Archaeological Recording of the Western Grinton Dyke

NHLE1004043
SE03639822
Site Code SBDD15

Swaledale and Arkengarthdale Archaeology Group

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Swaledale & Arkengarthdale SWAAG Archaeology Group

Contents

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Introduction

In the landscape surrounding the villages of Grinton and Fremington in Swaledale, North Yorkshire, there exists a series of earthworks.

These are known as the Grinton-Fremington Dykes.

The Dykes can generally be characterized as massive bank and ditch earthworks (in one instance the ditch is not present), which follow discontinuous courses both across the Dale close to the conjunction of Swaledale and Arkengarthdale, and partially enclose higher areas on Grinton Moor. A single cross-valley dyke also exists to the east close to Ellerton.

Various theories have been put forward as to whether they form part of a coherent system or were constructed at different dates.

Fleming (1994) argued that they were the boundaries of an early medieval polity in Upper Swaledale. More recently Ainsworth et al (2015) have discounted this theory and suggested that the subject of this investigation, and perhaps the other cross-valley dykes, date from the late Bronze Age or Early Iron Age.

A previous investigation by the Swaledale and Arkengarthdale Archaeology Group (SWAAG) of a stream erosion break through the dyke on Harkerside (NHLE 1012602) provided radiocarbon dates that suggest a pre-Conquest date (ASDU 2013).

The origin of the earthworks has the following explanation in "Out of Oblivion" the website based on the Historic Environment Record (HER) maintained by the Yorkshire Dales National Park Authority (YDNPA).

"The system of large linear dykes centred on Grinton and Fremington in Swaledale formed part of the boundary of an early, post-Roman, British political area or kingdom. The core of this system consists of two massive parallel banks lying about 500 metres apart, with ditches on their eastern sides. A third, somewhat smaller dyke lies 2.5 km to the east. On the moorland above Grinton are two more. As a whole the system seems to block access into Upper Swaledale and Arkengarthdale from the east. "

The dykes also appear to cut Romano-British features but are

ignored by the layout of the early Medieval township at Fremington and so have also been dated to the period in between, in other words the fifth, sixth or early seventh century AD.

Background

Most of the related earthworks on the south side of the River Swale are Scheduled Monuments, whereas those on the north are afforded no such protection. The area under consideration is described as the "Dyke 220yds (200m) W of Dyke House" record number 1004043, in the National Heritage List for England (NHLE), which is maintained by Historic England.

There has been a longstanding breach in the southern section of this westernmost dyke, which was widened in recent years by the land manager, in order to facilitate vehicle access. The widening had cut through part of the bank and created a rough cross-section that provided the opportunity to study the construction of the bank.

Agricultural vehicle and animal movements through this gap, necessary because of the very narrow nature of sections of the walled road, have been identified as likely to poach and erode the area. This together with natural erosion of the exposed rough section would result in further loss of the embankment.

With the support of the Senior Historic Environment Officer at the Yorkshire Dales National Park Authority (YDNPA), a proposal was developed which in addition to mitigation, might provide the opportunity (through cleaning and minor excavation) to retrieve dateable material. This could contribute to the understanding and interpretation of the earthwork.

Application was made to Historic England for Scheduled Monument Consent (SMC) for the proposed works, which was duly granted on 9th September 2015 (Appendix 1).

Location, Topography and Land Use

Grid reference SE03639822. Approximately 20 metres north of the Grinton to Scabba Wath road, the site is accessed through the field gate opposite the entrance to Dyke House.

The site in Swaledale is approximately 250 metres above sea level, on the south side of valley above the river Swale, which at this point has a height above sea level of about 180 metres. Reeth and Fremington Edge are to the North. The fields on both sides of the dyke are grassland, defined by typical dry-stone walls and utilised for grazing sheep and cattle.

Geology:
Till, Devensian - Diamicton. Superficial Deposits overlying Alston Formation - Limestone (Carboniferous) with Subordinate Sandstone And Argillaceous Rocks

Aims and Objectives

The proposed works involved cleaning back the eroded surfaces of the north and south facing sections of the bank followed by the excavation of small (0.5 m wide x 0.4 m deep) trenches at the base of the banks to try and reach the base of the construction and gain dateable material, potentially from any buried land-surface that might be encountered at the base of the bank.

Any suitable samples obtained would be subjected to radiocarbon dating.

A secondary objective, identified later, was to investigate the possibility of taking a core sample from the adjacent ditch and an amendment to the original SMC was granted by email on the 28th September 2015.

All exposed sections would be recorded.

In addition the possibility was recognised that this work might add to the understanding of the construction of the bank.

At the completion of the works the banks were to be appropriately reinstated to minimize the impact of future erosion.

Methodology

Because of the site topography, the results of early dating evidence and some restrictions in the original Project Design and SMC the planned works developed into two phases as described below.

Phase 1 Methodology

This was carried out in accordance with the Project Design (Appendix 2) between the 28th and 30th September 2015 by members of SWAAG incorporating the conditions imposed by the SMC. Miles Johnson, Countryside Archaeological Adviser (now Senior Historic Environment Adviser) with the YDNPA, supervised the works.

Whilst planning the cleaning back for the south facing section (originally designated trench 1), it became apparent that this would compromise the stability of a fence post in the bank and so it was decided to focus efforts on the north facing section (trench 2).

Having cleaned and cut back the north facing bank to a vertical section, a trench 6.5 m x 0.5 m was marked out at the base, and excavated to a depth of 0.4 m under careful visual control. Due to the very compacted composition, cleaning and excavation was carried out using a combination of mattocks and trowels.

The excavation at the east and west ends of trench 2 revealed stonework along the edges of the bank, which seemed to be indicative of construction activity rather than random placement or tumble.

A revised strategy was therefore developed for the south facing bank (originally designated trench 1) and two small trenches were opened to determine whether the possible construction activity seen in trench 2 was mirrored at the edges of the south facing bank.

The new trench 1 was now situated at the western aspect of the south facing bank and initially set out at 0.5 m wide x 1.0 m, but subsequently extended to 1.5m in length.

Trench 3 at the eastern edge was set out at 0.5 m x 1.0 m.

Had the original plan to fully clean back and excavate the south facing bank gone ahead, then trenches 1 and 3 were located at the positions they would have occupied at the edges of a longer trench.

A temporary benchmark (TBM) was established at a secure location at the entrance to the field and the height levels relating to the trenches, location of samples and other significant features recorded using traditional surveying methods. A secondary benchmark, tied to the TBM was established on the eastern face of

the bank to allow for the recording of the height of the bank profile at two locations.

Comparison measurements for height levels were made using a Promark 120 GPS.

The secondary objective of taking a core sample from the ditch could not be realised due to lack of suitable equipment.

Phase 1 Findings

The TBM was established at 250.42m OD.

The eastern end of trench 2, which is adjacent to the ditch, revealed several large flattish stones (image RN1_6224) below which were further courses with some vertical packing (RN1_6284). This was interpreted as a revetment to prevent slippage of the bank towards the ditch. It is clear from the final photographs of this part of the trench (RN1_6331) that further stones are present at a lower level within the unexcavated east face of the bank.

As the excavation progressed in trench 2 a total of eight charcoal samples were taken, wrapped in aluminium foil and placed in appropriately labeled self-seal bags.

The samples were encountered at two distinct levels, the first three around 248m and the remainder c30 – 40 cms deeper.

Context	Sample	Height OD	Context	Sample	Height OD
[2]	<1>	248.00	[5]	<7>	247.57
[2]	<2>	248.00	[2]	<8>	247.61
[2]	<3>	247.99	[5]	<9>	247.64
[5]	<6>	247.74	[2]	<11>	247.82

Table 1 Phase 1 - Charcoal sample heights (metres OD)

The ground surface of trench 2 as set out, varied from 248.21m to 248.29m

Trenches 1 and 3 did not produce any discernible features; neither a recognizable extension of the trench 2 stonework, nor dating

material and so were recorded and backfilled. Whilst trench 2 was excavated to the full depth of 0.4 m, neither trench 1 nor trench 3 was excavated to that depth.

Trench 2 plan and section drawings (Appendices 4 and 5) plus levels were completed.

Stones at both ends of trench 2 were lifted and soil samples ([4] <10> and [3] <12>) taken. These deposits were lying between and around the stone structures rather than being a discrete layer.

The tops of the horizontally placed stones lying adjacent to the location of sample [4] <10> were shown to lie at 247.93m (RN1_6253) and 247.90m (RN1_6254).

A detailed photographic record was taken in order to produce a composite montage of trench 2 (Appendix 6).

Five contexts (Appendix 7) were identified and recorded in the trench 2 bank and are shown on the section drawing (Appendix 5).

Underneath the topsoil [1] the majority of the bank comprised a heavily compacted stony, subsoil-clay mix [2], which in turn overlaid a dark clay loam layer [5]. The revetted wall to the east [4] and rubble to the west [3] defined the extent of the bank.

The charcoal samples were submitted to the Scottish Universities Environmental Research Centre (SUERC) in Glasgow for radiocarbon dating in two batches. Following receipt of the relatively consistent set of dates for sample numbers 2, 3, 6, & 7, sample numbers 1, 6 & 8 were tested in January 2016. The remaining samples including the soil samples were subsequently not considered suitable for testing.

Radiocarbon dates are reported as the uncorrected dates BP (before present) and a BC equivalent.

Appendix 8 contains copies of the Radiocarbon Dating Certificates issued by SUERC complete with the calibration plots.

Context No.	Sample No.	Material	Date BP	Date BC**
[2]	<1>	Charcoal	3727 ± 35	1777 ± 35
[2]	<2>	Charcoal	3241 ± 31	1291 ± 31
[2]	<3>	Charcoal	3770 ± 31	1820 ± 31
[5]	<6>	Charcoal*	-	
[5]	<7>	Charcoal	3119 ± 31	1169 ± 31
[2]	<8>	Charcoal	3268 ± 35	1318 ± 35

Table 2 Phase 1 Radiocarbon dates

*Although sample [5] <7> appeared to be charcoal upon testing it gave a reading indistinguishable from background reading and was interpreted as coal.

** Corrected for BP (before present) equivalent to 1950AD.

Phase 2 Methodology

Because of the presence of the fence post in the south facing bank, the full excavation of the proposed trench in this area was not realised during Phase 1. As the original project design had limited the depth of excavations to 40cms, this limit meant that in trench 2 the base of the bank or any buried land surface was not reached.

The retrieved charcoal radiocarbon dates therefore could not be tied to any secure context but could only suggest a *Terminus post quem* for the structure.

Because of the relatively consistent range of Bronze Age dates, the aborted initial plan to excavate in the south facing bank and the restriction on depth to 40cms a decision was made to seek an amendment to the original SMC to allow further work. It was hoped that by extending the excavation it might be possible to reach buried land horizons and obtain further dating material from more secure contexts.

Historic England granted the amended SMC on the 7th January 2016 (Appendix 9) and this allowed for excavation to proceed down to the level of natural deposits.

Phase 2 Findings

Phase 2 was carried out during the 14th - 16th March 2016 in accordance with the Project Design, the amended SMC and again with supervision from Miles Johnson.

The same TBM at 250.42 OD was employed.

Because the ground was soft following significant rainfall over the winter months the surface adjacent to the earthworks was protected with three Track Mats, each measuring 1.22m x 2.44m (Teesdale Event and Site Services Ltd).

Trench 4 (2m x 0.85m) was opened at the base of the south facing bank, extending eastwards from a central position to cover the expected eastern edge of the structure. Because of the presence of the fencepost the trench did not extend to cover the western edge.

The trench was excavated with the prime objective of identifying any buried land horizon or interface. The upper make up was noted to be similar to that observed in trench 2.

A significant revetment wall was again observed at the eastern end of the trench and recorded photographically, in sequence as the excavation proceeded. (Images; RN1_7546, RN1_7548, RN1_7552).

The final trench images (RN1_7567, RN1_7570) show that the revetment wall was a significant feature measuring in excess of 0.5m in height.

The bank structure remained rather consistent in its composition (similar to [2] in trench 2) but without any corresponding material similar to [5] and reached it's greatest depth at the western edge as shown on the Trench section drawing (Appendix 10).

At 247.34 m OD a thin darker layer was observed which lay directly over the natural deposits. A sample of the layer was taken ([7] <14>) into an appropriately labeled self seal bag. Associated with this layer were several pieces of charcoal <13>, <15>, <16>, <17>. These were wrapped in aluminium foil and placed in appropriately labeled self seal bags.

At this time budgetary factors allowed for four radiocarbon dating attempts and so these samples were submitted to SUERC Glasgow with the intention that Humin and Humic acid extracted from layer [7] <14> and two charcoal samples be subjected to radiocarbon

dating. Unfortunately insufficient organic material was present in the layer [7] and so the four charcoal samples were tested

Context no.	Sample no.	Material	Date BP	Date BC**
Tr4	<13>	Charcoal	3679 ± 29	1729 ± 29
Tr4	<15>	Charcoal	2403 ± 29	453 ± 29
Tr4	<16>	Charcoal	2001 ± 31	51 ± 31
Tr4	<17>	Charcoal	Failed*	

Table 3 Phase 2 Radiocarbon Dates

* Insufficient carbon

** Corrected for BP (before present) equivalent to 1950AD.

Radiocarbon dates are reported as the uncorrected dates BP (before present) and a BC equivalent.

Appendix 8 contains copies of the Radiocarbon Dating Certificates issued by SUERC complete with the calibration plots.

The layer [7] was recorded at 247.34m OD and the levels of the samples recovered and submitted for radiocarbon dating in Phase 2 is shown in Table 4.

Context no.*	Sample	OD	Context no. *	Sample no.	OD
Tr4	<13>	247.46	Tyr4	<16>	247.3
Tr4	<15>	247.37	Tr4	<17>	247.27

Table 4 Phase 2 charcoal sample heights (metres OD)

* As the layer [7] was measured at 247.34m OD at the western edge, it was not always clear as to whether the charcoal samples recovered were part of [7] or the overlying subsoil-clay mix [2] and are therefore described as Tr4.

In order to aid in the interpretation of the depth of any recovered materials the profile of the bank was measured at ground level at a point just to the north of trench 4.

To the west of the earthwork, the current ground level lies at 247.82m and at 247.46m to the east. The full profile, 21m in length and measured at intervals of 0.5m is shown in figure 1.

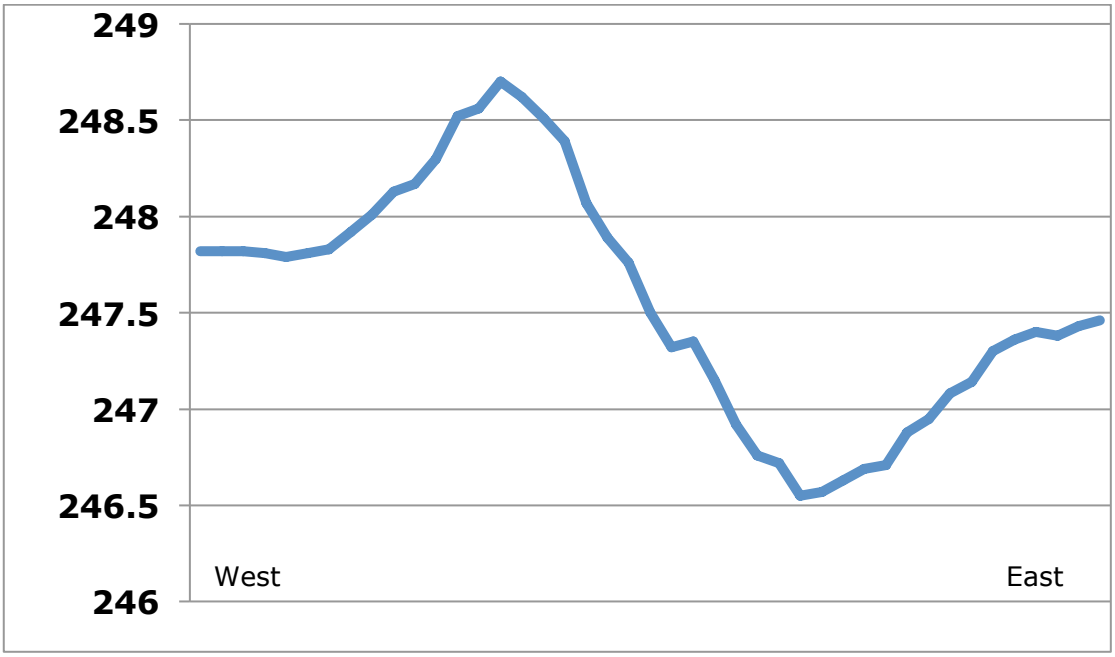

Figure 1 Bank and Ditch Profile adjacent to trench 4

The phase 2 charcoal samples (Table 4) were therefore retrieved from levels at or below or the current ground level at both the western and eastern edges of the earthwork.

The positions of all trenches and the line of the measured profiles are show in figures 2 and 3.

Larger sized versions of these images, which in addition show their position relative to the field gate and adjacent pasture, can be found in Appendix 11.

Figure 2 Phase 1 trenches and profiles location

Figure 3 Phase 2 trench and profile location

Finds

The spoil from all trenches was closely examined and the majority passed through 1cm garden sieves. This did not yield any artefacts or dateable material

Discussion and Conclusions

BANK STRUCTURE

The profiling of the earthwork shows that this was a major construction, with the ditch including the obvious subsequent infill (RN1_6327), being in places, some 4 m below the top of the bank as measured on the phase 1 profiling (Appendix 11). It is not surprising therefore to find that some form of revetment was constructed on the eastern face of the bank to prevent slippage into the ditch. This is a feature that has been described elsewhere on the dyke system to the north of the river Swale and would no doubt have given the structure a greater visual prominence.

The presence of a less formally constructed rubble bank on the western face suggests a similar delineation but without the need for such an engineered retaining structure.

It is suggested that the bank was constructed by first building (or placing stones) to produce a revetted east face and a west rubble bank which was then followed by infilling. Observation during the Phase 1 excavation suggested the fill at the centre of the bank contained fewer stones and a higher proportion of clay-like deposits as compared to the material above and to the sides and it seems reasonable to suggest that the softer material lower down in the bank [5] came from higher up in the ditch. This suggests that there was some order in the way the material excavated from the ditch was deposited to form the bank.

During Phase 1, the presence of further stones below the level of the current excavation at the east end of the trench indicated that the base of the revetment and the base of the bank had not been reached.

The bank composition observed during phase 2 was somewhat different as the clay-subsoil mix [2] overlaid the very thin darker layer [7], which was immediately over the natural deposits without

anything corresponding to the darker loam layer [5] seen during Phase 1. This suggests that the topsoil/grass layer was removed as the eastern revetment wall was constructed.

The layer [7] encountered in Phase 2 appears to lie below the existing ground level on both sides of the earthwork and so, as we have conjectured, a significant excavation took place before the building of the eastern revetment wall and so this layer might be all that remains of a re-deposited grass or topsoil layer removed as part of the ditch excavations.

The interpretation is still problematic, as it has to be considered what happened to the material excavated to allow placing of the wall.

In dealing with variable ground levels, excavation to form the foundations of the revetment may only have been necessary in certain places as some form of leveling activity or to accommodate oversized stones and therefore differing structures in the bank would be likely to be observed according to local excavation and building requirements.

Perhaps some sort of phased construction occurred with the foundations excavated material being incorporated into the bank along with the material that was being continually excavated to form the ditch.

As we were unable to reach the base of the bank during Phase 1 detailed comparisons are not possible and given such a small area of excavation and finding two apparently differing compositions such extrapolation as to the method of construction may be a little tenuous.

DATING EVIDENCE

It is unfortunate that during both phases of the work, material for dating could not be obtained from secure contexts such as buried horizons and original ground surfaces.

Given the depth and location of the charcoal samples recovered, and in the absence of any other explanation, it seems reasonable to assume that the dates obtained relate to material buried at the time of construction.

So for this particular section of the Grinton Fremington Dykes we have perhaps demonstrated a *Terminus post quem* for the construction of around 50 BC.

Suggestions for further research

These studies have focused on a small area of one of the local earthworks. Recent work by Grigg has focused on the morphology of British Dykes and further local surveying on both sides of the river Swale might provide greater insight into these rather enigmatic structures.

Appendices

Appendix 1	Scheduled Monument Consent dated 9th September 2015
Appendix 2	Project Design
Appendix 3	Photographic record and register
Appendix 4	Trench 2 plan
Appendix 5	Trench 2 section drawing
Appendix 6	Trench 2 photomontage
Appendix 7	Context and sample registers, site diary
Appendix 8	Radiocarbon Dating Certificates
Appendix 9	Amended SMC dated 7th January 2016
Appendix 10	Trench 4 section drawing
Appendix 11	Leveling data and profiles

Acknowledgements

This excavation was carried out as part of The Swaledale Big Dig with the support of the Heritage Lottery Fund.

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Finally this project would not have taken place without the expert help, guidance and supervision from Miles Johnson, currently Senior Historic Environment Officer with the Yorkshire Dales National Park Authority.

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