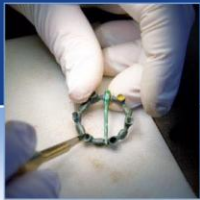


Burn of Whilk Wind Farm, Caithness: Archaeological Mitigation Works Basic Report

AOC Project 21961

July 2015

(Revised September 2015)



Burn of Whilk Wind Farm, Caithness

Archaeological Mitigation Works Basic Report

On Behalf of:	RWE Npower Renewables Ltd. Auckland House Lydiard Fields Great Western Way Swindon Wiltshire SN5 8ZT
National Grid Reference (NGR):	ND 2849 4087
AOC Project No:	21961
Planning Reference:	12/01242/FUL
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This document has been prepared in accordance with AOC standard operating procedures.

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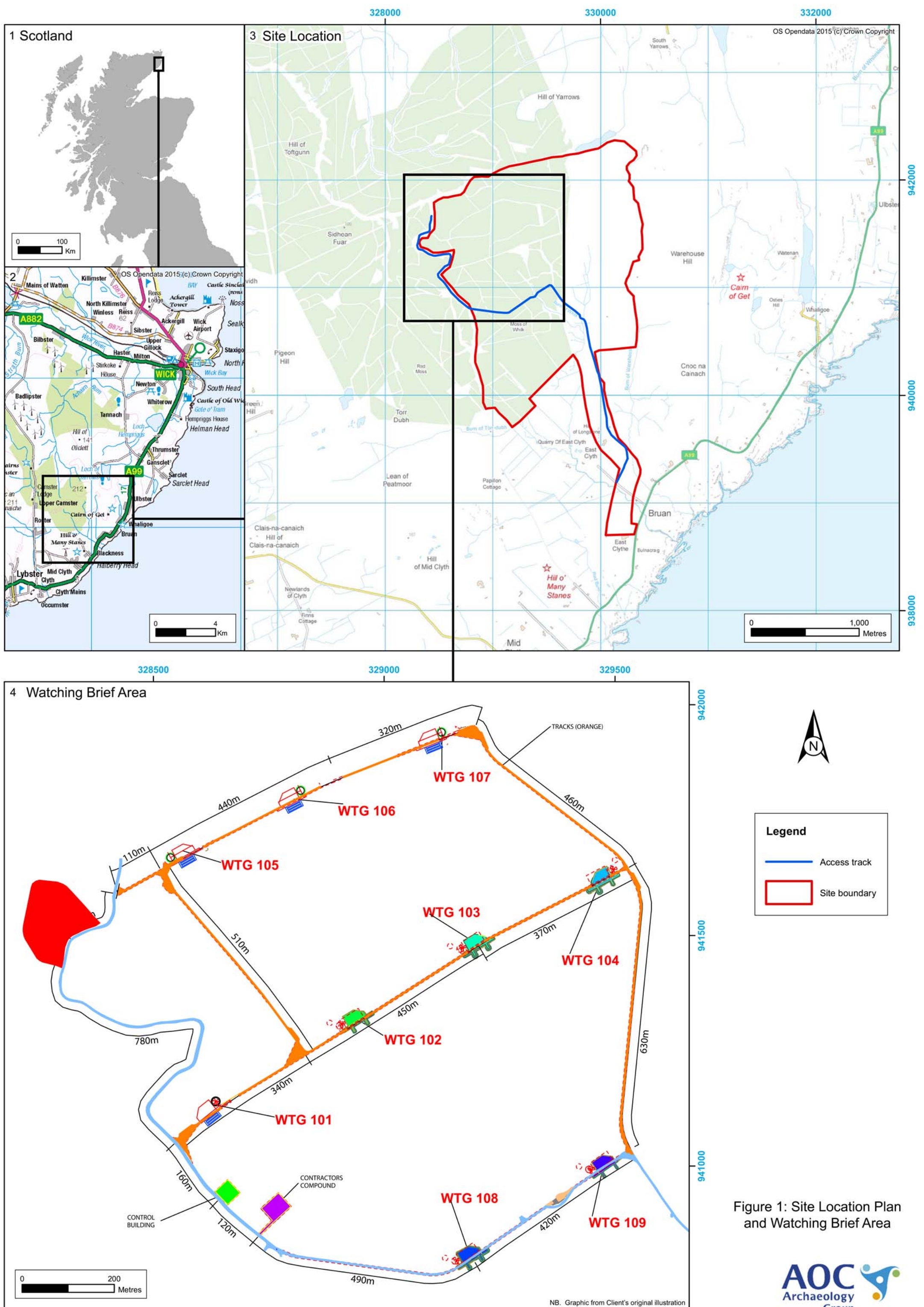
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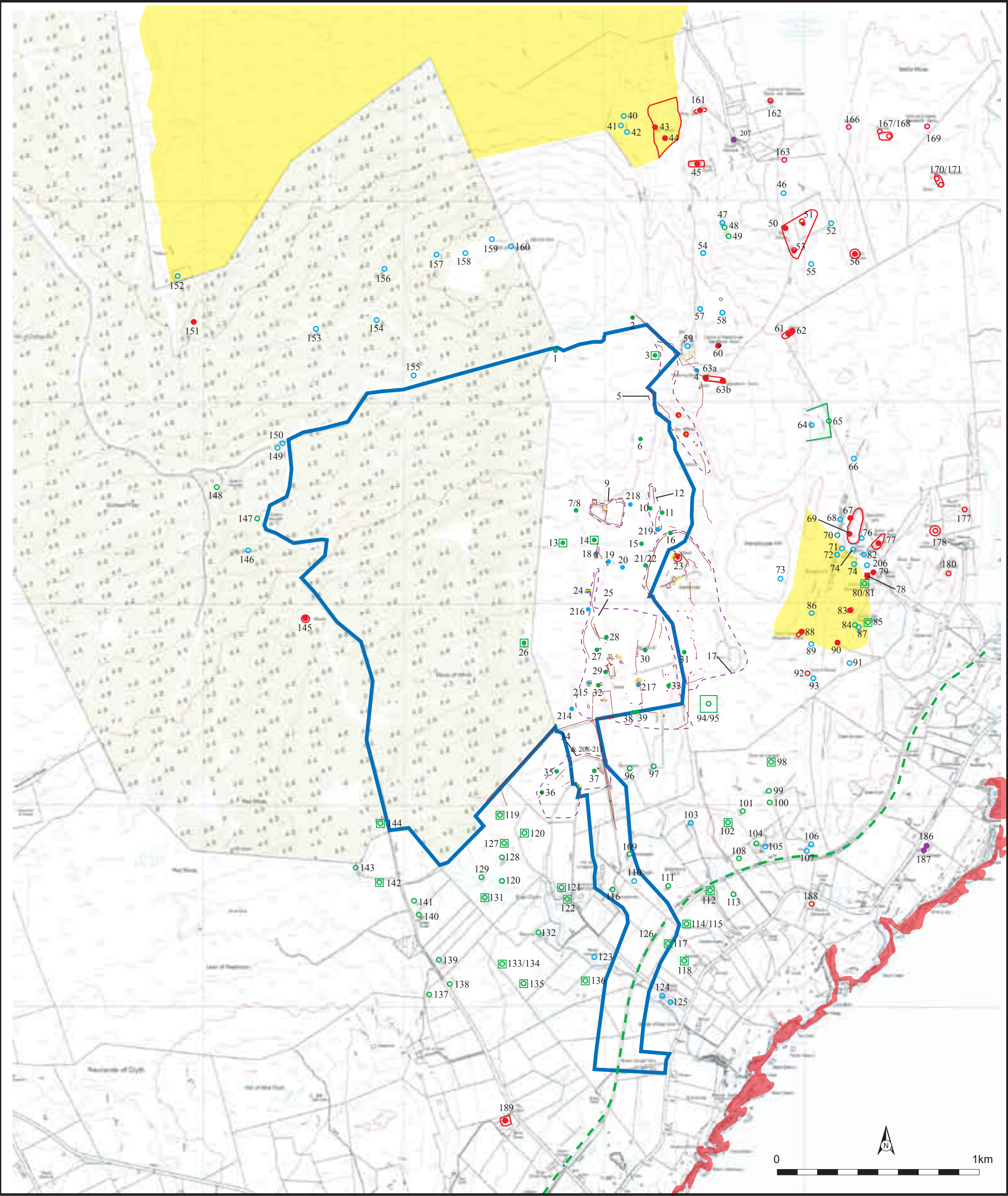


Figure 2: Sites of archaeological and cultural heritage interest located within proposed development area and 1km beyond

Non-technical Summary

This report presents the results of archaeological mitigation works undertaken with respect to groundbreaking works associated with the main construction works for a wind farm at Burn of Whilk, which lies to the north east of Midclyth, Lybster, Caithness.

The archaeological works mainly comprised a watching brief during all groundbreaking works associated with the installation of the windfarm, and a post tree felling survey. The groundbreaking works consisted of significant top soil/peat stripping at the locations of two borrow pits, the control building, the access track, the bases of the 9 wind turbine/crane hardstanding bases and their associated access tracks, cable trenches and drains.

The majority of the areas where the archaeological works were carried out were archaeologically sterile. A lade used to power a nearby 18th/19th century mill was recorded at the site entrance. Remains of the former Lybster to Wick railway line were also recorded, as well as the remains of an eathern bank and possible ditch feature. All of these features were recorded towards the extreme southern end of the development.

1 INTRODUCTION

1.1 Planning Background

1.1.1 A programme of archaeological works (watching brief) was required by RWE Innogy UK Ltd, subsequently Eneco Wind UK following the sale of the development, with respect to the main construction works for the windfarm development at Burn of Whilk, Lybster, Caithness. The proposed development lies within the administrative area of Highland Council, which is advised on archaeological matters by Highland Council Historic Environment Team (HCHET). The watching brief was a condition of the planning application. Planning Ref: 12/01242/FUL.

1.1.2 The Planning Condition

1.1.2.1 The planning condition was as follows:

Condition 15: Archaeology

Development shall not commence until a scheme for archaeological investigation and monitoring has been submitted to and approved in writing by the planning authority.

1) The archaeological scheme is a scheme setting out how site clearance and excavation works are to be carried out. This shall include the proposed mitigation in Section 5.7.2 to 5.7.9 of the Burn of Whilk Environmental Statement and subsequent Burn of Whilk Wind Farm Supplementary Information Report; Section 5 - Archaeology and Cultural Heritage (section 5.7).

- Micro-siting of the access track to enable the preservation in situ of Sites 215 and 25;
- All known sites to be fenced off in advance of and during construction;
- Tree felling in the vicinity of Moss of Whilk (Site 145) to be conducted in such a way as to ensure that trees are felled away from the scheduled area, so as to avoid accidental damage;
- Following tree felling an archaeological survey will be conducted to identify any sites of archaeological interest not previously known or identified;
- An archaeological watching brief will be conducted on all ground breaking works associated with the development.

2) All site clearance or excavation works shall be implemented in accordance with the approved archaeological scheme.

1.1.2.2 The exact requirements of the archaeological works related to this condition were specified by HCHET and are described in the *Written Scheme of Investigation* (2012). An assessment of the site's archaeological potential was required (Phase 1 to 4 below) with Phase 1 comprising four discrete work stages. This report satisfied the requirement for the HCHET Basic Report as detailed in Phase 3.

Phase 1: The undertaking of a programme of archaeological works comprising:

Stage 1: agreement of a Written Scheme of Investigation

Stage 2: the demarcation of known archaeological contiguous to working areas for the duration of wind farm construction works.

Stage 3: the monitoring of tree felling works in the area near Site 145 (Moss of Whilk Scheduled Ancient Monument);

Stage 4: walkover survey following tree felling to identify any previously unrecorded sites of archaeological interest;

Stage 5: watching brief on ground-breaking works.

Phase 2: Given the discovery of significant archaeological material where preservation in situ proves infeasible a programme of archaeological mitigation works will be undertaken, as defined in a further Written Scheme of Investigation(s) to be agreed with HCHET.

Phase 3: The provision of a HCHET Basic Report detailing the findings of Phases 1 and 2.

Phase 4: Should significant archaeological features, artefacts and samples be unearthed there may be the need for further phases of work including post-excavation analyses of samples. A costed Post-Excavation Research Design would be prepared in these circumstances. The need for, and scale of, such further phases would be determined by WYG in consultation with HCHET.

- 1.1.2.3 All works are in keeping with the policies outlined in *Scottish Planning Policy* (Scottish Government, February 2010) and *Planning And Archaeology 2/2011* (Scottish Government 2011), in order to record the extent and significance of any archaeological remains which may be present within the development area.

1.2 Location

- 1.2.1 The development area is located at Burn of Whilk, East Clyth, Mid Clyth, Lybster, near Wick in Caithness. The site is centred on National Grid Reference ND 2849 4087 and lies at the eastern edge of an area of forestry on the Moss of Whilk (Figure 1).

1.3 Archaeological background

- 1.3.1 Earlier cultural heritage assessments by AOC Archaeology Group have demonstrated that the proposed development is located on the periphery of a rich prehistoric landscape (see Environmental Statement). The development area lies to the west of the monument-rich area around the Loch of Yarrows (Figure 2). Several individual sites and monuments had been identified within the area enclosed by the proposed wind farm development boundary. As such the proposed turbine layout had taken consideration of the location of all known sites and monuments within the proposed development area and as a consequence none of the known sites or monuments would be physically impacted upon by the proposed development.
- 1.3.2 The eastern half of the wind farm area is dominated by Post-Medieval and Post-Clearance remains representing 18th and 19th century expansion into what had been considered marginal land. On the fringes of the Burn of Whilk valley there are several much earlier sites such as a broch and three hut circles. Several of the sites contain more than one element, for example the Whilk Township contains several discrete monuments forming a larger whole; others represent a single findspot with imprecise locational information. The western half of the development area is covered by modern forestry plantations within which occasional isolated monuments may survive unaffected by forestry ploughing or by tree roots. An example of one such site is a grass covered mound of unknown date.
- 1.3.3 Prior to the required archaeological works described above, additional archaeological works were carried out. These included: A walkover survey at the location of the anemometer mast, during which the remains of post-medieval peat cuttings were identified (AOC 2012). The monitoring of site investigation works along the route of the proposed access tracks and at the sites of the proposed turbine/crane hardstanding locations (AOC 2012). A Lidar survey, which included the eastern part of the area where the turbines are located, and also the area to the south of the tree line, which includes part of the newly constructed access track and Borrow Pit 1, within a larger area to the east of the main wind farm development (AOC 2012). Finally, a walkover survey and the subsequent

excavation of two post-medieval structures, identified during the walkover survey, at the location of Borrow Pit 1 (AOC2013).

2 OBJECTIVES

2.1 The objectives of the archaeological works in respect to Condition 15 were:

- i) to safeguard the archaeological resource from any inadvertent adverse physical impact by the development;
- ii) should significant archaeological features, deposits or artefacts be discovered, which cannot be preserved *in situ* by the development proposals, to prepare a mitigation strategy compliant with *Scottish Planning Policy* (Scottish Government 2010) and *PAN 2/2011 Planning & Archaeology* (Scottish Government 2011).

3 METHODOLOGY

3.1 Introduction

3.1.1 The programme of works was divided into five distinct stages in order to comprehensively deal with Condition 15 of the planning requirements. These were carried out as per AOC Archaeology Group's standard operating procedures detailed in the *Written Scheme of Investigation* (AOC 2012).

3.1.2 The requirements of the development were such that the individual stages set out below were not undertaken in a simple linear progression. For example an early requirement was the creation of access tracks for the removal of trees, therefore a walkover (Stage 4) of the cleared ground for the tracks was undertaken before the watching brief on the groundworks for the tracks (Stage 5). Further Stage 4 work was then undertaken on the cleared forested areas. Similarly, demarcation of known sites (Stage 2) was a continuous process throughout the course of the project.

3.2 Stage 2: Demarcation of Known Archaeological Sites

3.2.1 Prior to the commencement of the windfarm construction, to prevent inadvertent damage to known remains during the construction process, all known archaeological and cultural heritage sites contiguous (within 100 m) to working areas were fenced off by means of 10 m buffer zones. The buffer zones were initially constructed of red and white striped barrier tape mounted on iron road pins. These were subsequently replaced by the Principal Contractors using red and white painted wooden posts, between which a blue rope was mounted supporting high visibility barrier tape and signs attached to the rope identified the cordoned area as protecting archaeological remains. These cordoned areas were maintained during the construction process as necessary. Construction personnel, particularly plant and vehicle drivers, were made aware of the nature and significance of the remains and the need to avoid the demarcated areas by the Principal Contractor and the message was repeated at tool-box talks over the span of the project.

3.2.2 During the stage 4 walkover survey there was a requirement to fence off any additionally recorded sites. However, no further sites were recorded during this process.

3.2.3 All known archaeological sites within the proposed area were demarcated prior to the initiation of the groundbreaking works. These included Sites 215 and 25 located adjacent to the north of Borrow Pit 1 at the south end of the development area. Sites 5, 10 and 20 in open land adjacent to the east and

west of the access track to the south of the forested area, Site 145 (a Scheduled Ancient Monument), located adjacent to the west of the access track within the forested area, and a fragment of the Wick to Lybster railway (Site 126). These works did not include the demarcation of indefinable/intangible sites such as findspots.



Plate 1 Demarcation of Langstaness (Site 116) within development area

3.3 Stage 3: Archaeological supervision of tree-felling in the vicinity of Moss of Whilk (Site 145)

- 3.3.1 Site 145 (a Scheduled Ancient Monument) lies beyond the application boundary, however tree felling in this location was undertaken by the Principal Contractors felling subcontractor. It was included on the off chance that the specific felling episode in the area of this site extends close to the wind farm boundary. Tree felling work in the immediately adjacent area was monitored by an AOC field officer to ensure avoidance of accidental damage to archaeological surface features.

3.4 Stage 4: Post Tree-felling Archaeological Walkover Survey

3.4.1 Stage 4 Fieldwork

Upon conclusion of tree felling (and subsequent removal of trees), a walkover survey was conducted by AOC field officers. This was carried out in a phased manner as and when large areas were free of felled timber and available to be surveyed. The areas were walked over in a systematic manner. Appropriately close transects were used given past land use/possible deep ploughing. The locations and extent of deep ploughing/truncation was also defined and mapped.

All features identified were to be given a unique number and recorded on pro forma sheets. The written record was complimented by photography and sketch plans where appropriate. The location of each feature was to be recorded by a handheld GPS unit.

3.4.2 Stage 4: Reporting

The original WSI (AOC 2012) stated that a report would be produced given the discovery of any sites that should be impacted by the wind farm that had been hitherto unknown. This *Data Structure Report* represents the findings of the walkover survey (detailed below).

3.5 Stage 5: Watching Brief on Construction Groundworks

3.5.1 Stage 5: Watching Brief Fieldwork

An archaeological watching brief was conducted on ground breaking works associated with the development. The default response to the discovery of any significant archaeological material was to allow its preservation *in situ* by moving the works, if feasible within the needs of the development, away from the archaeological find.

The Watching Brief also included the excavation of any archaeological features encountered (should preservation *in situ* prove infeasible) in order to record the extent, condition, character, quality and date of any archaeological features impacted upon by these works.

It was proposed that at the onset of site works, the watching brief would be focused on areas of ground-breaking close to known archaeological sites, or during groundworks before the archaeological potential and underlying ground conditions below the current forest could be assessed by the walkover survey following completion of tree felling. The five zones considered necessary are set out in Table 1:

Area No.	Area Subject to Watching Brief	Rationale
1	Groundworks within the access corridor leading into the main development area, continuing with groundworks for the track from the access corridor to Turbine 11	Juxtaposition of groundworks to large cluster of sites: 116, 110, 109; 37, 30, 34, 32, 27, 29, 28, 24
2	Groundworks for the temporary construction compound, Control Building/ Switch Room and Turbine 6 and associated areas of hardstanding	Juxtaposition of groundworks to Scheduled Monument (145).
3	Groundworks for access tracks prior to Walkover Survey of tree-felling area.	Safeguarding unknown archaeological material until Walkover Survey has defined the survival, scope, distribution and extent of any archaeological sites currently under forest.
4	Groundworks for the access tracks between Turbines 1, 2 and 3 and the groundworks for the turbines and associated areas of hardstanding.	Juxtaposition of groundworks to Sites 149, 150, 155
5	Groundworks for the access tracks between Turbines 10, 11 and the Met mast and the groundworks for the turbines/mast and associated areas of hardstanding.	Juxtaposition of groundworks to Site 26 - location of this well probably denotes further associated features in the local area.

Table 1: Initial Watching Brief Zones

Dependent on the results of the Walkover Survey the watching brief would then thereafter be extended to include further construction ground-breaking given the discovery of further suites of sites and/or only limited truncation by deep ploughing. Additional areas to be monitored could have included

- Remaining wind turbines/stances/areas of hardstanding;
- Remaining permanent access tracks;
- Groundworks close to newly discovered archaeological sites;

- Crane platforms for turbine installation

Alternatively the watching brief would be curtailed given no, or only limited, new archaeological material being identified by the Walkover Survey when taken with severe damage to the original ground surface by previous tree planting regimes also being present. Indeed any further watching brief outstanding in Watching Brief Areas 4 & 5 (Table 1) may at this point be considered unwarranted. However, any curtailment would only occur with the agreement of HCHET following production of the Walkover Survey report (and an on-site meeting if considered appropriate).

If remains had been encountered by the watching brief these will be explored to the minimum extent consistent with understanding their nature and extent. Thereafter, the archaeological advisers to the planners would be invited to review the site and to determine whether these remains can be excavated, analysed and published, or whether the proposed development at this point (eg wind turbine foundation, road line etc) should be altered to avoid the remains.

All works undertaken were in accordance with AOC Archaeology's standard procedures. The default response to the discovery of any significant archaeological material will be to allow its preservation *in situ* by moving the impacts, if feasible within the needs of the development, away from the archaeological find.

Where small discoveries (those requiring less than two hours to deal with) are encountered, these will be excavated and recorded in accordance with AOC Archaeology's standard practice. Where larger more significant discoveries are made (those requiring more than two hours to deal with) AOC Archaeology will immediately inform the WYG and HCHET, to describe the features and propose a mitigation strategy if appropriate for their excavation. If necessary, a supplementary *Written Scheme of Investigation* will be prepared and the arrangements confirmed by email. All excavation works will be undertaken in accordance with AOC Archaeology's standard procedures (Appendix 7, sections 7.6 - 7.24).

Should human remains be uncovered these will be treated in accordance with Scots Law; standard AOC Archaeology policy (Appendix 7.12); ClfA standard practice and in keeping with Historic Scotland's policy for *The Treatment of Human Remains in Archaeology*. Any human remains which are encountered would initially be left *in situ*. Their removal would be a matter of discussion with the client and HCHET (who must be notified within 12 hours of their discovery). The Procurator Fiscal would also be informed via Northern Constabulary prior to the removal of any bone material.

All construction groundworks must be undertaken with a view to avoiding damage to any archaeological features or deposits which appear to be worthy of preservation *in situ*. No archaeological deposits should be entirely removed unless this is unavoidable, in agreement with HCHET. Where possible significant archaeological material will be preserved *in situ*. In the event that preservation *in situ* cannot be implemented, any resultant fieldwork report, artefact or ecofact analysis (Post-Excavation) and publication (if appropriate) will be fully funded by the client in accordance with a negotiated mitigation strategy that will comply with the Conditions for Planning Consent. Archaeological remains to be preserved *in situ* will be covered by terram and these areas backfilled.

3.5.2 Stage 5: Watching Brief Reporting

Within one month of the completion of the watching brief the results will be presented in the form of a written report. This report will synthesise the results of the fieldwork and determine the significance and extent of any archaeological features identified.

The watching brief report (paper & digital) will be in the form of a *Basic Report* (as defined by HCHET) and prepared in accordance with AOC Archaeology standard procedures for data structure reports (Appendix 8, Section 8.1 to 8.8). Specifically the *Basic Report* will contain the following:

- i) a full descriptive text detailing the features identified and an interpretation of their date and purpose;
- ii) geo-referenced plans at an appropriate scale showing the watching brief areas and features located;
- iii) appropriate lists and diagrams summarising the contexts and artefacts recovered and the records made of them;
- iv) analysis of the results of the works, including appropriate post-excavation appraisals.

Limited examination of artefacts will have been undertaken as an element of the report. However, should significant artefacts and samples be recovered there may be the need for further phases of work including post-excavation analyses of samples. A costed Post-Excavation Research Design would be prepared in these circumstances. The need for, and scale of, such further phases would be determined in consultation with the planning authority's archaeological advisor.

A draft report will be submitted to the client prior to the finalised version for approval. Four hard copies of the final report and a digital copy will then be supplied to the client. In addition to a Summary Report on the works submitted to *Discovery and Excavation in Scotland* (DES), the project will also be entered into the on-line OASIS reporting facility. A digital (dxf) geo-referenced plan showing the boundaries of the area evaluated will be uploaded on the OASIS record.

4 RESULTS

4.1 Introduction

- 4.1.1 This section represents the results for the walkover and watching brief stages for Condition 15 of the development at the Burn of Whilk. This satisfies the requirement for the HCHET Basic Report as detailed in Phase 3 and also includes the reporting requirement in Stage 4 and Stage 5 of Phase 1.

4.2 Archaeological supervision of tree felling in the vicinity of Moss of Whilk

- 4.2.1 As per Stage 3, the tree felling around Site 145 was monitored when adjacent to the site boundary. No damage was caused to any archaeological surface features.

4.3 Post Tree-Felling Walkover survey

- 4.3.1 As per Stage 4, the walkover survey was conducted intermittently throughout the course of the project, when the areas became available to survey. Overall the weather conditions were variable, however any archaeological features would still have been identifiable.
- 4.3.2 No significant archaeological features were uncovered as a result of the walkover survey.

4.4 Watching Brief

- 4.4.1 As per Stage 5, the archaeological watching brief was undertaken between November 2011 and June 2015, on all ground breaking works associated with the development. Overall weather

conditions were variable throughout, however archaeological visibility was good during the works conducted.

- 4.4.2 Groundbreaking works were carried out using 360° mechanical excavator using a variety of toothed and toothless ditching buckets, including a V shaped ditching bucket for the drainage works. All machine excavation was supervised by an experienced archaeologist.
- 4.4.3 Where archaeological remains were noted during the groundbreaking works a running series of context numbers were issued (Appendix 1), and plans and sections at an appropriate scale were produced (Appendix 2). A digital photographic record was also maintained (Appendix 4).
- 4.4.4 The groundbreaking works comprised the stripping of topsoil/peat down to the level of natural deposits, at the locations of Borrow Pits 1 and 2, the locations of the nine turbine/crane bases and associated access tracks, the substation, and all other minor interventions, including cable tracks, and drainage works.
- 4.4.5 Groundbreaking works at the location Borrow Pit 1 revealed a peaty topsoil 0.25 m to 0.45 m deep, overlying light brown clays and bedrock. Groundbreaking works at the location of Borrow Pit 2 revealed a peat deposit upto 1 m deep, overlying light brown clays.
- 4.4.6 Groundbreaking works at the locations of the nine turbine/crane hardstanding bases revealed peat deposits upto c 4m deep. These areas generally measured c 60m x 30m. During the excavation of the peat deposits at the location of Turbine Base WTG107, branches of wood were identified towards the base of the deeper peat deposits at the eastern end. A number of pieces were retrieved whole and a further number were sampled (Appendix 3). The pieces of wood which were retrieved whole were examined by AOC's wood specialist. The wood was identified as Alder, and none of recovered pieces showed any signs of working, and are therefore not considered to be of any archaeological value.
- 4.4.7 The access tracks were generally 5m to 7m wide, and the cable trenching 2.1 m wide by 1.1 m deep.
- 4.4.8 Despite the comprehensive archaeological requirements and subsequent attendance, no significant archaeological remains were encountered.
- 4.4.9 The remains a well constructed 18th/19th century lade relating to a nearby abandoned mill was identified to the south of the abandoned mill at the site entrance [F 003], and also at a point to the north [F 009] where it ran beneath the remains of the Wick to Lybster railway. The lade was constructed of Caithness flagstone, 0.40m deep (5 courses high), 0.75m wide, and capped with massive slabs upto 1.5m. A length 12.40 m was exposed at the entrance (Plate 2).



Plate 2: West facing partial section of lade course.

- 4.4.10 The southern and northern embankments of the Wick to Lybster railway were also recorded [F 005 & F006], along with the cutting [007]. The southern embankment was constructed of quarried stone, and capped with earth. The railway was constructed in the early 20th Century, and closed in 1948.
- 4.4.11 The remains of a discontinuous earth bank was noted running across the boundary of Borrow Pit 1 at it's NW corner [008]. The bank was recorded as being c 70 m in length, 0.80 m to 0.90 m wide, and 0.40 m high, aligned NW-SE, with a possible ditch element adjacent to it's NW edge.

5 CONCLUSION

- 5.1 This report has displayed the results for the archaeological mitigation as required by Condition 15 for the development of a wind farm at Burn of Whilk. Extensive and comprehensive archaeological watching briefs (Stage 5) and walkover surveys (Stage 4) occurred over the construction phase of this project. AOC ensured the safe guarding of the archaeological assets (Stage 2) within the boundary area as well as ensuring that hitherto unknown resources did not come to harm. As per Stage 4 the walkover survey found there to be no archaeological features above ground, while Stage 5 the watching briefs uncovered no significant archaeology during groundbreaking works.
- 5.2 Despite the rich archaeological landscape in which the development is situated, no significant archaeological finds or features were uncovered. A number of archaeological features were recorded during the construction phase of the wind farm, all of which were located at the south end of the development. These included the remains of a lade feature associated with a nearby abandoned mill, the remains of the Wick to Lybster railway, and a possible earthen bank and ditch feature. Though not significant, these features are considered to be of local interest. The lade feature and those features associated with the railway have been preserved *in situ*. The possible earthen bank and ditch has largely been preserved other than where it has been truncated by the groundbreaking works associated with the adjacent Borrow pit.
- 5.3 Given the lack of significant archaeological remains noted during the construction phase of the windfarm, and the preservation of the recorded archaeological remains, it is recommended that no

further archaeological works should be considered necessary within the development area. This recommendation will require confirmation by Highland Council Historic Environment Team.

- 5.4 The contents of this report have been synthesized in a 'Discovery and Excavation in Scotland entry (Appendix 5), and also in the form of an OASIS entry, an on-line index of archaeological investigations entry. (OASIS Ref: aocarcha1-219436)

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Section 2: Appendices

APPENDIX 1: Context Register

Context No.	Feature	Description
[001]	Topsoil	Mid to dark brown sandy silt of peaty texture. Small to large angular stones. Evidence of animal and plant activity.
[002]	Subsoil	Mixed orangey clay silt with lots of fragmented bedrock (Caithness sandstone).
[003]	Lade stonework	Well constructed 'lade' running from water mill approximately 100m away to SW. 5 courses of Caithness sandstone either side. Trench 12.40m by 0.4m deep. Continues to roadside on A99 and up to mill to NW before heading north across railway line and up to fields where there is apparently a dam to collect water. Up to 1.5m wide with biggest cap stones.
[004]	Cut for lade	Indiscernible cut for lade [003].
[005]	East embankment of railway	South side of railway embankment running between Lybster and Wick. 4m wide, 1.20m high and 5m between embankments. Constructed by digging into bedrock casting fragment stone on either side then topped with earth. Constructed early 20 th century and closed 1948.
[006]	West embankment of railway	North railway embankment.
[007]	Cut for railway	7m wide cut for railway line running from Lybster to Wick. East and West embankments [005] + [006] thrown up and over leaving a 5m gap for trains.
[008]	Discontinuous bank feature at NW corner of Borrow Pit 1	A length of discontinuous bank located towards the NE corner of the borrow pits. Approximately 70m in length running in a NW-SE orientation 0.80m – 0.90m wide, 0.40m high with a possible ditch element to it.
[009]	Culvert on track to east of Borrow Pit 1	Remains of a culvert located to the East of the borrow pits underlying the modern railway. Exposed slab up to 1.2m wide. Depth of culvert approximately 0.40m.

APPENDIX 2: Drawing Register

Drawing No.	Description	Scale
01	Plan of lade [003] near A99	1:50
02	Partial section of [003] near A99	1:20
03	Plan of [003] where lade crosses railway	1:50

APPENDIX 3: Sample Register

Sample No.	Area	Description
Sample 1		A branch twisted along its length and torn off at the junction with another branch or trunk. <i>Alnus glutinosa</i> 1.10 m long and 0.14 m diameter
Sample 2		A very straight branch terminating in a branch junction which is very square but too decayed to determine if this is the result of woodworking. <i>Alnus glutinosa</i> 0.95 m long and 0.15 m diameter

Sample No.	Area	Description
Sample 3		I straight branch with one small side branch which may have been chopped off but surface too decayed to be sure. 1.60 m long and 0.6m diameter

APPENDIX 4: Photographic Record

Frame	Description	From
1	Start of work for access road	E
2	Start of work for access road	SE
3	Lade	SW
4	Lade (old mill behind 2 nd white machine on right)	NE
5	SE facing partial section of lade	SE
6	Mill house wheel to which Lade [003] runs	NE
7	Interior of wheelhouse of mill	E
8	Lade [003] running west from wheelhouse	W
9	Lade [003] running across old railway line	E
10	Internal shot inside mill	E
11	Internal shot inside mill	E
12	Internal shot inside mill	E
13	Internal shot inside mill	E
14	Internal shot of connected farm building	E
15	Where lade exits near road	NE
16	Progress shot	E
17	Progress shot	W
18	Progress shot	W
19	Interior shot of mill building workshop	W
20	Interior shot of mill building workshop	W
21	Interior shot of mill building workshop	W
22	East embankment of railway line pre-ex	NW
23	East embankment of railway line showing brown stone construction	NW
24	Progress shot	NW
25	Lade crossing railway (hill behind)	N
26	East railway embankment station	N
27	Progress shot	N
28	Progress shot from railway	NW
29	Progress shot compound	N
30	Progress shot – [005] removed	N
31	Working shot- compound area	SW

32-33	Digging main road into borrow pit 1	S
34-35	General view from the East	E
36-37	Clearing in borrow pit 1	N
38-39	Track way to East of main compound	N
40-41	Track way to East of main compound	N
42-43	Topsoil removed in borrow pit 1	W
44-45	Topsoil removed in borrow pit 1	NW
46-47	Track way to East of borrow pit 1	W
48-49	Revealing the railway base	W
50-51	Culvert [009] feature to West of main compound	SW
52-53	Stone field drain to West of main compound	S
54-55	Culvert feature to West of main compound	S
56-57	Exposed capstones of culvert	S
58-59	Exposed culvert	N
60-63	Overview – site 25	SE
64-67	Grassy mound immediately south of site 25	E
68-69	South – East facing view past site 25	W
70-73	Route of access track south of site 25	W
74-79	Widening of access track	E
80-93	Grassy mound prior to excavation	Various
94-102	Road strip across grassy mound	Various
103	Overview of area stripped	SE
104	Overview of area stripped	NNE
105	Overview of area stripped	N
106-107	West facing section	W
108-109	Constructing track way base	S
110-111	Lifting tree root	S
112-113	Construction of store track	SW
114-115	Deepening of Burn of Whilk	S
116-117	Construction of track base	SE
118-119	Construction of store track	SW
120-121	Intersection of southern track and forestry track	S
122-123	Widening of forestry track at South end	S
124-125	Widening of forestry track at South end	SW
126-127	Ground breaking works of Burn of Whilk	S
128-129	Ground breaking works of Burn of Whilk	S
130-133	Ground breaking works of Burn to South of forestry area	W
134-135	Widening of forestry track South of disused quarry	N
136-137	Deep peat to South of 'mound'	W
138-139	Turning point at track way	N
140-141	Turning point at track way	NE

142-143	Access point for timber removal	S
144-145	New access track to adjacent farm	E
146	Area for compound pre-ex	S
147	Post ex of compound area – wrong area	W
148-150	Working shots of compound area excavation	Various
151-153	Working shots of compound area excavation	Various
154-155	Peat removed at area of substation	NW
156-157	Peat removed at ramp into wooded area	E
158-159	Substation base post ex	W
160-161	Test pitting at site of turbine 11	W
162-164	Test pitting at site of turbine 10	W
165-166	Test pitting of turbine 3	E
167-168	Test pitting of turbine 2	W
169-170	Test pitting of turbine 9	E
171-172	Test pitting of turbine 8	W
173-174	Test pitting of turbine 7	W
175-265	Working shots	Various
266-267	Intersection of core path and wind farm track	SW
268-270	Borrow pit 2 – Post ex	SE
271-272	Drainage works to West of turbine 1	S
273-274	Ground breaking works of turbine 1	W
275-277	Turbine 1 post ex	W
278-279	Peat removed at site of turbine 2	E
280-281	Turbine 11 post ex	E
282-284	Area to west of turbine 6 pre - walkover	Various
285-286	Turbine 6 post ex	E
287-288	Turbine 7 post ex	W
289-297	Bedrock plateau and rock face found during excavation of road between turbines 7 & 8	Various
298	Post ex of track between turbines 7 & 8	E
299	Post ex of turbine base 8	E
300	Post ex of track between turbines 8 & 9	E
301-303	Area 2XX prior to mulching	E
304-307	Area 2V and 2V1 prior to mulching	E
308-309	Area 2S3 & 2S4 prior to mulching	W
310-311	Area 2RR prior to mulching	NW
312-313	Area 2Q5 prior to mulching	NE
314	Wood at base of Peat at turbine 3 – General	S
315-316	Wood at base of peat at turbine 3 – Detail	S
317-318	Removing peat from turbine 3	S
319-320	Wood sample 3 – General	N/A
320-321	Wood sample 3 – Details of possible cut	N/A

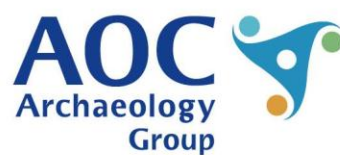
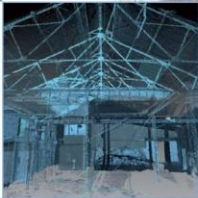
322-325	Wood sample 4	N/A
326-327	Wood sample 5	N/A
328-329	Turbine base 3 during construction	N/A
330-332	Wood sample 6	N/A
333-334	Wood sample 7	N/A
335-336	Wood sample 8	N/A
337-338	Wood sample 9	N/A
339-340	Wood sample 10	N/A
341-342	Wood sample 11	N/A
343-344	Wood sample 12	N/A
345-346	Wood sample 13	N/A
347-348	Wood sample 14	N/A
349-350	Wood sample 15	N/A
351-352	Wood sample 16	N/A
353-354	Wood sample 17	N/A
355-356	Wood sample 18	N/A
357-358	Wood sample 19	N/A
359-360	Wood sample 20	N/A
361-362	Wood sample 21	N/A
363-364	Wood at base of peat at turbine 3	S
365-366	Wood at base of peat at turbine 3	S
367-368	Wood sample 22	N/A
369-370	Wood sample 23	N/A
371-372	Wood at base of peat	NW
373-374	Wood sample 23	N/A
375-376	Wood sample 24	N/A
377-378	Wood sample 25	N/A
380-381	Wood sample 26	N/A
382-383	Wood sample 27	N/A
384-385	Excavation works of turbine 10	S
386	Saturation of area at turbine 10	
387	Removal of road adjacent to turbine 10	
388	Excavation works of turbine 10	
389-390	Excavation shot of cable trench from substation to turbine 6	E
391-392	Excavation shot of cable trench from turbine 7 to turbine 1	S
393-394	Excavation shot of cable trench from turbine 2 to turbine 3	NE
395-396	Excavation shot of cable trench from turbine 2 to turbine 3	E
397-398	Shot of area 3C prior to mulching	SE
399-400	Shot of area 2R3 & 2R1 prior to mulching	SW
401-402	Shot of area 2K1 prior to mulching	NW
403-404	Shot of area 4L prior to mulching	SW

405-406	Area of 4L avoided due to nearby mulching	S
407-408	Shot of area 2E prior to mulching	W
409-410	VOID	
411-412	VOID	
413-414	Shot of area 2F prior to mulching	N
415-416	Shot of area 2H prior to mulching	NE
417-418	Shot of area 2G prior to mulching	NE
419-420	Shot of 2J prior to mulching	W
421-422	Shot of 2I prior to mulching	NE
423-424	Shot of 2S1 prior to mulching	E
425-426	Excavation shot of cable trench at turbine 8	NE
427-428	Excavation of trench between turbine 10 & 11	NE
429-430	Excavation of trench between turbine 8 & 9	NW

APPENDIX 5: 'Discovery and Excavation in Scotland' Report

LOCAL AUTHORITY:	Highland Council
PROJECT TITLE/SITE NAME	Burn of Whilk Wind Farm, Caithness
PROJECT CODE:	AOC 21961
PARISH:	Wick
NAME OF CONTRIBUTOR:	Steven Watt
NAME OF ORGANISATION:	AOC Archaeology Group
TYPE(S) OF PROJECT:	Archaeological Watching Brief, Walkover Survey
NMRS NO(S)	N/A
SITE/MONUMENT TYPE(S):	None
SIGNIFICANT FINDS:	None
NGR (2 letters, 6 figures)	ND 2849 4087
START DATE (this season)	November 2011
END DATE (this season)	21 st June 2015
PREVIOUS WORK (incl. DES ref.)	N/A
MAIN (NARRATIVE) DESCRIPTION: (May include information from other fields)	<p><i>This report presents the results archaeological mitigation works undertaken with respect to the main construction for the wind farm at Burn of Whilk, NE of Midclyth, Lybster, Caithness.</i></p> <p><i>The archaeological works comprised various mitigations including walkover surveys pre and post the tree felling, the demarcation of known sites, monitoring of SI works, and a watching brief involved the monitoring of topsoil stripping for nine wind turbines and their associated access tracks, the control building and the cable tracks.</i></p> <p><i>The majority of the areas stripped were archaeologically sterile. A post medieval lade used to power a nearby 18th/19th century mill was discovered at the site entrance. Furthermore, the remains of the eastern embankment of the former Lybster to Wick railway line was also revealed.</i></p> <p><i>No significant archaeological features or finds were uncovered during the programme of works.</i></p>
PROPOSED FUTURE WORK:	None

CAPTION(S) FOR ILLUSTRS:	---
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ARCHIVE LOCATION (intended/deposited)	Archive to be deposited in NMRS



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