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Brotherton Estate Wind Turbines, Aberdeenshire


Archaeological Watching brief

Report No. 3513

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**Brotherton Estate Wind Turbines,
Aberdeenshire**

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1. INTRODUCTION

1.1 General

This report presents the results of a programme of archaeological mitigation works carried out by CFA Archaeology Ltd (CFA) during construction of Brotherton Estate Wind Turbines, Aberdeenshire (Fig. 1, Planning application: APP/2016/1112, APP/2016/1111). The work was carried out between November 2016 and January 2017 and was commissioned by Green Cat Renewables Ltd.

1.2 Background

Permission was granted for the construction of two wind turbines on the Brotherton Estate, near Laurencekirk, Aberdeenshire (NGR: NO 77240 69259). A Written Scheme of Investigation (WSI) was produced by CFA Archaeology Ltd on behalf of Green Cat Renewables Ltd in October 2016. It was based upon the requirement for an archaeological watching brief and agreed by the Aberdeenshire Council Archaeology Service (on behalf of Aberdeenshire Council).

An Environmental Statement including a full desk-based assessment was prepared for the development (Green Cat Renewables Ltd, 2013).

1.3 Objectives

The objectives of this phase of works were to establish the presence/absence, extent, condition, character, quality and date of any archaeological features or deposits within the proposed development area; to establish their vulnerability to the proposed development; and to propose mitigation measures.

2. WORKING METHODS

CFA follows the Chartered Institute for Archaeologists' Code of Conduct, Standards and Guidance for archaeological watching briefs. Recording of all elements followed established CFA methods.

2.1 Watching Brief

A watching brief was undertaken during all ground breaking works, including, but not limited to, bell mouths, tracks, turbine bases, crane hardstandings, compounds and laydown areas.

Topsoil was removed by a mechanical excavator equipped with a smooth-bladed bucket, under constant archaeological supervision. All further excavation required to fulfil the objectives of the WSI was carried out by hand.

The stratification of all excavated areas was recorded, whether or not significant archaeological deposits were identified.

3. ARCHAEOLOGICAL RESULTS

3.1 General

The environment consisted of recently ploughed crop fields and pasture with 0.2m to 0.4m of dark reddish-brown sandy topsoil (001) overlying dark reddish-pink to mid-orange-brown silty gravel natural substrate (002), with occasional outcrops of bedrock.

3.2 Watching Brief

Several features of agricultural origin were recorded during topsoil stripping (Fig. 1). A fire-pit (009) (Fig. 4 and 5) was discovered cut into natural subsoil during topsoil stripping operations on the access track towards the location of Turbine 1.

Pit (009) was a sub-circular feature measuring 1m long by 0.95m in width. The profile of the feature was a wide concave bowl shape, with a maximum depth of 0.08m. The feature contained one deposit, 010, comprising black charcoal-rich silt and possible fire-cracked stone. No artefacts were recovered from this feature.

The location of a 19th century farmstead at Blinkbonnie (HER ID: NO76NE0047) was exposed during the stripping of vegetation cover (Fig. 7). This area was to be used as a storage area for spoil produced during construction works and was to subsequently be landscaped and brought back into agricultural use. Topsoil was not removed in its entirety from this area. Two deposits of loose rounded stone (011) and (012) were recorded at this location.

Deposit 011 comprised mixed rounded stones, loosely arranged, with no mortar or bonding, contained within the topsoil and covering an area 3-3.5m long by 0.8m wide by 0.35-0.4m in depth. Modern glass, a metal object and red ceramic field drain fragments were recovered from around the stones of 011 and were not retained. Deposit 012 was an adjacent loose spread of rounded stone measuring 3-3.5m by 3m by up to 0.4m in depth. These stone deposits are likely to be field clearance as they consist of large rounded cobbles rather than building material, and so are unlikely to be demolition debris relating to Blinkbonnie farmstead.

Spreads of demolition debris, including mortared sections of brick, sandstone blocks, metal and glass, and tile drain fragments, were visible on the surface following turf removal and these were preserved in situ beneath the spoil. These likely relate to the demolition of the farmstead. No other remains relating to the farmstead, such as cut features or walls, were recorded during topsoil stripping. Outcropping bedrock was present running NE-SW across the stripped spoil storage area.

Two cultivation furrows (003 and 005; Fig. 1) and several rubble field drains were also encountered (007 was recorded as an example of these).

3.3 Finds by Christina Hills

Three finds were all from topsoil (001), and are detailed in Appendix 5. The find spots were plotted using GPS and the locations can be seen on Fig. 1. Two of the finds (SF

nos. 2 and 3) were chipped flint, probably of prehistoric date. The other find (SF no. 1) was a blue glass bead, which is undated.

4. CONCLUSION

The watching brief at Brotherton Estate Wind Turbines identified one fire pit containing burnt material and several features of agricultural origin. Two loose deposits of rounded stone were recorded at the location of the former Blinkbonnie Farmstead.

Two lithic artefacts and a bead were recovered from topsoil around Turbine 2 prior to ground reduction. These artefacts were likely disturbed from their original position by plough action from the upper slope of Paul Mathew Hill as no features were encountered on the slope at this location.

A summary statement will be submitted for publication in *Discovery and Excavation in Scotland* (Appendix 6).

The project archive, comprising all CFA record sheets, digital photographs, maps and reports, will be deposited with the National Record of the Historic Environment (NRHE) and copies of reports will be lodged with the Aberdeen Council Sites and Monuments Record (SMR).

5. REFERENCES

Green Cat Renewables Ltd, 2013, *Brotherton Estate Wind Turbines, Environmental Statement*.

APPENDIX 1: Context Register

Context	Fill of	Description
001		Topsoil. Dark reddish brown firm sandy silt and gravels with frequent mixed rounded stone inclusions. Up to 0.40m in depth.
002		Natural subsoil consisting of dark reddish pink and orange brown silty gravels with frequent rounded stone inclusions. Bedrock/ basalt outcrops are found at higher slopes. Encountered at 0.20-0.40m in depth.
003		Cut of furrow. Linear in plan with shallow sloping sides to a flat base. Orientated NW-SE measuring up to 20m long by up to 1m wide by 0.05m in depth.
004	003	Mid greyish brown firm stony silt. Sterile.
005		Cut of furrow. Linear in plan with shallow sloping sides to a flat base. Orientated NW-SE measuring up to 25m long by up to 1m wide by 0.05m in depth.
006	005	Mid greyish brown firm stony silt. Sterile.
007		Cut of rubble field drain. Linear in plan and 'U' shaped in section, with a rounded base. Orientated NE-SW, measuring up to 10m long by 0.40m wide by 0.30m in depth.
008	007	Mid-grey rounded and angular stones and silt. Rubble stone fill.
009		Cut of fire pit. Sub-circular in plan with shallow sloping sides to a flat base. Measuring 1m in length by 0.95m wide by 0.08m in depth.
010	009	Black firm silty charcoal with small possible fire-cracked stones.
011		Mixed rounded stone, loosely arranged, no mortar or bonding, within (001) topsoil matrix. Concentration measures 3-3.5m long by 0.8m wide by 0.35-0.40m in depth. No footings or evidence of worked edges. 20th century glass, metal object and red ceramic field drain fragments recovered from around the stones in (001).
012		Same as (011) but looser and spread out around it, disturbed from (011).

APPENDIX 2: Digital Photograph Register

Photo No.	Description	From
1	Pre-excavation shot from track looking toward Paul Matthew Hill	SE
2	Removing vegetation by track-way	E
3	Removing vegetation by track-way	E
4	Verge, widening of track-way	W
5	Pre-ex with verge toward Paul Matthew Hill	SSE
6	Possible remains of Blinkbonnie Farmstead (by track-way)	E
7	Possible remains of Blinkbonnie Farmstead (by track-way)	S
8	Possible remains of Blinkbonnie Farmstead (by track-way)	SW
9	Possible remains of Blinkbonnie Farmstead (by track-way)	S
10	East facing sample section of Haul Road strip at main junction	E
11	General post-ex shot of haul road alignment 1	S
12	General post-ex shot of haul road alignment 1	S
13	General post-ex shot of haul road alignment 1	S
14	Working shot toward bellmouth	NW
15	General shot of (003) furrow	SE
16	SE facing section (003) furrow	SE
17	Post ex shot of slot through (003) furrow	SE
18	General Pre-ex shot of bellmouth at main road	SW
19	Working shot of landscape with haul road	SE
20	West facing section of field boundary crossing	W
21	East facing section of field boundary crossing	E
22	Post-ex main road bellmouth strip, heavy plough scarring	NE
23	Post-ex main road bellmouth strip, heavy plough scarring	NE

Photo No.	Description	From
24	General shot of (005) furrow	SE
25	NW facing section of (005) furrow	NW
26	Post ex shot of access track bellmouth	SE
27	Post ex shot of access track bellmouth	SE
28	General post-ex shot of south end of crane pad at Turbine 2	E
29	General pre-ex shot of north end of crane pad Turbine 2	S
30	Working shot of Turbine 2 strip	S
31	Post ex shot of Turbine 2 crane pad strip, north end	E
32	Working shot of site access strip	E
33	Working shot of haul road up alignment 2 strip	SE
34	Post-ex shot of haul road alignment 2, up to first fence	NW
35	Post-ex shot of haul road alignment 2 ,up to second fence	NW
36	Pre-ex Turbine 1 location, pasture	S
37	Pre-ex hammerhead at Turbine 1	E
38	Pre-ex haul road leading up to Turbine 1	SE
39	Pre-ex haul road leading up to Turbine 1	SE
40	Pre-ex haul road leading up to Turbine 1, fence crossing into pasture	NW
41	NE facing section of (007) rubble field drain	NE
42	General shot of (007) rubble field drain	NE
43	Pre-ex (009) fire pit	SW
44	Pre-ex (009) fire pit	SW
45	Mid-ex (009) fire pit	SW
46	SE facing section (009) fire pit	SE
47	SE facing section (009) fire pit	SE
48	Post ex (009) fire pit	SW
49	General post-ex of hammerhead at Turbine 1	SE
50	General Post-ex of haul road alignment 2	NW
51	Working shot of strip at Turbine 1 crane pad	S
52	Test slot at Turbine 1 crane pad showing damage by plough scarring	S
53	General post-ex along east side of Turbine 1 crane pad	SW
54	General post-ex along west side of Turbine 1 crane pad showing plough scarring	S
55	NE facing section of rubble field drain in Turbine 1 crane pad	NE
56	General shot of rubble field drain in Turbine 1 crane pad	NE
57	General shot of drainage emplacement disturbance parallel to field drain in Turbine 1 crane pad	NE
58	General post-ex shot of Turbine 1 crane pad	SW
59	General post-ex of Turbine 1 crane pad	S
60- 81	(011) and (012) stone spread	Various (N and NE)
82	General post-ex of strip extension area at former Blinkbonnie farmstead	E
83	Close up of stone spread exposed in SE comer	S
84	General post-ex shot of storage area strip at former Blinkbonnie farmstead	E
85	Close-up of possible rubble/demolition debris to be sealed by redeposited natural and topsoil reformation.	E
86	Close-up of possible rubble/demolition debris to be sealed by redeposited natural and topsoil reformation.	N
87	Close-up of possible rubble/ demolition debris/ surfaces all to be sealed by redeposited natural and topsoil reformation.	NW
88	Turbine 2 Pre-ex	SW
89	Turbine 2 Pre-ex	S
90	Turbine 2 Pre-ex	NW
91	Turbine 2 Working shot	SW
92	Turbine 2 showing stripped area	NW
93	Turbine 2 showing stripped area	NW
94	Turbine 2 showing stripped area	NW

Photo No.	Description	From
95	Turbine 2 showing stripped area	NW
96	Turbine 1 Pre-ex	Various
97	Turbine 1 Pre-ex	Various
98	Pipe in linear feature at Turbine 1	NW
99	Turbine 1 Post-ex	W
100	Turbine 1 Post-ex	W
101	Turbine 1 Post-ex	W
102	Turbine 1 Post-ex	SE
103	Turbine 1 Post-ex	SE
104	Turbine 1 Post-ex	SE

APPENDIX 3: Drawings Register

Drawing No.	Description	Section/Plan	Scale
1	SE facing section (009) fire pit	S	1:10
2	Mid-ex plan (009) fire pit	P	1:20
3	Post-ex plan (009) fire pit	P	1:20
4	W facing section of (011) and (012) stones	S	1:25
5	Mid-ex plan (011) and (012) stones	P	1:50

APPENDIX 4: Samples Register

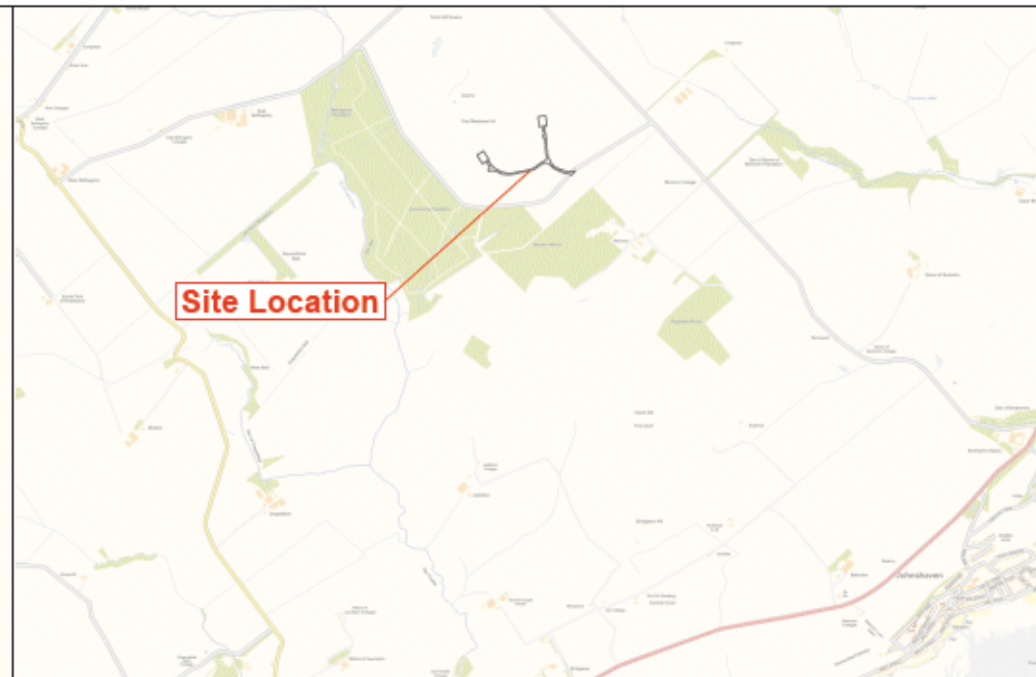
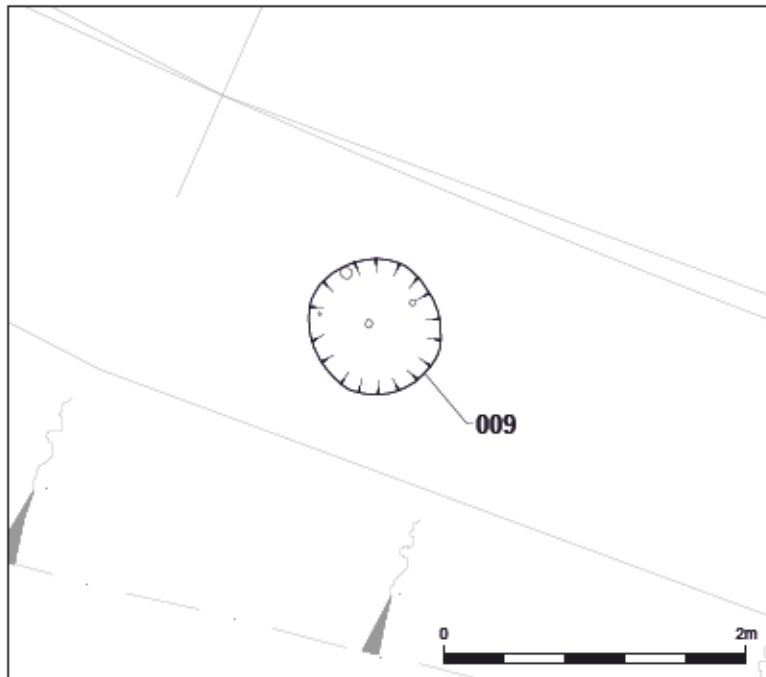
Sample No.	Context No.	Fill of	Sample Type	Reason	Volume
1	010	009	Bulk	Charcoal	40L

APPENDIX 5: Finds Register

Find no	Context	Find type	No.	Wt (g)	Notes	Spotdate
1	001	Glass bead	1	2		
2	001	Lithic	1	4	Flint	Prehistoric
3	001	Lithic	1	1	Flint	Prehistoric

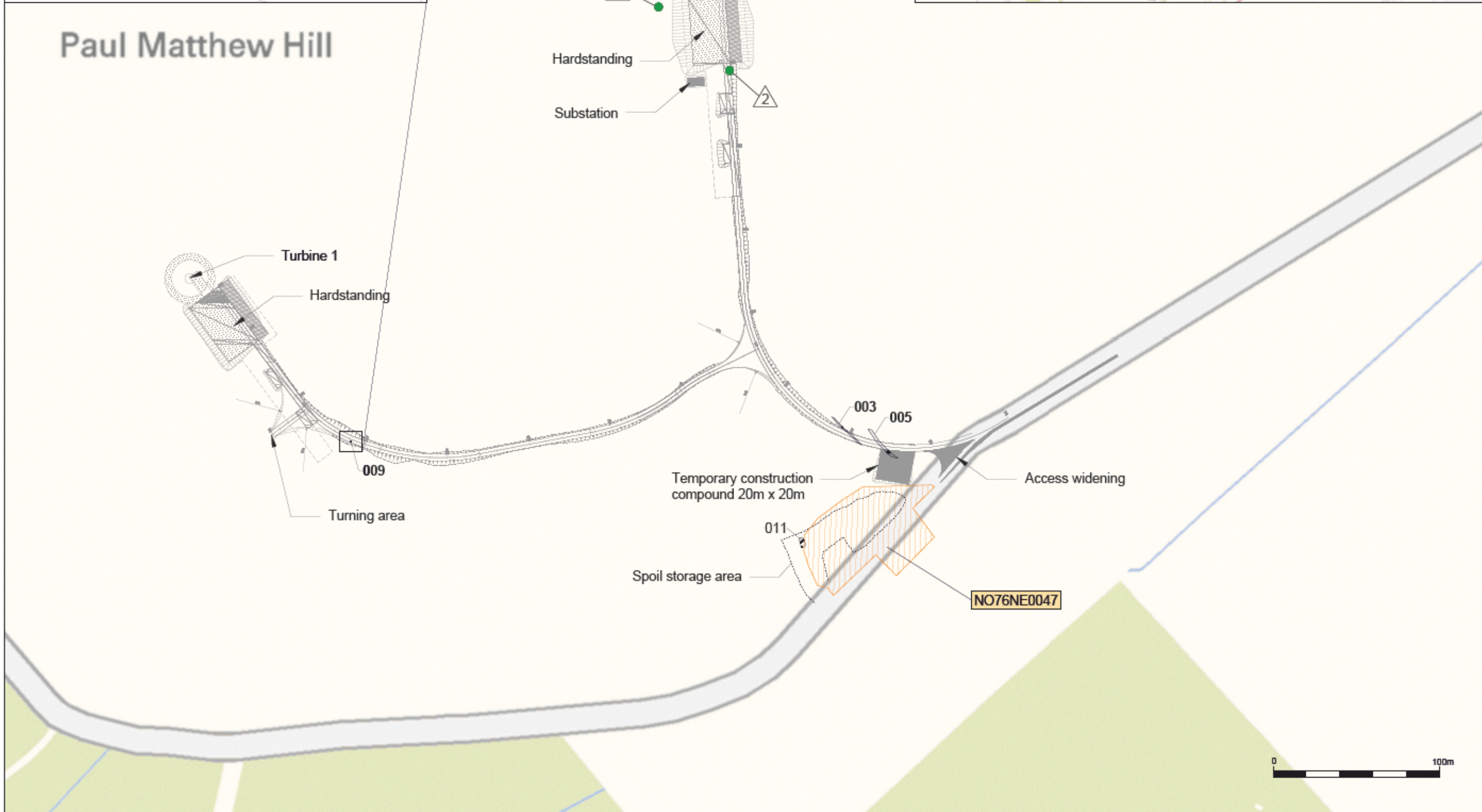
APPENDIX 6: Discovery and Excavation in Scotland Entry

LOCAL AUTHORITY:	Aberdeenshire and Angus
PROJECT TITLE/SITE NAME:	Brotherton Wind Farm, Aberdeenshire and Angus
PROJECT CODE:	BROE2
PARISH:	Benholm
NAME OF CONTRIBUTOR:	Katie Sludden
NAME OF ORGANISATION:	CFA Archaeology Ltd
TYPE(S) OF PROJECT:	Archaeological Watching Brief
NMRS NO(S):	None
SITE/MONUMENT TYPE(S):	None
SIGNIFICANT FINDS:	None
NGR (2 letters, 6 figures)	NO 775692 centred
START DATE (this season)	29/11/2016
END DATE (this season)	19/01/2017
PREVIOUS WORK (incl. DES ref.)	None
MAIN (NARRATIVE) DESCRIPTION: (May include information from other fields)	A watching brief was undertaken during the construction of two wind turbines and associated access tracks at Brotherton Estate, near Laurencekirk. The watching brief identified one fire pit containing burnt material, and several features of agricultural origin.
PROPOSED FUTURE WORK:	None
CAPTION(S) FOR ILLUSTRS:	None
SPONSOR OR FUNDING BODY:	Green Cat Renewables. Ltd
ADDRESS OF MAIN CONTRIBUTOR:	CFA Archaeology Ltd, Old Engine House, Eskmills Park, Musselburgh, EH21 7PQ.
EMAIL ADDRESS:	cfa@cfa-archaeology.co.uk
ARCHIVE LOCATION (intended/deposited)	Archive to be deposited in HES, Reports lodged with SMR.



Key:

- Archaeological Feature
- Lithic
- Bead
- HER Site (area)



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Title:
 Site plan showing Turbine Locations and relevant archaeological features

Project:
 Brotherton Estate Wind Turbines, Aberdeenshire and Angus: Archaeological Watching Brief

Client:
 Green Cat Renewables Ltd

Scale at A3:
 Main plan: 1:2500; Inset: 1:50

Drawn by: MP	Checked by: SW	Date: 03/01/2017
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Report No: 3513	Fig. No: 1
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Fig. 2 - General post-excavation shot of haul road



Fig. 3 - General post-excavation shot of Turbine 2 Crane Pad

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Report No: 3513		Fig. No: 2-3

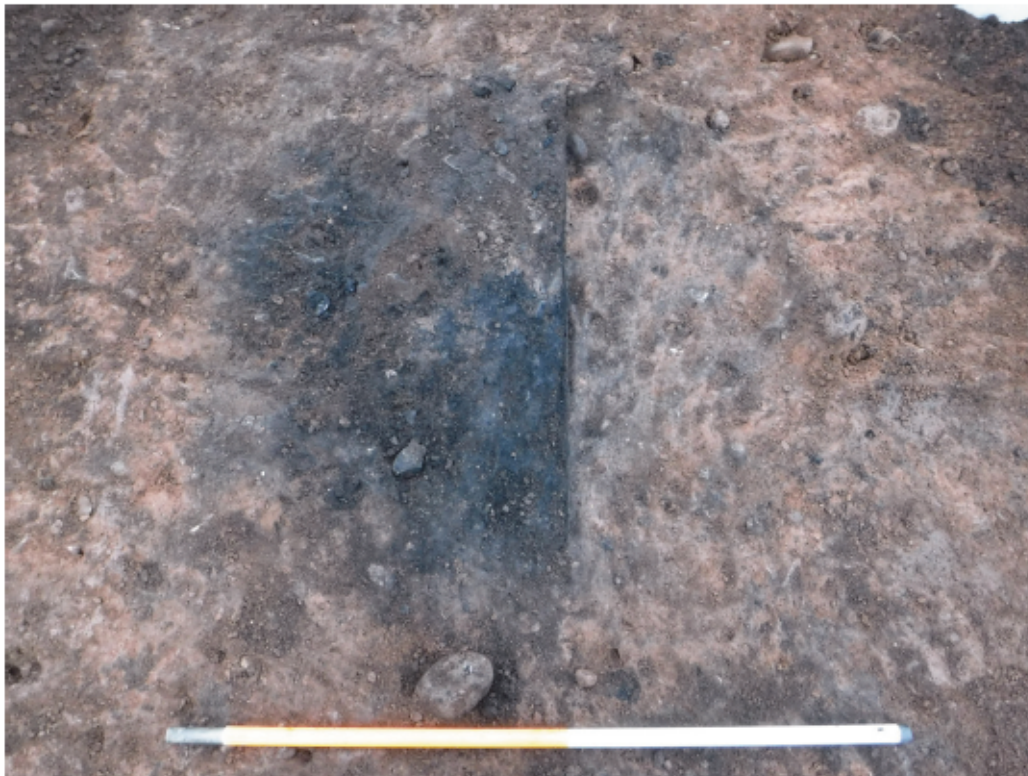


Fig. 4 - Mid-excavation shot of [009] fire pit



Fig. 5 - SE-facing section of [009] fire pit

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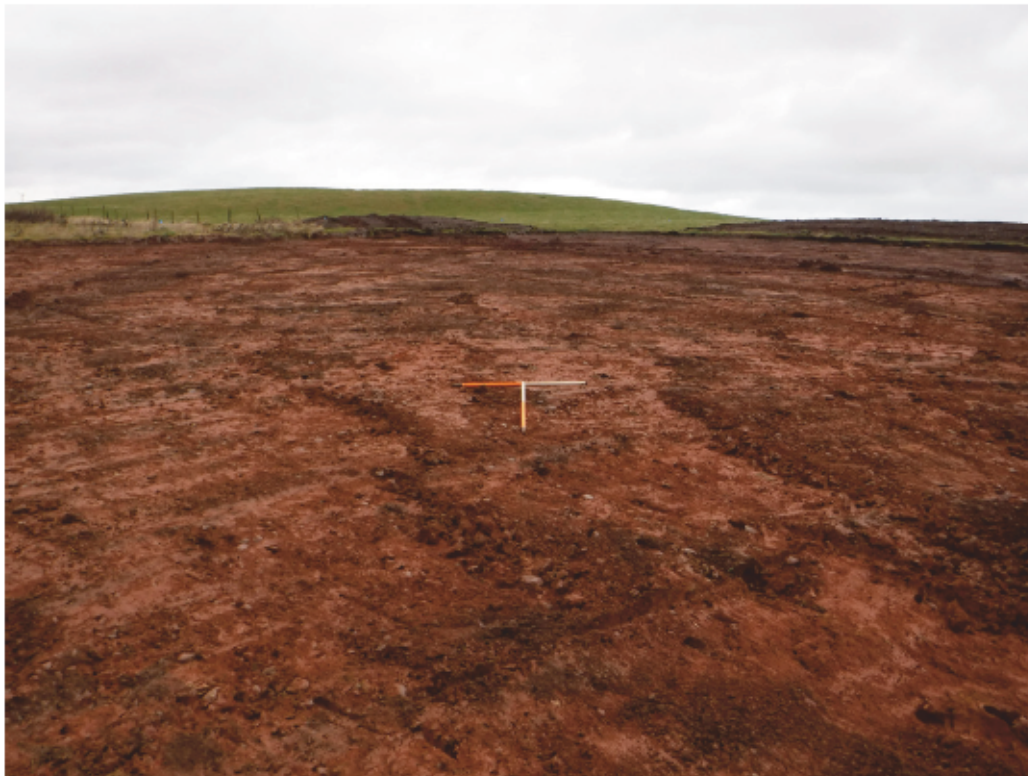


Fig. 6 - General post-excitation shot of Turbine 1 Crane Pad



Fig. 7 - Mid-excitation shot of (011) and (012) stones

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Fig. 8 - General post-excitation shot of Turbine 1 base

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