

on behalf of Durham County Council

> Western Relief Road Durham City County Durham

geophysical survey

report 3394 March 2014



Contents

1.	Summary	1
2.	Project background	2
3.	Historical and archaeological background	3
4.	Landuse, topography and geology	4
5.	Geophysical survey	5
6.	Conclusions	12
7.	Sources	13
Арре	endix: Project specification	14

Figures

Figure 1:	Site location
Figure 2:	Geophysical survey overview
Figure 3:	Areas 1-5, geophysical survey
Figure 4:	Areas 1-5, geophysical interpretation
Figure 5:	Areas 1-5, archaeological interpretation
Figure 6:	Areas 6-10, geophysical survey
Figure 7:	Areas 6-10, geophysical interpretation
Figure 8:	Areas 6-10, archaeological interpretation
Figure 9:	Areas 11-14, geophysical survey
Figure 10:	Areas 11-14, geophysical interpretation
Figure 11:	Areas 11-14, archaeological interpretation
Figure 12:	Areas 15-18, geophysical survey
Figure 13:	Areas 15-18, geophysical interpretation
Figure 14:	Areas 15-18, archaeological interpretation
Figure 15:	Areas 1-10, trace plots of geomagnetic data
Figure 16:	Areas 11-18, trace plots of geomagnetic data

1. Summary

The project

- 1.1 This report presents the results of geophysical surveys conducted in advance of the proposed construction of a relief road to the west of Durham City. The works comprised detailed geomagnetic survey of 19 areas along the proposed route corridor, totalling approximately 15ha.
- 1.2 The works were commissioned by Durham County Council and conducted by Archaeological Services Durham University.

Results

- 1.3 A number of soil-filled features of potential archaeological significance have been detected, including, for example, a possible pit/posthole alignment and ditches in Area 6 and a possible rectilinear enclosure in Area 13.
- 1.4 Former field boundaries, tracks and possible structures have been identified, some of which are recorded on historic OS editions.
- 1.5 Some of the above features will warrant further investigation by means of trial trenching. Areas for which there was no access at the time of survey (Areas 17 & 19) will also require investigation by trial trenching in due course.
- 1.6 Geomorphological features, geological variation and a probable former stream course have also been detected.
- 1.7 An area of disturbed ground, or an old spoil tip, has been detected in Area 11.
- 1.8 Services and land drains have been detected in many of the survey areas.

2. Project background

Location (Figure 1)

- 2.1 The proposed route corridor will link the B6302 road (Broom Lane) to the A691 road (Lanchester Road) close to the Sniperley Park & Ride site (NGR: NZ 2515 4175 to NZ 2575 4426). It is a curving route over 2.5km long, aligned approximately north-south, parallel to and west of the A167 road, crossing the River Browney and the C17 Toll House Road between the village of Bearpark and Durham City.
- 2.2 The route lies within the Durham Green Belt (Durham City Green Belt Site Assessment part 2, 2010) and crosses the boundary between the Wear Lowlands and the West Durham Coalfields as defined by the Durham County Council Landscape Project (www.durhamlandscape.info).
- 2.3 Nineteen detailed geomagnetic surveys, totalling approximately 15ha, were undertaken over all available and practicable areas along the proposed route corridor (see para. 4.1 below).

Development proposal

2.4 The proposal is to provide a route around the western edge of the city, alleviating congestion on the A167. The road will follow the landform but cuttings will be necessary to the north of Broom Lane and in the vicinity of Moorsley Banks and Aden Cottage. Embankment will be required on either side of the Browney (with a new bridge over the river), to the south-east of Stotgate Farm and over The Stell (AECOM 2010).

Objective

2.5 The principal aim of the surveys was to assess the nature and extent of any subsurface features of potential archaeological significance within the proposed route corridor, so that an informed decision may be made regarding the nature and scope of any further scheme of archaeological works that may be required in relation to the development.

Methods statement

2.6 The surveys have been undertaken in accordance with a specification provided by Durham County Council Archaeology Section (Appendix) and national standards and guidance (see para. 5.1 below).

Dates

2.7 Fieldwork was undertaken between 10th and 20th March 2014. This report was prepared for March 2014.

Personnel

2.8 Fieldwork was conducted by Duncan Hale (the Project Manager), Nathan Thomas and Richie Villis (supervisor). Geophysical data processing and report preparation was by Richie Villis, with illustrations by David Graham. The report was edited by Duncan Hale.

Archive/OASIS

2.9 The site code is **DWB14**, for **D**urham **W**estern **B**ypass 20**14**. The survey archive will be supplied on CD to the client for deposition with the project archive in due course. Archaeological Services Durham University is registered with the **O**nline **A**cces**S** to

the Index of archaeological investigation**S** project (**OASIS**). The OASIS ID number for this project is **archaeol3-176013**.

Acknowledgements

2.10 Archaeological Services Durham University is grateful for the assistance of landowners, agents and tenants in facilitating this scheme of works.

3. Historical and archaeological background

- 3.1 A detailed archaeological desk based-assessment has been conducted for the proposed route (Archaeological Services 2011); the results of that assessment are summarised below.
- 3.2 There are no Scheduled Ancient Monuments or Listed Buildings within the road corridor. The Scheduled Ancient Monument of Aldin Grange Bridge, which has historical associations with the Battle of Neville's Cross, is less than 200m to the west. A stone house on the north side of the road at Moorsley Banks is likely to be of 18th- and 19th-century date.
- 3.3 There is evidence that the surrounding area was exploited in the prehistoric and Roman periods, and an as yet unidentified resource relating to this may survive within the corridor.
- 3.4 Palaeoenvironmental deposits may survive within the corridor, for example along the River Browney, and within the nearby area of boggy ground at Hallowell Moss.
- 3.5 Evidence for ridge and furrow cultivation and field boundaries of medieval and postmedieval periods may survive. The route cuts through the medieval estate of Beaurepaire; evidence for the historic boundary for this estate may survive. Elements of the shrunken medieval village at Relly could extend into the road corridor.
- 3.6 The route is adjacent to the Registered Battlefield of Neville's Cross. Remains associated with the battle may extend into the route corridor.
- 3.7 Archaeological remains associated with medieval and post-medieval mills may survive along the River Browney close to Moorsley Banks.
- 3.8 The proposed route crosses the historic disused Lanchester Valley Railway which is now used as a public path.

4. Landuse, topography and geology

4.1 At the time of survey the proposed route crossed arable and pasture fields, areas of woodland and scrub, the River Browney, public footpaths, Toll House Road (C17) and the Lanchester Valley Walk cycle route. Nineteen surveys were undertaken; see table below for details of each area.

Area	Size (ha)	Landuse	Topography & notes	NGR (centre)
1	0.19	arable – stubble	flat; hedge to road at S; trees & ditch at E	NZ 24971 41699
2	2.08	arable – young crop	gentle slope down N to S; wire fence N & S; road to S; E/W modern plough	NZ 25116 41829
3	0.79	improved pasture/hay meadow	slope down NW to SE; wire fence NE & SW; N/S modern plough	NZ 25186 42025
4	0.69	improved pasture/ hay meadow	slope down W to E; wire fence to N, W & S; NE/SW modern plough	NZ 25204 42169
5	0.23	arable – young crop	flat; wire fence N, E & S; NW/SE modern plough	NZ 25192 42266
6	0.87	arable – young crop	flat; wire fence to former railway at N; hedge at S; NW/SE modern plough	NZ 25136 42428
7	0.60	pasture – ungrazed	very steep bank in N; wire fence S; trees/ditch W; borehole in W	NZ 25073 42641
7a	0.14	pasture – ungrazed	flat; wire fence SE; drop to river N; 2 boreholes E side	NZ 25054 42704
8	0.14	pasture – ungrazed	slope down N to S; wire fence to road N; wire fence & trees E; electric fence SW; metal gate to NW; agricultural machinery in proximity to area	NZ 25296 42686
9	0.18	improved pasture/hay meadow	flat; wire fence to road S; wire fence & metal gate W	NZ 25317 42726
10	0.62	arable – young crop	gentle slope down N to S; wire fence W; gate & ruts S; hay bales SW; pylon to NE; N/S modern plough	NZ 25220 42786
11	2.62	pasture – sheep	gentle slope down N to S; steeper bank down in W; wire fences all edges; metal barn to S; muddy ruts; area of raised scrub in S; 3 boreholes; several metal sheep feeders	NZ 25100 42937
12	0.64	pasture – ungrazed	slope down east to west, very steep in centre; wire fence N, E & S; manure pile N; 4 boreholes; pile of rigging bits;	NZ 25111 43115
12a	0.09	pasture – horses	flat; very steep bank to SW (unsurveyable); wire/electric fences E & S	NZ 25119 43224
13	1.19	arable – young crop	gentle undulations; wire fence/hedge SW; trees/hedge N; pylon in S; 5 boreholes, 1 in N with rigging bits left; cabins and skip to NW; coring rig in NW; deep ruts; N/S modern plough	NZ 25166 43200
14	0.88	arable – young crop	Sope down SW to NE; nedges S & W; pond to NE; E/W	NZ 25182 43330

			modern plough	
15	0.79	arable – young crop	slope down NE to SW; hedge N; pond S; borehole at S and N; coring rig at N; N/S modern plough	NZ 25321 43499
16	0.49	arable – young crop	slope down SW to NE; hedge N & S; NW/SE modern plough	NZ 25428 43678
17		no access - not surveyed		
18	1.34	arable – young crop	slope down NE to SW; wire fence N; marshy scrub (unsurveyable) at S; NE/SW modern plough	NZ 25584 43969
19		no access - not surveyed		

- 4.2 The proposed route rises gently northwards from Broom Lane (approximately 90m OD) over a knoll at 100m OD before descending into the valley of the River Browney (79m OD). The land then rises in gentle undulations up to Lanchester Road and Sniperley (110m OD). There is a considerable scarp at Moorsley Bank, beyond the northern bank of the Browney and to the west of the proposed route.
- 4.3 The solid geology of the route is Pennine Middle Coal Measures with sandstone exposed in the valley sides near Moorsley Banks Farm. Five coal seams cross the area. The superficial geology is of glaciofluvial deposits and Devensian till with alluvium along the valley of the River Browney (BGS 2014).
- 4.4 The coal seams in the area were worked from the late medieval period at Aldin Grange and in the 19th century at Broom and Bearpark. Part of the River Browney was canalised during the 19th century to supply water to paper mills at Moorsley Banks and Relley.

5. Geophysical survey Standards

5.1 The surveys and reporting were conducted in accordance with English Heritage guidelines, *Geophysical survey in archaeological field evaluation* (David, Linford & Linford 2008); the Institute for Archaeologists (IfA) *Standard and Guidance for archaeological geophysical survey* (2011); the IfA Technical Paper No.6, *The use of geophysical techniques in archaeological evaluations* (Gaffney, Gater & Ovenden 2002); and the Archaeology Data Service & Digital Antiquity *Geophysical Data in Archaeology: A Guide to Good Practice* (Schmidt 2013).

Technique selection

5.2 Geophysical survey enables the relatively rapid and non-invasive identification of sub-surface features of potential archaeological significance and can involve a suite of complementary techniques such as magnetometry, earth electrical resistance, ground-penetrating radar, electromagnetic survey and topsoil magnetic susceptibility survey. Some techniques are more suitable than others in particular situations, depending on site-specific factors including the nature of likely targets; depth of likely targets; ground conditions; proximity of buildings, fences or services and the local geology and drift.

- 5.3 In this instance, based on desktop evidence, it was considered likely that cut features such as ditches and pits could be present on the site, and that other types of feature such as trackways, wall foundations and fired structures (for example kilns and hearths) might also be present.
- 5.4 Given the anticipated shallowness of targets and the non-igneous geological environment of the study area a geomagnetic technique, fluxgate gradiometry, was considered appropriate for detecting the types of feature mentioned above. This technique involves the use of hand-held magnetometers to detect and record anomalies in the vertical component of the Earth's magnetic field caused by variations in soil magnetic susceptibility or permanent magnetisation; such anomalies can reflect archaeological features.

Field methods

- 5.5 A 30m grid was established across each survey area and related to the Ordnance Survey National Grid using a Leica GS15 global navigation satellite system (GNSS) with real-time kinematic (RTK) corrections typically providing 10mm accuracy.
- 5.6 Measurements of vertical geomagnetic field gradient were determined using Bartington Grad601-2 dual fluxgate gradiometers. A zig-zag traverse scheme was employed and data were logged in 30m grid units. The instrument sensitivity was nominally 0.03nT, the sample interval was 0.25m and the traverse interval was 1m, thus providing 3,600 sample measurements per 30m grid unit.
- 5.7 Data were downloaded on site into a laptop computer for initial processing and storage and subsequently transferred to a desktop computer for processing, interpretation and archiving.

Data processing

- 5.8 Geoplot v.3 software was used to process the geophysical data and to produce both continuous tone greyscale images and trace plots of the raw (minimally processed) data. The greyscale images and interpretations are presented in Figures 2-14; the trace plots are provided in Figures 15 and 16. In the greyscale images, positive magnetic anomalies are displayed as dark grey and negative magnetic anomalies as light grey. Palette bars relate the greyscale intensities to anomaly values in nanoTesla.
- 5.9 The following basic processing functions have been applied to each dataset:

clip	clips data to specified maximum or minimum values; to eliminate large noise spikes; also generally makes statistical calculations more realistic
zero mean traverse	sets the background mean of each traverse within a grid to zero; for removing striping effects in the traverse direction and removing grid edge discontinuities
destagger	corrects for displacement of geomagnetic anomalies caused by alternate zig-zag traverses

interpolate increases the number of data points in a survey to match sample and traverse intervals; in this instance the data have been interpolated to 0.25m x 0.25m intervals

Interpretation: anomaly types

5.10 Colour-coded geophysical interpretation plans are provided. Three types of geomagnetic anomaly have been distinguished in the data:

positive magnetic	regions of anomalously high or positive magnetic field gradient, which may be associated with high magnetic
negative magnetic	susceptibility soil-filled structures such as pits and ditches regions of anomalously low or negative magnetic field
	gradient, which may correspond to features of low magnetic susceptibility such as wall footings and other concentrations of sedimentary rock or voids
dipolar magnetic	paired positive-negative magnetic anomalies, which typically reflect ferrous or fired materials (including fences and service pipes) and/or fired structures such as kilns or hearths

Interpretation: features General comments

- 5.11 Colour-coded archaeological interpretations are provided. A summary of detected feature types is presented in the table below.
- 5.12 Except where stated otherwise in the text, positive magnetic anomalies are taken to reflect relatively high magnetic susceptibility materials, typically sediments in cut archaeological features (such as ditches or pits) whose magnetic susceptibility has been enhanced by decomposed organic matter or by burning.
- 5.13 Very closely spaced, parallel, positive and/or negative magnetic striations have been detected across several of the survey areas (for example Areas 2, 6 and 18). The resulting 'texture' reflects the current plough regime.
- 5.14 Except where stated in the text below dipolar magnetic anomalies detected at the edges of survey areas reflect adjacent metal field boundaries (for example south edge Area 2; north and west edges Area 11).
- 5.15 Small, discrete dipolar magnetic anomalies have been detected in all of the survey areas. These almost certainly reflect items of near-surface ferrous and/or fired debris, such as horseshoes and brick fragments, and in most cases have little or no archaeological significance. A sample of these is shown on the geophysical interpretation plans, however, they have been omitted from the archaeological interpretations and the following discussion.
- 5.16 Many larger discrete dipolar magnetic anomalies have also been detected. In most cases these reflect ferrous items noted in the field such as pylons (Areas 10 and 13), boreholes (eg Areas 12 and 15) or animal feeders (Area 11); these have been included on the archaeological interpretation drawings.

Feature type	Area number	
Soil-filled feature eg ditch/pit	2, 4, 6, 8, 9, 10, 13, 14	
Former field boundary	2, 3, 11, 12	
Former track	2, 7, 11	
Former ploughing	2, 12, 16	
Building rubble/structural debris	1, 7	
Geological feature	4, 7, 12, 18	
Service	7, 11, 12, 13	
Disturbed ground (magnetically noisy)	11	
Land drain	2, 3, 7, 9, 11, 13, 15, 18	
Recent plough texture	1, 2, 6, 10, 13, 14, 15, 16, 18	
Other features (boreholes, pylons etc.)	7, 7a, 10, 11, 12, 13, 15	

5.17 Features of potential archaeological significance are discussed below, by area, from south to north.

Area 1

- 5.18 A concentration of strong dipolar magnetic anomalies has been detected in the east of this area, which may reflect an area of in-filled ground or building rubble. This corresponds to a feature recorded on historic Ordnance Survey maps from the first edition until 1939.
- 5.19 Two parallel positive magnetic anomalies have been detected in this area; whilst these may reflect soil-filled ditch features it is considered more likely that they relate to the modern plough regime.

- 5.20 Two parallel positive magnetic anomalies, flanking a narrow band of dipolar magnetic anomalies, have been detected across the centre of this area. These anomalies probably reflect a former trackway comprising a metalled surface and two flanking drainage ditches. No such feature is recorded by historic OS editions.
- 5.21 Two further parallel positive magnetic anomalies have been detected near the northern edge of the field. These are aligned with the modern plough regime and northern field boundary. The anomalies probably reflect an earlier course of the field boundary, which is shown slightly further south on OS maps prior to the 1960s.
- 5.22 A very weak rectilinear positive magnetic anomaly has been detected at the southwest corner of the area. This could possibly reflect the truncated remains of a soilfilled feature such as a small ditched enclosure.

- 5.23 A series of parallel weak positive magnetic anomalies aligned broadly north-south throughout this area almost certainly reflects a former ploughing regime, possibly ridge and furrow.
- 5.24 Several regularly spaced parallel positive magnetic anomalies have been detected across the survey area aligned north-east/south-west. These almost certainly reflect land drains.

Area 3

- 5.25 Chains of dipolar and positive magnetic anomalies have been detected in the central part of this area. These correspond to former field boundaries as shown on historic OS editions.
- 5.26 A few straight and narrow positive magnetic anomalies have been detected, which almost certainly reflect a system of land drainage.

Area 4

- 5.27 Two positive magnetic anomalies have been detected in this area. These could reflect the remains of soil-filled ditch features.
- 5.28 A negative magnetic anomaly may reflect a geological feature associated with the river terrace.

Area 5

5.29 No features of likely archaeological significance have been identified within this small area on an east-facing slope.

Area 6

5.30 Several linear positive magnetic anomalies have been detected in the north of this area. These could reflect soil-filled ditch features and a row of possible pits or postholes. One of the linear anomalies lines up with a field boundary to the north of the former railway line, and may reflect a former continuation of that field boundary, however, this is not depicted on historic OS editions.

- 5.31 A broad and diffuse band of weak dipolar magnetic anomalies has been detected aligned north-west/south-east in this area. The anomaly corresponds to an abrupt change of slope noted on the ground and is likely to reflect natural variation associated with the edge of the river terrace.
- 5.32 Two strong positive magnetic anomalies have been detected aligned northeast/south-west in the centre of the area. These anomalies may reflect drainage ditches flanking a former track. At the north-east of this possible track a subrectangular concentration of dipolar magnetic anomalies has been detected. This may reflect possible building debris or structural rubble. No features are recorded by historic OS editions here.
- 5.33 A series of regularly spaced, parallel, positive magnetic anomalies has been detected, which almost certainly reflects a system of land drainage.

5.34 A broadly east/west aligned chain of small dipolar magnetic anomalies has been detected across the southern part of the area. This almost certainly reflects a service.

Area 7a

5.35 No features of likely archaeological significance have been identified in this area. The northern part of this land parcel comprised a steep wooded bank which was impracticable for geophysical survey.

Area 8

5.36 A curvilinear positive and weak dipolar magnetic anomaly has been detected in the east of this area. This could reflect the remains of a soil-filled ditch or gully, however, the small size of this survey area hinders further interpretation; the anomaly could equally be associated with a former oval cart/bike track evident on aerial images of this field.

Area 9

- 5.37 A series of regularly spaced, parallel, weak positive magnetic anomalies has been detected in this area. These almost certainly reflect land drains.
- 5.38 A weak positive magnetic anomaly may reflect a former ditch, which appears to continue into Area 10 to the west.

Area 10

- 5.39 A curvilinear, weak and diffuse positive magnetic anomaly has been detected in the east of the area. This may reflect the heavily truncated remains of a soil-filled ditch feature which appears to continue eastwards into Area 9.
- 5.40 A very large and strong positive magnetic anomaly has been detected at the north of the survey area. This reflects a large electrical pylon which stood just outside the survey area to the north-east.

- 5.41 Two parallel positive magnetic anomalies flanking a negative magnetic anomaly in the southern part of the field probably reflect a former double-ditched track. This also corresponds to a former field boundary shown on the first edition OS. An anomaly aligned north-east/south-west in the north of the area corresponds to another former field boundary shown on the first edition OS.
- 5.42 A series of regularly spaced, parallel, positive magnetic anomalies feeding into a perpendicular positive magnetic anomaly, almost certainly reflect a system of land drainage.
- 5.43 A concentration of small dipolar magnetic anomalies has been detected in the south of the area. This corresponds to an area of disturbed ground or a former spoil tip noted on the ground.
- 5.44 A north-east/south-west aligned strong dipolar magnetic anomaly has been detected along the north-west edge of the area. This almost certainly reflects a service pipe.

5.45 The large and strong dipolar magnetic anomalies detected at the southern corner of the area reflect an adjacent large metal barn and other farm buildings.

Area 12

- 5.46 A curvilinear band of strong positive magnetic anomalies has been detected in the centre of the area. This corresponds to a very steep incline noted on the ground and is almost certainly associated with the geomorphological/geological variation.
- 5.47 A former field boundary, also detected in Area 11 to the south, is evident as a positive magnetic lineation in the east of this area.
- 5.48 Anomalies consistent with former ploughing have been detected on the higher, level ground in the north of the field.
- 5.49 The north-east/south-west aligned strong dipolar magnetic anomaly detected in the south-east of the area reflects a continuation of the service pipe detected in Area 11 to the south.

Area 12a

5.50 No features of likely archaeological significance have been identified in this area. An area of probable building rubble or other waste has been detected in the west of this small area.

Area 13

- 5.51 This survey was undertaken on two separate days, to avoid drilling rigs; the large negative magnetic anomaly near a grid edge in the west reflects the presence then absence of a rig on different survey days.
- 5.52 The three small unsurveyed areas in the north, west and south of the area reflect site cabins, a drilling rig and a pylon, respectively.
- 5.53 Three sides of a rectilinear positive magnetic anomaly have been detected in the north-west of the area. The anomaly measures approximately 55m in length and 30m in width and almost certainly reflects a soil-filled enclosure ditch. No internal features have been identified.
- 5.54 Regularly spaced, parallel, positive magnetic anomalies have been detected in the west of the area. These almost certainly reflect land drains.
- 5.55 The north-east/south-west aligned strong dipolar magnetic anomaly detected across the centre of the area reflects a continuation of the service pipe detected in Areas 11 and 12 to the south.

- 5.56 A weak and diffuse positive magnetic anomaly has been detected in the west of the area; this could reflect the remains of a soil-filled ditch feature.
- 5.57 The linear negative magnetic anomaly detected along the north-eastern edge of the area reflects the edge of the ploughed ground.

Area 15

- 5.58 Regularly spaced parallel and perpendicular positive magnetic anomalies have been detected across this area. These almost certainly reflect a system of land drainage.
- 5.59 A small unsurveyed area and strong dipolar magnetic anomalies in the north-east of the area correspond to the locations of a drilling rig, a borehole and associated steel inserts.

Area 16

5.60 No features of likely archaeological significance have been identified in this area. Former ploughing has been detected aligned north-east/south-west; the current plough regime is aligned north-west/south-east.

Area 18

- 5.61 A meandering and diffuse positive magnetic anomaly has been detected in the south of this area. This is likely to reflect a former water course, such as a small stream bed or natural drainage channel.
- 5.62 Parallel and perpendicular positive magnetic anomalies have been detected across this area. The majority of these are aligned with the current plough direction and almost certainly reflect a system of land drainage.

6. Conclusions

- 6.1 Nineteen geomagnetic surveys, covering a total area of approximately 15ha, have been undertaken along a proposed relief road corridor to the west of Durham City.
- 6.2 A number of soil-filled features of potential archaeological significance have been detected, including, for example, a possible pit/posthole alignment and ditches in Area 6 and a possible rectilinear enclosure in Area 13.
- 6.3 Former field boundaries, tracks and possible structures have been identified, some of which are recorded on historic OS editions.
- 6.4 Some of the above features will warrant further investigation by means of trial trenching. Areas for which there was no access at the time of survey (Areas 17 & 19) will also require investigation by trial trenching in due course.
- 6.5 Geomorphological features, geological variation and a probable former stream course have also been detected.
- 6.6 An area of disturbed ground, or an old spoil tip, has been detected in Area 11.
- 6.7 Services and land drains have been detected in many of the survey areas.

7. Sources

AECOM 2010 Durham Relief Road Study: Western Route

Archaeological Services 2011 Western Relief Road, Durham City, County Durham: archaeological desk-based assessment. Unpublished report **2694**,

Archaeological Services Durham University

BGS 2014 online *Geology of Britain viewer* available from:

http://mapapps.bgs.ac.uk/geologyofbritain/home.html accessed 14 March 2014

David, A, Linford, N, & Linford, P, 2008 *Geophysical Survey in Archaeological Field Evaluation*. English Heritage

Durham City Green Belt Site Assessment part 2, 2010

Durham County Council Landscape Project (<u>www.durhamlandscape.info</u>)

Gaffney, C, Gater, J, & Ovenden, S, 2002 *The use of geophysical techniques in archaeological evaluations*. Technical Paper **6**, Institute of Field Archaeologists

IfA 2011 Standard and Guidance for archaeological geophysical survey. Institute for Archaeologists

Schmidt, A, 2013 *Geophysical Data in Archaeology: A Guide to Good Practice.* Archaeology Data Service & Digital Antiquity, Oxbow

Appendix: Project specification

SPECIFICATION FOR ARCHAEOLOGICAL EVALUATION: Proposed Western Relief Road Sniperley P&R to Relly Farm Durham City

1 Site Location and background

- 1.1 This specification is for a low level archaeological evaluation of land proposed for the Western Relief Road which is being considered as a transport proposal in the new County Durham Plan.
- 1.2 The site is located on the western fringe of Durham City and traverses a route from Sniperley Park & Ride at the north end, to Relly Farm, Broompark, at its southern terminus. It passes to the east of Aldin Grange Bridge, a Scheduled Ancient Monument, and west of the Registered Area of Neville's Cross Battlefield, en route.



Figure 1: Proposed route indicated by the green line (© Durham County Council)



2 The Development

- 2.1 The client for this work is Durham County Council, specifically the Planning Policy Team (contact name Peter Ollivere).
- 2.2 Durham County Council has thus far undertaken a route identification assessment, identifying the main constraints and issues (AECOM June 2010).
- 2.3 The route has been identified as "...an alternative route to the already congested existing A167 between the A690and A691 on the west side of Durham. It would also provide some relief to the A690/A167 junction at Nevilles Cross which currently suffers significant delay in the peak hour periods..." (Ibid: 7).
- 2.4 A constraint mapping exercise has been completed taking into account Ecological, Archaeological, and Landscape etc. issues. A broad level assessment of the potential impact these may have on the development of the route was conducted. The archaeological assessment was carried out by *Archaeological Services Durham University* in 2011(ASDU 2011). This report is available in the Durham HER and should be consulted by all tendering contractors prior to submitting tenders.
- 2.5 The development route covers a total of c.14.5 hectares (ha) based on the current design. It should be noted that the detailed designs may change in the future, but for the purpose of this evaluation the figure of 14.5ha will be used.
- 2.6 The current preferred route will be a combination of cut and embankment depending on the localised terrain. There will be a fly-over across Toll House Road and the River Browney, and roundabouts at both the north and south termini.
- 2.7 The appointed contractor must liaise with the client regarding scale plans of the proposed route.

3 Historical and Archaeological Background

- 3.1 The development lies in a landscape of archaeological sensitivity. The following information has been taken from the County Durham HER to provide a *brief* overview of the history of the area.
- 3.2 The proposed route lies directly east of the Hallowell Moss peat bog. Pollen analysis in the 1970s has provided excellent environmental data on past environments showing a change from dense native woodland in the Neolithic period through to deliberate clearing for agricultural purposes throughout the prehistoric periods into the Iron Age. There is some potential for a brief/temporary settlement in this area during the late Iron Age/Romano-British Period on the basis of the environmental data.
- 3.3 Bronze Age cinerary urns were found in the late 19th century just to the NE of Stonebridge in a sand quarry.
- 3.4 A Roman Road postulated by Cade to have diverged from *Dere Street* at Willington which then headed towards Durham has been proven by archaeological investigation in Brandon



Regeneration & Economic Development: Design & Historic Environment

and, most recently at Langley Moor (H43118; E5779). Research work in the 1960s also found evidence of the road just west of Stonebridge (H5780, H5781). Whilst a Roman camp has been postulated on the west bank of the Browney River at Relley Mill, there is currently no archaeological evidence to confirm this.

- 3.5 During the Medieval period, the land within the proposed development area (PDA) was largely agricultural in nature. It all fell within the ownership of the Beaurepaire estate which was held by the Bishops of Durham and then the Dean and Chapter of Durham until the 19th century. The land was emparked and enclosed in 1267 with a park pale. This was replaced by a stone wall in 1311. Parts of the park wall were seriously damaged during the *Battle of Nevilles Cross* in 1346, but were subsequently repaired. The manor and estate buildings suffered during the Civil War and fell into disuse after this time. It is thought that the northern end of the route may dissect the boundary of the park.
- 3.6 Relley Farm, at the southern terminus of the route, may be the remains of a shrunken Medieval village (H9394). A moated enclosure was shown to the south of Broom Lane on the 1st edition OS but was subsequently destroyed by the Broompark Colliery in the late 19th century.
- 3.7 A nationally important battlefield abuts the PDA on the eastern side the Registered Battlefield of *The Battle of Nevilles Cross 1346*. Although the registered area will not be directly impacted by the road, there is little doubt that the wider area of Crossgate Moor was utilised by both the Scottish and English armies. There will also be an indirect impact to the battlefield through setting issues.
- 3.8 The Scots reportedly camped near Beaurepaire and the battle raged between Redhills and the River Browney. King David, the Scottish King, is reported to have been wounded and hidden under the stone bridge at Aldin Grange (now a scheduled ancient monument) before being captured. Whilst some Medieval battlefields are often difficult to define archaeologically, there is potential for mass graves associated with the battle to survive. Additionally, metal finds from the battle have the potential to be scattered across the site. Although it is noted that few have been reported to date.
- 3.9 Four Medieval coin hoards have been discovered in the wider area all containing coins dating to the 14th Century.
- 3.10 Overall the proposed Western Relief Road is deemed to have high potential to directly impact upon known, or unknown, archaeological deposits dating principally to the Medieval period with a low-medium potential to impact on unrecorded Prehistoric Romano-British activity.

4 Project Objectives

- 4.1 The overall objectives of the evaluation are:
 - to determine if any archaeological features/deposits occur within the proposed route of the Western Relief Road by means of geophysical survey, limited metal detecting survey and targeted trial trenches;



Regeneration & Economic Development: Design & Historic Environment

- to determine where possible the nature, depth, extent, significance and date of any features and recover as much information as possible about the spatial patterning of features present on the site;
- to determine the condition or state of preservation of any archaeological deposits or features encountered;
- to recover a well-dated stratigraphic sequence and recover coherent artefact, ecofact and environmental samples, including an assessment of the site's environmental potential;
- to provide a record of the archaeological remains; and,
- to inform the scope of further archaeological evaluation or mitigation works, if required.

5 Archaeological brief

- 5.1 It is expected that the archaeological works will be carried out according to archaeological best practice as set out in the following publications: *Yorkshire, the Humber and the North-East: A Regional Statement of Good Practice for Archaeology in the Development Process* (WYAAS 2011) and *Standard and Guidance: an archaeological evaluation* (IFA 2008); *Standard and Guidance for archaeological geophysical survey* (IFA 2011); *Geophysical Survey in Archaeological Field Evaluation* (English Heritage 2008); and *Guide to good Practice: Geophysical Data in Archaeology* (Archaeology Data Service 2011).
- 5.2 This brief sets out the archaeological works required in order to evaluate the site, and how they must be carried out. The works are required in order to provide the proportionate level of detail needed to support the inclusion of this site in the *County Durham Plan*.
- 5.3 Any further works required to further evaluate or mitigate the impact of any proposed development will be dealt with under a separate brief either in support of, or as a condition of, future planning permissions. The report on the current works must be submitted and accepted by Durham County Council Archaeology Section before it can be deemed completed.
- 5.4 An archaeological evaluation using multiple techniques will be required within the route of the Western Relief Road utilising the following evaluation methods.
- 5.5 Access to the PDA should be organised by the Client; however, the appointed contractor is advised to liaise directly with the Client over this.

Geophysical Survey

- 5.6 A 100% sample of the route must be surveyed by magnetometer. The appointed contractor is expected to assess the route for the most appropriate locations for the survey. It is expected that some areas may not be suitable for survey due to ground conditions and that less than 100% will actually be surveyed.
- 5.7 The areas to be surveyed are to be agreed with the DCC Senior Archaeologist prior to field work commencing.
- 5.8 All field work must be undertaken by an experienced operator, working to the best practice



Regeneration & Economic Development: Design & Historic Environment

guidelines referred to in section 5.1 above.

- 5.9 The survey grid must be set out by a metric survey device and tied into the Ordnance Survey Grid. It should be internally accurate to 100mm and locatable on the OS 1:2,500 map.
- 5.10 A detailed magnetometer survey is required using a Fluxgate Gradiometer. Readings should be taken at a rate of 4 per meter at 1m traverses within a 1m grid system. Data should be downloaded frequently whilst on site into a laptop computer for initial processing and data security.
- 5.11 Data should then be downloaded onto a desktop computer off-site to enable further detailed processing, interpretation and ultimately archiving. Continuous tone greyscale images of raw data and an x/y trace plot must be produced. These must include palette bars relating to the greyscale intensity to anomaly values in *ohms*.
- 5.12 The report must include both the raw and processed data. The latter should be located and presented in relation to the OS base plan. This should accurately locate the positions of all survey markers to aid the laying out subsequent evaluation trenches.
- 5.13 An interim report should be produced within 48 hours of the completion of the survey to aid in the planning of trench locations. The final report must be included in the report for the entire evaluation works.

Metal detecting survey

- 5.14 Metal detecting will be required within the area north of Toll House Road/River Browney. A degree of flexibility will be required for the metal detecting survey.
- 5.15 The survey must be carried out by competent and experienced individuals either hobby detectorists, or a suitably equipped and experienced member of the appointed contractor's staff. Tendering contractors are recommended to liaise with the PAS Officer based at Durham County Council Archaeology Section who can provide a list of contacts suitable to carry out such a survey if required.
- 5.16 The detectorist(s) and their experience, including details of instrument to be used must be detailed in the WSI under the list of specialists including details of their experience. DCC Archaeology will take advice from the PAS Officer on the proposed metal detecting element to ensure the equipment / operators to be used are of a suitable standard.
- 5.17 The appointed detectorist must be advised that the detector should be set not to discriminate against ferrous objects, i.e. all responses must be investigated within the survey areas.
- 5.18 All finds made by the detectorist(s) must be recorded in 3-D and accurately plotted on trench plans in relation to the OS map base.
- 5.19 The survey must target possible anomalies identified by the geophysics as areas of ferrous disturbance to the north of Toll House Lane / River Browney. If these results are ambiguous, then it may be necessary to first design the trial trenching plan, then detect



each trench prior to machine excavation. The final method must be discussed and approved by DCC Senior Archaeologist prior to commencement.

- 5.20 All trenches north of the River Browney will be detected prior to machine excavation of the top soil. Targeted trenches to the south of the River Browney will be sampled prior to the top soil strip commencing.
- 5.21 The principal aim of this survey is to identify artefact distribution clusters associated with the *Battle of Nevilles Cross*.

Targeted Trial Trenching

- 5.22 A targeted trial trenching strategy is required across the site. The trenches should sample up to 2% of the PDA, with a contingency for a further 1% if required. The final trenching plan will be agreed after the results of the geophysical survey are known. It may be that the full 2% sample may not be utilised.
- 5.23 The contingency should be set aside to be utilised during the evaluation phase if further detail or research questions require it. Contingency can only be accessed following consultation between the appointed contractor, the client and the Senior Archaeology Officer at DCC.
- 5.24 The principal aims of the trial trenching will be:
 - to define and identify the nature of archaeological deposits on site, and date these where possible;
 - to attempt to characterise the nature, character and depth of the archaeological sequence;
 - to recover a well dated stratigraphic sequence and recover coherent artefact, ecofact and environmental samples, including an assessment of the site's environmental potential.
- 5.25 It is expected that the trench layout will be agreed subsequent to the results of the geophysical survey.
- 5.26 Trenches must be targeted on geophysical anomalies as well as areas of potential as identified by metal detecting if used in advance of trial trenching. Additionally, so-called "blank" areas from the geophysical survey must also be tested.
- 5.27 The final trench layout plan must be agreed with the Durham County Council Archaeology Section before excavation commences on site. Where necessary trench lengths may be adjusted to fit the local topography. The full 2% sample may not be used.
- 5.28 The appointed archaeological contractor must provide detailed research aims in relation to the *North East Regional Research Framework for the Historic Environment* (NERRF Petts and Gerrard 2006)
- 5.29 Prior to top soil stripping commencing trenches must be surveyed by the appointed specialist metal detectorist as per paragraphs 5.6 5.11 above.
- 5.30 It is expected that the spoil from the trenches will be kept separate (top soil / sub-soil) and



at a suitable distance from trench edges. Following the completion of the trenching, the site must be left in a state as agreed with the client.

- 5.31 If archaeological remains are found they may require specialist backfilling regimes and a contingency for this must be included in the tender document.
- 5.32 This brief does not constitute the "written scheme of investigation" which must be submitted by the appointed contractor for approval by Durham County Council Archaeology Section prior to work commencing.

6 Recording

- 6.1 Any topsoil and non-significant overburden are to be removed to the top of archaeological deposits or natural, whichever is encountered first. This may be achieved through use of a mechanical excavator with a toothless grading bucket under complete and continuous archaeological control. Once archaeological deposits are encountered all excavation must proceed by hand until natural or the maximum safety depth is reached.
- 6.2 All archaeological deposits and features must be subjected to appropriate levels of investigation in order to meet the needs of the evaluation. It is expected that all trenches will be subject to a proportionate level of hand-cleaning to ensure that there are no discrete or ephemeral archaeological features obscured by the machine cleaning of the base of trenches.
- 6.3 Where excavation is required for the satisfactory assessment of archaeological deposits, a minimum 20% sample of all linear features must be excavated at appropriate intervals and all intersections, overlaps and terminals must be investigated. A minimum 50% sample of all non-linear features must be excavated and 100% of post-holes. All features must be proven to natural/sterile deposits or to the maximum health and safety depth whichever is reached first.
- 6.4 Any human remains encountered must be accurately recorded, including *in-situ* examination by a palaeo-pathologist, but not removed from site at this stage. Both the client and the DCC Senior Archaeology Officer must be informed if human remains are found.
- 6.5 Horizontal survey control of the site must be by means of a coordinate grid, using metric measurements. The location of the grid must be established, where possible, relative to the National Grid. Vertical survey control must be tied to the Ordnance Survey datum. Details of the method employed must be recorded, including the height of the reference point.
- 6.6 Sections must be recorded by means of a measured drawing at an appropriate scale. The height of a datum on the drawing must be calculated and recorded. Representative drawn sections of all trenches/test-pits must be recorded and presented in the report even if blank/negative. The locations of sections must be recorded on the site plans, relative to the site grid. Cut features must be recorded in profile, planned at an appropriate scale and their location accurately identified on the appropriate trench plan.
- 6.7 All drawn records must be clearly marked with a unique site number, and must be



individually identified. The scale and orientation of the plan must be recorded. All drawings must be drawn on dimensionally stable media. All plans must be drawn relative to the site grid and at least two grid references marked on each plan.

- 6.8 Each archaeological context must be recorded separately by means of a written description. The stratigraphic relationships of each context must be recorded. Pro-forma record sheets must be used throughout. An index must be kept of all record types.
- 6.9 A Harris Matrix showing the stratigraphic relationships in each trench must be produced and included in the site report.
- 6.10 All archaeological features must be photographed and recorded at an appropriate scale. Sections must be drawn at 1:10, and plans at 1:20 or 1:50.
- 6.11 Photographic records must use archival quality black & white prints and colour slide and include a suitably sized metric photographic scale. Suitable digital images of the site for inclusion on the *Keys to the Past* website must be included with the report. Digital images must not be relied on as the primary means of record.
- 6.12 Pottery and animal bone must be collected as bulk samples by context. Significant small finds must be three dimensionally located prior to collection. All finds must be processed to MAP2 standards and be subject to preliminary specialist assessment in order to help date archaeological features and contexts. No artefacts must be discarded without the permission of the Durham County Council Archaeology Service. Provision must be made within the tender for appropriate levels of artefact and ecofact conservation.
- 6.13 Palaeo-environmental sampling must be undertaken in accordance with the Centre for Archaeology Guidelines *Environmental Archaeology: a guide to the theory and practice of methods from sampling and recording to post-excavation* (English Heritage 2002). The English Heritage Regional Scientific Advisor must be informed and given the opportunity to visit the site.
- 6.14 Scientific dating techniques such as the use of high-resolution radiocarbon dating and full analysis of ceramic assemblages (i.e. petrological analysis), including thermoluminescence dating must be applied if the site yields suitable material. X-ray photography of metal objects must be used where appropriate.

7 Specialist Services and Reports

- 7.1 The vast majority of sites where excavation takes place will require the input of archaeological specialists for dating, artefact analysis, palaeo-environmental sampling and conservation.
- 7.2 The appointed archaeological contractor must identify in the tender and subsequent WSI the names of the specialists who have agreed to undertake analyses for this site. This includes the metal detectorist. Failure to identify suitably qualified specialists will result in the WSI being rejected
- 7.3 If not identified in the initial costings, contingency sums must clearly be set aside for all of



the identified specialist areas and clearly indicated in any tender documents so that the client can clearly understand them. In each case the specialist involved must be kept informed of the start date and progress of sites so that sampling and necessary on-site conservation needs can be timetabled if necessary.

- 7.4 WSI/Project designs which fail to indicate that contractors have discussed the environmental potential of the site with the EH Science Advisor will not be approved.
- 7.5 A contingency amount must be identified for the appraisal of the conservation needs of artefactual material excavated on site and for the initial stabilisation of such finds where needed so that they may be studied as part of the post-excavation for the project

8 OASIS

- 8.1 The Durham County Council Archaeology Section supports the Online Access to Index of Archaeological Investigations (OASIS) Project. The overall aim of the OASIS project is to provide an online index to the mass of archaeological grey literature that has been produced as a result of the advent of large scale developer funded fieldwork.
- 8.2 The archaeological contractor must therefore complete the online OASIS form at http://ads.ahds.ac.uk/project/oasis/ within 3 months of completion of the work. Contractors are advised to ensure that adequate time and costings are built into their tenders to allow the forms to be filled in.
- 8.3 Technical advice must be sought in the first instance from OASIS (oasis@ads.ahds.ac.uk) and not from Durham County Council Archaeology Section.
- 8.4 Once a report has become a public document by submission to or incorporation into the HER, Durham Council Archaeology Section will validate the OASIS form thus placing the information into the public domain on the OASIS website.
- 8.5 The archaeological consultant or contractor must indicate that they agree to this procedure within the WSI submitted to Durham County Council Archaeology Section for approval

9 Health and Safety Policy

- 9.1 Contractors are expected to abide by the 1974 Health and Safety Act and any subsequent amendments. They are also expected to ensure that all projects which fall under the Construction and Design Management Regulations 2007 follow all necessary requirements of said regulations. Appropriate provision of first aid, telephone and safety clothing as described in the SCAUM manual on archaeological health and safety must be followed. Each site must have a nominated safety officer.
- 9.2 Adequate and secure safety fencing must be placed around excavated trenches in order to inhibit access by the public or large animals (e.g. horses, sheep) and to ensure adequate security for the excavation. Clear signage regarding deep excavation trenches must be displayed on the fences and site perimeter as necessary. These items must be agreed with the client prior to work commencing and detailed in the WSI.



Regeneration & Economic Development: Design & Historic Environment

- 9.3 Contractors are advised to identify the location of any services or overhead wires which may cross the site and ensure that they are clearly marked before trenching commences so that they can be avoided
- 9.4 The undertaking of a risk assessment prior to the commencement of works is required. A copy of the risk assessment must be circulated to the client and any other sub-contractors working on the site at the same time. Contractors must ensure that all staff working on the site are fully briefed on all health and safety issues relating to the site prior to working there.

10 Publication

- 10.1 All assessments, evaluations and watching briefs which do not progress to further excavation and research (with the relevant post-excavation and publication scheme and costs), must have a time and budget allocation identified for publication. This must be to a minimum standard to include a summary of the work, findings, dates, illustrations and photographs and references to where the archive is lodged.
- 10.2 Editors of regional journals, either the *Durham Archaeological Journal* or *Archaeologia Aeliana* must be contacted for information on outline publication costs, fuller figures may be worked out on completion of the watching brief. As the final note is largely unpredictable in advance a contingency sum must be set aside at the outset of work in the tender.
- 10.3 County Durham Archaeology Section produces an annual publication every March which highlights the archaeological work conducted in the county over the previous 12 months. To this end, it is now a requirement of every specification that a précis of archaeological works conducted in the county as a result of NPPF must be submitted to the DCC Archaeology Section.
- 10.4 The précis must be no more than 500 words in length and it would be appreciated if TIFF images of 300dpi are also included. The summary must be sent to the County Archaeologist by the beginning of December of the same year in which the work was conducted.

11 The Report

- 11.1 At least two copies of the report (or more if required by the client) must be sent to the client for planning purposes as well as one bound hard copy and one digital copy to the HER. The evaluation report must be written to MAP2 standards (English Heritage 1991) and include the following at the minimum:
 - executive summary
 - a site location plan to at least 1:10,000 scale with at least an 10 figure central grid reference
 - OASIS reference number; unique site code
 - contractor's details including date work carried out
 - nature and extent of the proposed development, including developer/client details



- description of the site location and geology
- geophysical technical and processing information
- geophysical results
- geophysical discussion and interpretation
- OS contour data must also be displayed on the interpretation plots
- a plot of the raw geophysical data (to an appropriate scale)
- geophysical plots must show the location of modern intrusions (i.e. services etc)
- geophysical X-Y trace and greyscale and/or dot density plots (to an appropriate scale)
- geophysical interpretative feature map (to an appropriate scale)
- a general trench plan to a suitable scale and tied into the national grid
- areas covered by the metal detecting survey noted on the trench plan including 3-D recording of all finds;
- a specific trench plan correctly showing the location and number of all sections in features within each trench specific discussion of the results by trench and context/feature (i.e. context & feature descriptions)
- specialist reports, including assessments of each artefact type as well as environmental data
- general overall discussion of the results pulling together all data
- features, number and class of artefacts, spot dating & scientific dating of significant finds presented in tabular format
- Harris matrices for all trenches
- plans and section drawings of features drawn at a suitable scale with height recorded in metres AOD
- representative sections of trenches, even if negative results, with height recorded in metres AOD
- additional plans/map extracts to display noted and recorded archaeological features as appropriate
- digital images to clarify information, not to be used in lieu of recorded sections/plans
- suggested recommendations regarding the need for, and scope of, any further archaeological work, including publication
- bibliography/references
- 11.2 The report must be presented in an ordered state and contained within a protective cover/sleeve or bound in some fashion (loose-leaf presentation is unacceptable). The report will contain a title page listing site/development name, district and County together with a general NGR, the name of the archaeological contractor and the developer or commissioning agent. The report will be page numbered and supplemented with sections and paragraph numbering for ease of reference. Photographs of trenches and sections may be included, but must not be used as the sole graphic representation.
- 11.3 Durham County Council Archaeology Section must be given copyright permission / authorisation to use the report and its contents to fulfil their function as an HER or using the information for educational / outreach purposes.
- 11.4 The report must seek to identify any deposits remaining on or associated with the site that will remain following the completion of the evaluation.



12 The Tender

- 12.1 Tenderers are expected to abide by the terms as set out in Sections C and D of the "*Tender Response Document*" issued by Durham County Council procurement team.
- 12.2 Tenders should include statement agreeing to complete the OASIS forms on completion of the evaluation and its reporting.
- 12.3 Tenders should also include a list of staff who will be involved in project, including a management structure. All specialists should be detailed as instructed above.

13 Submission of Report

13.1 This evaluation must be considered as a project in its own right. At least two copies of the report, or more if required, must be sent to the client for planning purposes. One hard copy of the report as well as a digital copy with images (JPEG's) of the site for the *Keys To The Past* website must be sent to the Archaeology Section, Durham County Council for inclusion into the County Durham Historic Environment Record (HER) at:

Archaeology Section Durham County Council Design & Historic Environment Team Regeneration & Economic Development 5th Floor County Hall Durham DH1 5UQ

14 The Archive and Submission to a Museum

- 14.1 The site archive comprising the original paper records and plans, photographs, negatives, and finds etc, must be deposited in the appropriate museum (*the Old Fulling Mill Museum*, Durham) at the completion of post-excavation. This must be in accordance with both the County Archaeological Archive policy and the *Durham County Council Historic Environment Record Revised Charging Scheme* (2008-09). Both of these are available from DCC Archaeology if required.
- 14.2 On conclusion of the project the records generated must be assembled into an indexed and cross-referenced archive in accordance with the guidance of Appendix 6 of *Management of Archaeological Projects* (English Heritage, 1991) and the *Standards and Guidance* of the Institute of Field Archaeologists (IFA, 1999).
- 14.3 Archiving must meet the relevant standards set out in *Guidelines for the Preparation of Excavation Archives for long-term storage* (UKIC 1990) and *Archaeological Archives: A guide to best practice in creation, compilation, transfer and curation* (AAF 2007). The archive must be deposited with the appropriate museum in accordance with their deposition conditions.



15 Notice and publicity

- 15.1 The Principal Archaeologist must be given one week notice in writing of the commencement of evaluation works. During such works the County Archaeologist or his nominated representative shall be allowed access to the site and excavations at all reasonable times.
- 15.2 Any publicity regarding the works or finds etc must go through the Archaeology Section at Durham County Council and the Council's Press Officer.



16 References

AECOM Ltd	2010	Durham Relief Road Study: Western Route
Archaeological Archives Forum	2007	Archaeological Archives: A guide to best practice in creation, compilation, transfer and curation.
Archaeological Services Durham University	2011	Western Relief Road, Durham City, County Durham, archaeological desk-based assessment
English Heritage	1991	Management of Archaeological Projects 2
	2002	Guidelines for Environmental Archaeology: a guide to the theory and practice of methods from sampling and recording to post-excavation
	2008	Geophysical Survey in Archaeological Field Evaluation
Institute for Archaeologists (IFA)	2008	Standard and Guidance: Archaeological Evaluation.
	2011	Standard and Guidance for archaeological geophysical survey
Petts, D and Gerrard, C	2006	Shared Visions: The North East Regional Research Framework for the Historic Environment
Schmidt, A & Ernenwein, E.	2011	Guide to Good Practice: Geophysical Data in Archaeology. Archaeology Data Service
United Kingdom Institute of Conservation	1990	<i>Guidelines for the Preparation of</i> <i>Excavation Archives for long-term storage</i>
West Yorkshire Archaeological Advisory Service (WYAAS)	2011	Yorkshire, The Humber & The North-East: A regional statement of good practice for Archaeology in the development process

2nd October 2013 Lee McFarlane Senior Archaeology Officer Durham County Council



Regeneration & Economic Development: Design & Historic Environment

YORKSHIRE, THE HUMBER & THE NORTH EAST: A REGIONAL STATEMENT OF GOOD PRACTICE FOR ARCHAEOLOGY IN THE DEVELOPMENT PROCESS

This document contains general principles on Archaeology in the development process and has been endorsed by the organisations listed below:

The intention is to help improve standards of archaeological work in the Yorkshire & the Humber and the North East Regions and to help establish a consistent approach for the benefit of archaeological contractors, consultants, curators and developers who are funding the work, as well as to the historic environment. The historic environment is an encompassing term that includes "all aspects of the environment resulting from the interaction between people and places through time, including all surviving physical remains of past human activity, whether visible or buried, and deliberately planted or managed flora" (English Heritage 2008, *Conservation Principles* p. 71). It should be noted that there is a presumption within the Region that archaeological interest may apply not only to below ground archaeological remains, but also may apply to upstanding structures / buildings (both listed and unlisted), marine and maritime assets as well as paleoenvironmental deposits.

This document should be read in conjunction with the issued specification/WSI/brief/project design.

The following general principles are expected to pertain to archaeological work carried out as part of the development process in these Regions in accordance with Central Government Guidance and Regional and Local Development Plans and policies:

- 1) Pre-application discussion on the potential archaeological impact of a development is encouraged as is pre-determination evaluation where it is necessary to help define the character, extent and significance of the archaeological remains that may exist in the area of a proposed development prior to a planning decision.
- 2) Archaeological work in the development process should be carried out by a professionally qualified archaeological organisation or archaeologist and the archaeologists undertaking the work should have "the requisite qualifications, expertise and experience" (IFA Code of Approved Practice).
- 3) In accordance with long-standing professional practice (see footnote below) it is expected that all archaeological specifications/WSIs/ briefs/project designs will have been agreed in advance with the relevant archaeological curator before archaeological work commences. Any variations to the previously established programme of work must be agreed in writing by the archaeological curator acting on behalf of the local planning authority.
- 4) As part of the implementation of the Planning Consent process archaeological work will be monitored on behalf of the LPA by its archaeological curator (who may seek advice where appropriate from the EH Science Advisor). There may be exceptions, but consultants and contractors should expect monitoring to be the norm unless informed otherwise. To allow monitoring to occur, the relevant curatorial archaeologist should be given reasonable notice of intention to commence any fieldwork undertaken as part of the development process and confirmation of the actual start date.

Date April 2012 / SYAS

YORKSHIRE, THE HUMBER & THE NORTH EAST: A REGIONAL STATEMENT OF GOOD PRACTICE FOR ARCHAEOLOGY IN THE DEVELOPMENT PROCESS

- 5) Archaeological work carried out within the development process is expected to accord with best practice as published in English Heritage guidelines and the IFA's standards and guidance.
- 6) Historic Environment Records (also known as Sites and Monuments Records) are key to understanding and managing the historic environment. Archaeological contractors and consultants should consult the relevant HER / SMR in person prior to producing desk-based assessments or commencing fieldwork (unless otherwise agreed with the relevant curator).
- 7) Archaeological fieldwork carried out as part of the development process should have regard to both national and local published research agenda, and should have an intention of furthering these agenda.
- 8) Archaeological contractors and consultants are expected to discuss any recommendations they make in archaeological reports submitted as part of the development process with the relevant curatorial archaeologist prior to formal submission. If this has not been done, the absence of discussion / agreement should be formally stated in the submitted document. It should be noted that the final decision on the need for and scope of any further works lies with the Archaeological curator acting on behalf of the Local Authority.
- 9) All reports and required data produced following archaeological work as part of the development process should be supplied by the archaeological contractor / consultant directly to the relevant HER / SMR within a reasonable timescale following completion of the fieldwork, in the format agreed with the curatorial body, and in accordance with any issued or agreed specification or project design.
- 10) The curatorial archaeologist will make any comments they wish to make on the report within a reasonable timescale of receipt.
- 11) Where considered appropriate by the archaeological curator, and particularly where supported by the relevant research agenda, it is expected that significant archaeological results will be submitted for publication in a suitable journal or journals.
- 12) The archive produced as a result of archaeological fieldwork is expected to be deposited in an ordered and acceptable fashion with an appropriate public repository within a reasonable timescale following completion of the project. Details of the location of the (intended) repository should be included in the archaeological fieldwork report.
- 13) The historic environment is a shared resource. During the course of archaeological work on site, it is normally expected that arrangements will be made for dissemination of information to the general public, providing intellectual access where physical access is not possible or appropriate.

Date April 2012 / SYAS

YORKSHIRE, THE HUMBER & THE NORTH EAST: A REGIONAL STATEMENT OF GOOD PRACTICE FOR ARCHAEOLOGY IN THE DEVELOPMENT PROCESS

Organisations that have accepted and agreed these Principles within Yorkshire & the Humber & the North East are listed below:

Archaeology Section, Design & Historic Environment Team, Durham County Council City of York Design, Conservation & Sustainable Development Team Humber Archaeology Partnership North East Lincolnshire Archaeology Service North Lincolnshire Council Historic Environment Record North York Moors National Park Authority Historic Environment Service North Yorkshire County Council Historic Environment Team Northumberland Conservation, Northumberland County Council South Yorkshire Archaeology Service Tees Archaeology Tyne and Wear Specialist Conservation Team West Yorkshire Archaeology Advisory Service Yorkshire Dales National Park Authority Historic Environment Service

Footnote: the IFA's Standards and Guidance for archaeological field evaluation para. 3.3.1; the IFA's Standard and Guidance for archaeological desk-based assessment para. 3.2.5; the IFA's Standard and Guidance for an archaeological watching brief para. 3.2.5; ACAO Model Briefs and Specifications for Archaeological Assessments and Field Evaluations, Appendix D iv (b))

Revision 1: March 2011 to reflect the replacement of PPGs 15 & 16 with PPS5 **Revision 2:** April 2012 to reflect replacement of PPS5 with NPPF































