



COLDWELL AND TRAWDEN RAW WATER TRANSFER PIPELINE TO LANESHAW WwTW, LANCASHIRE

Topographic Survey



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SUMMARY

Following the results of a desk-based assessment and walkover survey (OA North 2005) the Specialist Advisor (Archaeology) at Lancashire County Archaeological Service (LCAS) recommended that a topographic survey and programme of evaluation be carried out of the proposed raw water transfer pipeline routes. The routes of the proposed water transfer pipelines runs between Laneshaw Wastewater Treatment Works (SD 90016 36376) and Coldwell reservoir (94961 41232), and the Briercliffe Service Reservoir (SD 88576 35348) and Haggate (SD 85994 34921). The survey was designed to record topographically the areas of archaeological potential identified by the previous desk-based assessment and visually confirmed by walkover survey. The topographic survey was carried out in October 2005.

The proposed pipeline is situated to the east of Colne and Trawden, on an area of high ground dominated by moorland. The topographic survey targeted 31 sites for recording. Sites **11, 12, 15, 26, 33-35, 39, 95, 101, 106, 118, 119, 122, 124-125** and **149** were all areas of ridge and furrow or field boundaries thought to date to a short period of agricultural expansion that took place during the late eighteenth to early nineteenth centuries. The remaining sites comprised a lynchet of unknown date (Site **123**), field boundary walls (Sites **126** and **127**), quarries (Sites **83,142-144,146**), and a sunken trackway (Site **145**).

Sites subject to a photographic survey included a spring and drinking trough (Site **97**), a farmstead with outbuildings (Site **130**), and two stiles (Sites **135** and **137**). Despite further intensive inspection a further nine (Sites **41, 25, 65, 64, 69, 92,120, 124, 150**) were found to be unsuitable for the survey.

In addition, three field boundaries, an earthwork platform and a earthwork bridge feature were located in the same area as Site **26**. They have been fully surveyed and appended to the record for Site **26**.

ACKNOWLEDGEMENTS

Oxford Archaeology North (OA North) would like to thank United Utilities for commissioning the project. Thanks are also due to Peter Isles and Lesley Mitchell at the Lancashire County Archaeological Service (LCAS), and all the staff of the Lancashire Record Office in Preston for their continual patience and assistance with this project.

The topographic survey was undertaken by Caroline Bulcock and Neil Wearing. The drawings were produced by Mark Tidmarsh. Alison Plummer managed the project and edited the report.

1. INTRODUCTION

1.1 CIRCUMSTANCES OF PROJECT

- 1.1.1 Following the results of a desk-based assessment and walkover survey (OA North 2005) the Specialist Advisor (Archaeology) at Lancashire County Archaeological Service (LCAS) recommended that a topographic survey and programme of evaluation be carried out of the proposed pipeline routes .
- 1.1.2 This report has been compiled for United Utilities. This document sets out the results of the topographic survey element of the archaeological programme of work, along the proposed new transfer pipeline from Coldwell and Trawden to Laneshaw Water Treatment Works (NGR North end: SD394 441, South end: SD390 436). The archaeological evaluation results will be presented in a separate report.
- 1.1.3 The topographic fieldwork took place during early October 2005, the results comprising a series of outline detail and hachure plans, included additional features within appropriate proximity to the pre-targeted sites. In addition, a photographic record was made of specific buildings and upstanding structures highlighted by the desk-based assessment and walkover survey.

2. METHODOLOGY

2.1 PROJECT DESIGN

- 2.1.1 A project design (*Appendix 1*) was produced for, and accepted by United Utilities for the topographic survey element of the archaeological programme of work, along the proposed new transfer pipeline routes.

2.2 TOPOGRAPHIC SURVEY

- 2.2.1 The survey concentrated on the recording of breaks of slope to define the position and extent of features, rather than blanket coverage of points by grid across a site. The archaeological detail was mapped using Leica differential GPS equipment which used post-processed corrections from a base station to achieve an accuracy of $\pm 0.25\text{m}$. The digital survey data was transferred, via DXF file format, into a CAD system (AutoCAD 14), and was superimposed onto the digital Ordnance Survey data (Fig 2). The resulting drawings provide a record of the extant archaeological features, annotated with hachures to create an accurate topographical record. Descriptive hand written records were compiled for each surveyed feature. A photographic record was maintained in 35mm black and white print format, colour slide and digital photography.

3. TOPOGRAPHIC SURVEY RESULTS

3.1 INTRODUCTION

3.1.1 In total, 31 sites were visited during the course of the topographic survey, they were almost without exception agricultural in origin, and either of uncertain or post-medieval date. The results are presented in three broad sections: Sites subject to full topographic survey, sites subject to partial topographic survey due to ground coverage by agricultural crops and scrub-type vegetation, and sites only intended for photographic recording.

3.2 SITES SUBJECT TO FULL SURVEY

3.2.1 Site **66** is an area of quarrying located near Higher Draught Gate, identified through desk-based assessment of aerial photographic sources and confirmed by walkover survey. Although currently mapped and not on the targeted list of survey sites, the area was found to have more outcropping quarry faces than shown on the current map. The proposed pipeline easement will cross this area, so the additions were surveyed (Fig 3, Plate 1).

3.2.2 Site **106** is a post-medieval field system in the area of Higher Cockden Farm, identified through desk-based assessment of aerial photographic sources and confirmed by walkover survey (Fig 4, Plate 2). This site is a complex series of ridge and furrow, which can be seen on the raised islands created by former water courses in the field. In the western part of the field a large regular area of narrow, straight ridge and furrow is aligned north/south. To the south-west two stretches of ridge and furrow survive, one aligned north/south and one north-east/-south-west. All the areas are regular and straight and measure no more than 3m between furrows.

3.2.3 Site **123** is a lynchet identified by walkover survey, in the area of Robert Laith Farm. The lynchet is clearly visible, aligned west-north-west/east-south-east. The feature was surveyed for its entire perceptible length of 150m (Fig 5, Plate 3).

3.2.4 Sites **125** **126** and **127** are relict field boundaries identified by walkover survey, in the area of Slack Head. Site **125** is a prominent bank and ditch running roughly east/west, the bank presumably once formed the base of a dry stone wall field boundary, with a drainage ditch running along side it (Fig 6). Site **126** was originally suggested as a short stone setting, but is actually part of a former boundary wall running along the current track. The wall has collapsed forming an earth-fast bank of wall tumble with intermittent patches of wall foundations visible along its length. At the track side there is a ditch, presumably for drainage, which would suggest that repeated re-cutting of the drain may have undermined the wall causing it to fall into disuse (Fig 6, Plate 4). Site **127**, located to the south at Great Hill Farm, is taken to be the continuation of Site **126**.

3.2.5 Site **139** is a sheepfold identified during by the walkover survey, in the area of Higher Draught Gates. This was located using GPS and photographed (Plate 5).

- 3.2.6 Sites **142** and **143** are three small quarry scoops, identified by walkover survey, cut into the top break of the natural slope, and two larger quarries further south. These features are located in the area of Moss Barn and were subject to full topographic survey (Figs 7 and 8; Plate 6).
- 3.2.7. Site **144**, is an area of quarrying located by walkover survey off Halifax Road. The quarry scoop is kidney-shaped and measured 26m maximum length by 10m wide. The northern breaks of slope are poorly defined, and separating them from the natural slope of the filled was difficult. Despite this they were surveyed as fully as possible (Fig 9; Plate 7).
- 3.2.8 Site **145** is a stretch of sunken trackway identified by walkover survey, located off Robin House Lane. Only a boundary is marked on the first edition Ordnance Survey map of 1848, rather than a watercourse. The clearly defined extent of the feature was surveyed (Fig 10; Plate 8). A footpath is marked on the current map at this point, as is a watercourse. The hollow is thought to be the result of the water action, and the feature is now a marshy ditch.
- 3.2.9 Site **146** is a small semicircular roadside quarry, identified by walkover survey, in the area of Stoney Rakes. The top and bottom breaks of slope of the quarry face were surveyed (Fig 28; Plate 10).
- 3.2.10 Site **149**, is an area of ridge and furrow, identified by walkover survey, located near Higher Cockden Farm. The ridge and furrow is on average 4m wide, and very regular, standing no more than 0.1m high. It runs throughout the field, roughly north/south, it is situated on a very steep slope which would suggest post-medieval mechanical ploughing (Fig 11; Plate 10).

3.3 SITES SUBJECT TO PARTIAL SURVEY

- 3.3.1 Site **11**, a post-medieval field system in the area of Hullown Beck, identified through desk-based assessment of aerial photographic sources and confirmed by walkover survey, was subject to partial survey (Fig 12; Plate 11). The area is partially covered by moor grass and scrub making clear identification difficult; however, two clear areas of ridge and furrow, aligned north-west/south-east, were surveyed. The crowns stood no higher than 0.1m to 0.2m in height and were consistently 4m in width between the bottom break of slope of each furrow. The line of the feature was very straight and the dimensions and regularity concur with the initial assessment of post-medieval origin.
- 3.3.2 Site **12** is a post-medieval field system in the area of Hullown Beck, identified through desk-based assessment of aerial photographic sources and confirmed by walkover survey, was subject to partial survey (Fig 12; Plate 12). The area is well improved pasture and the features show mainly as crop marks, most visible from the adjacent field. However, one clear area of north/south aligned ridge and furrow was surveyed. The crowns stood no higher than 0.1m in height and were consistently 3.5m-4m in width between the bottom break of slope of each furrow. The line of the feature was very straight and the dimensions and regularity concur with the initial assessment of post-medieval origin.

- 3.3.3 Site **15** is a post-medieval field system in the area of Robert Laith Farm, identified through desk-based assessment of aerial photographic sources. The area is well improved pasture and the feature shows mainly as crop marks, most visible from the adjacent field. An extant stretch of ridge and furrow aligned north-west/south-east, ran up the natural slope of the land (Fig 13) The distance between the bottom break of slope of each furrow was no more than 2.5m and the line of the feature was very regular. Again, the detail survey concurs with the initial assessment of post-medieval origin.
- 3.3.4 Site **26**, a post-medieval field system in the area of Links House, identified through desk-based assessment of aerial photographic sources and confirmed by walkover survey, was subject to partial survey. No clear crowns or furrows could be seen in the northern part of the field, which was heavily cross-cut by recent vehicle tracks and drains. The entire area is marshy with reed tufts and very uneven in general nature. The southern area showed visible areas of ridge and furrow suitable for survey. The most southerly area lay to the south of a linear drainage feature (which followed the line of a field boundary shown on the Ordnance Survey first edition mapping of 1848), and immediately north of Wycoller Beck. (Fig 14). These features were aligned north-east/south-west and typically measured from 3-5m between furrows, widening towards the south/west on a level area, at the bank of the beck, and narrowing as they run up the natural slope.
- 3.3.5 The linear drainage feature (above) was surveyed in, as was a probable causeway or embanked crossing point. This consisted of a level and slightly raised trackway crossing the drain and having slight embanked earth footings. The entire structure appears as an earthwork 40m long (maximum) and 10m wide, showing evidence of repeated access across the drain feature (Fig 14; Plate 13).
- 3.3.6 The second southern area of ridge and furrow was aligned north-east/south-west, and ran just off parallel to, and immediately north of, the above linear drainage feature (*Section 3.3.4*). The ridge and furrow appeared to respect a probable field boundary bank located south of them (Fig 14). The ridge and furrow again had a very regular line and ranged between 2.5m and 3.5m in width, and in places rising up 0.3m at the crown of the ridges (Plate 14). The field boundary bank runs for 53m, and is aligned north-east/south-west, is 3.5m wide between its base breaks of slope, and stands to a height of no more than 0.35m (Plate 15).
- 3.3.7 The long linear field boundary which formerly divided this field into two, is prominent and well defined (Plate 16); the feature was fully surveyed in along both top breaks and bottom breaks of slope (Fig 16). The bank runs for 180m, being up to 5m wide between bottom breaks of slope, standing to 0.5m and having a maximum top width of 1.5m. A large tree stands on the bank at the south-west, and in this location the definition of the top breaks of slope is lost. This feature is shown on the first edition Ordnance Survey mapping of 1848 as a field boundary.
- 3.3.8 All the above features are part of the field system previously identified by walkover survey (though direct relationships between the individual features cannot be confirmed), however a further group of earthworks were noted and surveyed in the same field, which were not previously recorded (Fig 14). The features

comprise a levelled platform cut into the hill slope with a clear ramp onto the levelled area (Site **26a**). The platform is sub rectangular in shape and has a maximum long axis (orientated north/south) of 20m and a short axis (orientated east/west) of 13m (Plate 17).

- 3.3.9 An L-shaped linear bank and ditch was surveyed (Site **26b**), now acting as a drainage ditch, and shown on the first edition Ordnance Survey mapping of 1848. This is presumably a field boundary with a drain running along it, of which only the low bank and the drain cut survive today. The ditch varies from 2-3.5m along its surviving profile, whilst the bank varies from 2-4.5m in width. A series of four profiles were recorded to illustrate its variation (Plate 18).
- 3.3.10 Site **26b** meets a second linear feature (the relationship between the two is again uncertain), at its southern extent, which runs south-east/north-west (Site **26c**). This was found to be a low earthfast wall foundation, and again is thought to be a field boundary shown on the first edition Ordnance Survey mapping of 1848.
- 3.3.11 Site **33** comprised a potential prehistoric post-medieval field system in the area of Walshaw Clough, identified through desk-based assessment of aerial photographic sources. The walkover survey had subsequently shown that the area today is one of modern housing development and deliberate landscaping. No traces of ridge and furrow could be seen. The substantial mounds are highly likely to be the spoil heaps from the construction of the nearby nineteenth century reservoir, which have been subsequently landscaped and planted with trees to screen the housing development from the nearby industrial complex. The basic breaks of slope of the area were surveyed (Fig 15; Plate 19).
- 3.3.12 Site **34**, a post-medieval field system in the area of Great Thorn Edge, identified through desk based assessment of aerial photographic sources and confirmed by walkover survey, was subject to partial survey (Fig 16; Plate 20). Two small areas of ridge and furrow, one in the southern field, one in the northern field, were surveyed in. The majority of the area is under thick vegetation, and the features show mainly as crop marks. The furrows were a maximum of 3m apart, where discernible, and the crowns stood no more than 0.2m high at best. A stone-capped well was found within the field, located centrally along the western boundary. Again, the survey concurs with the initial assessment of post-medieval origin.
- 3.3.13 Site **35**, a post-medieval field system in the area of Bracken Hill, identified through desk based assessment of aerial photographic sources and confirmed by walkover survey, was subject to partial survey (Fig 17) In the northern area the feature ran for 120m in length, being typically 3.5m wide. In the southern field the area was less prominent, surviving to a max length of 90m but was otherwise of similar dimensions. The area is bisected by a linear field boundary shown on the Ordnance Survey first edition mapping of 1848 but not on the current map. A second linear feature runs north/south and, given that the slope of the land is orientated the same way, is likely to be a drainage feature of unknown date (Plate 21).
- 3.3.14 Site **39**, a post-medieval field system in the area of Great Hill, identified through desk-based assessment of aerial photographic sources and confirmed by

walkover survey, was subject to partial survey (Fig 18). The features mainly showed as crop marks; however three small areas were found to be suitable for survey (Plate 22).

- 3.3.15 Site **83**, comprised an area of disused quarrying named as 'Burwains Quarry', identified through desk-based assessment of aerial photographic sources and confirmed by walkover survey. Although mapped, the area is currently subject to agricultural building development, most of the quarries have been backfilled and only the top and bottom breaks of slope of the surviving working face were surveyed (Fig 19; Plate 23).
- 3.3.16 Site **95**, a post-medieval field system in the area of Hill Farm, identified through desk-based assessment of aerial photographic sources and confirmed by walkover survey, was subject to partial survey (Fig 20). The southern part of the area survived as crop marks and was not suitable for survey. The northern area survived aligned north/south. The furrows were 3.5m apart and the crowns stood to 0.1m. There is a remnant of a raised track aligned east/west across the field (Plate 24).
- 3.3.17 Site **101** is a post-medieval field system in the area of Higher Cockden Farm, identified through desk-based assessment of aerial photographic sources and confirmed by walkover survey (Fig 18; Plate 21). The ridge and furrow was only suitable for survey in two small areas. It is very regular and narrow being only 2.5m-3m in width between furrows. The northern of the two banks survives well, curving south at the bottom of the hill (Plate 26). The southern boundary was only suitable for survey at the summit of the hill, the remainder showing as a barely perceptible ridge visible from the adjacent field.
- 3.3.18 Sites **118** and **124** are two areas of post-medieval ridge and furrow identified by walkover survey, in the area of Oak House Farm. Site **124** was only visible as an intermittent crop mark amongst marshy land, with frequent reed grass tufts, and deemed not suitable for accurate survey. Site **118** (Fig 22) was only definitely visible in the north-eastern area of the field. Here, it stands no more than 0.2m high, and varies between 3.5 and 4m in width. It is very regular and has been heavily cross-cut by later drainage features
- 3.3.19 Site **119** is a small area of relict field boundaries identified through walkover survey, in the area of Laith Farm. Running north-west/south-east along the line of the current road, it can be seen as an embanked linear feature. It appears, at least in the southern part of the field, to be earthfast wall tumble from the former continuation of the current boundary wall. Indeed, the foundations of the wall can still be seen *in situ* along this feature (Fig 23; Plate 27). The feature has been cut through opposite the current gate, giving the impression of a deliberate access feature, it is however, certainly just the product of vehicular access. The section of the feature to the north-west of the current gate shows as more of a ditch than a bank, and may be the result of robbing out a former wall. The ditch continues in the field to the north-east. It is worth noting that the Ordnance Survey first edition mapping of 1848 does not show the current boundary wall paralleling the road extending beyond its current return, nor does it show any other feature running by the road side. The linear bank running north-east/south-west ranges

from 2.5-3m in width, and runs clearly for at least 100m, with some intermittent loss of prominent break of slope (Plate 28).

- 3.3.20 Site **122** is an area of ridge and furrow identified through walkover survey in the area of Hullown Beck. The area contains partial extant ridge and furrow and partial crop marks. The northern area shows extant ridge and furrow aligned east/west across the field. The distance between the furrows ranged little, being typically 3.8m-4m, with the crowns standing to a height of no more than 0.1m. (Fig 3; Plate 29).

3.4 SITES SUBJECT TO PHOTOGRAPHIC RECORD ONLY

- 3.4.1 A group of four sites, including a spring with drinking trough and stone shelter wall (Site **97**; Plate 32), two stiles (Sites **135** and **147**; Plates 33, 34), and a farm building (Site **130**; Plates 35-38), were subject to photographic recording only, the latter being photographed in all elevations.

4. GAZETTEER OF TOPOGRAPHIC SURVEY SITES

Site number	11
Site name	Hullown Beck
NGR	SD 93986 40780
Site type	Field system
Period	Post-medieval
SMR No	-
Statutory Designation	-
Sources	HSL UK 1963d, Run 14, Frame 9232, Walkover Survey.
Description	An area of ridge and furrow orientated north-west/south-east. It is very straight and narrow. Ground conditions in the field survey precluded precise measurement of the site. There is a linear boundary bank separating this site with Site 122 adjoining to the west. During the topographic survey only two areas of ridge and furrow were found to be suitable for survey. The furrows were typically 4m apart and the crowns rose no more than 0.1-0.2m
Assessment	Part of the site lies within the of the proposed pipeline route and will be affected

Site number	12
Site name	Hullown Beck
NGR	SD 93652 40695
Site type	Field system
Period	Post-medieval
SMR No	-
Statutory Designation	-
Sources	HSL UK 1963d, Run 14, Frame 9232, Walkover Survey
Description	An area of ridge and furrow with associated field boundaries. It is very straight and narrow and oriented north/south. The furrows are typically 3.5-4m apart, and the crowns stand no higher than 0.1m.
Assessment	Part of the site lies within the proposed pipeline route and will be affected

Site number	15
Site name	Robert Laith
NGR	SD 93383 40613
Site type	Field system
Period	Post-medieval
SMR No	-
Statutory Designation	-
Sources	HSL UK 1963d, Run 14, Frame 9232
Description	An area of ridge and furrow. It is orientated approximately north/south and the ridges are very straight and narrow.
Assessment	The site lies adjacent to the proposed pipeline route and is likely to be affected

Site number	25
Site name	Far Laith
NGR	SD 93276 40438
Site type	Field boundary
Period	Medieval
SMR No	-
Statutory Designation	-
Sources	Ordnance Survey 1848a, Walkover Survey

Description A field boundary marked 'Boundary of the Forest' is shown on the Ordnance Survey map of 1848. It presumably represents the edge of the medieval Trawden Chase. There was no obvious boundary located in this position during field survey, however it may relate to the lynchet to the north (Site 123). At the south extent of the current track to the farm, the first edition mapping of 1848 shows that the former boundary is now the line of the current track.

Assessment Part of the site lies within the proposed pipeline route and will be affected

Site number 26
Site name Links House
NGR SD 92477 39853
Site type Field system
Period Medieval - post-medieval
SMR No -
Statutory Designation -
Sources HSL UK 1963d, Run 14, Frame 9232, Walkover Survey
Description Two areas of possible ridge and furrow. The northern part comprises very wide curved ridges orientated approximately north/south. The south part comprises straight, narrow ridges orientated east/west, with a field boundary orientated east/west dividing the two. The site survives for the most part in good condition with narrow ridge and furrow to the south measuring 1.5m between ridges by 0.25m in height maximum. The northern portion of the ridge and furrow does not seem to be appreciably wider than the rest, in addition it is heavily modified and denuded in the north around Links House. The south east corner of the field by Links House contains a former field boundary running north-west-south-east and turning south-west. A second feature, the foundations of a former boundary wall, run north-west-south-east from the southern most point of the first. Immediately north-west of the first boundary there is a small platform cut into the natural hill slope. In addition to this, the linear drain which runs through the central southern section of the field has an earth built bridge crossing it at a point 100m from the current eastern boundary of the field.

Assessment Part of the site lies within the proposed pipeline route and will be affected

Site number 33
Site name Walshaw Clough
NGR SD 86301 34576
Site type Spoil heaps
Period Post-medieval
SMR No -
Statutory Designation -
Sources HSL UK 1963a, Run 11, Frame 5558-9, Walkover Survey
Description A group of three large mounds is visible in an aerial photograph of 1963. They are all roughly oval, and between approximately 50 and 100m long, running in a line north-east/south-west along a footpath or track. There is a further small mound at the north-east end and two apparently square or rectangular platforms. Assuming the aerial photo predates the construction of the housing estate the mounds are likely to be spoil from the construction of the covered reservoir to the south, they have since been landscaped and planted with trees, presumably to screen the housing from the industrial complex opposite.

Assessment Part of the site lies within the proposed pipeline route and is likely to be affected.

Site number 34
Site name Great Thorn Edge
NGR SD 92247 39114
Site type Field system

Period	Post-medieval
SMR No	
Statutory Designation	-
Sources	HSL UK 1963c, Run 13, Frame 9255, Walkover Survey
Description	Two areas of ridge and furrow with an associated field boundary. Both parts are straight and narrow; the northern section is orientated north-east/south-west and the southern north-west/south-east. The ground conditions precluded measurement of the ridge and furrow. During topographic survey only two small areas of ridge and furrow were found to survive which were suitable for survey one in the south-east corner and one in the north west corner of the field. They both measure 3m between furrows, with crowns that rise no more than 0.2m.
Assessment	Part of the site lies within the proposed pipeline route and will be affected

Site number	35
Site name	Bracken Hill
NGR	SD 92545 39205
Site type	Field system
Period	Post-medieval
SMR No	-
Statutory Designation	-
Sources	HSL UK 1963c, Run 13, Frame 9255 , Walkover Survey
Description	A large area of ridge and furrow and associated field boundaries. It is all straight and narrow, and the majority is orientated north/south, although some is orientated north-east/south-west. The ridge and furrow cultivation survives 1.5m wide between ridges and up to 0.15m in height. During the topographic survey the northern area of ridge and furrow was found to run for 120m, aligned north/south, and typically 3.5m in width. The southern area of ridge and furrow runs for 90m, aligned north/south, and typically 3.5m in width. The central linear feature, aligned east/west is a field boundary ditch and bank shown on the first edition mapping of 1848, the north/south aligned linear appears to be a drain running north/south, down slope to the southern edge of the field, where a watercourse runs.
Assessment	Part of the site lies within the proposed pipeline route and will be affected

Site number	39
Site name	Great Hill
NGR	SD 9265 38474
Site type	Field system
Period	Post-medieval
SMR No	-
Statutory Designation	-
Sources	HSL UK 1963c, Run 13 , Frame 9255, Walkover Survey
Description	A large area of ridge and furrow and associated field boundaries. The ridge and furrow is all straight and narrow and orientated north-west/south-east. The ridge and furrow cultivation survives 1.5m wide between ridges and up to 0.2m in height
Assessment	Part of the site lies within the proposed pipeline route and will be affected During topographic survey only three small areas of ridge and furrow were found to be prominent enough to be suitable for survey, two in the northern, and one in the southern extremes of the field.

Site number	83
Site name	Burwains Quarry
NGR	SD 88360 35840 (centre)
Site type	Quarry
Period	Post-medieval

SMR No	-
Statutory Designation	-
Sources	Ordnance Survey 1894, Walkover Survey
Description	A quarry is first shown here on the Ordnance Survey map of 1894. In 1929 there is a small building and a water tank positioned on the west side against the road. The site has been heavily modified in later years, and there has been earth moving and grading to take the foundations of an uncompleted building internally. The quarries have been backfilled, and only the main quarry area is still visible, though overgrown and partially backfilled.
Assessment	The site lies adjacent to the proposed pipeline route and it may be affected

Site number	95
Site name	Near Hill Farm
NGR	SD 88036 35174
Site type	Ridge and furrow
Period	Post-medieval
SMR No	-
Statutory Designation	-
Sources	HSL UK 1963a, Run 11, Frame 9557, Walkover Survey
Description	An area of ridge and furrow orientated north-west/south-east is shown in an aerial photograph of 1963. The ridge and furrow survives either side of a wide boundary bank which measures approximately 3m wide by up to 0.3m in height. The ridge and furrow cultivation is appreciably wider than the majority of other sites identified, measuring over 2m between ridges by up to 0.2m in height. During topographic survey the ridge and furrow in the southern part of the area as found to be crop marking and unsuitable for topographic survey. The northern area survives well and measures 3.5m between furrows, standing to up to 0.2m. The bank is actually a former trackway running from a disused field gate at the east.
Assessment	Part of the site lies within the proposed pipeline route and will be affected

Site number	97
Site name	Haggate and Lane Bottom
NGR	SD 87600 35300
Site type	Wells
Period	Post-medieval
SMR No	6348
Statutory Designation	-
Sources	SMR; Ordnance Survey 1848a, Walkover Survey
Description	Four wells are shown on the Ordnance Survey map of 1848. The site consists of a small drystone wall shelter on the south side of a field wall, measuring approximately 4m long by 2m wide and walls 0.5m wide by up to 1.4m in height. There is a stone drinking trough set at the bottom of the wall.
Assessment	The site lies within the proposed pipeline route and will be affected

Site number	101
Site name	Higher Cockden Farm
NGR	SD 87480 35315
Site type	Field-system
Period	Medieval? – post-medieval
SMR No	-
Statutory Designation	-
Sources	Jas Air 1988, Run 13/90, Frames 33-5; Ordnance Survey 1848a, Walkover Survey

Description	A collection of linear features, apparently former field boundaries is shown in aerial photographs of 1988. The northern boundary does not appear on the Ordnance Survey map of 1848, the southern does. The boundaries were in evidence during the walkover survey and consisted of low earthen banks up to 2.5m in width by 0.3m high. Narrow ridge and furrow cultivation was observed running roughly south-west/north-east, although to the north near Lane Bottom the orientation changes into various directions.
Assessment	Part of the site lies within of the proposed pipeline route and is likely to be affected

Site number	106
Site name	Rose Cottage
NGR	SD 87265 35025
Site type	Ridge and furrow
Period	Post-medieval
SMR No	-
Statutory Designation	-
Sources	HSL UK 1963a, Run 11, Frame 5557, Walkover Survey
Description	An area of ridge and furrow is shown in an aerial photograph of 1963. It is orientated north/south. It measures approximately 1.5m between ridges and is up to 0.1m in height. There are three distinct areas of ridge and furrow found on islands created by the presence of former watercourses within the field. The western area runs north-south, the eastern aligned north-west/south-east, and being divided by one of the former channels, into a south area which is extant and a north area which is predominantly crop mark.
Assessment	Part of the site lies within the proposed pipeline route and will be affected

Site number	118
Site name	Oak House Farm
NGR	SD 92623 39690
Site type	Ridge and Furrow
Period	Post-medieval
SMR No	
Statutory Designation	-
Sources	Walkover Survey
Description	An area of narrow ridge and furrow cultivation was identified through walkover survey. It is orientated north-east/south-west and measures approximately 1.5m between ridges by up to 0.2m in height. Only the north-eastern area of the field contained extant ridge and furrow suitable for survey. It stands no more than 0.2m high, being typically 3.5-4m between furrows. It has been heavily cross-cut by later drainage features.
Assessment	Part of the site lies within the proposed pipeline route and it will be affected

Site number	119
Site name	Far Laith
NGR	SD 92960 40192
Site type	Field System
Period	Post-medieval
SMR No	-
Statutor Designation	-
Sources	Walkover Survey

Description A small area of relict field boundaries was identified through walkover survey. They consisted of low earth and stone banks and the footings of a later wall to the north. The banks measure approximately 1.5m wide by up to 0.4m in height maximum. There is no obvious evidence of ridge and furrow cultivation within the fields. The remains of a former boundary wall run along side the road and can be seen as low earthfast banks of wall tumble with intermittent areas of *in situ* foundations to the east. The feature continues west as a ditch and slight bank cut by access to the field at the current gate. It continues in the field to the north-west.

Assessment Part of the site lies within the proposed pipeline route and it will be affected

Site number 122
Site name Hullown Beck
NGR SD 93819 40724
Site type Field-system
Period Post-medieval
SMR No -
Statutory Designation -
Sources Walkover Survey
Description An area of narrow ridge and furrow cultivation was identified through walkover survey. It is orientated west/east and measures approximately 1.5m between ridges by up to 0.2m in height. It is associated with field-systems **11** and **12** which are all on the northern side of Hulldown Beck. During topographic survey the northern area only was found to be suitable for topographic survey.
Assessment Part of the site lies within the proposed pipeline route and it will be affected

Site number 123
Site name Robert Laith
NGR SD 93245 40488 - SD 93408 40469
Site type Lynchet
Period Unknown
SMR No -
Statutory Designation -
Sources Walkover Survey
Description A section of slightly curvilinear earthen embanked lynchet located on the southern side of Robert Laith farm. It consisted of a bank measuring approximately 160m long by 1m wide and up to 0.75m in height on the downslope side (south). The site may be associated with the 'Boundary of the Forest' of Site **25**.
Assessment The site lies near to the proposed pipeline route and it may be affected

Site number 125
Site name Slackhead
NGR SD 92437 38676
Site type Field boundary
Period Post-medieval
SMR No -
Statutory Designation -
Sources Walkover Survey
Description The site consists of an earthen bank and ditched boundary, together they both measure approximately 3m wide, with the ditch being up to 0.6m deep and the bank up to 0.4m high. The boundary is aligned east-west being more denuded on the west end as it runs adjacent to the farm track.
Assessment Part of the site lies within the proposed pipeline route and it will be affected

Site number	126
Site name	Slackhead
NGR	SD 92460 38583
Site type	Field boundary wall (ruinous)
Period	Post-medieval
SMR No	-
Statutory Designation	-
Sources	Walkover Survey
Description	A substantial bank and ditch run alongside the current farm track. The roadside ditch appears to be a disused drainage ditch, the bank is the earthfast stone tumble from a former boundary wall. The foundations can be seen at its southern extent and intermittently along its length.
Assessment	The site lies within the proposed pipeline route and it will be affected

Site number	127
Site name	Great Hill
NGR	SD 92607 38365 - SD 92751 38175
Site type	Orthostatic Wall
Period	Medieval/post-medieval
SMR No	-
Statutory Designation	-
Sources	Walkover Survey
Description	A linear section of orthostatic stone walling running on the eastern side of the farm trackway to both the north and south of Great Hill farm. It is orientated roughly north-west/south-east and consists of medium to large slabs of stone placed on end and forming a denuded wall. Overall the wall measures over 250m long by a maximum of 1m wide and up to 0.6m in height where the stones survive.
Assessment	The site lies within the proposed pipeline route and it will be affected

Site number	130
Site name	Great Hill
NGR	SD 92670 38268
Site type	Farmstead
Period	Medieval/post-medieval
SMR No	-
Statutory Designation	-
Sources	Walkover Survey
Description	The now abandoned and increasingly derelict farm of Great Hill. It has been empty for many years (pers comm Farmer at Lodge Hill). Consists of central range with main farmhouse with adjoining barn/byre and outhouses to south, to the west is the farmyard and ancillary outhouses. The farm is most likely to be post-medieval in date due to its elevated position and is associated with the assarting/enclosure of the moorland.
Assessment	The site lies adjacent to the proposed pipeline route although it is unlikely to be affected

Site number	135
Site name	Spoutly Lumb
NGR	SD 92899 37073
Site type	Stile
Period	Post-medieval
SMR No	-

Statutory Designation	-
Sources	Walkover Survey
Description	A narrow open through-stile with three steps along the public footpath to the north-east of Spoutly Lumb farm. It re-uses a gatepost as one of the uprights.
Assessment	The site lies adjacent to the proposed pipeline and may be affected

Site number	139
Site name	Higher Draught Gates
NGR	SD 90899 37335
Site type	Sheepfold
Period	Post-medieval
SMR No	-
Statutory Designation	-
Sources	Walkover Survey
Description	A small ruinous rectangular sheepfold at the corner junction of enclosure walls and located to the south-west of Higher Draught Gates. It measures approximately 20m long by 9m wide with walls 0.9m wide by up to 0.5m in height.
Assessment	The site lies within the proposed pipeline route and will be affected

Site number	142
Site name	Moss Barn
NGR	SD 90637 37330
Site type	Quarry
Period	Post-medieval
SMR No	-
Statutory Designation	-
Sources	Walkover Survey
Description	Three sub-oval quarry scoops located to the south-west of Moss Barn. Overall it measures approximately 15m long by 10m wide and up to 1.5m deep.
Assessment	The site lies adjacent to the proposed pipeline route and may be affected

Site number	143
Site name	Moss Barn
NGR	SD 90621 37207
Site type	Quarry
Period	Post-medieval
SMR No	-
Statutory Designation	-
Sources	Walkover Survey
Description	Two sub-circular quarry scoops located to the south of Moss Barn. Overall it measures approximately 18m long by 10m wide by up to 3m deep. It has quarried stone debris around it.
Assessment	The site lies within the proposed pipeline route and will be affected

Site number	144
Site name	Off Halifax Road
NGR	SD 88318 35473
Site type	Quarry
Period	Post-medieval
SMR No	-
Statutory Designation	-

Sources	Walkover Survey
Description	A grass covered kidney-shaped quarry scoop located to the north of Halifax Road. Overall it measures approximately 26m long by 10m wide and up to 0.5m deep.
Assessment	The site lies within the proposed pipeline route and will be affected

Site number	145
Site name	Off Robin House Lane
NGR	SD 88401 35550 - SD 88281 35518
Site type	Green Lane
Period	Unknown
SMR No	
Statutory	-
Designation	-
Sources	Walkover Survey
Description	A curvilinear hollowed lane located over the field boundary to the north of the proposed reservoir. It measures approximately 135m long by 6m wide and up to 1.5m deep. It is not embanked. The site may possibly relate to the features of Site 94 .
Assessment	The site lies within the proposed pipeline route and will be affected

Site number	146
Site name	Stony Rakes
NGR	SD 88298 36036
Site type	Quarry
Period	Post-medieval
SMR No	-
Statutory	-
Designation	-
Sources	Walkover Survey
Description	Small semi-circular roadside quarry located to the south of Stony Rakes farm. Overall it measures approximately 15m long by 10m wide and up to 3.5m deep.
Assessment	The site lies adjacent to the proposed pipeline route and may be affected

Site number	147
Site name	Off Halifax Road
NGR	SD 88162 35360
Site type	Stile
Period	Post-medieval
SMR No	-
Statutory	-
Designation	-
Sources	Walkover Survey
Description	A narrow open through-stile with two steps along the public footpath to the south of Halifax Road.
Assessment	The site lies adjacent to the proposed pipeline route and may be affected

Site number	149
Site name	Higher Cockden Farm
NGR	SD 87372 35093
Site type	Ridge and Furrow
Period	Post-medieval
SMR No	-
Statutory	-
Designation	-
Sources	Walkover Survey

Description	An area of narrow ridge and furrow cultivation, orientated north-west/south-east and located to the north of Higher Cockden Farm. It measures approximately 3.5m between furrows and up to 0.2m high.
Assessment	The site lies within the proposed pipeline route and will be affected

5. IMPACT AND RECOMMENDATIONS

5.1 IMPACT

- 5.1.1 The topographic survey has created a record of the relict landscape of Post-medieval agricultural practice along the proposed pipeline easement. All the ridge and furrow recorded, either as crop marks, or upstanding enough for topographic survey, was of very similar size and regularity. However, the process of constructing the pipeline will remove much of this already denuded landscape. The process of improving the land for use as pasture in recent times has already begun to remove this record of past activity, and as such the topographic survey has been able to preserve the surviving elements by record. However, the extent to which the post-medieval activity has removed remains of earlier activity could not be fully ascertained.

5.2 RECOMMENDATIONS

- 5.2.1 The topographic survey was undertaken as a result of the recommendations presented in the desk-based assessment and walkover survey report (OA North 2005). In addition to the topographic survey, a number of sites were recommended for archaeological evaluation (subject to a separate report), and therefore no further recommendations are thought necessary.

6. BIBLIOGRAPHY

6.1 PRIMARY AND CARTOGRAPHIC SOURCES

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Ordnance Survey, 1848b 6": 1 Mile, Lancashire Sheet **56**

Ordnance Survey, 1848c 6": 1 Mile, Lancashire Sheet **57**

6.2 SECONDARY SOURCES

DoE, 1990 *Planning Policy Guidance: Archaeology and Planning*, **PPG 16**

English Heritage, 1991 *The Management of Archaeological Projects*, 2nd edn, London

OA North 2005 *Coldwell to Trawden Raw Water Transfer Pipeline: Desk-based and Walkover Survey*, unpubl client rep

7. ILLUSTRATIONS

7.1 FIGURES

Figure 1: Location Map

Figure 2: Plan of sites visited during topographic field work

Figure 3: Site **66**, quarry located near Higher Draught Gate

Figure 4: Site **106**, Post-medieval field system, Higher Cockden Farm

Figure 5: Site **123**, lynchet, Robert Laithe Farm

Figure 6: Sites **125** and **126**, field boundary bank and former boundary wall, Slack Head.

Figure 7: Site **142**: Quarry scoops and trackway, Moss Barn

Figure 8: Site **143**: Southern quarry scoops, Moss Bank

Figure 9: Sites **144**, **145**: Quarry scoop and sunken trackway, Robin House Lane.

Figure 10: Site **146**, Roadside Quarry, Stoney Rakes

Figure 11: Site **149**, Post-medieval ridge and furrow, Higher Cockden Farm

Figure 12: Sites **11**, **12** and **122**: Post-medieval ridge and furrow, Hullown Beck

Figure 13: Site **26**: Post-medieval ridge and furrow, Robert Laithe Farm

Figure 14: Site **26**: Post-medieval field system and unknown platform, Links House

Figure 15: Site **33**: Spoil heaps, Walshaw Clough

Figure 16: Site **34**: Post-medieval ridge and furrow, Great Thorn Edge

Figure 17: Site **35**: Post-medieval ridge and furrow, Bracken Hill

Figure 18: Site **39**, Post-medieval ridge and furrow, Great Hill

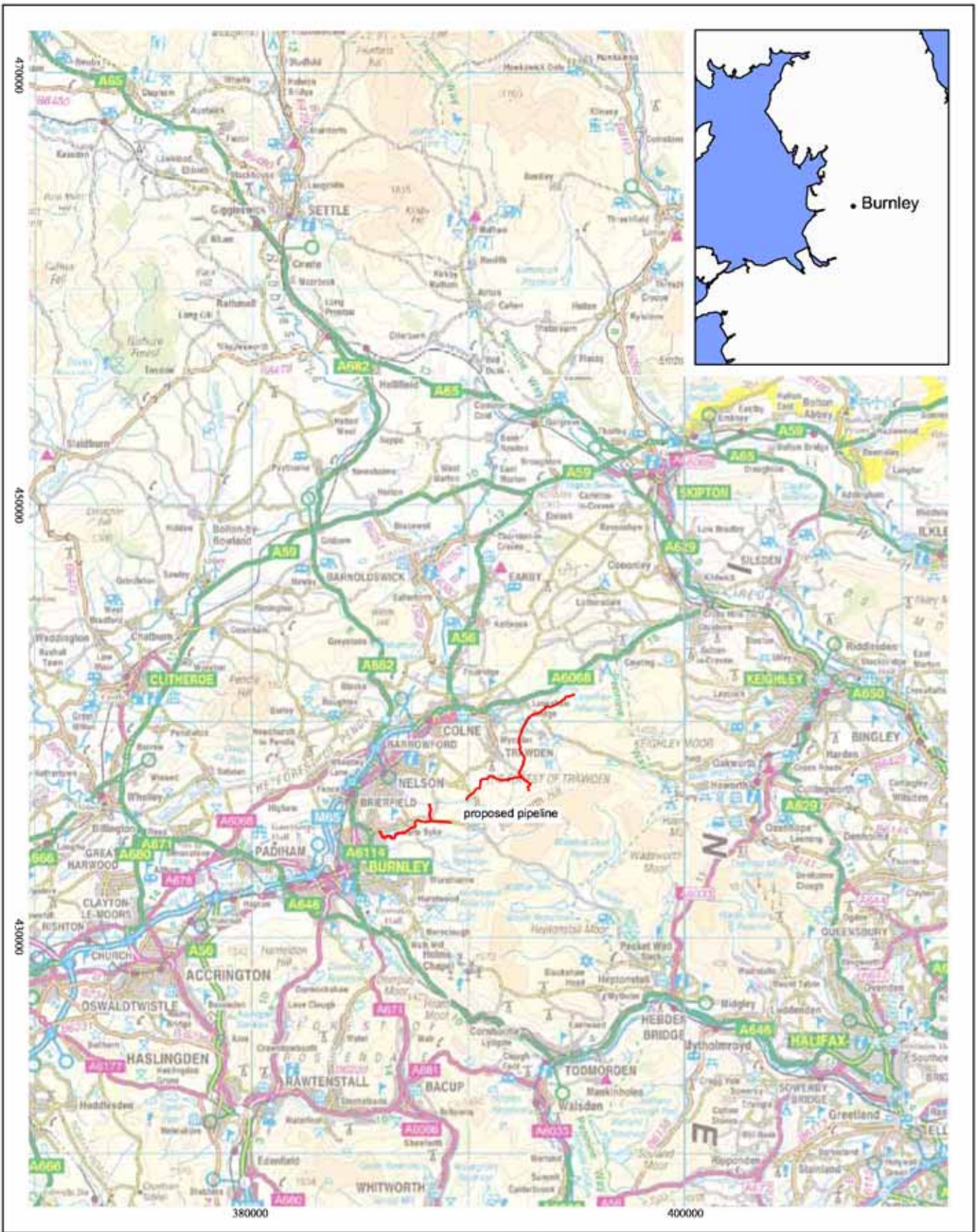
Figure 19: Site **83**: Disused Quarry, 'Burwains Quarry'

Figure 20: Site **95**: Post-medieval field system, Hill farm

Figure 21: Site **101**: Post-medieval field system, Higher Cockden Farm

Figure 22: Site **118**, Post-medieval ridge and furrow, Oak House farm

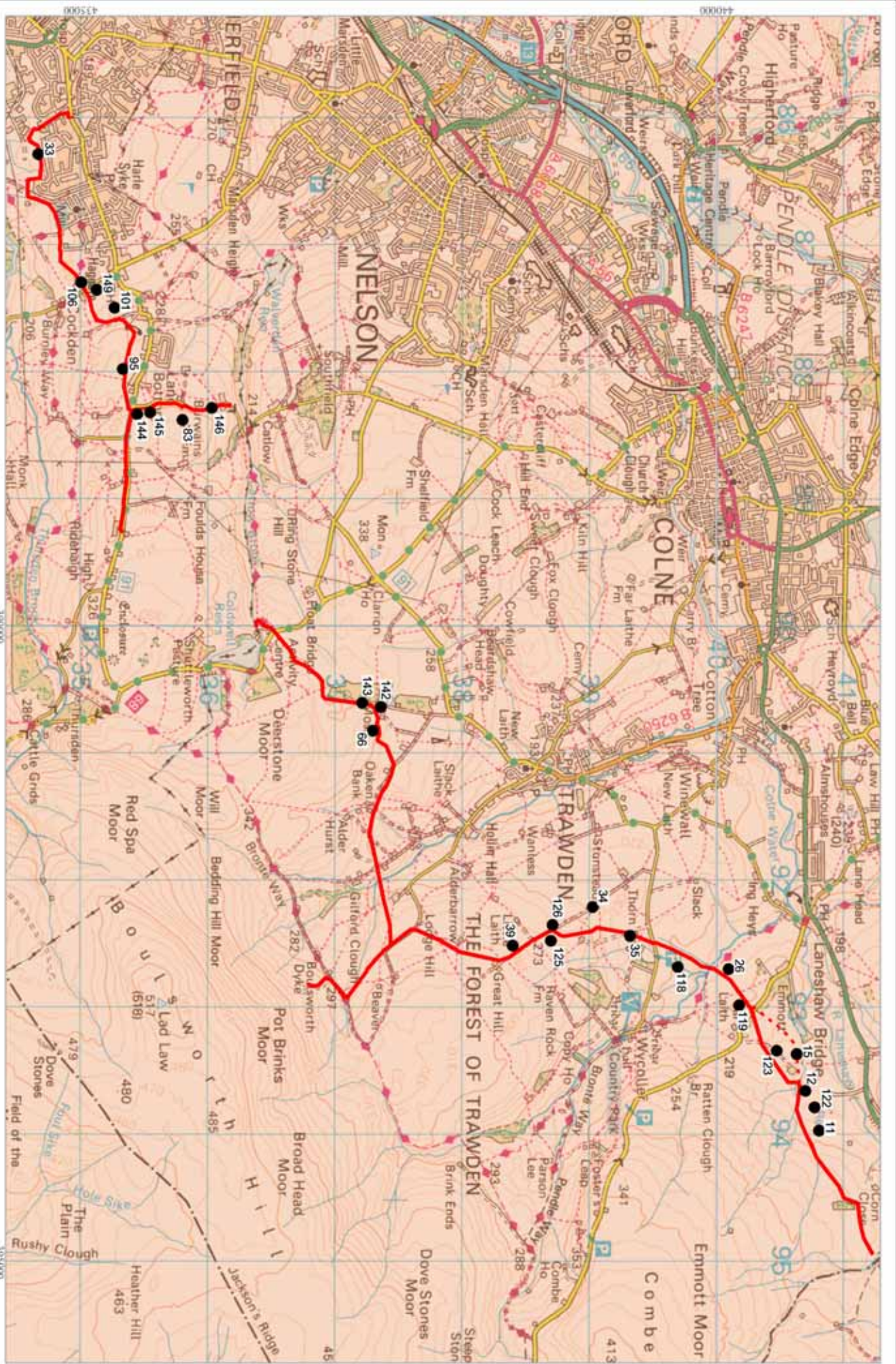
Figure 23: Site **119**, Post-medieval field system, Far Laith



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Figure 1: Location Map



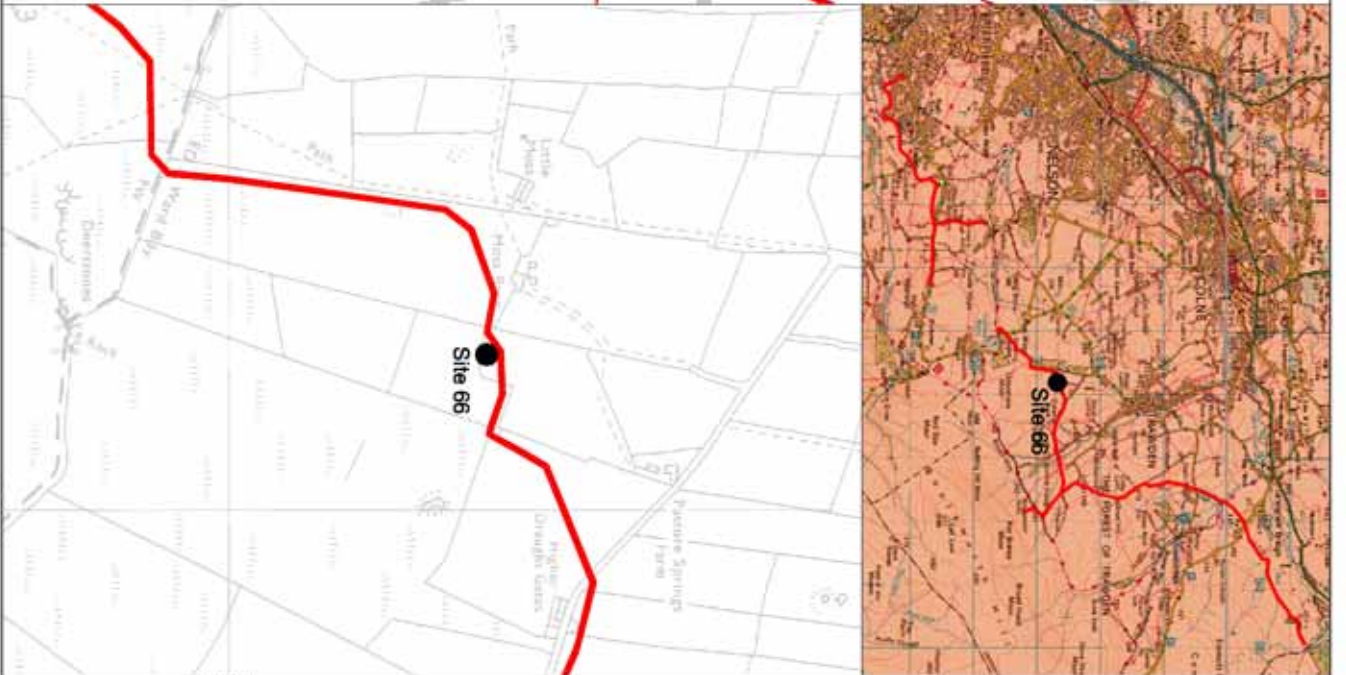
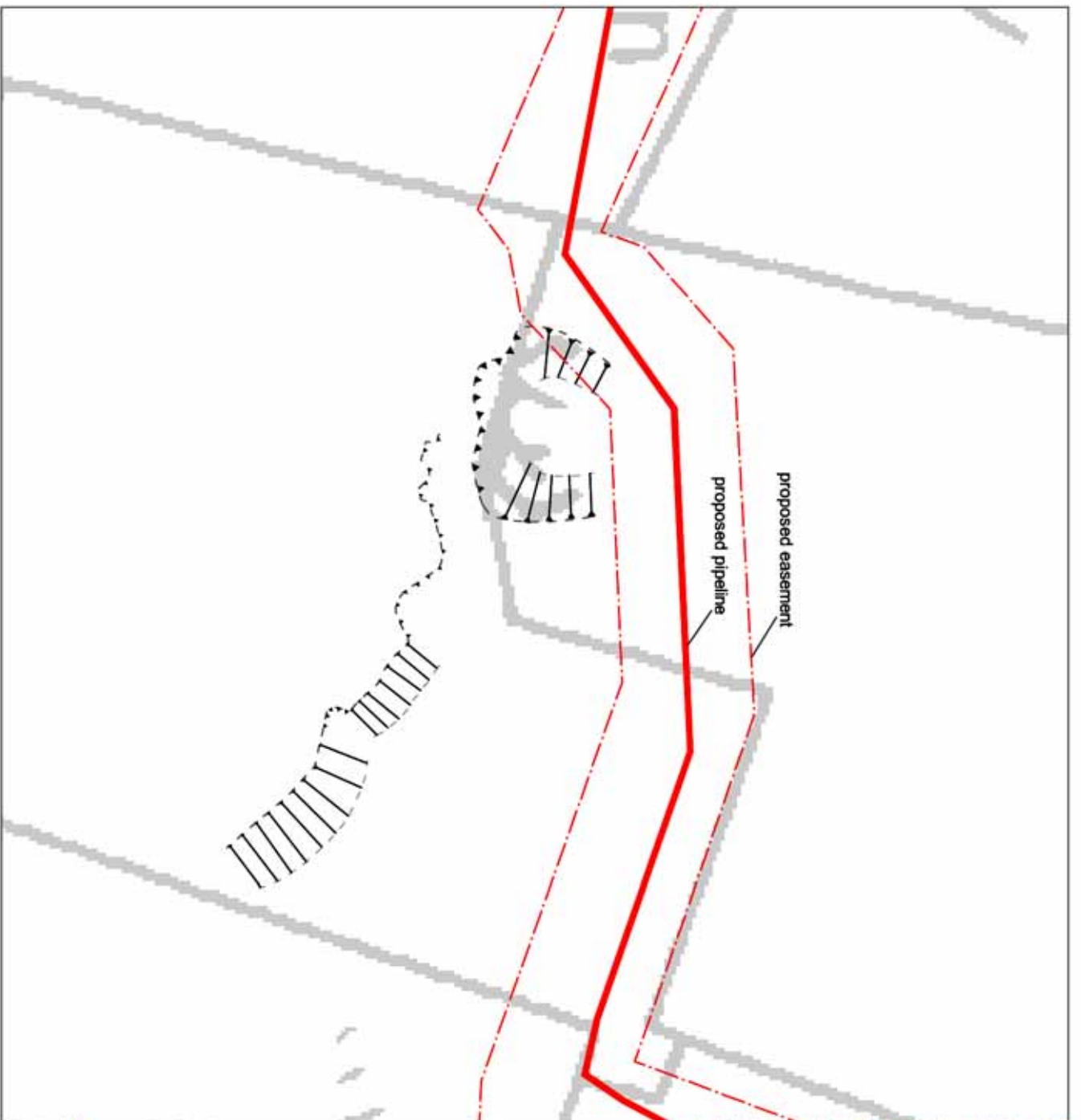
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● 33 Topographic Survey Site
 — Proposed Pipeline Route
 - - - - - Previously Proposed Route

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 metres
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Figure 2 : Topographic sites plan



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Figure 3: Site 66, quarry located near Higher Draught Gate



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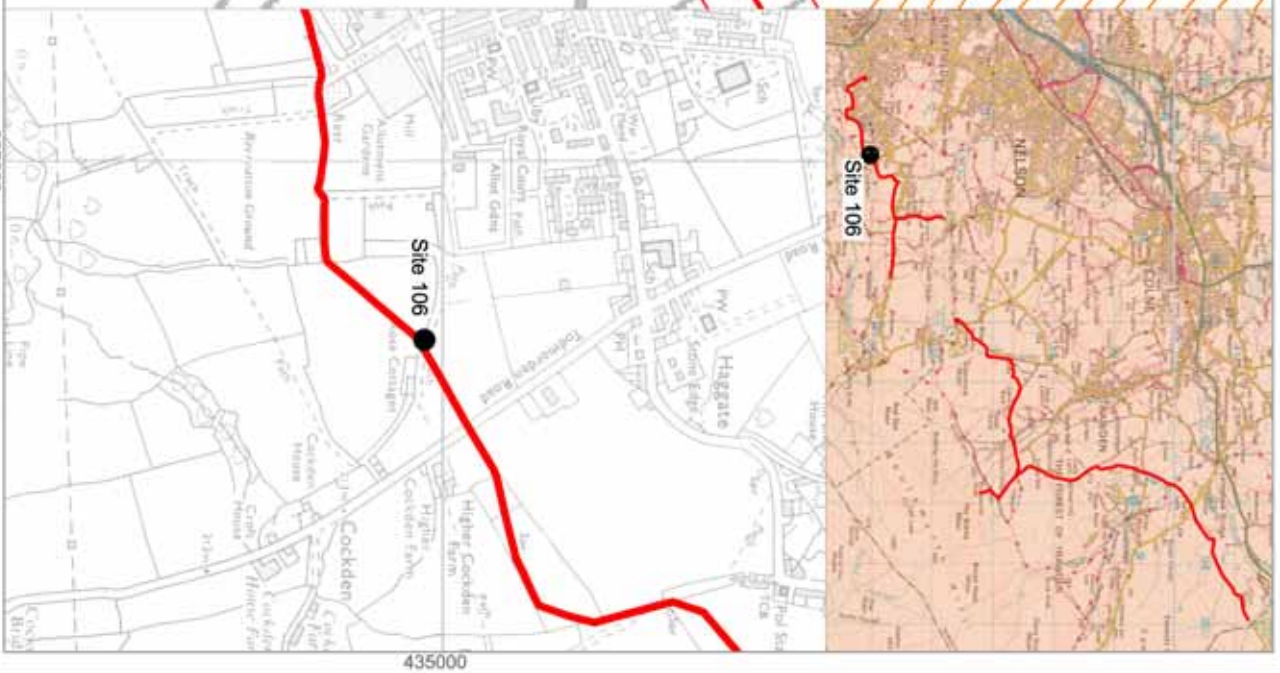


Figure 4: Site 106, Post-medieval field system, Higher Cockden Farm

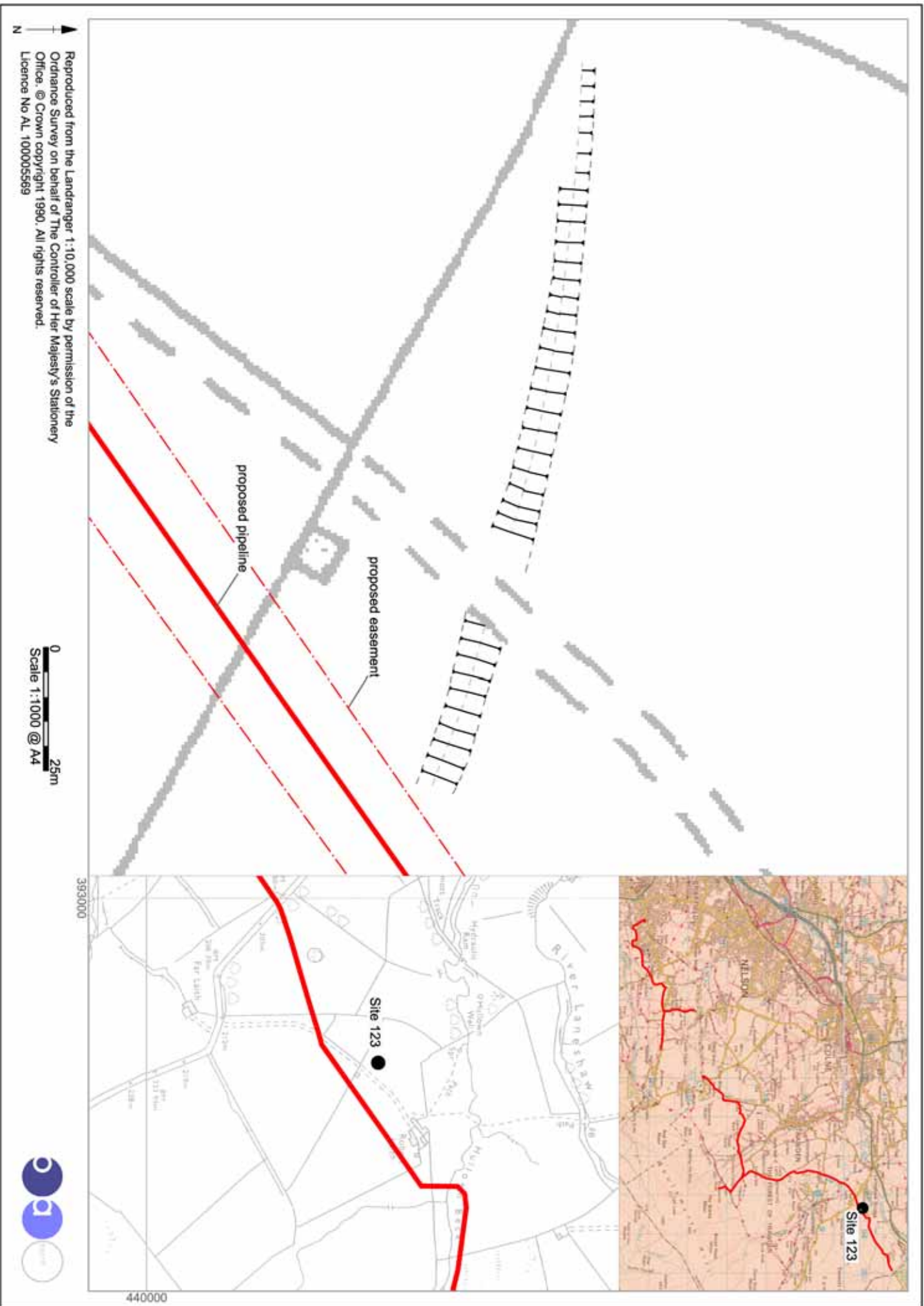


Figure 5: Site 123(25), Lynchet, Robert Laithe Farm

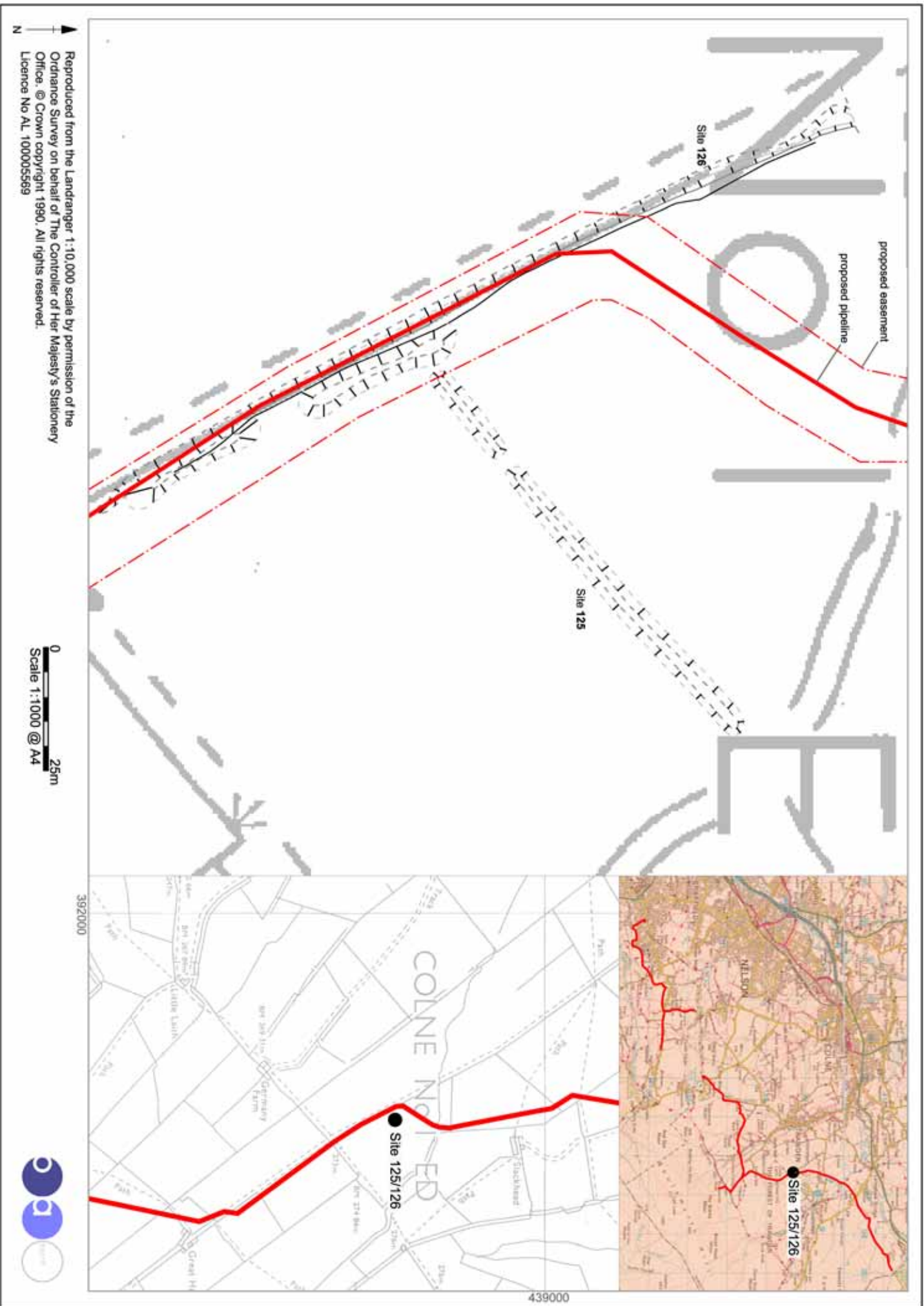
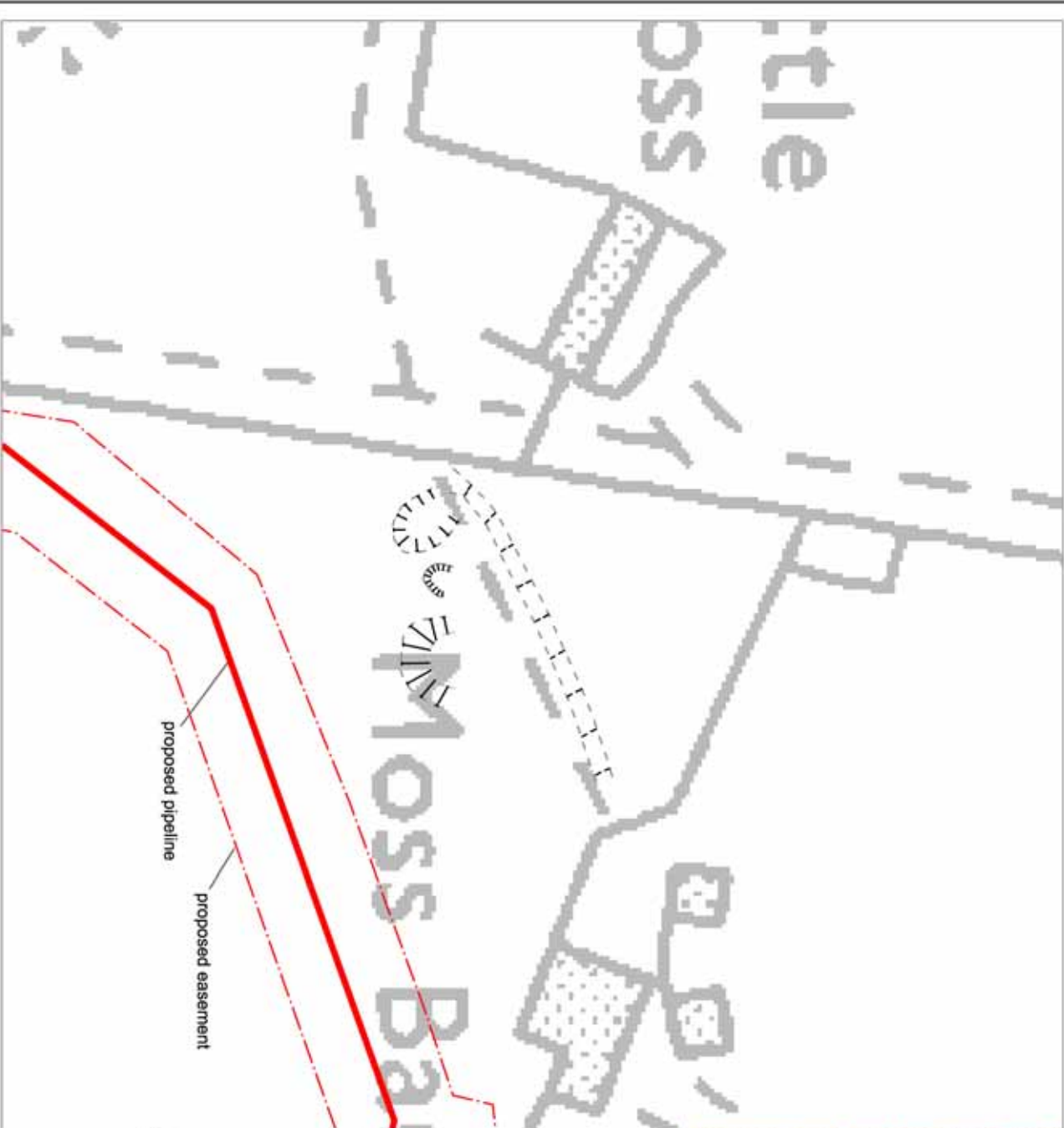


Figure 6: Sites 125 and 126, field boundary bank and former boundary wall, Slack Head

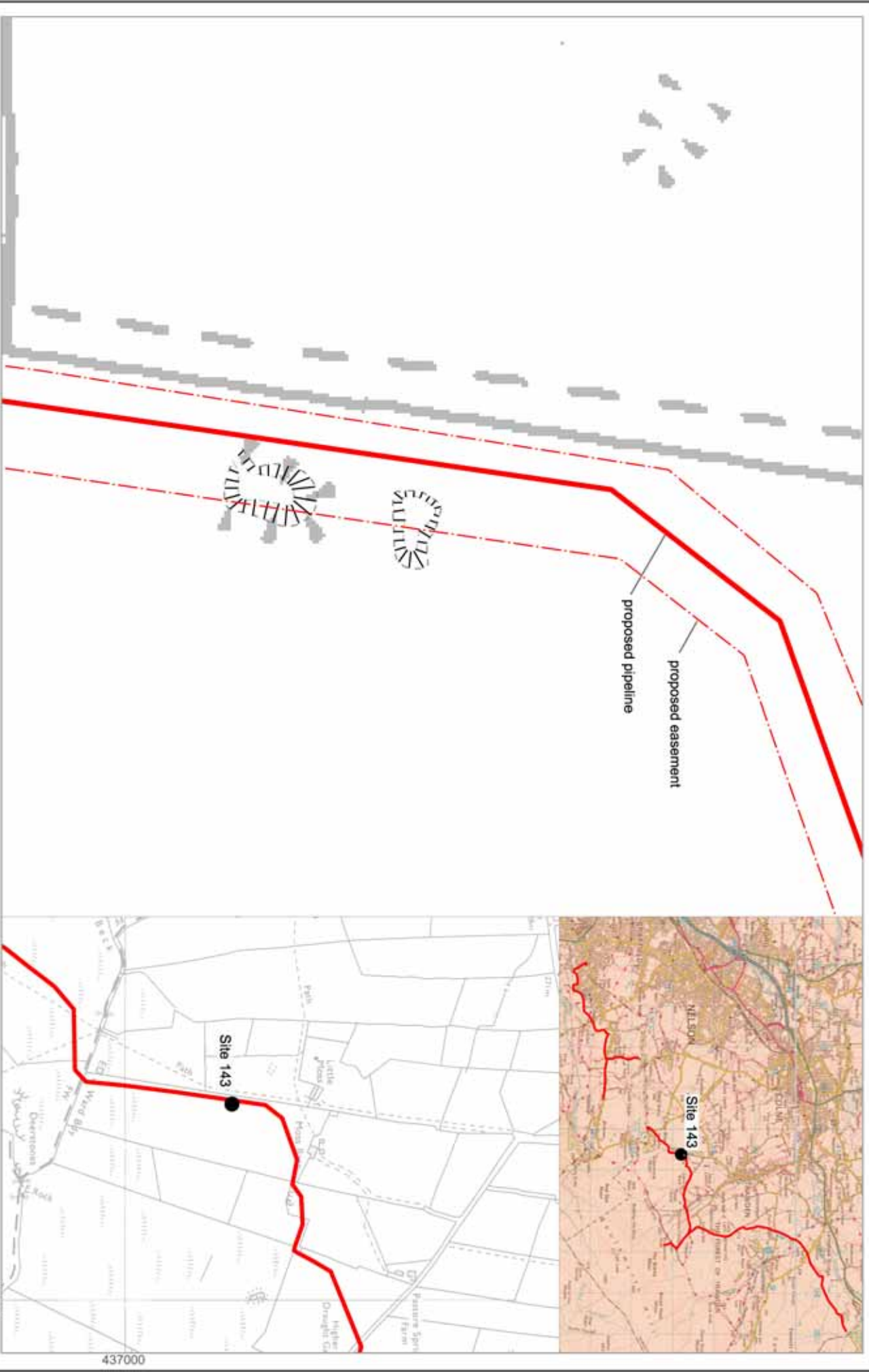


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Figure 7: Site 142, Quarry scoops and trackway, Moss Barn



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Figure 8: Site 143, Southern Quarry scoops, Moss Barn

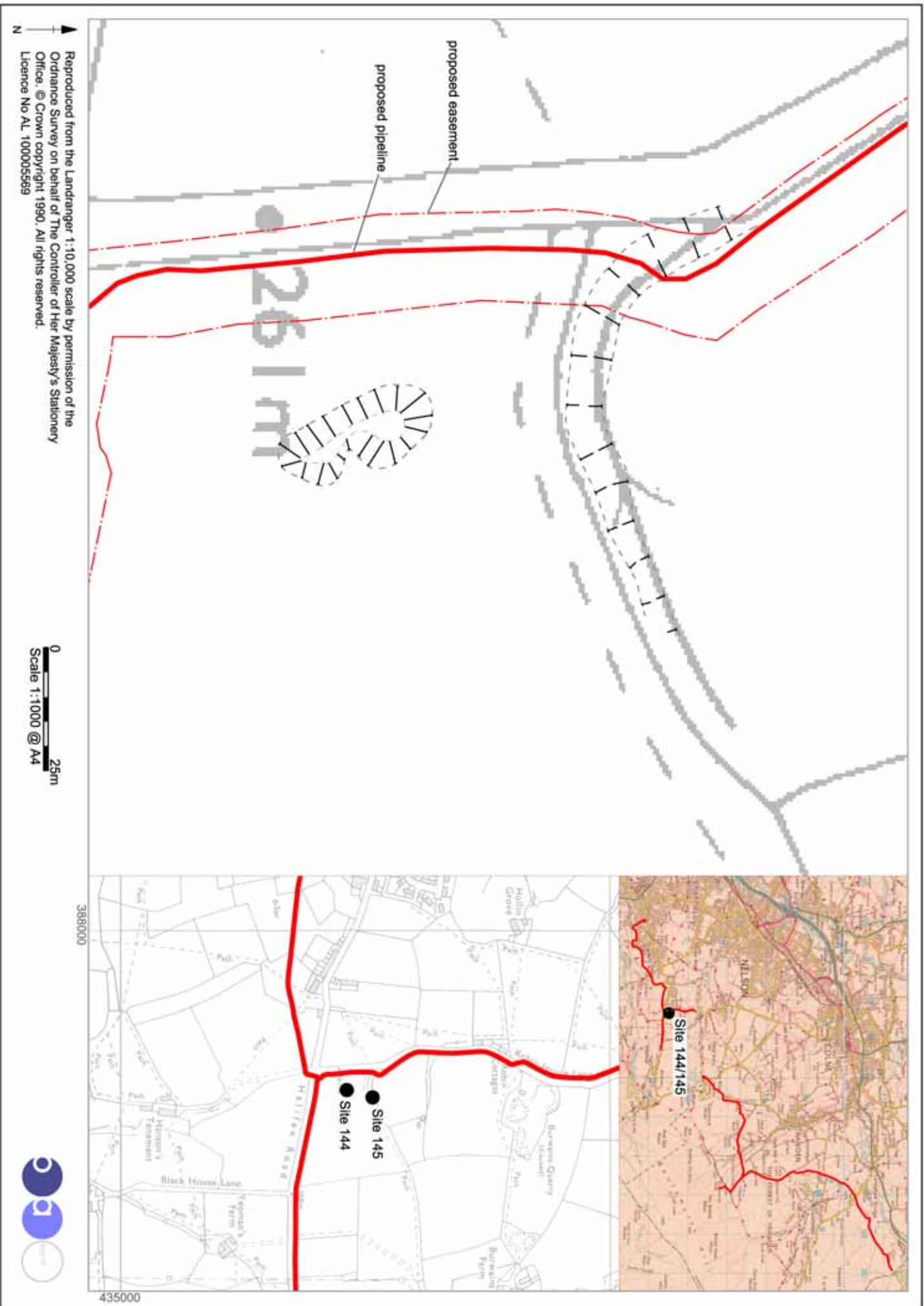
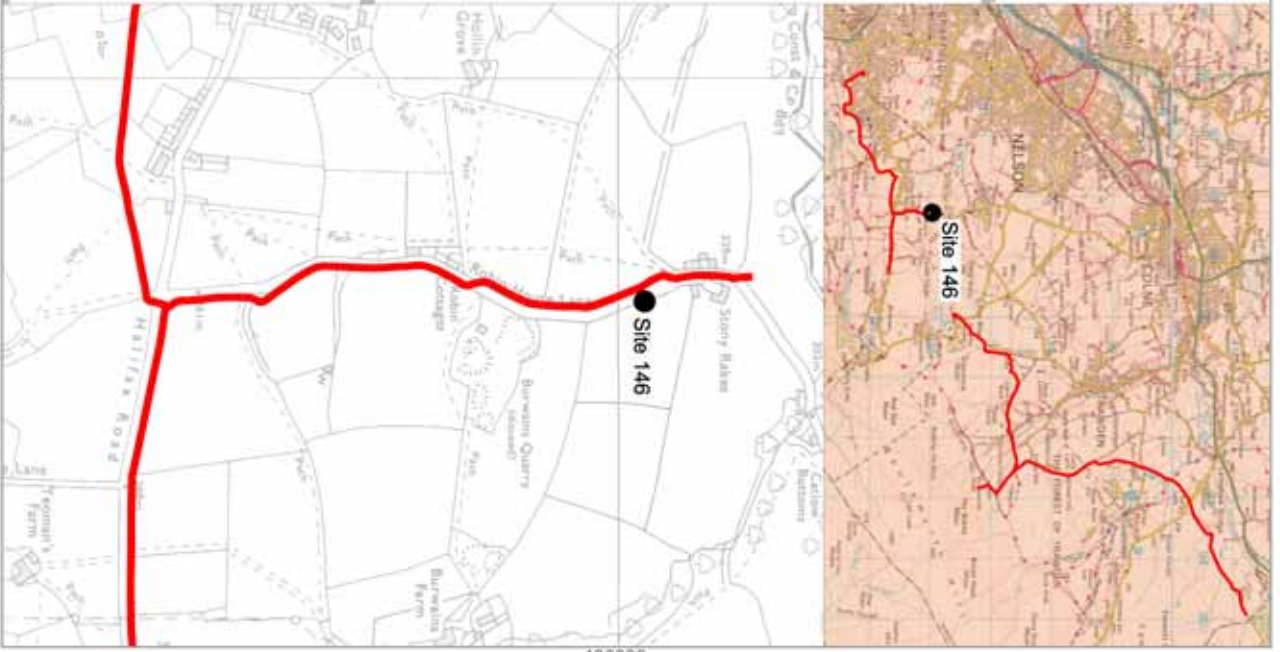
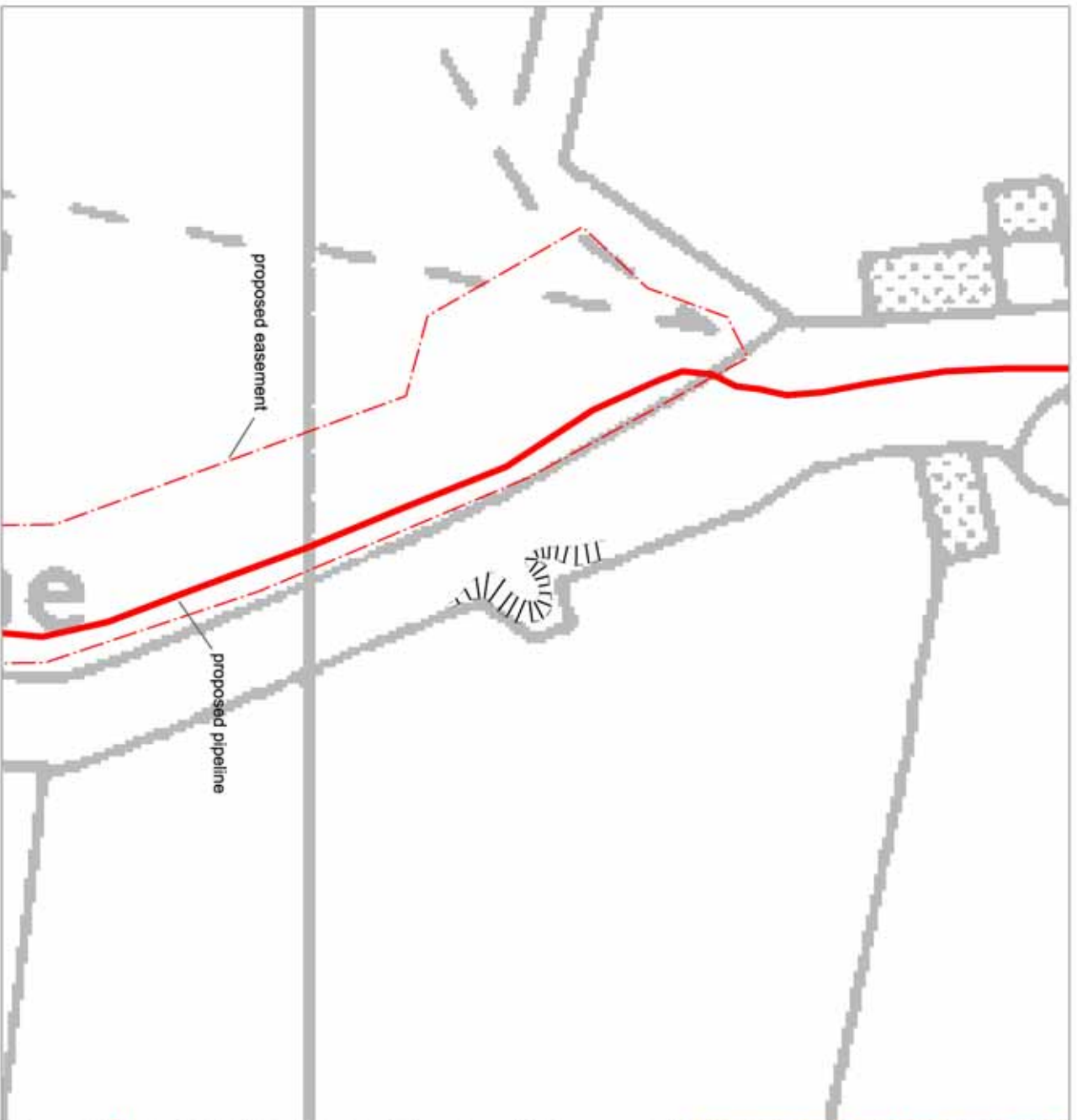


Figure 9: Site 144 and 145, Quarry scoops and sunken trackway, Robin House Lane

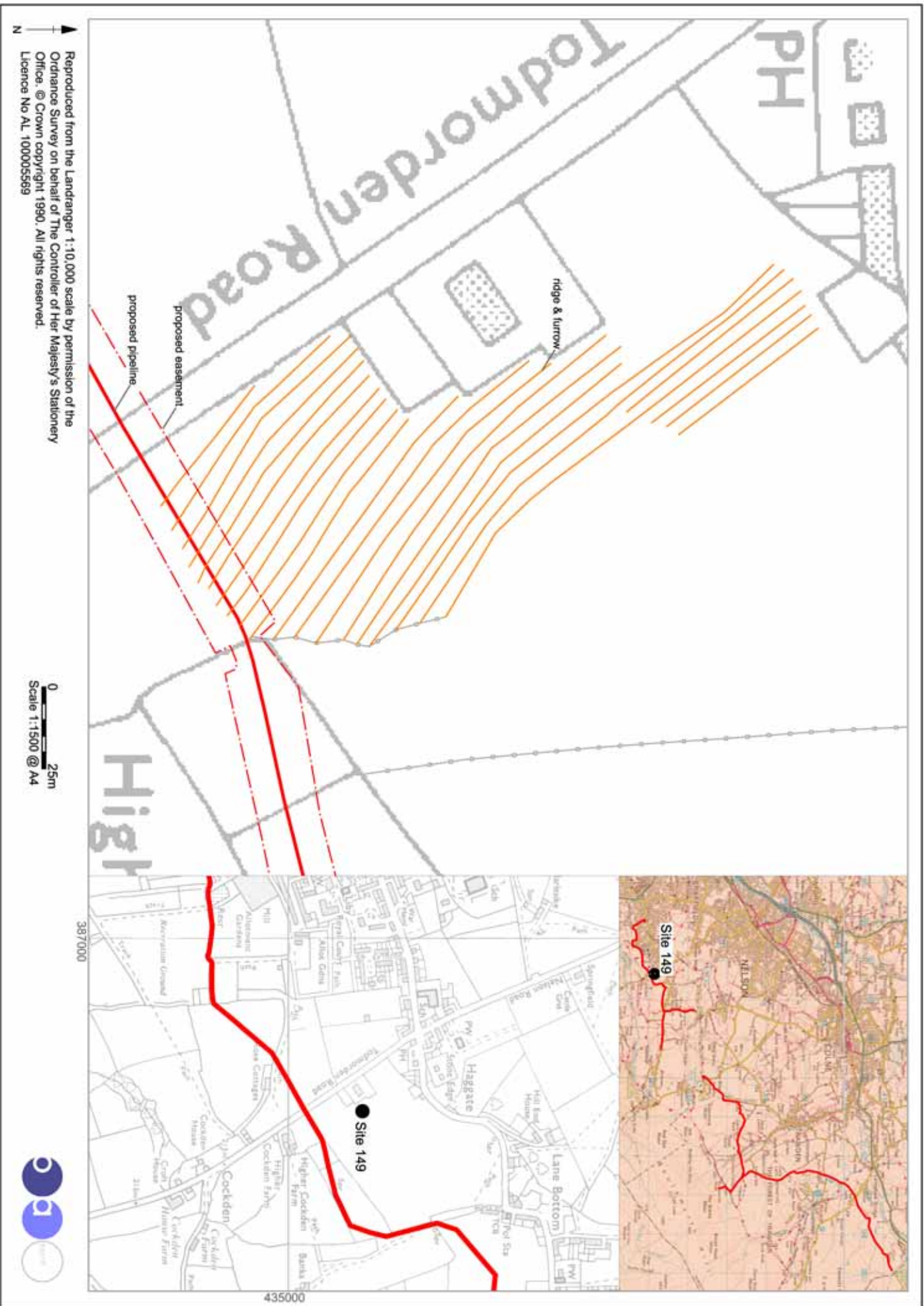


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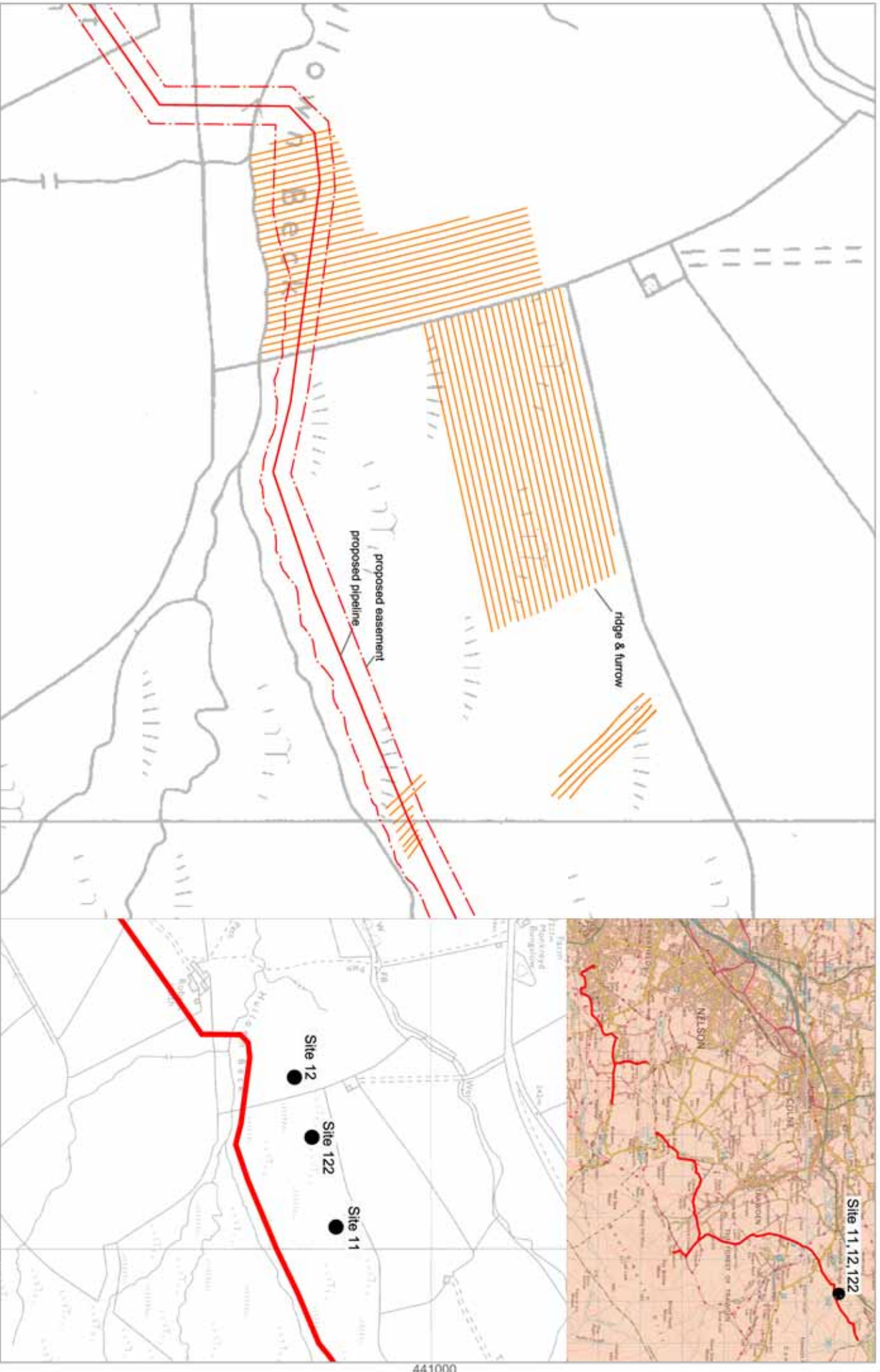


Figure 10: Site 146, Roadside quarry, Stoney Rakes



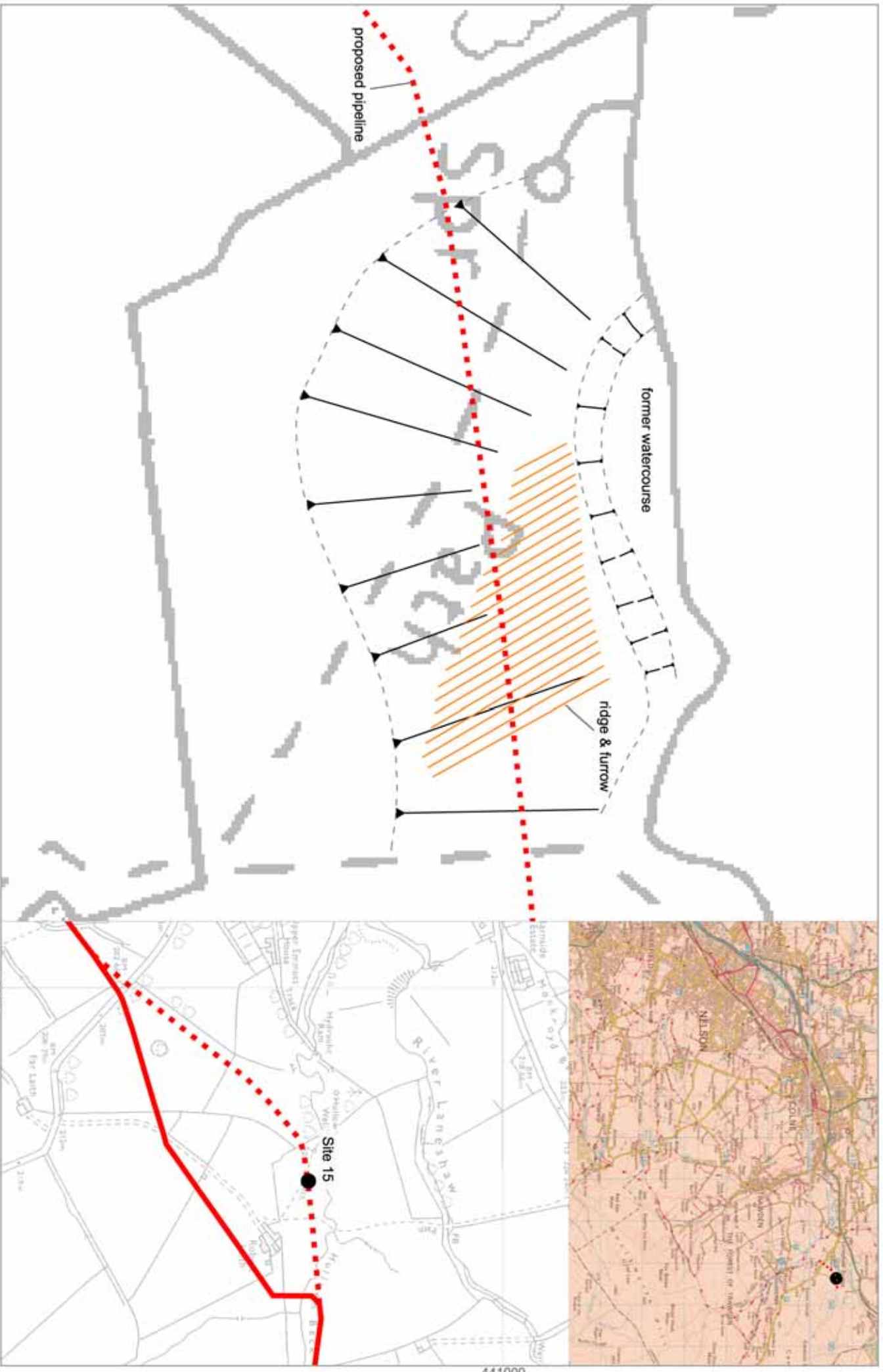
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Figure 11: Site 149, Post-medieval ridge and furrow, Higher Cockden Farm



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Figure 12: Site 11, 12 and 122, Post-medieval ridge and furrow, Hulllow Beck

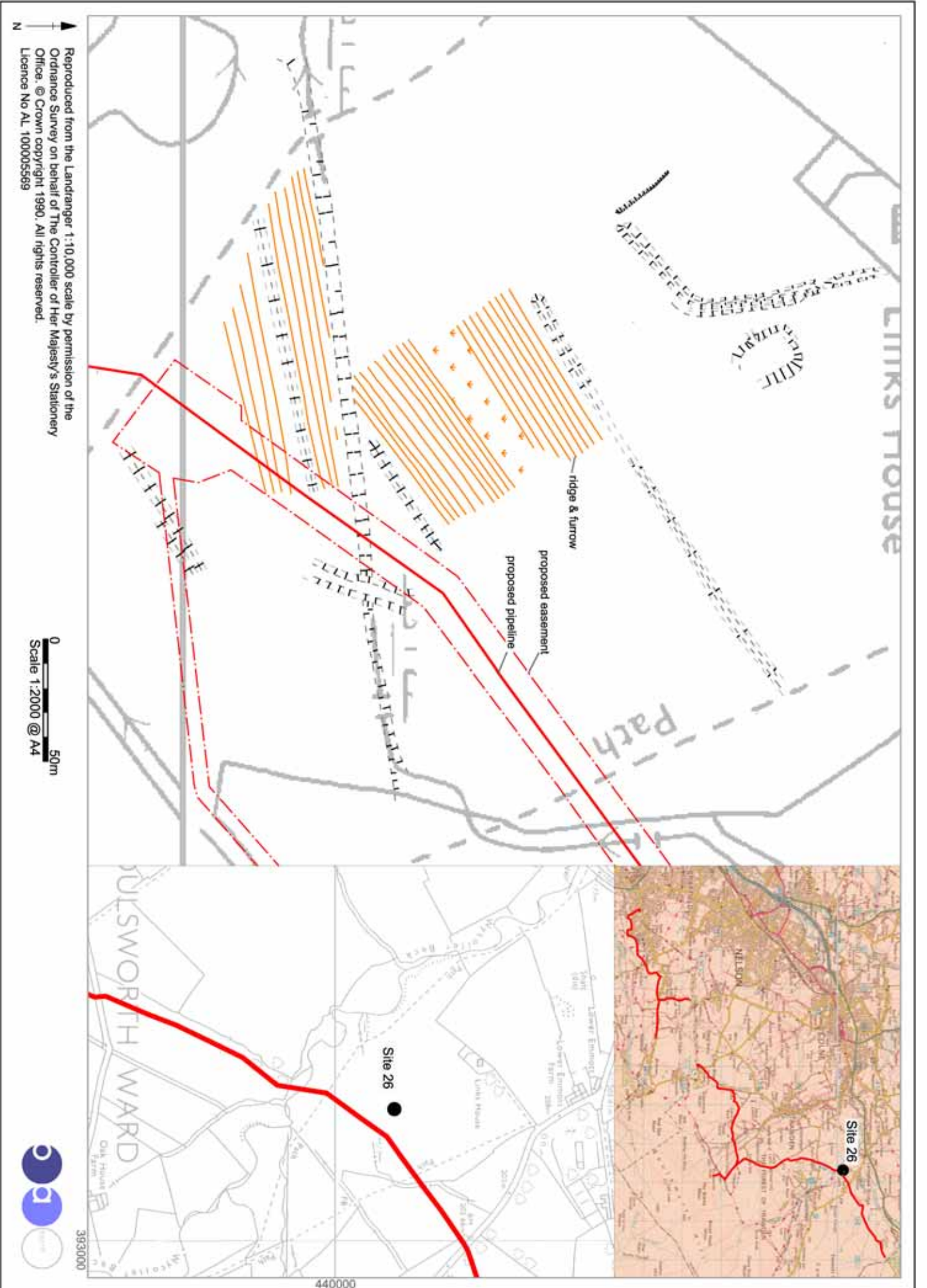


▲ North arrow
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Figure 13: Site 15, Post-medieval ridge and furrow, Robert Laithe Farm

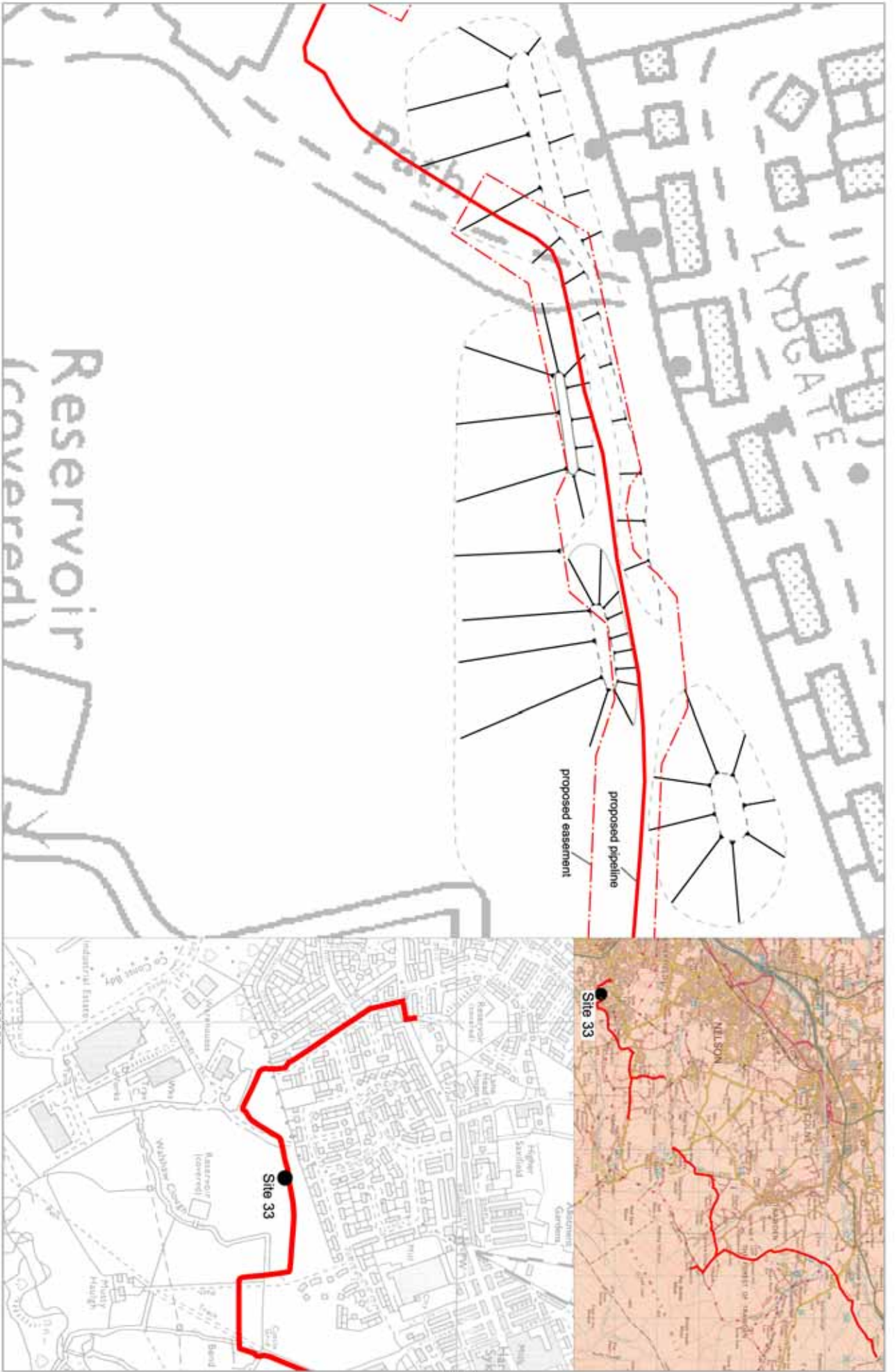


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Figure 14: Site 26, Post-medieval field system and unknown platform, Links House

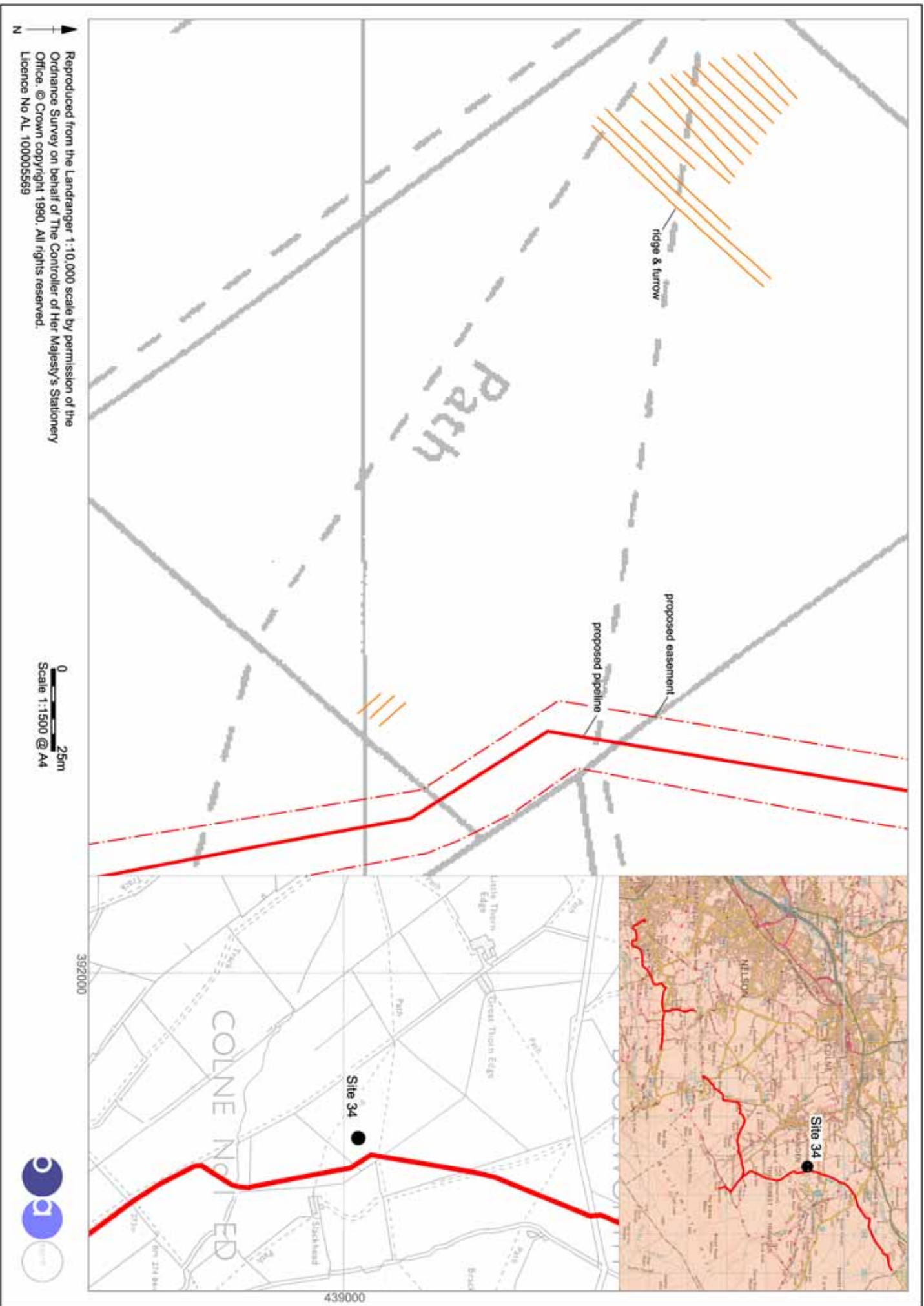


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Figure 15: Site 33, Spoil heaps, Walshaw Clough



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Figure 16: Site 34, Post-medieval ridge and furrow, Great Thom Edge

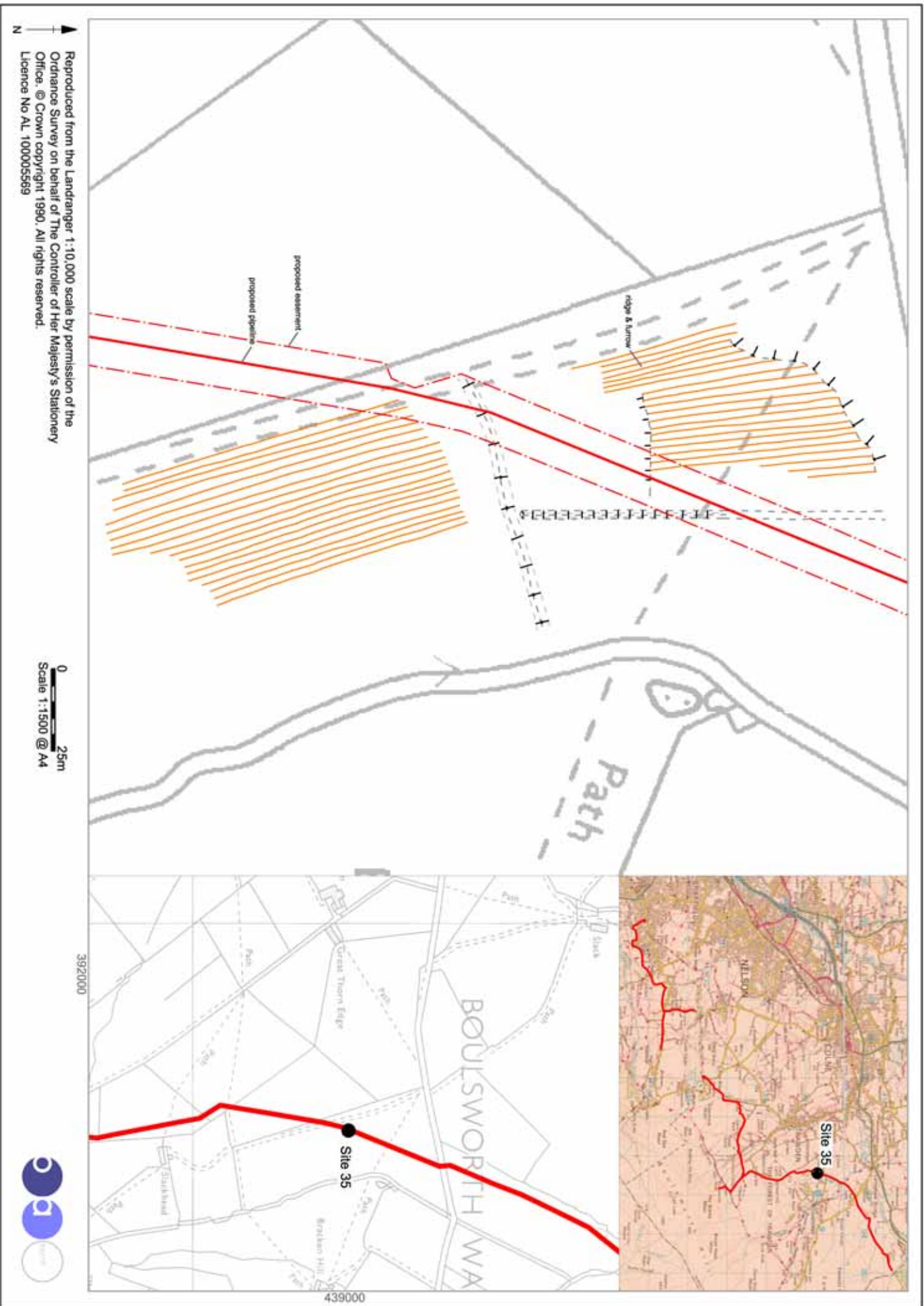
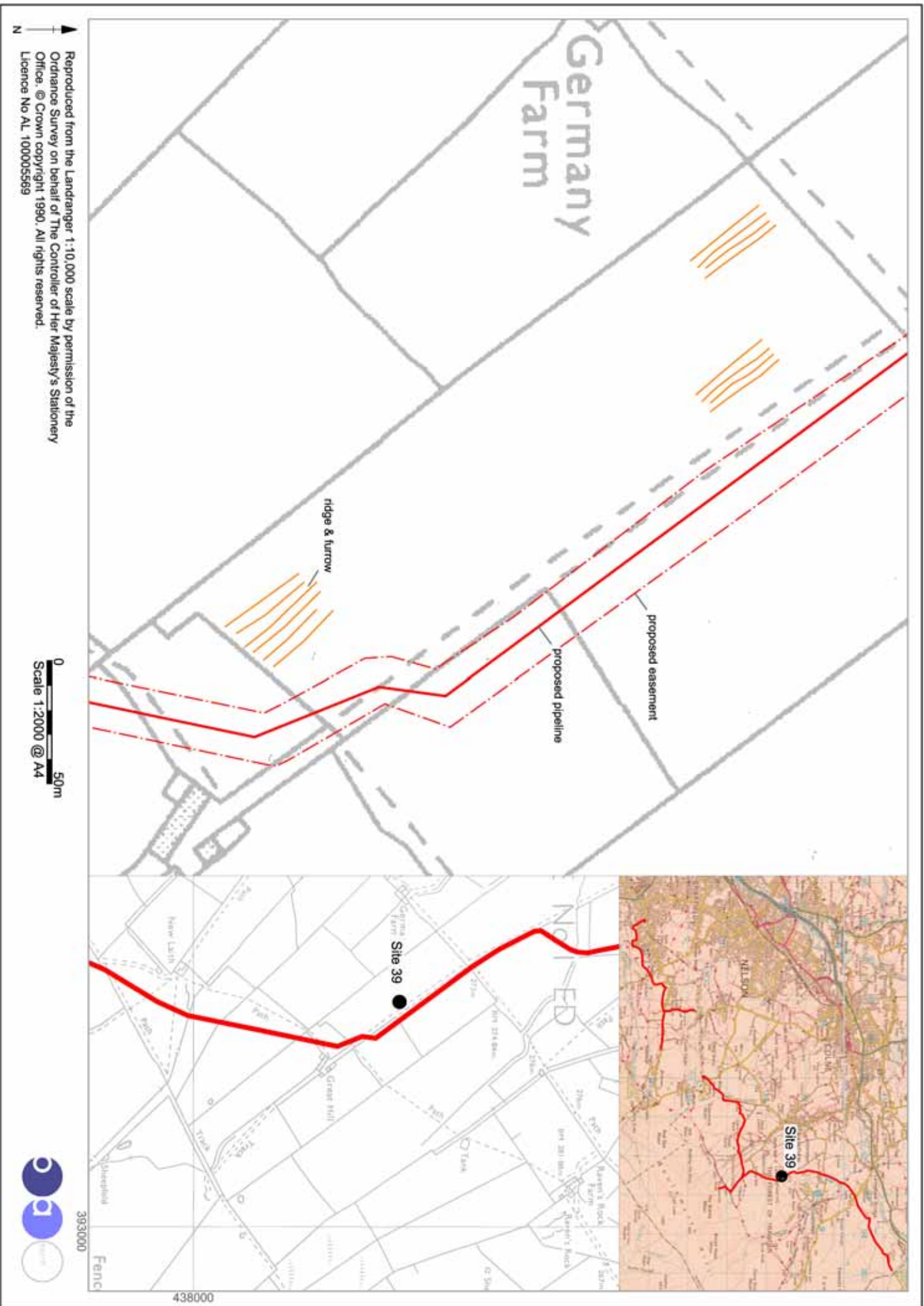
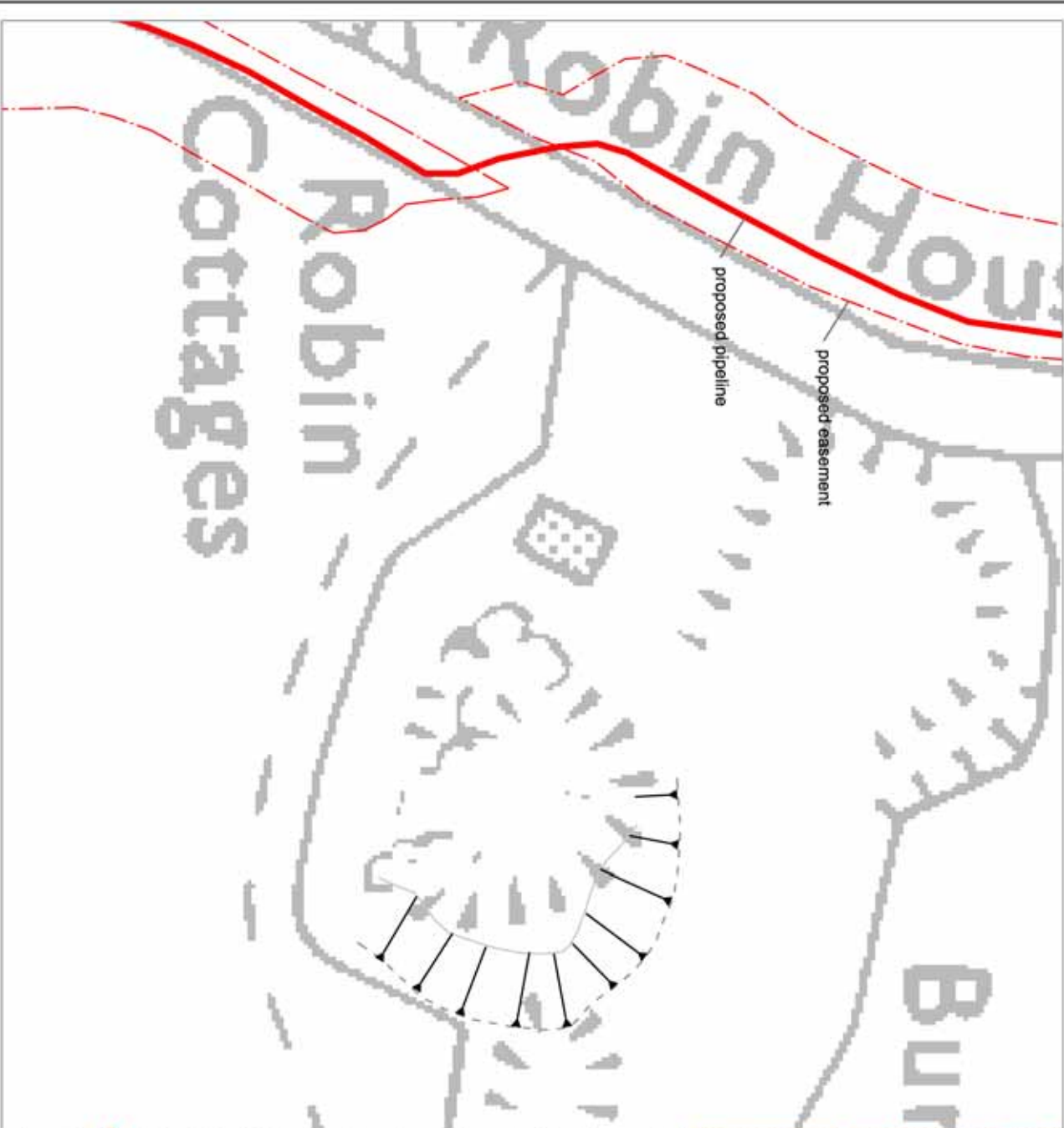


Figure 17: Site 35, Post-medieval ridge and furrow, Bracken Hill



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Figure 18: Site 39, Post-medieval ridge and furrow, Great Hill



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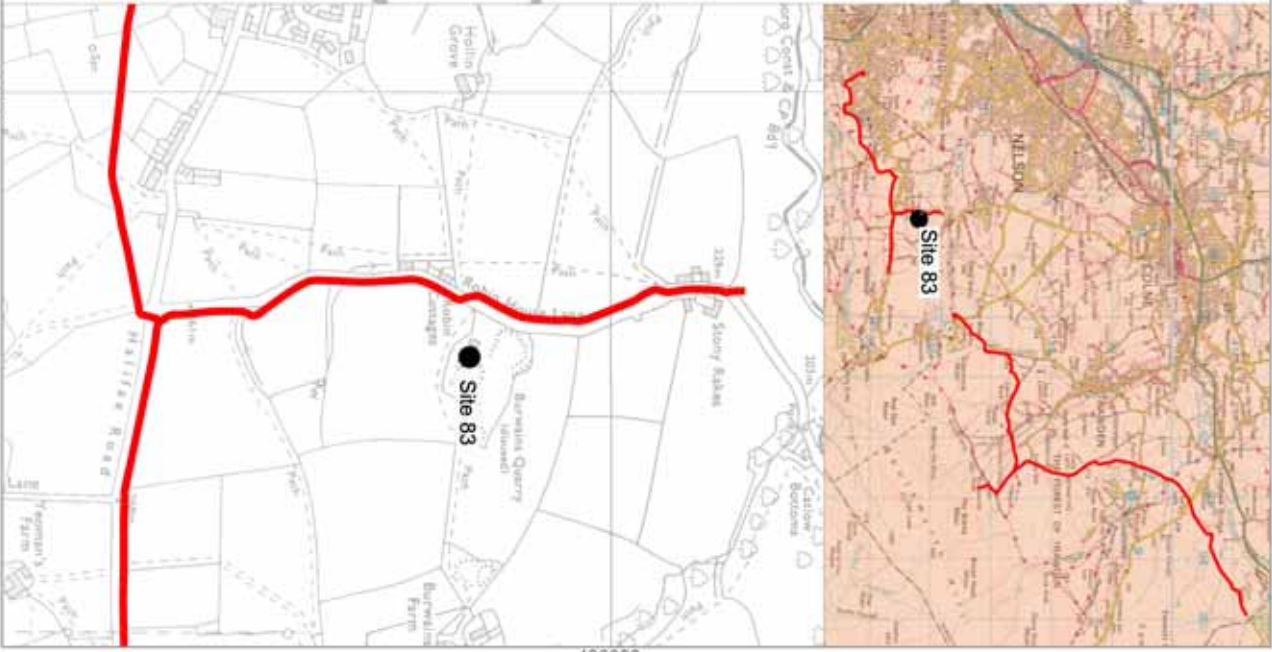


Figure 19: Site 83, Disused quarry, 'Burwains Quarry'

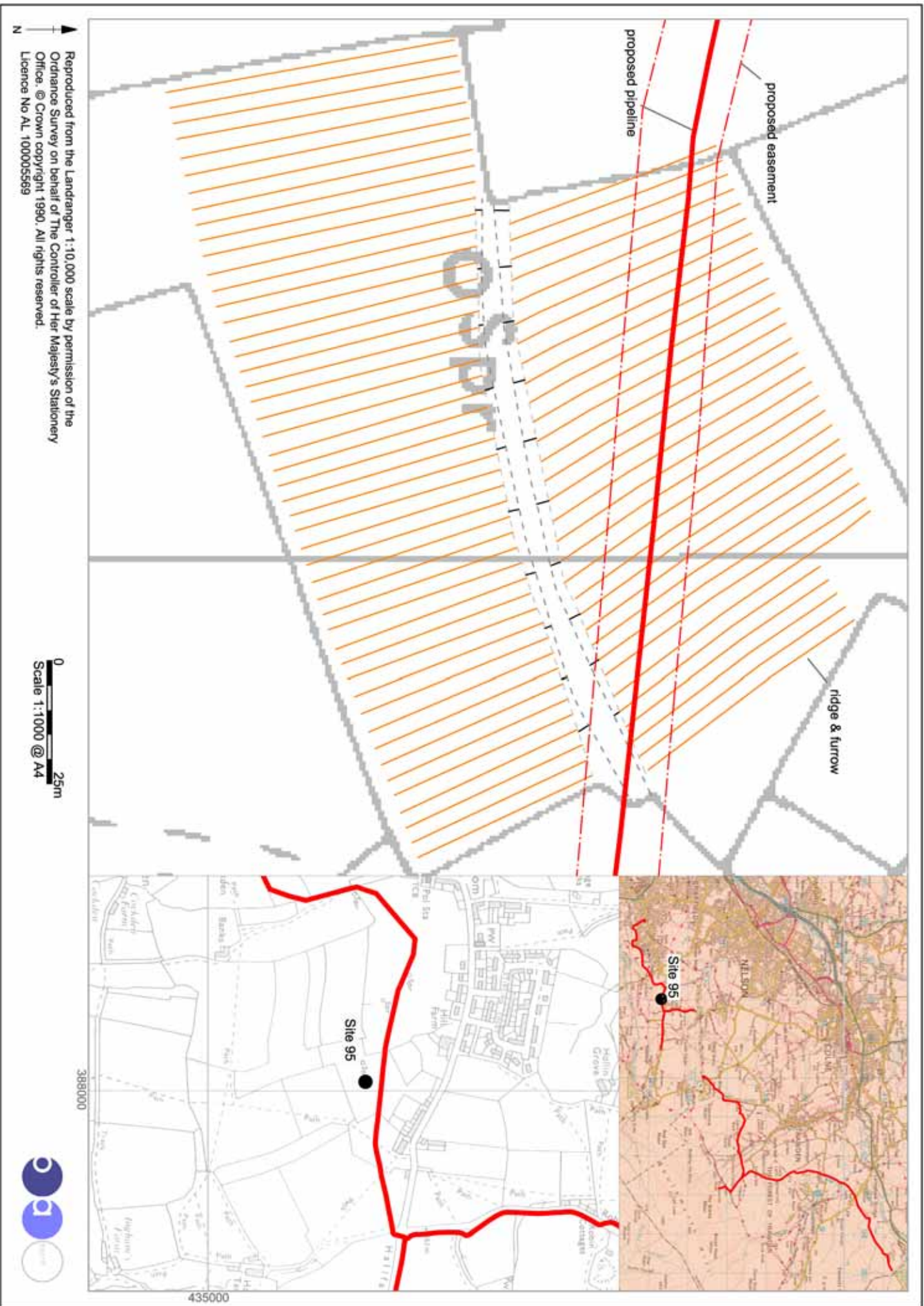


Figure 20: Site 95, Post-medieval field system, Hill Farm

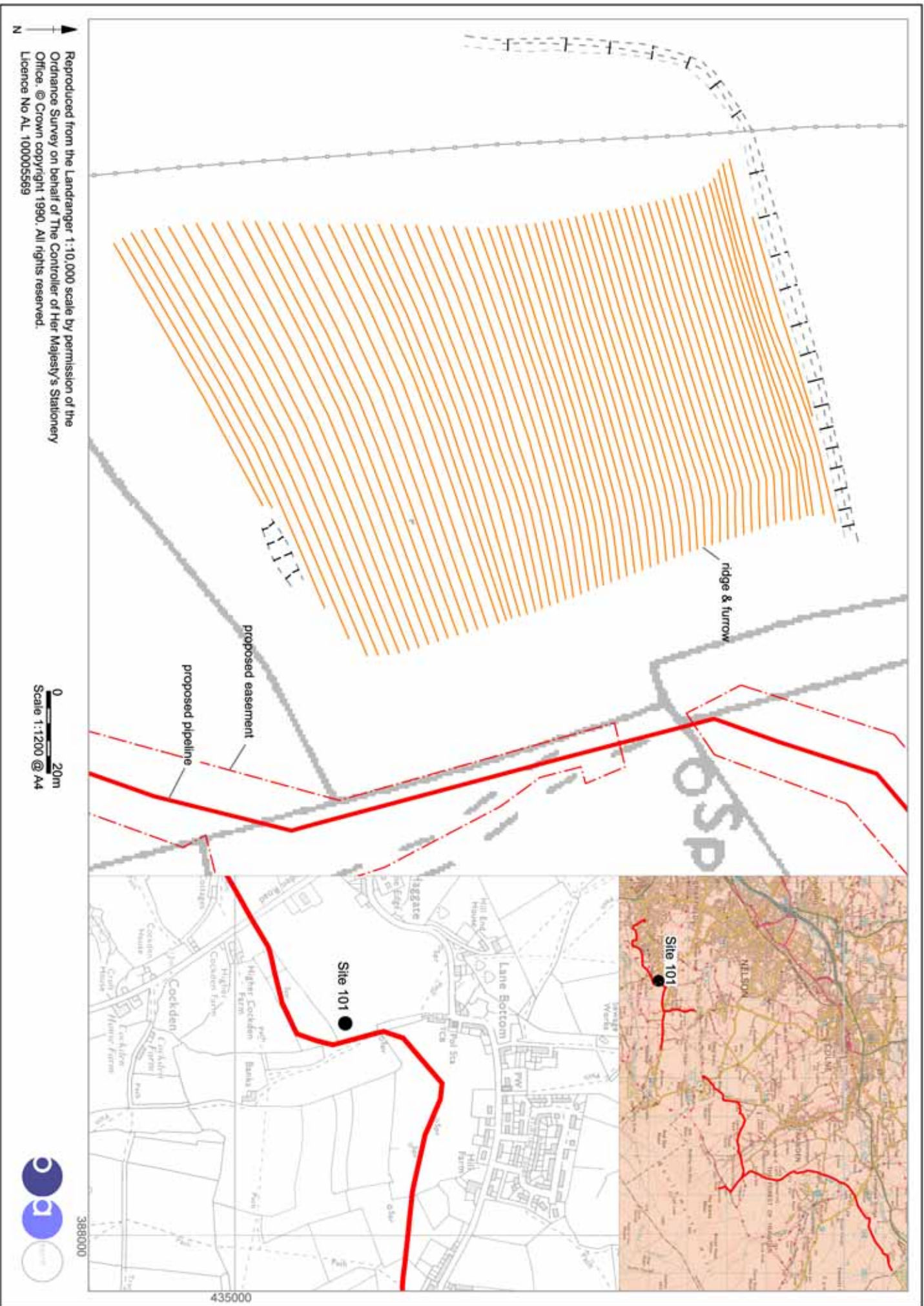


Figure 21: Site 101, Post-medieval field system, Cockden Farm

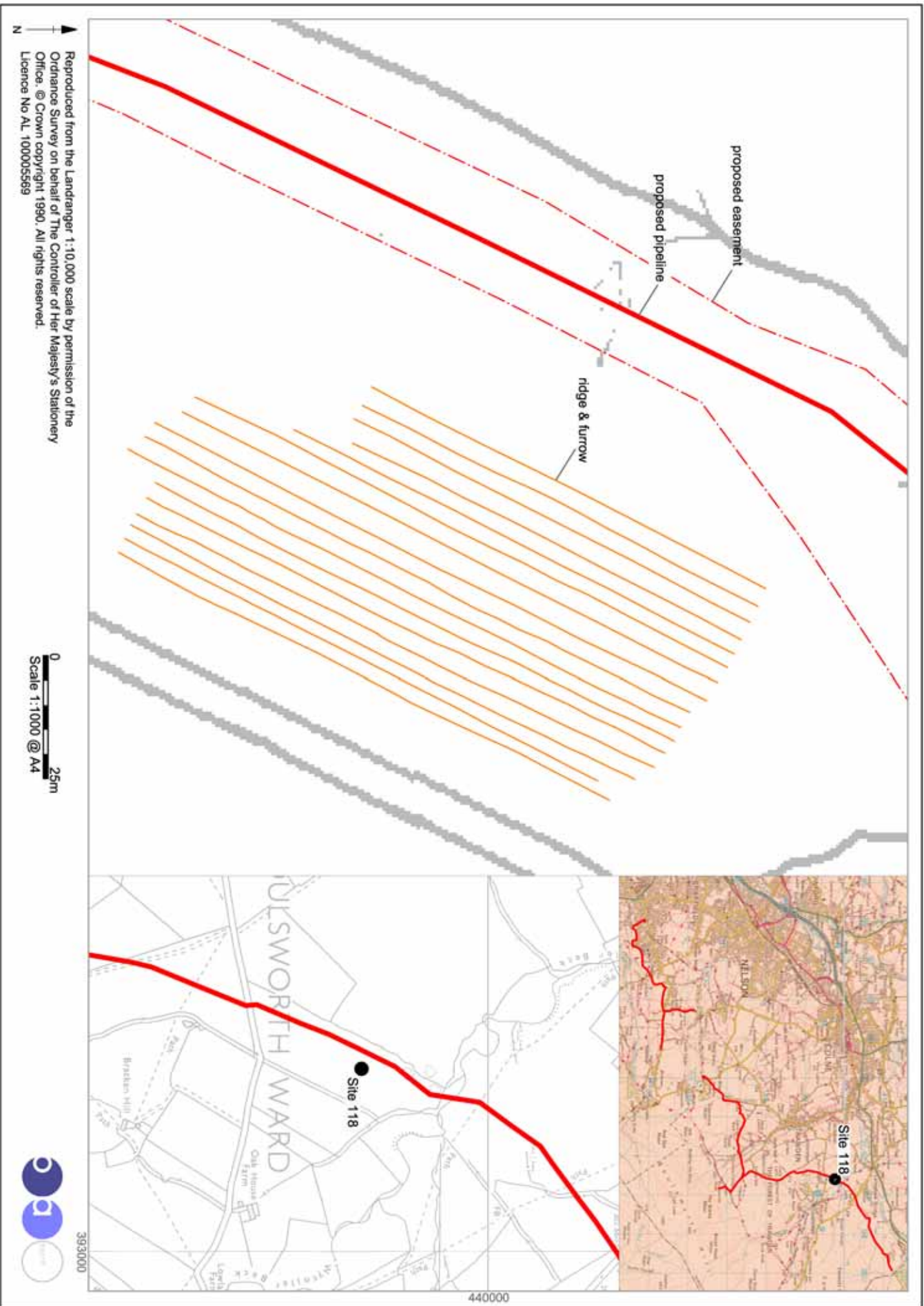
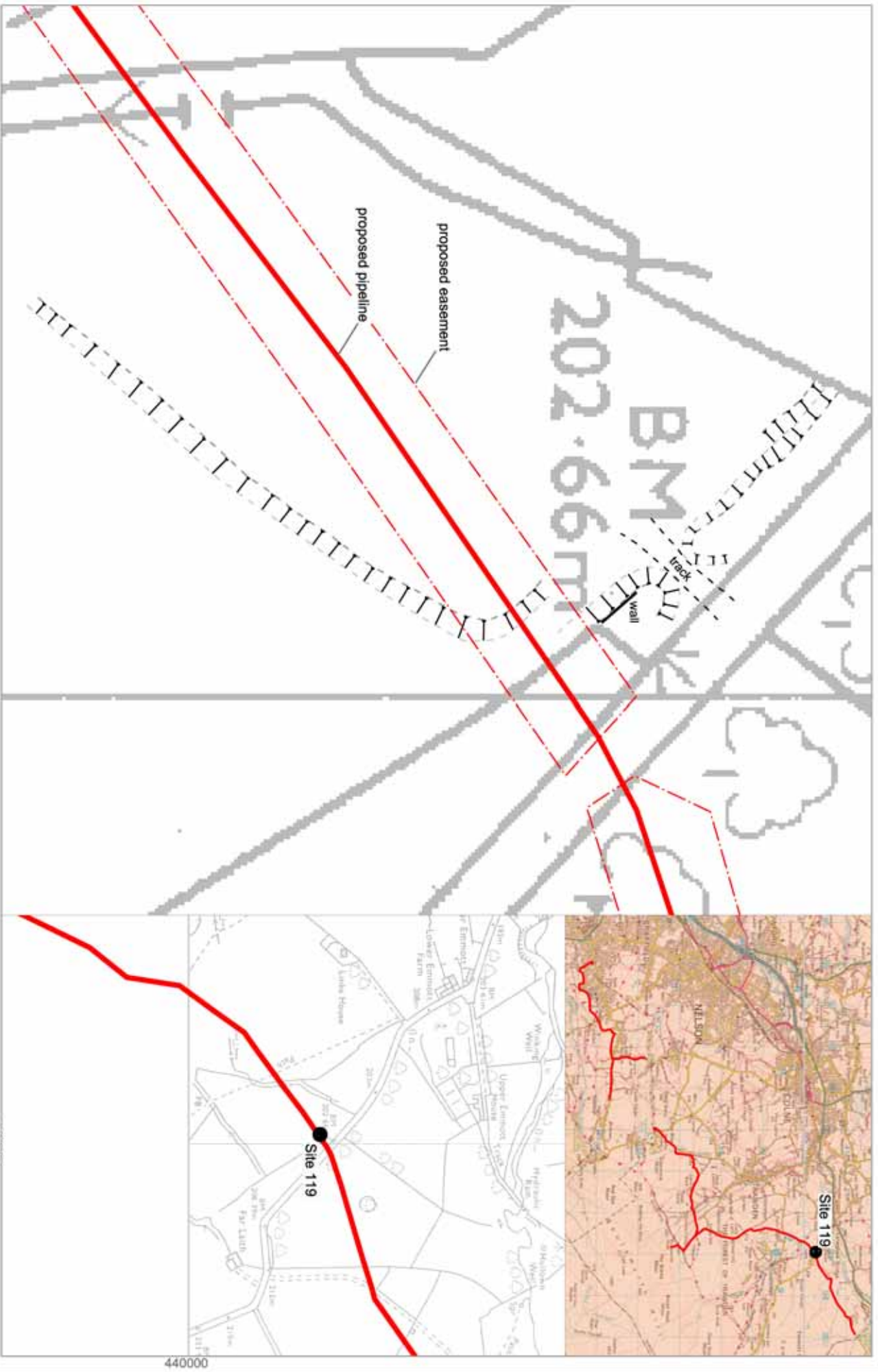


Figure 22: Site 118, Post-medieval ridge and furrow, Oak House Farm



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Figure 23: Site 119, Post-medieval field system, Far Laird

7.2 PLATES

Plate 1: Site **66**, Quarry located near Higher Draught Gate

Plate 2: Site **106**, Post-medieval field system, Higher Cockden Farm

Plate 3: Site **123**, Lynchet, Robert Laithe Farm

Plate 4: Site **126**, Former field boundary wall, Slack Head

Plate 5: Site **139**, Sheepfold, Higher Draught Gate

Plate 6: Site **143**, Southern quarry scoops, Moss Bank

Plate 7: Site **144**, Quarry scoop, Robin House Lane.

Plate 8: Site **145**, Sunken trackway, Robin House Lane.

Plate 9: Site **146**, Roadside Quarry, Stoney Rakes

Plate 10: Site **149**, Post-medieval ridge and furrow, Higher Cockden Farm

Plate 11: Site **11**, Post-medieval ridge and furrow, Hullown Beck

Plate 12: Site **12**, Post-medieval ridge and furrow, Hullown Beck

Plate 13: Site **26**, Possible bridge over drain, Links House

Plate 14: Site **26**, Post-medieval field ridge and furrow, Links House

Plate 15: Site **26**, Possible field boundary, Links House

Plate 16: Site **26**, Former field boundary, Links House

Plate 17: Site **26a**, Unknown earth platform, Links House

Plate 18: Site **26b**, Linear bank and ditch, Links House

Plate 19: Site **33**, Landscaped spoilheaps, Walshaw Clough

Plate 20: Site **34**, Small area ridge and furrow, Great Thorn Edge

Plate 21: Site **35**, Post-medieval ridge and furrow, Bracken Hill

Plate 22: Site **39**: Post-medieval ridge and furrow, Great Hill

Plate 23: Site **83**, an area of disused quarrying named as 'Burwains Quarry'

Plate 24: Site **95**, Post-medieval field system in the area of Hill Farm

Plate 25: Site **101**, traces of ridge and furrow, Higher Cockden Farm

Plate 26: Site **101**, linear bank, Higher Cockden Farm

Plate 27: Site **119**, collapsed boundary wall, Laithe Farm

Plate 28: Site **119**, linear bank, Laithe Farm

Plate 29: Site **122**, ridge and furrow, Hullown Beck

Plate 30: Site **92**, Barley perceptible ridge and furrow crop mark, Hansons Tenement



Plate 1: Site **66**, quarry located near Higher Draught Gate



Plate 2: Site **106**, Post-medieval field system, Higher Cockden Farm



Plate 3: Site **123**, lynchet, Robert Laithe Farm



Plate 4: Site **126**, Former field boundary wall, Slack Head



Plate 5: Site **139**: Sheepfold, Higher Draught Gate



Plate 6: Site **142**: Northern quarries, Moss Bank



Plate 7: Sites **145**: Quarry scoop Robin House Lane.



Plate 8: Site **145**, Sunken trackway, Robin House Lane.



Plate 9: Site **146**: Road side quarry, Stoney Rakes.



Plate 10: Site **149**: Ridge and furrow, Higher Cockden Farm.



Plate 11: Site **11**: Post Medieval ridge and furrow, Hullown Beck



Plate 12: Site **12**: Ridge and furrow crop mark, Hullown Beck



Plate 13: Site **26**: Possible bridge feature over drain, Links House.



Plate 14: Site **26**: east/west orientated ridge and furrow, Links House.



Plate 15: Site **26**: Possible boundary bank, Links House



Plate 16: Site **26**: Former boundary bank, Links House



Plate 17: Site **26a**: Unknown earth platform, Links House



Plate 18: Site **26b**: Former field boundary, Links House



Plate 19: Site **33**, landscaped spoilheaps, Walshaw Clough



Plate 20: Small area ridge and furrow, Great Thorn Edge



Plate 21: Site **35**, Post-medieval ridge and furrow, Bracken Hill



Plate 22: Site **39**, Post-medieval ridge and furrow crop mark Great Hill



Plate 23: Site **83**, an area of disused quarrying named as ‘Burwains Quarry’



Plate 24: Site **95**, a Post-medieval field system in the area of Hill Farm



Plate 25: Site **101**, traces of ridge and furrow, Higher Cockden Farm



Plate 26: Site **101**, Linear bank, Higher Cockden Farm



Plate 27: Site **119**, collapsed boundary wall, Laithe Farm



Plate28: Site **119**, linear bank, Laithe Farm



Plate 29: Site **122**, ridge and furrow, Hullown Beck



Plate 30: Site **92**, crop mark ridge and furrow Hansons Tenement

APPENDIX 1: PROJECT DESIGN

1. INTRODUCTION

- 1.1 This project design has been compiled for United Utilities (hereafter the client). It presents proposals for the assessment of a proposed new transfer pipeline from Coldwell and Trawden to Laneshaw Water Treatment Works (NGR North end: SD 394 441, South end: SD 390 436). Section 2 of this document states the objectives of the project, Section 3 deals with OA North's methodology. Section 4 addresses other pertinent issues including details of staff to be involved, and project costs are presented in Section 5.
- 1.2 Following the results of a desk-based assessment and walkover survey (OA North 2005) the Specialist Advisor (Archaeology) at Lancashire County Council (LCC) has recommended that a topographic survey and programme of evaluation is undertaken of the proposed pipeline route. This should not be seen as the final phase of work and it is likely that a further scheme of mitigation will be required during the ground works associated with the pipeline including a watching brief. This document deals with the topographic survey element of the archaeological programme of work.
- 1.3 OA North has the professional expertise and resources to undertake the project detailed below to a high level of quality and efficiency. OA North is an **Institute of Field Archaeologists (IFA) registered organisation, registration number 17**, and all its members of staff operate subject to the IFA Code of Conduct.

2 OBJECTIVES

- 2.1 The following programme has been designed for the purposes of the recording the form and extent of known above-ground archaeological remains along the route of the pipeline. The required stages to achieve these ends are as follows:
- 2.2 **Topographic Survey:** to survey in the sites shown in Tables 1 and 2 (below) located along the route of the pipeline;
- 2.3 **Report and Archive:** production of a report following the collation of data during *Section 2.2*. A site archive will be produced to English Heritage guidelines (MAP 2) and in accordance with the *Guidelines for the Preparation of Excavation Archives for Long Term Storage* (UKIC 1990).

3 METHOD STATEMENT

3.1 TOPOGRAPHIC SURVEY

- 3.1.1 The sites (Tables 1 and 2 below) will be located using Global Positioning System (GPS) techniques, which uses electronic distance measurements along radio frequencies to satellites to enable a fix in Latitude and Longitude, which can be converted mathematically to Ordnance Survey National Grid. As long as differential GPS techniques are employed then it is possible to achieve accuracies of better than +/- 1m.
- 3.1.2 The data from the GPS will be downloaded into a CAD package (AutoCAD Release 14) for the production of topographic plans. Measured sketches and a photographic record (35mm colour slide and monochrome contact sheets) will enhance the data collected. Scales will be used in all photographs and an index of

photographs will be compiled. Two additional sites (Sites **135** and **147**) (Table 3) will be subject to the photographic record only.

- 3.1.3 The plans produced will show outline detail and hachures only. The final drawings will be produced at a relevant scale (1:1000 to 1:2500). It is envisaged that where possible, the plans will be dropped onto Ordnance Survey maps.

(Site numbers relate to the 2005 OA North desk-based assessment and walkover survey report)

Site No	Type	Period
04	Enclosure?	Unknown
11	Field system	Post-medieval
12	Field system	Post-medieval
25	Boundary	Medieval?
26	Field system	Post-medieval
34	Field system	Post-medieval
35	Field system	Post-medieval
39	Field system	Post-medieval
64	Field system	Post-medieval
65	Site of hall	Post-medieval?
69	Field system	Post-medieval
118	Ridge and Furrow	Post-medieval
119	Field-system	Post-medieval
120	Ridge and Furrow	Post-medieval
122	Field-system	Post-medieval
123	Lynchet	Unknown
124	Ridge and Furrow	Post-medieval
125	Field-system	Post-medieval
126	Stone alignment	Post-medieval
127	Orthostatic Wall	Medieval/Post-medieval
130	Farmstead	Medieval/Post-medieval
139	Sheepfold	Post-medieval
142	Quarry	Post-medieval
143	Quarry	Post-medieval

Table 1: Affected sites along main route of pipeline subject to topographic survey

Site No	Type	Period
33	Field system	Prehistoric? – post-medieval
83	Quarry and buildings	Post-medieval
92	Field-system	Post-medieval
95	Field system	Medieval/Post-medieval
97	Well	Post-medieval
101	Field boundaries	Medieval – post-medieval
106	Field system	Post-medieval
144	Quarry	Post-Medieval

145	Hollow	Unknown
146	Quarry	Post-medieval
149	Ridge and Furrow	Post-medieval
150	Foundations	Post-medieval

Table 2: Affected sites on Briercliffe Service Reservoir to Haggate Section subject to topographic survey

135	Stile	Post-medieval
147	Stile	Post-medieval

Table 3: Sites subject to photographic survey

3.1.3 A brief written record will note the nature, extent, and condition of the features. This will utilise, and where appropriate, enhance the walkover gazetteer produced in the OA North 2005 report.

3.1.4 If finds are noticed they should be recorded and left in position, unless this would endanger their survival or later retrieval, or unless a more detailed examination is required of individual pieces. If finds are recovered they will be recorded and treated according to best professional practice.

3.2 REPORT/ ARCHIVE

3.2.1 **Report:** the emphasis of the report will be the topographic plans and it will include the following:

- (i) a non-technical summary outlining the results of the survey;
- (ii) an introduction presenting the background and circumstances of the project;
- (iii) a method statement including sources of information consulted;
- (iv) the results of the topographic;
- (v) a discussion of the impact of the proposed development and any relevant recommendations;
- (vi) a bibliography of sources;
- (vii) a copy of this project design;
- (viii) illustrations including copies of relevant historic maps, photographs and plans.

3.2.2 One bound and one unbound copy of the report will be submitted to the Client, and a further copy submitted to the Lancashire SMR within eight weeks of completion of the study.

3.2.3 Provision will be made for a summary report to be submitted to a suitable regional or national archaeological journal within one year of completion of fieldwork, if relevant results are obtained.

3.2.4 **Confidentiality:** all internal reports to the Client are designed as documents for the specific use of the Client, for the particular purpose as defined in the project brief and project design, and should be treated as such. They are not suitable for publication as academic documents or otherwise without amendment or revision.

3.2.5 **Archive:** the results of all archaeological work carried out will form the basis for a full archive to professional standards, in accordance with current English Heritage guidelines (*Management of Archaeological Projects*, 2nd edition, 1991). The project archive represents the collation and indexing of all the data and material gathered during the course of the project. This archive will be provided in the English Heritage Centre for Archaeology format and a synthesis will be submitted to the SMR (the index to the archive and a copy of the report). Arrangements for deposition of the full site archive will be made the Lancashire County Record Office.

4 OTHER MATTERS

4.1 **Project Monitoring:** whilst the work is undertaken for the Client, the Lancashire Archaeological Officer will be kept fully informed of the work. Any proposed changes to the project design will be agreed with the Archaeological Officer and the Client.

4.1.1 **Access:** OA North will consult with the Client regarding access to the site.

4.1.2 **Health and Safety:** OA North provides a Health and Safety Statement for all projects and maintains a Unit Safety policy. All site procedures are in accordance with the guidance set out in the Health and Safety Manual compiled by the Standing Conference of Archaeological Unit Managers (1997). A written risk assessment will be undertaken in advance of project commencement and copies will be made available on request to all interested parties.

4.1.3 **Work Timetable:** the topographic survey is expected to take approximately ten to fifteen days to complete. The report will be completed within approximately eight weeks following completion of the fieldwork.

4.1.4 **Staffing:** the project will be under the direct management of **Alison Plummer BSc (Hons)** (OA North Senior Project Manager) to whom all correspondence should be addressed.

4.1.5 A suitably experienced OA North Project Supervisor will undertake the topographic survey accompanied by an assistant archaeologist.

4.1.6 **Insurance:** OA North has professional indemnity to a value of £2,000,000, employer's liability cover to a value of £10,000,000 and public liability to a value of £15,000,000. Written details of insurance cover can be provided if required.