NEW WIND TURBINE, RUFFORD FOREST FARM, CENTENARY AVENUE, RUFFORD, NOTTINGHAMSHIRE

SCHEME OF ARCHAEOLOGICAL MONITORING AND RECORDING

NGR:	SK 61265 58792
Planning ref.:	13/00952/FUL
PCAS Job No.:	1184
Site code:	RFFM 14

Report prepared for

Mr. G. F. White

on behalf of King Renewables

by

R. D. Savage

November 2014

Pre-Construct Archaeological Services Ltd
47, Manor Road
Saxilby
Lincoln
LN1 2HX

Tel. (01522) 703800
e-mail info@pre-construct.co.uk

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A scheme of archaeological monitoring and recording was carried out during initial development groundworks associated with the construction of a new wind turbine on land at Rufford Forest Farm, in the parish of Rainworth in the Newark and Sherwood district of Nottinghamshire.

The turbine site is partially located within a field which contains a complex of cropmarks identified by the National Mapping Programme: these cropmarks have not been dated, but are considered most likely to represent Iron Age to Roman field boundaries, trackways and enclosures.

Two features were recorded during the monitoring programme: a small pit and another feature that was seen only in section, probably a second pit. Neither feature could be dated, and may have had a single short-term use, such as sand extraction.

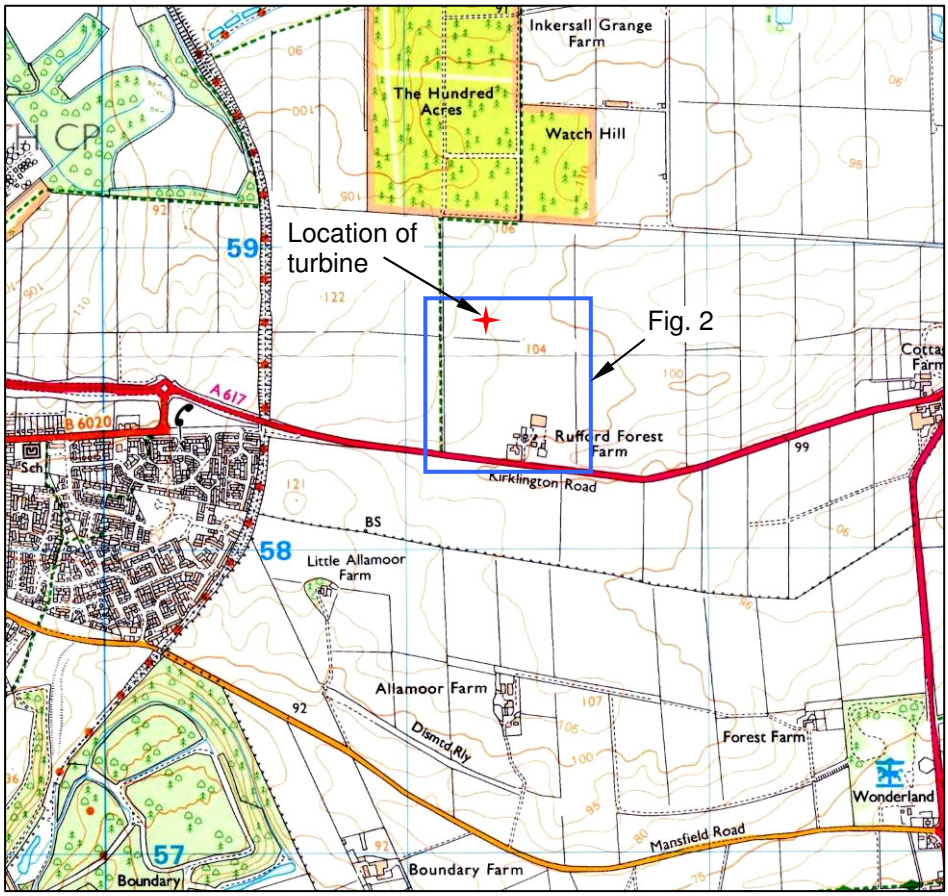

Figure 1: Location plan of the site at scale 1:25,000. The position of the wind turbine is marked in red, and the area depicted in figure 2 is outlined in blue. OS mapping © Crown copyright. All rights reserved. PCAS licence no. 100049278.

1.0 Introduction

Pre-Construct Archaeological Services Ltd. (PCAS) was commissioned by Mr. G. F. White to carry out a scheme of archaeological monitoring and recording during initial development groundworks associated with the construction of a wind turbine on land at Rufford Forest Farm, in the parish of Rainworth in the Newark and Sherwood district of Nottinghamshire.

As the site lies within an area of cropmarks believed to indicate an Iron Age to British agricultural landscape, the Archaeological Officer for Nottinghamshire County Council Conservation Team recommended a programme of archaeological mitigation, consisting of observation and recording during the removal of topsoil across the whole of the footprint of the proposed development.

2.0 Site Location and Description (figs. 1 & 2)

Rufford Forest Farm is situated in the Civil Parish of Rainworth, approximately 2.3km to north-north-east of Rainworth village and 3.9km north-north-west of Farnsfield. The immediate area is characterised by intensive agriculture within large, geometric fields interspersed with occasional farmsteads (JBA, 2013).

The wind turbine was constructed in a large, rectilinear arable field to the north of Rufford Forest Farm, replacing a smaller. To the south of the site are the buildings of Rufford Forest Farm, on the north side of the A617 (Kirklington Road), and to the north is a block of coniferous woodland known as The Hundred Acres which forms part of Clipstone Forest; further arable fields lie to east and west. At the time of the monitoring programme, the field was under a standing rye crop, with a grass margin. Access was via a metalled track off the A617 (marked green on figure 2).

3.0 Topography and Geology

The site is within a landscape that is relatively flat and open but is enclosed to the north and west by topography and woodland. The land generally falls from east to west, with field boundaries predominantly formed of substantial, mature, clipped hedgerows. The site itself is on a south to south-east-facing slope, and lies at approximately 105m AOD.

The British Geological Survey records no drift geology in the vicinity. The exposed solid geology is Nottingham Castle Sandstone Formation (BGS online).

4.0 Planning Background

Full planning permission for the construction of a wind turbine and associated infrastructure, with the decommissioning and removal of a previous wind turbine was granted in November 2013 (planning application ref. 13/00952/FUL).

This permission was granted subject to the implementation of a scheme of archaeological mitigation, submitted to and approved in writing by the Local Planning Authority and implemented in full accordance with the approved details (condition 15), guided by the comments of the Archaeological Officer for Nottinghamshire County Council (condition 5).

5.0 Archaeological and Historical Background

The only archaeological find recorded within 1km of the wind turbine site is that of a bronze palstave axehead, recorded in the Transactions of the Thoroton Society as being found in 1797 'on the left hand side of the road to Newark, about half way between Rainworth Water and Hexgrave' (EH Pastscape, ref. 320234).

The Archaeological Officer for Nottinghamshire County Council Conservation Team noted as part of the planning consultation process that the turbine site is partially located within a field which contains a complex of cropmarks identified by the National Mapping Programme: these cropmarks have not been dated, but are considered most likely to represent Iron Age to Roman field boundaries, trackways and enclosures (Dr. Chris Robinson, NCC).

Although there are no designated landscapes or heritage assets within 3km of the turbine site, there are 18 Scheduled Ancient Monuments at distances of between 3km and 10km, including a Roman camp at Farnsfield and a prehistoric hillfort to the west of Combs Farm (Francis, 2014).

6.0 Methodology (fig. 2)

Groundworks began with the stripping of the access track through the field (marked purple on figure 2) down to the underlying natural sand, using a tracked 360° excavator fitted with a toothless bucket; the portion of the track marked in green on figure 2 was already extant and metalled, and no groundworks were required there. The footprints of the crane and transformer pads were then machine stripped (plates 1-3). The following week, a cable trench was excavated from the transformer position to the site of the transformer associated with the previous wind turbine, where the cable would be connected to the existing cable connecting that transformer to the farm buildings. The cable trench was excavated to varying depths, with a 2m wide working width stripped down to the surface of the natural, followed by the excavation of a central trench 1m wide and 1.9m deep (plates 4 and 5). The final phase of monitored groundworks was the excavation of the turbine foundation pit around and within a ring of previously sunk piles, to a depth of 1.6m (plate 6).

All archaeological features and deposits were recorded on standard PCAS context recording sheets, and the progress of the groundworks noted on standard site diary sheets. Features – observed only in the turbine foundation pit – were hand-excavated in half-section where exposed in plan; features seen only in the baulk of the pit were excavated as far into the baulk as safety considerations allowed, in an attempt to retrieve dating evidence. Excavated features were drawn in plan and section at scale 1:20, and plotted on a scale 1:100 base plan (fig. 3); as the monitored excavation in the access track, crane pad and cable trench involved only the removal of topsoil from natural, sample sections were photographed but not drawn. A digital photographic record was maintained throughout the monitored groundworks: a selection from this is reproduced as Appendix 1.

The single find retrieved during the monitoring programme was washed and marked at PCAS premises, and sent for specialist comment.

The archaeological monitoring programme commenced on 12th May, 2014 and was completed on 22nd May. Monitoring was carried out by R. D. and S. A. Savage.

7.0 Results (fig. 3)

At the base of all excavations was natural 101, a compact, yellowish-orange to light red sand (plates 1-5). Below a depth of 0.30m, this deposit contained no inclusions, but its upper horizon displayed quantities of pebbles: most of these were arranged in narrow, regular, concentrated bands running across the surface, the product of the former cultivation of carrots on the site (Mr. King, landowner, pers. comm.).

Features were observed only in the turbine footprint. Feature **104** was a shallow, irregular pit cut into the natural sand towards the west side of the foundation pit; it measured 1.20m x 0.96m x 0.24m and was filled with mid-brown sand containing about 30% pebbles and cobbles, which showed up very clearly against the light red natural sand (plate 7; figs. 3b-c). At the north side of the foundation pit, feature **106** was seen only in section after machining between a pile and the edge of the works: its dimensions in plan are not known, although it did not extend southwards beyond the piles, as it was not seen during excavation of the open central area. This feature was 1.58m wide as exposed, and 0.38m deep: it appeared to be irregular in profile, with one side much steeper than the other, although this might have been the effect of cutting across a regular linear feature at an oblique angle. It was filled with mid- to light brown sand containing about 10% mostly large pebbles (plate 7; fig. 3d). No dating evidence was retrieved from either feature, nor was any other evidence of human activity, such as charcoal flecks, seen in their fills. The pebbles in both fills were similar to those concentrated into the field clearance rows observed in the surface of the natural throughout the monitoring scheme.

The majority of the site was sealed by layer 100, a dark brown sandy topsoil with frequent pebbles, up to 0.35m deep. The only find to be retrieved during the project was a sherd of pottery found in the topsoil, which was later identified as 19th-century red earthenware, probably part of a flowerpot (J. Young, post-Roman pottery specialist, pers. comm.). Over large areas of the crane pad footprint, however, the topsoil had been replaced by 102, a recent deposit of brick and concrete rubble in a matrix of clayey sand, occupying a straight-sided, flat-based cut a little deeper than the topsoil to either side, indicating that this area had been used as a hard-standing, possibly associated with the previous wind turbine.

8.0 Conclusion

Features likely to have been of archaeological origin were encountered only in the turbine foundation pit: the rest of the monitoring programme observed only ploughsoil overlying natural sand.

Neither of the two features recorded produced any evidence for settlement, or any other recognisable activity. Feature **104** was a small pit, and feature **106** was probably similar. It is possible that both resulted from small-scale sand extraction and were thus excavated for a single use. However, the possibility cannot be ruled out that both features were created by a natural agency such as tree rooting or flood erosion.

9.0 Effectiveness of Methodology

The methodology employed during this project was effective in identifying and preserving by record the traces of possible archaeological features occupying the development site, while causing the minimum of disruption to the construction process.

10.0 Acknowledgements

PCAS Ltd. would like to thank Mr. G. F. White for this commission. Thanks are also due to Mr. and Mrs. King (landowners) and Mr. G. Jenkinson (CLS engineer) for their co-operation during the groundworks.

11.0 Site Archive

As there is currently no museum of record in the Newark and Sherwood district, the prepared site archive will remain at PCAS's office premises until a suitable museum of record is appointed and deposition can be arranged. Funds will be set aside to cover eventual deposition costs.

12.0 Bibliography

British Geological Survey (BGS), consulted online at http://mapapps.bgs.ac.uk/geologyofbritain.

English Heritage PastScape consulted online 12-11-2014 at http://www.heritagegateway.org.uk/Gateway

Francis, K. D., 2014, *Specification for an Archaeological Mitigation Scheme (Monitoring & Recording): Rufford Forest Farm, Centenary Avenue, Rufford, Nottinghamshire*. Unpublished document produced by Pre-Construct Archaeological Services Ltd.

JBA Consulting, 2013: *Rufford Forest Farm, Farnsfield, Nottinghamshire Single Wind Turbine: Landscape and Visual Impact Assessment*. Unpublished client report.

Ordnance Survey, 2008, *Sherwood Forest, Mansfield, Worksop & Edwinstowe: 1:25,000 scale Explorer series, sheet 270*. Ordnance Survey, Southampton.

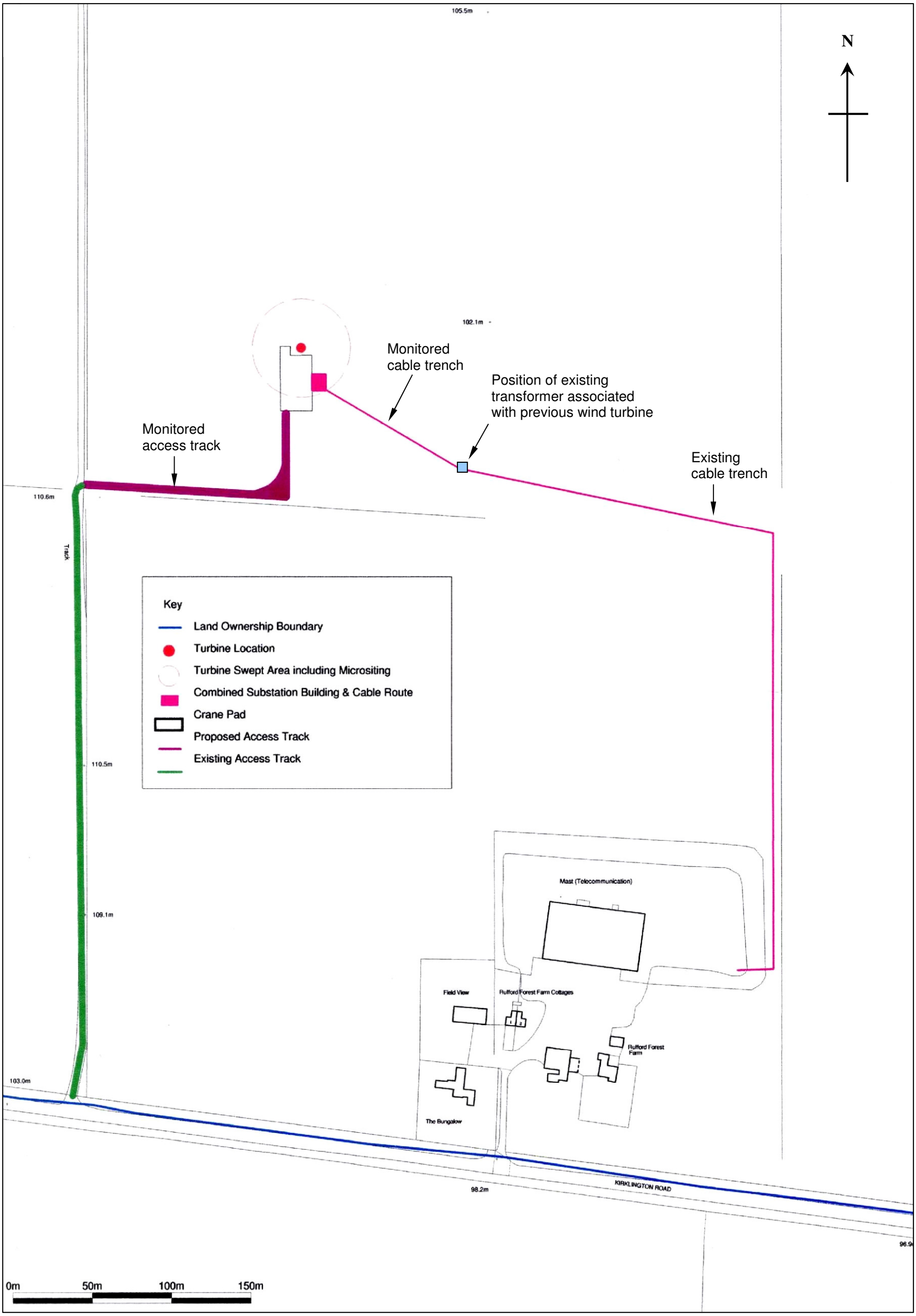

Figure 2: Plan of the turbine site and associated infrastructure, at scale 1:2500. Plan supplied by client.

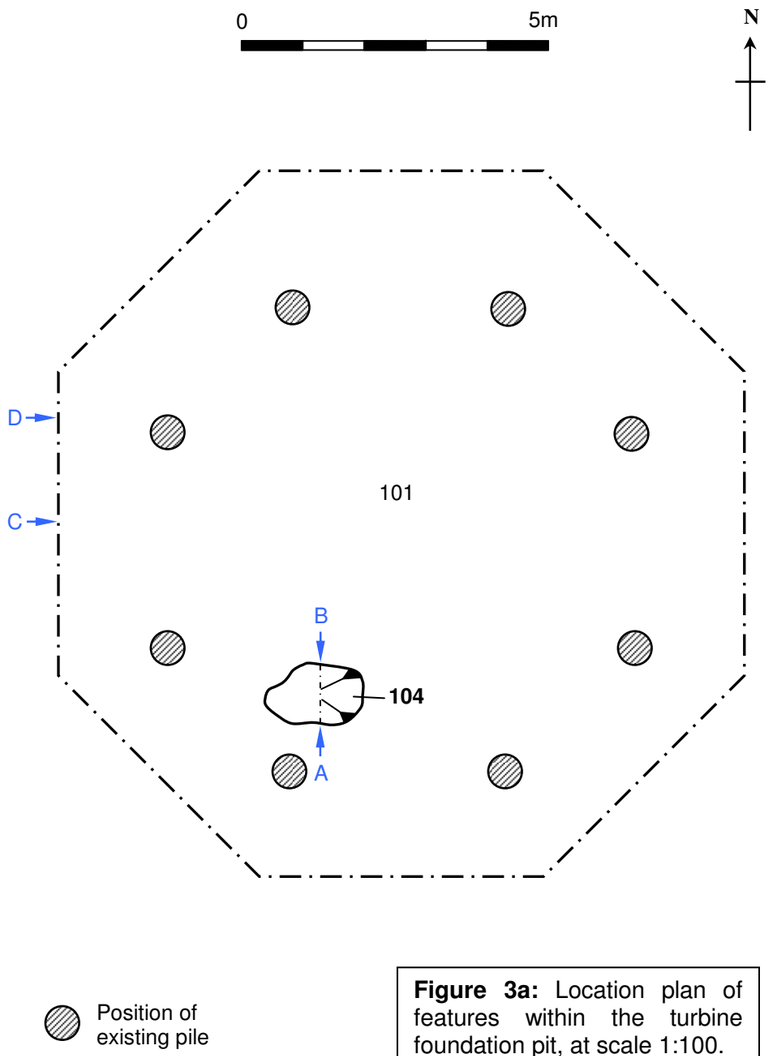

Figure 3a: Location plan of features within the turbine foundation pit, at scale 1:100.

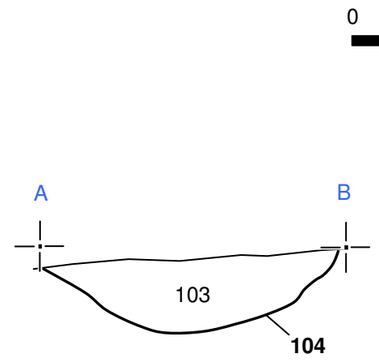

Figure 3b: Section through pit **104** at scale 1:20.

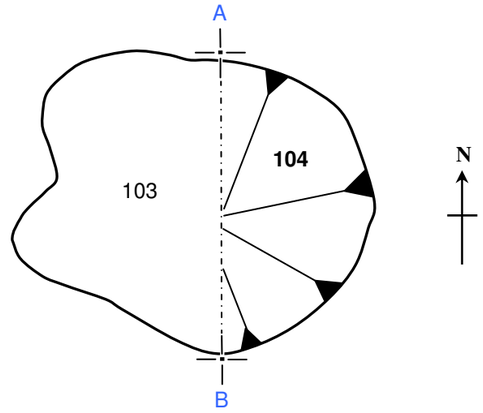

Figure 3c: Plan of pit **104**, excavated in half-section, at scale 1:20.

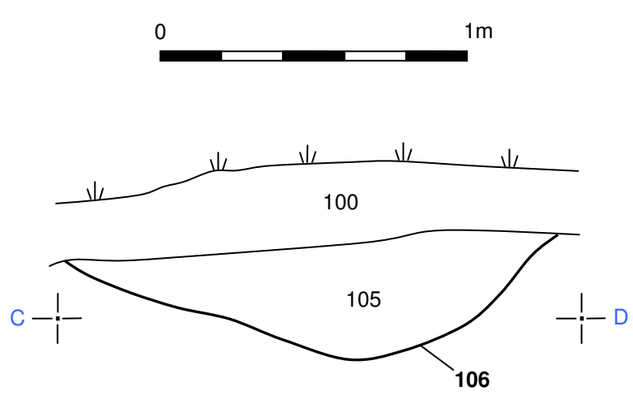

Figure 3d: Feature **306** exposed in section in the baulk of the turbine foundation pit, at scale 1:20.

Figure 3: Plan and section drawings of features exposed during the archaeological monitoring programme.

Appendix 1: Colour Plates

Plate 1: General shot of the works area, looking ENE from the stripped W end of the access track.

Plate 2: The N-S portion of the access track, looking N towards the location of the crane pad and turbine, showing the stony cultivation rows.

Plate 3: The topsoil stripped crane pad area, looking N; construction of the transformer pad, at the far right of the picture, is already in progress.

Plate 4: Working shot during stripping of the E end of the cable trench, looking NE, showing one of the stony cultivation rows in greater detail.

Plate 5: View along the excavated cable trench, looking SE from the crane platform towards the former turbine compound, now mostly demolished, where the new cable trench connects to the existing service.

Plate 6: General shot of the turbine foundation pit during excavation, looking W: feature **106** can be seen in section at the rear.

Plate 7: Shallow, undated pit **104** (erroneously labelled 004 on photo board) exposed during machine excavation in the base of the turbine foundation pit, looking NW.

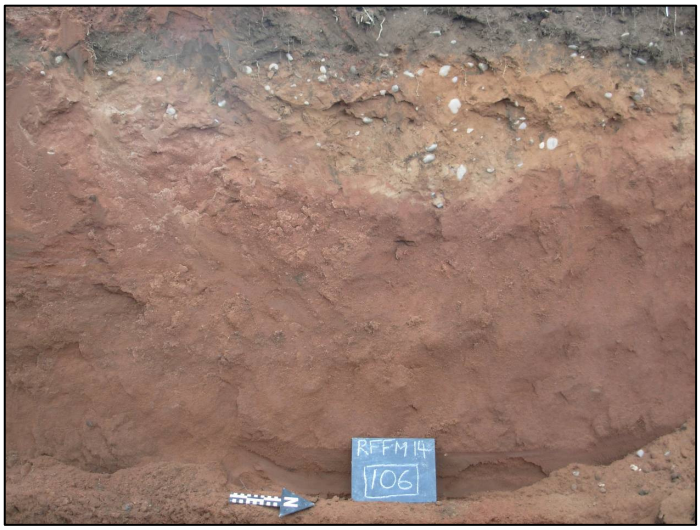

Plate 7: Feature **106** with stony fill 105 in the section of the turbine foundation pit, looking W.

Appendix 2: Context Summary

Context No.	Type	Description
100	Layer	Dark brown sandy loam topsoil with common small/medium rounded pebbles, up to 0.35m deep.
101	Layer	Natural Mansfield Sand: compact sand, generally mid-yellowish-orange, but reddish-orange in patches. Displays regular bands of pebbles in N-S or E-W aligned rows, 2m apart: cultivation traces from former carrot beds. These pebbles are only present at the surface of the deposit: it is inclusion-free below 0.30m depth.
102	Layer	Recently deposited modern overburden replacing topsoil over large areas of the crane pad site: stone, CBM and concrete rubble in a matrix of friable dark grey clayey sand, occupying a straight-sided, flat-based cut (no cut number assigned).
103	Fill	Fill of pit **104**: friable mid-brown medium sand with c. 30% pebbles/cobbles.
104	Cut	Shallow, irregular pit, 1.20m x 0.96m x 0.24m, in SW quadrant of turbine foundation pit.
105	Fill	Fill of feature **106**: friable mid- to light brown medium sand with c. 10% mostly large pebbles and small patches of light brownish-grey sand
106	Cut	Feature seen only in section on W side of turbine pit: 1.58m wide x 0.38m deep

Appendix 3: OASIS summary