MS/4

Northern Archaeological Associates

BICKER FEN SUBSTATION, LINCOLNSHIRE

TEMPORARY STRUCTURES AND NEW TOWERS

ARCHAEOLOGICAL EVALUATION

prepared for

NATIONAL GRID TRANSCO PLC

NAA 05/52

April 2005

Marwood House, Harmire Enterprise Park, Barnard Castle, Co. Durham DL12 8BN

EVENT LI 6030 SOURCE : LI 10095 LI 10096 PRN 13816 - PREHISTORIC

BICKER FEN SUBSTATION
TEMPORARY STRUCTURES AND NEW TOWERS

ARCHAEOLOGICAL EVALUATION

Summary

An archaeological evaluation was undertaken in advance of the construction of three temporary structures and two permanent transmission towers associated with a new substation at Bicker Fen, near Boston, Lincolnshire. The work was undertaken by Northern Archaeological Associates for National Grid Transco plc during March 2005.

Five evaluation trenches were machine-excavated over the proposed tower and mast footprints. No features or deposits of archaeological interest were identified, although Victorian and later land drains were present in most of the trenches. The soils in the five evaluation trenches consisted of virtually stoneless marine silts and clays. The overlying topsoil yielded only a small quantity of modern pottery brick and tile fragments, although a large Neolithic flint scraper was found close to a geotechnical borehole and may have derived from the topsoil or underlying subsoils at that point.

Due to the dispersed nature of recorded archaeological sites within the area, and the proximity of the proposed work to the nearest known site, it is recommended that archaeological monitoring be undertaken during soilstripping in advance of the construction of the two permanent towers.

1.0 INTRODUCTION

1.1 Northern Archaeological Associates (NAA) were commissioned by National Grid Transco plc to undertake an archaeological evaluation of the locations of three temporary transmission structures and two permanent transmission towers associated with a new substation at Bicker Fen, near Boston, Lincolnshire (Figure 1). The work was undertaken according to an approved project design (NAA 2005) to satisfy the requirements under section 36 of the Electricity Act for the temporary and permanent towers.

1.2 The archaeological evaluation was undertaken to determine whether Romano-British activity, represented by cropmarks identified on aerial photographs to the north and south of the site, continued into the development area. The overall aim was to identify sites for the temporary and permanent structures that would have the least impact on archaeological remains.

2.0 SITE LOCATION AND BACKGROUND

2.1 The site was located within four arable fields to either side of Vicarage Drove, approximately 3km to the west of Bicker village and 15km to the west of Boston, Lincolnshire (TF 196 385). The fields had been ploughed and seeded with cereal crops at the time of the evaluation.

2.2 An Archaeological Appraisal undertaken in June 2004 (Northern Archaeological Associates) identified five possible later prehistoric/Roman-British cropmark sites (Figure 2 sites 1-5) and two scatters of Romano-British pottery and briquetage (6 and 7 respectively) within a 500m radius of the proposed development site. The briquetage scatter (TF 1880 3859) is indicative of a salt-making site.

2.3 The development lies within an area of former fen between the Hammond Beck ('Newdyke') to the east, which was constructed in the late 12th century, and the South Forty Foot Drain to the west, which was constructed in 1636. The reclamation of the area and its use as arable land must therefore post-date 1636 and the present field layout may be the result of enclosure that occurred in Bicker parish in 1768. Bicker Drove, which was formerly called Cross Twelves Drove, may have been the earliest access route into the study area.

3.0 EXCAVATION RESULTS

3.1 Five evaluation trenches (Figure 3) were excavated by 360° excavator using a wide toothless bucket, removing topsoil and subsoils separately. All trenches were photographed on 35mm black-and-white and colour slide film. Trench 1 was a linear trench to the east of Vicarage Drove on the proposed location of a temporary mast.

3.2 Trench 2 was an L-shaped trench to the west of Vicarage Drove on the proposed location of a temporary transmission tower.

3.3 Trench 3 was an L-shaped trench to the west of Vicarage Drove and north-east of trench 2 on the proposed location of a permanent transmission tower (replacement tower 4ZM448).

3.4 Trench 4 was an L-shaped trench to the north-west of trench 3 on the proposed location of a permanent transmission tower (replacement tower 4ZM449).

3.5 Trench 5 was a linear trench to the west of trench 4 on the proposed location of a temporary mast.

Trench 1

3.6 This trench measured approximately 9.5m in length by 2m wide and was aligned north-east to south-west along the axis of the proposed temporary mast. The trench was excavated to a depth of 0.5m consisting of 0.3m of clay-silt topsoil (100) above natural heavy clay-silt subsoil. The upper 0.2m of subsoil (101) had been disturbed by deep ploughing. No features or deposits of an archaeological nature were encountered.

Trench 2

3.7 This comprised a north-east to south-west arm measuring 10.6m in length by 2m wide and a north-west to south-east arm measuring 10.5m in length, aligned along two sides of the proposed temporary tower (Plate 1). The trench was excavated to an approximate depth of 0.5m with 0.25m of waterlogged topsoil (200) overlying the natural heavy clay-silt subsoil. Again the upper 0.25m of subsoil (201) had been disturbed by deep ploughing, and there were the remains of land drains running approximately east to west (these were not excavated, but see paragraph 3.11 below, for examples). No features or deposits of archaeological interest were encountered. The trench began filling up with water as soon as it was excavated.

3.8 Approximately 40m to the north-west of trench 2 was the location for a trial borehole (Atkins 2004, ATK2). Drilling had not been monitored by an archaeologist, but within an area of spoil from the borehole was a large discoidal flint scraper dating from the Neolithic period. This may have been in the topsoil, but may also have derived from deeper deposits. Borehole data indicated that the clay silt layers extended to a depth of 3.25m, below which was a 0.2m thick layer of brown sand, and it may have been from this layer that the scraper originated.

Trench 3

3.9 This comprised a north-east to south-west arm measuring 9.5m in length by 2m wide and a north-west to south-east arm measuring 10.3m in length, aligned along two sides of a proposed permanent tower. The trench was excavated to a depth of 0.4m consisting of up to 0.25m of topsoil (300) containing a few fragments of modern brick and land drain above the natural heavy clay-silt subsoil, again disturbed by ploughing (301). In the north-east end of the trench was a 0.1m thick layer of blue-grey to brown heavy silty clay (302) underlying the disturbed subsoil. This layer was natural in origin and had been ploughed away in the remainder of the trench. Land drains were again present, but no features or deposits of archaeological interest were encountered.

Trench 4

3.10 This comprised a north-east to south-west arm measuring 10.7m in length by 2m wide and a north-west to south-east arm measuring 10.6m in length, aligned along two sides of a proposed permanent tower. The trench was excavated to a depth of 0.5m except for the north-eastern end, where excavation continued to a depth of 1.6m. Up to 0.25m of topsoil (400) was present above the natural heavy clay-silt subsoil (402), which continued to a depth of at least 1.6m. Once again the upper 0.25m of subsoil had been disturbed by ploughing (401). In the north-west arm of the trench was a 0.1m to 0.2m thick lens of blue-grey to brown heavy silty clay (403) underlying the disturbed subsoil (Figure 4). This layer was natural in origin and had been ploughed away in the remainder of the trench. Land drains were again present, but no features or deposits of archaeological interest were encountered.

Trench 5

3.11 This trench measured approximately 12.2m in length by 2m wide and was aligned north-east to south-west along the axis of a proposed temporary mast. The trench was excavated to a depth of up to 0.5m, consisting of 0.25m of clay-silt topsoil (500), which yielded two fragments of modern pottery and pieces of drain tile (not retained), above natural heavy clay-silt subsoil. The upper 0.2m-0.25m of subsoil (504) had been disturbed by deep ploughing. In the north-east end of the trench beneath the

disturbed material was a layer of mid-brown silt with some sand and clay (501) up to 0.3m thick The natural subsoil in the remainder of the trench consisted of clay silt (505), similar to that found in the other trenches.

3.12 Cut through part of layer 504 and into layer 505 in the south-western half of the trench was a shallow u to v-shaped gully (502) running from the east (parallel to the field boundaries) and curving southwards at its western end. Approximately 2m of gully were visible, up to 0.15m deep and 0.3m wide (Figure 4, Plate 2). The gully was filled with a homogenous grey-brown silt containing pieces of burnt straw. The existence of burnt straw, the shape in plan and the fact that the gully cut through part of the disturbed subsoil indicates that this was the turning point for a subsoil plough scar, possibly using a 'duck's foot' plough.

3.13 With the exception of two late 19th century, 4" diameter land drains running east to west in the south-west end of the trench, one at 0.7m depth and one at 0.8m, there were no features of archaeological interest.

3.14 An area of slightly higher ground 20m to the east of the trench was shown by molehills to consist of more sandy soil containing occasional fragments of sea shell.

4.0 DISCUSSION

4.1 The evaluation did not reveal any significant archaeological features or deposits. The natural subsoils, extending to a depth of at least 1.6m, consisted of almost stoneless clay-silts interspersed with occasional lenses and layers of clay and sandy silt. This sequence is typical of marine and estuarine deposits where the underlying solid geology is Oxford Clay (BGS 1979). The Romano-British sites identified from cropmarks on aerial photographs to the north and south of the proposed development appear to be on areas of raised ground, possibly representing islands. The area of briquettage (remains of salt-making containers) to the west of the proposed development would concur with this, as salterns were usually located on inter-tidal zones around estuaries and along the coast.

4.2 In the field where trench 5 was located were a number of molehills that contained sandy soil with fragments of sea shell, some 20m east of the proposed mast site and close to existing tower 4ZM448. These coincided with an area of slightly higher ground leading northwards towards one of the cropmark areas at Poplartree Farm, presumably indicating the edge of an 'island'.

4.3 The Neolithic flint scraper was most likely a casual loss. Part of the cortex of the flint survived, suggesting that it had not lain exposed in the topsoil but had derived from the underlying layers. This may indicate that archaeological horizons lay buried beneath later marine deposits, although these were not encountered during the evaluation. Several of the geotechnical boreholes identified a buried peat layer at a depth of approximately 2m, and on two occasions the silty clay was interrupted by a layer of brown sand (Atkins 2004).

5.0 RECOMMENDATIONS

5.1 The evaluation has demonstrated that the proposed temporary and permanent structures would not impact upon any recorded archaeological remains. Based on the results of the evaluation, no relocation of structures is deemed necessary. It would also appear unlikely that further investigation prior to construction would yield any additional archaeological information. However, the dispersed nature of the recorded archaeological sites, and the proximity of the proposed works to the nearest Romano-British cropmark site, mean that there is the potential for further groundworks to encounter previously unrecorded archaeological remains. Further details of the nature of the marine deposits may also be revealed.

5.2 The construction of the two permanent transmission towers will require the excavation of an area of topsoil and some subsoil to create a stable platform for a piling rig. Following consultation with the Lincolnshire County Council Archaeologist, it is recommended that archaeological monitoring (a 'watching brief') be undertaken during any soilstripping associated with this activity.

5.3 The access routes to the construction sites will be constructed from track panels laid directly onto the topsoil and will involve no soilstripping.

Report No: 05/52
Date: April 2005
Project No: 630
Text: Oliver Cooper
Illustrations: Catherine Chisman and Oliver Cooper
Edited: Richard Fraser

REFERENCES

Atkins Power (2004) *Bicker Fen Substation, Boston. Appendix 3, Borehole Records* Unpublished client report.

British Geological Survey (1979) *Geological Survey Ten-Mile Map, South Sheet 1:625,000*

Northern Archaeological Associates (2004) *Bicker Fen Substation, Lincolnshire: Archaeological Desk-Based Assessment*

Northern Archaeological Associates (2005) *Bicker Fen Substation, Lincolnshire: Archaeological Trial Trenching Project Design* NAA report **05/32**

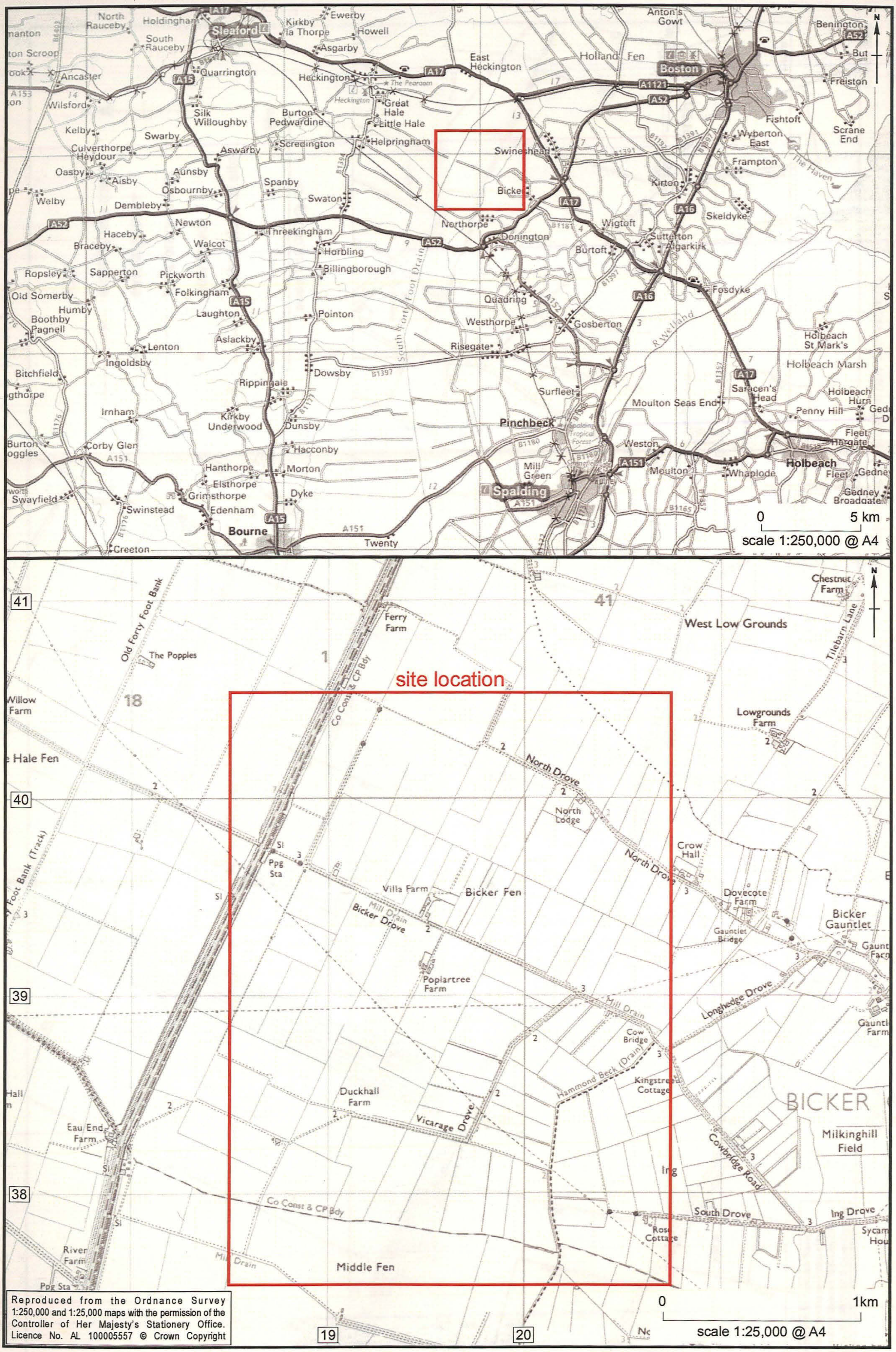

Figure 1 Bicker Fen substation: site location

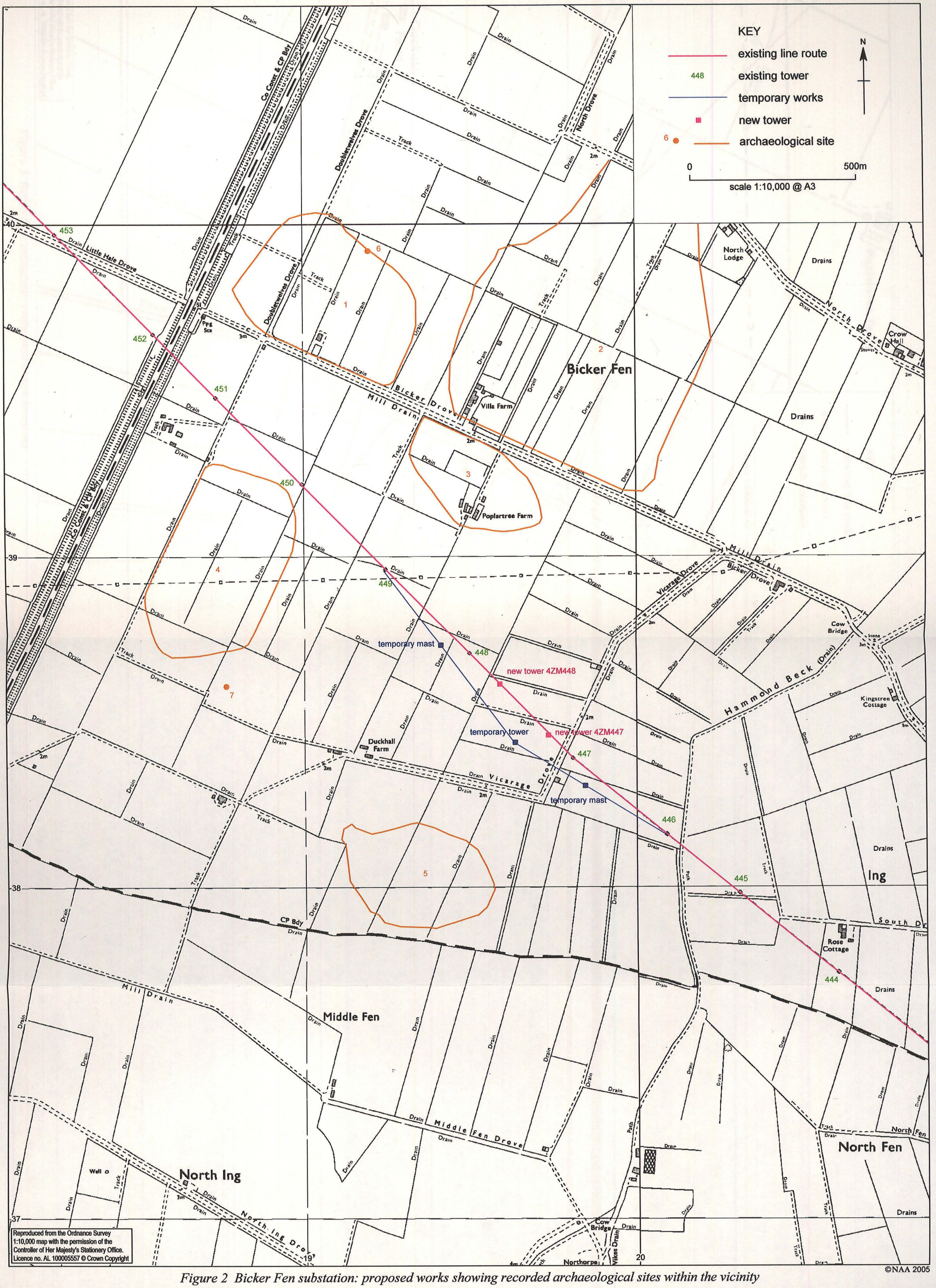

Figure 2 Bicker Fen substation: proposed works showing recorded archaeological sites within the vicinity

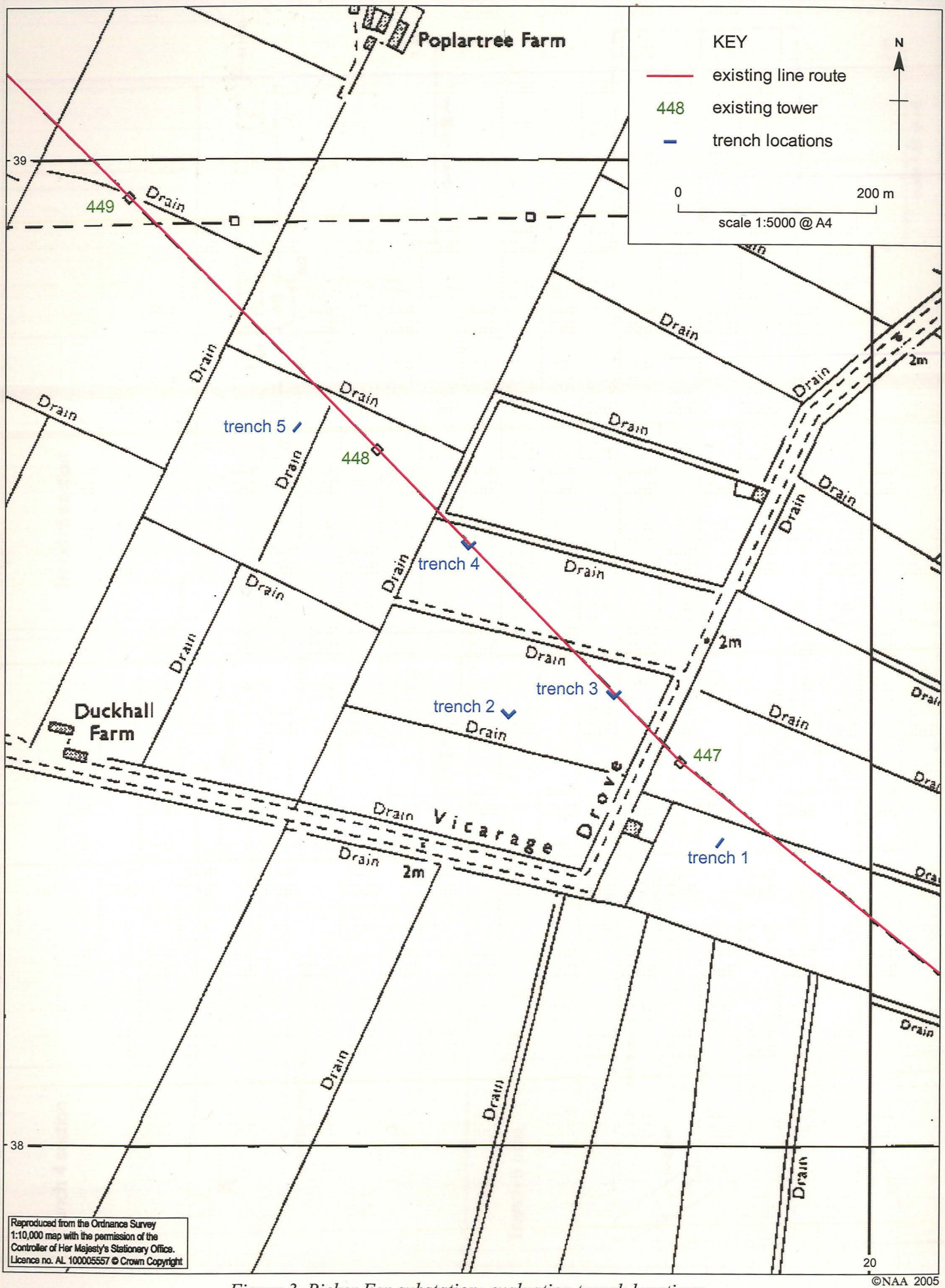

Figure 3 Bicker Fen substation: evaluation trench locations

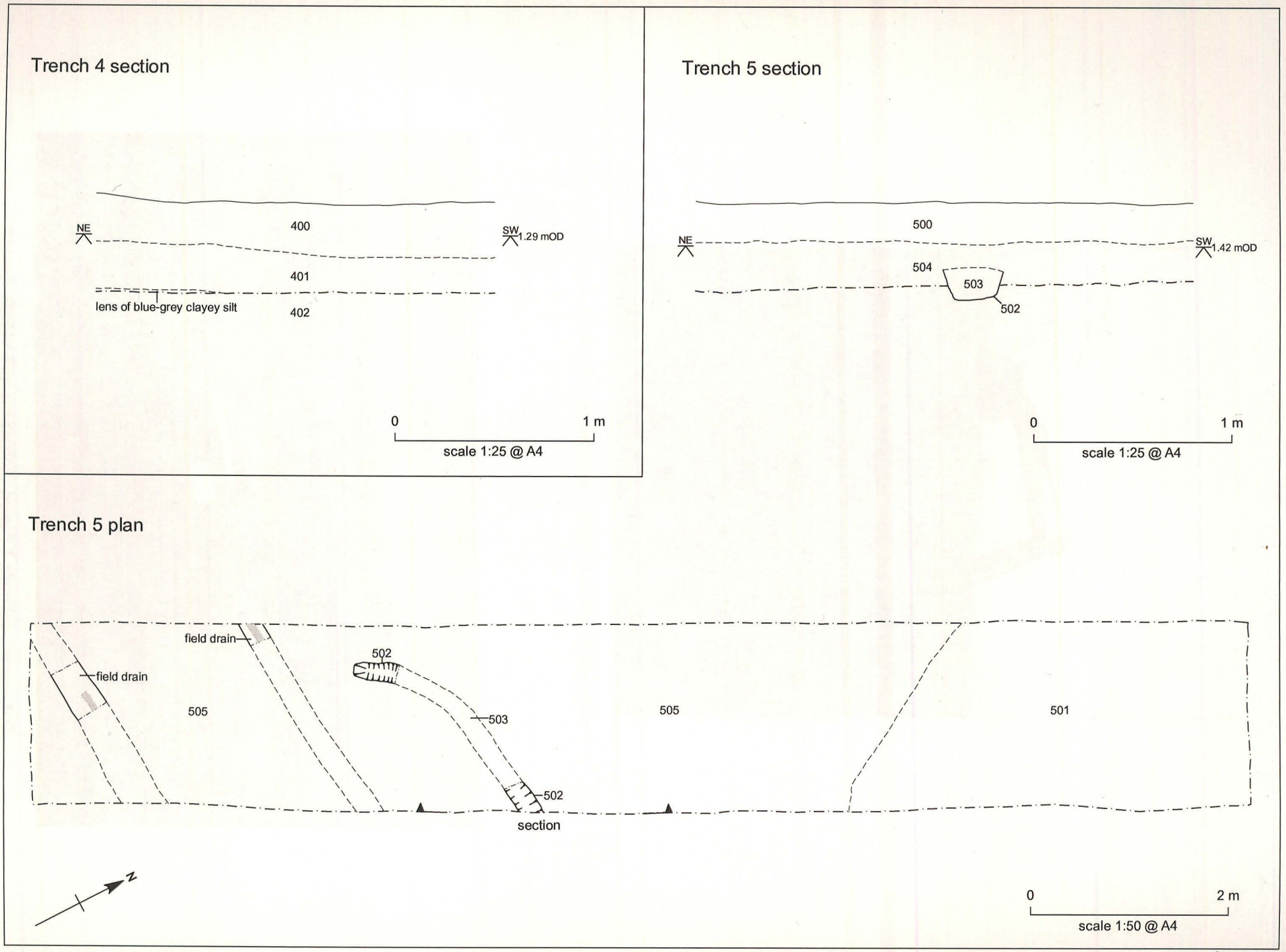

Figure 4 Bicker Fen substation: sections and plan

Plate 1 Bicker Fen substation: trench 2 during excavation

Plate 2 Bicker Fen substation: trench 5 showing feature 502