

INDEX DATA	RPS INFORMATION
Scheme Title A46 : Fosse Way	Details Aerial photographic enhancement
Road Number A46	Date March 1993
Contractor David Tildesley + Associates	
County Nottinghamshire	
OS Reference SK63	
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**A46: FOSSE WAY:**  
**NEWARK TO WIDMERPOOL,**  
**NOTTINGHAMSHIRE**  
**AERIAL PHOTOGRAPHIC ENHANCEMENT**  
**MARCH 1993**

**UNDERTAKEN ON BEHALF OF**  
**DAVID TYLDESLEY AND ASSOCIATES**  
**SHERWOOD HOUSE**  
**144 ANNESLEY ROAD**  
**HUCKNALL, NOTTS, NG15 7DD**

## A46: NEWARK TO WIDMERPOOL

### Aerial Photographic Enhancement

Rog Palmer MA MIFA

#### INTRODUCTION

This project was undertaken to enhance the aerial photographic input in the *Interim Archaeological Report* dated December 1992. The area to be examined was within a corridor 500m each side of the proposed route of the road with an enlarged box centred on the Roman town of Margidunum (SK700417).

For this area all available oblique and vertical photographs from the Cambridge University Collection of Air Photographs (CUCAP) and the National Library of Aerial Photographs (NLAP) of the Royal Commission on the Historical Monuments of England were examined. NLAP includes a number of photographs taken in 1933 covering part of the line of the A46. These form a continuous record of a strip between Northings SK41 and SK53 although NLAP have them filed under separate kilometre squares as part of the specialist (generally oblique) collection. A small number of additional obliques came from our own photography (identified as APS) taken in 1991 on a flight with RCHME. Nottinghamshire County Council hold a set of vertical photographs, flown in 1971 at a scale of 1:12000 of which a small number of duplicates was examined at NLAP. On that basis it was considered that examination of the full set would add nothing of archaeological significance to that derived from other source photographs.

Oblique photographs were examined on a site-by-site basis which allowed all photographs of each site to be studied together during interpretation. With a working scale of 1:10000 much of the interpreted information was sketched directly on to the supplied base maps, computer rectification being reserved for sites of complexity or those where precise location was likely to be required for field investigation. The comparatively small scale necessitated some simplification of the most complex features and did not allow much geological or pedological information to be mapped. These latter are identified in the gazetteer.

#### CONTENT OF THIS REPORT

The gazetteer lists all features identified on the aerial photographs and notes whether, and how, these have been mapped. It is sorted in National Grid order and thus covers the road improvement corridor from SW (Widmerpool) to NE (Newark). Amplified commentary on some of the mapped features follows and provides reasons for some of my interpretative decisions and makes comparison, where necessary, with those sites in the *Interim Archaeological Report* for which aerial photographs provided the principal data. The commentary is illustrated by eleven sequential map extracts copied directly from the 1:10000 final drawing.

Evaluation of land use, depicting only permanent pasture and woodland, is shown by a second series of maps.

An appendix lists all photographs consulted, giving their sources and, when known, the dates of photography.

## MAPPING ACCURACY

Two methods were used for mapping the interpreted information from the aerial photographs: sketch plotting and computer rectification. In most cases the sketch plotted detail was keyed to the map by construction of a network, and/or by extending modern features to link a relationship between map and photograph. Such working would be expected to result in an accuracy within  $\pm 10\text{m}$ . The software used for computer rectification calculates error values for control point match and, in all cases for this enhancement, the mean of these was below  $\pm 2.5\text{m}$  – an accuracy which can barely be measured at 1:10000.

Some ground error may be found, however, as the maps supplied were not true to scale and this could not be taken into account when digitally mapping. Ground height variations may also cause slight locational error.

## DRAWING CONVENTIONS

The 1:10000 mapping used the following conventions:

Limit of survey

### *Archaeological features*

Ditch

Bank or headland

Pit cluster

Ridge and furrow

Ridge and furrow traces

### *Uncertain or non-archaeological features*

Geological crack or possible archaeological ditch

## GAZETTEER

The gazetteer lists a number and central grid reference for each identified and mapped feature or group of features. Recorded photograph numbers are, in many cases, only the principal ones used and will identify those offering the most information. In no instances have photograph numbers been recorded for specific areas of ridge and furrow cultivation or their associated headlands although the list of NLAP verticals (see Appendix) identifies sorties on which these medieval field systems were especially clear. Notes (originally constrained in length within a dBase file) are brief and some amplification may be found in the following *Commentary* section. A final column identifies the principal mapping method used at each location.

No	NGR	PRINCIPAL PHOTO NUMBERS	NOTES AND DESCRIPTION	MAPPED
1	SK 6589 3121	RAF/541/481: 3347-3348	Probable earthwork circular ditch some 30m in diameter. It is situated in a 'reserved' area among ridge and furrow and thus may be a mill mound.	Sketch
2	SK 6635 3560	SK6635/1, SK6635/3-5, (APS) 91.72/7	Area of possible ditched settlement comprising part of a broad ditched rectangular structure, two poss. circles and many parallel ditches (?geology). Apparent double ditched track in field to N which may be remnant R & F which covers area. TPAT site 3.	Computer
3	SK 6660 3611	SK6636/1-2	Ring ditch, 20m diameter, just cut by modern road boundary in its N arc. Lies on Mudstone but photographs suggest it to be situated on a low outcrop of bedrock which may aid formation of crop marks. TPAT site 4.	Sketch
4	SK 6694 3662	(APS) 91.72/4-6, SK6636/4-7	Cluster of pits - possibly archaeological - with suggestion of ditched features to their N (?geological). Lodged crop includes circle. Another circle to N shows as ?bank. Soil change and geological cracks make all suspect. R & F. Geophysics may help.	Computer
5	SK 6785 3786	SK6737/1-2	Possible rectilinear enclosure attached to curving linear ditch. Suspect. In root crop and close to a patch of probable geological cracks. Ridge and furrow overlies. Geophysics may help.	Computer
6	SK 6762 3800	ZO 38-39, SK6738/1	Rectilinear ditched enclosure with possible additional enclosure abutting its W ditch. Sinuous feature (ditch or geology?) runs to the E and other suspect straight 'ditches' in area. Whole area is blurred by geological polygons. R & F overlies. TPAT site 7.	Computer

7	SK 6800 3792	SK6737/3-4, SK6837/5-8	Parts of two rectangular enclosures (the other at 68053802) on similar alignment (related or contemporary?). Features to SW (67853786) possibly archaeological but indistinct and dubious. Suggest geophysics on latter. TPAT site 8.	Computer
8	SK 6801 3820	SK6838/1-2	Suggestion of rectilinear enclosure plus linear features. Dubious as archaeological - probably geological as other, more curvilinear, shapes continue N alongside the A46. Ridge and furrow overlies. Geophysics may assist.	Sketch
9	SK 6829 3897	PQ 93-96	Probable backfilled pond.	Sketch
10	SK 6851 4210	SK6842/1-2	Possible ring ditch. Just beyond 1500m survey limit.	Sketch
-	SK 6910 3990	SK6939/1	Series of arcs following contour. Wholly natural. Also old field boundaries. Now under modern housing.	None
11	SK 6950 4180	RC8-GR 229-230, SK6941/1-5, SK7041/9	Two near parallel banks, at least 500m long, lying 50-60m apart. At SW point it adjoins a former headland, now a modern boundary. Suggestion of other parallel banks to the N. 1933 photos show southern bank to have been a headland.	Sketch
12	SK 6996 4170	LI 57-59, YV 16-18, ZO 41-43, RC8-GR 229-230	Degraded, but slightly upstanding, soil mark of bank which may represent the west side of Margidunum. Building foundations plus ?ditched features lie within town. Ridge and furrow outside walls, no trace within.	Computer
-	SK 6998 4171	SK6941/2, SK7041/9	Buildings at Margidunum under excavation (10 July 1932 and 8 June 1933).	None
13	SK 7029 4034	SK7040/15, 17-18, 20-21, 27	Circular bank with central spot/disc. Adjacent banked rectangular structures. All appear recent and may show the site of military activity, perhaps a searchlight battery. Mapped for information only.	Sketch
14	SK 7069 4070	SK7040/4-7	Two rectangular marks of villa-like appearance. Very unlikely to be archaeological and mapped for information only.	Sketch
15	SK 7089 4052	EF 50-51, SK7040/1-3, 8-12	At least two curvilinear enclosures - one abutting ?headland - plus other ditches and probable small ring ditch.	Computer
16	SK 7045 4203	EF 42-43	Three sides, possibly four, of a probable square ditched enclosure with rounded corners. Fourth side may abut modern boundary.	Sketch

17	SK 7173 4150	SK7141/2-3	Suggestion of parts of two ditched enclosures. Suspect. Marks are perpendicular or parallel to modern field boundary and may be recent. Mapped for information only.	Sketch
18	SK 7185 4174	SK7141/2-3	Lodged crop in the form of a near-square enclosure. Possible archaeological feature although the map shows it now to be wooded.	Sketch
19	SK 7100 4292	RC8-GR 131-132	Crop mark of two parallel ?banks lying perpendicular to, and abutting, modern A46.	Sketch
20	SK 7170 4235	BRU 64-68, RC8-GR 130-131	Moat plus associated ridge and furrow, mound (?mill) and ?ditched circle. Possible house platforms in area 71804260.	Computer
21	SK 7190 4490	SK7144/1, SK7145/1-2	Natural ovoid feature of some 270m (maximum axis). Henge-like appearance with apparent ditch plus outer bank and suggestion of smaller inner feature. Nothing mapped at 1:10000. TPAT site 14.	None
22	SK 7517 4935	RC8-GL 139-140	Straight length of bank tending to form a chord across a bend in the modern A46. It may be the Roman road. Slight traces of parallel ?banks to the W may be remnants of ridge and furrow.	Sketch
23	SK 7525 4960	BSB 76, RC8-AI 168-9, RC8-GL 138-9, SK7549/1, 3-5	Ditched boundaries between open field system and village. Also rectangular area which is probably a recent (1930s) cricket pitch as it is some 27m long and has close-cut grass.	Sketch
24	SK 7556 4961	RC8-AI 168-169, RC8-GL 138-139	Hollowing, possibly old quarrying? TPAT site 16M.	Sketch
25	SK 7560 4970	RC8-AI 168-169, RC8-GL 138-139	Two parallel banks abutting a headland at their S ends. Area between banks appears to be slightly lower than natural ground height - this may reflect the source of the bank or may be a pond. Or both! TPAT site 16N(?).	Sketch
26	SK 7567 4985	RC8-AI 168-169, RC8-GL 138-139	Possible old quarry. Slightly hollowed soil mark in 1973, scrub-filled in 1984. Whole field appears to have an uneven surface.	Sketch
27	SK 7568 4942	RC8-AI 168-169, RC8-GL 139-140, SK7549/2	Earthwork feature comprising E-shaped broad ditches with 'internal' mounds. Ditches may once have completely contained mounds and ditch width suggests use as minor fish ponds. Ridge and furrow to S and E. TPAT site 16L.	Sketch
28	SK 7570 5007	EF 40-41	Two rectangular features (probably parts of enclosures) one with rounded corners. Aligned parallel to A46 but are not quite on contemporary agricultural alignment. Suspect as archaeological, but possible. TPAT site 16K(?).	Sketch

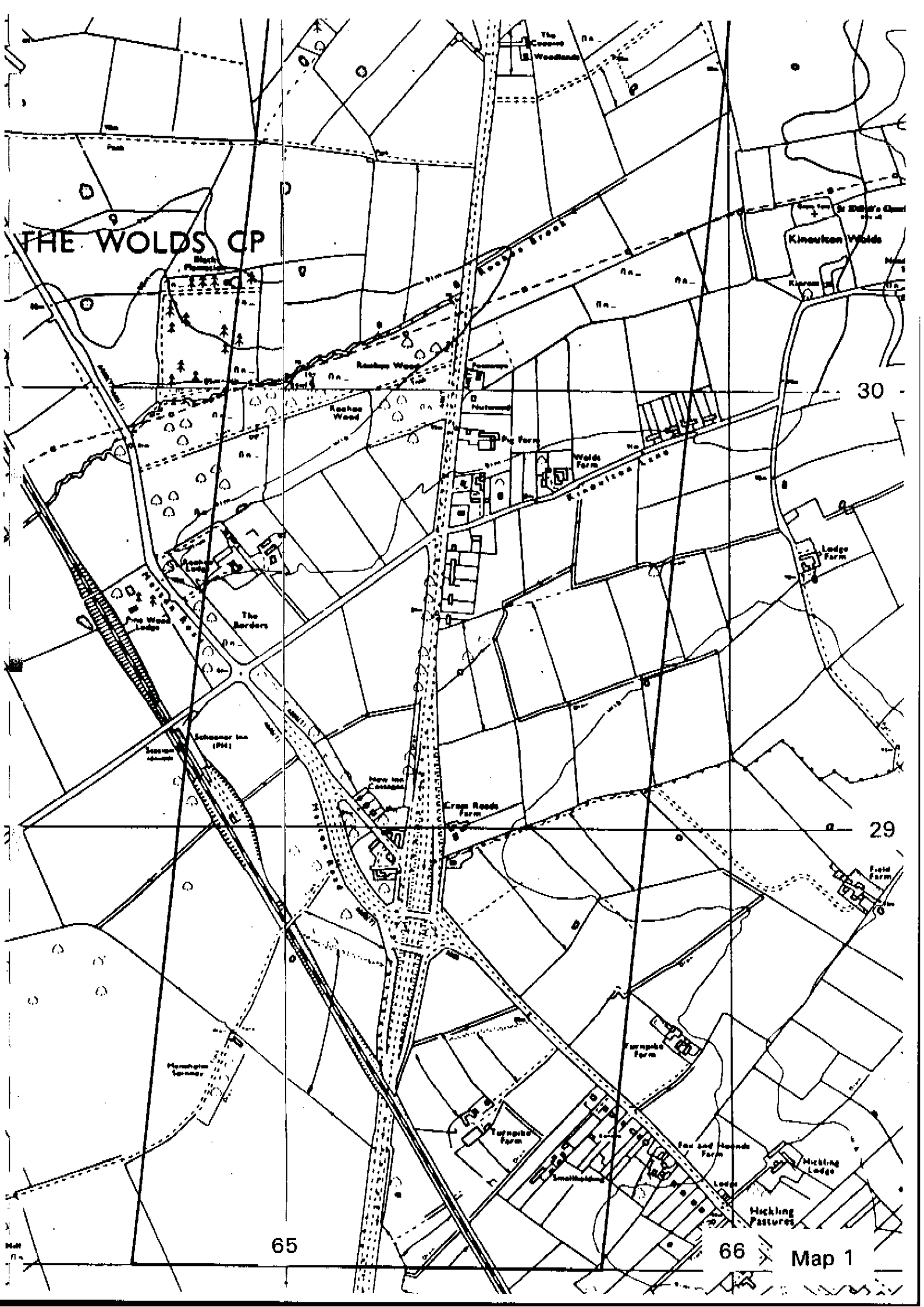
29	SK 7579 5008	EF 40-41, RC8-AI 168-169, SK7550/5	Round barrow showing as slightly raised soil mark (ring ditch in 1970). Headland runs immediately E of barrow and continues into site 75865022. Tumulus (site) on OS 1:100000, TPAT site 16J.	Sketch
30	SK 7586 5022	BYL 12-15, SK7550/15	Series of small enclosures and linear features (possibly partially recorded enclosures) appearing to be laid out parallel to E-W road lying immediately S of Ad Pontem. Possibly overlain by headlands (see 75795008). TPAT site 16E.	Computer
31	SK 7595 5035	ABC 83-90, ABP 16-18, BSB 77, BYE 27-31, BYL 8-13	Ad Pontem. Roman town showing as double ditched enclosure (intermediate bank) containing superimposed ditched features, metalled road and building foundations. Spread of linear features to E (some ?geological). ?Headland immediately to E. TPAT sites 16A and 16D.	Computer
32	SK 7630 4940	SK7649/1-3	Apparent linear bank. Possible headland although of different alignment to that locally predominant.	Sketch
—	SK 7600 5000	SK7650/25-26	Cluster of pit-like features. Photographs are extremely fuzzy but marks are not likely to be archaeological. Possibly crop disease? Nothing mapped at 1:10000.	None
33	SK 7604 5055	VK 45-51, YV 19-20, ZO 68-70, CKR 11	Continuation of Roman road with perpendicular features on W side. TPAT site 16C.	Computer
—	SK 7613 5038	3G/TUD/UK 117: 6187- 6188, F43 543/RAF/673: 74- 75	Probable searchlight battery comprising three circular structures plus a cloverleaf. Showing as a soil mark in 1959. Not mapped at 1:10000 - area too busy with archaeology!	None
34	SK 7611 5032	F43 543/RAF/673: 74- 75, BYL 8-15	Oval ditched enclosure with two possible entrance causeways (that on the N side being wide). Linear features (75955035) lie over or under. TPAT site 16D.	Computer
35	SK 7613 5052	BR 71-73, YK 45-51, ZO 68-70	Broad ditched arc immediately N of Ad Pontem. N end abuts Roman road. Internal ditched divisions include some which appear to respect road alignment. Clusters of pits. Some geological cracks. TPAT site 16B.	Computer
36	SK 7616 5045	YK 45-51, ZO 68-70, SK7650/14-16	Rectilinear ditched complex of enclosures and drives lying outside 'arc' (76135052) and not obviously linked with it. Dense pit patch (?old quarrying) abuts. Some geological confusion at N end. TPAT site 16F.	Computer
37	SK 7625 5077	ZO 68-70, ABC 85, ABP 11, BNG 48, SK7650/6, 8	Course of Roman road showing as side ditches with banks/metalling within. Width varies. Ditched features lie over or under and include probable enclosure. TPAT site 16G(?).	Computer

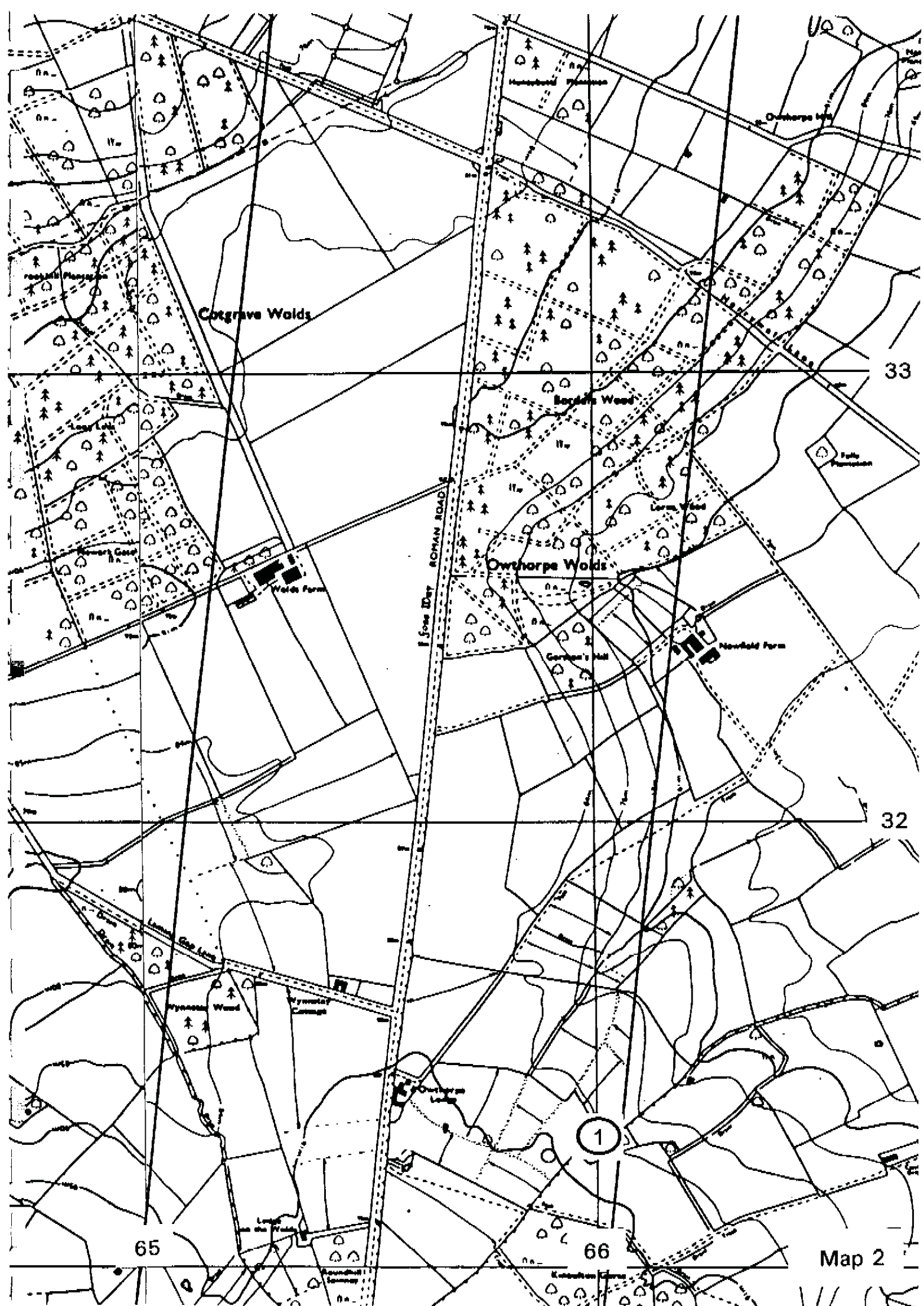


38	SK7634 5043	SK7650/24	Apparent arc of ditch in area which also shows old field boundaries and geological cracks. Suspect as archaeological.	Sketch
-	SK7640 5047	AFO 64	Geological cracks on local high spot. Nothing mapped at 1:10000.	None
-	SK7643 5021	SK7650/1, 5	Linear features, straight and curvilinear, on local high spot. Geological. Nothing mapped at 1:10000.	None
-	SK7643 5075	SK7650/2-4, 6, 8-13, 17, SK7750/1	Linear features on local high spot. Geological. Nothing mapped at 1:10000. TPAT site 16G.	None
-	SK7651 5078	SK7650/2-4, 6, 8-13, 17, SK7750/1	Linear features on local high spot. Geological. Nothing mapped at 1:10000. TPAT site 16G.	None
-	SK7667 5069	SK7650/2-4, 6, 8-13, 17, SK7750/1	Linear features on local high spot. Geological. Nothing mapped at 1:10000. TPAT site 16G.	None
-	SK7677 5078	SK7650/2-4, 6, 8-13, 17, SK7750/1	Linear features on local high spot. Geological. Nothing mapped at 1:10000. TPAT site 16G.	None
-	SK7683 5095	SK7650/18-23	Agricultural marks creating Roman fort-like feature. Nothing mapped at 1:10000.	None
-	SK7640 5100	YV 21	Geological cracks plus straight linear feature running to river Trent. Latter is probably a recent drain. Nothing mapped at 1:10000. TPAT site 16G.	None
39	SK7655 5101	SK7650/10, 12-13	Probable side ditch of Roman road. Other linear ditches lie approximately perpendicular and are more probably geological than archaeological and have not been mapped at 1:10000.	Sketch
-	SK7660 5125	ABP 14	Small rectilinear complex lying between A46 and river Trent. At extreme limit of road corridor and not mapped.	None
-	SK7669 5123	SK7651/4-5, 8-9	Geological cracks. Nothing mapped at 1:10000.	None
40	SK7672 5137	SK7651/1-3, 5-9	Ring ditch, some 15m diameter, plus geological cracks.	Sketch
-	SK7685 5148	SK7651/1-3, 9	Geological cracks. Nothing mapped at 1:10000.	None
-	SK7720 5195	YV 22	Ring ditch, some 25m diameter. Now under housing. Nothing mapped at 1:10000.	None
-	SK7723 5110	SK7751/2, 6	Geological cracks. Nothing mapped at 1:10000.	None
41	SK7745 5105	(APS) 91.72/9	Indistinct linear features. On basis of other local evidence these are more probably geological than archaeological.	Sketch

42	SK7775 5191	SK7751/9, (APS) 91.72/8	Ring ditch, some 20m diameter.	Sketch
43	SK7785 5105	SK7650/7, SK7651/10-15, SK7750/2-3, SK7751/7-8, RC8-GL 35-36	Curving ditch-like feature which runs from copse to mapped stream. E end is in ?alluviated hollow and feature is more likely to be an old watercourse than anything archaeological. Many geological cracks in area. TPAT site 16H.	Computer
44	SK7785 5170	SK7751/1, 3-5	Geological cracks (not mapped at 1:10000) plus straight linear ditch doubtful as archaeological. TPAT site 17.	Sketch
—	SK7770 5275	BR 65-66, ABP 7-9, BYK 86-88, SK7752/5-7	Complex system of ditched enclosures of more than one phase. Continues into field to SE but only as a single angled ditch 'enclosing' modern pylon. Situated between A46 and river Trent, beyond 500m corridor, and not mapped at 1:10000.	None
45	SK7784 5221	SK7752/4	Possible side ditch of Roman road - or may be pipe from sewage pumping station?	Sketch
—	SK7850 5200	58/B/22: 5112-5113	Area of zigzag army trenches plus other earthworks. Much is now under modern housing.	None

# THE WOLDS CP





Cotgrave Walds

Boscote Walds

Owthorpe Walds

I SOWE WAY ROMAN ROAD

Walds Farm

Horsfield Farm

Gardner's Hall

Wymondley Wood

Wymondley Cottage

1

65

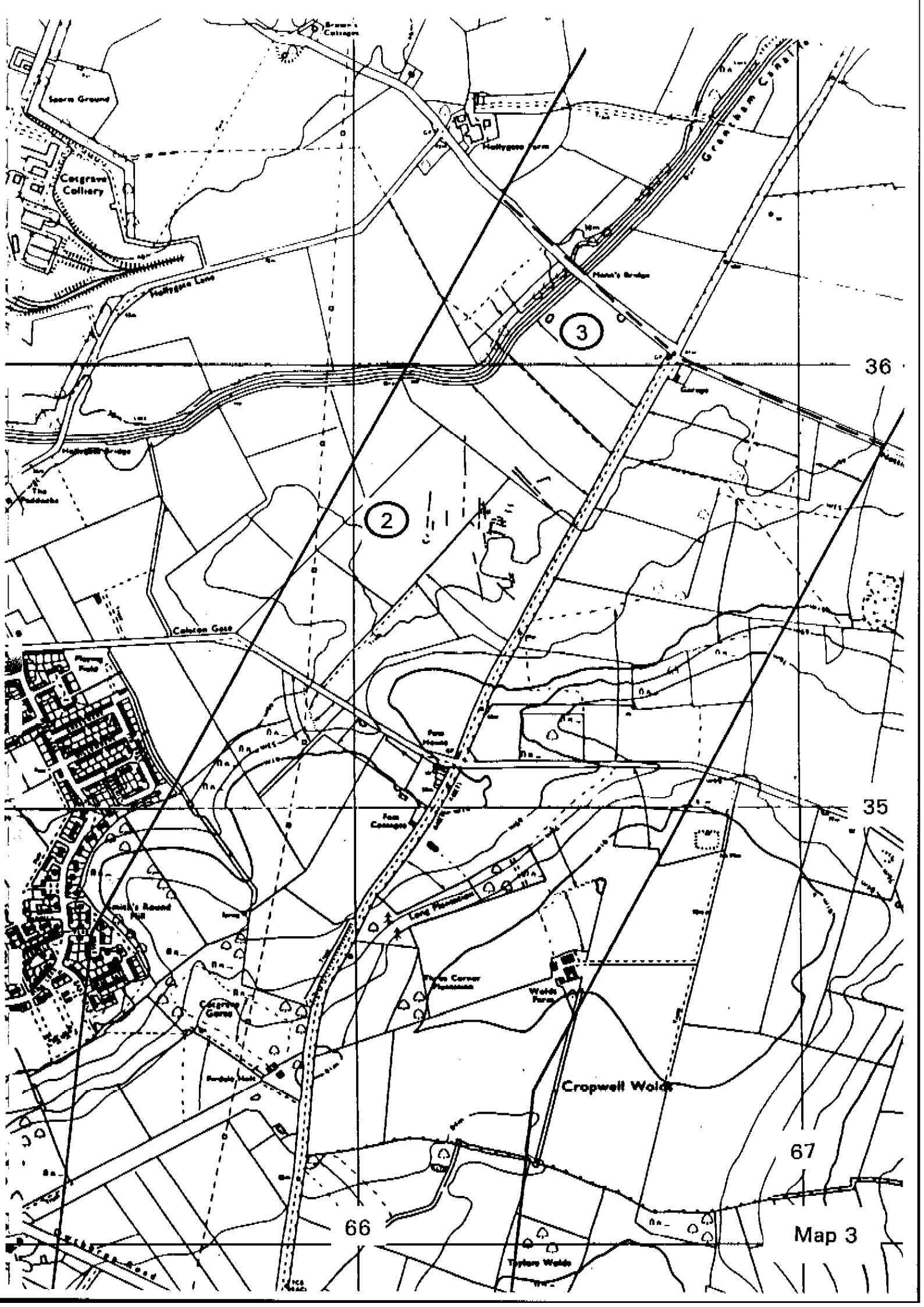
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Map 2

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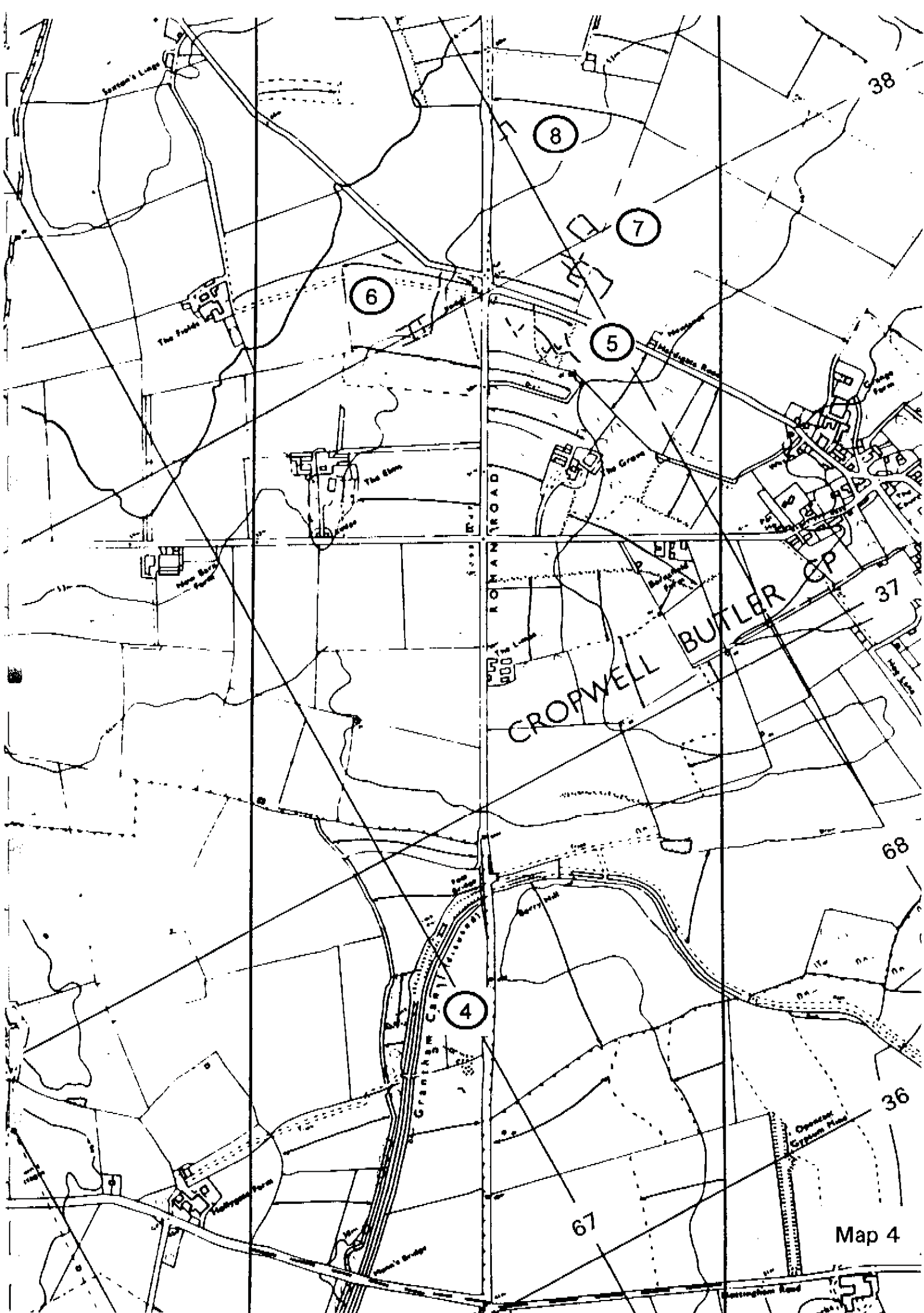
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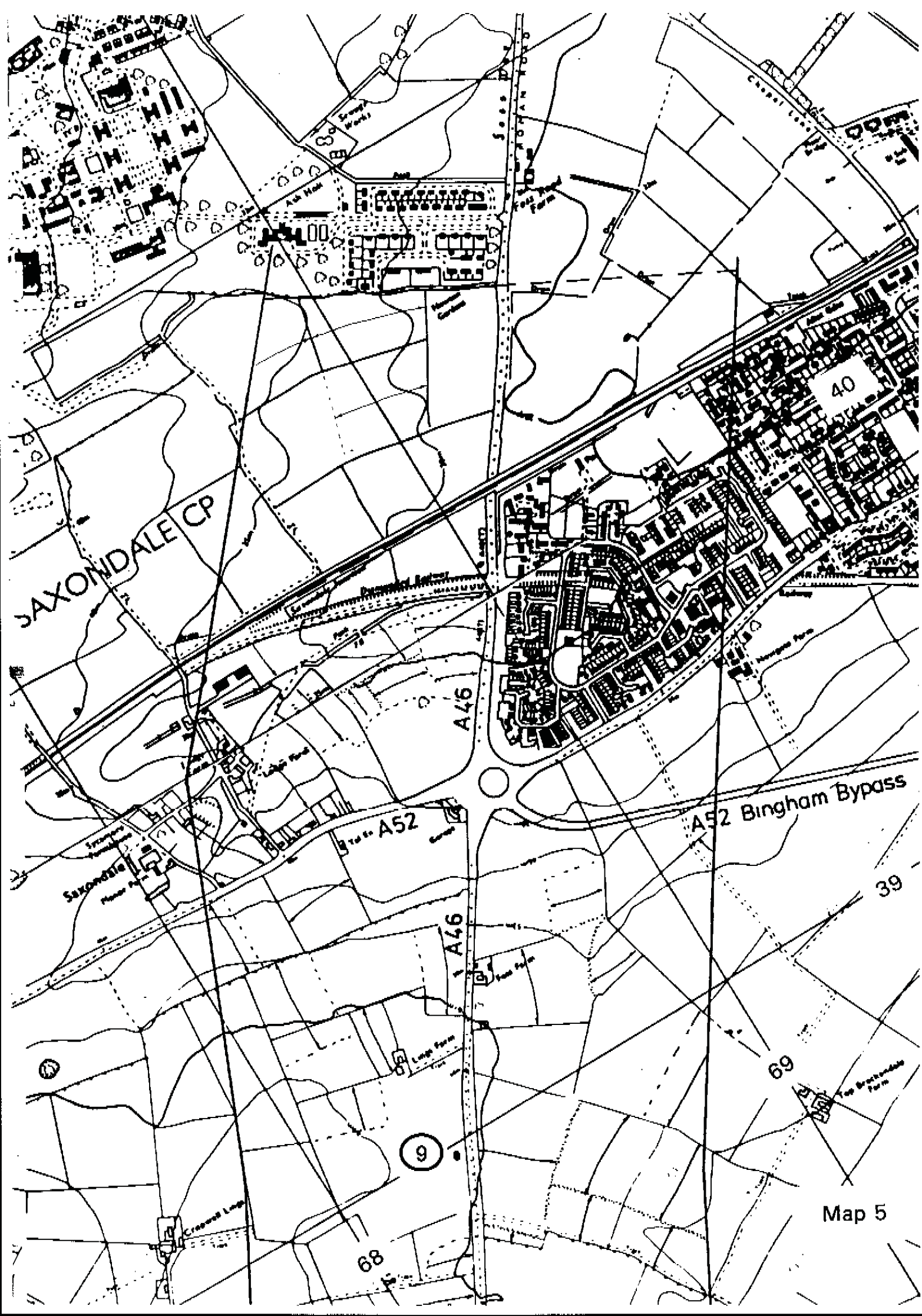
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Map 3





Map 4



SAXONDALE CP

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A46

A52

A52 Bingham Bypass

A46

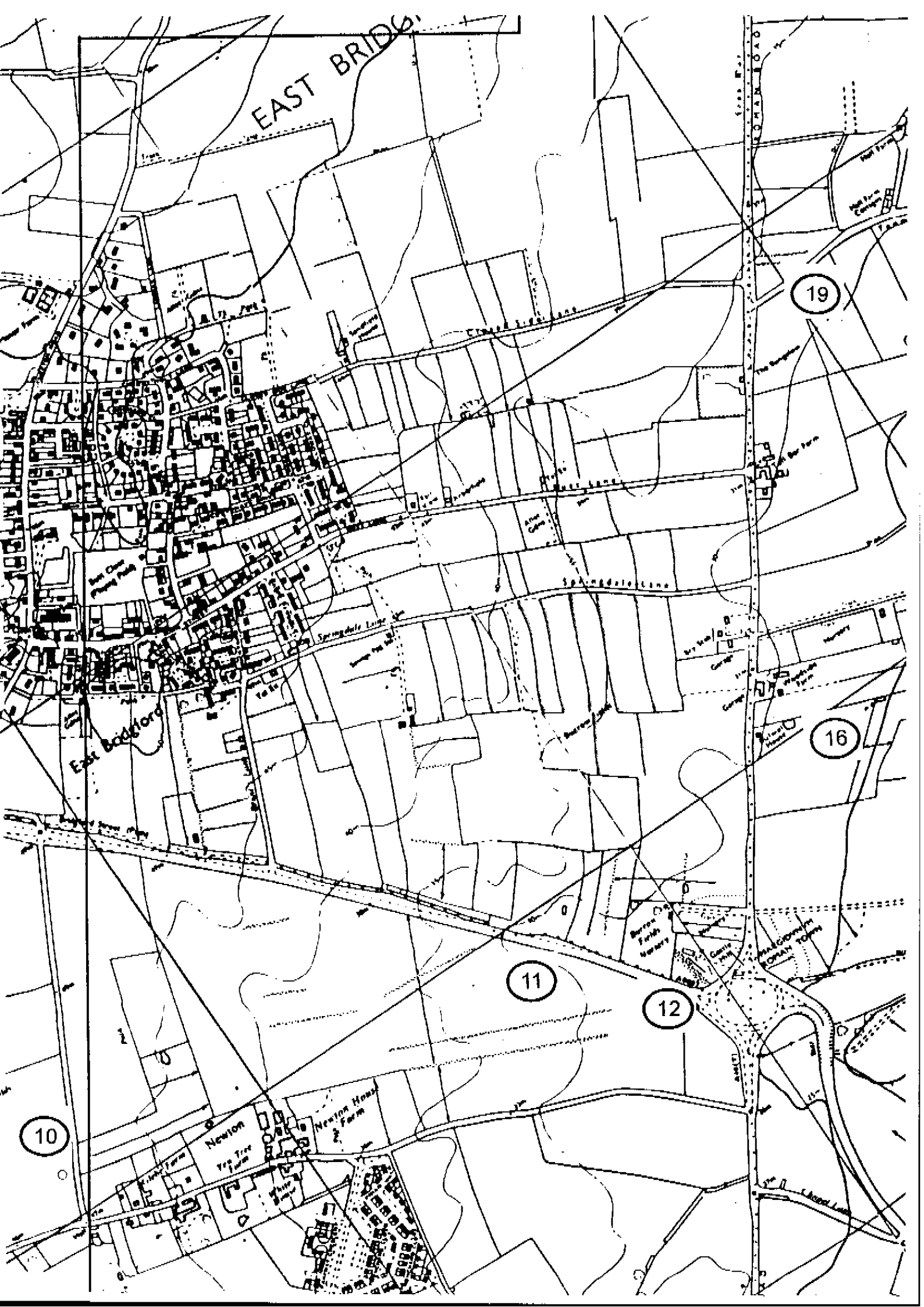
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Map 5



EAST BRIDGE

19

16

11

12

10

EAST BOGGFORD

Springdale Lodge

Burrton Fish Nursery

Newton

Newton House & Farm

MAGNUM TOM

MAGNUM TOM

St. J. Chapel Lane

St. J. Chapel Lane

St. J. Chapel Lane

St. J. Chapel Lane

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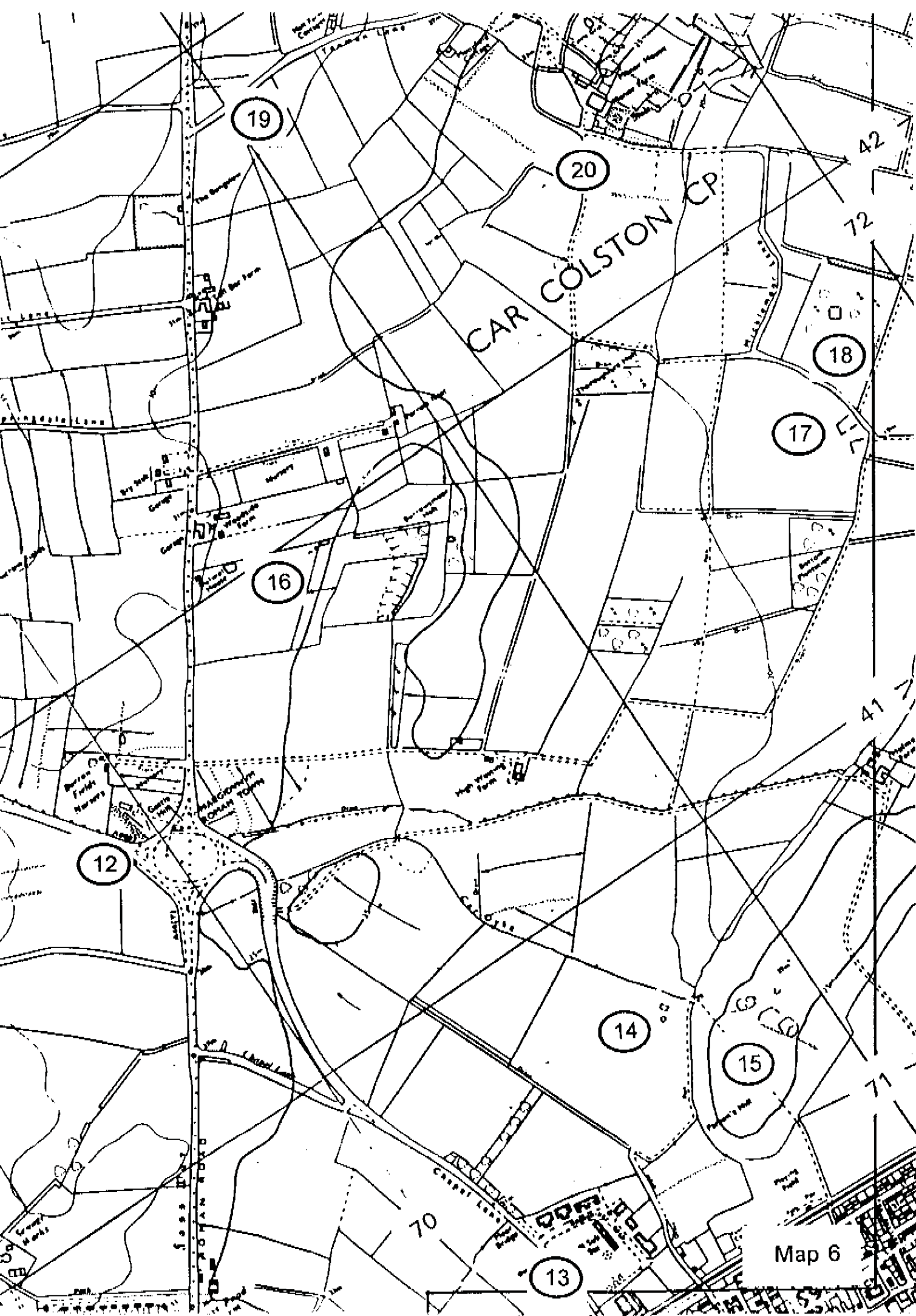
St. J. Chapel Lane

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St. J. Chapel Lane

St. J. Chapel Lane





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CAR COLSTON CP

MAGNETON FISH TOWN

CROFT LANE

Map 6

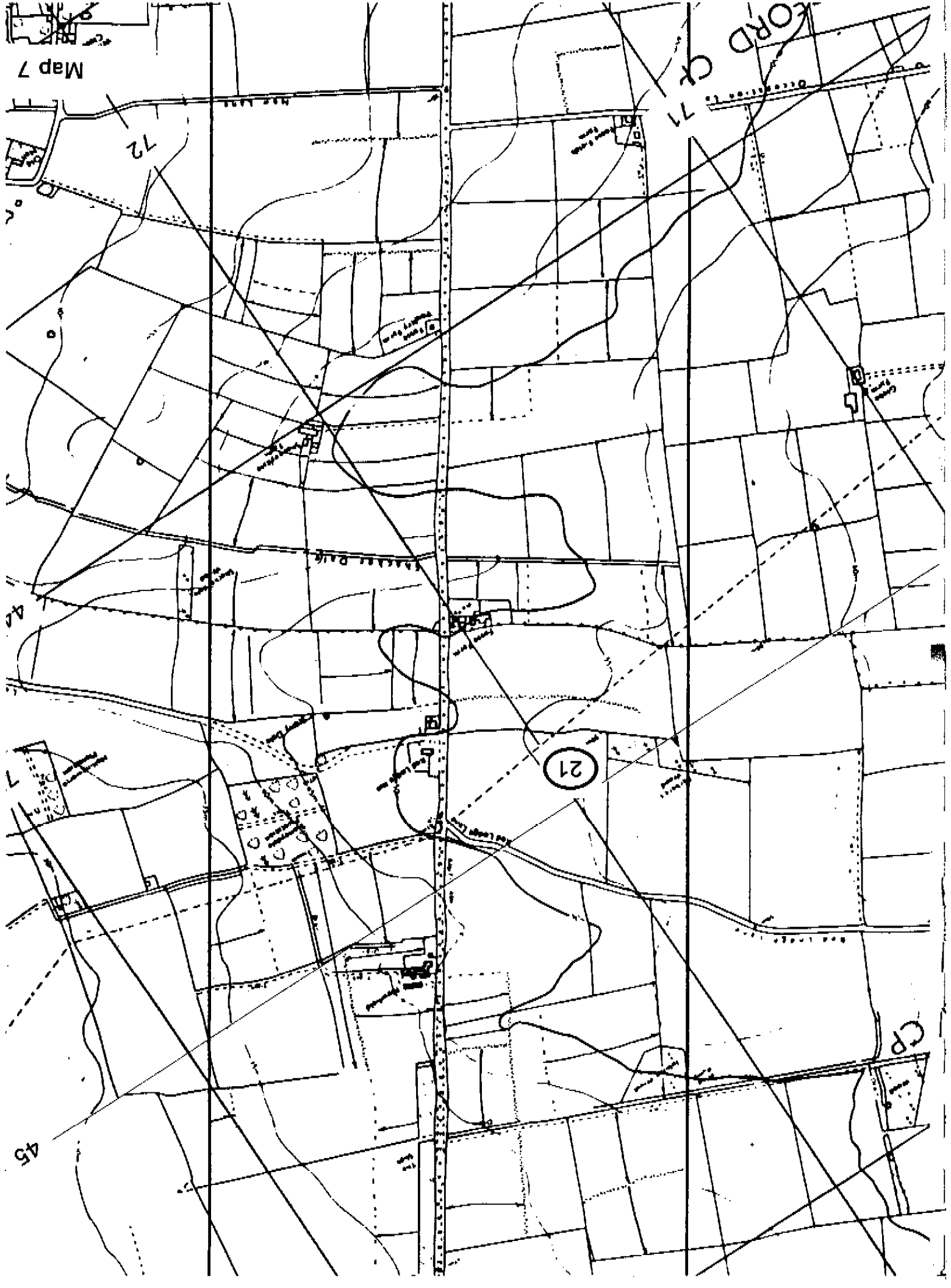
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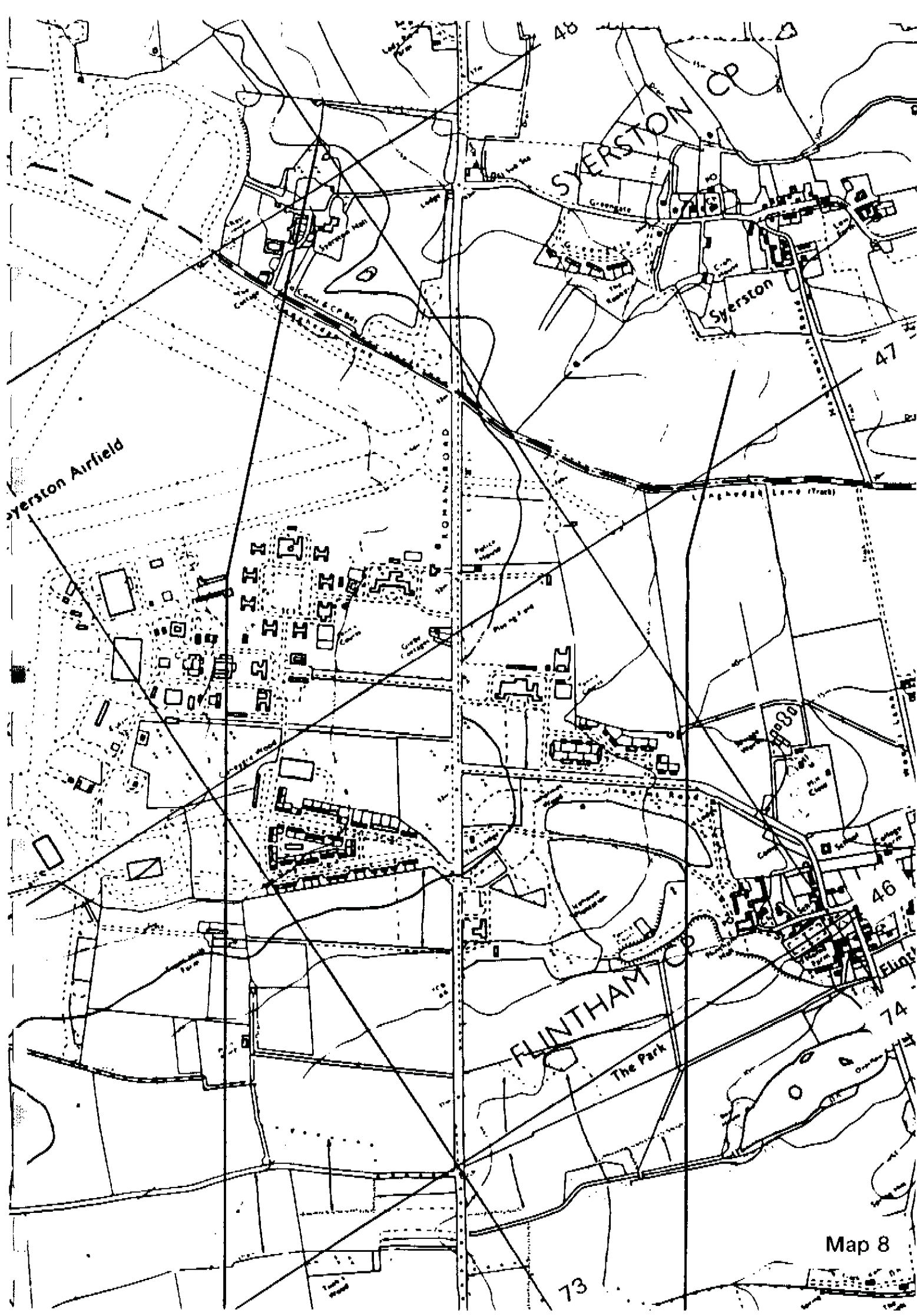
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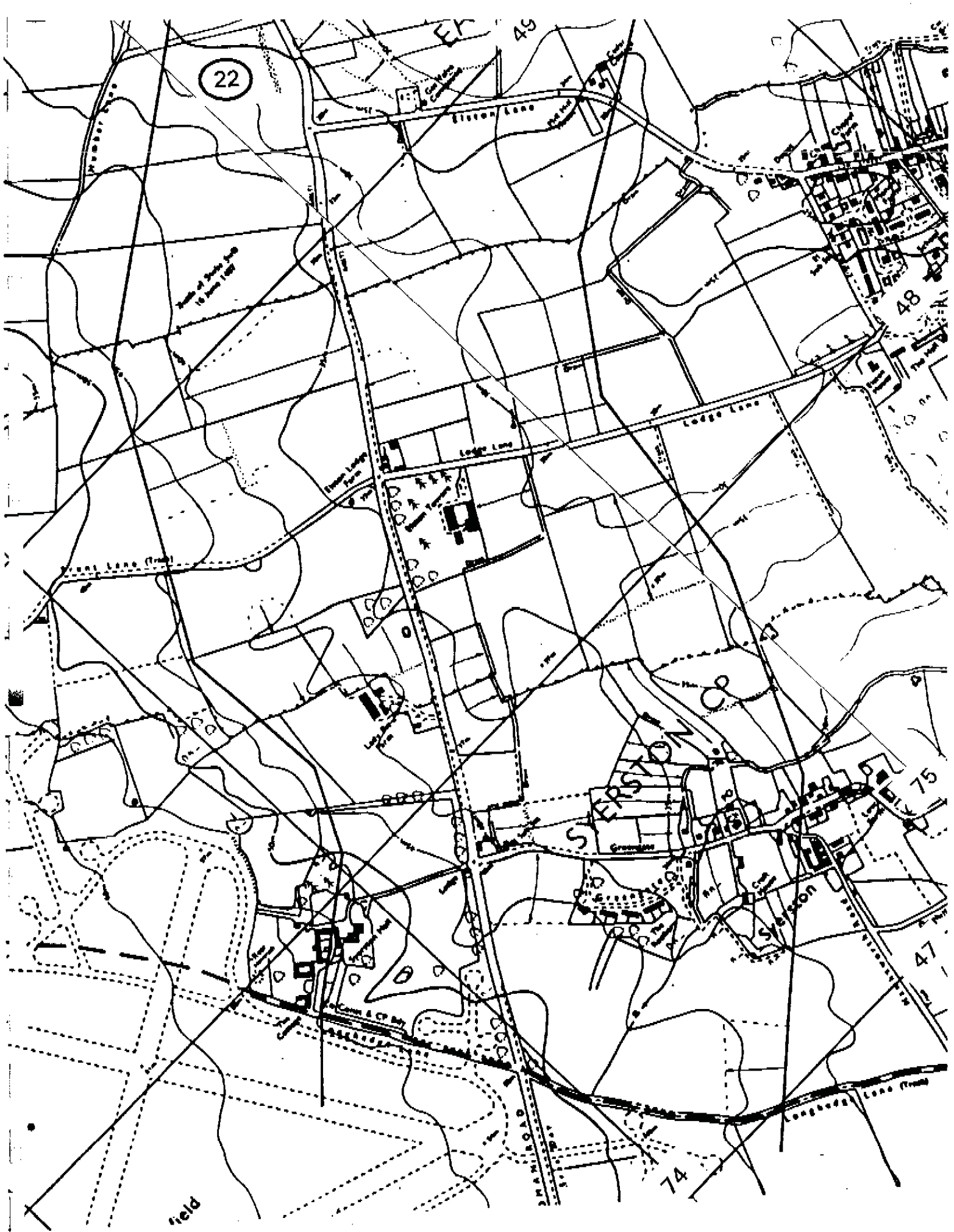
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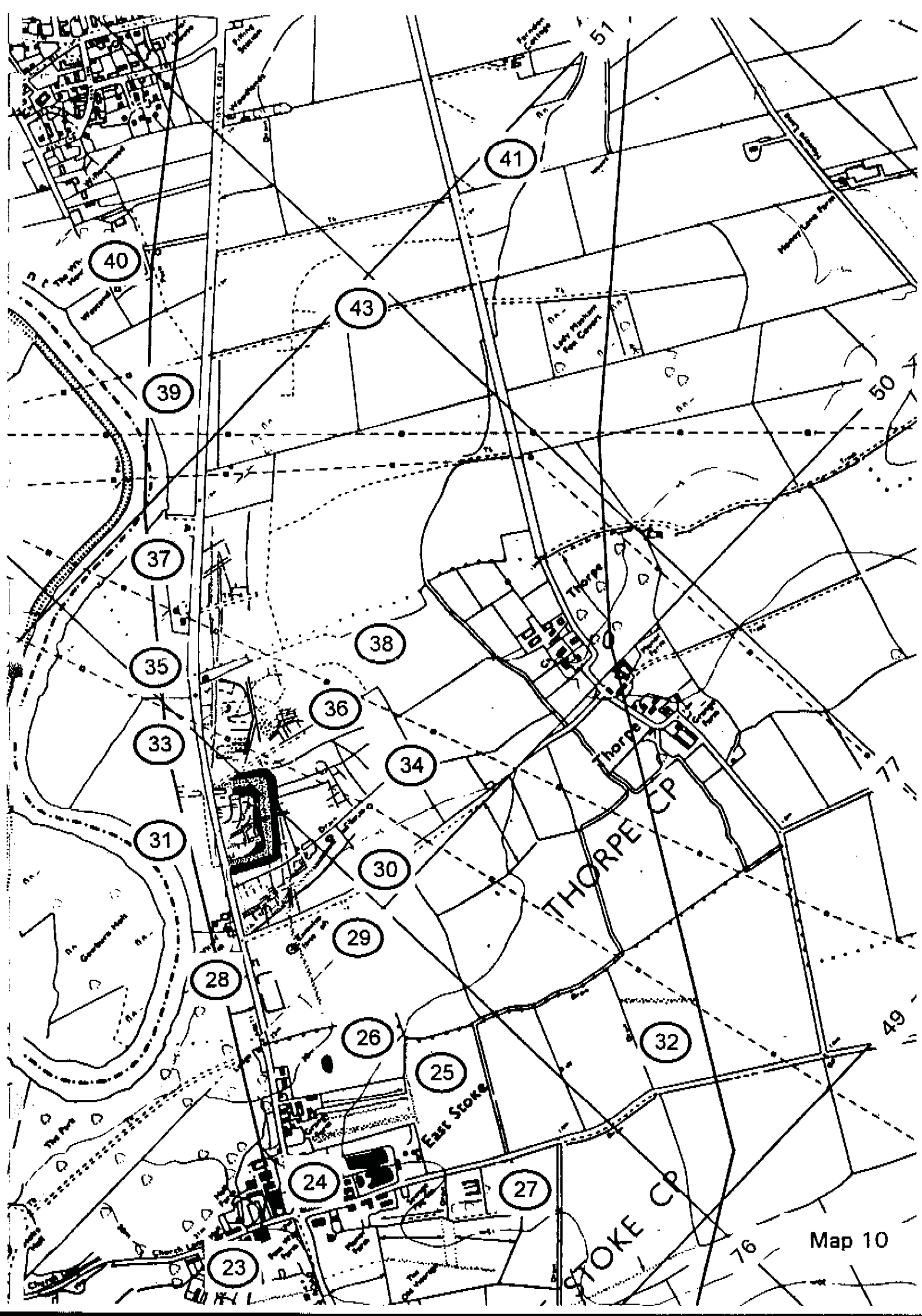
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Map 8

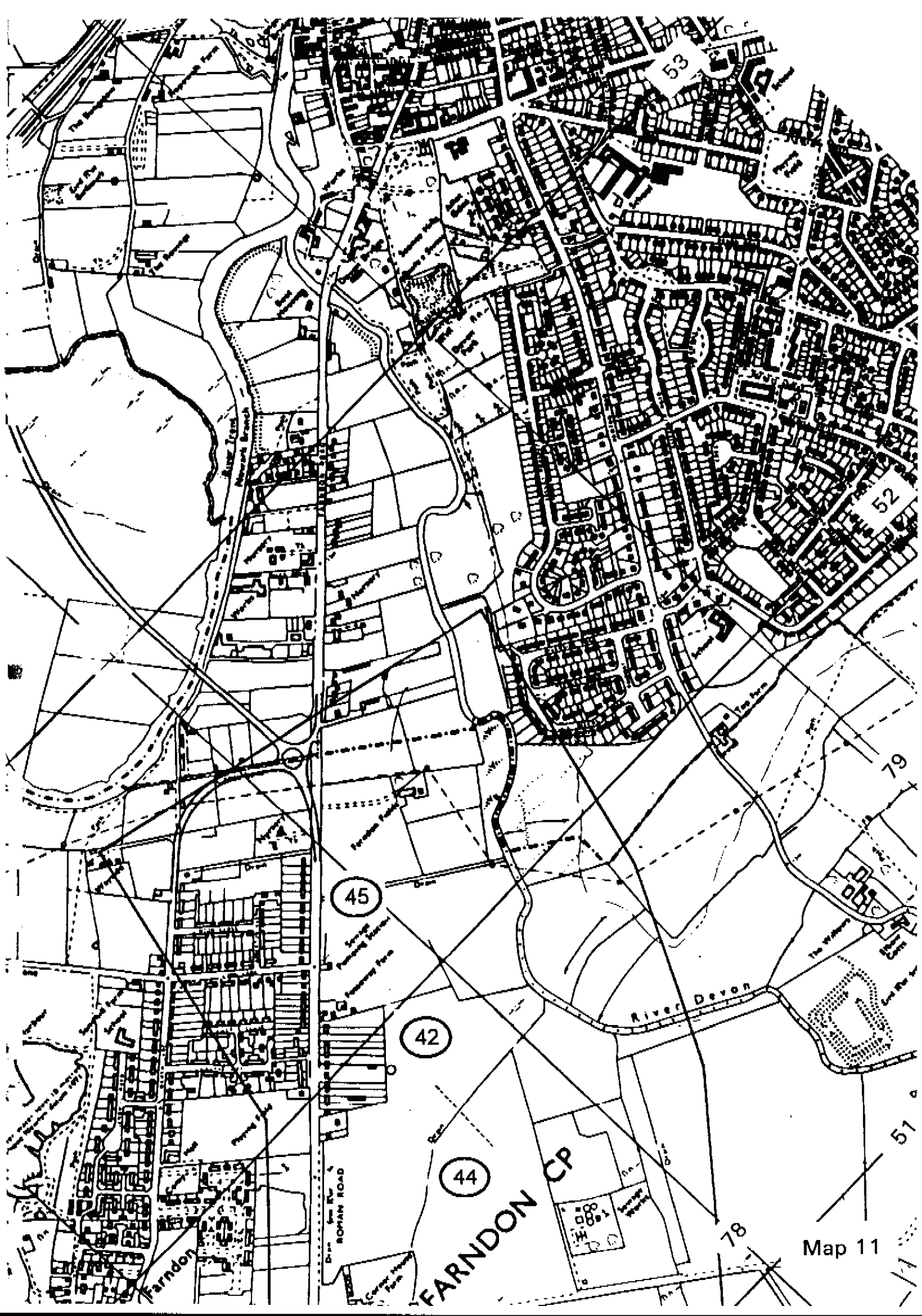


Map 9



Map 10





Map 11

## COMMENTARY

This section provides selected commentary on some of the mapped features. It provides reasons for some of my interpretative decisions and makes comparison, where necessary, with those sites in the *Interim Archaeological Report* for which aerial photographs provided the principal data. These are identified as 'TPAT site ...'. Accompanying illustrations are eleven map extracts copied directly from the 1:10000 final drawing and this commentary will take the form of a map-by-map progression.

Soils and geology change over the area mapped. For most of its course the A46 cuts through Mudstone – a largely featureless soil for crop mark aerial reconnaissance. Some responsive patches occur but, in general, the apparent negative results over this area may be due more to the geology than to an absence of past settlement. In the Farndon environs areas of typical river gravel response have been noted. Many of these were erroneously mapped as archaeological in the *Interim Archaeological Report* and reference should be made to the Gazetteer in this report for correct identification of these features. In the few instances where geological and archaeological elements cannot be distinguished these features have been shown at 1:10000 as a dashed line.

### *Map 1*

No specialist oblique photographs covered the area of this map and the only features mapped on it are fields of ridge and furrow cultivation and their associated headlands which were noted during examination of vertical photographs.

### *Map 2*

No specialist oblique photographs covered the area of this map and the main features mapped on it are fields of ridge and furrow cultivation and their associated headlands. A circular ditch, surviving as an earthwork in 1950, lies in a reserved area within the medieval field system and may show the site of a mill mound.

### *Map 3*

As well as traces of medieval field systems this map includes two sites recorded on oblique photographs. At SK66353560 is TPAT site 3, now shown to be more extensive than as previously mapped although it is questionable whether all features mapped are archaeological. Local bedrock is such that any cut features – whether archaeological or natural – are unlikely to produce strong crop differentials, and the marks as mapped are extremely faint. Much of that mapped may be geological, but there appear to be genuine archaeological features – possibly an enclosure and two ring ditches.

A ring ditch, TPAT site 4 (SK66603611), is likely to show the site of a barrow.

#### Map 4

One possible archaeological site, at SK66943662, has been recorded on one date only. It includes a cluster of pits with possible ditched features adjacent. The photographs also show areas of lodged crop (interpreted from the photographs, included in the digitally rectified data, but not mapped at 1:10000) near the Grantham Canal which include a possible circle and may identify further areas of past activity. Ridge and furrow (now flattened) covers the field and may restrict the clarity of any earlier features. The site is suspect as one of archaeological origin – it may be geological – but field walking and/or geophysical survey may help resolve the question.

Other features which may be archaeological have been mapped at SK67853786 but are suspect.

TPAT site 7 (SK67823800) has been interpreted and mapped slightly differently for this enhancement as has TPAT site 8 (SK68003792) although both remain basically as noted in the *Interim Archaeological Report*. North of TPAT site 8, at SK68013820, are traces of a possible rectangular enclosure. This feature is suspect as archaeological – it may be geological – although its alignment is similar to that of the site 8 features.

#### Map 5

The mapped area stops at the southern extent of the boxing of Margidunum (Map 6). It shows nothing other than medieval cultivation remains.

#### Map 6

This map covers the area, extended 1.25km each side of the present A46, centred on the Roman town of Margidunum. The aerial evidence adds nothing significant to the known Roman town – showing traces of building plans, a ditch (presumed to be that excavated by Oswald in 1911) with an external bank, the latter being now very degraded and surviving as little more than a low, spread, linear hump. East of the A46 the town has ridge and furrow within and without its bounding rampart, the latter being later used as a headland. The features labelled by TPAT as sites 12A and 12E (*Interim Archaeological Report*, figure 37) appear to be headlands.

West of Margidunum, between the Roman town and the present settlement at Newton, are several parallel banks (TPAT site 12B shows two of these). All of these banks are most probably headlands, and a vertical photograph taken in 1933 clearly shows one of these with its abutting strip fields.

The enclosure at Bulwell House (SK70454203: TPAT site 12C) has been photographed only on one occasion and had little control information on the prints. It has been located and sized in proportion to one length of modern field boundary and may be inaccurate. Three sides of the probable enclosure are clearly recorded, a fourth may abut, or lie below, the modern boundary.

Many of the fields between East Bridgford and the A46 showed evidence for ridge and furrow cultivation as did those surrounding Car Colston – many of these latter in earthwork condition. Foundations of what appears to be a Roman villa lie within the medieval fields south of the modern village. This too survives in good condition.



Two areas near the eastern boundary of the extended corridor show archaeological, or possible archaeological, features. Centred at SK70894052 on Parson's Hill is a cluster of enclosures, linear features and, closer to the highest point of the spur, a probable ring ditch. North west of the Parson's Hill cluster are two rectangular marks giving the appearance of Roman villas. These are most unlikely to be archaeological features although no other explanation can be provided for their appearance. Features mapped at SK71734150 and SK71854174 are suspect as archaeological.

#### *Map 7*

TPAT site 14 (SK71904490) is unlikely to be the archaeological henge postulated. The crop marks, taking the form of a ditch with an external bank, enclose a local knoll and are almost certainly related to changes in bedrock. Such 'sites' are well known and have caused previous confusion (Palmer 1992: with references). A local example of similar effect is noted in the gazetteer at SK69103990 – this is now covered by modern housing.

#### *Map 8*

Much of this map is covered by, or was affected by, Syerston Airfield. Only ridge and furrow and headlands have been identified.

#### *Map 9*

Ridge and furrow and headlands are the only features identified.

#### *Map 10*

This map contains a high percentage of archaeological features.

The E-shaped earthwork feature at East Stoke (TPAT site 16L: SK75684942), probable fish ponds, is close to the proposed bypass and may require field investigation. It should be noted that its surviving form – at least from the aerial evidence – is less regular than that shown in the *Interim Archaeological Report*, figure 32.

Features lying adjacent to the A46 to the south of Ad Pontem (at SK75705007: possibly TPAT site 16K) are of possible archaeological origin and should be investigated in advance of any ground disturbance. Other features close to Ad Pontem tend to lie close to the A46 and not approach the central course of the proposed route. Ad Pontem (TPAT site 16A) can be seen to have been a multi-period site which includes either late Roman or post-Roman features which have been cut into the top of the silted inner ditch. The 1:10000 map attempts to show some of this superimposition, but the scale is too small to make clear such details. Similarly, the features immediately north of Ad Pontem (TPAT site 16B), an arc with internal ditched divisions between it and the A46, can be only sketchily indicated. Features continuing to the north show mainly the course of the Roman road although at one location (SK76255077) this superimposed, or was superimposed by, a ditched enclosure.

Comment must be made on the different mapped presentations of the enclosing defences at Ad Pontem in the *Interim Archaeological Report* (figure 31) and in this report. A number of photographs (eg those taken in 1948 and 1971) have recorded the defences as a series of concentric dark lines in crop and this is what has been mapped by TPAT. Other photographs (notably those taken in the summers of 1960, 1970, 1973, 1975 and 1976) show the defences to comprise a pair of broad ditches with a central bank. This interpretation is supported by a photograph showing the same features as a soil mark in 1975. The 1976 photographs are especially informative and show what may be the foundations of a marking out wall(?) for the bank, with the fill of the bank being spread either side of this thin, solid, centre-line. The explanation for these differences in appearance is relatively simple and shows a phenomenon which has been observed in many parts of Britain. This is what I call the 'edge effect' and occurs – for unknown reasons – when broad ditches produce strong, but narrow, positive crop marks along their perimeters only. This may be due to differential compaction of fill along the extreme ditch edge, or possibly shrinkage away from bedrock, which provides greater water retention than the complete feature and thus produces a narrow crop marked band. Similar 'edges' have also been noted along the sides of backfilled quarries (Fenner, pers com).

Ditches forming part of TPAT site 16D lie perpendicular to the proposed route and may continue further than presently recorded. The features mapped as the eastern part of TPAT site 16F are geological with the possible exception of one length of curving ditch (SK76345043) – although that too is suspect as archaeological. Features mapped as TPAT site 16G are geological. The air photographs show a number of local high spots, or areas of shallow soil, crossed by a network of ice wedge crop marks. These are typical in river gravel situations, and have previously been confused with archaeological crop marks. Much of TPAT site 16H has the same origin although the curving linear feature is the course of an old watercourse. This meets a mapped (and presumably extant) stream at its eastern end and, under stereoscopic photo-examination, can be seen to lie in an alluviated hollow (not mapped on the final 1:10000 drawings). Although the northern and western parts of this feature show as a sharp crop mark I have no doubt that it shows the course of an old stream and is not of archaeological origin. Most of the features mapped as TPAT site 16I are geological cracks although there are definite archaeological features in the western half of the mapped complex. This lies at the extreme limit of the corridor and has not been mapped for this enhancement.

### *Map 11*

The principal concern on this map would have been the site mapped as TPAT 17. However, this is of geological origin (ice wedges) although the present interpretation has suggested a possible, but very suspect, straight linear ditch which may be cut by the new road. No aerial evidence was identified for the Civil War siege works included in TPAT site 17. A ring ditch was recorded in 1991 at SK77755191.

## LANDUSE

Data for landuse has come primarily from examination of vertical photographs since the lower level obliques were taken of archaeological targets generally showing in cereal or root crops. Vertical photographs, dating between 1933 and 1984 cover the area, but do not do so consistently as can be seen from the yearly analysis presented in Table 1.

<i>Northing</i>	<i>Year of Photography</i>										
	1933	1946	1948	1950	1958	1964	1968	1971	1972	1984	
28				+			+			+	
29				+			+			+	
30				+			+			+	
31				+			+			+	
32				+			+			+	
33				+			+			+	
34				+			+	+		+	
35				+	+		+			+	
36				+	+		+			+	
37				+	+		+			+	
38				+	+		+			+	
39				+	+		+			+	
40				+	+					+	
41	+			+	+					+	
42	+	+	+	+	+					+	
43	+	+	+	+	+					+	
44	+	+	+	+	+					+	
45	+	+	+	+	+					+	
46	+		+		+					+	
47	+	+	+		+				+	+	
48	+		+	+	+					+	
49	+		+		+				+	+	
50	+	+			+			+	+	+	
51	+				+	+				+	
52	+		+		+	+	+	+		+	

Table 1: The corridor as a series of Northings showing dates and presence of vertical photography. Crosses indicate photographic cover (see also listing of NLAP verticals in Appendix).

This report uses a series of maps to indicate (apparent) permanent pasture and woodland. With the photographic cover being inconsistent, identification of permanent pasture was based on the following reasoning:

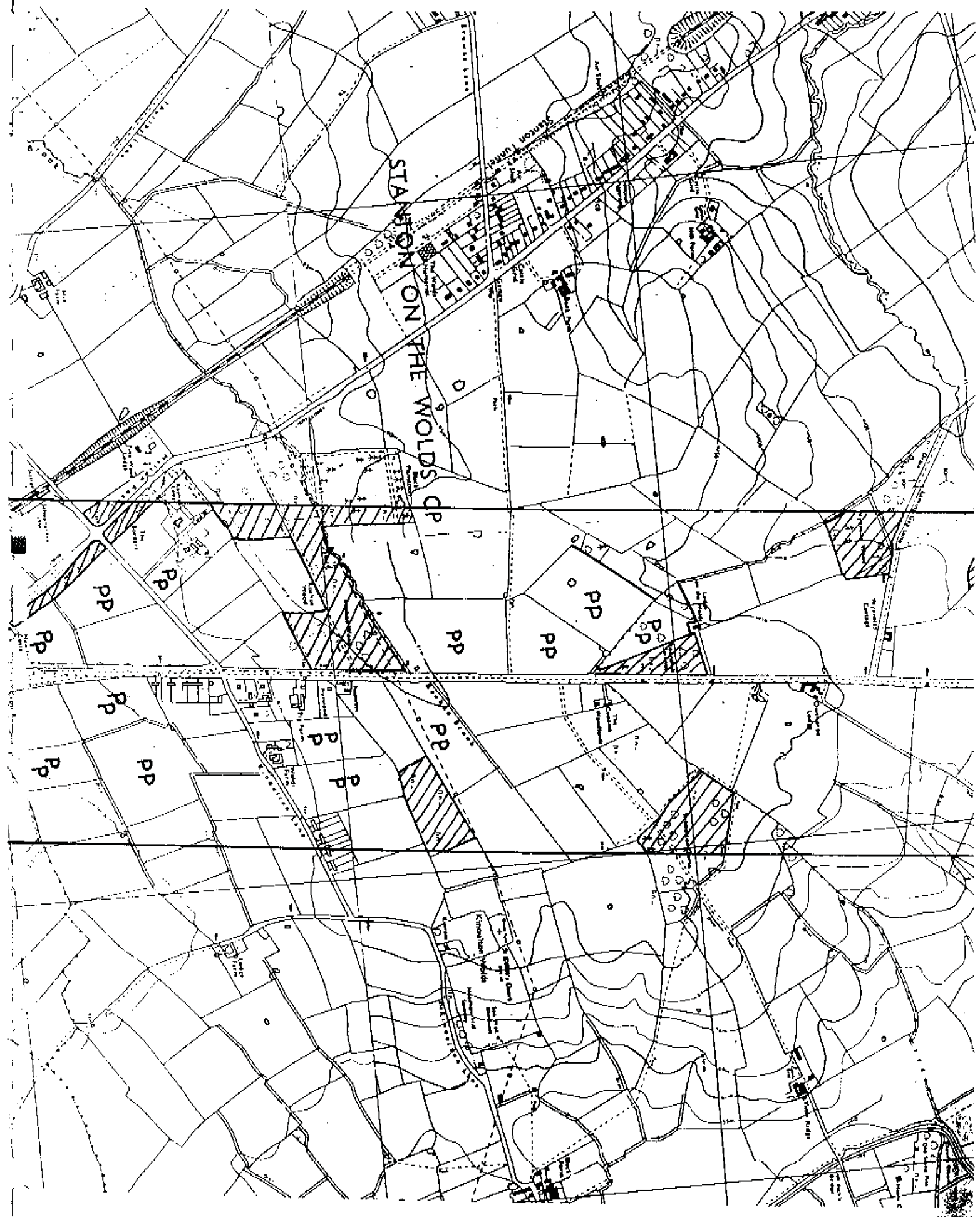
The whole county was photographed in the early summer of 1984. Prior to this date there was almost complete coverage of the road corridor taken between 1968 and 1972 and, before then, during the 1950s. Nottinghamshire County Council has prints of the complete county cover taken in 1971. Other than the small sample of duplicate prints seen at NLAP, this was not examined in the course of this enhancement. Most of the specialist archaeological photography has taken place in summer months since the 1960s and seeks to record information showing (usually) in cereal crops. Knowledge of which fields were pasture at the time of the 1964 to 1972 photography may thus be of value in assessing potentially unresponsive fields during those years. The maps therefore show two types of 'permanent pasture', that which was so recorded for at least three years including 1984 (PP – which provides the latest record) and that which was so recorded for at least three years including either 1964, 1968, 1971 or 1972, but which was not pasture in 1984 (P).

Woodland is shown outlined and shaded. There is minimal change to that mapped at 1:10000 nor has there been during the period of its aerial photographic history.

#### REFERENCE

Palmer, R. 1992. Problems of Interpretation. *AARGnews* 4, 20-21





STANTON ON THE WOLDS CP

PP

PP

PP

PP

PP

PP

PP

PP

PP

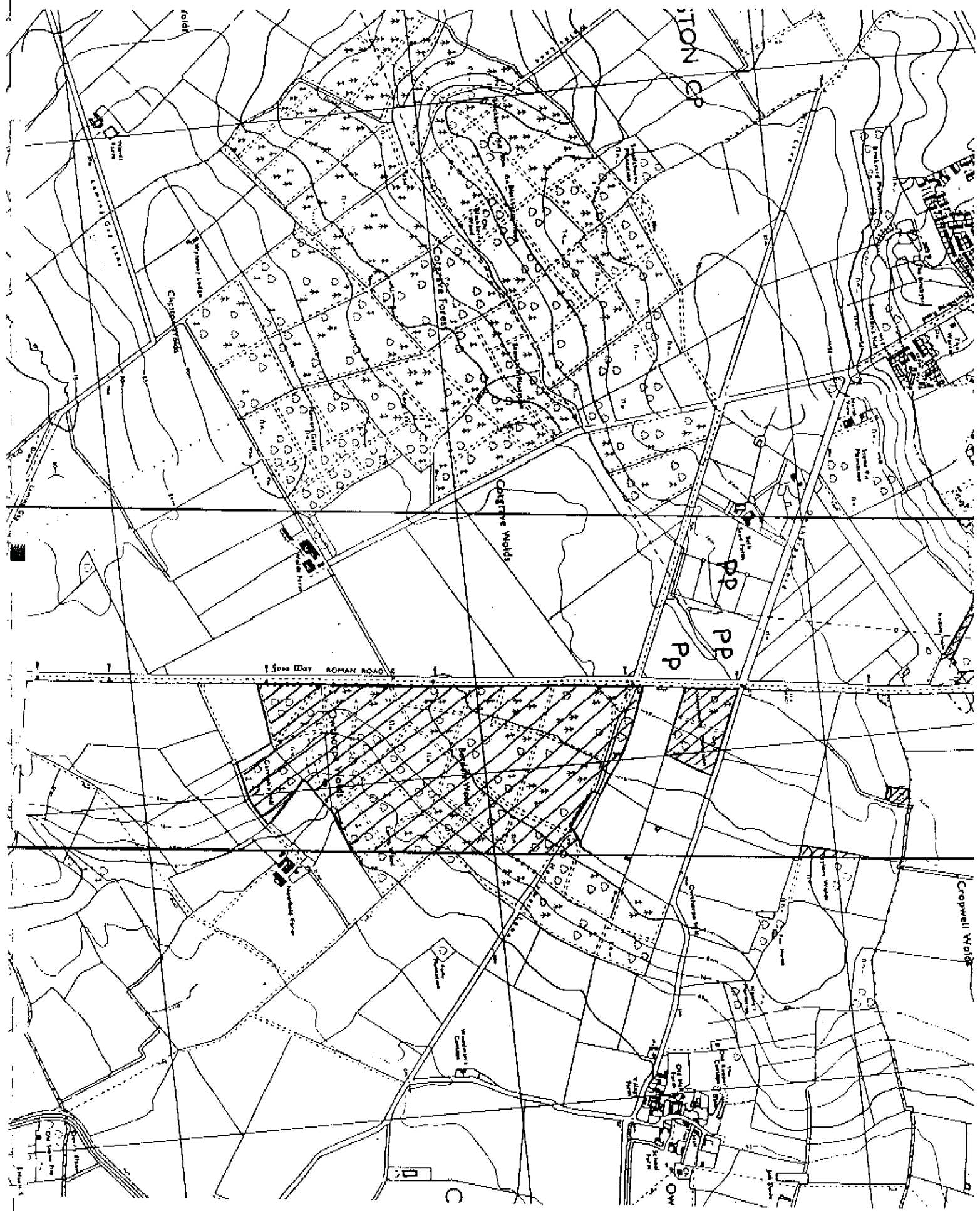
PP

PP

PP

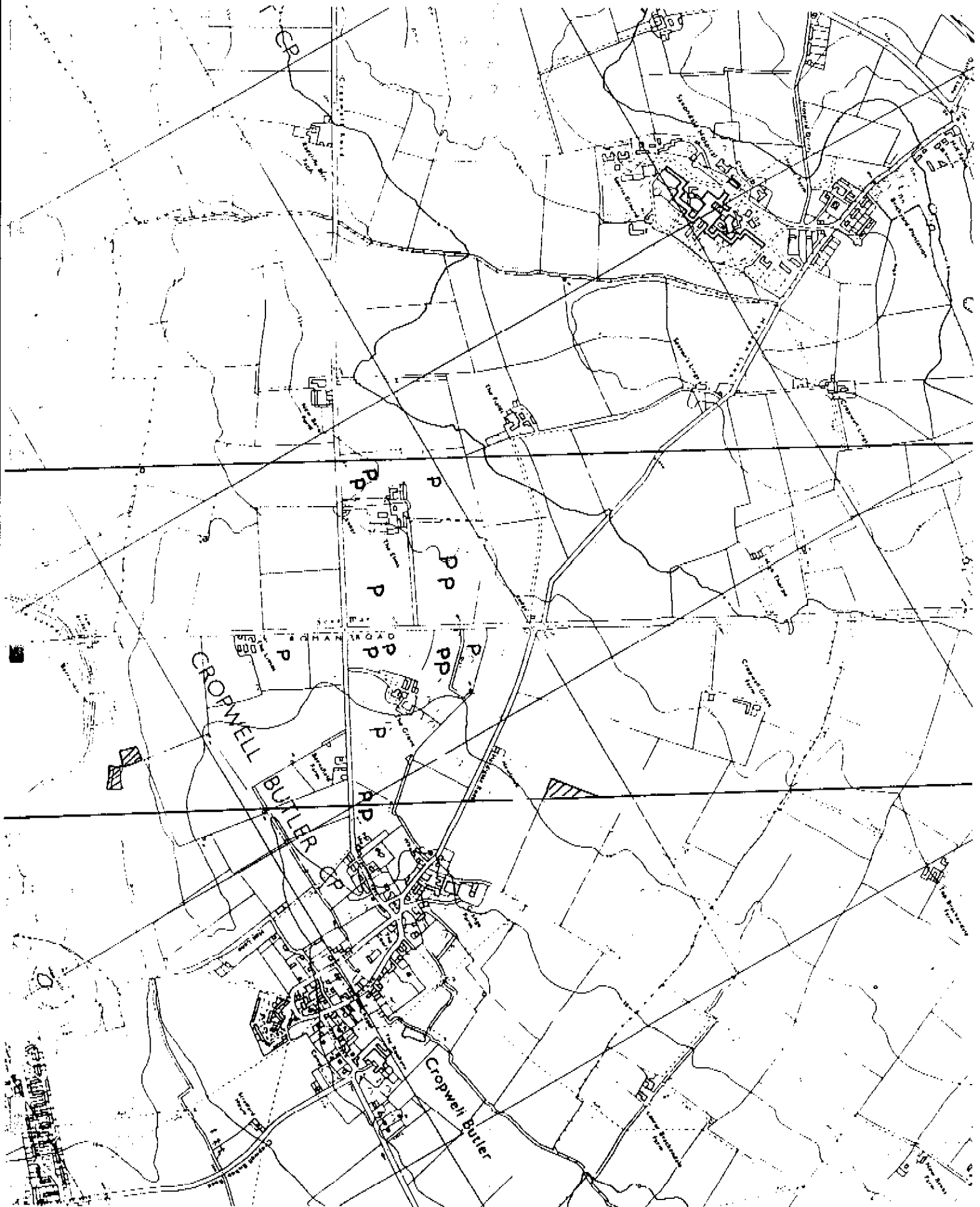
CONSTRUCTION SPECIFICATIONS  
STANTON ON THE WOLDS CP  
WOLDS ROAD  
WOLDS LANE  
STANTON ROAD  
COURT













SAXONDALE CP

Newton Airfield

A46

A46

A52 Bingham Bypass

Newton

Newton

Newton

Newton

Newton

Newton

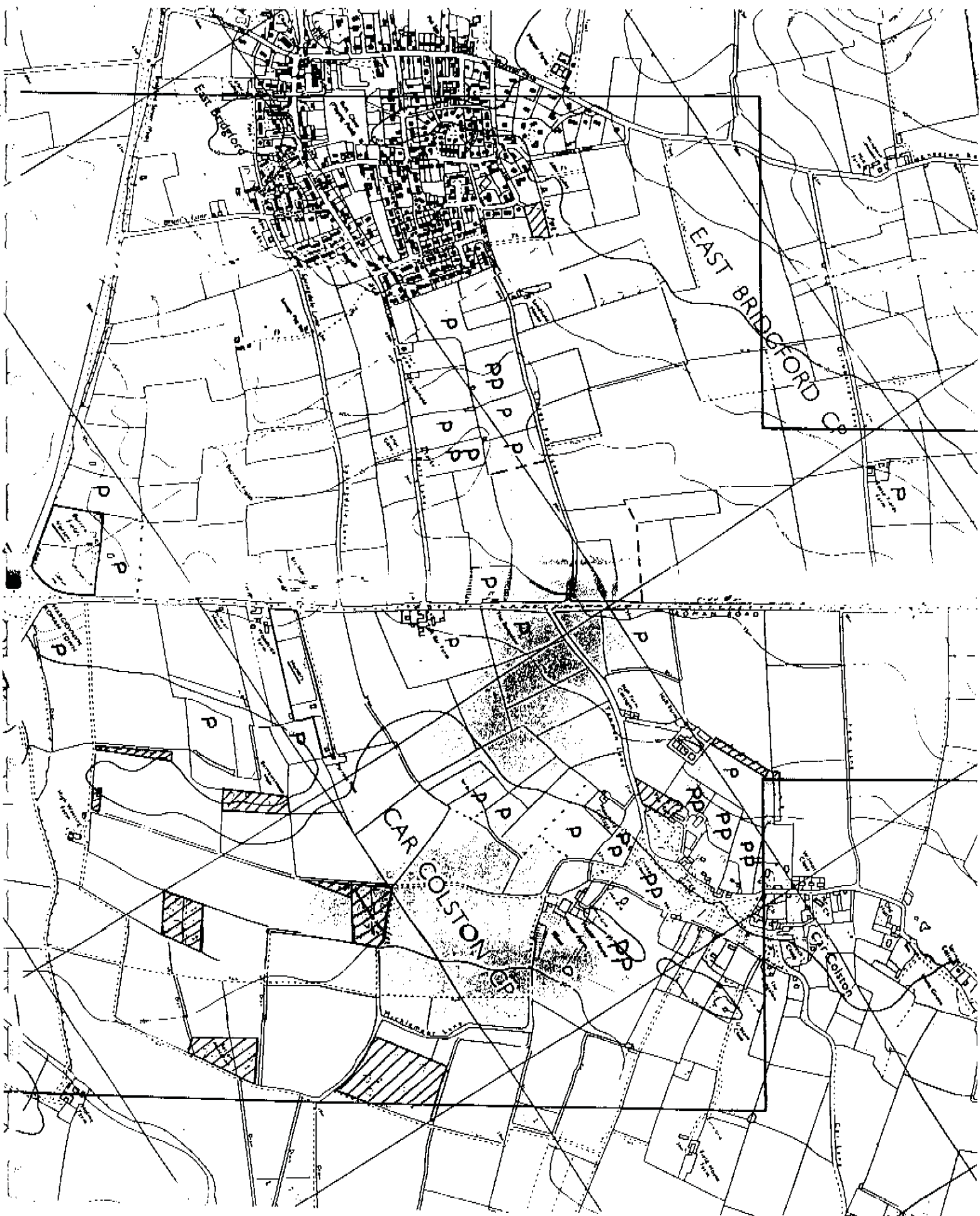
Newton

Newton

Newton

Newton

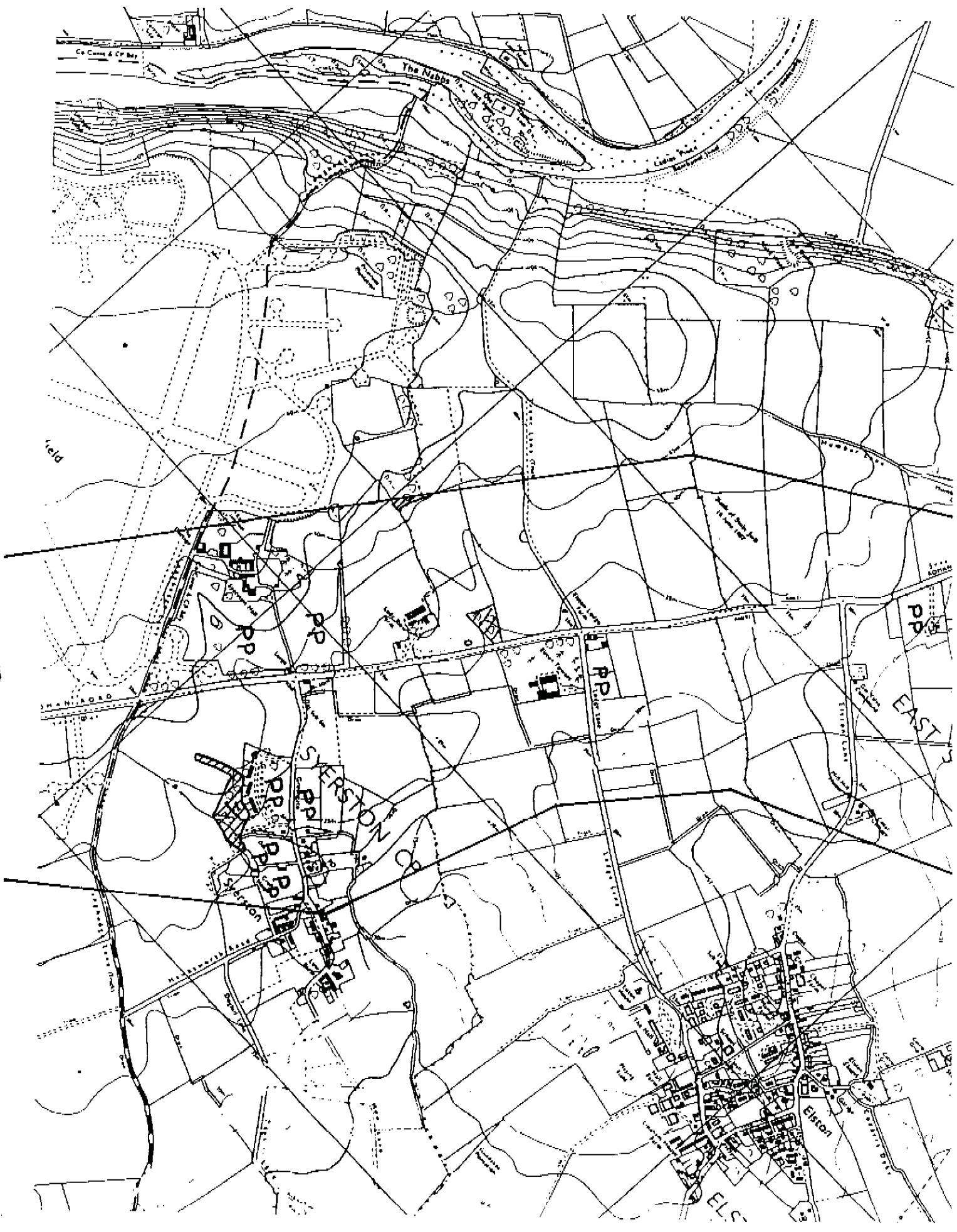
Newton

















## APPENDIX: PHOTOGRAPHS CONSULTED

### *CUCAP obliques*

This specialist collection is of archaeological targets within the road improvement corridor. The collection is precisely indexed with a six-figure grid reference identifying the principal target of each photograph.

<i>NGR</i>	<i>Parish</i>	<i>Photo number</i>	<i>Date</i>
SK 665 361	Cotgrave	ZO 37	04-07-59
SK 677 381	Cropwell Butler	ZO 38-39	04-07-59
SK 708 404	Bingham	EF 50-51	23-07-49
SK 701 416	Car Colston	EF 44-45	23-07-49
SK 701 416	Car Colston	LI 56-59	21-04-53
SK 701 416	Car Colston	PR 7-8	15-04-55
SK 701 416	Car Colston	VK 38	01-07-57
SK 701 416	Car Colston	YV 16-18	22-06-59
SK 701 416	Car Colston	ZO 41-43	04-07-59
SK 705 420	Car Colston	EF 42-43	23-07-49
SK 717 424	Car Colston	BRU 64-66	29-11-74
SK 719 425	Car Colston	BRU 64-68	29-11-74
SK 747 500	East Stoke	RC8-AI 168-169	03-04-73
SK 747 500	East Stoke	AOF 34-37	30-05-66
SK 747 500	East Stoke	BSB 74-76	30-01-75
SK 758 501	Thorpe	EF 40-41	23-07-49
SK 758 501	Thorpe	XN 71	23-07-58
SK 758 501	Thorpe	ABC 86-88	15-06-60
SK 758 501	Thorpe	ABP 10	26-06-60
SK 759 503	Thorpe	BR 71-73	22-07-48
SK 759 503	Thorpe	VK 45-51	01-07-57
SK 759 503	Thorpe	XN 70-72	23-07-58
SK 759 503	Thorpe	YV 19-20	22-06-59
SK 759 503	Thorpe	ZO 68-70	04-07-59
SK 759 503	Thorpe	ABP 10, 12-13, 15-18	28-06-60
SK 759 503	Thorpe	BNG 45-48, 51-53	14-06-73
SK 759 503	Thorpe	BCE 36-38	22-06-70
SK 759 503	Thorpe	BSB 77	30-01-75
SK 759 503	Thorpe	RC8-AI 168	03-04-73
SK 759 503	Thorpe	BMD 77	03-04-73
SK 759 503	Thorpe	ABC 83-90	15-06-60
SK 759 503	Thorpe	AFO 64	19-06-62
SK 759 503	Thorpe	BTE 64-65	25-06-75
SK 759 503	Thorpe	BYE 27-31	25-06-76
SK 759 503	Thorpe	BYL 8, 10-15	29-06-76
SK 759 503	Thorpe	CDJ 109-111	26-07-77
SK 759 503	Thorpe	CKR 10-11	02-08-79
SK 760 503	Thorpe	BYL 8, 10-15	29-06-76
SK 761 504	Thorpe	ABC 85	15-06-60
SK 763 507	Farndon	ABP 10-11, 15-16	28-06-60

SK 764 510 Farndon	YV 21	22-06-59
SK 766 512 Farndon	ABP 14	28-06-60
SK 768 511 Farndon	ABP 14	28-06-60
SK 768 511 Farndon	CDJ 112	26-07-77
SK 772 519 Farndon	YV 22	22-06-59
SK 777 527 Farndon	BR 65-66	22-07-48
SK 777 527 Farndon	ABP 7-9	28-06-60
SK 777 527 Farndon	BYK 86-88	29-06-76

### *CUCAP verticals*

These form part of a complete vertical survey of the county at 1:10000 scale. Definition is good and the photographs provide a good record of the ridge and furrow, both flattened and extant.

RC8-GL 33-37	30 May 1984
RC8-GL 136-141	30 May 1984
RC8-GL 180-185	30 May 1984
RC8-GQ 272-283	8 June 1984
RC8-GR 129-133	15 June 1984
RC8-GR 191-197	15 June 1984
RC8-GR 227-231	15 June 1984
RC8-GR 241-248	15 June 1984
RC8-GS 16-26	15 June 1984

### *NLAP obliques*

This collection comprises photographs from a range of sources dating, in this area, from the 1930s to present. The collection is catalogued by kilometre square and is listed thus below together with the date of photography.

SK6534/1	26 March 1988
SK6635/1	26 July 1971
SK6635/2	26 March 1988
SK6635/3-5	1 August 1991
SK6636/1	6 July 1970
SK6636/2	unknown
SK6636/3-7	1 August 1991
SK6736/1-2	pre 1977
SK6737/1-2	1964
SK6737/3-4	15 July 1970
SK6738/1	1 June 1961
SK6837/5	9 July 1976
SK6837/6-8	21 July 1984
SK6838/1-2	1964
SK6838/5	31 May 1975
SK6838/6-9	1970

SK6939/1	1967
SK6940/1	1930s
SK6941/1	1964
SK6941/2	10 July 1932
SK6941/3-5	unknown
SK7040/1-3	1962
SK7040/4-7	1968
SK7040/8-9	21 July 1969
SK7040/10-12	15 July 1970
SK7040/15	1960
SK7040/17-23	unknown
SK7040/24-25	24 July 1972
SK7040/26	1 June 1969
SK7040/27	1969
SK7041/1-2	1964
SK7041/9	8 June 1933
SK7042/1	8 June 1933
SK7141/1	unknown
SK7141/2	23 July 1969
SK7141/3	21 July 1969
SK7141/4	unknown
SK7141/5	9 July 1976
SK7142/1	1964
SK7142/2-3	22 June 1974
SK7143/1	8 June 1933
SK7144/1	9 July 1976
SK7145/1	unknown
SK7145/2	9 July 1976
SK7242/8-14	unknown
SK7244/7-8	8 June 1933
SK7245/1-4	1964
SK7245/5	8 June 1933
SK7346/2	8 June 1933
SK7347/1	8 June 1933
SK7448/1	8 June 1933
SK7549/1	10 July 1932
SK7549/2-4	unknown
SK7549/5	8 June 1933
SK7550/1-2	1 July 1966
SK7550/3-4	1964
SK7550/5	6 July 1970
SK7550/6	1963
SK7550/7-10	13 July 1971
SK7550/11-15	28 June 1971
SK7550/16	1930s
SK7649/1-3	1 July 1966
SK7650/1-16	1964
SK7650/17	unknown

SK7650/18-24	6 July 1970
SK7650/25-26	1964
SK7650/27	9 July 1971
SK7650/28	8 July 1976
SK7651/1-9	1964
SK7651/10-13	6 July 1970
SK7651/14	8 July 1976
SK7651/15	8 June 1933
SK7750/1	1964
SK7750/2-3	6 July 1970
SK7751/7-8	28 June 1971
SK7752/4	1964
SK7752/8	8 June 1933

*NLAP verticals*

These photographs, dating from 1945, were used primarily for the landuse study. Other than small areas of ridge and furrow they added virtually no archaeological information to that interpreted from the above sources. The photographs covered the complete road improvement area although many frames covering Margidunum were missing. Scale of photography is *c.* 1:10000 unless otherwise given. The extent of each sortie's stereoscopic cover is listed below in terms of Northings.

106G/LA/180: 1044	15 March 1945
106G/LA/180: 1064	15 March 1945
106G/LA/180: 2044	15 March 1945
106G/LA/180: 2064-2066	15 March 1945

These photographs were too murky to allow any useful interpretation.

3G/TUD/UK/117: 6067-6069	3 April 1946
3G/TUD/UK/117: 6094-6096	3 April 1946
3G/TUD/UK/117: 6144	3 April 1946
3G/TUD/UK/117: 6186-6189	3 April 1946
3G/TUD/UK/117: 6318-6321	3 April 1946

Dark prints, but usable. Cover SK42 to SK45, SK7447 (mono) and SK50

58/B/22: 5078	7 May 1948
58/B/22: 5112-5114	7 May 1948

Good prints covering SK52 only.

541/111: 3103-3105	27 July 1948
541/111: 3149	27 July 1948
541/111: 3206-3210	27 July 1948
541/111: 3229-3233	27 July 1948
541/111: 4101-4105	27 July 1948
541/111: 4143-4147	27 July 1948
541/111: 4204-4205	27 July 1948
541/111: 4229-4230	27 July 1948

Slightly muddy prints, but informative. Extend between SK42 and SK49.

541/481: 3225-3226	7 April 1950
541/481: 3245-3249	7 April 1950
541/481: 3275-3278	7 April 1950
541/481: 3309-3311	7 April 1950
541/481: 3348-3351	7 April 1950
541/481: 3380-3385	7 April 1950
541/481: 3405-3410	7 April 1950
541/481: 3450-3453	7 April 1950
541/481: 4225-4226	7 April 1950
541/481: 4245-4248	7 April 1950
541/481: 4274-4277	7 April 1950
541/481: 4308-4311	7 April 1950
541/481: 4346-4350	7 April 1950
541/481: 4378-4382	7 April 1950
541/481: 4403-4407	7 April 1950
541/481: 4425-4426	7 April 1950
541/481: 4446-4452	7 April 1950

Good prints south of SK40 but murky north of that. Excellent ridge and furrow. Extend between SK28 and SK39, plus SK42 and SK44.

541/516: 3010-3012	11 May 1950
541/516: 3127-3131	11 May 1950
541/516: 3185-3186	11 May 1950
541/516: 4004	11 May 1950
541/516: 4064-4069	11 May 1950
541/516: 4126	11 May 1950
541/516: 4129	11 May 1950
541/516: 4182-4186	11 May 1950
541/516: 4187-4188	11 May 1950

Good prints, excellent for ridge and furrow. Cover SK38, SK41 to SK45, SK48.

F42. 543/RAF/673: 70-83	24 August 1959
F42. 543/RAF/673: 88-92	24 August 1959
F43. 543/RAF/673: 71-76	24 August 1959

Good prints. Cover SK35 to SK53 although Margidunum is missing.

OS/64/128: 004	3 August 1964
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Good quality at 1:7500. SK51-52.



OS/64/215: 46-48	24 September 1964
OS/64/216: 19-24	24 September 1964
OS/64/216: 50-55	24 September 1964
OS/64/216: 81-85	24 September 1964
OS/64/217: 13-14	24 September 1964

Good quality photographs at 1:7500 although much that was listed was not at NLAP. Cover SK40 to SK45.

OS/68/028: 4-12	8 April 1968
OS/68/028: 63-71	8 April 1968
OS/68/028: 76-82	8 April 1968
OS/68/028: 124-128	8 April 1968

Good quality photographs at 1:7500. Cover SK28 to SK39.

MAL/68051: 145-146	30 June 1968
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Good quality but covering only SK52.

FSL/7145: 4500	1 June 1971
FSL/7145: 5066	2 June 1971
FSL/7145: 6160-6162	2 June 1971
FSL/7145: 6193-6194	2 June 1971

Good quality. Part of census year cover all of which is held by Nottingham County Council. That seen covered SK34, SK50 and SK52 only.

OS/72/249: 238-239	17 July 1972
OS/72/249: 246	17 July 1972
OS/72/249: 280-281	17 July 1972

Good quality at 1:7500. Covered SK47, SK49 and SK50 (mono).

### *APS obliques*

These photographs were taken on a flight with RCHME who also recorded the same targets. Copies have been lodged with NLAP.

<i>NGR</i>	<i>Original Photo number</i>	<i>Date</i>
SK669366	91.72/4-6	1 August 1991
SK663356	91.72/7	1 August 1991
SK777519	91.72/8	1 August 1991
SK774510	91.72/9	1 August 1991

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