by Brian Durham in 1978 (Durham 1978, 176-178) and subsequently discussed at length (Robinson and Lambrick 1985; Durham 1985, 85-87). Some of the other headshafts spaced along Speedwell Street may have intruded upon former courses of the Thames, providing an opportunity to retrieve environmental data relating to the development of the river in this area.

Headshaft K3 was located south of the Blackfriars, in a position where it might have affected outlying buildings of the Blackfriars complex.

Headshaft L2 lay close to the line of Osney Lane, and might have affected medieval properties fronting onto the lane, similar to those excavated by the OAU in St Thomas' Parish (e.g. Hardy 1997).

Headshafts M to M5, in the vicinity of the present railway station, might have affected outlying structures associated with Rewley Abbey, which is a Scheduled Ancient Monument (Oxfordshire no. 80), lying to the east. Work undertaken by the OAU in the immediate vicinity, including excavation of an evaluation trench immediately adjacent to Headshaft M, has not identified any archaeological features, however.

The following headshafts, due to their close proximity both to the Main Line into Oxford and the Oxford Canal, were not archaeologically monitored: N, N1, N2, N3, N4, N5; O, O1, O2, O3, O4, O5; P, P1, P2, P3, P4, P5, P6, P7, P8 and Q. North of the location of headshaft Q the sewer was constructed by the cut and cover technique until it reached the Kidlington Sewage Treatment Works.

3 Aims

The aims of the watching brief were to record any archaeological remains exposed on site during the course of the works to established standards (Wilkinson 1992), in order to secure the preservation by record of any archaeological features, deposits or finds, the presence and nature of which could not have been established in advance of construction work.

4 Methodology

Inspection visits were made to monitor the progress of contractors' work in the high potential areas mentioned above, and a constant presence was maintained during earthmoving in these areas. Other visits were made to assess the potential of excavations in areas not previously considered to be of high potential.

Within the constraints imposed by Health and Safety considerations the deposits and features exposed were cleaned, inspected and recorded in plan, section and by colour

slide and monochrome print photography. Written records were also made on proforma sheets. Soil descriptions use *estimated* percentages based on the use of standard charts for the approximation of percentage of inclusion types in soil deposits.

The nature of the excavation of the headshafts (see section 5 The City, below) gave very little time for detailed recording. Since the sides of the shafts were generally concealed, sections were for the most part reconstructed from measurements taken from the tops of shafts. Both finds and soil samples were generally retrieved after the removal of the relevant material from the shafts.

5 Results

North of Oxford

The topsoil strip was continually monitored in the area in which aerial photography had suggested the presence of large linear features (PRN 15098). Here the stripped area of the easement was typically c 8 m wide. The stripping revealed topsoil and subsoil directly overlying a light orange/brown slightly silty clay loam natural, entirely devoid of any cut features. No artefacts were recovered from this area; very small quantities of modern finds were noted but not retained.

Wolvercote Common (SAM) (Fig. 15)

Initially the pipe was to be inserted into a tunnel bored horizontally, as in Oxford City Centre, with only the headshafts available for archaeological inspection. This method of working was subsequently altered for logistical reasons by Barhale, the main contractors, to a cut and cover operation, as used elsewhere in the rural stretches of the pipe corridor. This change was agreed with English Heritage on the basis that the excavation, mostly through the existing causeway, was for the pipe trench only and did not involve the removal of topsoil from an easement as seen elsewhere. Thus both the headshafts and the trench were available for inspection. Visits were made on a daily basis by prior arrangement with or notification from the site foreman when work was in progress. Overall progress on this stretch was very slow because of poor weather conditions and the generally high water table. As Wolvercote Common is a SSSI, all excavated material was either removed from site or stored on plastic sheeting prior to backfilling to preserve the integrity of existing soil types.

The open cut began at headshaft W1 and then proceeded north-west to terminate at headshaft W5.

Headshaft W1

(1) - dark gray ashy loam with 5% coarse silt and lumps of slag.
(2) - ashy subsoil with occasional charcoal flecks and much (20-25%) slag.
(3) - dark gray alluvial clay.
(4) - natural gravel.

Headshaft W1 terminated at 12 m depth, approximately 45.5 m OD.

Headshaft W2

(20) - dark gray ashy loam with 2% medium-coarse silt and lumps of slag.
(21) - clean yellow/white medium subangular gravel.
(22) - ashy subsoil with occasional charcoal flecks and much (20-25%) slag.
(23) - dark gray alluvial clay.
(24) - natural gravel.

Headshaft W2 terminated at 12 m depth, approximately 45.45 m OD.

Headshaft W3

(30) - dark gray ashy loam with 2% medium-coarse silt with lumps of slag.
(31) - clean yellow/white medium subangular gravel.
(32) - ashy subsoil with occasional charcoal flecks and 20-25% slag.
(33) - dark gray alluvial clay.
(34) - natural gravel.

Headshaft W3 terminated at 12 m depth, approximately 45.45 m OD.

Headshaft W4

(40) - dark gray ashy loam with 5% medium-coarse silt and lumps of slag.
(41) - ashy subsoil with occasional charcoal flecks and 20-25% slag.
(42) - dark gray alluvial clay.
(43) - natural gravel.

Headshaft W4 terminated at 12 m depth, approximately 45.5 m OD.

Headshaft W5

(50) - dark gray ashy loam with 10% medium-coarse silt and lumps of slag.
(51) - ashy subsoil with occasional charcoal flecks and 20-25% slag.
(52) - dark gray alluvial clay.
(53) - natural gravel.

Headshaft W5 terminated at 12 m depth, approximately 46.00 m OD.

The Trench

Natural (alluvial) clay was encountered at a mean depth of 0.46 m, sealed by an average thickness of 0.16 m of ashy subsoil with very occasional charcoal flecks. This underlay 0.30 m, at its thickest point, of topsoil; a dark gray ashy loam with 2% silt, entirely devoid of finds. Lumps of slag were seen throughout both layers above clay.

The central portion of the trench contained the only variation seen in those deposits recorded; this comprised large amounts of dumped gravel under a very thin skim of topsoil (0.02 m). The gravel was fairly clean and yellow/white and sealed ashy deposits with clinker and slag as before. This material, along with the ashy deposits,

appears to make up the bulk of the causeway. A moderate amount of finds was retrieved from this central portion, including modern building materials, 19th century white china, coal, slate and one railroad spike. No finds predating the 19th century were recovered.

The City

The access headshafts were constructed as *caissons*. In this method a starter shaft was excavated to a depth of 1 m using a 360 degree mechanical excavator, and a cutter edge constructed from a precast concrete ring. Further concrete rings were then lifted into place on top of this ring and, as the cutter edge began to sink into the ground under the weight, the material encircled by it was dug out using a hydraulically operated grab, mounted on the 360 excavator. As the *caisson* began to sink below ground level, the sides of the shaft were made up by building more rings onto the cutter edge ring.

In this way, not only was the shaft face constructed, but also the loading of extra rings gave more weight to the edge cutting the ground. Once the *caisson* had reached depth, the outer annulus was filled with a cement grout, acting both as a waterproof layer and a stabiliser to the shaft.

Under these conditions archaeological recording was, of necessity, very swift. Finds and environmental samples were generally retrieved after the removal of material from the shafts.

Headshaft L1 (Fig. 13)

(100) - friable, mid gray silty clay loam with brick, tile, glass and clinker, approximately 1.39 m thick.
(101) - tenacious, mid gray silty/gravelly clay with 5% silt and 25% coarse subrounded gravel, very heavily contaminated with diesel, approximately 0.54 m thick.
(102) - tenacious, mid gray clay with 2% silt, very heavily contaminated with diesel, approximately 0.94 m thick.
(103) - compact, light gray/white slightly clayey gravel. This material was brought to the surface in a hydraulic grab and was examined after being washed off. It appeared to be clean, unsorted natural gravel.

L1 terminated at 12 m depth, approximately 44.94 m OD.

Headshaft L2 (Fig. 13)

(200) - topsoil.
(201) - concrete.
(202) - dark gray/black silt with c. 20% modern housebrick and large lumps of slag.
(203) - mid green/orangey brown silty clay with a slight green cast due to heavy diesel contamination; 10 - 20% medium gravel.
(204) - natural gravel at 2.6 m depth.

L2 terminated at 12 m depth, approximately 44.96 m OD.

Headshaft K1 (Fig. 9)

(1000) - tarmac.
(1001) - rubble and coarse gravel makeup.
(1002) - friable dark brown silty clay loam with 10% fine gravel; c. 20% modern housebrick and small-medium unworked limestone inclusions; very occasional charcoal flecking and small fragments of shell. This deposit produced some 19th/20th century building material, some oyster and snail shell, some animal bone and some pottery, including five medieval sherds of various dates (see Appendix 1)
[1003] - cut for modern service trench.
(1004) - pink gravel infill of above.
(1005) - dark brown slightly silty clay loam; sampled as 4 (see Fig. 9).
(1006) - clean orange/red natural gravel at 3 m depth.

K1 terminated at 14 m depth, approximately 42.94 m OD.

Headshaft K3 (Figs. 10-11)

(300) - friable, mid brown silty clay loam with 10% silt, approximately 0.34 m thick.
(301) - friable, light brown clay loam with 2% silt, approximately 0.21 m thick.
(302) - tenacious, brown silty clay with 5% silt, approximately 0.57 m thick.
(303) - layer of fragments of modern housebrick, tile, glass and metal fragments mixed with 10% mid brown silty clay loam, approximately 0.42 m at its thickest point.
(304) - tenacious, mid brown silty clay with 10% silt and subangular fine gravel, approximately 0.64 m thick.
[305] - a rectangular cut seen in section; 1 m east-west by 0.61 m in depth, its north-south measurement remains unknown (19th/20th century infilled cellar).
(306) - friable, mid yellow sand and gravel with 5% silt (infill of [305]).
(307) - present road surface.
(308) - friable, mottled yellow/gray/brown sand, gravel, brick and tile - makeup for 307.
(309) - tarmac road surface.
(310) - friable, mottled yellow/gray/brown sand, gravel and medium unworked limestone pieces- makeup for 309.
(311) - friable, mid brown silty clay loam with 10% fine subangular gravel.
(312) - tenacious mid gray silty clay with 10% silt - alluvial deposit; sample 1.
(313) - tenacious, mid brown silty clay loam with 2% silt
(314) - friable, yellow/white slightly silty gravel with 2% silt. Seen at a depth of 2.80 m and presumed to be natural gravel.

K3 terminated at 14 m depth, approximately 42.93 m OD.

Headshaft K5 (Fig. 12)

(500) - friable mid brown silty clay loam with 2% silt.
(501) - friable olive/brown silty clay loam with 2% silt and fine gravel. This deposit produced nine large fragments of 19th/20th century white china and three fragments of 20th century building material.

(502) - clean yellow sand.
(503) - tenacious dark gray clay loam with 5% silt.
(504) - clean yellow sand.
(505) - tenacious dark gray clay loam with 5% silt.
(506) - family number for landfill (above) encountered in K5; all finds were numbered as (506).

K5 terminated at 14 m depth, approximately 44.98 m OD.

Headshaft M (Fig. 14)

(1) - dark brown silty clay with angular and subangular fine-coarse gravel, mixed with black ash and modern housebrick, 0.30 m thick.
(2) - orange/brown fine-coarse sand with 2% subrounded fine-medium gravel, 0.30 m thick.
(3) - soft blue/gray slightly silty clay with 5% coarse subangular gravel and infrequent lenses of orange/brown clay and subrounded fine-medium gravel, 0.50 m thick.
(4) - soft blue/gray and black speckled silty clay with 2% shell fragments and 2% fine silt, 1.30 m thick.
(5) - natural gravel.

Headshaft M terminated at 14 m depth, approximately 43.96 m OD.

Headshaft M1 (Fig. 14)

(100) - medium-coarse subrounded gravel, 0.05 m thick.
(101) - clinker with pieces of coke, slag and modern housebrick in varying quantities, 0.26 m thick.
(102) - black ash with small fragments of modern housebrick and glass, 0.20 m thick.
(103) - very mixed mid-dark gray clay with 2% fine silt, 0.85 m thick.
(104) - mixed medium-coarse subangular gravel and fine-medium sand with 25% dark gray/black slightly silty clay, 0.70 m thick.
(105) - natural gravel.

Headshaft M1 terminated at 14 m depth, approximately 44.15 m OD.

Headshaft M2 (Fig. 14)

(200) - coarse subrounded gravel, 0.10 m thick.
(201) - clinker with pieces of coke, slag and modern housebrick in varying quantities, 0.30 m thick.
(202) - black ash with assorted fragments of glass, unworked limestone pieces and modern housebrick, 0.22 m thick.
(203) - very mixed mid-dark gray clay with 2% fine silt, 0.90 m thick.
(204) - very mixed medium coarse subangular gravel and fine-medium sand with 30% dark gray/black slightly silty clay, 0.70 m thick.
(205) - natural gravel.

Headshaft M2 terminated at 14 m depth, approximately 44.06 m OD.

Headshaft M3 (Fig. 14)

(300) - very mixed mid brown/gray silty clay loam with c. 30% coarse subrounded gravel, 0.25 m thick.
(301) - black ash with assorted fragments of glass, unworked limestone pieces and modern housebrick, 0.20 m thick.
(302) - very mixed mid-dark gray clay with 2% fine silt, 0.90 m thick.
(303) - very mixed medium-coarse subangular gravel and fine-medium sand with 30% dark gray/black slightly silty clay, 0.80 m thick.
(304) - natural gravel.

Headshaft M3 terminated at 14 m depth, approximately 44.10 m OD.

Headshaft M4 (Fig. 14)

(400) - very mixed mid brown/gray silty clay loam with c. 30% coarse subrounded gravel, 0.25 m thick.
(401) - black ash with assorted fragments of unworked limestone, modern housebrick and glass, 0.25 m thick.
(402) - very mixed mid-dark gray clay with 2% fine silt, 0.80 m thick.
(403) - mixed medium-coarse subangular gravel and fine-medium sand with 30% dark gray/black slightly silty clay, 0.90 m thick.
(404) - natural gravel.

Headshaft M4 terminated at 14 m depth, approximately 44.09 m OD.

Headshaft M5 (Fig. 14)

(500) - very mixed mid brown/gray silty clay loam with c. 40% coarse subrounded gravel, 0.30 m thick.
(501) - black ash with assorted fragments of glass, unworked limestone and modern housebrick, 0.20 m thick.
(502) - very mixed mid-dark gray clay with 2% fine silt, 0.80 m thick.
(503) - mixed medium-coarse subangular gravel and fine-medium sand with 30% dark gray/black slightly silty clay, 0.95 m thick.
(504) – natural gravel.
Headshaft M5 terminated at 14 m depth, approximately 44.11 m OD.

6 Finds

No material pre-dating the medieval period was recovered and there were no archaeologically significant finds of any kind, except insofar as fragments of post-medieval/modern pottery and building material indicated the date of certain deposits.

Medieval Pottery
Five sherds (see Appendix 1)
Post-medieval Pottery
Twenty-three sherds/One complete vessel – all 19th/20th century (from Wolvercote Common/Headshaft K1).

Metalwork
One railroad spike (from Wolvercote Common).
Other Finds
Animal bone/Slag/Coal/Slate (from Wolvercote Common/Headshaft K1). All of 19th century or later date.

7 Environmental results

Alluvial sediment from WEOSP/K1, St Aldates, Oxford, by Dr Mark Robinson.

Excavation at headshaft K1 revealed a layer of clay (context 1005) overlying gravel at the base of the sequence. The clay was pale grey with iron pan mottling. There were secondary carbonate casts in root holes.

A sample of 0.75 kg (sample 4) of the clay was sieved down to 0.5 mm and sorted for mollusc shells. The results are listed below:

Table 1: **Mollusca**	Layer 1005, Sample 4, Min. no. indiv.
Valvata piscinalis	2
Bithynia sp.	3
Carychium sp.	1
Lymnaea truncatula	44
Anisus leucostoma	2
Succinea or *Oxyloma* sp.	1
Vallonia sp.	1
Limax or *Deroceras* sp.	4
Arianta arbustorum or *Cepaea* sp.	1

In addition, the sample contained calcite granules which either are produced by earthworms or by arionid slugs.

The gravel seen below the deposit from which the sample was taken was probably the Pleistocene gravel of the First Terrace of the Upper Thames, although it possibly had been truncated by a more recent channel. The occurrence of the flowing freshwater molluscs *Valvata Piscinalis* and *Bithynia* sp. suggests the clay to be of alluvial origin. The most numerous species, however, was *Lymnaea truncatula*, an amphibious snail which flourishes in stagnant water and wet mud.

With the exception of *Anisus leucostoma*, the remaining molluscs are terrestrial, but all can occur in marshy habitats. The calcareous root casts suggest vegetation growing on the sediment under wet conditions. The most likely explanation is that the alluvium was being deposited alongside a channel, or on a wet part of the floodplain.

8 Discussion

The absence of cut features in the vicinity of the large linear cropmarks at the northern end of the pipeline (PRN 15098) was both disappointing and puzzling. Nothing was visible in the sections of the trench here to suggest that there had been shallow features which never cut into the natural subsoil; both the natural and the trench

sections were entirely featureless. The explanation of these cropmarks therefore remains uncertain.

A constant presence was maintained during the excavations on Wolvercote Common, due to its status both as a SAM and a SSSI. The pipe trench exposed the natural geology across the Common. The artificial deposits observed and recorded relate entirely to the causeway constructed at the same time as the main railway line into Oxford.

In the City, material from headshaft K1 was sampled in the hope that it might shed light on the question of the existence of a possible Mercian clay causeway in this area, the argument centring on whether a particular deposit located in St Aldates was of natural (alluvial) or anthropogenic origin (Durham 1978, 176-178; Robinson and Lambrick 1985; Durham 1985, 85-87). Brian Durham has suggested (Durham 1985, 81) that the Thames never burst its banks until Mercian bridge-works caused obstructions in the 8th century. The primary deposit above the gravel in headshaft K1 was an alluvial clay, but was not demonstrably the same as the material observed in 1970-71, though it was probably very similar. Beyond establishing that the material of layer (1005) is alluvial and was being deposited alongside a channel, very little more can be said with any certainty. Whether this material represented *in situ* deposition by flooding, or was redeposited by human agency can neither be proved nor disproved owing to the absence of any datable material from within the sample, though the character of the material did not suggest that it had been redeposited. K1 produced the only medieval pottery from the entire project, from deposit (1002); however, this was from a higher point in the sequence and was mixed with 19th and 20th century white china from the same deposit, suggesting that this was a disturbed context.

No deposits even potentially of medieval date were located in the other shafts in the city. Extensive modern disturbance was evident in the shafts on the south-west side of the city centre. West of the city the majority of those deposits observed and recorded appeared to relate to the construction of the main railway line into Oxford; which is hardly surprising given the close proximity of the easement to the line. The headshafts were relatively small keyholes into the archaeology of the city, mostly in marginal locations, and the absence of archaeological deposits from the majority of them is not thought especially to be of significance. Further, the nature of the excavation and construction of the shafts, detailed elsewhere, meant that of necessity archaeological recording had to be very swift but as precise as possible. The relative simplicity of the sequences observed in most of the shafts was beneficial here, however, and it is not thought that any significant archaeological deposits or features were missed in any of the shafts. Shaft K1, that considered from the start to have the highest archaeological potential of any of those in the city area, was indeed the only one to produce any material of medieval date, though the nature of the deposits here suggested that the site was probably a marginal one in the medieval period.

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Appendix 1: Five sherds of medieval pottery from Weosp 97 by Paul Blinkhorn

Five sherds of medieval pottery occurred in context (1002), as shown in the table below. The fabric codes used are those of the Oxford type-series (Mellor 1994). Overall the medieval assemblage, which comprises pottery types which are well-known in the region, is likely to date to the 14th century, but it was associated with post-medieval material so all these sherds were probably residual in this context.

Fabric	Number	Weight (g)	TPQ
OXAC	2	28	10thC+
OXY	1	5	11thC+
OXAM	2	36	14thC+

Reference

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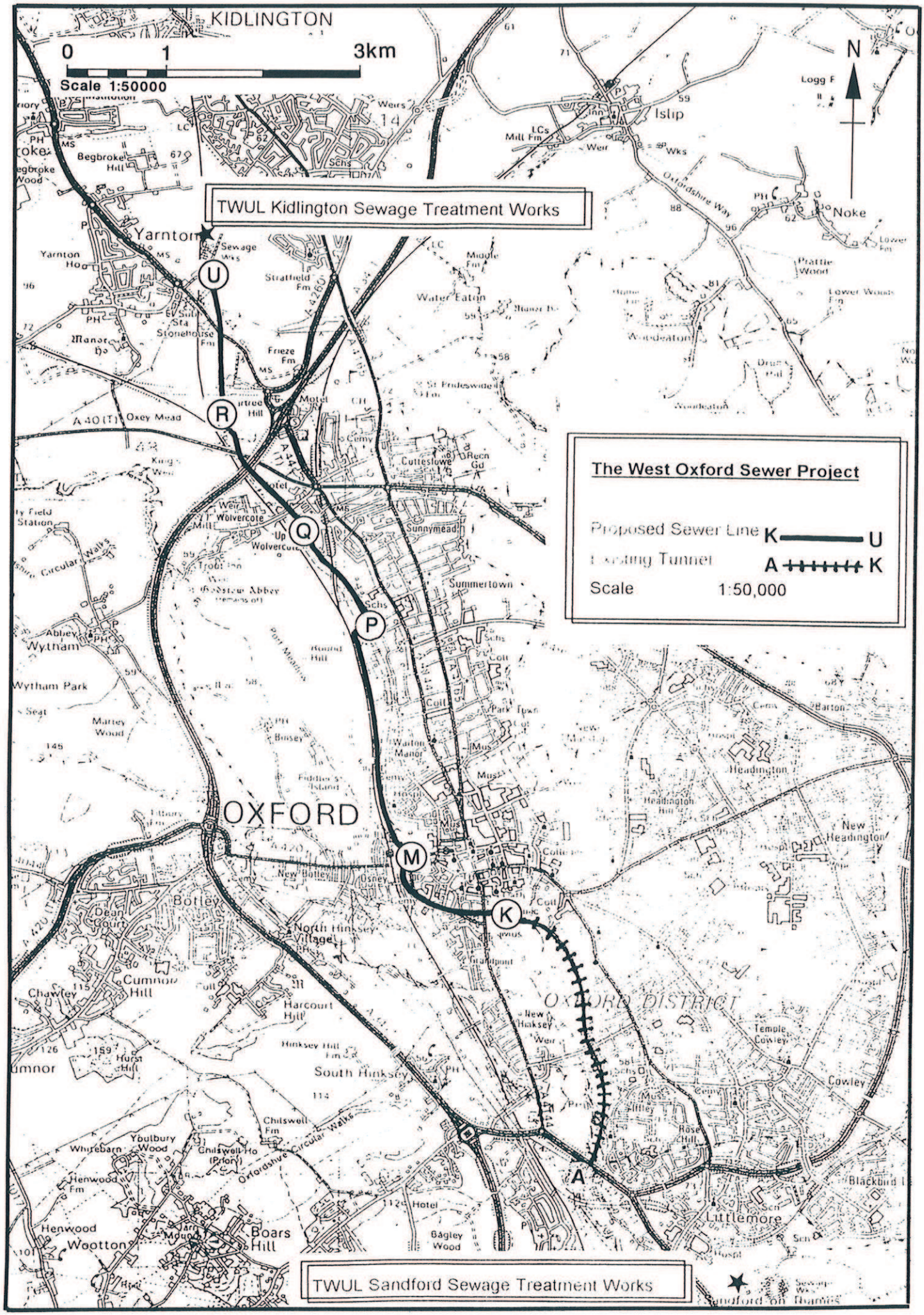
KIDLINGTON
0
1
3km
Scale 1:50000
N
TWUL Kidlington Sewage Treatment Works
Yarnton
Islip
Noke
Oxford Way
Water Eaton
Woodeaton
Prattle Wood
Lower Woods
Stratfield Fm
Frieze Fm
Motel
A40(T)
Oxey Mead
Cutteslowe
Sunnymead
Wolvercote
Summertown
Wytham
Wytham Park
Marley Wood
OXFORD
Botley
North Hinksey Village
Cumnor Hill
Chawley
Harcourt Hill
Hurst Hill
South Hinksey
Chilswell Fm
Yeoulbury Wood
Whitebarn
Henwood Fm
Henwood
Wootton
Boars Hill
Bagley Wood
Headington
New Headington
Barton
Temple Cowley
Cowley
Littlemore
Blackbird L
OXFORD DISTRICT
TWUL Sandford Sewage Treatment Works
Sandford on Thames
The West Oxford Sewer Project
Proposed Sewer Line K — U
Existing Tunnel A — K
Scale 1:50,000
U
R
Q
P
M
K
A

Figure 1

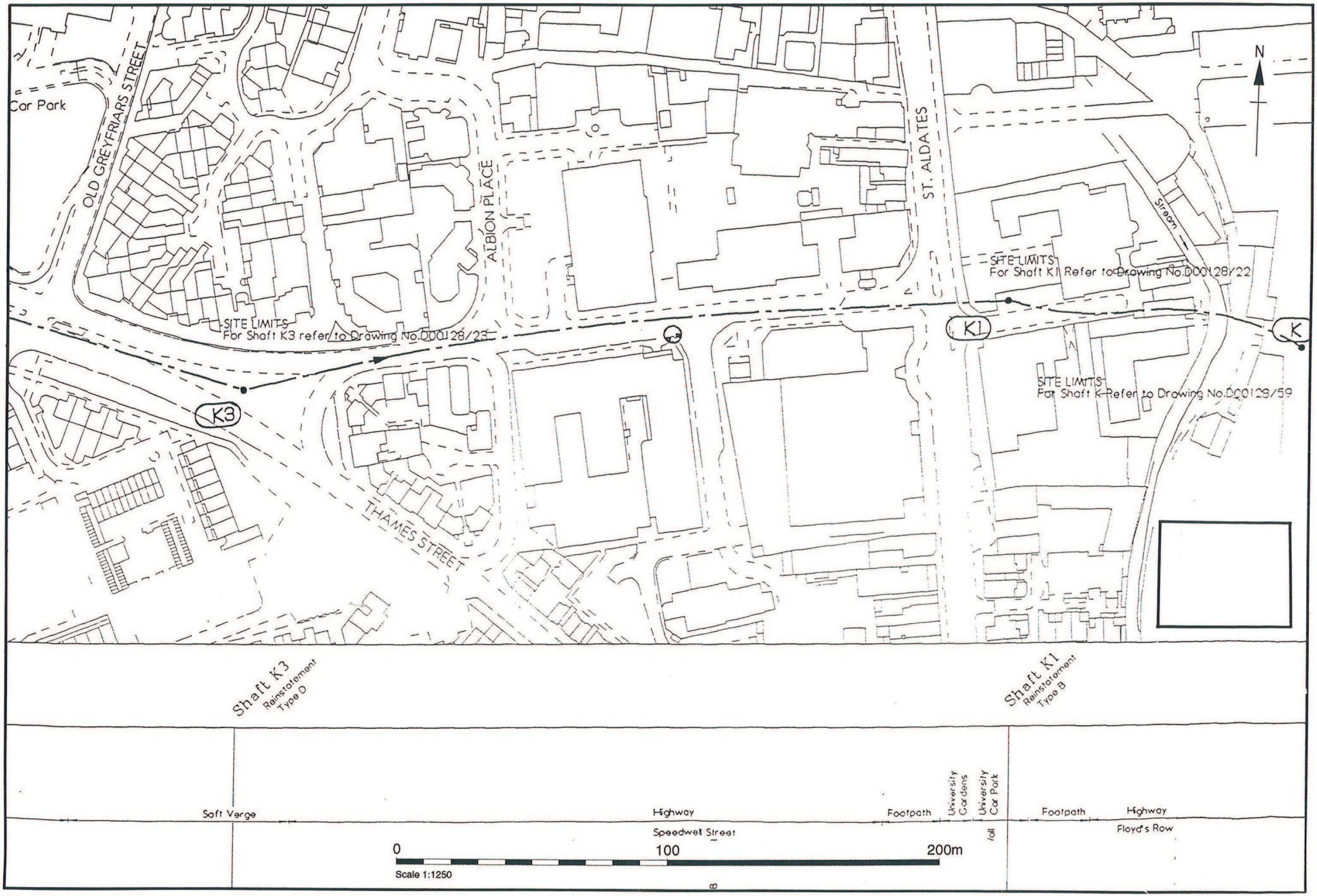

Figure 2: Oxford city centre; Headshaft locations

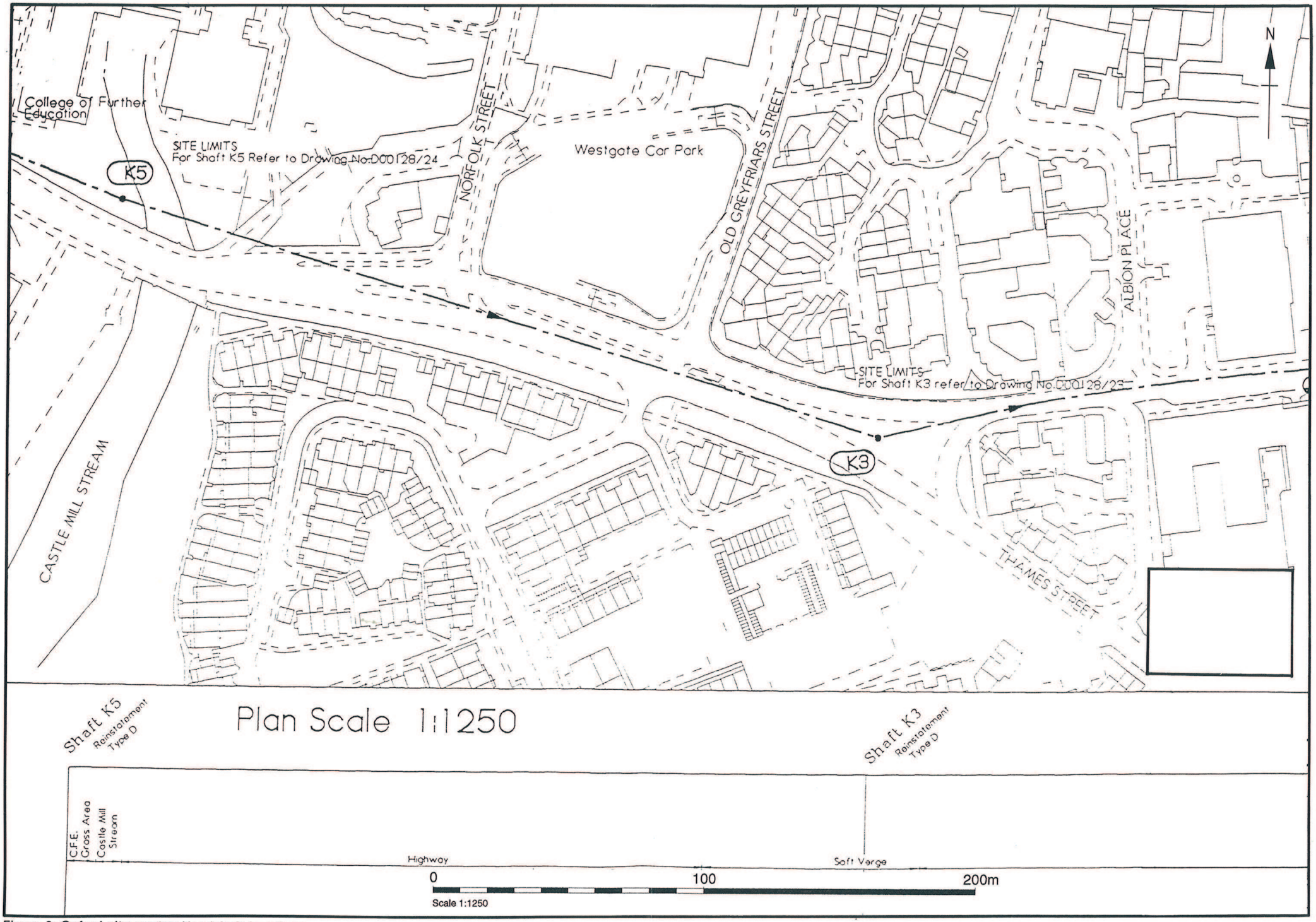

Figure 3: Oxford city centre; Headshaft locations

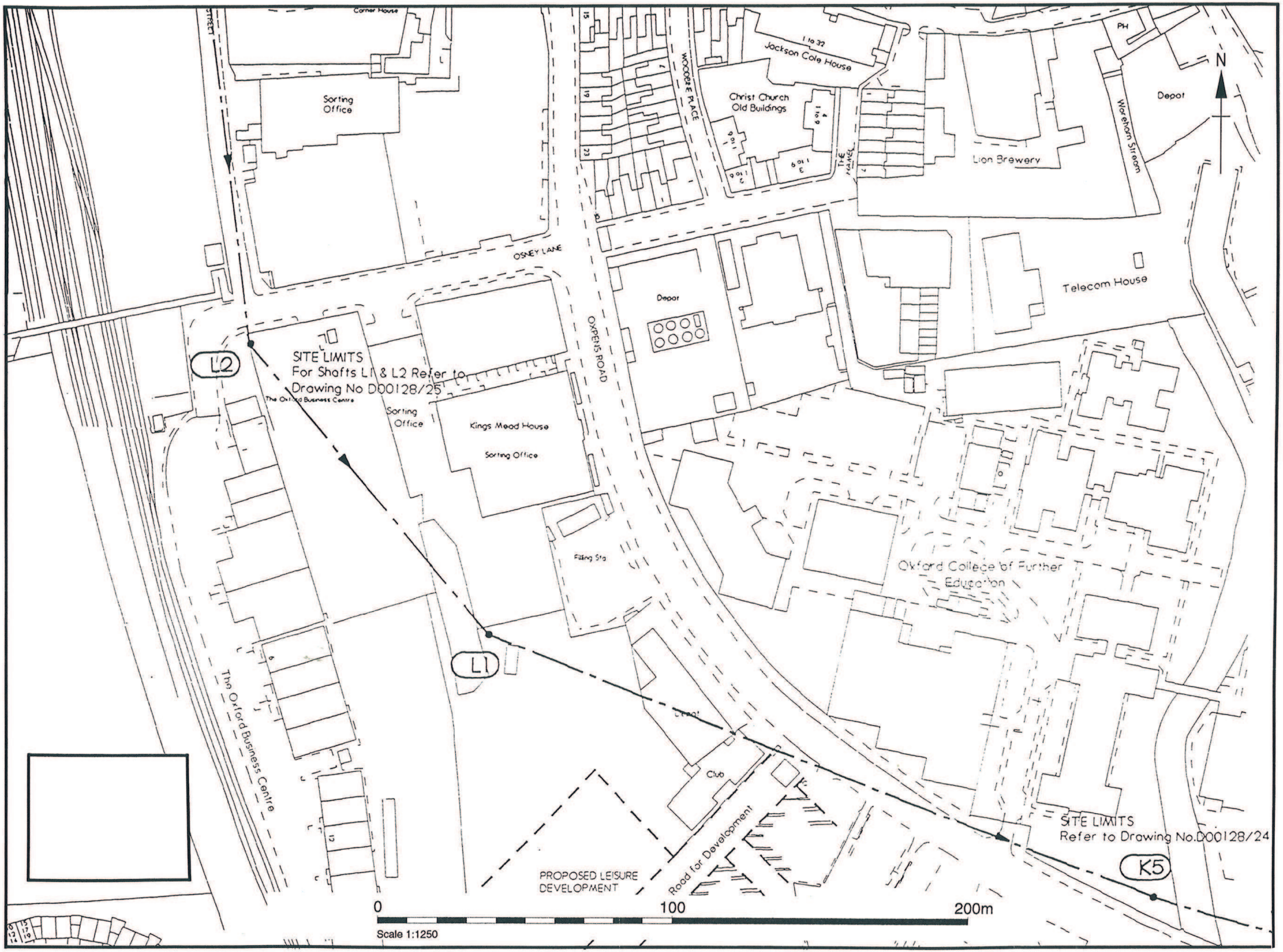

Figure 4: Oxford city centre; Headshaft locations

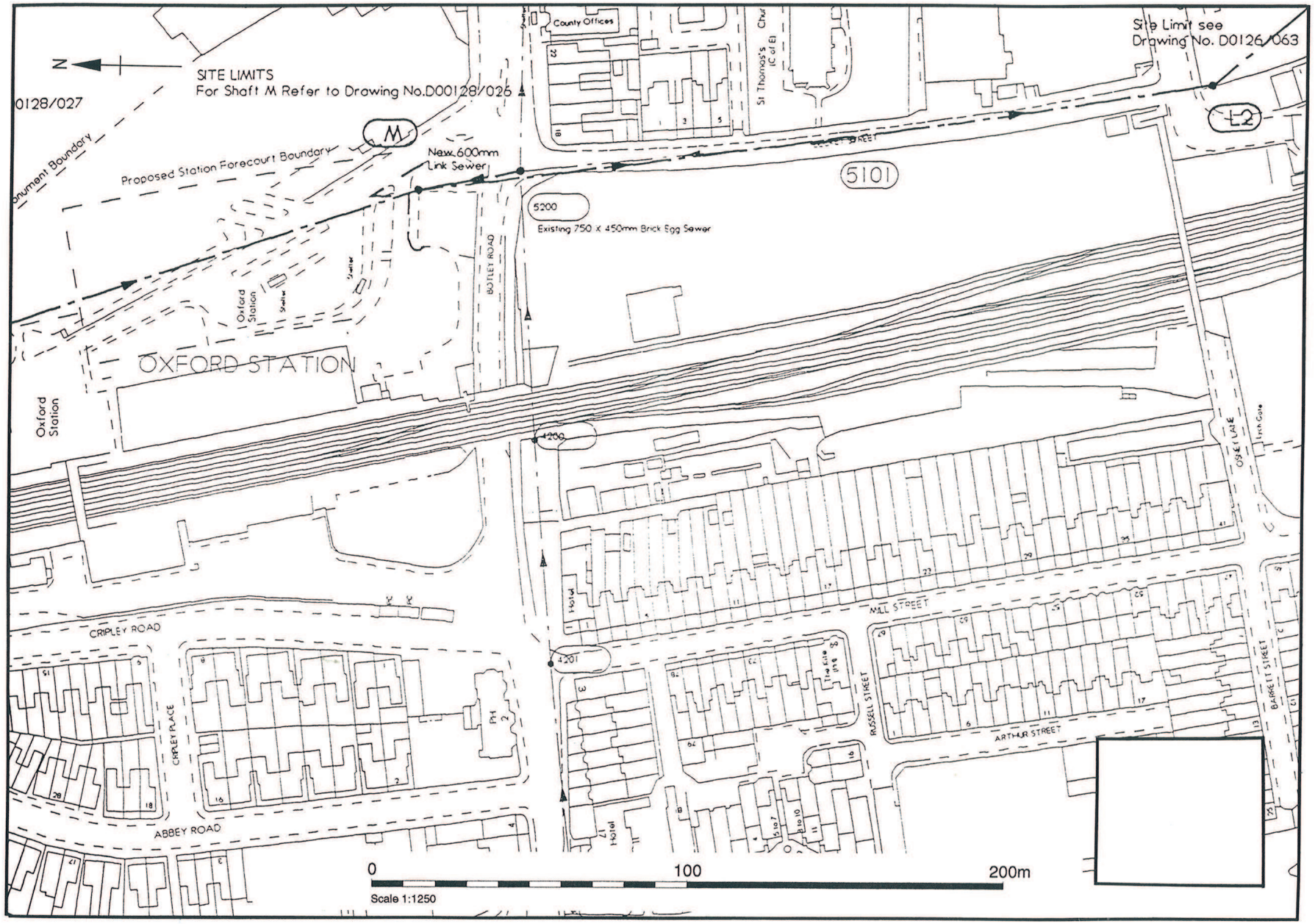

Figure 5: Oxford city centre; Headshaft locations

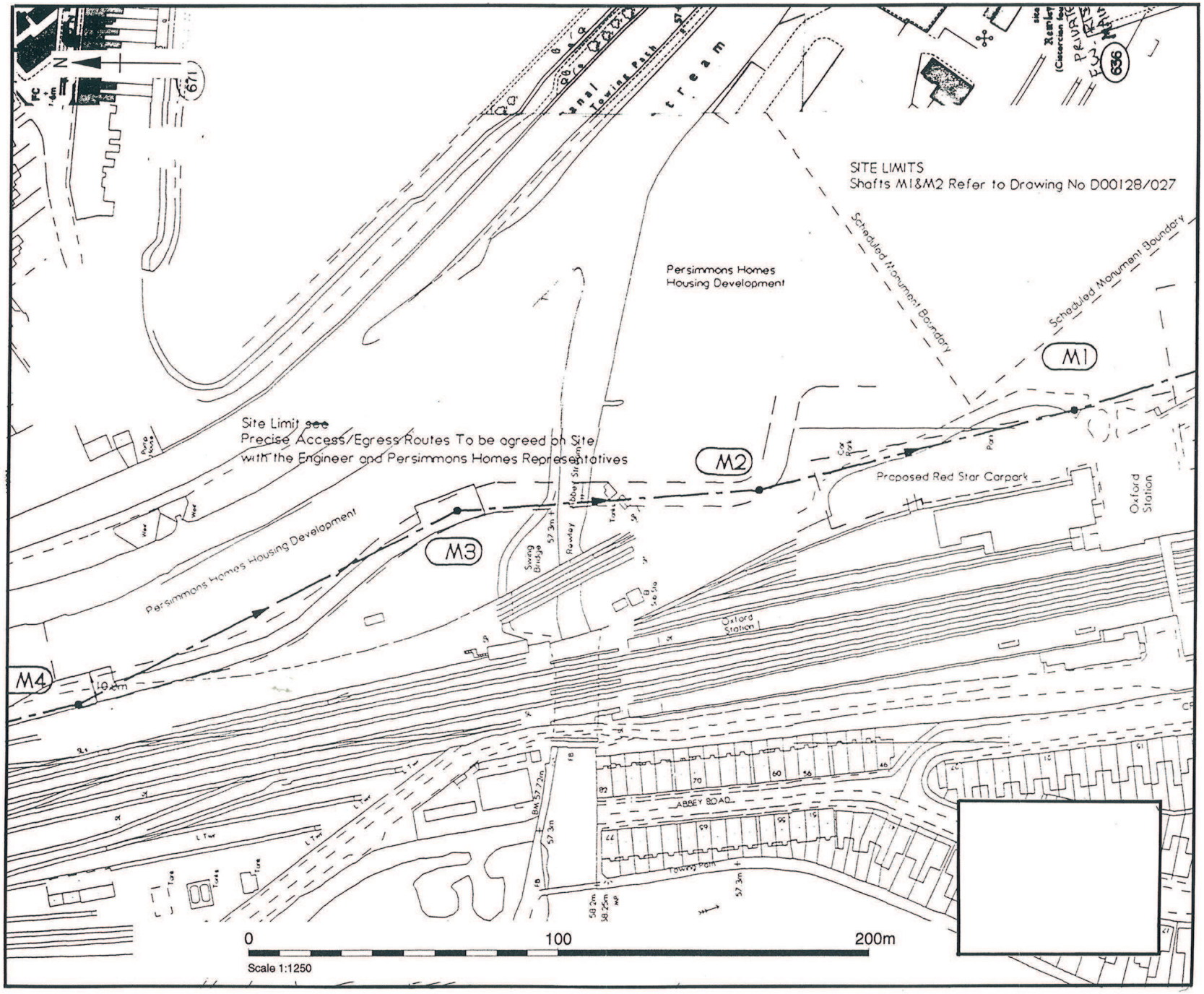

Figure 6: Oxford city centre; Headshaft locations

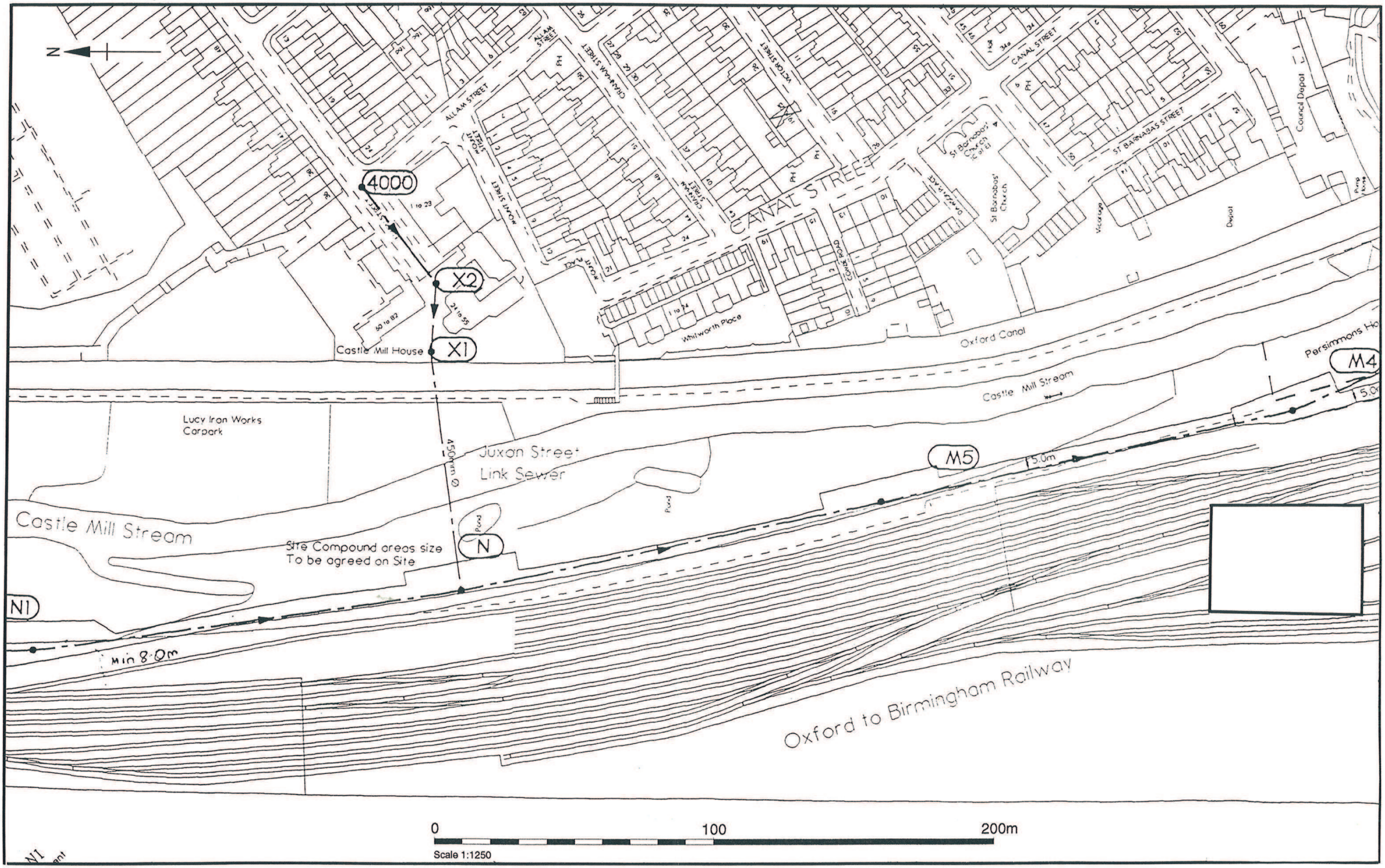

Figure 7: Oxford city centre; Headshaft locations

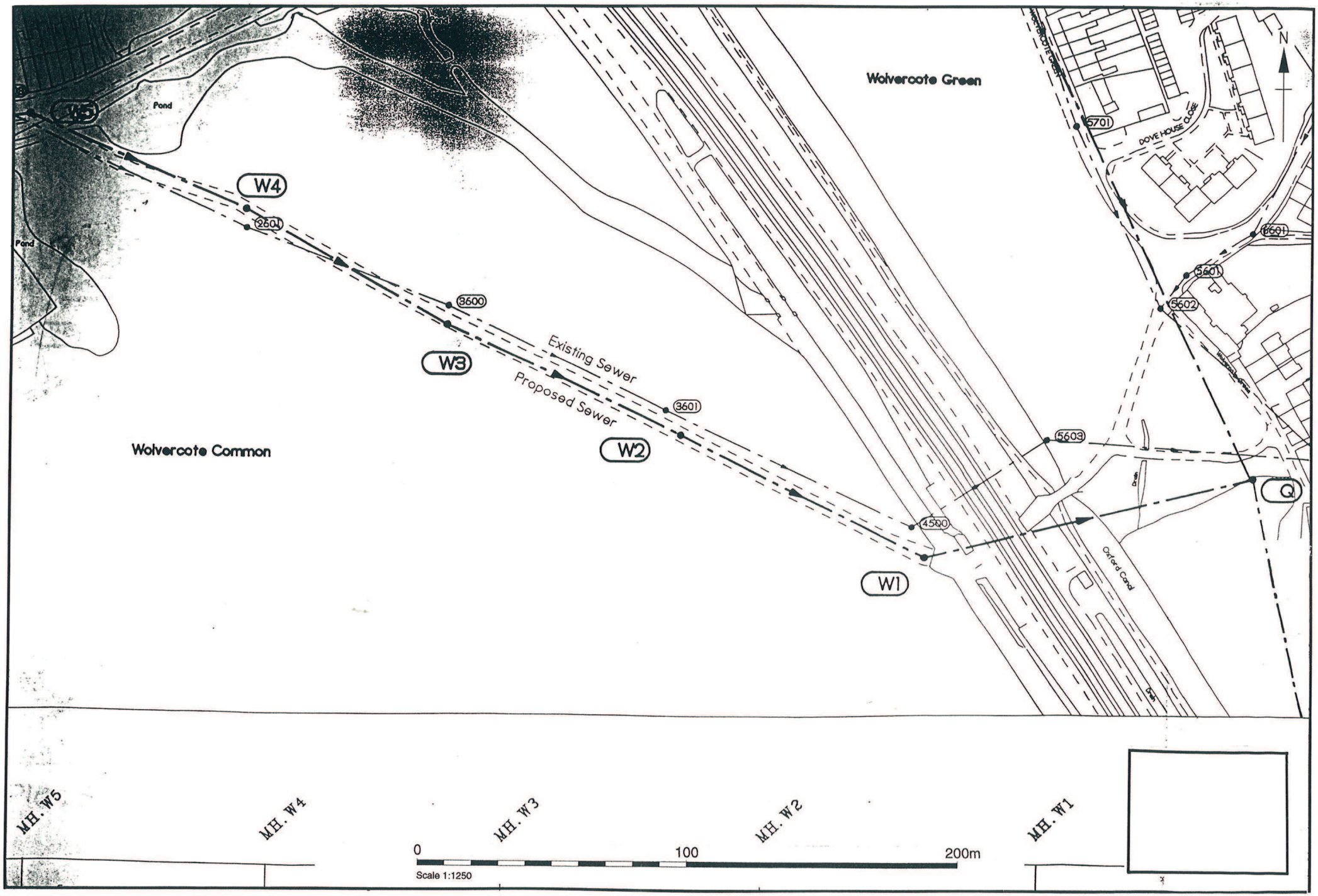

Figure 8: Wolvercote Common; SAM 12003

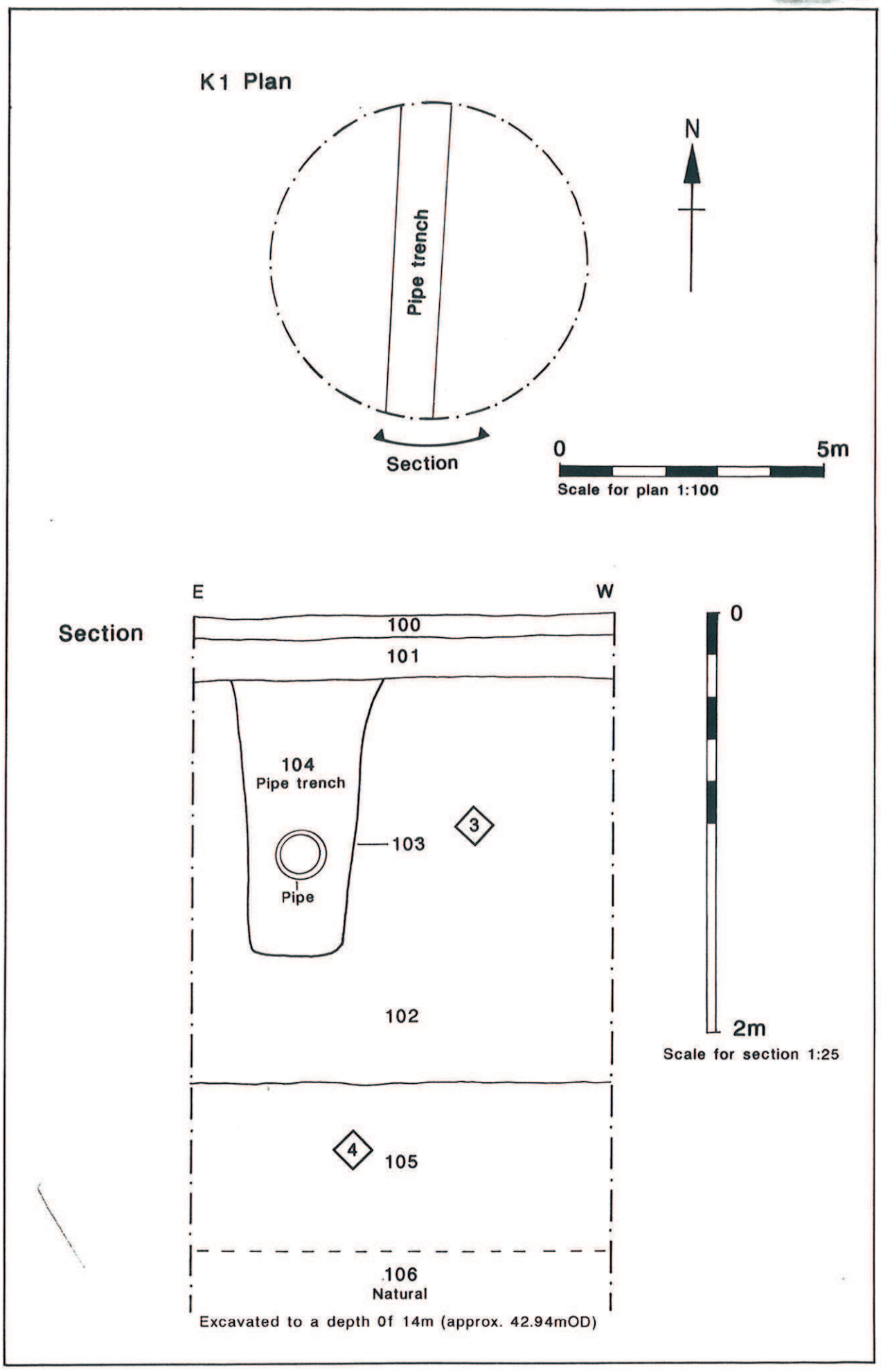

Figure 9: Headshaft K1; plan and section

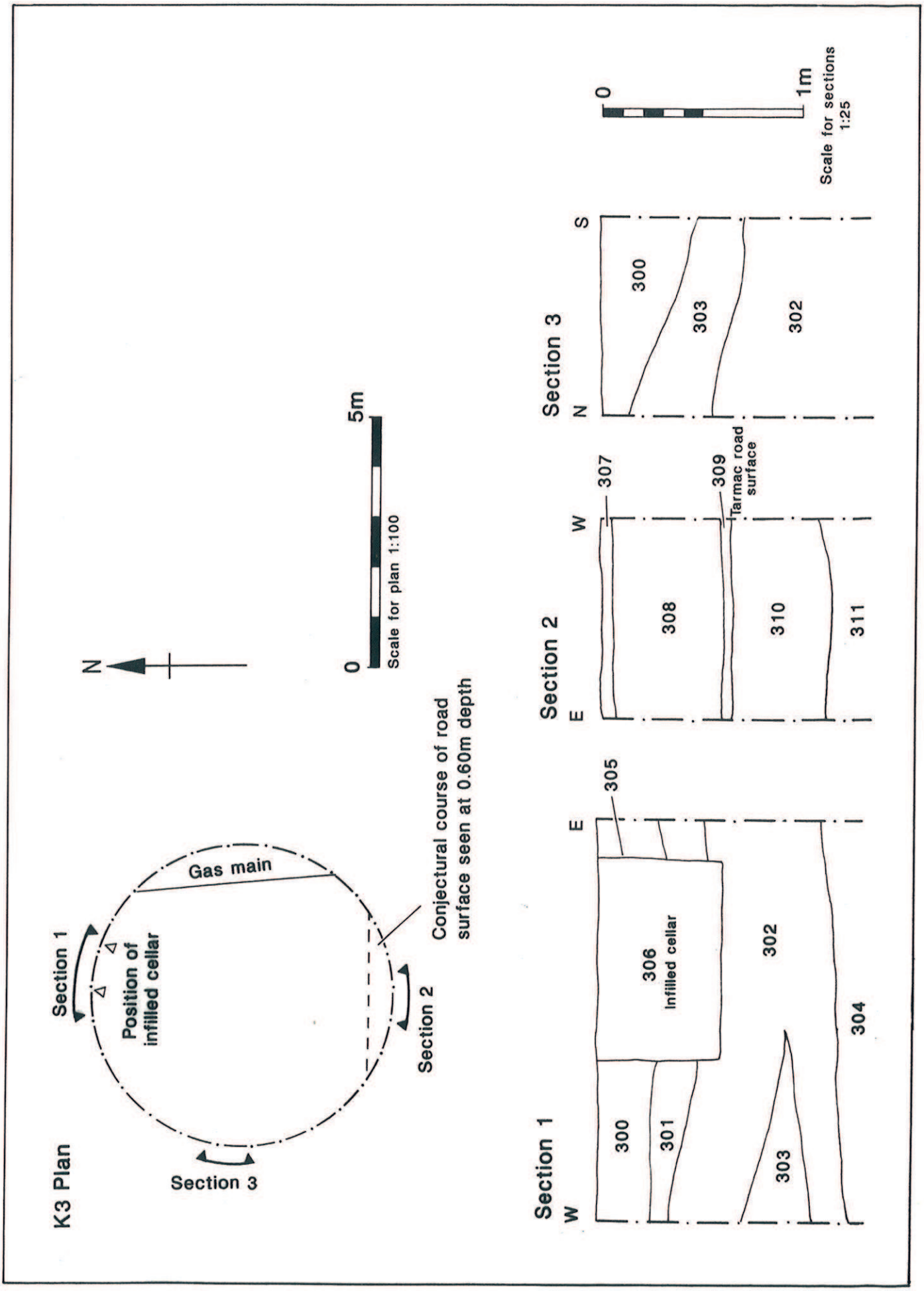

Figure 10: Headshaft K3; plan and sections

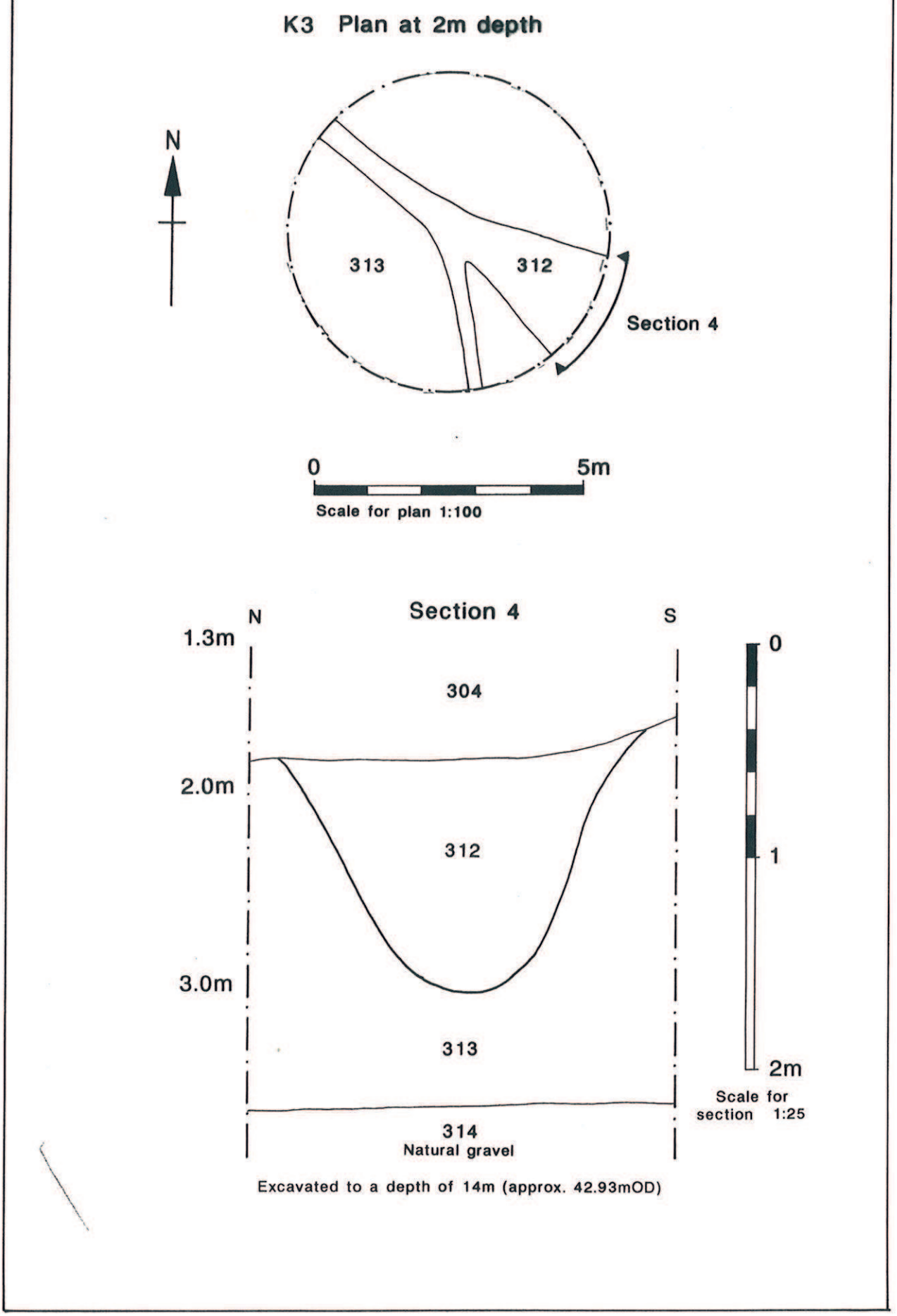

Figure 11: Headshaft K3; plan and section at 2m depth

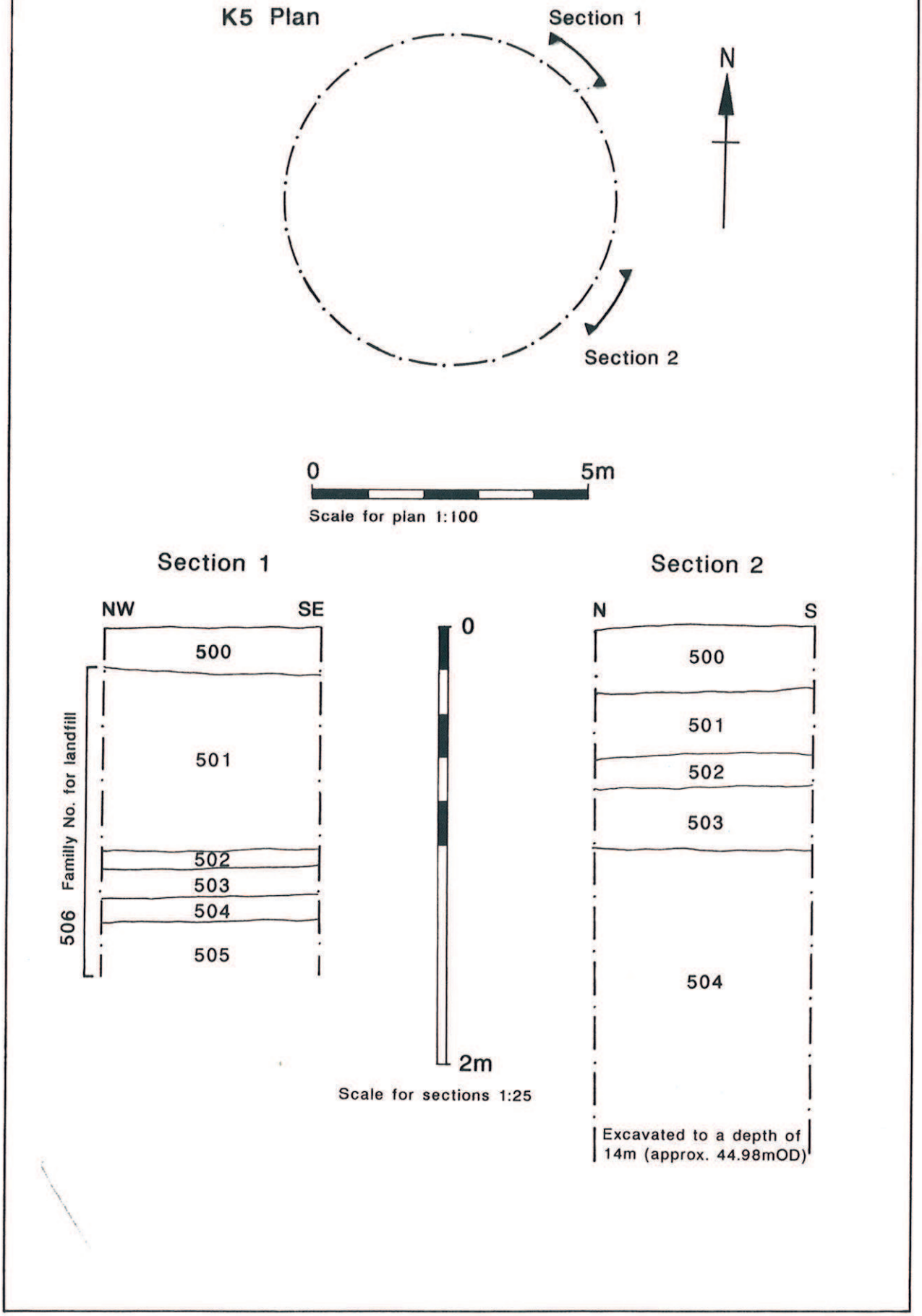

Figure 12: Headshaft K5; plan and section

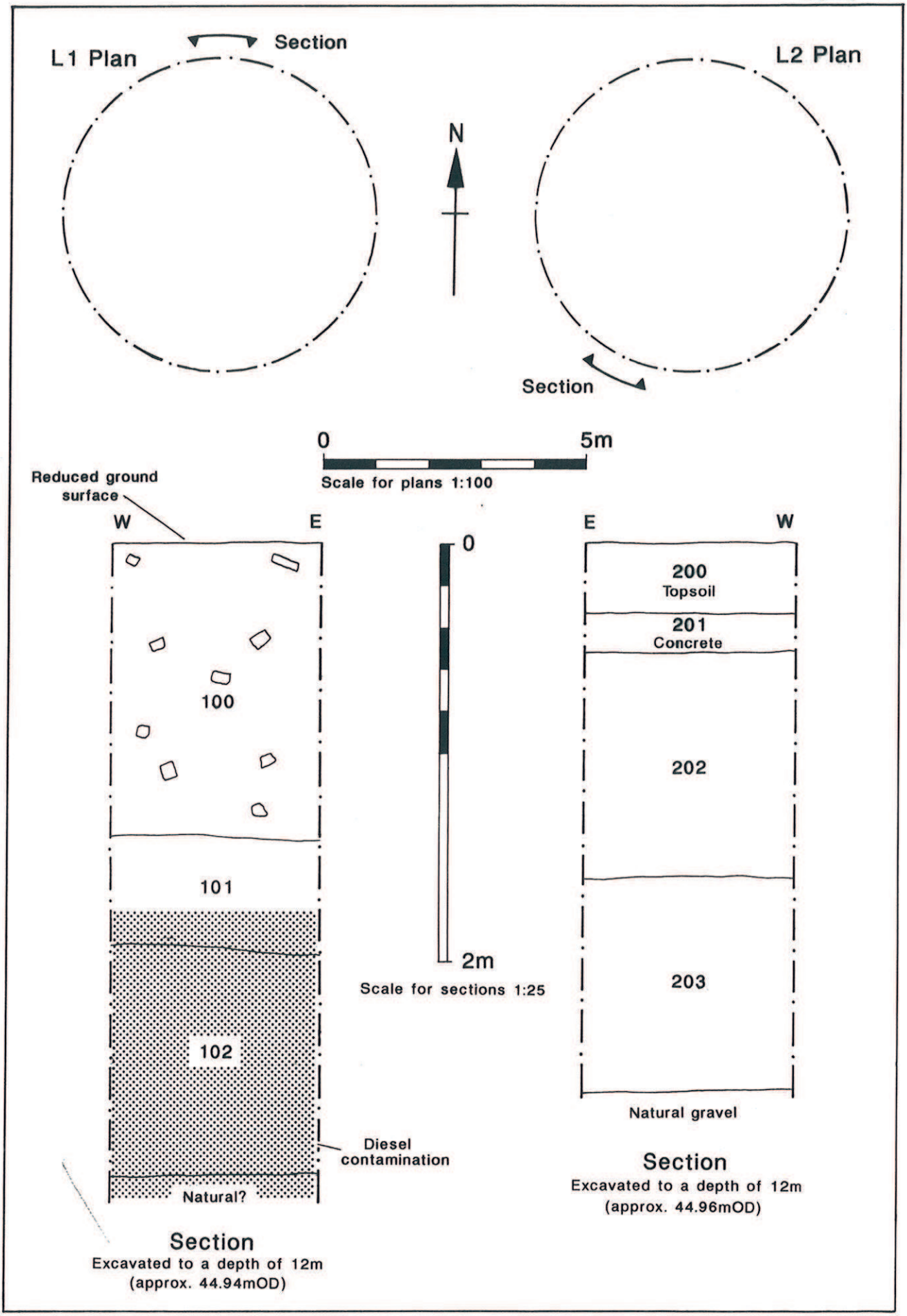

Figure 13: Headshafts L1 and L2; plans and sections

L1 + L2

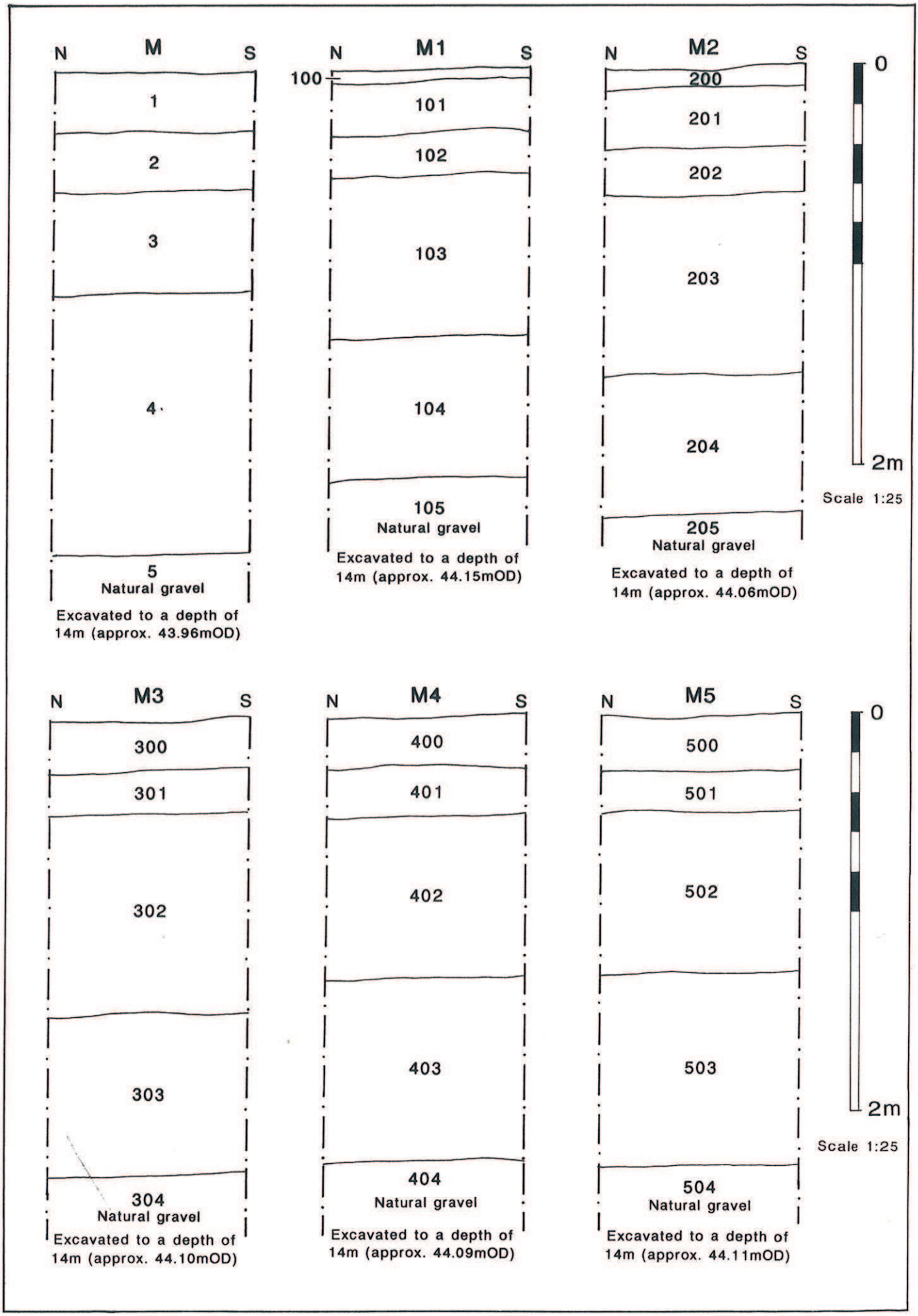

Figure 14: Headshafts M-M5; sections

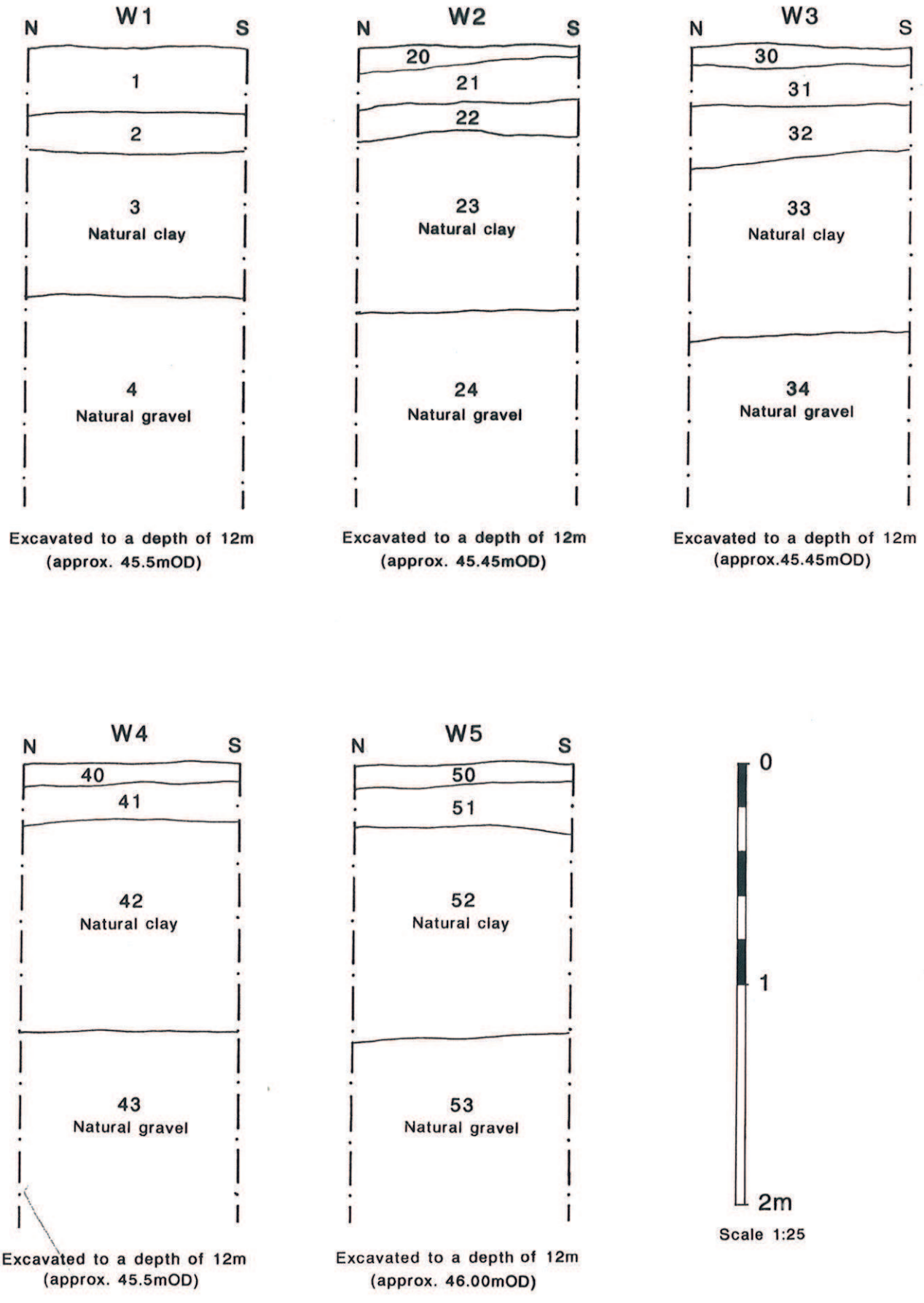

Figure 15: Wolvercote Common (SAM 12003); Headshafts W1-W5, sections

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