

## **A1(T) Dishforth to Barton Improvement, North Yorkshire**

### **geophysical surveys – Volume I (text)**

*on behalf of*



**AMEC  
Bullen Consultants**

*for*

**Highways Agency**

**ASUD Report 1121**  
March 2005

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## **1. Summary**

### ***The project***

- 1.1 This report presents the results of a programme of geophysical survey conducted on land adjacent to the A1(T) between Dishforth and Barton in North Yorkshire, in advance of proposed road improvement.
- 1.2 The works were commissioned by AMEC/Alfred McAlpine JV and conducted by Archaeological Services University of Durham (ASUD) in accordance with instructions from Bullen Consultants acting on behalf of the Highways Agency. A Project Design was provided by ASUD.

### ***Results***

- 1.3 Geomagnetic surveys were conducted over 84 areas and electrical resistance surveys were conducted over two areas. Probable archaeological remains were detected in 71 of these areas. The remains include occasional ditches and pits, medieval ridge and furrow, former enclosed field systems and trackways, Roman roads, a possible early Roman camp, parts of two Roman forts and *vici*, a large part of a Roman roadside settlement and parts of a Roman town. Stone-founded buildings, kilns and evidence for other industrial activities were almost certainly detected in and around the settlements.
- 1.4 In some locations the surveys confirmed the results of previous investigations, and in many cases they provided added value to existing knowledge with the recording of many new features and more extensive mapping of settlements and field systems, particularly around Bainesse Farm at Catterick.
- 1.5 The range and complexity of features detected at the three scheduled areas (*Cataractonium*, Bainesse Farm and Healam Bridge) further clarifies the information regarding these sites. For ease of reference, the surveys conducted at each of the scheduled sites were:  
  
SAM 34733 *Cataractonium* (Figure 2i): Areas 18, 19, 19a, 19bW, 19bE & 75  
SAM 34734 Bainesse Farm (Figure 2h): Areas 24, 25, 26, 26a, 27a & 27  
SAM 34736 Healam Bridge (Figure 2c): Area 46 (1, 2, 3, 4, & Q)
- 1.6 In addition to the many features detected in the scheduled areas, the types of features identified within the other surveys are listed below. These features have the potential to be of archaeological significance, and some may warrant further investigation.  
  
Dere Street Roman road: Areas 77 & 78  
Field systems/tracks: Areas 1, 12, 14x, 14y, 37, 38, 39, 41, 42, 44, 51, 60-2 & 69  
Miscellaneous ditches/pits: Areas 1, 6, 7, 9, 12, 14x, 14y, 29, 30, 32E, 32W, 34, 37, 38, 39, 41, 43, 44, 51, 52, 53, 54, 56, 58, 59, 60-2, 61, 68 & 69  
Ridge and furrow: Areas 5, 6, 9, 12, 14y, 20, 22, 23, 28, 29, 30, 32E, 32W, 33, 33a, 40, 41, 42, 44, 61, 68, 69, 70, 77 & 78

- 1.7 No anomalies of likely archaeological significance were detected in the following 15 surveys:

Areas 2, 3, 4, 11, 13, 14L, 15, 16, 31, 45, 47, 49, 50, 55 & 57.

- 1.8 At the time of writing this report, it had not been possible to gain access to a few remaining fields. It is anticipated that the results of those surveys will be provided as an *addendum* to this report in due course.



## **2. Project background**

### ***Location (Figure 1)***

- 2.1 The study area comprised a corridor of land adjacent to the A1(T) between Dishforth and Barton in North Yorkshire. 86 surveys were undertaken within this corridor, totalling approximately 167 hectares. The northernmost survey was Area 77, just west of Junction 56 at NGR centre: NZ 2149 0828, and the southernmost was Area 60-2 at the junction of the A61 with the A1, at NGR centre: SE 3545 7660. A table of survey areas with their size and location is provided in Section 5, below.

### ***Development proposal***

- 2.2 The development proposal is to improve the A1(T) road.

### ***Objective***

- 2.3 The principal aim of the surveys was to determine the extent and nature of any sub-surface features of likely archaeological interest, including cut, built and fired features, which would assist the client and the planning authority in determining appropriate mitigation strategies should archaeological deposits be found to survive within the study area.

### ***Dates***

- 2.4 The surveys were undertaken between 16<sup>th</sup> June 2004 and 1<sup>st</sup> March 2005. This report was completed in March 2005.

### ***Personnel***

- 2.5 The fieldwork was conducted by Ed Blinkhorn (Senior Supervisor) with Graeme Attwood, Matt Claydon, Will Davies (Supervisor), Ben Edwards, Lorne Elliott, David Graham (Supervisor), Luke Murray, Mark Newman, Martin Railton (Supervisor), Louise Robinson, Daniel Still (Supervisor) and Matt Whincop. This report was prepared by Duncan Hale with illustrations by Martin Railton, who was assisted by Linda Bosveld, Janine Fisher and David Graham. The Project Manager was Duncan Hale.

### ***Acknowledgements***

- 2.6 Archaeological Services is grateful to Blaise Vyner, Steve Sherlock, staff at Bullen Consultants and all the landowners, agents and farmers for their assistance with this project.

### ***Archive/OASIS***

- 2.7 The survey archive is currently held at Archaeological Services, University of Durham. ASUD is registered with the Online AccesS to the Index of archaeological investigationS project (OASIS). The OASIS ID number for this programme of survey is 'archaeol3-7287'.

### **3. Previous geophysical surveys**

- 3.1 Geophysical surveys have previously been undertaken at numerous locations along the Dishforth to Barton section of the A1, prior to proposed road improvement or other development, as outlined below. A great many other archaeological investigations have also been carried out in this area, and some of these are described in more detail in Section 9 in order to provide context for the current survey results.

#### ***A1 North of Leeming to Scotch Corner (North & South Sectors)***

- 3.2 In 1993 twelve gradiometer surveys were undertaken by Geophysical Surveys of Bradford for Lancaster University Archaeological Unit. The report concluded that the results did not appreciably add to the archaeological record, and that while most of the surveys yielded some anomalies of possible archaeological significance the majority of these were weak and ephemeral (GSB 1993). Site 29 in that report corresponds to Area 77 in this report.

#### ***A1 North of Leeming to Scotch Corner (Central Sector)***

- 3.3 Also in 1993 the central sector of the above route, west of Catterick Village, was surveyed by Bartlett-Clark Consultancy for English Heritage Central Archaeology Service. Nine gradiometer surveys and two electrical resistance surveys were undertaken (English Heritage 1994). The majority of these survey areas have been re-surveyed as part of the current investigation (Areas 19-27 in this report).

#### ***A1 Dishforth to North of Leeming***

- 3.4 Between 1993 and 1995, 25 gradiometer and electrical resistance surveys were undertaken by Geophysical Surveys of Bradford for Barton Howe Warren Blackledge (BHWB) at various locations on the above section of the A1 (BHWB 1996). Approximately half of these surveys were undertaken to the south of the southernmost survey for the current study. The majority of the remainder of surveys were undertaken at Healam Bridge; these broadly correspond to surveys undertaken for the present study (Area 46 in this report).

#### ***Former airfield at Marne Barracks, Catterick***

- 3.5 In 2000 ASUD conducted a 41ha gradiometer survey of the former airfield at Marne Barracks, immediately east of the A1 opposite Bainesse Farm, prior to proposed development by the MoD (ASUD 2001a). A number of smaller gradiometer, electrical resistance and ground-penetrating radar surveys were also undertaken within the northern, built area of the base (ASUD 2001b). The airfield survey detected features which were subsequently proven to range in date from the late Neolithic through to the 20<sup>th</sup> century (ASUD 2002; ASUD in prep.).

#### ***Land north of Bainesse Farm, Catterick***

- 3.6 Bradford University undertook trial magnetic and resistivity surveys in the field north of Bainesse Farm in 1980 (Heathcote 1980). The Ancient Monuments Laboratory undertook gradiometer surveys both here and in the field on the opposite side of the A1 in 1981 (CEU Site 46), prior to the construction of the existing 'Catterick South' junction (English Heritage 1981;

Bartlett 2002). Remains of a Roman roadside settlement were identified in all of these surveys.

### ***Catterick Bridge, Honey Pot Lane and Catterick Racecourse***

- 3.7 The Ancient Monuments Laboratory undertook gradiometer surveys at each of the above sites between 1981 and 1984 (Bartlett 2002). Nothing of archaeological interest was detected at Catterick Bridge (Site 240). The survey at Honey Pot Lane (Site 251) detected a ditch and two possible pits. An area of occupation close to Dere Street was detected within the circuit of Catterick Racecourse (Site 273), while at the south end of the racecourse a ‘native’ farmstead previously identified on aerial photographs was surveyed.

### ***Catterick Triangle***

- 3.8 A resistivity survey was undertaken here, at the south end of Pallett Hill Quarry, by West Yorkshire Archaeology Service in 1987 (Abramson *et al.* 2002). The survey recorded the location of Dere Street and associated drains/ditches.

### ***Cataractonium***

- 3.9 In 1992 the Ancient Monuments Laboratory undertook a gradiometer survey over Brompton-on-Swale Playing Field prior to a proposed development (English Heritage 1994). Part of this area has been re-surveyed as part of the current investigation, by both gradiometer and resistance techniques (Area 75 in this report).
- 3.10 In 1997 the Ancient Monuments Laboratory undertook a number of gradiometer surveys at *Cataractonium* (Cole 2002). Area 1 at Thornbrough Farm (Area 19bW in this report) detected remains of a Roman fort, *vicus* and town defences. Area 2 at Thornbrough Farm (Area 19bE in this report) mapped the clear remains of many buildings along Dere Street and another contemporary road. Area 3 (Area 18 in this report) detected a number of ditch features, obscured by later ridge and furrow remains. Area 4, within Catterick Racecourse, detected the south-eastern corner of the town’s defences, together with many internal and external anomalies, though not all likely to be of Roman origin. A broad defensive ditch was detected in Area 5, possibly enclosing an area of *vicus*. Area 6 in Cole 2002 comprises the playing field survey described above in para. 3.9.

## **4. Landuse, topography and geology**

- 4.1 The study area comprised a rural mixed farming landscape. Fields were typically in use for cereal crops or pasture, with occasional brassica.
- 4.2 The landscape is gently undulating, with mean elevations at the southern end of the corridor lying at between 30-40m AOD rising up to 130-140m AOD at the northern end.
- 4.3 The route corridor overlies a number of different geological strata, summarised here from south to north: Permian & Triassic Mudstones; Permian Mudstones; Magnesian Limestone; Millstone Grit and Carboniferous

Limestone. These strata are variously overlain by glacial sands and gravels, boulder clay and alluvial deposits.

## 5. The survey areas

- 5.1 Except where stated otherwise, each survey area covered a corridor measuring 60m in width. The principal exceptions to this were at Scheduled Ancient Monuments as follows: SAM 34736-02 Healam Bridge Roman fort and *vicus* (Area 46), where a 90m wide corridor was surveyed; SAM 34734 to the south of Baines Farm Roman roadside settlement, where the whole 22ha field (Area 27) was surveyed; and SAM 34733-01, 02 & 03 *Cataractonium* Roman forts and town, where additional areas were surveyed.
- 5.2 The surveys over scheduled areas were permitted by licences issued by English Heritage under Section 42 of the Ancient Monuments and Archaeological Areas Act 1979.
- 5.3 86 surveys were undertaken, of which two were electrical resistance surveys. The surveyed areas ranged in size from 0.1ha to 22ha, and totalled approximately 167ha.
- 5.4 Summary information for each survey area is provided in the following table, together with a concordance of ASUD Area/Bullen Field numbers provided by Bullen Consultants.

ASUD Area	Bullen Field No.	Size (ha)	NGR location
1	25	1.9	SE 3530 7695; S of Humphrey Balk Lane
2	32	0.7	SE 3490 7795; S of Hergill Lane
3	33	0.7	SE 3485 7805; N of Hergill Lane
4	34	0.9	SE 3480 7815; N of Area 3
5	170	2.5	SE 2285 9825; W of Pallett Hill Quarry
6	184	0.5	NZ 2200 0030; E of Mount Pleasant
7	186	0.7	NZ 2195 0040; N of Area 6
9	240	1.4	NZ 2150 0752; E of Low Merrybent
11	197	0.1	NZ 2210 0125; N of Thorpe House
12	199	1.4	NZ 2205 0140; N of Area 11
13	200	0.9	NZ 2215 0145; S of South Lodge
14X	117	1.4	SE 2820 8970; SW of Leeming Bar Ind. Estate
14Y	117	1.8	SE 2810 9000; W of Leeming Bar Ind. Estate
14L	90	0.6	SE 3020 8740; W of A1, oppo. Milton House
15	207	1.1	NZ 2200 0230; NE of Oak Grange
16	206	0.8	NZ 2203 0215; S of Area 15, E of Oak Grange
18	177	0.5	SE 2240 9930; N bank of Swale
18 res	177	0.2	SE 2240 9930; N bank of Swale

19	172	5	SE 2250 9850; W of A1, oppo. racecourse
19A	174	2.8	SE 2270 9860; W of Racecourse
19BE	176	1.8	SE 2250 9915; Cataractonium
19BE2	176	0.2	SE 2250 9915; Cataractonium
19BW	175	1	SE 2240 9900; Cataractonium
19BW2	175	1	SE 2240 9900; Cataractonium
19-2	172	2.4	SE 2240 9844; Cataractonium, W of Area 19
20	171	2.9	SE 2280 9820; N of Area 21
21	167	1.4	SE 2300 9785; NE of Ellery Hill
22	166	2	SE 2325 9775; E of Ellery Hill
23	165	0.7	SE 2335 9760; E of Area 22
24	164	2	SE 2355 9750; W of A1, N of Tunstall Road
25-1	163	0.4	SE 2370 9720; S of Tunstall Road
25-2	163	1	SE 2370 9730; S of Tunstall Road
26	160	2.6	SE 2375 9715; W of Catterick Lane
26A	158	1.9	SE 2395 9685; W of Area 27
27	156	22	SE 2420 9680; Bainesse Farm
27A	157	1.2	SE 2407 9666; W of Area 27
28	155	1.3	SE 2465 9635; W of A1, S of Area 27
28 I	155	1.7	SE 2463 9624; S of Area 28
28 II	155	3.2	SE 2432 9637; W of Area 28
29	154	2	SE 2490 9600; N of Leases Lane
30	153	0.9	SE 2505 9575; S of Leases Lane
31	152	1.1	SE 2520 9550; N of Sowerby Hill Farm
32E	121	4.7	SE 2803 9040; N of Area 14Y, Leeming Bar
32W	120	3.4	SE 2990 9035; N of Aiskew Grange
33	112	1.6	SE 2860 8930; oppo. Motel Leeming
33A	112A	1	SE 2852 8920; S of Motel Leeming
34	108	2.2	SE 2900 8910; W of Prospect House
35	107	1.1	SE 2915 8888; S of track off Mill Lane
36	106	0.6	SE 2923 8876; S of Area 35
37	103	1.1	SE 2950 8845; S of Exelby Lane
38	101	0.7	SE 2960 8830; W of Clapham Lodge
39	99	1.4	SE 2970 8810; W of North Lodge
40	97	1.2	SE 2990 8780; W of Crows Wood
41	92	1.2	SE 3000 8755; S of Green Gate
42	89	1.2	SE 3030 8730; S of Area 14L
43	88	1.4	SE 3070 8680; NE of Crow Wood
44	87	1.7	SE 3080 8660; E of Crow Wood
45	83	3.2	SE 3105 8605; SW of Theakston Grange

46-1	61	2.7	SE 3250 8335; Healam Bridge
46-2	62	2.7	SE 3240 8360; Healam Bridge
46-3	63	1.4	SE 3234 8376; Healam Bridge
46-4	64	0.7	SE 3227 8390; Healam Bridge
46-Q	60	4.1	SE 3267 8300; Healam Bridge
47	52	1.4	SE 3330 8165; S of Ramshaw Farm
48	51	1.3	SE 3337 8143; S of Area 47
49	45	2.6	SE 3384 8100; S of Sinderby Lane
50	44	2	SE 3375 8080; NE of Leeming Lane Farm
51	48	1.4	SE 3350 8080; Leeming Lane Farm
52	42	3.5	SE 3390 8030; N of The Croft
53	39	1.1	SE 3433 7928; S of Howe Moor
54	37	1.2	SE 3445 7900; S of Mask Lane
55	36	2.1	SE 3455 7870; W of Baldersby
56	35	1.8	SE 3470 7840; S of Area 55, W of Baldersby
57	31	1.3	SE 3490 7780; SW of Station Cottages
58	30	2	SE 3550 7760; oppo. York Gate Farm
59	28	2	SE 3515 7720; N of Humphrey Balk Lane
60-2	23	2.3	SE 3545 7660; S of Area 1
61	237	1.4	NZ 2160 0730; Under Kneeton
68	215	1.4	NZ 2174 0380; E of The Little House
69	214	1.6	NZ 2180 0352; oppo. Skeeby Plantation
70	213	1.2	NZ 2185 0335; N of Scurragh House
72	210	1.1	NZ 2188 0300; oppo. High Street Plantation
75	178	1.1	SE 2235 9942; Brompton-on-Swale
75 res	178	0.5	SE 2235 9942; Brompton-on-Swale
77	245	0.9	NZ 2149 0828; S of Hangbank Cottage
78	244	0.4	NZ 2149 0816; Little Hangbank Bridge

## 6. Geophysical survey method

### *Standards*

- 6.1 The surveys and reporting were conducted in accordance with English Heritage (1995) Research and Professional Services Guideline No.1, *Geophysical survey in archaeological field evaluation*; the Institute of Field Archaeologists (2002) Paper No.6, *The use of geophysical techniques in archaeological evaluations*; and the Archaeology Data Service (2001) *Geophysical Data in Archaeology: A Guide to Good Practice*.

### *Technique selection*

- 6.2 Given the anticipated shallowness of targets (<1.5m in depth) and the non-igneous geological environment of the study area a geomagnetic technique, fluxgate gradiometry, was considered appropriate for detecting any cut, built

and fired archaeological features which might be present. This technique involves the use of hand-held magnetometers to detect and record anomalies in the vertical component of the Earth's magnetic field; such anomalies often reflect archaeological features.

- 6.3 Earth electrical resistance surveys were additionally undertaken in two fields north of the River Swale (Areas 18 and 75) in order to help determine the possible extent of a cremation cemetery.

#### ***Field methods***

- 6.4 A 30m grid was established across each survey area and tied-in to known, mapped Ordnance Survey points using a Leica TR307 total survey station instrument and datalogger with *Penmap* software.
- 6.5 Measurements of vertical geomagnetic field gradient were determined using Geoscan FM36, FM256 and Bartington Grad601 fluxgate gradiometers with automatic datalogging facilities. A zig-zag traverse scheme was employed and data were logged in 30m grid units. The instrument sensitivity was set to 0.1nT, the sample interval to 0.25m or 0.5m and the traverse interval to 1.0m, thus providing 3600 or 1800 sample measurements per 30m grid unit. All surveys after a meeting of 24<sup>th</sup> September 2004 were undertaken at 0.25m sample intervals.
- 6.6 Measurements of electrical resistance were determined using a Geoscan RM15A resistance meter with twin probe array and automatic logging of the data. A zig-zag traverse scheme was employed and data were logged in 20m grid units. The instrument sensitivity was set to 0.1ohms, the sample interval to 0.5m and the traverse interval to 0.5m, thus providing 1600 sample measurements per 20m grid unit.
- 6.7 Data were downloaded on-site into laptop computers for initial processing and storage and subsequently transferred to a desktop computer for processing, interpretation and archiving.

## **7. Data processing**

- 7.1 Geoplot v3(p) software was used to process the geophysical data and to produce continuous tone greyscale images of the raw data. The greyscale images and interpretations have been imported directly into digital basemaps supplied by Bullen Consultants. In the gradiometer greyscale images, positive magnetic anomalies are displayed as dark grey and negative magnetic anomalies as light grey. In the electrical resistance greyscale images, high resistance anomalies are displayed as dark grey and low resistance anomalies as light grey. Palette bars relate the greyscale intensities to anomaly values in nanoTesla/ohm.
- 7.2 The following basic processing functions have typically been applied to each dataset:

*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.

*Despike* – locates and suppresses random iron spikes in gradiometer data.

*Interpolate* – increases the number of data points in a survey; to match sample and traverse intervals and so create a smoother appearance to the data. In this instance the gradiometer and resistance data have been interpolated to 0.5 x 0.25m intervals.

- 7.3 The following basic processing function has been applied to some gradiometer datasets:

*Destagger* – corrects for displacement of anomalies caused by alternate zig-zag traverses

## **8. Geophysical interpretation**

- 8.1 Colour-coded geophysical interpretation plans are provided for each survey area. 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 susceptibility soil-filled structures such as pits and ditches

*negative magnetic* 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

- 8.2 Two types of electrical resistance anomaly have been distinguished in the data:

*high resistance* regions of anomalously high resistance, which may be associated with areas of low moisture content such as wall foundations, tracks, paths and other concentrations of stone or brick rubble or voids

*low resistance* regions of anomalously low resistance, which may be associated with areas of relatively high moisture content such as soil-filled pits and ditches

## **9. Survey results**

### ***General comments***



- 9.1 The survey results are described by field from south to north, Dishforth to Barton. For illustrative purposes the proposed development corridor is divided into twelve sections, as shown on Figure 1. Colour-coded geophysical and archaeological interpretation plans are provided for each survey area.
- 9.2 A scatter of small, discrete dipolar magnetic anomalies was detected in each survey area. These anomalies almost certainly reflect items of near-surface ferrous and/or fired debris, such as horseshoes and brick fragments, and have not been included in the archaeological interpretation drawings.
- 9.3 Except where stated otherwise in the text below, positive magnetic anomalies are taken to reflect relatively high magnetic susceptibility materials, typically sediments in negative archaeological features (such as furrows, ditches or pits) which contain decomposed organic matter and/or burning.

**Area 60-2** (Figures 2a, 3-5)

- 9.4 A number of probable ditch features were detected here. Those in the northern half of the area appear to represent the partial remains of a rectilinear field system.
- 9.5 An intense dipolar magnetic anomaly in the north-western part of the survey area corresponds to the location of a geotechnical monitoring borehole.

**Area 1** (Figures 2a, 6-8)

- 9.6 Very weak anomalies in this area are likely to reflect a former ditched boundary and a short length of tentative double-ditched trackway in the north.

**Area 59** (Figures 2a, 9-11)

- 9.7 Two chains of intense dipolar magnetic anomalies detected here almost certainly reflect ferrous service pipes.
- 9.8 A discontinuous ditch feature was also detected.

**Area 58** (Figures 2a, 12-14)

- 9.9 A few very weak, short anomalies may reflect former ditch remains.

**Area 57** (Figures 2a, 15-17)

- 9.10 A series of parallel, weak anomalies detected here at *c.*11m intervals are considered most likely to reflect land drains.
- 9.11 No features of likely archaeological significance were detected.

**Area 2** (Figures 2a, 18-20)

- 9.12 A chain of intense dipolar magnetic anomalies was detected at the southern limit of the survey area. This almost certainly reflects the location of a ferrous service pipe.
- 9.13 No features of likely archaeological significance were detected.

**Area 3** (Figures 2a, 21-23)

9.14 A possible drain was detected at the southern limit of the survey area.

9.15 No features of likely archaeological significance were detected.

**Area 4** (Figures 2a, 24-26)

9.16 A few very weak, parallel anomalies here may reflect land drains.

9.17 No features of likely archaeological significance were detected.

**Area 56** (Figures 2a, 27-29)

9.18 Three weak positive magnetic anomalies probably represent ditch features.

**Area 55** (Figures 2a, 30-32)

9.19 No features of likely archaeological significance were detected.

**Area 54** (Figures 2a, 33-35)

9.20 A number of very weak positive magnetic anomalies in this area could reflect the remains of ditches.

**Area 53** (Figures 2b, 36-38)

9.21 Two very weak positive magnetic anomalies were detected in this area. The anomaly along the western, A1, side of the area is considered most likely to reflect a modern plough edge, however, the more northern anomaly may reflect the remains of a buried ditch. A north-south texture in the data reflects the current plough regime.

**Area 52** (Figures 2b, 39-41)

9.22 Two anomalies here may reflect former field boundaries.

**Area 51** (Figures 2b, 42-44)

9.23 Four possible ditches were detected in this area; two of these may have defined a double-ditched trackway.

9.24 A modern north-east/south-west plough texture is also evident in the data.

**Areas 49 and 50** (Figures 2b, 45-47)

9.25 No features of likely archaeological significance were detected.

**Area 48** (Figures 2b, 48-50)

9.26 An intense anomaly at the northern end of the survey area was caused by an adjacent brick building and steel fence.

9.27 One possible ditch feature was recorded at the southern end of the survey area.

**Area 47** (Figures 2b, 51-53)

9.28 No features of likely archaeological significance were detected.

**Area 46** (Figures 2c, 54-65)

**SAM 34736-02 Healam Bridge Roman fort and vicus**

- 9.29 Area 46 comprised that part of the above scheduled monument which lies east of the existing A1; the larger part of the scheduled area lies to the west of the A1 (SAM 34736-01).
- 9.30 Between 1993 and 1995, several gradiometer surveys were undertaken by Geophysical Surveys of Bradford (GSB) for BHWB at Healam Bridge prior to proposed A1 improvements (BHWB 1996); the surveys to the east of the A1 broadly correspond to surveys undertaken for the present study.

**Area 46Q** (Figures 2c, 54-56)

- 9.31 This survey was undertaken in the same field as BHWB Area 20 (GSB areas C6, 7 & 14). Only the northernmost part of this survey lies within the scheduled area.
- 9.32 Some very weak anomalies at the southern end of this field almost certainly reflect soil-filled ditches; those adjacent to the A1 form a rectilinear pattern and could be part of a system of small enclosed fields. Curvilinear anomalies here could reflect the remains of ring-ditches.
- 9.33 In the northern part of the survey additional weak anomalies almost certainly reflect ditches indicating the remains of another system of enclosed fields, which continues into fields to the north. These features are most likely associated with the *vicus* alongside Dere Street to the south of the fort.
- 9.34 A magnetic texture aligned perpendicular to the current A1 reflects the current plough direction.

**Area 46-1** (Figures 2c, 57-59)

- 9.35 This survey was undertaken in the same field as BHWB Area 21 and broadly corresponds to GSB areas C11 & 13. There is good correspondence between the results of those surveys and the present survey.
- 9.36 The system of ditched boundaries detected at the northern end of Area 46Q continues throughout this area and into Area 46-2 to the north.
- 9.37 A number of less regular soil-filled features were detected at the northern end of this area. These also continue into Area 46-2 to the north and almost certainly represent further ditched enclosures, also most likely associated with the *vicus*.
- 9.38 A narrow chain of small dipolar magnetic anomalies in the central part of the survey area may reflect litter that collected along a former field boundary.
- 9.39 The change in the magnetic background texture at the mid-point of this area reflects a change in land use.

**Area 46-2** (Figures 2c, 60-62)

- 9.40 This survey was undertaken in the same field as BHWB Areas 22 and 23 and corresponds to parts of GSB areas C4, 5, 9 & 10. Again there is generally

good correspondence between the results of those surveys and the present survey.

- 9.41 Ditched boundaries continue into this area. A particularly broad and strong anomaly in the central western part of the survey reflects a large defensive ditch along the eastern side of the fort. Traces of parallel ditches just east of this may also have been part of the fort's defences. The location of a large ferrous pipe appears to traverse the south-eastern corner of the fort.
- 9.42 A curvilinear band of intense anomalies in the northern part of this survey area corresponds to the location of an existing track.

***Areas 46-3 and 46-4*** (Figures 2c, 63-65)

- 9.43 These surveys were undertaken in the same fields as BHWB Areas 26 and 27. The author did not have copies of plots of the BHWB surveys at the time of writing this report.
- 9.44 A number of rectilinear ditch features and probable pit features were detected in both of these areas. Several irregular and intense anomalies, particularly in Area 46-3, could reflect industrial activities in this part of the settlement.
- 9.45 Ridge and furrow remains were detected in both areas.

***Area 45*** (Figures 2d, 66-68)

- 9.46 No features of likely archaeological significance were detected in this area, however, a number of worked flint cores were observed on the ground surface during the survey.
- 9.47 Three chains of intense dipolar magnetic anomalies were detected. The northernmost almost certainly reflects the presence of a ferrous service pipe. The others, together with a concentration of discrete dipolar magnetic anomalies, are associated with a World War II radio mast.

***Area 44*** (Figures 2d, 69-71)

- 9.48 A number of soil-filled ditches were detected here. These appear to represent the remains of a rectilinear field system.
- 9.49 A series of weak, parallel magnetic lineations over the southern part of this area probably represent ridge and furrow remains.

***Area 43*** (Figures 2d, 72-74)

- 9.50 A number of very weak positive magnetic anomalies in this area could reflect the remains of soil-filled ditches.

***Area 42*** (Figures 2e, 75-77)

- 9.51 Very weak anomalies in this area may reflect a double-ditched trackway in the north and scant remains of ridge and furrow cultivation elsewhere.

- 9.52 A discrete intense anomaly in the northern part corresponds to the location of a pylon and a band of small intense anomalies in the central part almost certainly reflect a former track or field boundary.

**Area 14L** (Figures 2e, 78-80)

- 9.53 No features of likely archaeological significance were detected in this area.

**Area 41** (Figures 2e, 81-83)

- 9.54 A number of soil-filled ditches were detected in the northern part of this area; these may represent the remains of a rectilinear field system.
- 9.55 A series of weak, parallel magnetic lineations over other parts of this area almost certainly represent ridge and furrow cultivation remains.

**Area 40** (Figures 2e, 84-86)

- 9.56 Very weak anomalies in this area probably reflect the scant remains of ridge and furrow cultivation.

**Area 39** (Figures 2e, 87-89)

- 9.57 A number of soil-filled ditches were detected in this area, two of which appear to have defined a double-ditched trackway.

**Area 38** (Figures 2e, 90-92)

- 9.58 Several relatively strong positive magnetic anomalies were detected in this area. These almost certainly reflect soil-filled ditches defining small enclosures and two connected double-ditched trackways.
- 9.59 Two chains of intense anomalies here almost certainly reflect buried utilities.

**Area 37** (Figures 2e, 93-95)

- 9.60 One of the double-ditched trackways detected in Area 38 to the south has been identified continuing north and westwards in this area.
- 9.61 An additional very weak anomaly here may represent a ditched field boundary, probably associated with the tracks and former field system which has been mapped across adjacent survey areas.

**Areas 35 and 36** (Figures 2f, 96-98)

- 9.62 A group of relatively strong positive magnetic anomalies was detected along the western side of the field, adjacent to the A1. The anomalies are sub-circular and measure *c.*2m in diameter; these could reflect soil-filled pits of archaeological significance.

**Area 34** (Figures 2f, 99-101)

- 9.63 Two possible former ditched field boundaries were detected in this area.
- 9.64 Additional very weak, parallel anomalies here may reflect land drains.

**Area 33a** (Figures 2f, 102-104)

- 9.65 Two series of near-parallel, well-defined anomalies in this area are interpreted as probable land drains. The east-west aligned series of probable drains may have been laid in former furrows, since in the northern part of the area broader and more diffuse anomalies appear to reflect ploughed-out ridge and furrow remains.

**Area 33** (Figures 2f, 105-107)

- 9.67 Very weak anomalies in this area probably reflect the scant remains of ridge and furrow cultivation.

**Areas 14x and 14y** (Figures 2f, 108-110)

- 9.68 A number of soil-filled ditches were detected here. These appear to represent the remains of a rectilinear field system, particularly in Area 14x.
- 9.69 Ridge and furrow cultivation remains were detected in the northern part of Area 14y, to the north of a former field boundary and track.
- 9.70 A ferrous service pipe was detected along the northern limit of the survey.
- 9.71 A trench filled with modern rubbish corresponds to the cluster of intense anomalies in the central part of Area 14y.

**Area 32W** (Figures 2f, 111-113)

- 9.72 Four sets of weak, parallel magnetic lineations were detected in this area. Three of these sets are interpreted as ridge and furrow remains, while the other anomalies, which are more widely spaced and more clearly defined, are interpreted as land drains.
- 9.73 Several weak magnetic lineations in the north of the area may reflect ditch remains.

**Area 32E** (Figures 2f, 114-116)

- 9.74 Two sets of parallel magnetic lineations were detected in this area. The northern set almost certainly reflects ridge and furrow remains, bounded on the north by a former field boundary.
- 9.75 The anomalies in the south of the area are interpreted as land drains.
- 9.76 A relatively strong positive magnetic anomaly was detected along the western side of the field, adjacent to the A1. The anomaly is sub-circular and measures *c.*4m in diameter; this could reflect a soil-filled pit of archaeological significance.
- 9.77 A number of large and intense dipolar magnetic anomalies were detected in the northern part of the area; two of these correspond to geotechnical monitoring boreholes, the others may reflect areas of burning or buried ferrous materials.

**Area 31** (Figures 2g, 117-119)

- 9.78 This area is characterised by a particularly high concentration of near-surface ferrous and/or fired debris.
- 9.79 A ferrous service pipe was detected in the northern part of the area. A large and intense anomaly in the north-west of the area corresponds to a telegraph pole.
- 9.80 No features of likely archaeological significance were detected in this area.

**Area 30** (Figures 2g, 120-122)

- 9.81 A few very weak positive magnetic anomalies could reflect ridge and furrow remains in the southern part of the area and a possible former ditch in the central part.

**Area 29** (Figures 2g, 123-125)

- 9.82 Very weak, parallel positive magnetic anomalies across this area almost certainly reflect ridge and furrow cultivation remains.
- 9.83 Several positive magnetic lineations in the central part of the area may reflect ditch remains.

**Area 28** (Figures 2h, 126-128)

- 9.84 Three geomagnetic surveys were undertaken in this field in order to investigate two route options. The two survey areas adjacent to the present A1 were separated by a large waterlogged area, where survey was not practicable.
- 9.85 Well-defined ridge and furrow cultivation remains were detected in parts of this field. Occasional possible ditches were also identified.
- 9.86 A ferrous service pipe was detected traversing the field on an approximate north-south alignment. A large and intense anomaly adjacent to the pipe corresponds to a geotechnical monitoring borehole.

**Areas 24, 25, 26, 26a, 27a and 27** (Figure 2h)

**SAM 34734 Bainesse Roman roadside settlement and Anglian cemetery**

- 9.87 A brief summary of previous works, below, provides the archaeological background for the results of the current investigations (more complete accounts are provided in ASUD 2001a; ASUD 2001b; ASUD 2002; ASUD in prep.; Wilson 2002; Wilson *et al.* 1996).

*Summary of previous archaeological investigations*

- 9.88 Many discoveries and archaeological works have taken place to the south of *Cataractonium*, particularly around Bainesse Farm and at Marne Barracks. In 1822 Whitaker reported archaeological finds spreading over a mile in this area (Whitaker 1822). A group of Anglian burials as well as wall remains and Roman pottery were reported during the A1 Catterick Bypass development to the north of Bainesse (Wilmott 1959). The western edge of Dere Street was investigated at Bainesse Farm in 1975 (Thubron 1976). Further work was

undertaken in this area in 1981-2 by North Yorkshire County Council (Turnbull 1981), followed by an Ancients Monuments Laboratory (AML) geophysical survey and then more excavation by the Department of Environment Central Excavation Unit (CEU Site 46) prior to A1 improvements (Wilson 1984). To the east of the A1, the excavation of a single building plot revealed eight phases of occupation or use. The last phase of use was represented by seven graves, at least two of which were certainly Anglo-Saxon. These graves were within *c.*50m of Wilmott's Anglian burials (*ibid.*). The remains of a Roman field system were also investigated in this area. To the west of the A1, evidence for small-scale metal-working (smelting) was identified, as well as a strip-building, an oven or corn-drier, parts of a field system and two more burials. Most of the burials from this investigation were found to the south-east of the former 'Catterick South' roundabout. Ten graves were identified, eight of which may have been within an enclosed cemetery.

- 9.89 In 1993/4 the EH Central Archaeology Service undertook an evaluation of the proposed A1 motorway route in this area, involving 21 separate areas of investigation using fieldwalking, geophysics and trial trenching, Sites 504-524 (English Heritage 1994; Wilson *et al.* 1996). The evaluation demonstrated that the roadside settlement at Bainsesse on the west side of the A1 extended up to 650m south of the farm and identified timber and stone-founded buildings.
- 9.90 To the east of the A1, the northernmost trench at CAS Site 524 revealed two Roman ditches, possible pits and a Roman pottery kiln, the first from Roman Catterick. Pottery found in the kiln was dated to the late 3<sup>rd</sup>/early 4<sup>th</sup> centuries (English Heritage 1994; Busby *et al.* 1996). The kiln was located at the north-west corner of the former airfield, between the perimeter track and the A1.
- 9.91 The first mention of any 'archaeological' investigations on the Marne Barracks site appears to be that made by the Duke of Northumberland's surveyor, Henry MacLauchlan, writing in the *Archaeological Journal* in 1849. He describes a 'camp' known as Castle Hills, which has the form of an irregular pentagon with a tumulus on the north side. He notes that '*The south rampart appears to have been thrown down to fill in the ditch, where the entrance probably was, and where an excavation was made by the Earl of Tyrconnel, and some Roman remains found*' (MacLauchlan 1849, 348). The finds in fact included both Roman and later material, and were presented to the British Museum by Lord Tyrconnel (Accession no. 1847.1.15.1-7). Given the form of the earthwork MacLauchlan considered it to be post-Roman in date, '*probably formed by either the Saxons or the Danes*' (MacLauchlan 1849, 348). Indeed, the Castle Hills earthwork is generally taken to be a Norman motte and bailey castle and, although it may have earlier origins, the man-made earthworks are not believed to have existed during the Roman period. The Roman artefacts recovered by Lord Tyrconnel from the assumed southern entrance to the bailey are likely to have been derived from earth that was excavated from over a considerable area in order to create the motte (pers. comm. Pete Wilson).
- 9.92 The author is not aware of any further archaeological interventions on the Marne Barracks site until 1939 when workmen digging foundation trenches for a new ammunition store discovered building remains and a skeleton associated with a large Anglian cruciform brooch (Hildyard 1955). The initial



discovery and subsequent rescue excavation by Hildyard revealed evidence for a total of three rooms, pottery from the end of the 3<sup>rd</sup> century and first half of the 4<sup>th</sup> century and three skeletons. The rooms may have been part of a block of secondary buildings associated with a possible villa. Whilst on site Hildyard was told that two more skeletons had been found during earlier excavations for cables to the south.

- 9.93 A further archaeological intervention was carried out in almost the same spot in 1966 (Cramp 1996) following the discovery of a burial with grave goods c.1.4m below the ground surface. Permission was subsequently granted for a small trench to be excavated by Professor Rosemary Cramp in order to see if the burial was part of a larger cemetery. Although no further burials were encountered, more Anglian metalwork finds were recovered from disturbed ground, almost certainly indicating the former presence of other burials. Part of one room of a Roman building was also excavated, believed to be part of the same building group partially excavated by Hildyard in 1939. The direct and indirect evidence for numerous Anglian burials in the vicinity indicates the presence of a cemetery here.
- 9.94 The next archaeological investigations on the Barracks site were not undertaken until 1994 as part of the CAS evaluation of the proposed A1 motorway route in this area, mentioned above (Wilson 1994; Wilson *et al.* 1996).
- 9.95 Further investigations were undertaken at Marne Barracks in 1994 prior to the proposed construction of a large hardstanding area and a REME workshop (GeoQuest Associates 1994). The area of the workshop was found to contain part of a Romano-British field system and an Anglian *Grubenhaus*.
- 9.96 In 2000 four trial trenches were excavated by Northern Archaeological Associates on the site of a proposed sports hall, the P & RTC facility. The trenches revealed that the site had been disturbed or subject to dumping in the recent past and no significant archaeological deposits were identified (NAA 2000a).
- 9.97 Archaeological Services University of Durham have conducted numerous archaeological investigations at Marne Barracks since 2000; these investigations, which have included desk-based research, geophysical/topographic/auger surveys, trial trench evaluation, watching briefs and an 11ha excavation, are still in progress (ASUD 2001a; ASUD 2001b; ASUD 2002; ASUD 2003a; ASUD in prep.). Features of every period from the Mesolithic to the 20<sup>th</sup> century have been identified and investigated, including a Mesolithic flint knapping platform, a 200m diameter late Neolithic palisaded enclosure, ditches of Bronze Age to post-medieval date, a late Iron Age/Romano-British palisade trench and a large circular stone-walled structure of similar date, parts of a Romano-British field system, Castle Hills motte and bailey earthwork and medieval and post-medieval field systems and tracks/roads.

**Area 27** (Figures 2h, 129-131)

- 9.98 Area 27 comprised that part of the scheduled monument which lies to the south and west of Baines Farm, the larger surviving part of the Roman roadside settlement. The whole of this 22ha field was surveyed in order to inform possible route options in the area.
- 9.99 As part of the previous A1 evaluation a 30m wide transect (CAS Site 506, Strip 14) was geomagnetically surveyed across this field in 1993 (English Heritage 1994). The ridge and furrow and other features detected in that sample survey correspond well with the features mapped for the present study, outlined below.
- 9.100 A great many magnetic anomalies were detected throughout this area, in such concentrations along the western side of the A1 that in many instances it is not possible to distinguish between individual anomalies. Whilst it is not possible from the geophysical data to suggest dates for all the features identified, a number of different periods of activity can be distinguished.

*Roman temporary camp and Dere Street*

- 9.101 One of the most striking anomalies recorded was a long ditch feature with a ‘playing-card’ corner, just south of the existing farm. The ditch is likely to have formed an enclosure and its form is typical of a temporary Roman military camp, though there is no clear evidence for entrances in the survey. The ditch on the south-western side was recorded over at least 300m before disappearing in a complex of other anomalies. If indeed this enclosure was a Roman camp then it must surely have been constructed and abandoned prior to the presumed Agricola (AD 78-84) construction of Dere Street (Frere 1974). The camp here could date to Cerialis’ campaign of advance towards Carlisle in the early 70s AD, and be contemporary with the marching camps at Rey Cross, Crackenthorpe and Plumpton Head (Wilson 1974; Vyner *et al.* 2001).
- 9.102 Another temporary Roman camp, identified from aerial photographs, lies 2.5km north of here, to the east of *Cataractonium* (Welfare & Swan 1995; MacLeod 2002).
- 9.103 It is extremely unlikely that this enclosure ditch post-dates Dere Street since it does not appear to be contemporary with the Roman roadside settlement or with the medieval ridge and furrow system or with the post-medieval field system.
- 9.104 The present A1 road closely follows the course of Dere Street over many kilometres in this region. In this particular field, Dere Street can be seen in the survey as a largely negative magnetic anomaly immediately west of the A1 and on a slightly different alignment; this is most easily identified (and probably best preserved) just south of the farm. The polarity of the anomaly almost certainly reflects stone used in the road foundation and possible metalling at this location. A little further south two similar but narrow anomalies probably again reflect stone, but here used only for kerbs or roadside drains.

*Roman roadside settlement*

- 9.105 The great concentration of geomagnetic anomalies along the western side of the A1 for the whole length of this field comprises the larger surviving part of the Baines Roman roadside settlement. The extent of the settlement recorded for this study is defined by Dere Street to the east and the ditched back-boundaries of the house plots to the west. Clearly some plots extended further back from the road than others. It appears that the settlement probably extended further south than the current field boundary, however, there are no traces of it in the geomagnetic survey of the north part of Area 28.
- 9.106 Whilst it is not possible to identify individual buildings with any certainty, a number of negative magnetic anomalies almost certainly reflect stone wall-footings at the roadside end of some plots. Areas of strong positive magnetic responses, also primarily at the roadside end of the plots, almost certainly reflect any or all of: concentrations of decomposed organic matter; areas of burning; and concentrations of fired materials, such as roof tiles. Some of the particularly intense and well-defined anomalies in the northern part of the settlement may reflect the remains of kilns.

*Medieval ploughing*

- 9.107 The remains of ridge and furrow cultivation were recorded across virtually the whole of this field. Two orientations are present, which are separated in the north of the field by a ditched boundary or headland. These alignments have been found to continue in adjacent areas to the east (ASUD 2001a), south and west.
- 9.108 The ridge and furrow system of farming may have originated in late Saxon times and is likely to have continued in use here until enclosure, probably in the early 18<sup>th</sup> century, and certainly before the first available detailed map of the area in 1739. The length of the ridges here and in adjacent fields (surviving to over 500m, and elsewhere in Yorkshire up to 1000m) is quite unusual compared with much of the rest of England and is considered to be a regional variation (Hall 1998), perhaps due to the excellent natural drainage afforded here by the gravel subsoil, and similarly by the chalk subsoil of the Wolds.

*Other features*

- 9.109 A number of linear ditch features here almost certainly represent former field boundaries; some of these are almost certainly post-medieval in date, though others are uncertain and could be Romano-British in origin.
- 9.110 Ditch features detected at the south-western limit of the field continue into the adjacent Area 27a and probably represent small ditched enclosures, perhaps associated with a former settlement further west.
- 9.111 Several chains of intense dipolar magnetic anomalies in this area, particularly around the brick-built radio station in the north of the field, reflect buried services.
- 9.112 A number of variously weak and strong, irregular and diffuse, anomalies in the central and southern parts of the field are likely to reflect geological features, possibly a former stream course.

**Area 27a** (Figures 2h, 132-134)

- 9.113 The remains of ridge and furrow cultivation were recorded across this area.
- 9.114 Ditches detected in the south of the area continue into Area 27 and appear to form small enclosures.
- 9.115 A ditch detected in the northern part of the area may represent a former field boundary.

**Area 26a** (Figures 2h, 135-137)

- 9.116 The remains of ridge and furrow cultivation were recorded across this area.
- 9.117 A number of other anomalies here almost certainly reflect ditch features, of uncertain origin.

**Area 26** (Figures 2h, 138-140)

- 9.118 A sample transect (CAS Site 519, Strip 11) was geomagnetically surveyed across this field in 1993 (English Heritage 1994). The transect was located centrally within the present survey area and features detected in that sample survey correspond well with the features mapped for the present study. However, it is important to note that due to the limited extent of the surveys in 1993, in this field and in others to the north, the significance of the features detected was not realised. The more extensive surveys for the present study have shown that the occasional ditch fragments previously detected are actually part of an extensive system of ditched fields and enclosures, likely to have been associated with the Bainesse Roman roadside settlement.
- 9.119 A number of ditches were detected in the northern half of the field, forming part of a rectilinear field system. This field system was detected in other survey areas to the north, continuing for another 300m (Areas 25 and 24).
- 9.120 Several other anomalies in this area also appear to reflect short, soil-filled ditches and pits.
- 9.121 Ridge and furrow cultivation was detected across the southern half of the area.
- 9.122 Three service pipes were detected here, two of which continue into Area 27 to the east. Three geotechnical monitoring boreholes were also recorded in the data, along the northern limit of the survey area.

**Area 25** (Figures 2h, 141-143)

- 9.123 Sample transects (CAS Site 519, Strips 8 & 9) were geomagnetically surveyed across this field in 1993 (English Heritage 1994).
- 9.124 Significant ditched boundaries were again detected in these survey areas; these are almost certainly a continuation of the possible Roman field system detected in Areas 24 and 26.
- 9.125 The remains of ridge and furrow cultivation were detected across the southern part of this area.

9.126 A service pipe was detected crossing the central part of the area.

**Area 24** (Figures 2h, 144-146)

9.127 A sample transect (CAS Site 513, Strip 7) was geomagnetically surveyed across this field in 1993 (English Heritage 1994).

9.128 Significant ditched boundaries were again detected in the southern part of this survey area; these are almost certainly a continuation of the possible Roman field system detected in Areas 25 and 26.

9.129 The remains of ridge and furrow cultivation were recorded across much of this area.

**Area 23** (Figures 2h, 147-149)

9.130 A sample transect (CAS Site 518, Strip 6) was geomagnetically surveyed across this field in 1993 (English Heritage 1994).

9.131 Ridge and furrow cultivation remains were detected across this area.

9.132 A geotechnical monitoring borehole was located in the southern part of the survey area.

**Areas 21 and 22** (Figures 2h, 150-152)

9.133 A sample transect (CAS Site 518, Strip 5) was geomagnetically surveyed across this field in 1993 (English Heritage 1994).

9.134 The remains of ridge and furrow cultivation were identified across much of Area 22.

9.135 A telegraph pole was located in the southern part of Area 21.

**Areas 5 and 20** (Figures 2i, 153-155)

9.136 A sample transect (CAS Site 510, Strip 4) was geomagnetically surveyed across Area 20 in 1993 (English Heritage 1994).

9.137 Occasional weak anomalies in Area 20 almost certainly reflect the ploughed-out remains of ridge and furrow farming; these remains are much more evident in Area 5 on the east side of the A1.

9.138 A modern north-east/south-west plough texture was recorded in Area 20.

**Areas 18, 19, 19a, 19bW, 19bE and 75** (Figure 2i)

**SAM 34733 *Cataractonium* Roman forts and town**

9.139 The above surveys were all undertaken entirely within the *Cataractonium* scheduled area, with the exception of Area 19 whose northern limit only lies within the scheduled area. The results of each survey are described below.

9.140 In addition to the background information provided for the Baines Farm and Marne Barracks area (above), a brief summary of previous works at *Cataractonium* and the wider area is presented below in order to set the present works in context.

*Summary of previous archaeological investigations*

- 9.141 Reviews and discussions of both Roman and early Anglian Catterick, as well as notes on the historical background to research in the area, have been provided elsewhere (Wilson 1984; Wilson 2002; Wilson *et al.* 1996). Much of the following information regarding the historical background is based on these reports.
- 9.142 The Roman town at Catterick is referred to in the *Itinerary of Antoninus* as *Cataractonium*, and this remains the name by which the site is known today. Considerable discussion has taken place as to the etymology of the name (e.g. Speight 1897; Rivet & Smith 1979; Wilson *et al.* 1996) but it is generally accepted that the name derives from the *cataracta*, or rapids, on the Swale. Traditionally they are held to be those upstream at Richmond but reconnaissance of the Swale by Pete Wilson and Rosemary Cramp has suggested that they could equally be those just to the north of Castle Hills (Wilson *et al.* 1996), 1km east of the current investigations.
- 9.143 References to *Catraeth* in a classic Welsh bardic poem *Y Gododdin*, by Aneirin, may be the earliest post-Roman records relating to Catterick. The poem is an elegy for 300 British warriors led by Urien of Rheged who were killed in a battle at *Catraeth* in c.600 AD. This important battle, won by the Angles, enabled them to gain a stronghold in the north-east of England. Although the association of Catterick with *Catraeth* is now widely accepted, the location of the battle ascribed to *Catraeth* is not (Alcock 1983). It is possible that the ‘ramparts of the stronghold’ described by Aneirin are in fact the earthworks at Castle Hills rather than the walls around *Cataractonium*. Indeed, as Wilson points out (1996), it would be much more practicable for an early medieval band of warriors to defend 350m of ramparts at Castle Hills than 1.1km around the former Roman town. Evidence from sites such as Yeavering in Northumberland demonstrates the adoption and adaptation of such native British sites by the Angles (Alcock 1987); it is possible this could have been the case at Castle Hills.
- 9.144 The first definite post-Roman reference to Catterick is by Bede who indicates that by the 7<sup>th</sup> century Catterick was one of the royal villas of Northumbria (Colgrave & Mynors 1969) and that Paulinus conducted a mass baptism in the River Swale which flowed by the *vicus* of *Cataracta*, c.627. Bede mentions Catterick again in c.666 when he describes a village as being ‘nearby Catterick’, implying that Catterick was an important focus (Wilson *et al.* 1996).
- 9.145 Catterick was still an important northern royal residence in the 8<sup>th</sup> century as Simeon of Durham records that two royal weddings took place there. In the annal for 762 he writes ‘*King Aethelwold married Queen Aethelthryth at Catterick on 1<sup>st</sup> November*’ and for 792 ‘*King Ethelred married Queen Aelfaed, daughter of Offa, king of the Mercians, at Catterick on 29<sup>th</sup>*’

*September*’ (Whitelock 1955). Simeon makes mention of Catterick again, when in 769 he records that ‘*Catterick was burned by the tyrant Earnred*’ (*ibid.*).

- 9.146 At the time of the Domesday Survey, reported in 1086, Catterick was recorded as one of the two largest manors in Richmondshire (Page 1968).
- 9.147 The earliest recorded discovery of artefacts in the area dates to 1625 when a large bronze Roman cauldron was found (Gibson 1722). Numerous types of artefact have been reported since then, on both north and south sides of the River Swale. The earliest recorded excavation on the Roman town site was undertaken in 1851 by Sir William Lawson (Speight 1897) who excavated along the east, south and west walls, and estimated that the site covered about four hectares.
- 9.148 The proposed construction of the A1 Catterick Bypass in 1938 provided the stimulus for much excavation on the town site, beginning in 1939 and then resuming in 1952 after the war (Hildyard & Wade 1950 and 1951; Hildyard 1957). These excavations, together with aerial photographic evidence, demonstrated that the settlement had indeed been a town for some of its existence rather than remaining as a fort and *vicus*. John Wachter became the excavation director in 1959, once the plans for the bypass were finalised, and conducted major excavations in the heart of the town (Site 433) along the route of the new road (Wacher 1971). These excavations demonstrated the development of the site from an Agricolaan fort to a prosperous small 4<sup>th</sup> century town. Excavations on the north side of the Swale by Wachter and others demonstrated the presence of a possible temple and civilian settlement there also in the 3<sup>rd</sup> and 4<sup>th</sup> centuries (Wacher 1973; Breckon 1971; Thubron 1973). In 1981-2 geophysical surveys were undertaken north of the Swale (Sites 240 and 251) by the Ancient Monuments Laboratory (English Heritage 1981), and subsequent excavations by the DoE Central Excavation Unit (Wilson 1984), prior to A1 improvements. An Anglian sunken-featured building, or *Grubenhäuser*, has also been excavated in this area, at CEU Site 434 (Wilson *et al.* 1996). The function of these structures is still not clear. In some cases the evidence indicates use as dwellings, but typically they appear to have been used for storage or as workshops, such as for weaving. Almost invariably, the last phase of use of these structures seems to be for rubbish disposal (Powlesland 1998). Nevertheless, their presence together with contemporary ditches, gullies and postholes is taken to be indicative of occupation.
- 9.149 In 1995 archaeological excavations were carried out at the southern end of Catterick Racecourse by West Yorkshire Archaeology Service prior to sand and gravel extraction. Although the remains of an Iron Age settlement were suspected to be present (based on aerial photographs), the excavations also revealed evidence for a huge late Neolithic/early Bronze Age kerbed burial cairn and pits, a possible Roman amphitheatre and an Anglian cemetery (Moloney 1996). The putative amphitheatre is now thought more likely to be a henge monument, based on aerial photographic evidence (MacLeod 2002). A similar, early Iron Age settlement was identified in Pallett Hill Quarry, just to the south, in the 1980s (Brewster & Finney, in prep.). Trial excavations in

parts of the racecourse and the southern part of Pallett Hill Quarry had previously been undertaken by the EH Central Archaeology Unit, Sites 273 and 425, revealing Roman and Anglian features including a *Grubenhaus* (Wilson *et al.* 1996).

- 9.150 Another huge Neolithic ritual monument, a cursus, had previously been identified at Scorton, to the north of the Swale. The cursus comprises two parallel ditches traversing the landscape for some 2km, forming a ceremonial avenue. Although there is currently no evidence for Neolithic occupation, the cursus and burial mound indicate the significance of the area for Neolithic people. More recently, in 2004, Archaeological Services University of Durham excavated part of a huge late Neolithic enclosure on the northern part of the former airfield at Marne Barracks (ASUD in prep.). The enclosure had a maximum diameter of *c.*200m and comprised two pairs of concentric post settings.
- 9.151 Proposals for extensions to Scorton Quarry in 1997 at Hollowbanks Farm led to numerous archaeological investigations at the site by GeoQuest Associates (1997), Wessex Archaeology (1998a; 1998b) and Northern Archaeological Associates (2000b). These works also provided evidence for activities spanning the Neolithic to Anglian periods in the form of pit alignments, ring ditches, rectangular enclosures and another Anglian cemetery.
- 9.152 Limited archaeological investigations have also been undertaken within Catterick Village. In 1995 geophysical survey (GeoQuest Associates 1995), topographic survey and trial excavations (YAT 1995) took place on land between Leeming Lane and Slessor Road. This work provided evidence for Roman (mid-late 3<sup>rd</sup> century) rubbish disposal and medieval/post-medieval agricultural features.
- 9.153 In December 1996, an archaeological evaluation was carried out on the site of Richardson's Coal Depot in Leeming Lane (LUAU 1997), during which undated gullies and postholes were excavated. Further excavation at the site revealed a *Grubenhaus*, various linear boundaries and a rectangular post-built structure. All of the features are provisionally dated to the Anglian period (NAA 1997).
- 9.154 In 2003 Archaeological Services University of Durham conducted an evaluation at Leeming Lane, which identified remains of an Anglian settlement (ASUD 2003b).
- 9.155 Various excavations, watching briefs and salvage recording works were undertaken by David and Shirley Thubron in the Catterick and Richmond area between 1968 and 1994. In 1998 North Yorkshire County Council arranged for the resulting archives to be summarised and assessed, by Northern Archaeological Associates, with a view to their long-term management. Many of the archives relate to work done by the Thubrons with the Richmond Excavation Group and concern *Cataractonium*. This material has been incorporated into a substantial monograph on Roman Catterick by Pete Wilson (Wilson 2002). The sites investigated include the Cadbury's Smash Factory, Catterick Bridge (this is also CEU Site 240), Yorkshire Water Depot and part



of the course of a water pipeline. The sites variously revealed areas of Roman settlement, Dere Street and occasional burials. The locations of the archives and finds are detailed in the NAA report (NAA 1998).

**Areas 19 and 19a** (Figures 2i, 156-158)

- 9.156 Sample transects were geomagnetically surveyed across these areas in 1993 as follows: Area 19 - CAS Site 509, Strips 1-3; Area 19a – CAS Site 508, Strip E (English Heritage 1994).
- 9.157 Several probable ditch features were detected at the northern ends of both current survey areas. Scatters of Samian pottery were noted across these areas during fieldwork.
- 9.158 The remains of ridge and furrow cultivation were recorded across the south-western part of Area 19.
- 9.159 A number of chains of anomalies were detected in the southern parts of these areas. These almost certainly reflect concentrations of litter which collected along former field boundaries.
- 9.160 A pylon was located in the northern part of Area 19.

**Area 19bW** (Figures 2i, 159-161)

- 9.161 This field and the one to the west of Thornbrough Farm were geomagnetically surveyed by the AML in 1997 (Cole 2002). The results of their Area 1 correspond well with those of the current survey.
- 9.162 A considerable number of magnetic anomalies were detected in this part of the scheduled monument. The identification of likely Roman features was hindered here by the overlying presence of ridge and furrow remains.
- 9.163 A number of possible stone wall-footings or stone revetments were recorded as negative magnetic anomalies, some associated with ditch features. The most notable of these are in the northern part of the survey, where a ‘playing card’ corner was identified. This comprises remains of the southern and eastern sides of the latest Roman fort at Catterick. Anomalies heading south-east from this corner could reflect the remains of the wall around the Roman town. Anomalies to the south of the fort comprise the remains of a *vicus*.
- 9.164 Some large anomalies within the survey could reflect pit features.
- 9.165 Ferrous service pipes were detected in the northern part of the field.

**Area 19bE** (Figures 2i, 162-164)

- 9.166 This field was geomagnetically surveyed by the AML in 1997 (Cole 2002). The results from their Area 2 correspond well with those of the current survey, which extended further north to the south bank of the River Swale.
- 9.167 A great many magnetic anomalies were detected in this part of the scheduled monument; the interpretation drawings for this field are by no means

comprehensive. It is clear from the many orthogonal negative magnetic anomalies that stone-founded buildings cover the majority of the area surveyed. The strength of the positive magnetic anomalies between the wall-footings could indicate fired remains such as hearths and roof tiles as well as possible industrial activity. Dere Street and two other roads were also detected.

- 9.168 Unfortunately two modern service pipes were detected here, one running north-east/south-west through the Roman town, and one along the south bank of the Swale.

**Areas 18 and 75** (Figures 2i, 165-170)

- 9.169 Both gradiometry and electrical resistance surveys were undertaken in these two areas for the current study. Both survey areas are within the scheduled monument area. Parts of each field were previously surveyed by the AML in 1997 (Cole 2002). The gradiometer results from their Areas 3 and 6 correspond well with those of the present surveys.
- 9.170 Weak parallel magnetic anomalies across this area almost certainly reflect ridge and furrow cultivation remains, which have in part hindered identification of earlier features.
- 9.171 Two substantial ditches were detected magnetically, aligned broadly north-south, in both fields. The ditches were more sharply defined in the electrical resistance data. Both ditches appear to turn east at the northern end of Area 75. It is possible that these ditches enclosed and defended the civilian settlement on this side of the Swale, although the ditches are not as large as the one presumed to defend the *vicus* to the east of Dere Street (Area 5 in Cole 2002).
- 9.172 Smaller ditches and pits, as well as possible areas of cobbling and wall-footings, were also detected in these two areas.
- 9.173 Intense dipolar magnetic anomalies near the northern and southern limits of Area 75 correspond to football goalposts.

**Areas 6 and 7** (Figures 2i, 171-173)

- 9.174 These surveys were undertaken on the west side of the A1, to the north of Brompton-on-Swale.
- 9.175 The remains of two possible ditches were detected here.
- 9.176 A series of weak, parallel magnetic lineations in Area 6 reflect ridge and furrow remains.
- 9.177 A ferrous pipe runs along the southern side of the field boundary between the two areas.

**Areas 11 and 12** (Figures 2j, 174-176)

9.178 A number of positive magnetic anomalies detected in Area 12 could reflect soil-filled ditches, some possibly forming small enclosures. One curvilinear anomaly could reflect the remains of a ring-ditch.

9.179 Very weak anomalies in the north of Area 12 area may reflect scant remains of ridge and furrow cultivation.

9.180 No features of likely archaeological significance were detected in Area 11.

**Area 13** (Figures 2j, 177-179)

9.181 A ferrous service pipe was detected in this area.

9.182 No features of likely archaeological significance were detected.

**Area 16** (Figures 2j, 180-182)

9.183 A ferrous service pipe was detected in this area.

9.184 No features of likely archaeological significance were detected.

**Area 15** (Figures 2j, 183-185)

9.185 A ferrous service pipe was detected in this area.

9.186 No features of likely archaeological significance were detected.

**Area 70** (Figures 2k, 186-188)

9.187 Ridge and furrow remains were detected here, aligned north-east/south-west.

9.188 Two ferrous service pipes were identified. An intense anomaly at the western limit of the survey corresponds to the location of a pylon.

**Area 69** (Figures 2k, 189-191)

9.189 Ridge and furrow remains were again detected here, aligned north-east/south-west.

9.190 A number of weak linear anomalies in this area almost certainly reflect soil-filled ditch remains, possibly the vestiges of a former rectilinear field system.

9.191 A broad positive magnetic anomaly detected in the north-eastern corner of the survey probably reflects increased soil density along the course of a grassed track.

**Area 68** (Figures 2k, 192-194)

9.192 The ridge and furrow remains detected in the two fields to the south continue throughout this area also.

9.193 One particularly strong anomaly in the central part of the survey probably reflects a former field boundary.

9.194 The remains of a possible track were detected in the southern part of the survey.

**Area 61** (Figures 21, 195-197)

- 9.195 A particularly high concentration of intense dipolar magnetic anomalies was detected adjacent to the A1 in this area. These anomalies almost certainly reflect accumulations of litter.
- 9.196 Probable ridge and furrow remains were detected on different alignments in the northern and southern parts of this narrow survey strip.
- 9.197 A number of other features of likely archaeological interest were also detected, including possible pits or areas of burning in the central part of the area, possibly associated with stone features; probable ditch and possible stone features at the southern end of the survey; and probable ditch features at the northern end of the area.
- 9.198 A service pipe was detected at the southern end of this survey area.

**Area 9** (Figures 21, 198-200)

- 9.199 Traces of ridge and furrow cultivation and a possible short length of ditch were identified in this survey.

**Areas 77 and 78** (Figures 21, 201-203)

- 9.200 Area 77 corresponds to the location of a 1993 gradiometer survey undertaken prior to proposed road improvement (Site 29 in GSB 1993). Interpretation of the 1993 survey was hindered by deep ploughing and high levels of background noise, though areas of possible burning or fired materials were highlighted. The current survey also detected large, irregular anomalies, which correspond to those recorded previously.
- 9.201 Despite the high levels of noise in the northern part of Area 77, and the presence of anomalies reflecting ridge and furrow cultivation in both areas, the probable remains of Dere Street can be discerned in both fields. In the southern part of Area 77 the road is indicated by a band of smooth data aligned north-south with small anomalies along each side. Further north this band of data comprises a concentration of negative magnetic anomalies, which are likely to reflect stonework. The strong irregular anomalies detected in this area could reflect industrial activities that were taking place to either side of the road. In Area 78 a narrow negative magnetic anomaly aligned north-south could reflect a stone kerb or drain along one side of Dere Street.

## **10. Conclusions**

- 10.1 A programme of geophysical survey was conducted on land adjacent to the A1(T) between Dishforth and Barton in North Yorkshire, in advance of proposed road improvement.
- 10.2 Fluxgate gradiometer surveys were conducted over 84 areas and earth electrical resistance surveys were conducted over two areas. The geomagnetic technique proved to be a particularly effective means of detecting potential archaeological features in the types of soils and sediments encountered throughout the study area.
- 10.3 Probable archaeological remains were detected in 71 of the survey areas. The remains include occasional ditches and pits, medieval ridge and furrow, former enclosed field systems and trackways, Roman roads, a probable early Roman camp, parts of two Roman forts and *vici*, a large part of a Roman roadside settlement and parts of a Roman town. Stone-founded buildings, kilns and evidence for other industrial activities have almost certainly been detected in and around the settlements.
- 10.4 In some locations the surveys have confirmed the results of previous investigations, and in many cases they have provided added value to existing knowledge with the recording of many new features and more extensive mapping of settlements and field systems, particularly around Baines Farm at Catterick.

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