

#### 4. ROAD SYSTEM

The road system to the south of the fort was investigated at various points during the four seasons of excavation, revealing at least two phases of bypass road and a connecting link to the south gate of the fort (Illus 1.2). The bypass road was traced for a total distance of some 275m, firstly immediately to the south of the pre-fort enclosure, then to the east of the fort as the road swung north-east to rejoin the Military Way, and finally to the south-west of the fort as it headed up the slope in the direction of the alignment established by Macdonald (1934: 144) and defined by the local topography (Illus 1.3).

##### 4.1 Link road to the fort (Area C)

Traces of a cobble and metallised stone surface (CCS) were recorded at the northern limit of the excavation immediately to the east of the ditch that defined the east side of the pre-fort enclosure (CAB/CCN) (Illus 2.1 and 4.1) (see 2.1, above). A subsequent section at this point (Illus 2.4) confirmed that the surface continued north into the guardianship area and revealed that it constituted a quite well-preserved road 2.9m wide, assuming the section cut it approximately at right angles. The road was made up of a rubble core set between larger kerbstones and overlain in the better-

preserved western third by a thin layer of hard grey grit, above which a layer of small stones created a metallised surface. This road was located 2m east of the pre-fort enclosure ditch, but both on the excavated surface and in the section some metallising continued right up to the edge of the ditch (CCN/CAB), as if respecting its presence (Illus 2.4 and 4.1). This compacted light metallising (CCS) could be traced down the natural slope southwards for *c* 7m before it petered out, having presumably been removed by ploughing. Unfortunately, its eastern extent had been destroyed by one of the quarry company's larger test pits, so its precise alignment was difficult to estimate.

Slight traces were identified, however, some 17m further down the slope where they had been protected by soil creep and the proximity of a dry-stone dyke (Illus 4.2). Again, the remains appeared to skirt the eastern edge of the enclosure ditch and consisted of intermittent patches of compacted light metallising with occasional larger stones that merged into the bypass road (CCR) (see 4.2, below) a further 5m to the south. The remains were partly concealed beneath the stone dyke and too fragmentary to calculate the road width with any accuracy, but the gap between the south-eastern corner of the enclosure ditch and the start of a drainage ditch (CCT) on the north side of the bypass road to the east would have readily facilitated



**Illus 4.1** Road surface (CCS) and overlying cobbling (CCP) from south. An excavated Macdonald trench confirms the line of the enclosure ditch (CAB) running beneath the cobbling

the passage of a road up to 5m wide. The end of the road drainage ditch (CCT) curved slightly in a north-westerly direction in acknowledgement of the T-junction in the road at this point (see 4.2, below). It was mirrored on the west side by another road drainage ditch (CCK) that curved upwards towards the north-east and merged with the south-east corner of the pre-fort enclosure (CCH/CCQ). Unfortunately, one of Macdonald's larger trenches had cut across their point of intersection, making it difficult to confirm the chronological relationship between them, but from the traces that did remain there was no suggestion that the two ditches had not been in use simultaneously.

At some point the ditch on the east side of the enclosure was deliberately backfilled (see 2.1 and 2.4, above), its northern limit within the excavated area sealed by an area of heavy cobbling (CCP) some 2m by 2.5m in extent (Illus 2.1, 2.4 and 4.1). This presumably is all that survives of the rubble core of a new, slightly more westerly road alignment whose upper metalling has been lost to the plough.

#### 4.2 Bypass road and its ditches (Areas B, C, G, K, L)

The bypass road was first encountered down the slope running along the southern limits of the trench opened in the first season and was very well preserved in places, where it had been covered with hillwash (Illus 2.1, 4.4 and 4.5). A length of 27m was exposed (CCR) immediately outside, but running at a slight angle to, the south side of the enclosure and continuing beyond it to the east. The road came closest to the pre-fort enclosure ditch at the south-east corner, where it formed a T-junction with the link road to the fort (4.1, above). Its western continuation immediately south of the enclosure was tested by extending two sections through the enclosure ditch to the south and clearing the hillwash from an area at the south-west limit of the excavated trench.

At the eastern end of the area the road was uncovered to a maximum width of 3.2m without identifying its southern kerb, though it had probably



**Illus 4.2** Intersection of south-east corner of enclosure ditch and road ditch from north. Patches of surviving metalling of the link road are apparent in the foreground with the surface of the bypass road in the background

started to widen at this point as it approached the T-junction with the link road to the fort. The road survived as a core of medium to large cobbles with a kerb of generally larger stones. It was soon clear, however, that this represented a secondary phase, as traces of metalling (CAE) were uncovered extending from beneath the kerb northwards for 0.5m–0.7m (Illus 4.3). This was confirmed in a section through both phases which took advantage of the quarry company's substantial 15m-wide test excavation trench located only 5m further east (Illus 1.2). This indicated that below the surviving upper cobble core, some 0.2m of sandy clay had been compacted on top of the fragmentary remains of the earlier surface, which comprised a spread of much smaller stones. This had served to shift the road *c* 0.9m to the south. Allowing for the oblique angle at which the quarry trench cut through it, a width of *c* 3.2m for the secondary phase of the road was indicated. The remains of the primary road were too fragmentary to allow the calculation of its original width. The raising and re-siting of the road may have been the

result of environmental factors, as a considerable build-up of silt was attested above the first phase road on the north side (CCY – see below).

Much of the surface of the bypass road at the T-junction with the link road to the fort was quite badly preserved. The later phase had been largely ploughed away, with only scattered large stones and small areas of disturbed metalling (Illus 2.1 and 4.2). However, preservation seemed to improve as the investigation moved westward, with larger areas of compacted metalling of the primary phase road surviving beneath patches of damaged metalling immediately west of the junction, though this primary phase also showed signs of possible filling of a pothole (Illus 4.4). In a small section of road uncovered some 17m further west, a well-preserved surface of compacted small stones was recorded with a neat kerb of larger stones and even signs of wheel ruts (Illus 2.1 and 4.5). This was not sectioned, but presumably represents the secondary phase of construction, as in another cut through the overlying silts slightly closer to the T-junction



**Illus 4.3** East section of road (CCR) from west showing earlier surface (CAE) projecting beneath later stone kerb in the foreground and section through drainage ditch (CAA/CCZ) in the background



**Illus 4.4** Well-preserved section of metalling of primary road surface and associated drainage ditch (CCK) immediately to the west of intersection with link road to the fort, from south-west. Some large displaced kerbstones and a patch of later damaged metalling are apparent (top centre), with a probable pothole repair to the primary surface (centre right)



**Illus 4.5** Well-preserved surface of bypass road to south of the pre-fort enclosure in Area B/C showing wheel ruts and associated drainage ditch (CCW) to the north

the metalled surface partly overlay an adjacent road drainage ditch (CCV) (Illus 2.1).

A drainage ditch was recorded to the north of the road along the whole of its excavated length both east and west of the T-junction (Illus 2.1, 4.4 and 4.5). It was sectioned in several places on the west side (BBS, CCW, CCK, CCV) with varying widths and depths recorded, but was generally 1m–1.4m wide and only 0.25m–0.45m deep, filled with yellow-brown sandy silt. As already noted above, it ran into the south-east corner of the enclosure ditch on the west side of the T-junction (Illus 4.2). To the east of that junction the ditch showed similar dimensions and characteristics. The curving butt end (CCT) by the road junction and two further sections (CAC and CAA/CCZ) were excavated. Here the ground sloped away quite markedly to the

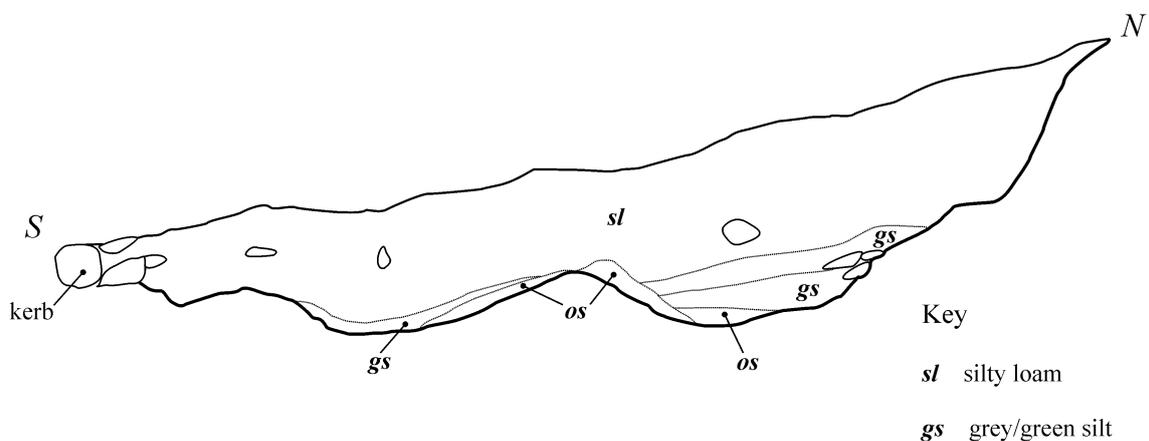
south and east, and drainage had probably been a problem as there was evidence both of the provision of a shallow double ditch (CAC/CCZ) (Illus 4.6) and a considerable build-up of silt, up to 0.2m deep, against the side of the road (CCY).

The following season the line of the bypass road was sought further to the east. Its alignment was picked up first of all in section on the north-east side of the large quarry test trench where two phases were again apparent, though by this point their relative spatial relationship had changed, with the primary phase starting some 0.75m further south (Illus 1.2 and 4.7). Allowing for the obliquity of the section and the state of preservation of the remains, the primary phase was *c* 2.5m wide and the secondary phase *c* 2.85m. This was the first occasion when drainage ditches were revealed on both sides of the road. Both were V-shaped and more substantial than those examined further to the west, *c* 1.2m wide and up to 0.66m deep. Successive layers of silting filled the bottom 0.25m of the north ditch (GAB), sealed by a more homogeneous layer of sandy silt. Quantities of coarse ware were recovered from the very bottom of this upper fill during cleaning.

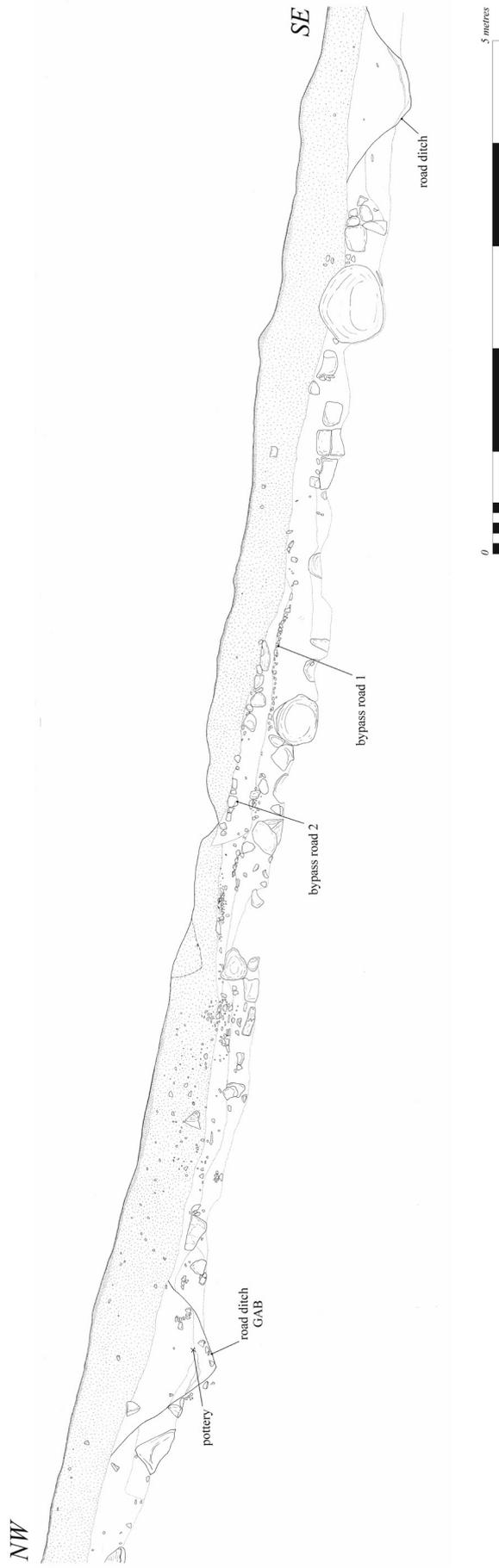
Some 30m north-east, a long 2.8m-wide trench (Area K), sited up against the modern fence line where it turned north, revealed the line of the road as it followed the 111m–112m contour (Illus 1.2). All that survived was a spread of large cobbles (KAE) which, allowing for the oblique angle of the trench relative to the road, would have been *c* 10m wide, with a very shallow (0.10m deep) ditch or depression just over 1m wide (KAH) on its north side. Although the remains had been damaged by

field drains and disturbed by ploughing, particularly on the southern, downslope side, this does not seem adequately to explain the excessive width compared to the better-preserved section of road further west. Either the two main phases of road were further separated at this point or, perhaps more likely since no upper road surface was recorded, the heavy cobbling represents a wider underpinning of the road as it traversed a gully, evident in the contours, and an associated area of damper, less stable ground, as was confirmed by the presence of 19th-century field drains.

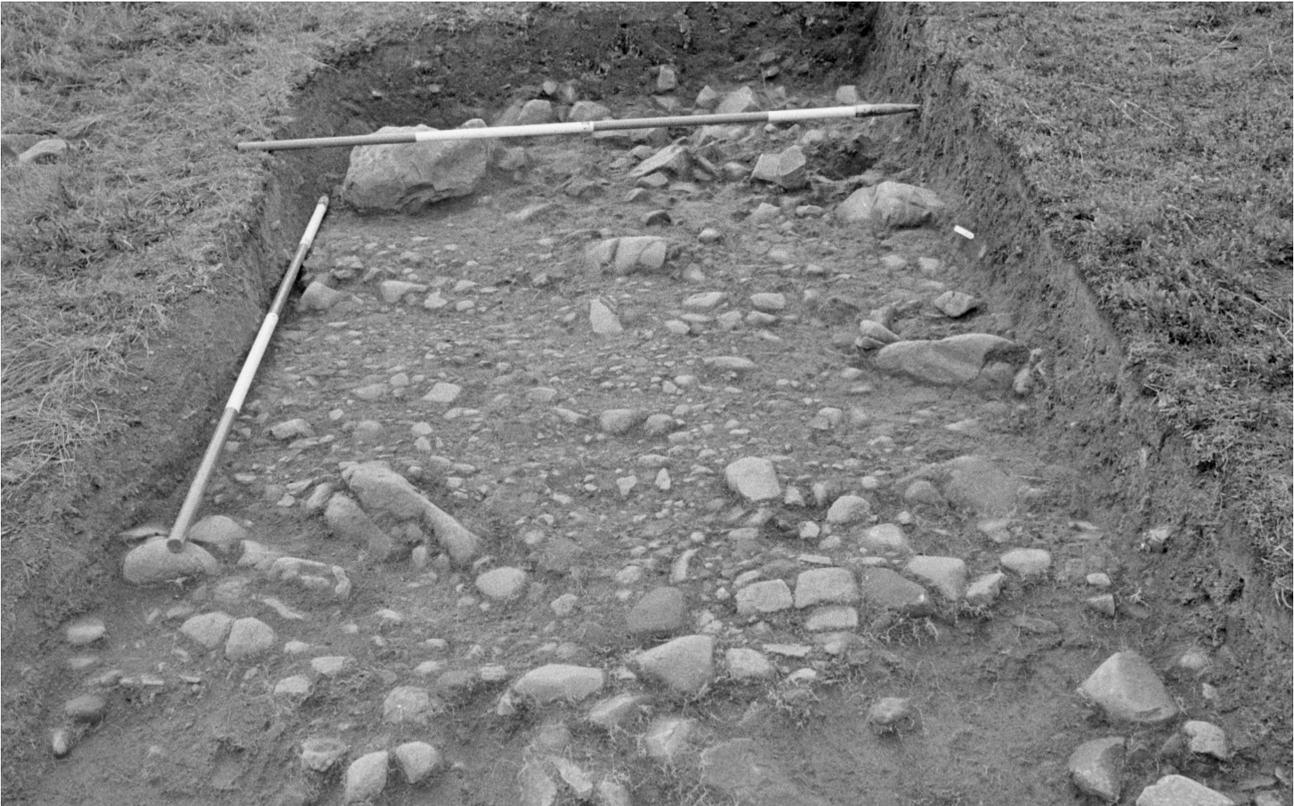
A further 23m to the north-east, slightly upslope between the 112m and 113m contour, the southern side of a much better-preserved road surface was revealed at the north-western end of a small hand-dug trench opened specifically to check the road alignment. It consisted of compacted small pebbles interspersed with larger stones (GBF), and was uncovered for a width of 2.8m (Illus 4.8). Two parallel wheel ruts, 0.1m wide and 1.1m apart centre to centre, were apparent. A badly preserved, shallow ditch, 1.0–1.2m wide and 0.25m deep, was revealed 7.8m to the south (GBG). This road alignment was pursued further in two southerly extensions to the main area of excavation east of the fort, which confirmed that it continued up the slope to the north-east, following the 114m contour. In both these cases the associated drainage ditch on the north side was uncovered, with the road surface apparent only in the more northerly trench, the rest having been ploughed away (Illus 5.1). Only the north side of the road was well preserved, for a width of 1.2m, surviving as a surface of small compacted



Illus 4.6 Section through drainage ditch (CAC/CCZ) north of the bypass road in Area C



Illus 4.7 Section through two-phase bypass road and associated drainage ditches on north-east side of quarry test excavation trench



**Illus 4.8** Well-preserved section of road surface (GBF) from the west

pebbles interspersed with a few larger stones (GBO) (Illus 4.9). The immediately adjacent roadside ditch, which varied between 0.75–1.6m wide and 0.2–0.38m deep, was not continuous but apparently segmented, coming to a butt end in both trenches (GBI and GBP/GBL). The short, very narrow gap created by one pair of the butt ends coincided with the beginning of a shallow gully or fence line (GAI/DAD) 1.8m to the north (see 5.1, below). Despite extensive excavation to the north and east, no further evidence was found for the continuation of the line of the road.

The best-preserved section of the bypass road (LBZ/LCC) was uncovered to the south-west of the fort (Illus 4.10 and 6.1), south of the postulated focus of the *vicus*, where it had been protected by a substantial build-up of hillwash (LBX). It was 4.2m wide and consisted of a slightly cambered surface of compacted small and medium-sized stones, set between a kerb of large, irregular stones (representing Phase 2/3 noted below). It had been preserved for a distance of some 28m before petering out where the plough had taken its toll as the ground rose to the west, its alignment confirmed by the

continuation of the associated northern drainage ditch (RCC/RCH – below). Sectioned in two places (Illus 4.11) the road revealed traces of two phases of resurfacing which survived primarily in a narrow strip on the north side. The earliest road, which lacked a kerb, projected 0.5m further north than the later alignment, as had been observed also on the east side of the pre-fort enclosure (CCR above). It consisted of a well-made surface of small, rammed, water-worn pebbles. Traces of wear in the form of a wheel rut were noted sealed beneath the secondary surface of similar character which butted against a kerb of large, irregular stones. This surface was in turn overlain by a further, less coherent layer of slightly larger stones.

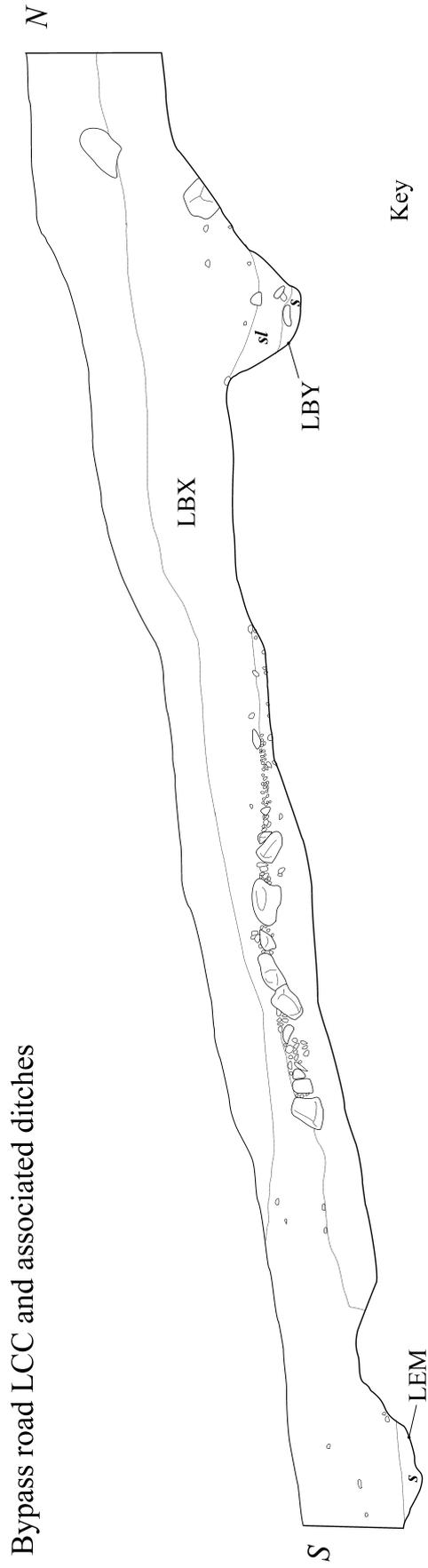
Associated with the road on its north side was a ditch (LBY/LCG) 1–1.3m wide and generally U-shaped, 0.5–0.73m deep (Illus 4.11). It was contiguous with a drainage ditch (LBR/LBT) running down the slope from the north (see 6.2, below) the two joining almost at right angles (LBW) (Illus 4.12 and 6.1). After a gap of *c* 6m the road ditch continued westwards and again linked into a ditch draining downslope (LDE), though this time



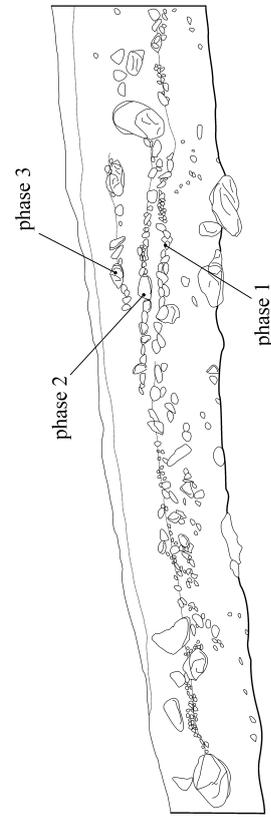
**Illus 4.9** Well-preserved section of road surface (GBO) with segmented road ditch (GBP and GBL) to the left



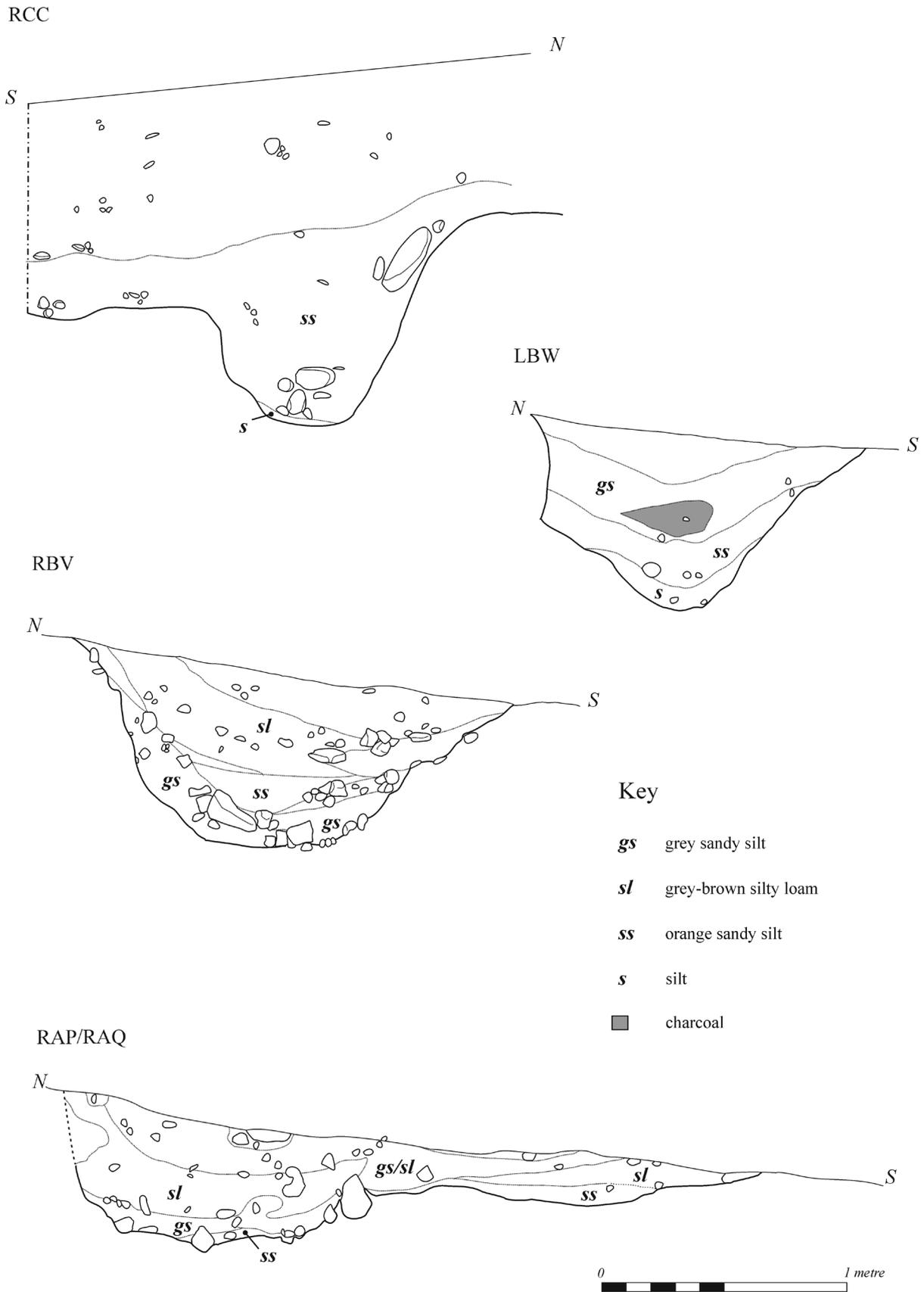
**Illus 4.10** Well-preserved section of bypass road (LBZ) in Area L from the east



Bypass road LBZ



Illus 4.11 Sections through the bypass road: top: LCC and associated ditches, LBY and LEM; bottom: LBZ, showing three phases



Illus 4.12 Sections of ditches on north side of the Phase 2 bypass road in Areas L and R



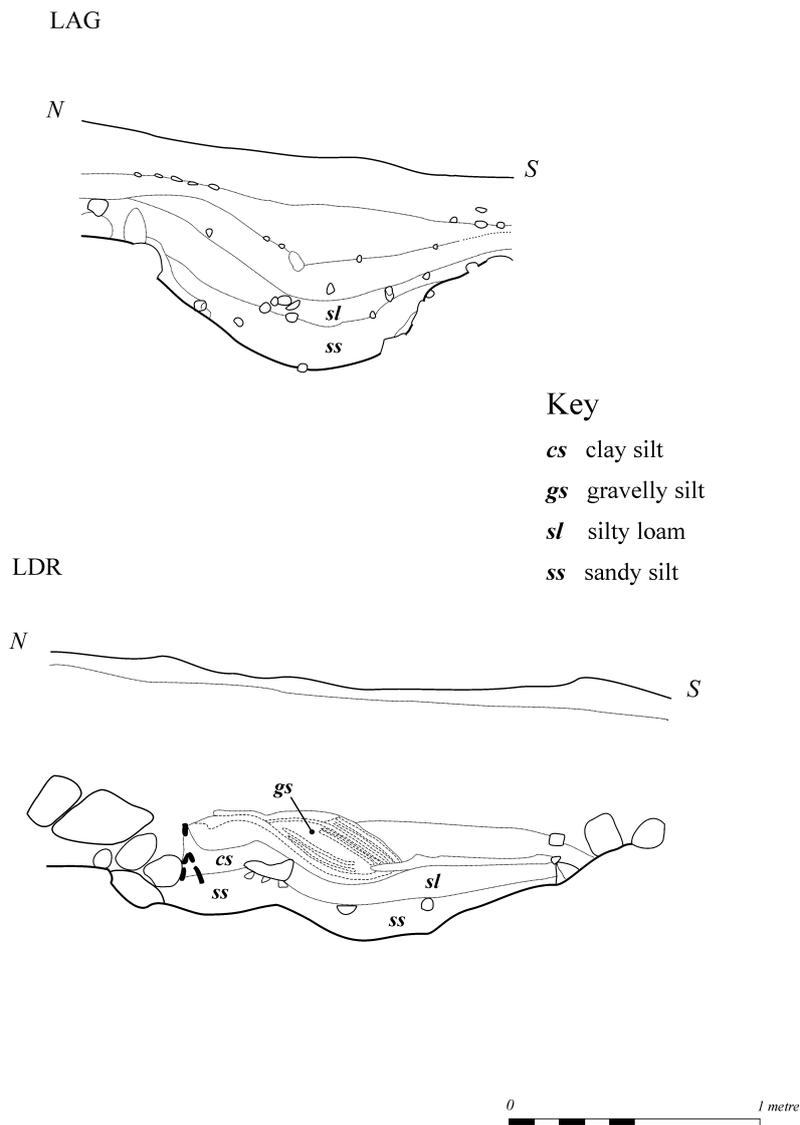
**Illus 4.13** Intersection of road ditches (LEA and LBW/LCG) with curvilinear trackway drainage ditches (LDE/LCT and LBT/LBR) north of road (LBZ) from south

the intersection followed a more gentle curving alignment. The gap between the two ditches (LBR/LBT and LBS/LCT/LDE) is suggestive of a road junction leading north directly into the main area of the *vicus*, but no metalling was observed and there was no break in the kerb of the bypass road (see below) so it may have been just a ditch-defined path or trackway (Illus 4.13). The northern end of the proposed trackway aligns well with the curvature of the *via principalis* as it exits the west side of the fort (Illus 1.2).

This western continuation of the northern road ditch (LEA/LCX/RAO/RBV) came to a butt end after 11.5m (Illus 6.1 and 6.6). It was generally large, 1.6–2m wide and 0.65–0.75m deep, U-shaped with quite steep sides, and filled with layers of silty sand and loam with scattered stones (Illus 4.12). Beyond that it seemed to be made up of a series of conjoined delvings (RAP/RAR), including one that was offset to the south (RAQ), though this may be much earlier in date (see 7, below). This irregular stretch of road ditch ranged in width from 1.1m

to 1.9m and in depth from 0.5m to 1m, and again came to a butt end after 11.5m. Beyond that the line continued for a further 23m (RCH/RCC), but was sectioned in only three places (Illus 6.1). The ditch here was 1.4–2.3m wide and 0.7–0.85m deep, with a steep-sided U-shaped profile (Illus 4.12) filled with sandy silt. The corresponding ditch on the south side of the road was detected only in section at the east end of the excavated area (LEM) (Illus 4.11 and 6.1), where it was *c.* 1.2m wide and 0.35m deep, largely filled with and overlain by hillwash (LBX).

The existence of a further road (LDT) running approximately parallel to and some 5m south of the bypass line (LBZ/LCC) was identified in two hand-dug extensions to the main excavated area, one near its south-eastern corner and the second taking advantage of another quarry test cutting in order to examine a section further to the east (Illus 1.2 and 6.1). All that remained of the road was a concentration of medium to large water-worn pebbles with a ditch on either side. The north ditch (LAG) was 1.35m wide and 0.5m deep; the south



**Illus 4.14** Sections of ditches associated with the Phase 1 bypass road in Area L

(LDR) 1.05–1.4m wide and 0.4–0.45m deep. Both ditches were filled with silty sand/loam, the southern ditch revealing a series of more gravelly lenses in section, which presumably reflect wash from the original road surface (Illus 4.14). There were also indications in one section of LDR of an earlier, smaller ditch, only *c* 0.6m wide and 0.25m deep, closer to the road on the south side. No stratigraphic relationship between the two parallel roads could be established, but all the other trenches draining down the slope (see 6.2, below) relate to the more northerly line, while the southerly example was less well preserved and showed no signs of more than a single phase, other than in its southern ditch, so may represent an earlier alignment that was abandoned.

#### 4.3 Associated finds

- BBS/CCK: drainage ditch, north side of bypass road
- CCR, south of pre-fort enclosure: 1 sherd of plain samian; 23 sherds of coarse ware, including amphora; nail; fragment of iron
- CAC/CCT/CAA/CCZ, drainage ditch, north side of bypass road CCR, east of pre-fort enclosure: iron ferrule (Illus 9.10, F33); lump of iron; 5 sherds of plain, 1 of decorated samian; 59 sherds of coarse ware, including amphora; 2 nails; 2 hobnails; 2 fragments of glass bottle; fragment of window glass
- CCR, bypass road surface, south of pre-fort enclosure: 4 sherds of coarse ware; nail

CCS, link road surface, east of pre-fort enclosure: piece of worked sandstone; 2 sherds of coarse ware; nail

CCW, lower fill of drainage ditch, north side of bypass road CCR: sherd of coarse ware

CCY, silt build-up between bypass road (CCR) and its northern drainage ditch (CCT): 12 sherds of coarse ware; 5 sherds of mortarium; hobnail

GAB, lower fill of bypass road drainage ditch in quarry trench: 62 sherds of coarse ware, mainly from one vessel (13.4, no. 4, below)

GBL, silt build-up over bypass road ditch, GBP: 8 sherds of coarse ware

LCC, cleaning over surface of bypass road LBZ: fragment of samian.

LEE, secondary kerb of bypass road, LBZ/LDD: nail; 13 hobnails

LAG, drainage ditch, north side of primary bypass road, LDT: fragment of samian

LBW, junction of bypass road/trackway drainage ditch: fragment of twisted handle; nail; 18 sherds of coarse ware; sherd of mortarium; flint flake; fragments of burnt animal bone; charcoal fragments

LBX/LCO/LDO, hillwash over bypass road drainage ditches, LBY/LEM: iron ferrule (Illus 9.10, F34); iron strips; 2 hobnails; sherd of mortarium; 10 sherds of coarse ware, including amphora

LBY/LCG, drainage ditch, eastern section north side of bypass road LBZ: sherd of decorated samian; 12 sherds of coarse ware, including amphora; 3 sherds of mortarium; nail; 12 hobnails; fragments of animal bone.

LDD, primary surface of bypass road, LBZ: sherd of coarse ware

LDG, hillwash over bypass road, LBZ: sherd of amphora; hobnail

LDR, drainage ditch, south side of primary road LDT: fragment of samian; sherd of coarse ware

LEA/LCX/RAO/RBV, central section of drainage ditch, north side of bypass road LBZ: shale disc pendant; 5 sherds of coarse ware; 15 hobnails

RAP/RAR/RBS/RBT/RAH, central section of northern bypass road drainage ditch: piece of worked sandstone; 12 sherds of coarse ware;

4 small fragments of glass bottle; 2 hobnails; fragment of animal bone.

RAV/RAX/RBP, hillwash over bypass road drainage ditch RCC: bronze riveted strip; sherd of samian; 32 sherds of coarse ware; 2 sherds of mortarium; nail; 2 hobnails

RCC/RCH, western section of northern bypass road drainage ditch: 6 sherds of coarse ware; sherd of mortarium.

#### 4.4 Interpretation and analogies

The implication of the spatial relationship between the link road to the fort and the pre-fort enclosure is that the east side of the latter continued in use as a drainage ditch on the west side of the link road. As a result this took a slightly circuitous route as it headed north towards the south gate of the fort. This would also serve to explain the different character of the ditch on this side of the enclosure and the hint of a recut in section CAB at the northern limit of the excavation (Illus 2.4). This arrangement, however, did not continue throughout the period of occupation of the fort, as the alignment of the link road was later shifted slightly to the west so that it partly overlay the enclosure ditch.

The existence of loop roads from the Military Way to allow long-distance traffic to bypass any of the forts along the Wall has long been postulated (eg Macdonald 1934: 92; Hanson & Maxwell 1986: 84). The point at which the bypass road branched off the Military Way some 300m to the west of the fort at Croy Hill was originally identified by the Glasgow Archaeological Society's Antonine Wall Committee when cutting sections across the Wall and ditch (GAS 1899: 67). The alignment of the bypass road is clearly defined by the natural topography as it follows a gap in the low hills to the south of the Wall (Illus 1.1C and 1.3) and was subsequently confirmed for a distance of some 130m by trenching undertaken by Macdonald (1934: 144–5). He went on to postulate that the road would have continued down the slope to follow the line of the modern railway and so avoid the steep ascent of Croy Hill. It is now clear, however, that it simply looped around the fort, passing some 65m to the south to it. Where it rejoined the Military Way to the east, however, could not be determined. There is a sufficient gap in the system of gullies in Areas G and H, between the

pottery kiln (GAM) and large pit (HAR), through which the road might have passed (Illus 1.2), but its side ditches might reasonably have been expected to survive the plough, even if the road surface did not.

Though it is not unreasonable to assume that such bypass roads would have been a common provision at all forts (Macdonald 1934: 92), this has been demonstrated in only three other cases. At Rough Castle the bypass road closely skirted the outer ditch of both fort and annexe, rejoining the Military Way on the west side of the Rowan Tree Burn (Buchanan et al 1905: 469 and fig 1); at Bar Hill the road benefited from the detached status of the fort, taking the shortest route to the north through the gap between it and the Wall (Macdonald & Park 1906: 4 and plates I and II); while at Cadder the bypass road again skirted the fort to the south, though the situation there is complicated by the fact that the Military Way itself did not appear to continue through the fort (Clarke 1933: 78 and end map). A fourth example may be indicated in seemingly contradictory antiquarian accounts of the line of the Military Way at Westerwood, supported by the identification of a section of road skirting the south-east corner of the fort (Macdonald 1934: 139 and 256); while a fifth is indicated by antiquarian references to, and mapping of, the line of the Military Way running around the fort at Duntocher

(Gordon 1726: pl. 16; Horsley 1732: 165 and 176 N2; Macdonald 1934: 176–7).

Clearly the bypass road across Croy Hill was well used. Not only was there evidence of wheel ruts and resurfacing in some of the better-preserved sections, but the whole road alignment was adjusted slightly along at least 200m of its length across the hillside and kerbs added. Furthermore, in one *c* 30m section on the south-west side of the hill a probably earlier, more southerly alignment was attested. Rather than the result of heavy wear, the need to rebuild and/or relocate the road line is more likely to have been caused by the detrimental impact of surface water drainage, as indicated by the heavy build-up of silt and hillwash against the north side of the better-preserved road line and the multiple provision of ditches on the west side of the hill draining water from the area of the *vicus* (see 6.2, below). That Roman authorities chose to replace the road more than once is clear testament to its perceived value and importance. Given these problems, it is not surprising that drainage ditches were provided on both sides of the road, though the southern example was less frequently exposed during the excavations described here. The irregular and segmented character of the northern ditch, particularly at the western end of the excavated area, may indicate its origins in the extraction of stone to build the road.