THREE MOORS WIND FARM KNOWSTONE DEVON

ARCHAEOLOGICAL EVALUATION

For

DULAS LIMITED

CA PROJECT: 2550 CA REPORT: 08071

APRIL 2008

COTSWOLD ARCHAEOLOGY



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ARCHAEOLOGICAL EVALUATION

CA PROJECT: 2550 CA REPORT: 08071

prepared by	Stuart Joyce, Project Supervisor			
date	4 April 2008			
checked by	Richard Young, Project Manager			
date	25 April 2008			
approved by	Mark Collard, Head of Contracts			
signed	Sul (cellar)			
date	30 April 2008			
issue	01			

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SUMMARY

Project Name: Three Moors Wind Farm

Location: Knowstone, Devon

NGR: SS 8050 2450

Type: Evaluation

Date: 31 March to 4 April 2008

Planning Reference: 45489

Location of Archive: To be deposited with Museum of Barnstaple and North Devon

Site Code: TMW 08

An archaeological evaluation was undertaken by Cotswold Archaeology in March and April 2008 at the request of Dulas Limited at the site of the proposed Three Moors Wind Farm, Knowstone, Devon. Nine trenches were excavated.

Four undated ditches, relating to land drainage were identified, as well as four undated pits. Two of these pits have been interpreted as prehistoric storage pits based on their morphology.

1. INTRODUCTION

- 1.1 In March and April 2008 Cotswold Archaeology (CA) carried out an archaeological evaluation for Dulas Limited at Knowstone, Devon (centred on NGR: SS 8050 2450; Fig. 1). The evaluation was undertaken prior to the determination of a planning application (ref. 45489) submitted to North Devon District Council for the construction of a wind farm comprising nine wind turbines, ancillary equipment and on site infrastructure.
- 1.2 The evaluation was carried out in accordance with a detailed Written Scheme of Investigation (WSI) produced by CA (2008) and approved by Mr Stephen Reed, Archaeologist, Devon County Council. The fieldwork also followed the *Standard and Guidance for Archaeological Field Evaluation* issued by the Institute of Field Archaeologists (2001), and the *Management of Archaeological Projects* (English Heritage 1991). It was monitored by Mr Reed, including a site visit on 2 April 2008.

The site

- 1.3 The site comprises a total area of approximately 2.43km². The western part of the site comprises around 1.57km² of this and the eastern part of the site the remaining 0.86km² (Fig. 1). Both areas comprise a combination of open moorland and pasture fields, typically enclosed with hedges and banks. The northern part of the site lies at approximately 220-230m AOD and falls to the south to heights of around 160m AOD (CA 2008).
- 1.4 The solid geology of the site comprises Upper Carboniferous Yankey Beds, made up of greywackes, sandstones and shaly mudstones (CA 2007).

Archaeological background

1.5 The site of the proposed wind farm was the subject of an archaeological assessment (CA 2007) which was included within the Environmental Statement prepared as part of the planning application (Dulas 2007). In summary it identified that, although the wider landscape around the site is most notable for its prehistoric elements, there are no recorded prehistoric finds or features within the site. Similarly, no Roman or early medieval finds or features are recorded with the site. Lowland Devon is notable

for its early enclosure of former medieval open fields and the earliest landscape character type represented within the site comprises medieval enclosure based on strip fields. These strips set in a larger open-field system were farmed from the nearby medieval settlement foci of Knowstone, Bishop's Nympton and the smaller hamlets and farmsteads. The informal enclosure of these strips was subsequently based on this pattern. The remaining fields were enclosed in the post-medieval and modern periods and again reflected the medieval pattern of irregularly-shaped fields around the hamlets and farmsteads (ibid., 144-5).

1.6 In December 2007 a magnetometer survey of parts of the site was undertaken on behalf of CA by Archaeological Surveys (AS 2007). The survey identified magnetic anomalies including positive and negative, discrete and linear features. The interpretation of the anomalies was hindered by a lack of readily identifiable morphological characteristics. The report concluded that although some of the anomalies may have been caused by anthropogenic activity, this could only be determined for certain by intrusive investigation.

Archaeological objectives

1.7 The objectives of the evaluation were to establish the character, quality, date and extent of any archaeological remains or deposits surviving within the site. This information will assist North Devon District Council in making an informed judgement on the significance of the archaeological resource, and the likely impact upon it of the proposed development.

Methodology

- 1.8 The fieldwork comprised the excavation of nine trenches, three 20m long by 1.8m wide and six 10m long by 1.8m wide, in the locations shown on the attached plan (Fig. 2). Trench 2 was extended to the east in order to fully reveal a feature with the approval of Mr Reed.
- 1.9 All trenches were excavated by mechanical excavator equipped with a toothless grading bucket. All machine excavation was undertaken under constant archaeological supervision to the top of the first significant archaeological horizon or

the natural substrate, whichever was encountered first. Where archaeological deposits were encountered they were excavated by hand in accordance with CA Technical Manual 1: *Fieldwork Recording Manual* (2007).

- 1.10 Deposits were assessed for their palaeoenvironmental potential in accordance with CA Technical Manual 2: The Taking and Processing of Environmental and Other Samples from Archaeological Sites (2003) and seven contexts were sampled and processed (Appendix C). All artefacts recovered were processed in accordance with CA Technical Manual 3: Treatment of Finds Immediately After Excavation (1995).
- 1.11 The archive and artefacts from the evaluation are currently held by CA at their offices in Kemble. Subject to the agreement of the legal landowner the artefacts will be deposited with The Museum of Barnstaple and North Devon, along with the site archive. A summary of information from this project, set out within Appendix D, will be entered onto the OASIS online database of archaeological projects in Britain.

2. RESULTS (FIGS 2-9)

- 2.1 This section provides an overview of the evaluation results; detailed summaries of the recorded contexts, finds and environmental samples (palaeoenvironmental evidence) are to be found in Appendices A, B and C respectively.
- 2.2 During the evaluation four undated ditches and four undated pits were identified within trenches 2, 3, 5 and 8. Trenches 1, 4, 6, 7 and 9 did not contain archaeological features. A broadly similar stratigraphic sequence was identified in all of the trenches. Undisturbed natural, comprising yellow clay was revealed within all of the trenches, at a depth of approximately 0.25m below present ground level. This was sealed by topsoil.

Trenches 1, 4,6, 7 and 9 (Figs 3-6)

2.3 Trenches 1, 4, 6, 7 and 9 did not contain archaeological features.

Trench 2 (Figs 3 & 7-10)

2.4 Two undated ditches were identified. Ditch 2010 was orientated north/south and roughly correlates with a geophysical anomaly. Ditch 2011 was also orientated north/south. Two undated pits 2007 and 2008 were identified. All the features identified cut the natural geological substrate and their associated fills were sealed by the topsoil.

Trench 3 (Figs 3 & 11)

2.5 Undated ditch 3003 was orientated north/south and cut the natural geological substrate. Its fill 3004 was sealed by the topsoil. The location of 3003 correlates with a geophysical anomaly.

Trench 5 (Fig 4)

2.6 Shallow undated pit 5003 contained charcoal rich deposit 5004. The pit cut the natural geological substrate. Some of the natural clay around the feature was coloured red and would suggest *in situ* burning around the feature. Trench 5 also contained charcoal rich spread 5005. Deposits 5004 and 5005 were sealed by topsoil.

Trench 8 (Figs 6 & 12-13)

2.7 Undated ditch 8002 was orientated east/west. It correlates with a geophysical anomaly. Undated pit 8004 contained charcoal-rich fill 8005. Both features cut the natural geological substrate with their fills sealed by the topsoil.

The Finds and Palaeoenvironmental Evidence

2.8 Fired clay fragments, burnt stone and charcoal were recovered from pit fill 5004 (Appendix B). No forms can be identified from the fired clay fragments. None of the artefacts recovered are dateable. The piece of charcoal recovered is of a size suitable to be identified to species and therefore potentially of use for radiocarbon dating.

- 2.9 Bulk environmental samples were taken for the purposes of confirming the presence of biological remains and gauging their state of preservation in order to assess the potential for analysis towards reconstructing former economies and environments and potential for dating. Seven environmental samples varying in volume from 1litre to 10 litres were taken and fully processed. The charcoal and other charred plant material was not burnt at a very high temperature, which suggests the charcoal is not derived from cremations or industrial processes but is more likely to be domestic in origin.
- 2.10 There is a well-preserved charcoal assemblage from the features sampled, indicating that species identification may be possible for some of the material. If suitable short-lived species are identified then radiocarbon dating samples could be selected. The results of the processing are fully detailed in Appendix C.

3. DISCUSSION

3.1 All of the features located during the evaluation were undated. Many of the anomalies identified by the geophysical survey were related to changes in the natural geology. There was well-preserved charcoal within undated pit fills 2003, 2004, 2005 and 2006, although the charcoal within them was not burnt at a high temperature so they are unlikely to be related to industrial processes or cremations. The central fills 2003 and 2004 of pits 2007 and 2008 are of particular interest, being charcoal rich but small and shallow (Figs 9 and 10). Their purpose is unknown. As the fills do not contain a large quantity of cereal seeds and are devoid of artefacts and bone they are unlikely to be associated with the primary usage of the pit. Based purely on morphological characteristics pits 2007 and 2008 have been interpreted as storage pits (Cunliffe 2005, 412) and if so could indicate prehistoric settlement. Pit 5003 is a shallow irregular pit, which may show signs of in situ burning. The feature is located next to the present farmyard, away from pits 2007 and 2008, in an area where the landowner stated that he burns farmyard waste. It has therefore been interpreted as a modern feature. Deposit 5005 is thought to be disturbance from this feature. Pit 8004 was severely truncated with only the base of its fill 8005 remaining. As the feature did not contain any artefacts and is truncated its function could not be determined.

3.2 Ditches 2009, 2011 and 3003 are thought to be drainage ditches which could potentially have acted as field boundaries. Ditches 2009 and 2011 follow the same orientation as the current field boundaries and could represent the enclosure of former medieval open fields. Although these features are undated they are probably post-medieval in date based on the similarity of their associated fills to the topsoil. Ditch 8002 is thought to be a natural gulley cut by water action, based on the slight meandering nature of the cut which runs down-slope to the lowest point of the field.

4. CA PROJECT TEAM

Fieldwork was undertaken by Stuart Joyce, assisted by Pippa Mitcheson, Ashley Strutt and Rob Elliot. The report was written by Stuart Joyce. The illustrations were prepared by Peter Moore. The archive has been compiled by Stuart Joyce, and prepared for deposition by Kathryn Price. The project was managed for CA by Richard Young.

5. REFERENCES

- AS (Archaeological Surveys) 2007 Three Moors Wind Farm, Knowstone, Devon: Magnetometer Survey
- CA (Cotswold Archaeology) 2007 Three Moors Wind Farm Archaeological Assessment
- CA (Cotswold Archaeology) 2008 Three Moors Wind Farm, Knowstone, Devon: Written Scheme of Investigation for an Archaeological Evaluation

Cunnliffe, B. 2005 Iron Age Communities in Britain, Routledge: Glasgow

Dulas (Dulas Limited) 2007 Three Moors Wind Farm Environmental Statement

APPENDIX A: CONTEXT DESCRIPTIONS

Trench 1 Present ground level: 212.24m AOD (south-east end), 212.46m AOD (north-west end)

No.	Туре	Description	Length (m)	Width (m)	Depth (m)	Spot- date
1000	Layer	Topsoil and turf layer – Dark grey brown clay silt. Friable compaction. Rare small stone inclusions.	()	()	0.24	
1001	Layer	Natural – Mottled orange-yellow with grey. Firm compaction. Very occasional small to medium sized angular stone inclusions, comprised of degraded underlying natural shale bedrock.				

Trench 2 Present ground level: 209.08m AOD (west end), 209.48m AOD (east end)

No.	Type	Description	Length	Width	Depth	Spot-
			(m)	(m)	(m)	date
2000	Layer	Topsoil and turf layer – Dark grey brown clay silt.			0.26	
		Friable compaction. Rare small stone inclusions.				
2002	Layer	Natural – Mottled orange-yellow with grey. Firm				
		compaction. Very occasional small to medium sized				
		angular stone inclusions, comprised of degraded				
		underlying natural shale bedrock.				
2003	Deposit	Fill of 2007 – Black clay silt.				
2004	Deposit	Fill of 2008 – Black clay silt.				
2005	Deposit	Fill of 2007 – Mid brown silty clay.				
2006	Deposit	Fill of 2008 – Mid brown silty clay.				
2007	Cut	Circular cut.				
2008	Cut	Circular cut.				
2009	Cut	Linear cut.				
2010	Deposit	Fill of 2009 – Dark brown clay silt.				
2011	Cut	Linear cut.				
2012	Deposit	Fill of 2011 – Dark brown clay silt.				

Trench 3 Present ground level: 205.50m AOD (west end), 205.80m AOD (east end)

No.	Туре	Description	Length (m)	Width (m)	Depth (m)	Spot- date
3000	Layer	Topsoil and turf layer – Dark grey brown clay silt. Friable compaction. Very rare small stone inclusions.			0.24	
3001	Layer	Natural – Mottled light yellow and grey clay. Firm compaction.				
3002	Deposit	Fill off 3003 – Mottled red brown with medium grey streaks. Clay with pebble inclusions. Compact .				
3003	Cut	Linear ditch.				
3004	Deposit	Medium grey brown silty clay. Soft compaction. Fill of 3005.				
3005	Cut	Natural cut of root disturbance.				

Trench 4 Present ground level: 193.72m AOD (south-east end), 44.80m AOD (north-west end)

No.	Туре	Description	Length (m)	Width (m)	Depth (m)	Spot- date
4000	Layer	Topsoil and turf layer – Mid grey brown silty clay.			0.20	
4001	Layer	Natural – Yellow brown clay with mudstone inclusions.				

Trench 5 Present ground level: 193.35m AOD (south-east end), 193.73m AOD (north-west end)

No.	Туре	Description	Length (m)	Width (m)	Depth (m)	Spot- date
5000	Layer	Topsoil and turf layer – Mid grey brown silty clay.			0.15	
5002	Layer	Natural – Yellow brown clay with mudstone inclusions.				
5003	Cut	Irregular sub-circular pit.				
5004	Deposit	Fill of 5003 - Dark brown yellow silty clay.				
5005	Deposit	Shallow charcoal rich deposit.				

Trench 6 Present ground level: 216.94m AOD (south-west end), 216.96m AOD (north-east end)

No.	Туре	Description	Length (m)	Width (m)	Depth (m)	Spot- date
6000	Layer	Topsoil and turf layer – Dark grey brown clay silt. Friable compaction. Rare small stone inclusions.			0.26	
6001	Layer	Natural – Yellow clay. Firm compaction. Very occasional small to medium sized angular stone inclusions.				

Trench 7 Present ground level: 216.60m AOD (west end), 216.83m AOD (east end)

No.	Type	Description	Length	Width	Depth	Spot-
			(m)	(m)	(m)	date
7000	Layer	Topsoil and turf layer – Dark grey brown clay silt.			0.22	
		Friable compaction. Rare small stone inclusions.				
7001	Layer	Natural – Yellow clay. Firm compaction. Very				
		occasional small to medium sized angular stone				
		inclusions.				

Trench 8 Present ground level: 198.28m AOD (south end), 44.80m AOD (north end)

No.	Туре	Description	Length (m)	Width (m)	Depth (m)	Spot- date
8000	Layer	Topsoil and turf layer – Dark grey brown clay silt. Friable compaction. Very rare small stone inclusions.			0.22	
8001	Layer	Natural – Yellow clay. Firm compaction. Shale inclusions.				
8002	Cut	Possible natural drainage gulley.				
8003	Deposit	Fill of 8002 – Medium grey brown with streaks of yellow clay.				
8004	Cut	Shallow pit.				
8005	Deposit	Fill of 8004 - Grey brown, clay silt.				

Trench 9 Present ground level: 202.04m AOD (north-west end), 202.71m AOD (south-east end)

No.	Туре	Description	Length (m)	Width (m)	Depth (m)	Spot- date
9000	Layer	Topsoil and turf layer – Dark grey brown clay silt. Friable compaction. Very occasional small stone inclusions.			0.24	
9001	Layer	Natural – Yellow clay. Firm compaction. Very occasional shale inclusions.				

APPENDIX B: THE FINDS

Finds Concordance

Context	Artefact type	Count	Weight (g)	Spot-date
5004	Fired clay	2	15	-
	Burnt stone	1	12	

APPENDIX C: THE PALAEOENVIRONMENTAL EVIDENCE

Samples were taken from a series of pits which contained charcoal/charred plant rich deposits (see table below). All samples produced charcoal in moderate to abundant quantities and some charred seeds and hazelnut shell fragments were also identified.

Samples were taken using 10 litre sealable plastic tubs and transported to the CA offices for processing. All of the samples were processed for purposes of assessment. The processing was by means of a recycled water flotation system utilising sieves of 250µm and 1mm for the flot (the light fraction that floats) and a 1mm mesh for the residue (the heavy fraction that sinks). Residues and flots were dried in a low temperature drying cabinet prior to sorting. The dried residues were sorted on 2mm, 1mm and 0.5mm sieves under a low magnification for charcoal, charred plant, animal bone, molluscan material and artefacts. Flots were quickly scanned and weighed.

The charcoal and other charred plant material does not appear to have been burnt thoroughly or at a very high temperature. This explains the dark brown colour of the material. This suggests the charcoal is not derived from cremations or industrial processes but is more likely to be domestic in origin.

The charcoal assemblage is large in quantity and well-preserved, but not of high quality (due to the burning at lower temperature). Species identification may be possible for much of the material. If suitable short-lived species are identified then radiocarbon dating samples could be selected, if required.

Sample Concordance

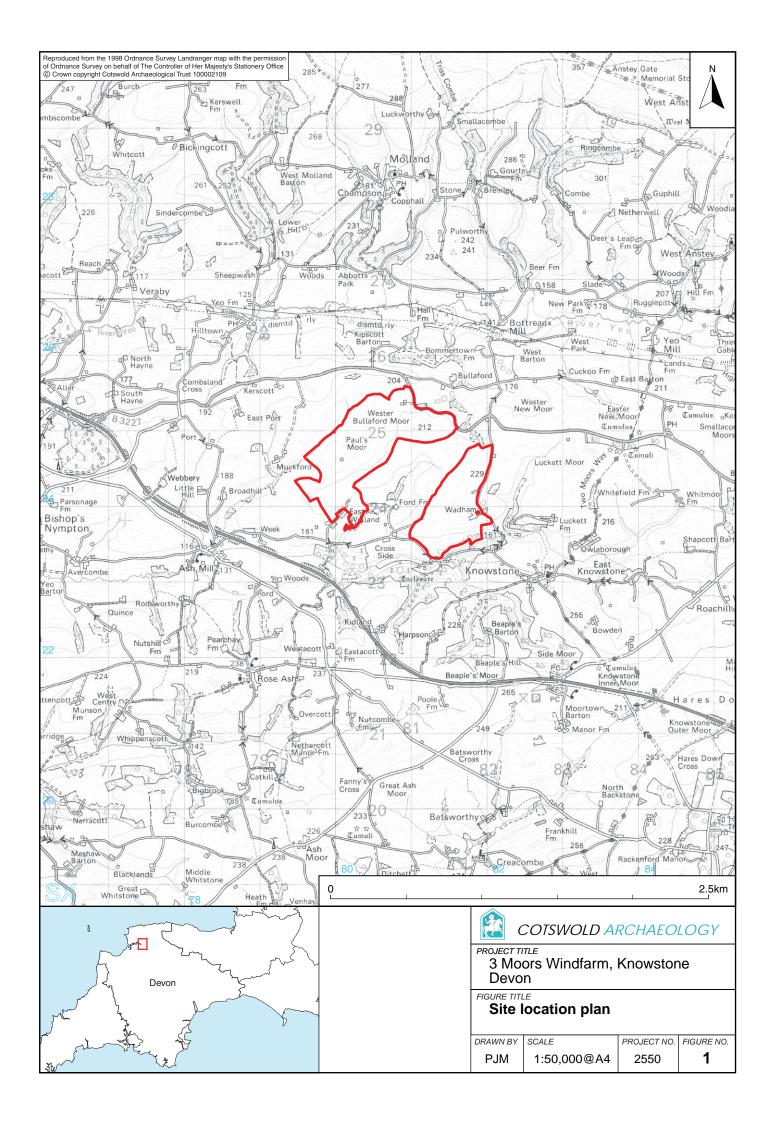
Sample	Context	Fill of	Volume	Flot	Charcoal	Charred	Magnetic	Insect	Comments
number		pit	in litres	charcoal		plant	material	(mod)	
1	2003	2007	1	B, 1g	E, 2g				
2	2004	2008	1		E, 2g				
3	2005	2007	6		A, 11g				
4	2006	2008	10		A, 21.5g				
5	5004	5003	10	B, 3g	A, 14g	D, 0.5g	A, 3g		hazelnut shells
Hand collected	5004	5003			E, 4g				
6	5005		1		B, 0.5	Е			seed
7	8005	8004	8		A, 80g	B, 0.4	D, 0.3	E, 0.1	nut shell, modern seeds.

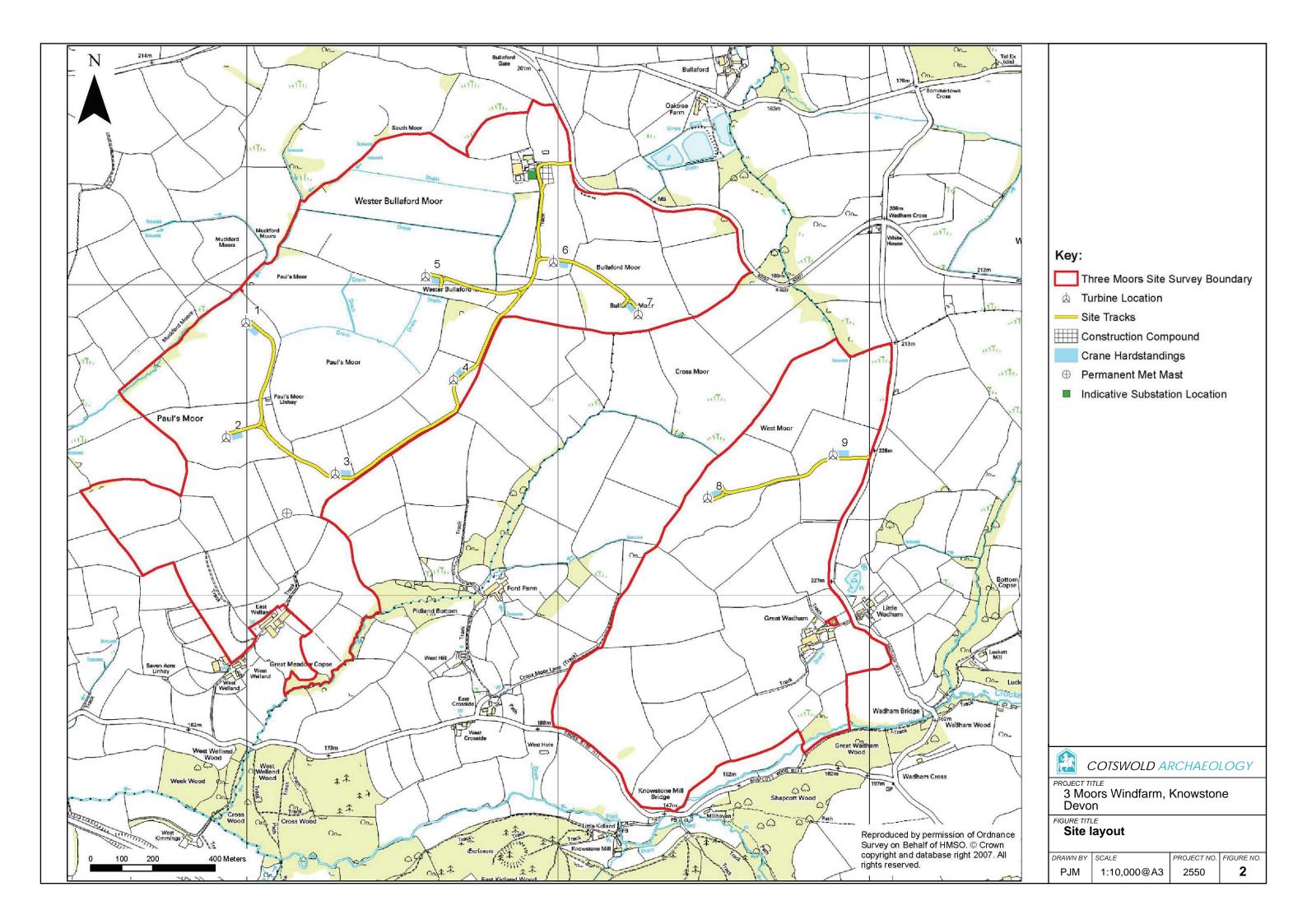
Key to quantity codes A = 200+ fragments, B = 100-200 fragments, C = 50-100 fragments, D = 10-50 fragments, E = 1-10 fragments

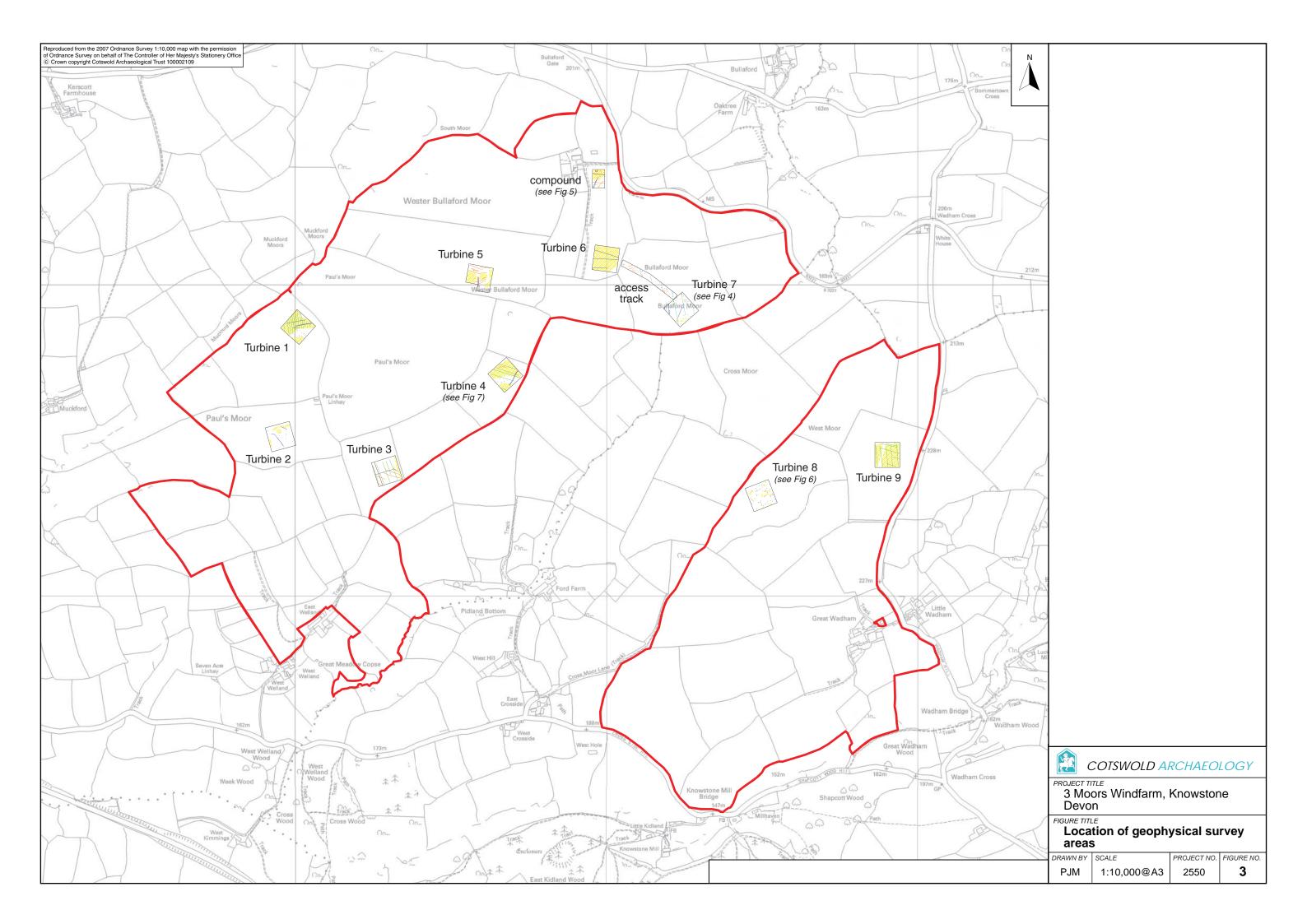
APPENDIX D: OASIS REPORT FORM

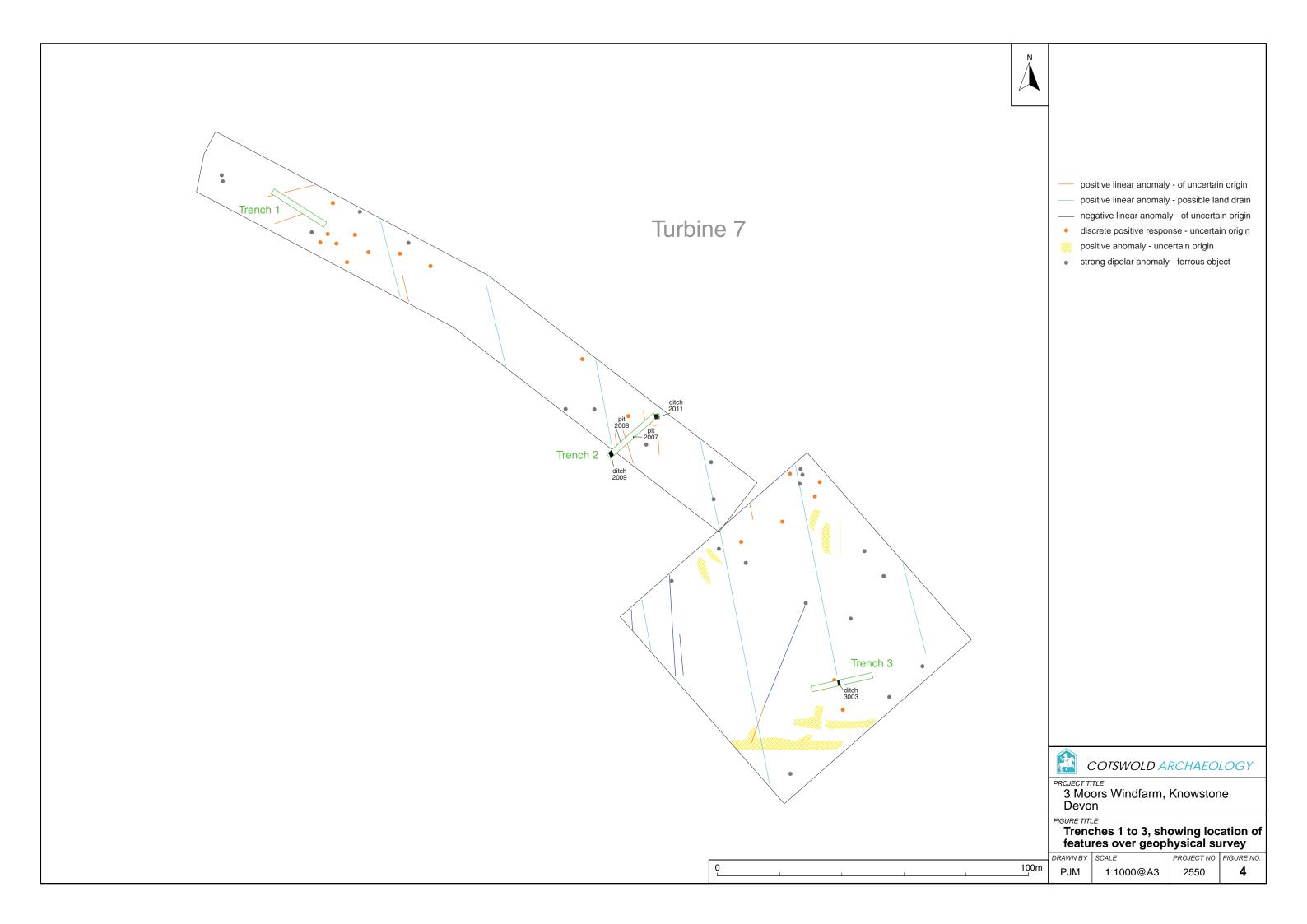
PROJECT DETAILS				
Project Name	Three Moors Wind Farm			
Short description (250 words maximum)	An archaeological evaluation was undertaken by Cotswold Archaeology in March and April 2008 at the request of Dulas Limited at the site of the proposed Three Moors Wind Farm, Knowstone, Devon. Nine trenches were excavated. Four undated ditches, relating to land drainage were identified, as well as four undated pits. Two of these pits have been interpreted as prehistoric storage pits based on their morphology.			
Project dates				
Project type	Evaluation	Evaluation		
Previous work (reference to organisation or SMR numbers etc)	Three Moors Wind Farm – Environmental Statement Dulas Limited 2007.			
Future work	Unknown			
PROJECT LOCATION				
Site Location	Three Moors Wind Farm, Knowstone, Devon			
Study area (M²/ha)	2.43km ²			
Site co-ordinates (8 Fig Grid Reference)	SS 8050 2450			
PROJECT CREATORS				
Name of organisation	Cotswold Archaeology			
Project Brief originator	Devon County Council			
Project Design (WSI) originator	Cotswold Archaeology			
Project Manager	Richard Young			
Project Supervisor	Stuart Joyce			
PROJECT ARCHIVES	Intended final location of archive	Content		
Physical	N/A	N/A		
Paper	Museum of Barnstaple and North Devon	WSI, pro forma registers and recording forms		
Digital	Museum of Barnstaple Digital photographs and North Devon			
BIBLIOGRAPHY				

CA (Cotswold Archaeology) 2008, *Three Moors Windfarm, Knowstone, Devon: Archaeological evaluation.* CA typescript report **08071**



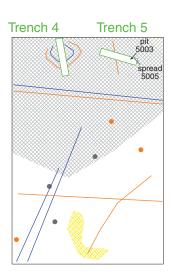








Compound



0 100m

positive linear anomaly - of uncertain origin

negative linear anomaly - of uncertain origin discrete positive response - uncertain origin

positive anomaly - uncertain origin

magnetic debris - spread of magnetically thermoremnant/ferrous material

strong dipolar anomaly - ferrous object



COTSWOLD ARCHAEOLOGY

PROJECT TITLE

3 Moors Windfarm, Knowstone Devon

FIGURE TITLE

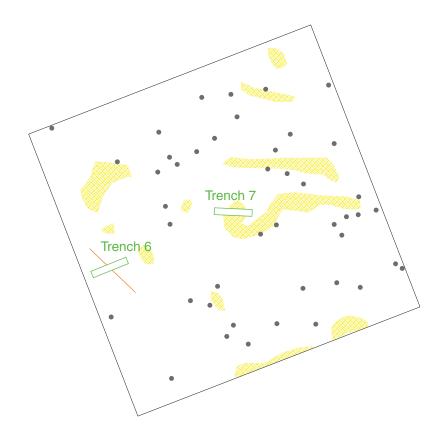
Trenches 4 to 5, showing location of features over geophysical survey

 DRAWN BY
 SCALE
 PROJECT NO.
 FIGURE NO.

 PJM
 1:1000@A4
 2550
 5



Turbine 8



100m



COTSWOLD ARCHAEOLOGY

positive linear anomaly - of uncertain origin

positive anomaly - uncertain origin

strong dipolar anomaly - ferrous object

PROJECT TITLE

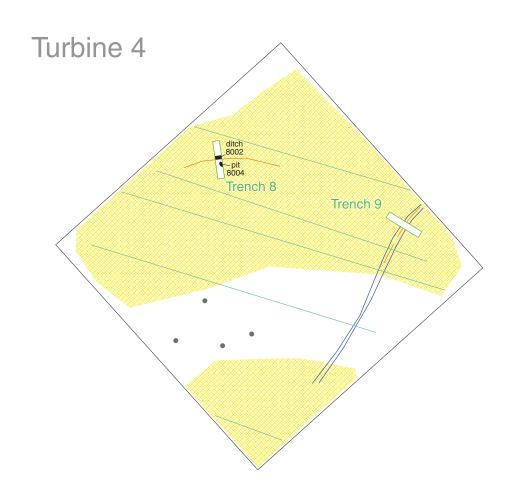
3 Moors Windfarm, Knowstone Devon

FIGURE TITLE

Trenches 6 to 7, showing location of features over geophysical survey

DRAWN BY	SCALE	PROJECT NO.	FIGURE N
PJM	1:1000@A4	2550	6





100m

- positive linear anomaly of uncertain origin
- linear anomaly of agricultural origin
 - negative linear anomaly of uncertain origin
 - positive anomaly uncertain origin
- strong dipolar anomaly ferrous object



COTSWOLD ARCHAEOLOGY

PROJECT TITLE

3 Moors Windfarm, Knowstone Devon

FIGURE TITLE

Trenches 8 to 9, showing location of features over geophysical survey

DRAWN BY	SCALE	PROJECT NO.	FIGURE NO.
PJM	1:1000@A4	2550	7

NW facing section of pit 2007 SW facing section of pit 2008 SW NW SE 2004 209m 2003 / 209m AOD AOD 2006 2005 pit 2007 N facing section of ditch 2009 208.8m AOD ditch 2009 N facing section of ditch 2011 Ε W 2000 209m AOD 2012 SE facing section of ditch 3003 WSW facing section of ditch 8002 SW NE ESE NNW 205.3m 3000 198m AOD 8000 AOD 3003 8003 ditch 8002 W facing section of pit 8004 Ν 198m├ 8000 AOD 8005 pit 8004 8001 2m COTSWOLD ARCHAEOLOGY PROJECT TITLE 3 Moors Windfarm, Knowstone Devon FIGURE TITLE **Sections** DRAWN BY PROJECT NO. FIGURE NO. SCALE 8 PJM 1:20@A4 2550







9 SE looking shot of pit 2007

10 NW looking shot of pit 2008

