Project:	**Excavation of Stack Stands,**
Site/Property:	**Sewingshields Farm,**
Address:	**Haydon, Northumberland,**
Postcode:	**NE47 7AL,**
OS NGR:	**NY 80091 70475, NY80137 70510,**
Date:	**June 2022**
Planning Application:	n/a
Clients:	NOWTAG, NNPA
OASIS ID:	borderre1-513433
Sitecode:	SSS22

BORDER REIVERS ARCHAEOLOGY UNIT

M: 07841 455535

E: bra.unit@outlook.com

NORTH OF THE WALL TYNEDALE ARCHAEOLOGY GROUP

Supported by

Northumberland National Park

Contents

Summary. Over five days in June 2022 an archaeologist from Border Reivers Archaeology Unit led a team of amateur archaeologists and volunteers from Tynedale North of the Wall Archaeology Group (NOWTAG) on an excavation of two stack stands on Sewingshields Farm, Haydon, Northumberland. Quadrant excavation with an adjacent open area was carried out on both stack stands, primarily to recover sediment samples for palaeoenvironmental analysis. No direct archaeological evidence was found for the dating and interpretation of the two stack stands. Stack Stand One (HER **12445**, NY 80137 70510) appears to be a turf-drying stand, Stack Stand Two (HER **12444**, NY 80091 70475) a classic Cumbria-Northumberland stack stand type specimen, but may be a shelter associated with the transhumance practice of shieling. Palaeoenvironmental analysis allowed some limited reconstruction of the local environment when the stack stands were created and around the time they were in use: Trace levels of fine charcoal indicate fuel waste or natural fires nearby; Iris and alder pollen grains suggest a wetter environment than the present with alder trees in the wider landscape; Bog myrtle (*Myrica gale*) uncommon today, but useful in the medieval period, was also noted. Some residual lithics and a panel of possible rock art buried beneath peat initiation were found, representing the prehistoric period. The project design was by Border Reivers Archaeology Unit and funding was provided by Northumberland National Park Authority.

Acknowledgements. Border Reivers Archaeology Unit and Tynedale North of the Wall Archaeology Group would like to thank the following people and organisations for their assistance on this project: John Carrott at Palaeoecology Research Services Ltd, Tim Gates, Peter Herring at Cornwall Archaeological Unit, Angus Lunn MBE, Angus Murray and the Murray Family at Sewingshields Farm, Northumberland National Park Authority, Margaret Rogers, the Straker Trust, and Jon Welsh. In particular we would like to thank all of the Tynedale North of the Wall Archaeology Group volunteers who participated in the five days on site: Phil Bowyer, Lorraine Clay, Ian Cooper, Andy Curtis, Martin Green, Derek Gunby, Michael Hall, Will Higgs, Marilyn Kendall, Mike Powell, Joaquim Roldos, Megs Rogers, Malcolm Thomas, Elaine Vallack, Andy Willis.

1 Introduction

1.1 In June 2022 amateur archaeologists from Tynedale North of the Wall Archaeology Group (NOWTAG) with professional support from Border Reivers Archaeology Unit (BRAU) and funding from Northumberland National Park Authority (NNPA) carried out the partial excavation of two stack stands at Sewingshields Farm, Haydon, Northumberland, NE47 7AL. The stack stands are recorded in the Northumberland Historic Environment Record (HER) as HER **12444** and HER **12445** and are located at (NY 80091 70475) and (NY 80137 70510) respectively.

1.2 Stack stands are a common but little understood field monument found throughout England and Scotland. In northern England, the term stack stand has been applied to features which meet their description since Ramm et al (1970) studied those on the Northumberland/Cumberland border. Generally, they are circular platforms, 7-16m in diameter, surrounded by a low bank and external ditch, although there are other shapes in lesser numbers. Few have been excavated and multiple theories on their purpose and chronology have been put forward. The current project attempts to advance knowledge of stack stands in Northumberland by excavating a substantial high-percentage section and adjacent open area with environmental sampling of the deposits.

1.3 Aims and Objectives. Stack stands are one of the most frequently encountered standing archaeological features in the landscape north of Sewingshields Crags, they are certainly the most numerous. When Gates (1999; 2004) carried out an aerial photograph survey of the Hadrian's Wall landscape from Chesters to Greenhead, he noted that a single stack stand inventoried by the Royal Commission of Historic Monuments (Ramm et al 1970: no. 121) had been increased to 23 stack stands by the Reverend T. Hayes work in Wark Forest (Heyes 1976: 247-51). By the time Gates had completed his survey there were around three hundred stack stands in the survey area (Gates 2004: 35).

1.4 Very few stack stands have been excavated, and just one in Northumberland, Kennel Hall Knowe, North Tynedale (NY 667 897), which returned only a fragment of clay tobacco pipe stem from the fill of the silted-up ditch (Charlton and Day 1977). In the Yorkshire Dales, two stack stand sites in Upper Wensleydale have been investigated but the archaeological interventions were only by way of keyhole or evaluation trench excavation (YAG 2013; Mitcham 2019).

1.5 Both Mitcham (2019) and Gates (2004) concluded that advancing the investigation of stack stands required larger open area excavation of multiple stack stands, as much as 50% of a stand being excavated and also an area beyond the surrounding ditch.

1.6 An appropriate level of reporting on the work will be carried, including, if necessary, full analysis and publication of any notable archaeological findings upon completion of the project.

1.7 The archaeological project has the potential to address research priorities defined in the *North East Regional Research Framework 2.0*:

Medieval

MD18: How can environmental archaeology help us better understand medieval life?

MD23: How can we better understand the upland landscapes of the North Pennines and Northumberland?

2 Site Description

2.1 Sewingshields Crag is around 4 miles north of Haydon Bridge, Northumberland. Sewinghields is a deserted medieval village (HER **7848**) in the parish of Simonburn, lying north of Sewingshields Crags where Hadrian's Wall passes along the crags. The parish of Simonburn is north of Hadrian's Wall between Hexham and Bellingham, in the North Tyne Valley.

Location Plan. Showing location of HER **12444** and HER **12445**. Image data: ©Google Maps 2022.

2.2 The two stack stands targeted for investigation are Northumberland Historic Environment Record (HER) numbers **12444** and **12445**, to avoid confusion they are best described in catalogue format as follows:

Northumberland HER No: 12444
NOWTAG 2014 Level 1 feature number: 22 (Photo 214b)
Survey record number: SS 214
OAN Level 3 feature number: 31
OS NGR: NY 80091 70475
Period: medieval or post-medieval
Description: stack stand, circular, with raised centre and surrounding ditch, overall dimensions around 6.6m x 6.5m x 0.3m high.

Northumberland HER No: 12445
NOWTAG 2014 Level 1 feature number: 29 (Photo 115a)
Survey record number: SS 115
OAN Level 3 feature number: 30
OS NGR: NY 80137 70510
Period: medieval or post-medieval
Description: stack stand, rectangular or subrectangular, overall dimensions around 8.9m x 4.4m x 0.2m high, or 6m x 3.5m with a 0.5m wide ditch.

2.3 The two stack stand are located on a ridge SE of Queen's Crags.

Geology, Topography and Land Use

2.4 Bedrock Geology. Formerly referred to as solid geology by the British Geological Survey (BGS). The underlying geology beneath the stack stands is limestone from the Yoredale Group, which has subordinate sandstone and argillaceous rocks. This is a sedimentary bedrock formed around 313 to 335 million years ago during the Carboniferous Period, when the local environment was predominantly shallow carbonate seas (BGS).

2.5 The landscape is dominated by the sight of Sewingshields Crags to the south, an outcrop of the Whin Sill or Great Whin Sill, a tabular layer of igneous dolerite and tholeiitic basalt. The three components of the complex, the Holy Island Sill, Alnwick Sill and Hadrian's Wall-Pennines Sill, were all created by separate intrusions of silica-poor magma flows around 251 to 359 million years ago in the Permian and Carboniferous Periods (BGS; Liss et al 2004). Hadrian's Wall, Bamburgh Castle, Dunstanburgh Castle and Lindisfarne Castle all make strategic use of the tall, outcropping cliffs provided by the Whin Sill.

2.6 Superficial Geology. Formerly referred to as drift geology by the British Geological Survey. Although, some of the superficial geology near the stack stands is unrecorded there are known deposits of diamicton till nearby, formed in the Quaternary Period, up to 3 million years ago, by the action of ice and glacial meltwater during glacial and interglacial periods (BGS).

2.7 Topography. The two stack stand are located on a ridge SE of Queen's Crags, the ridge appears to be on or near the 260m contour. Gates (2004: 39) describes the topography as "undulating ridges."

2.8 Land Use. The landscape in the parish of Simonburn contains grassland, deciduous woodland, rough grazing, peat bogs and forestry plantations, with most of the parish lying in the Northumberland National Park (Simonburn Parish Council). Around the stack stands the landscape is best described as grassland or rough grazing, used by cattle. Although there are some boundary walls and banks, the description of open moorland used by Gates (2004: 39) would seem justified. The nearest buildings are those of Sewingshields Farm (HER **14606** NHLE **1045001**) and the consolidated remains of Hadrian's Wall (HER **7860**) along the summit of Sewingshields Crags.

3 Archaeological and Historical Background

3.1 Part of the information used in this section has been taken from the Northumberland Historic Environment Record (HER). The research and writing of those responsible is gratefully acknowledged. The spelling of place names reflects variations used at the time in question.

3.2 Unknown. A hut circle (HER **12443**) was identified by aerial photography in 1999 (Gates 1999) and by field survey in 2014 (Altogether Archaeology). The earthen bank (HER **22620**) north of, and perpendicular to Sewingshields Crag is also of unknown date. N of 12440 and 12441

3.3 Prehistory. Small areas of cord rig (HER **12442**, **12450**) survive to the north of Sewingshields Crag. The cord rig field system may be associated with a boundary formed by an earthen bank of uncertain date (HER **22620**), it may be overlain by the sod cast dyke east of Queen's Crag (HER **22619**). The stone setting SE of King's Crag (HER **22623**) is possibly of Bronze Age (2100-700BC) date, thought to be the remains of a cist.

3.4 The earliest known settlement in the parish was in the Iron Age (700BC-AD43), evidenced by several enclosures containing hut circles, such as Queen's Crag (HER **6962**).

3.5 Romano-British. Hadrian's Wall is a UNESCO World Heritage Site. The stretch of Hadrian's Wall in wall miles 34 to 36 that runs along the crest and slopes of Sewingshields Crags between turret 34a and milecastle 36 passes Simonburn, Bardon Mill and Haydon (HER **7860**). Hadrian's Wall and its associated features between the boundary east of turret 34a and the field boundary west of milecastle 36 are a Scheduled Monument (NHLE **1010964**). Sewingshields Farm (HER **14606** NHLE **1045001**) is built with stone reused from Hadrian's Wall, a centurial stone in the porch records the century of Gellius Philippus building part of the wall (HER **7832**). Another centurial stone (HER **7562**) was found in a wall near Sewingshields School House.

3.6 Turret 34b (HER **7826**) was probably located where Sewingshields Farm stands today. Milecastle 35 (HER **7827**) stands on Sewingshields Crags, partially excavated in 1947 several phases of milecastle were found, in addition to medieval reoccupation. A cist burial (HER **15310**) 52m east of the milecastle is thought to be one of the few burials directly associated with Hadrian's Wall. Turret 35a (HER **7828**) stands on the summit of Sewingshields Crags, partially excavated and consolidated.

3.7 Two field terraces between the vallum and Hadrian's Wall were noted in the 1970s and are thought to be Roman, measuring 10m wide by 100-140m long (HER **7847**). A field system south of Sewingshields Crags (HER **12439**) may include Roman field terraces amongst the irregular fields defined by low earthworks (Gates 1999). It is thought that native civilian life in the area may have continued with little change between the Iron Age and Romano-British periods, Roman farmsteads remain as earthworks at King's Crags (HER **7839**), Sharpley (HER **7890**) and Queen's Crags (HER **12409**). The low earthen bank at King Wanless Green (HER **22625**) is thought to be the boundary of a field system, dating to the Iron Age or Romano-British periods.

3.8 Early Medieval. Although there are abundant Arthurian legends and associations throughout the parish of Simonburn (HER **13763**), the only tangible evidence is some sculptural fragments in the Church of St Mungo (HER **7888**) in the village of Simonburn.

3.9 Medieval. The parish of Simonburn is thought to have been formed by Bishop Walcher of Durham around 1072, and known as 'The Great Parish' as it was one of, if not the largest, parish in England (260 square miles/673km^2).

3.10 Sewingshields deserted medieval village (HER **7848**) is centred roughly where Sewing Shields farmhouse (HER **14606**) is today. A hollow way (HER **22618**) at Sewingshields Farm is probably medieval and/or post-medieval. Nearby stood Sewingshields Castle (HER **7838**), which is known to have been owned by Sir Robert Ogle (d. 1437), there are no visible remains other than a defensive ditch on the west side. A line of three rectangular fishponds (HER **7837**) to the north of the castle site are unusual in the area, although there is a probable fishpond (HER **7840**) amongst the medieval enclosures and shielings on the ridge between Fozy Moss and Sewingshields Castle. A moated site and fishpond at Fozy Moss (NHLE **1011080**) is unusual in Northumberland and has been the subject of some debate, a scheduled ancient monument, it is located at NY 81758 70700.

3.11 Probable medieval enclosures and building remains (HER **24827**) north of Sewingshields Crags were identified on aerial photographs (Gates 1999) and later recorded by field survey (Bowyer 2014). The undatable remains of a building and related walls (HER **22617**) were found NE of Sewingshields Farm during field survey (NY 81100 70400). They are possibly medieval or post-medieval and are thought to be the remains of a small shelter for a shepherd or new-born animals.

3.12 An earthen bank (HER **22621**), north of Sewingshields Farm is thought to have been made to control farm animals and could be prehistoric but is more likely to be late medieval or post-medieval when the area was largely agricultural. To the north, Comyn's Cross (HER **6946**) marks the division between the farmland along Hadrian's Wall and the open moorland further north (NY 79960 73630). The remains of the stone cross divide the Wark and Simonburn parishes and although attributed with an Arthurian legend the cross is thought to be a land boundary marker from the twelfth to fifteenth centuries.

3.13 Milecastle 35 (HER **7827**) was reoccupied during the medieval period, two longhouses were built and finds dating from the thirteenth to sixteenth centuries were recovered during the 1947 partial excavation.

3.14 Stack stands, thought to be medieval or early post-medieval are spread across the landscape in this area (HER **12444**-**12449**, **12451**, **12518**-**12520**, **12522**-**12524** and **24848**).

3.15 Post-Medieval. A dyke and bank covering 150m between King's Hill and Sewingshields Crag is thought to have been built by local farmers for an unknown purpose (HER **12312**).

3.16 Sewing Shields Farmhouse (HER **14606** NHLE **1045001**) was built *c*1830 and is a Grade II-listed building, contemporary farm buildings include a carriage house, harness room and granary. The farm foldyard (HER **24793**) is also nineteenth century.

3.17 Modern. An adit or small drift mine (HER **24829**) to the north of Sewingshields Crags was worked into the twentieth century, it is not shown on the first edition Ordnance Survey maps.

3.18 Previous Archaeological Work. The area north of Sewingshields Crags was the subject of field survey as part of the Altogether Archaeology 'North of the Wall' survey module (Bowyer 2014). Three

areas, one of which contains the stack stands were selected as being of particular interest following a Level 1 survey, and were then subjected to a Level 3 survey.

3.19 Archaeological Potential. The excavation and palaeoenvironmental sampling of the two stack stands has the potential to greatly advance the understanding of these features in terms of interpretation and chronology.

4 Methodology

4.1 A detailed Written Scheme of Investigation was written for this project and approved by NNPA.

4.2 The simultaneous excavation and sampling of the two stack stand quadrants was carried out over five days in June 2022. Onsite the stack stands were referred to as "**45**" and "**44**" from the last digits of their HER numbers, HER **12445** and HER **12444** respectively. HER **12445**/"**45**" was also referred to as "Stack Stand One" and HER **12444**/"**44**" as "Stack Stand Two," as this was the order in which the stack stands were approached and dug.

4.3 A specific methodology was designed to excavate the stack stands. A single quadrant (25% or 90°) of each stack stand was to be excavated. The first intervention would be to reduce a smaller part of the quadrant in 100mm spits, which were to be sampled, taking the stack stand down to the natural drift geology, leaving an L-shaped margin around 1m wide intact. The perpendicular sections would then be cleaned, drawn and photographed, showing any stratigraphy. The L-shaped margin would then be excavated stratigraphically and sampled to complete the quadrant and the sections recorded again. With the quadrant of the stack stand fully excavated the excavated area would be extended out away from the stack stand to form a rectangular open area excavation. This extension of the quadrant was intended to pick up the ditch and any features on the margins of the stack stand.

4.4 During the actual excavation there was some diversion from the specific methodology, largely due to time constraints and the resistance of the rooty peat soils to anything lesser than a spade or mattock blade. Faced on the second day of excavation with an unknown depth of peat, the decision was made to dig a sondage on the line of each stack stand's ditch. In **"45"** the sondage [not numbered, subsequently obliterated] and a subsequent sondage on the adjacent baulk revealed the presence of a light-coloured, sandy subsoil (**123**) and demonstrated that the ditch was shallow, not cutting the subsoil. In **"44"** the sondage [**218**] sectioned the cut of the ditch [**215**] and was expanded into a 1m wide trench [**219**] across the already excavated area, increasing the size of the N-facing section through the stack stand and ditch. Sufficient stratigraphic information and samples were obtained without digging the L-shaped margins out.

4.5 Onsite, spade blades were marked using a Sharpie® permanent marker to draw a line 100mm from the leading edge of the blade, allowing strict control over the depth of spit digging. There was an inevitable loss of at least 45-60mm of sediment during the deturfing, this loss and the sediment removed during the trowelling of the exposed surface were combined to make the first spit, Spit **1**.

4.6 Scanning the initial spits prior to removal with a metal detector was negative for metallic signals as was subsequent scanning of spoil heaps and unexcavated deposits. The BRAU detectorist, also acting as drone operator, was able to launch a drone when wind conditions allowed, but the vegetation and low relief of the stack stand features meant that their outline was not visible on the drone images.

4.7 With two stack stands being excavated and sampled simultaneously and in relatively close proximity, precautions were taken to avoid any confusion with the numbering of contexts and samples. Context numbers from "**45**"/"Stack Stand One" were assigned starting from (**100**) and sample numbers from ◊**1**, with sample number ◊**2** not used. Context numbers from "**44**"/"Stack Stand **Two**" were assigned starting from [**200**] and sample numbers from ◊**20**.

4.8 The sitecode **SSS22** was used, **S**ewingshields **S**tack **S**tands, 20**22**.

5 Results

5.1 Stack Stand One, or "45". Although aerial photographs (see Bowyer 2023: 4) show a playing card-shape in plan with a slightly indented waist, on the ground "**45**" appeared to be roughly D- or B-shaped in plan, possibly due to being constructed from the end of a ridge. The stack stand has an 8.4m long, lenticular or "battleship" shape with a fairly straight north side and a south side which appears to be bilobular or come to a narrow waist at *c*5.52m east along the main axis, being only *c*3.9m wide at this point (Photos **01**-**03**). Rather than take a strict 25% by area quadrant of "**45**", the shape in plan was notionally divided into four unequal parts by cutting along the long axis and through the isthmus where the feature comes to a narrow waist. The excavation measured 5.3m long, 2.75m wide, and was 360mm deep, oriented E-W, and located between NY 80134 70506; NY 80134 70509; NY 80139 70509; NY 80139 70506 (Photos **08**-**13**).

5.2 On the second day of excavation (7 June 2022) **"45"** was extended 1m west across the line of the ditch and the width was extended 2.75m south to include the ditch. A 1m sondage [not numbered, subsequently obliterated] opened in the NW corner of **"45"** showed the presence of a light-coloured sandy subsoil (**123**) below the peaty topsoil (**121**) and the thin relict surface (**122**) (Photo **18**).

5.3 "**45**" was so indistinct after the removal of Spit 2 [**101**] that on day three a further spit [**103**] was removed from the entire excavation, reducing the whole base to around the level reached by the sondage and the excavation was trowelled back aggressively, revealing the three post-pads at the western end (Photo **32**). Even when taking the third spit [**103**] out of "**45**" the root penetration was still profuse, with the soil coming out in spade-width blocks.

5.4 Subsequently, a 500mm wide sondage [**129**] was dug inside the W-facing baulk, centred on the ditch [**125**], 600mm from the SE corner (Photos **47**-**48**). This sondage may have removed evidence of a ninth post-pad, as due to time constraints trowelling back was not yet complete when it was dug, an oversight, but it would also be a convenient location for an entrance into the centre of the stack stand, being located at the narrow point identified before work began. Also, a 1m sondage extension [**130**] was dug into the S-facing baulk, 600mm from the NE corner, to investigate an alignment of three large cobbles, which appeared to just be inclusions in the natural drift (**124**) thrown together in the diamicton till. A large boulder near to these inclusions in the natural drift was thought to possibly have a panel of rock art Δ**1** (Photos **45**-**46**).

5.5 The first two sondages showed that the ditch [**125**] around "**45**" does not appear to have been particularly deep, possibly not even cutting through the overlying peat (**121**). However, the post-pads inside the ditch have cut through the subsoil (**123**) and into the natural drift (**124**). This suggests that the post-pads may be more central to the overall concept of this stack stand type than the ditch, and that the ditch may be more of a means to digging or and/or accessing the post-pads than any kind of boundary (Photos **59**-**60**).

5.6 Stack Stand Two, or "44". Circular in plan, with raised centre and surrounding ditch, overall dimensions around 6.6m x 6.5m (Photos **04**-**05**). The NW quadrant was excavated to provide a N-facing section. The excavation measured 3.5m long, 3m wide, oriented N-S (or perhaps closer to NbE-SbW) and was located between NY 80092 70478; NY 80092 70474; NY 80089 70474; NY 80089 70478. Clayey patches noted while deturfing the internal bank (**211**), distinguished as lighter patches against

the darker soil (Photo **22**). A mid brown, sandy silty clay or silty clay with a minor component of sand, the sand being audible rather than textural during hand tests. After removal of Spit 1 [**200**] and Bank Spit 2 [**202**], the internal bank of "**44**" could be seen to be around 1m wide to the north at the W-facing section, and 1.5m wide at the N-facing section and as it approached the W-facing section in a clockwise direction (Photos **19**-**22**). The bank is around 100mm high, in its current state arguably more of a variation in the feature's topography than an actual bank.

5.7 A 1m sondage [**218**] was opened in the SW corner of "**44**", showing the presence of a light sandy subsoil (**216**) below the peaty topsoil (**210**) and the thin buried soil (**212**), and also revealing the cut of the ditch [**215**] filled by two deposits (**213**) (**214**) (Photos **24**, **26**). A 550mm wide deturfed monolith was left upstanding on the north side of the sondage in "**44**" to preserve the full section of the ditch and allow its fills to be sampled. The sondage [**218**] was extended into a trench [**219**] across the excavation, along the N-facing baulk, exposing a section through the ditch, the internal bank and the centre of the stack stand (Photos **37**-**38**, Illus. **3**-**4**). This trench was 450mm deep, the top of the monolith was 120mm deep, and the rest of the excavation was 260mm deep.

5.8 Hand removal of (**202**) showed more sandy material in the bank, including some gravel-sized pieces of burnt stone of varied lithology and a single fist-sized rock with a weathered hinge or step fracture embedded in the ditch material (Photo **22**).

5.9 Iron-panning is also possible in "**44**", the upper surface of the subsoil (**216**) has a "baked" cracked appearance but dark sediment in the cracks appears to be just the overlying deposit (**212**) rather than a ferrous deposit (Photos **34**, **36**).

5.10 Complete List of Contexts

Stack Stand One/"45"

[100] "**45**" **Spit 1.** Group, cut and amount of deposit removed by cut.
[101] "**45**" **Spit 2.** Group, cut and amount of deposit removed by cut.
(102) Cleaning Layer A. Deposit.
[103] "**45**" **Spit 3.** Group, cut and amount of deposit removed by cut.
(104) Cleaning Layer B. Deposit.
[105] Post-Pad A. Cut.
(106) Fill of Post-Pad A. Deposit.
[107] Post-Pad B. Cut.
(108) Fill of Post-Pad B. Deposit.
[109] Post-Pad C. Cut.
(110) Fill of Post-Pad C. Deposit.
[111] Post-Pad D. Cut.
(112) Fill of Post-Pad D. Deposit.
[113] Post-Pad E. Cut.
(114) Fill of Post-Pad E. Deposit.
[115] Post-Pad F. Cut.
(116) Fill of Post-Pad F. Deposit.
[117] Post-Pad G. Cut.
(118) Fill of Post-Pad G. Deposit.

[119] Post-Pad H. Cut.
(120) Fill of Post-Pad H. Deposit.
(121) "45" Topsoil. Deposit.
(122) "45" Relict Surface. Deposit.
(123) "45" Subsoil. Deposit.
(124) "45" Natural Drift. Deposit.
[125] "45" Ditch. Cut.
126 Not Used. Context number not used.
[127] ¿Post-Pad. Cut.
(128) Fill of ¿Post-Pad. Deposit.
[129] Sondage A. Cut.
[130] Sondage C. Cut.

Stack Stand Two/"44"
[200] "44" Spit 1. Group, cut and amount of deposit removed by cut.
[201] "44" Bank Spit 1. Group, cut and amount of deposit removed by cut.
[202] "44" Bank Spit 2. Group, cut and amount of deposit removed by cut.
[203] "44" Spit 2. Group, cut and amount of deposit removed by cut.
[204] "44" Bank Spit 3. Group, cut and amount of deposit removed by cut.
(210) "44" Topsoil. Deposit.
(211) "44" Bank. Deposit.
(212) "44" Relict Surface. Deposit.
(213) "44" Ditch Upper Fill. Deposit.
(214) "44" Ditch Lower Fill. Deposit.
[215] "44" Ditch. Cut.
(216) "44" Subsoil. Deposit.
(217) "44" Natural Drift. Deposit.
[218] Sondage B. Cut.
[219] Trench. Cut.

Description of Contexts
Stack Stand One/"45"
5.11 **[100]** "**45**" **Spit 1.** Spit 1 of "**45**". 100mm thick including present ground level and surface vegetation. Sampled ◊**1**. Photos **08**-**13**.

5.12 **[101]** "**45**" **Spit 2.** Spit 2 of "**45**". 100mm thick. Sampled ◊**3**. Photos **18**.

5.13 **(102) Cleaning Layer A.** Cleaning layer commensurate with base of spit 2 [**101**] in "**45**". 140-250mm bPGL along southern edge of excavation, crossing line of ditch [**125**]. Photo **18**.

5.14 **[103]** "**45**" **Spit 3.** Spit 3 of "**45**". 100mm thick. Sampled ◊**4**.

5.15 **(104) Cleaning Layer B.** Cleaning layer commensurate with base of spit 3 [**103**] in "**45**". *c*300mm bPGL, apparent vesicular clinker recovered from this layer, throughout trench but particularly

concentrated near the southern edge and across or from the fills of the southernmost of the three post-pads at the western end (**106**) (**108**) (**110**). Photos **55**-**61**.

5.16 **[105] Post-Pad A.** Cut of post-pad, northernmost in western row. 700mm long, oriented WbS-EbN, 400-520mm wide, 40-80mm deep. Subrectangular shape in plan, not unlike a shield, tapering towards centre of stack stand "**45**". The base is noticeably divided into an inner and outer half with the outer half being shallower (*c*50mm) than the inner half (*c*60mm). The base is largely flat with some slight undulation, the outer half being flatter than the inner. The sides of the cut are steep, near vertical, with some undercutting around the base, possibly from slumping. Top break of slope is sharp, but this is probably a consequence of truncation during the current excavation. Cuts (**123**) (**124**). Filled by (**106**). Photos **32**, **39-41**, **55-58**, **60-61**. Illus. **2**.

5.17 **(106) Fill of Post-Pad A.** Fill of post-pad [**105**], northernmost in western row. Black, fine clayey silt. Hand tests produce a smooth roll which bends with some cracks, individual particles too small to see. 40-60mm thick. Sampled ◊**5**. Photos **32**, **39-41**, **55-58**, **60-61**. Illus. **2**.

5.18 **[107] Post-Pad B.** Cut of post-pad, centre in western row. 780mm long, oriented WSW-ENE, 270-400mm wide, 40-80mm deep. Subrectangular shape in plan, not unlike a shield, tapering towards centre of stack stand. Sides slope down at 60°. Excavated part of the base has two levels, with the outer being shallower than the inner, and a depression formed in the inner base with a 280mm diameter. Cuts (**123**) (**124**). Filled by (**108**). Photos **32**, **42-44**, **55-58**, **60-61**. Illus. **2**.

5.19 **(108) Fill of Post-Pad B.** Fill of post-pad [**107**], centre in western row. Appears to be of similar composition to fill of Post-Pad A (**106**). Sampled ◊**6**. Photos **32**, **42-44**, **55-58**, **60-61**. Illus. **2**.

5.20 **[109] Post-Pad C.** Cut of post-pad, southernmost in western row. 800mm long, oriented SWbS-NEbN, 190-590mm wide, 80mm deep. Triangular with rounded corners, apex pointing towards centre of stack stand. Appears to be a simple scoop made into the natural drift. A 300mm x 200mm small boulder, which appears to be an inclusion in the natural drift, intrudes 300mm into the SE corner. Some gentle undulation to base which seems to slope gently towards the point of the triangular shape in plan, where there is a shallow oval depression with a raised margin. The depression is 120mm long by 70mm wide, 20mm deep with a 35mm raised margin. Cuts (**123**) (**124**). Filled by (**110**). Photos **32**, **49-51**, **55-58**, **60-61**. Illus. **2**.

5.21 **(110) Fill of Post-Pad C.** Fill of post-pad [**109**], southernmost in western row. Moist, very dark brown to very dark grey-brown (mottled at a mm-scale), brittle to crumbly (working soft), very slightly sandy slightly silty amorphous organic sediment, with abundant rootlets. Sampled ◊**7**. Photos **32**, **49-51**, **55-58**, **60-61**. Illus. **2**.

5.22 **[111] Post-Pad D.** Cut of post-pad, westernmost in southern row. Over 660mm long, obscured by N-facing baulk, oriented N-S, 300-480mm wide. Presumed to be subrectangular shape in plan. Cuts (**123**) (**124**). Filled by (**112**). Photos **55**-**58**, **60-61**. Illus. **2**.

5.23 **(112) Fill of Post-Pad D.** Fill of post-pad [**111**], westernmost in southern row. Unexcavated, presumed to be same composition as other post-pad fills. Photos **55**-**58**, **60-61**. Illus. **2**.

5.24 **[113] Post-Pad E.** Cut of post-pad, second in southern row. Over 660mm long, obscured by N-facing baulk, oriented NNW-SSE, 300-480mm wide. Presumed to be subrectangular shape in plan. Cuts (**123**) (**124**). Filled by (**114**). Photos **55**-**58**. Illus. **2**.

5.25 **(114) Fill of Post-Pad E.** Fill of post-pad [**113**], second in southern row. Unexcavated, presumed to be same composition as other post-pad fills. Photos **55**-**58**. Illus. **2**.

5.26 **[115] Post-Pad F.** Cut of post-pad, third in southern row. Over 780mm long, obscured by N-facing baulk, oriented SEbS-NWbN, 240-300mm wide. Presumed to be subrectangular shape in plan. Cuts (**123**) (**124**). Filled by (**116**). Photos **55**-**58**. Illus. **2**.

5.27 **(116) Fill of Post-Pad F.** Fill of post-pad [**115**], third in southern row. Unexcavated, presumed to be same composition as other post-pad fills. Photos **55**-**58**. Illus. **2**.

5.28 **[117] Post-Pad G.** Cut of post-pad, fourth in southern row. 700mm long, oriented NW-SE, 540mm wide. Ovoid shape in plan. A small boulder, which appears to be an inclusion in the natural drift, intrudes into the E side of the cut. Cuts (**123**) (**124**). Filled by (**118**). Photos **55**-**58**. Illus. **2**.

5.29 **(118) Fill of Post-Pad G.** Fill of post-pad [**117**], fourth in southern row. Unexcavated, presumed to be same composition as other post-pad fills. Photos **55**-**58**. Illus. **2**.

5.30 **[119] Post-Pad H.** Cut of post-pad, easternmost in southern row. 720mm long, oriented NNW-SSE, 200-480mm wide, 40-80mm deep. Subrectangular shape in plan, not unlike a shield, tapering towards centre of stack stand. Appears to be a simple scoop made into the natural drift with a large cobble or boulder, probably an inclusion in the natural drift intruding into the inner margin of the feature. Inner part of cut is deeper (80mm) than outer (40mm). Cuts (**123**) (**124**). Filled by (**120**). Photos **52**-**58**. Illus. **2**.

5.31 **(120) Fill of Post-Pad H.** Fill of post-pad [**119**], easternmost in southern row. Moist, very dark brown to very dark grey-brown, brittle to crumbly (working soft), slightly sandy amorphous organic sediment, with occasional small lenses/inclusions (to 25mm) of light/mid brown, soft (working somewhat plastic), slightly clay silt, and abundant rootlets. Sampled ◊**8**. Photos **52**-**58**. Illus. **2**.

5.32 **(121) "45" Topsoil.** Supports PGL. 230mm thick inside feature. Black/dark brown with horizontal patterning, spongy peat. During hand tests the deposit would impart onto the skin rather than smear and would roll off the skin in small ribbons. When squeezed, the deposit could be felt rebounding from hand pressure, making a low squeaking noise. Crumbles but adheres back together readily. Macroscopic plant fragments are probably just inside the component range of frequency (over 10%). Rare coarse sand particle inclusions but individual soil particles too small to see with naked eye. Lower boundary indistinct, made apparent by weathering and trowelling. Considerable mixing in places, particularly of the horizontal dark brown bands, into the underlying relict surface (**122**). Cut by [**125**].

5.33 **(122) "45" Relict Surface.** 80-100mm thick. *c*240mm bPGL inside feature. Distinct lower boundary. Black or very dark grey, fine sandy silt, during hand tests forms a cracked roll which snaps on bending, silty texture with rare sand glistening. Underlies (**121**). Overlies (**123**). Cut by [**125**].

5.34 **(123) "45" Subsoil.** Mid to dark brown, fine silty clayey sand. 100mm thick. 320mm bPGL. In places, particularly near the S-facing baulk, there are inclusions of very light grey or off white, fibrous material which to the untrained eye resemble the epidermis and/or cortex of plant roots, these occur in fragments which are of large gravel or small pebble size. These are well dispersed and thoroughly embedded in the matrix of the subsoil. Underlies (**122**). Overlies (**124**). Cut by [**105**] [**107**] [**109**] [**111**] [**113**] [**115**] [**117**] [**119**]. Illus. **2**.

5.35 **(124) Natural Drift "45".** Grey, poorly sorted, micaceous, clayey sand. Appears very variable, elsewhere in the same excavation noted as a light grey clayey sand. Occasional sub-round cobble and small boulder inclusions, including Δ**1**. 420mm bPGL. Cut by [**105**] [**107**] [**109**] [**111**] [**113**] [**115**] [**117**] [**119**].

5.36 **[125] "45" Ditch.** The ditch does not appear to have been cut any deeper than the upper surface of the subsoil. A zone of slippage could be felt when trowelling the S-facing baulk on the east side of the ditch cut. The relict surface seems to have been disturbed, but peat initiation and/or overspill from the stack stand interior makes the cut difficult to see. The ditch would presumably have remained open to allow access to the post-pads. The current topography of the PGL has a depression of only *c*100mm over the ditch. Cuts (**121**) (**122**). Illus. **1**.

5.37 **(126) Not Used.** Context number not assigned.

5.38 **[127] ¿Post-Pad.** Round, outlying possible post-pad, obscured by the N-facing baulk. May be a stone-pull rather than a post-pad. Placed outside the arc of the other post-pads between the row of three near the E-facing baulk and the five along the N-facing baulk. Illus. **2**.

5.39 **(128) Fill of¿Post-Pad.** Unexcavated, appears to be the same as the other post-pad fills in "**45**". Illus. **2**.

5.40 **[129] Sondage A.** 500mm wide sondage [**129**] dug inside the W-facing baulk, centred on the ditch [**125**], 600mm from the SE corner. The sondage may have removed evidence of a ninth post-pad, as due to time constraints trowelling back was not yet complete when it was dug, an oversight. However, this point would also be a convenient location for an entrance into the centre of the stack stand, being located at the narrow point identified before work began. Photos **47**-**48**. Illus. **2**.

5.41 **[130] Sondage C.** A 1m sondage extension [**130**] dug into the S-facing baulk, 600mm from the NE corner, to investigate an alignment of three large cobbles, which appeared to just be inclusions in the natural drift thrown together in the diamicton till (**123**). Photos **56**-**59**. Illus. **1**-**2**.

Stack Stand Two/"44"

5.42 **[200] "44" Spit 1.** Spit 1 from centre of "**44**". 100mm thick including present ground level and surface vegetation. Sampled ◊**20**. Photos **07**, **14**-**17**, **19**-**22**, **31.**

5.43 **[201] "44" Bank Spit 1.** Spit 1 from internal bank of "**44**". 100mm thick including present ground level and surface vegetation. Sampled ◊**21**. Photos **06**-**07**.

5.44 **[202] "44" Bank Spit 2.** Spit 2 from internal bank of "**44**". 100mm thick. Sampled ◊**22**. Photo **31**.

5.45 **[203] "44" Spit 2.** Spit 2 from centre of "**44**". 100mm thick. Sampled ◊**23**. Photo **31**.

5.46 **[204] "44" Bank Spit 3.** Spit 3 from internal bank of "**44**". 100mm thick. Sampled ◊**24**. Photo **31**.

5.47 **(210) "44" Topsoil.** Supports PGL. 120mm thick over bank, 200mm thick elsewhere. Black, spongy peat. During hand tests the deposit would impart onto the skin rather than smear and would roll off the skin in small ribbons. When squeezed, the deposit could be felt rebounding from hand pressure, making a low squeaking noise. Crumbles but adheres back together readily. Macroscopic plant fragments are probably just inside the component range of frequency (over 10%). Rare coarse sand particle inclusions but individual soil particles too small to see with naked eye. Overlies the bank (**211**), the relict surface (**212**) and the upper fill of the ditch (**213**). Lower boundary not particularly distinct, although there is little or no mixing. Photos **06**-**07**, **19**-**26**, **29**-**31**, **33**-**38**. Illus. **3**-**4**.

5.48 (**211) "44" Bank.** Clearly chiefly composed of redeposited subsoil (**216**) and natural drift (**217**) assumed to be upcast from the ditch [**215**]. Any sod that was used in the construction of the bank must have been incorporated into the topsoil during soil formation or peat initiation and cannot be distinguished as part of the bank. Most visible in the N-facing baulk, where it presents as a 185mm thick deposit of yellow sandy sediment (natural drift) with some adhering brown sediment (subsoil). This section through the bank has a lateral extent of 960mm including a palm-sized outlying blob of brown subsoil on the inside (E) of the bank, separated from the main body of the bank by *c*100mm. The bank deposit has a very clear lower boundary, lying directly on the underlying relict surface (**212**) with drift- and subsoil-derived material in direct contact and no apparent remains of redeposited sod or turf on this part of the lower boundary. Deposit is firm, giving only around 1mm to finger pressure. 50-185mm thick, 100-150mm bPGL. Photos **06**-**07**, **19**-**22**, **31**, **37**-**38**. Illus. **4**.

5.49 **(212) "44" Relict Surface.** Black/dark brown in colour. Very similar in texture to the topsoil (**210**), but with less adhesion during hand tests. 60mm thick in the centre of the stack stand but under the outer part of the bank the upper boundary can be seen to slope up by 45° over a 50mm distance to become 120mm thick under the outer part of the bank. Outside the ditch this deposit appears to be only around 60mm thick, so it seems unlikely that the 60mm thickness of the deposit inside the bank has been compressed by the use of the stack stand, although the area outside the ditch may also have been compressed by footfall converging on the stack stand during its use. Distinct upper and lower boundaries showing no mixing with the overlying bank or subsoil material, possibly some minimal mixing with the topsoil. Underlies (**210**) and (**211**). Overlies (**216**). Cut by [**215**]. 170mm bPGL. Photos **20**, **25**-**30**, **37**-**38**. Illus. **4**.

5.50 **(213) "44" Ditch Upper Fill.** Dark brown, very similar in texture to the other, stratigraphically higher peaty soils, but more pliable with a higher clay content. Shape in section can be described as a plano-convex, having a flat upper surface and no defined top or basal break of slope. Similar level of

root penetration to topsoil. 390-490mm wide between sides of cut with base gradually narrowing to nothing. 130-180mm thick. 120mm bPGL. Underlies (**210**). Overlies (**214**). Fill of [**215**]. Sampled ◊**25**. Photos **22**-**26**, **34**-**38**. Illus. **3**-**4**.

5.51 **(214) "44" Ditch Lower Fill.** Light grey-brown, silty fine clayey sand or fine clayey sand with minor component of silt. Concave upper surface, double convex base. Probably the primary fill of the ditch [**215**], created by the slumping of the freshly cut sides, largely from the subsoil (**216**), as the topsoil was presumably too fibrous and cohesive to fall in. *c*280mm bPGL. 65-190mm thick. Underlies (**213**). Fill of [**215**]. Sampled ◊**26**. Photos **22**-**26**, **37**-**38**. Illus. **3**-**4**.

5.52 **[215] "44" Ditch.** In plan the ditch seems to be a polygonal shape (with sides) rather than a round shape. Seen in the S-facing baulk of the extended sondage the sides of the cut slope down at 45°, but in the N-facing baulk they slope down at 60° with at least the inner side being slightly concave. The top break of slope is not very apparent in section, due to ground conditions and root penetration, but could be considered reasonably distinct and sharp. The basal break of slope is gradual and rounded, flowing into the double convex base which has a 25-35mm rise and fall. 400-500mm wide at top, c260mm wide at base, 230-250mm height in section through both fills. 120mm bPGL. Cuts (**212**) (**216**) (**217**). Photos **22**-**26**, **37**-**38**. Illus. **3**-**4**.

5.53 **(216) "44" Subsoil.** Light grey-brown, fine clayey sand. Very distinct upper boundary. Upper surface has a "baked" cracked appearance but dark sediment in the cracks appears to be just the overlying deposit rather than a ferrous deposit. Reasonably distinct lower boundary. 70-120mm thick. 200-250mm bPGL. Two posthole-like possible features were recorded in plan after the first trowel cleaning, against the cut [**215**] of the ditch, but subsequently disappeared due to further cleaning and weathering, they were assumed to be disturbances in the subsoil. Cut by [**215**]. Underlies (**212**). Overlies (**217**). Photos **31**, **35**-**36**. Illus. **3**.

5.54 **(217) "44" Natural Drift.** Light brown-yellow, fine clayey sand. Thickness unknown. 390mm bPGL. Photos **23**-**30**.

5.55 **[218] Sondage B.** Following the excavation of spits [**200**] and [**201**], a 1m sondage was excavated in the corner of "**44**" between the N-facing and E-facing baulks, down to the natural drift (**217**). This cut the ditch and fills of "**44**" and was subsequently expanded across the N-facing baulk of the excavation into Trench [**219**]. Photos **19**-**30**. Illus **3**.

5.56 **[219] Trench.** Trench opened along the N-facing baulk of "**44**" by extending the sondage [**218**] in an eastern direction. Photos **37**-**38**. Illus. **3**-**4**.

6 Palaeoenvironmental Remains by **John Carrott**

6.1 Palaeoenvironmental Summary. Six sediment samples, from deposits encountered during an investigation of stack stands and associated features at Sewingshields Farm, Haydon Bridge, Hexham, Northumberland, were submitted for an assessment of their bioarchaeological potential. Two of the samples were from the upper and lower fills of a ditch associated with Stack Stand "**44**", and two were from spits 1 and 3 collected from the centre of Stack Stand "**45**" with the final two from the fills of an associated post-hole/post-pad.

6.2 Although all of the deposits assessed were highly organic to visual inspection this content proved to consist largely of fully humified material reduced to indeterminate detritus. More substantial plant remains from all of the samples were predominantly of rootlet with those from context (**100**) (spit 1; Stack Stand 45) also including some more "woody" root fragments and appreciable quantities of "fresh vegetative matter" in the form of grass (and other plant) leaves and moss "stems and leaves", macrofossil records for tormentil and bog myrtle, and pollen/spores of these taxa and also (¿yellow) iris, (¿Cross-leaved) heath and ferns. Overall, the range of plant taxa recorded from context (**100**) was entirely in-keeping with the present day wet moor/heathland vegetation of the site. The dearth of macrofossil remains from the other five samples precluded any comparison with context (**100**) but the microfossil assemblages were a little more informative indicating that the vegetation of the area has remained essentially the same throughout the time period represented by the deposits.

6.3 The only macrofossil records of note from deposits other than context (**100**) were trace levels of fine charcoal from the lower ditch fill and one of the fills of the post-hole/post-pad. These seem most likely to represent fuel waste from human activity (given their presence within archaeological feature) but the possibility of incorporation of charred material resulting from natural fires during the cutting of the ditch and post-hole/post-pad cannot be entirely discounted. In any case, the tiny, "background level", quantities of almost entirely indeterminate fragments were insufficient to be of any further interpretative value. No mollusc or vertebrate remains were recovered, no artefacts were present, and there were no remains considered suitable for submission for radiocarbon dating of the deposits.

6.4 Detailed analysis of the microfossils present would almost certainly identify additional plant taxa but, on the current evidence, it seems unlikely that this would provide anything more than a refinement of the interpretations of this assessment and a confirmation of a continuous, relatively unchanged, environmental history characterised by wet moor/heathland.

6.5 Palaeoenvironmental Introduction. An investigation of stack stands and associated features was carried out by Tynedale North of the Wall Archaeology Group (NOWTAG) and Border Reivers Archaeology Unit (BRAU) at Sewingshields Farm, Haydon Bridge, Hexham, Northumberland (approximate NGR NY 809 702), between the 6 June and the 10 June 2022.

6.6 A number of stack stands, thought to be agricultural drying structures which exhibit a variety of shapes and sizes, had been identified on Sewingshields Farm by aerial photography. Some appeared to have indications of small pits within a surrounding ditch, and the current works investigated two contrasting stack stands, including one with "pits". The two stack stands selected were one which was sub-rectangular and ditched (the "eastern" Stack Stand "**45**") and one which was sub-circular and banked (the "western" Stack Stand "**44**"). No definitive dating evidence was recovered but the

excavation of Stack Stand "**45**" revealed a stone bearing a probable cup-mark and adjacent groove which may be late Neolithic/early Bronze Age rock art.

6.7 Six sediment samples ("GBA" sensu Dobney *et al* 1992), from the upper and lower fills of a ditch associated with Stack Stand "**44**", two spits (numbers 1 and 3) from the centre of Stack Stand "**45**" and two from the fills of an associated post-hole/post-pad, were submitted to Palaeoecology Research Services Ltd (PRS), Kingston upon Hull, for an assessment of their bioarchaeological potential.

6.8 Palaeoenvironmental Methodology. The lithologies of the submitted sediment samples were recorded using a standard *pro forma*. Subsamples were then processed for the recovery of plant, invertebrate and vertebrate remains (macrofossils), broadly following the techniques of Kenward *et al* (1980), producing a residue and a washover for each. Paraffin flotation, for the separation of insect and other non-molluscan invertebrate remains from waterlogged plant material, was not employed in order to avoid contamination of any potential radiocarbon dating material with fossil hydrocarbons.

6.9 All of the deposits contained uncharred organic remains and the washovers were kept wet and examined for macrofossils using a low-power microscope (x7 to x45 magnification).

6.10 There was no separate mineral residue fraction from five of the six samples; although the washovers from all bar context [**100**] contained a trace level of fine sand. The exception was context (**214**) from which the residues was essentially mineral in nature and was dried prior to separation into two fractions (using a 1mm sieve) to facilitate the sorting and recording of its components. The weight and description of the dry residue was recorded after sorting. Weights and descriptions of inorganic and environmental material refer to the larger pieces which have been extracted and reserved; smaller fragments remain in the residues and are not included. All remains (biological and artefactual) were sorted to 1mm and the less than 1mm fraction retained unsorted. The residue (including the less than 1mm fraction) was scanned for magnetic material.

6.11 The processed sample fractions were scanned until no new remains were observed and a sense of the abundance of each taxon or component (relative to the processed fraction sizes as a whole) was achieved and these were recorded either as counts or using a five-point semi-quantitative scale as: 1 – few/rare, up to 3 individuals/items or a trace level component of the whole; 2 – some/present, 4 to 20 items or a minor component; 3 – many/common, 21 to 50 or a significant component; 4 – very many/abundant, 51 to 200 or a major component; and 5 – super-abundant, over 200 items/individuals or a dominant component of the whole. The rather substantial washovers were only partly sorted given the time and financial constraints of assessment; as far as possible these fractions were checked until no new taxa were recorded in two consecutive aliquots (each approximately 10ml) after a minimum of 10 had been examined and the semi-quantitative scores were felt to be stable. The abundance of recovered organic and other remains within the sediments as a whole may be judged by comparing the washover volume and residue weight (where applicable) with the size of the processed sediment samples.

6.12 Plant macrofossil remains were compared with modern reference material (where possible) and with published works (e.g. Cappers *et al* 2006), and identified to the lowest taxon possible or necessary to achieve the aims of the project. Nomenclature for plant taxa follows Stace (1997).

6.13 Species identifications were attempted for a small number of charcoal fragments (of 4mm in at least one linear dimension) recovered. Pieces were broken to give clean cross-sectional surfaces and the anatomical structures were examined using a low-power binocular microscope (x7 to x45) and higher magnification where necessary (x100 and x150). Identifications were attempted by comparison with modern reference material where possible, and with reference to published works (principally Hather 2000 and Schoch *et al* 2004).

6.14 Invertebrate identifications were attempted with reference to published works (e.g. for beetles, Tottenham 1954; Crowson 1956) and within the constraints of an assessment. Nomenclature follows Kloet and Hincks (1964-77).

6.15 No mollusc or vertebrate remains were recovered from the samples.

6.16 A small subsample (of approximately 1ml) of sediment was extracted from each sample for examination for microfossils. These were investigated using the 'squash' technique of Dainton (1992), originally designed specifically to assess the content of eggs of intestinal parasitic nematodes; however, this method routinely reveals other microfossils, such as pollen and diatoms, which were the primary focus of the investigations here. The slides were scanned at x150 magnification and at x600 where necessary. Provisional identifications for pollen grains and spores were made by comparison with modern reference material and the use of published works (principally Moore *et al* 1991). Determination of the presence/absence of diatoms, their numbers (counts or semi-quantitative scale as above), an estimation of the minimum number of different forms represented and some provisional genus level identifications were made with reference to published works (Barber and Haworth 1981; Hartley *et al* 1996). Semi-quantitative abundances were recorded as outlined above for the macroscopic remains.

6.17 During recording, consideration was given to the identification of suitable remains (if present) for possible submission for radiocarbon dating by standard radiometric technique or accelerator mass spectrometry (AMS).

6.18 Palaeoenvironmental Results. The results of the investigation of the samples are presented below in context number order by feature. Information, provided by the excavator, is given in square brackets. A summary of the processing and an estimate of the remaining volume of unprocessed sediment follows (in round brackets) after the sample numbers.

Stack Stand One/"45"

6.19 Context [100]. Spit 1 from centre of stack stand. Sample ◊**1**/T (0.5kg/2 litres sieved to 300 microns with washover and microfossil 'squash'; approximately 5 litres of unprocessed sediment remain)

6.20 Moist, very dark grey-brown, unconsolidated and fibrous (from abundant rootlet, seedlings and moss fragments), amorphous organic sediment – there was, however, little sediment matrix as much of this markedly un-dense sample was composed of the 'fresh' vegetative matter.

6.21 The very large washover (~1000ml) was mostly composed of rootlet and plant detritus (probably also derived from rootlet) – both score 5 – with frequent moss 'stems and leaves', grass (Poaceae) leaves and small 'crumbs' of undisaggregated organic sediment (all score 3). There were also a few leaf fragments of other taxa, dicotyledonous plant seedlings and more substantial 'woody'

root fragments (to 25mm; diameter to 9mm) – all score 1. 'Seeds' (i.e. actual seeds and other similar plant structures) were quite numerous (score 3), with most being cinquefoil (*Potentilla*) seeds and the majority of these being tormentil (*Potentilla erecta* (L.) Raeusch. – the surfaces of some of the seeds were rather eroded which precluded a species level identification). There was also some fruits of bog myrtle (score 2) and less well preserved remains of at least two other plant taxa (each score 1 – one or two *perhaps* identifiable to further study). Small numbers of invertebrates were present including beetle (Coleoptera) remains (score 2 – predominantly non-diagnostic abdominal sclerites (score 2) but with occasional wing cases (elytra; score 1) including at least one from a rove beetle (Staphylinidae) which *may* be identifiable to species by further study), mites (Acarina; score 2), a few ¿fly puparia fragments (score 1) and earthworm (Oligochaeta) egg capsules (score 2).

6.22 There was no separate mineral residue fraction from this sample.

6.23 The 'squash' subsample was mostly plant tissue fragments (score 5) and organic detritus (score 5), with only a trace level of inorganic content (<1%). Fragments of fungal hyphae (score 2) and fungal spores (score 3) were noted, with the latter representing at least two different forms, and there were a few soil-dwelling nematodes (both living and dead; score 1 each) and indeterminate fragments of microscopic invertebrate cuticle (score 1), and occasional phytolith fragments (score 2; all grass-type). Pollen grains (score 3) were frequent with most being of cinquefoil (*Potentilla*)-type, grass (Poaceae)-type and iris (¿yellow iris) – all score 2 – with lesser numbers (each score 1) of bog myrtle and heath (¿Cross-leaved heath – cf. *Erica tetralix* L.) and fern spores. There were also a small number of diatoms (score 2) – the frustules were poorly preserved with most being broken but at least two different *Pinnularia* species and one *Amphora* species were represented (each by one or two individuals).

6.24 Context [103]. Spit 3 from centre of stack stand. Sample ◊**4**/T (1kg/~1 litres sieved to 300 microns with washover and microfossil 'squash'; approximately 5 litres of unprocessed sediment remain).

6.25 Moist to wet, very dark brown to very dark grey-brown (mottled at a mm-scale), brittle to crumbly (working soft), slightly sandy silty amorphous organic sediment, with abundant rootlets.

6.26 The medium-sized washover (~350ml) was mostly composed of rootlet and plant detritus (probably also derived from rootlet) – both abundance score 5 – with abundant small 'crumbs' of undisaggregated organic sediment (to 2mm; score 4), and a trace of fine sand (score 1).

6.27 There was no separate mineral residue fraction from this sample.

6.28 The 'squash' subsample was mostly organic detritus (score 5; including some plant tissue fragments, score 2), with only a trace level of inorganic content (<1%). There were some fragments of fungal hyphae (score 2) and a few fungal spores (score 1; all of one form), together with a few phytolith fragments (score 1; all grass-type). Pollen grains (score 3) were frequent with most being of cinquefoil (*Potentilla*)-type, grass (Poaceae)-type, bog myrtle and heath (¿Cross-leaved heath) – all score 2. There were also a few pollen grains which could only be tentatively identified as ¿alder (cf. *Alnus*; score 1) as they were markedly less well preserved than those of other taxa (heavily eroded).

6.29 Context (110). Fill of post-hole/post-pad [**119**]. Sample ◊**7**/T (1kg/~1.5 litres sieved to 300 microns with washover and microfossil 'squash'; approximately 6 litres of unprocessed sediment remain).

6.30 Moist, very dark brown to very dark grey-brown (mottled at a mm-scale), brittle to crumbly (working soft), very slightly sandy slightly silty amorphous organic sediment, with abundant rootlets.

6.31 The fairly small washover (~200ml) was mostly composed of rootlet and plant detritus (probably also derived from rootlet) – both score 5 – with frequent small 'crumbs' of undisaggregated organic sediment (to 2mm; score 3), a trace of fine sand (score 1), a little rectilinear charcoal (to 4mm but mostly less than 2mm; score 2), and a few earthworm egg capsules (score 1). The two largest charcoal fragments were examined more closely – one crumbled and remained indeterminate and the other was of a diffuse-porous species but could not be identified more closely.

6.32 There was no separate mineral residue fraction from this sample.

6.33 The 'squash' subsample was mostly organic detritus (score 5; including a few plant tissue fragments, score 1), with only a trace level of inorganic content (<1%). There were some fragments of fungal hyphae and fungal spores (both score 2; the latter of a least two different forms) and also a few phytolith fragments (score 1; all grass-type). The frequent pollen grains (score 3) were mostly of grass (Poaceae)-type and bog myrtle – both score 2 – with a few of heath (¿Cross-leaved heath), ¿nettle and ¿alder (all score 1); the two last only provisionally identified owing to relatively poor preservation (rather heavily eroded). There were also a few fern spores (score 1).

6.34 Context (120). Fill of post-hole/post-pad [**119**]. Sample ◊**8**/T (1kg/~1.5 litres sieved to 300 microns with washover and microfossil 'squash'; approximately 5 litres of unprocessed sediment remain)

6.35 Moist, very dark brown to very dark grey-brown, brittle to crumbly (working soft), slightly sandy amorphous organic sediment, with occasional small lenses/inclusions (to 25mm) of light/mid brown, soft (working somewhat plastic), slightly clay silt, and abundant rootlets.

6.36 The medium-sized washover (~375ml) was mostly composed of rootlet and plant detritus (probably also derived from rootlet) – both score 5 – with frequent small 'crumbs' of undisaggregated organic sediment (to 2mm; score 3), a trace of fine sand (score 1), and a little indeterminate rectilinear charcoal (to 3mm but mostly less than 2mm; score 2).

6.37 There was no separate mineral residue fraction from this sample.

6.38 The 'squash' subsample was mostly organic detritus (score 5; including a few plant tissue fragments, score 1), with only a trace level of inorganic content (<1%). There were also some fragments of fungal hyphae and fungal spores (both score 2; the latter of at least two different forms), together with a few indeterminate fragments of microscopic invertebrate cuticle (score 1). Pollen grains (score 2) were noted with most being of lousewort or marsh lousewort (score 2), together with smaller numbers (all score 1) of grass (Poaceae)-type, heath (¿Cross-leaved heath) and iris (¿yellow iris).

Stack Stand Two/"44"

6.39_Context (213). Upper fill of ditch. Sample ◊**25**/T (1kg/~1.5 litres sieved to 300 microns with washover and microfossil 'squash'; approximately 5 litres of unprocessed sediment remain).

6.40 Moist, dark brown to dark grey-brown (mottled at a mm-scale), brittle to crumbly (working soft), slightly sandy slightly silty amorphous organic sediment, with abundant rootlets.

6.41 The rather large washover (~450ml) was mostly composed of rootlet and plant detritus (probably also derived from rootlet) – both abundance score 5 – with abundant small 'flecks' of undisaggregated organic sediment (to 1mm; score 4), and a trace of fine sand (score 1).

6.42 There was no separate mineral residue fraction from this sample.

6.43 The 'squash' subsample was mostly organic detritus (score 5; including some plant tissue fragments, score 2), with only a trace level of inorganic content (<1%). There were frequent fragments of fungal hyphae (score 3) and some fungal spores (score 2; not identified but of at least two different forms), together with a few indeterminate fragments of microscopic invertebrate cuticle (score 1). Pollen grains (score 3) were quite numerous with most being of cinquefoil (*Potentilla*)-type, grass (Poaceae)-type and bog myrtle (*Myrica gale* L.) – all score 2 – with lesser numbers (each score 1) of lousewort (*Pedicularis sylvatica* L.) or marsh lousewort (*P. palustris* L.), nettle (*Urtica* sp.), iris (¿yellow iris – cf. *Iris pseudacorus* L.) and trilete moss (Bryophyta; cf. *Sphagnum*) spores.

6.44 Context (214). Lower fill of ditch. Sample ◊**26**/T (1kg/~1 litre sieved to 300 microns with washover and microfossil 'squash'; approximately 5 litres of unprocessed sediment remain).

6.45 Moist to wet, brittle to crumbly (working soft), mix of very dark brown amorphous organic sediment and light/mid grey-brown slightly sandy clay silt, with abundant rootlets.

6.46 The fairly small washover (~175ml) was mostly composed of rootlet and plant detritus (probably also derived from rootlet) – both score 5 – with abundant small 'crumbs' of undisaggregated organic sediment (to 2mm; score 4), a trace of fine sand (score 1), and a little indeterminate rectilinear charcoal (to 3mm but almost all less than 2mm; score 2).

6.47 The tiny residue (dry weight 69.1g: >1mm – 13.8 g; <1mm – 55.3g) was mostly sand (score 5; almost all of the less than 1mm fraction but this did contain occasional (score 2) black flecks of charcoal (to 1mm) – not sorted), with some stones (to 25mm; score 2). There was no magnetic component to the residue.

6.48 The 'squash' subsample was mostly organic detritus (score 5; including a few plant tissue fragments, score 1), with a little inorganic content (5-10%). Occasional fragments of fungal hyphae (score 2) were present and there were a few fungal spores (score 1; all appeared to be of a single form). Pollen grains (score 2) were present and all of grass-type and spores were similarly restricted in both numbers and diversity with most being from ferns (*Polypodium*; score 2) with just a few trilete remains from moss (cf. *Sphagnum*; score 1).

6.49 Palaeoenvironmental Discussion. Although all of the deposits assessed were highly organic to visual inspection this content proved to consist largely of fully humified material reduced to indeterminate detritus. More substantial plant remains from all of the samples were predominantly of rootlet with those from context (**100**) (spit 1; Stack Stand "**45**") also including some more "woody" root fragments and appreciable quantities of "fresh vegetative matter" in the form of grass (Poaceae; and occasional other taxa) leaves and moss (Bryophyta) "stems and leaves".

6.50 The "fresh" material from context (**100**) appears to represent the current vegetation at the site and the seeds and fruits identified indicate that the wetland species tormentil (*Potentilla erecta* (L.) Raeusch.) and bog myrtle (*Myrica gale* L.) were also components of this. There were also small numbers of invertebrate remains, but these were too few to be of any great interpretative value and included some which are excluded from interpretation owing to their potentially intrusive nature (i.e. earthworm – Oligochaeta – egg capsules).

6.51 Pollen from context (**100**) provided further evidence for grasses, bog myrtle and cinquefoils (*Potentilla*) and additional wetland plants including iris (¿yellow iris – cf. *Iris pseudacorus* L.)) and heath (¿Cross-leaved heath – cf. *Erica tetralix* L.), and there were also a few fern (*Polypodium*) spores. Occasional, rather poorly preserved, diatom frustules provided a little supporting evidence of the prevailing wet ground conditions.

6.52 Overall, the range of plant taxa recorded from context (**100**) was entirely in-keeping with the present day wet moor/heathland vegetation of the site; although it should be noted that pollen/spores may be transported considerable distances (by wind and water) and are, therefore, typically taken as indicative of the wider landscape.

6.53 Comparison of the present and past vegetation of the site via the macrofossil assemblages recovered from context (**100**) and the other sampled deposits was precluded by the dearth of remains from the latter. The only macrofossil records of note from deposits other than context (**100**) were the trace levels of fine charcoal from context (**214**) (lower fill of ditch; Stack Stand "**44**") and context (**110**) (fill of post-hole/post-pad [**119**]; Stack Stand "**45**"). These seem most likely to represent fuel waste from human activity (given their presence within archaeological feature) but the possibility of incorporation of charred material resulting from natural fires during the cutting of the ditch and post-hole/post-pad cannot be entirely discounted. In any case, the tiny, "background level", quantities of almost entirely indeterminate fragments (only a single piece from context (**110**) could be partially identified as of a diffuse-porous species) were insufficient to be of any further interpretative value. The sample from context (**214**) was the only one of the six assessed to yield a tiny separate mineral residue fraction. This contained occasional black flecks of charcoal (sub-1mm) but no other biological or artefactual remains (in fact no artefacts were recovered from any of the samples). There was certainly no evidence of dumping of waste or deliberate backfilling of the ditch, nor of any significant collapse, and the feature appears to have infilled gradually over time through essentially natural processes.

6.54 Comparison of the microfossil assemblages was a little more informative indicating that the vegetation of the area has remained essentially the same throughout the time period represented by the deposits. Cinquefoil- and grass-type pollens (but none of the latter identified as cereals) typically predominated, with bog myrtle (*Myrica gale*), heath (¿Cross-leaved Heath) and iris (¿yellow iris) regularly recorded, from the upper and lower ditch fills (contexts (**213**) and (**214**), respectively; Stack Stand "**44**") there were occasional trilete moss (Bryophyta; cf. *Sphagnum*) spores, and from contexts (**204**) and (**110**) a few fern (*Polypodium*) spores. There were no definitive records for anything more than herbaceous vegetation but contexts (**103**) (spit 3; Stack Stand "**45**") and (**110**) both contained a few, poorly preserved, pollen grains tentatively identified as ¿alder (cf. *Alnus*). As noted above, these

may indicate the presence of alder trees in the wider landscape rather than the immediate locale; their poor condition perhaps being a reflection of this.

6.55 None of the charcoal recovered from contexts (**110**) and (**214**) could be considered suitable for submission for radiocarbon dating of the deposits – owing to none of the fragments being identified to species and all being of an indeterminate number of years of wood growth and, therefore, subject to the "old wood" problems whereby any date returned may be significantly earlier than that of deposition. Furthermore, both the quantities recovered and the sizes of individual fragments were very small and there would, therefore, be considerable doubt regarding the extension of any dates returned to the deposits as a whole – particularly given the presence of intrusive rootlet and the resultant possibility of bioturbation and displacement of individual small remains. The sediments as a whole were highly organic so that submission of 'whole earth' subsamples for radiocarbon dating could have been considered – however, the ubiquitous and integrated intrusive rootlet precludes this possibility.

6.56 Palaeoenvironmental Recommendations. This assessment has shown that the deposits considered here have no potential for investigation or radiocarbon dating via macrofossil remains.

6.57 Detailed analysis of the microfossils present would almost certainly identify additional plant taxa but, on the current evidence, it seems unlikely that this would provide anything more than a refinement of the interpretations of this assessment and a confirmation of a continuous, relatively unchanged, environmental history characterised by wet moor/heathland. If, however, such detailed study (principally of pollen/spores) is deemed worthwhile then it would be highly desirable to undertake this on subsamples extracted from a continuous column sample sequence though the deposits rather than from the bulk sediment samples currently available.

6.58 All of the current material should be retained, for the present at least, pending a decision by the excavator regarding any further analysis to be undertaken.

7 Finds

7.1 Lithics by **Kristian L.R. Pedersen (BRAU).** This is a short report on the two lithic specimens collected from context (**202**) during the stack stand excavations at Sewingshields (Photo **65**). The specimens are both produced in flint: the first, and most interesting, is a fragment of a blade. Manufacture of blades is typical of the Late Palaeolithic and Mesolithic, but small blades are known to have been produced in the Early Neolithic until around 3600 BC. It is therefore most probable that the blade derives from the Mesolithic, but insofar as it is broken, its metrical attributes and characteristics—such as whether it is a narrow or a broad blade—cannot be established. It is noteworthy that flint does not occur naturally anywhere in the vicinity and must perforce have been transported to the site by human agency. The nearest source of flint is the North Sea coast, where small flint pebbles wash ashore; the same occurs on the coast near the Solway Firth. Primary deposits of flint occur in Yorkshire and southward, but without a geochemical characterisation of the flint, the origins of this material must remain supposition.

7.2 The second specimen is a fragment from the reduction of a flint pebble for the production of a tool, known as dèbitage. Such material is rarely attributable to a specific industry or method of reduction known as the *chaîne opératoire*. We are therefore not in a position to even suggest that it is contemporaneous with the above-mentioned blade fragment. Nevertheless, the occurrence of flint on the site is unequivocal evidence of prehistoric human occupation, and it is likely that in the vicinity of these finds there were pits, hearths, and other anthropogenic features which may or may not survive.

7.3 Possible Rock Art. Opinion was divided on whether the boulder uncovered in stack stand "**45**" was displaying a SE-facing panel of rock art, a double cup mark or cup mark and adjacent groove that could be described as forming a phallic or ithyphallic shape (Photos **45**-**46**). If the markings are anthropogenic rather than natural they would be characteristic of the rock art style usually ascribed to the Late Neolithic/Early Bronze Age (2500BC-2000BC). Nonetheless, even if the panel was created by geological rather than anthropogenic processes it may have still been recognised in prehistory as a phallic or ithyphallic symbol in the same manner that the excavators identified it, using the facility of symbolic thinking or aesthetic sense, in a similar way to the Makapansgat pebble or the Erfoud manuport.

7.4 Most of the upland peat formed in the Bronze Age, so the possibility exists that the peat overlies a relict Neolithic ground surface. Soils at this point in time were very thin, especially in the upland environments, and prone to leaching. The relict surface (**122**) was only 80-100mm thick, and the underlying subsoil (**123**) a mere 100mm thick, allowing a boulder in the natural drift (**124**) to potentially protrude through a previous ground level, potentially Neolithic in date (Photos **55**-**59**).

7.5 Ferrous and Pyrotechnological Residues by **Dr T.P. Young.** The investigated materials comprised two samples (from contexts (**102**) and (**104**)) of iron oxy-hydroxides (bog iron ore) in a peaty matrix. The mineralisation forms dark-coloured linings to pore spaces and coatings on decomposed plant material, with a fine-scale botryoidal texture. The mineralisation also has some zones of a yellow-brown colour with a more granular texture. The samples also include small stones of exotic origin (presumably derived from glacial drift). The peaty sample (**102**) produced two small fragments of mica schist that have been split probably by pedogenic mineral growth (Photo **64**). Isolated stones from context (**202**) include two also with a probable metamorphic origin (one also schistose, one of quartz),

together with a tiny fragment of apparently burnt chert/flint (Photo **65**). This chert piece might be debitage, but all other materials were of an entirely natural origin (see lithics section).

7.6 Residues Methodology. All materials were examined visually, using a low-powered binocular microscope where required. As an assessment, the materials were not subjected to any high-magnification optical inspection, nor to any form of instrumental analysis. The identifications of materials in this report are therefore necessarily limited and must be regarded as provisional. This assessment was conducted in July 2022 and was commissioned by Border Reivers Archaeology Unit.

7.7 Results: Materials from Context (102). This sample comprised approximately 400g of very porous low-density indurated lumps after washing to remove adhering peat and drying. These porous materials were dominantly of a yellow-brown colour, locally with a thin, very dark brown crust. The yellow-brown material has a crudely granular surface texture (Photo **62**), that appears to be combination of an internal structure with voids partially occluded by a radially-fibrous cement of iron oxide minerals (forming rounded masses of <2mm), with shrinkage cracks produced by the washing and drying process.

7.8 The surface of the yellow-brown material is commonly coated with a thin crust (<2mm) of much darker iron oxide minerals, with a similar fine-scale botryoidal structure. The material is penetrated by roots and other debris of vegetation.

7.9 This sample also contained two examples of mica schist fragments (presumably derived from boulder clay), one 10mm across, the other 15mm (Photo **64**). In both cases, the originally planar fragments had been bloated into rounded lumps with softer material, probably neomorphic iron minerals and plant roots, forming the core.

7.10 Results: Materials from Context (104). This was a small collection of approximately 140g (after washing and drying). This material is similar in character to that from (**102**) but appears to have a higher proportion of the dark crusts.

7.11 The dark crusts can, in some instances, be seen to be coatings on organic matter (Photo **63**). The moulds of the organic material provide this lithology with its high porosity.

7.12 The crusts show cracking from dehydration during drying.

7.13 Results: Materials from Context (202). Three small stones had been extracted from this context (Photo **65**). Two were rounded small pebbles (*c*10mm in diameter), both of probably metamorphic origin (one a schistose rock, the other rather variably-coloured quartz).

7.14 The third piece is a very small fragment of whiteish chert with dehydration fractures, presumably from burning. It is unclear whether this piece is a flint or another variety of chert. Although this could also be a natural material, there is the possibility that it is anthropogenic.

7.15 Residues Conclusion. The majority of the submitted material comprised bulk samples of superficial iron mineralisation. The cracking of the material during drying after washing may suggests

that unstable hydrated mineral (e.g. ferrihydrite; approximate formula: $5Fe_2O_3$, $9H_2O$), or gel, phases may be present. Although iron mineralisation of this form can be hosted in many different sediments and the general term iron pan can be applied, when the medium is a peat, or peaty soil, the term bog iron ore may reasonably be used.

7.16 The iron minerals do not appear to be present in sufficient quantity to make the deposit one that could be exploited as an ore resource, but it is of a form that could be used in that way. Such a deposit may grow within the sediment on a relatively short timescale, certainly within decades. The typical mechanism for formation is oxidation of reduced iron in sediment porewaters during seasonal oxidation, or where water moves between reduced and oxidising environments. Such oxidation reactions may be associated with iron oxidising bacteria in acidic (low pH) environments.

7.17 Regarding further work, the materials (apart from the possible burnt chert fragment) are entirely natural – and thus the materials have little research potential for understanding the archaeology of the site.

8 Discussion

8.1 The main aim of the project was to advance the understanding of local stack stands in terms of their interpretation and chronology. "Local" refers to the area around Hadrian's Wall and the Cumbria-Northumberland county boundary. The stack stands in this area were defined by Ramm et al (1970) as small, circular platforms with a low bank and external ditch and were thought to provide level, dry platforms to stack winter fodder on, keeping it away from animals. Around the Cumbria-Northumberland boundary in particular it has been suggested that hay was made in the past from purple moor-grass (*Molinia caerulea*) which formed a prairie-like grassland north of Hadrian's Wall (Bowyer 2023: 13). By Gates (2004) the stack stand definition had been expanded to include examples as large as 16m in diameter, and of varying shapes including oval, rectangular, square, and D-shaped. Gates (2004: 35) found that in the years after the survey in Ramm et al (1970) little had been added to what we know about the function and dating of stack stands in this part of the country, and only one had been excavated, Kennel Hall Knowe, North Tynedale (NY 667 897) (Charlton and Day 1977).

8.2 In the Yorkshire Dales, stack stands have been studied much more extensively, but there is still no direct archaeological evidence of what they were used for. The stack stands here are usually sub-rectangular platforms with a bank and external ditch, and documentary sources imply that they were constructed as the stances for haystacks, but this is hard to reconcile with the examples that have been excavated. It is thought that the hay was cut and put on stack stands in the fields to dry and store away from the livestock, before being used as winter feed. The documentary sources for the Yorkshire Dales stack stands refers to timber used in the construction of stackgarths, as they are sometimes known locally, but no cut features to support these have been found during excavation. Cobbled surfaces have been found during excavation and are thought to have been the primary surface that the haystack was built on, there may have been an additional wooden frame to raise the haystack and allow air to flow underneath it (Mitcham 2019: 9, 31). White (1997: 77) has suggested that other arable crops could have been stored in addition to hay. The range of variant stack stands in the Yorkshire Dales is explored in the work of Moorhouse (2003; 2009; 2014 cited in Mitcham 2019: 14-15).

8.3 Although no direct archaeological dating evidence has been found in association with the Yorkshire Dales stack stands, they have been relatively dated to the later medieval and earlier post-medieval periods, before eventually being made redundant, possibly by the development of field barns in the seventeenth and eighteenth centuries. Stack stands in the Yorkshire Dales have been found associated with later medieval and early post-medieval field systems, which are overlain by current enclosure patterns that were established in the later eighteenth and nineteenth centuries. These stack stands also overlie earlier medieval cultivation systems, such as ridge and furrow (Home and Macleod 2004: 19; Fell 2011: 7 in Mitcham 2019: 14). Late medieval court rolls from the Yorkshire Dales mention fines levied for illegal stackgarth construction in 1443 and 1462-1468 (Ashcroft and Jones 2009: 488 cited in Moorhouse 2014: 75). Documentary references to stakegarths in Wensleydale continue into the mid-eighteenth century (Mitcham 2019: 16-17). The proliferation of stack stands and other agricultural features may represent the increased number and productivity of private estates following the Dissolution of the Monasteries (1536-1541) (Mitcham 2019: 9, 13).

8.4 The Cumbria-Northumberland stack stands seem to share a similar age range to the Yorkshire Dales stack stands, they can be observed overlying narrow ridge and furrow and the only excavated

example to date, at Kennel Hall Knowe, North Tynedale (NY 667 897), returned a fragment of clay tobacco pipe stem from the ditch fill, of probable eighteenth century date (Charlton and Day 1977 in Gates 2004: 35). It should also be mentioned that the three Cornish stack stands excavated in the 1940s by C.K. Croft Andrew also failed to return any datable finds (Christie and Rose 1987: 184).

8.5 Multiple theories have been advanced on the purpose of stack stands. Gates (1999) realised that it was problematic to interpret the Cumbria-Northumberland stack stands as being built for haystacks when many are remote from farmsteads and permanent settlements. It is clear now that stack stands have multiple uses beyond storing winter feed and many may be the remains of stock management features such as lambing pens, nightfolds, or *buchts* used for milking, marking and castrating sheep (Gates 2004: 36-38). The example of Greenlee Fell is cited by Gates (2004: 36) where more than forty small "stack stand"-like enclosures are found on a south-facing slope that overlooks Greenlee Lough. This assemblage shows massive variation of form and construction: they can be both free standing or attached to sod cast dykes; round, oval, square, rectangular, or D-shaped; appear to be constructed of earth, turf, or stone; and many are over 10m in diameter. Of the forty plus features, less than ten meet Ramm et al's (1970) stack stand definition of being circular with a diameter less than 10m. There is no indication of nearby habitation, the interpretation of one of the enclosures as a farmstead (by Heyes 1976: 250 in Gates 2004: 36) was dismissed by Gates (2004: 36) after visiting the site.

8.6 Landscapes like Greenlee Fell, Birk Hill near Blackaburn, and Sewingshields, which contain a large number of stack stand variations are perhaps more likely to have been used for stock management than simple stack stands, as suspected by Gates (2004: 36). This variety of purpose-built enclosures on upland pastures may have been connected with the practice of transhumance known as shieling, where ruminant animals such as cattle, sheep and goats are taken to elevated pastures in the summer and brought back down to lower settlements for winter. This shieling activity could be expected to have included the sheep enclosure known as a *bucht* along the Anglo-Scottish Border and Northumberland, although no surviving example of a *bucht* has been identified in Northumberland as of Gates (2004: 37). Stack Stand Two "**44**", having a bank and external ditch resembles a classic stack stand but could be associated with shieling or stock management as the bank and external ditch are also reminiscent of a shelter for animals or herders. C.K. Croft Andrew's observation that contemporary Cornish peat stacks have their ditches cut when the stack is complete, necessitating an external bank, would seem to disqualify Stack Stand Two "**44**" from being a peat or turf stand (Christie and Rose 1987: 184).

8.7 Another stack stand-like feature was identified by Gates (1999) and likened to the peat-drying stands seen on Bodmin Moor, Cornwall, a feature now also recognised in Scotland and Wales as a sub-rectangular border or bed of stone on sloping ground (Harden 2011; Hayman and Horton 2013). Those in Northumberland are usually sub-rectangular or occasionally circular earthwork platforms surrounded by a ditch up to 250mm deep and 1m wide, with no internal or external bank. The overall dimensions of these features are around 6m by 3m, but some have reached lengths of up to 12m, none of the circular examples exceed 7m in diameter. Both the circular and sub-rectangular shapes have sometimes been found to have up to thirty pit-like depressions in the base of the ditch in an unbroken circuit. As of Gates (2004: 39) around eighty of these features had been identified by aerial photography between Greenhead and Chesters along Hadrian's Wall, mainly on open moorland north of the wall, standing alone or in groups. Gates (2004: 39) refrained from reclassifying these structures

as anything other than stack stands prior to an excavation but speculated than they could be for drying turf, which was more likely than peat (Christie and Rose 1987 in Gates 2004: 39). The structures are almost consistently in near proximity to peat bogs and poorly drained land where peat or turf can be found. Ramm et al (1970: 55) mentions three stack stands which had 'fibrous' remains of the relict stack in situ, although the term 'fibrous' could refer to plant remains other than peat. The association of these features with peat or turf would also explain why these stand variants are often not near any kind of settlement, as would be expected if they were for winter feed. Stack Stand One "**45**" was selected for excavation as it appeared to meet the criteria for being one of these features, the depressions around its perimeter having been noted. The possible gap in the post-pads around Stack Stand One "**45**" and the corresponding waist may represent the causeway or entrance noted on peat stacks on the Lizard, Cornwall, although this feature is rare (*c*3%) on other Cornish peat stacks on Bodmin Moor and Dartmoor (Bowyer 2023: 15).

8.8 Farmer Angus Murray remembers peat-cutting during living memory on Sewingshields Farm, near the stack stand area, peat stood drying for a year or through summer, and was not disturbed by grazing sheep, which would sometimes use it as a windbreak. Poles were used to stabilise the peat stacks until they were moved to a metal barn at Stell Green, there was some suggestion that these modern peat stacks may have had a pyramidal shape. Such a pyramidal structure could be interpreted from the post-pads around Stack Stand One "**45**". Conversely, peat stacks on Bodmin Moor, Cornwall, had outward-leaning walls intended to shed water, somewhat like an inverted pyramid (Bowyer 2023: 12), but these could also be stabilised by being propped by angled posts. On Gates original aerial photograph (see Bowyer 2023: 4), showing both stack stands, Stack Stand One "**45**" appears to occupy a spot where two track-like features intersect each other, these features may be two separate peat/turf cuttings which have both made use of the same stack for storage.

8.9 Obviously, there is the inherent "interpretive dilemma" in giving any feature a name or description. Describing the features around stack stand "**45**" as post-pads was only done after some consideration. Although these features arguably have more in common with a post-hole due to the suggestion of packing stones and inserted posts, the posts appear to have been angled towards the stack stand with the packing or weight backing them, having more in common with the post-supporting post-pad than the classic textbook post-hole with packing stones around a vertical post. The inner halves of the post-pads seem to be deeper and have more relief, with weight or packing in the shallower outer halves, and the shape in plan often tapering towards the centre of the stack stand. Any poles would seemingly have formed an arrangement like the pyramidal shape Angus Murray remembers of the peat stacks at Sewingshields Farm during his childhood.

8.10 Christie and Rose (1987: 184) discovered from C.K. Croft Andrew's 1940s notes that contemporary Cornish peat stands were not dug in advance and that the ditch was dug around the completed stack, also accounting for the external bank. It may be the case that stack stand "**45**" was particularly large and required propping with such urgency that it precluded digging a ditch. The surrounding poles stabilising the stand may have been enough of a barrier to keep any grazing animals at bay, although Croft Andrew's Cornish notes also mention using thorned cuttings around the peat stacks.

8.11 Nothing found during the excavation gave any real indication of the date of the stack stands. The finding of the possible rock art at around the same level as the cuts of the post-pads in stack stand "**45**" can be taken as a crude gauge of the amount of peat formation that has taken place between the rock being exposed and the post-pads being cut. If the rock art panel is genuine, it is thought that it may have been protruding through a thin soil supporting a Neolithic ground surface, subsequently buried by peat formation since the Bronze Age. Dumayne (1992) believes that there were localised forest clearances in the Neolithic and Bronze Age, with periods of clearance and regeneration in the Iron Age before sustained forest clearance during the Roman military presence. The lithics recovered from the sample ◊**22** taken during the digging of Spit 2 [**202**] of the internal bank of Stack Stand Two are essentially residual finds, in that they were buried in the internal bank of the stack stand, presumably after being dug up when the ditch around the stack stand was being cut. The lithics were not readily datable but one was thought to have a most probable Mesolithic date, although Late Palaeolithic and Early Neolithic could not be excluded.

8.12 If an educated guess had to be made on the date of the stack stands at Sewingshields Farm, it would involve the assumption that both stack stands are contemporary with each other and acknowledging that Stack Stand One "**45**" is more likely to be a turf-drying stand, while Stack Stand Two "**44**" is more likely to be a classic stack stand or shieling shelter. The summer months are the best for cutting and drying turf and would fit in with the shieling interpretation for the Sewingshields stack stands, which can be considered numerous (HER **12444**-**12449**, **12451**, **12518**-**12520**, **12522**-**12524** and **24848**) but it is debatable where they are numerous enough and grouped sufficiently closely to be part of a shieling system. Consider also why a shieling would be sited here when Sewingshields deserted medieval village (HER **7848**), Sewingshields Castle (HER **7838**) and the reoccupied Milecastle 35 (HER **7827**) were all nearby. However, we know the village became shrunken or deserted, that Sewingshields Castle was recorded as ruined in 1541 (Bowes and Ellerker 1541 in Bates 1891), and that finds from the reoccupation of Milecastle 35 were dated from between the thirteenth and sixteenth centuries. Shieling may then have recommenced after whatever depopulating factors were responsible for the ruination of the castle, and the desertion of the village and reoccupied Milecastle 35, which could all be tentatively placed in the sixteenth century. Alternatively, the shieling may have been used while the Sewingshields medieval settlement was active, but used by people from another settlement, as the people of Sewingshields may have preferred to use pasture on top of Sewingshields Crag, behind the line of Hadrian's Wall.

8.13 A sixteenth century date for shieling at Sewingshields may seem nonsynchronous with the accepted chronology of shieling in England, which documentary sources indicate was confined to the period up to the sixteenth century. However, in northern England it seems to have persisted into the sixteenth and seventeenth centuries. Camden describes working shielings in the North Tyne Valley in 1586, but a 1578 survey of the Lake District makes only one specific shieling reference and the transhumance clause in the Alston Moor Paine Roll (Cumbria) was removed in 1597. Little fieldwork has been done on shieling sites in England, which has limited the number of absolute dates for shieling sites, but most of what has been done has fortunately been in Northumberland and Cumbria. On Hadrian's Wall, the shieling at Castle Nick provided palaeomagnetic dates from a hearth indicating a range between 1500 and 1525, and at Bogle Hole a radiocarbon date of 1451-1659 (320+/- 45 BP – AA 33126) was returned. Excavation at Alnhamsheles, Northumberland, produced a pottery assemblage dating from 1200-1500, and at Memmerkirk, Northumberland, an fourteenth century origin was

indicated. At Whitelyne Common, Cumbria, a clay tobacco pipe was dated to 1650-1670 (Historic England 2018: 6).

8.14 Obviously, Sewingshields is so-called presumably for a connection to shielings, which are frequently called shiels or shields in Northumberland placenames and was referred to as Sewyngesheles at least as early as 1415 (*Nomina Castrorum et Fortalicum infra Comitatum Northumbrie,* Harleian MSS in Bates 1891). The later medieval date for the earliest appearance of stack stands would seem to be very close or too late for there to be any connection between the stack stands of a shieling (the current site) and the shieling in a placename that was already established by 1415 (the medieval settlement). It may be the case that an earlier shieling site near the ridge of Sewingshields Crag became the village and castle, giving its name to the medieval settlement, and after their desertion a secondary phase of shieling began where the stack stands are located. However, it cannot be ruled out that the Sewingshields medieval settlement may take its name from a shieling that included the stack stands excavated during this project.

8.15 The hand-collected finds and the sediment samples taken from the stack stands did not return anything significant or indicative of their use, perhaps exactly what would be expected if the structures were used to stack peat or turf in an environment that was previously and continues to be dominated by peat and turf. The weighting of the absence of any fragments of clay tobacco pipe fragments may be given some consideration in dating the stack stands, as the single stack stand previously excavated in Northumberland at Kennel Hall Knowe, North Tynedale (NY 667 897) (Charlton and Day 1977) returned one fragment of pipe stem, dated to the eighteenth century. The current project at Sewingshields excavated and sampled quadrants of two stack stands and excavated about 15% of their immediate surroundings and did not recover any clay tobacco pipe, a normally ubiquitous item in eighteenth to early twentieth century archaeological deposits.

8.16 The soil supporting the present ground level was sampled to act as a control containing present day environmental information, however in the event very little was recovered from the sampled deposits. The only notable macrofossils were trace levels of fine charcoal from two of the (stratigraphically low) fill deposits, (**214**) and (**110**), one from each stack stand. These are most likely to have originated from fuel waste from human activity but natural fires burning during while the features were open cannot be discounted. There is no evidence of waste dumping, deliberate backfilling or collapse of the sampled cut features processed, the ditch of Stack Stand Two "**44**" appears to have gradually infilled over time via natural processes.

8.17 Comparing microfossil assemblages suggested that the local vegetation had remained essentially the same throughout the time represented by the sampled deposits, including (**100**) which represents the present day. Cinquefoil- and grass-type pollens, none of which identified as cereals, were dominant. Bog myrtle (*Myrica gale*), heath (¿Cross-leaved Heath) and iris (¿yellow iris) were regularly recorded from the upper and lower ditch fills of Stack Stand Two "**44**". Trilete moss (Bryophyta; cf. *Sphagnum*) spores were occasional, and there were a few fern (*Polypodium*) spores and poorly preserved possible alder (cf. *Alnus*) pollen grains, indicative of alder trees in the wider landscape. Both the iris and possible alder pollen suggest a wetter environment than the present day (Margaret Rogers pers comm. December 2022).

8.18 The presence of bog myrtle (*Myrica gale*) in both the present ground level and sampled deposits drew particular attention as the plant is not particularly common in the British Isles and is not thought to currently grow in the Sewingshields locality or have done so in the past (Dumayne 1992: 43 citing Perring and Walters 1976). The plant was a useful one, with many applications, brewing being just one of those applications in the medieval period, and it may be the case that there was some over-exploitation (Angus Lunn pers. comm. December 2022). Records of bog myrtle in Northumberland cluster around the Coquet Valley and the moors around Rothbury, but there may be a lack of field study and recording of the plant's distribution (Margaret Rogers pers comm. December 2022).

9 Conclusion

9.1 The excavation of the stack stands has not provided any dating evidence for the construction of the stands, the only broadly datable finds were lithics and a possible panel of rock art, all prehistoric and either residual or buried beneath peat that had formed long before the stack stands were created. Similarly, any direct evidence for the purpose of the stack stands was elusive. Stack Stand One "**45**" appears to be a turf-drying stand (Photo **01**), Stack Stand Two "**44**" resembles a classic Cumbria-Northumberland stack stand type specimen (Photo **04**), but may be a shelter for animals or a herder, associated with the transhumance practice of shieling.

9.2 Some data was obtained about the surrounding environment when the stack stands were created and during their lifetime, although this is hard to correlate with their actual use-life. Palaeoenvironmental analysis, using control samples from the current present ground level allowed comparison of past and present microfossil assemblages. This indicated that the vegetation in the area had remained essentially the same over the time period covered by the sampled deposits, from around the time the stack stands were constructed to the present. It may be the case that if the stack stands were used to stack peat or turf in an environment that has always been dominated by peat and turf there would be no obvious trace of this in the archaeological record, and if anything else was the case there would be some trace of it.

9.3 Trace levels of fine charcoal were recovered from stratigraphically low ditch (**214**) and post-pad fill (**110**) deposits, one from each stack stand, these are indicators for fuel waste from human activity in the vicinity while the stack stands were in use, but natural fires burning nearby cannot be discounted. Analysis showed no evidence of waste dumping on the stack stands, the ditch of Stack Stand Two "**44**" appears to have infilled gradually over time via natural processes. As they are today, cinquefoil- and grass-type pollens, none of which identified as cereals, were dominant in the local environment. Also recovered during palaeoenvironmental analysis were occasional trilete moss (Bryophyta; cf. *Sphagnum*) spores, regular iris (¿yellow iris) pollen grains, a few fern (*Polypodium*) spores and poorly preserved possible alder (cf. *Alnus*) pollen grains, indicative of alder trees in the wider landscape. The iris and possible alder pollen suggest a wetter environment than the present day (Margaret Rogers pers comm. December 2022).

9.4 The presence of bog myrtle (*Myrica gale*) in both the present ground level and the upper and lower ditch fills of Stack Stand Two "**44**" drew particular attention as the plant is uncommon today in the British Isles and was not thought to have grown in the Sewingshields area (Dumayne 1992: 43). The plant was a useful one, with many applications, brewing being just one of those applications in the medieval period, and it may be the case that there was some over-exploitation (Angus Lunn pers. comm. December 2022). Records of bog myrtle in Northumberland show a restricted distribution, but this may be due to under-reporting (Margaret Rogers pers comm. December 2022).

9.5 Bog iron was found in (**102**) and (**104**) but does not appear to have been in sufficient quantity to constitute a deposit of ore that could be used as a resource, although the iron minerals were in a form that would have made smelting possible. Three small stones recovered as burnt stone fragments from (**202**) did indeed show signs of burning and although there was no full consensus of opinion between the archaeometallurgist (TPY) and lithic specialist (KLRP) it has been posited that two of the stones are possible lithics (Photo **65**). Both possible lithics were flint, which can only be obtained from the Solway

Firth or North Sea coasts, or from primary deposits in Yorkshire or further south, although small exotic stones presumed to have been deposited by glacial action were found in the bog iron ore samples from (**102**) and (**104**) and the flint may have arrived the same way. A Mesolithic date was most probable for one of the lithics, the other was dèbitage and could not be dated.

9.6 Although the project has not advanced our understanding of the chronology of stack stands it has underlined the importance of understanding local settlement patterns in the medieval and early post-medieval and how the practice of shieling was carried out. Similarly, we have not made any great steps forward in working out how the various Cumbria-Northumberland stack stand types were used other than noting an absence of evidence which may or may not be evidence of absence, but tallies with some existing hypotheses. Overall, the project should be considered a success for the amount that was achieved by amateur archaeologists and volunteers over a span of only five days, the excavation proceeded with control and an unprecedented number of soil samples were recovered from the two stack stands for palaeoenvironmental analysis. Future projects should however consider using a more typical timetable of at least ten days (as per Mitcham 2019) and a more formal research dig approach due to the concessions which had to be made to accommodate the tight timescale. The project could possibly have benefited from a more extensive drawn record of the stack stands and their constituent features before and after excavation. This was not possible given the timescale involved and could only be compensated for by the increased attention to the written and photographic records. Admittedly, the expectations were higher for the amount of data and detail that were anticipated from the palaeoenvironmental analysis, perhaps naively given the local environment.

10 Photographs

10.1 Complete List of Photographs

Photo 01. HER **12445**. Looking S. 1m scale.
Photo 02. HER **12445**. Looking SW. 1m scale.
Photo 03. HER **12445**. General view.
Photo 04. HER **12444**. Looking S. 1m scale.
Photo 05. HER **12444**. General view.
Photo 06. Clay patches in northernmost internal bank (**211**) of "**44**". 100mm scale.
Photo 07. Excavation of spit 1 [**201**] of internal bank (**211**) of "**44**".
Photo 08. Looking W along "**45**". Spit 1 [**100**] excavated. 1m scale.
Photo 09. Looking E along "**45**". Spit 1 [**100**] excavated. 1m scale.
Photo 10. Looking N across "**45**". Spit 1 [**100**] excavated. 1m scale.
Photo 11. Looking S across "**45**". Spit 1 [**100**] excavated. 1m scale.
Photo 12. Looking N across whole feature "**45**". Spit 1 [**100**] excavated. 1m scale.
Photo 13. Looking S across whole feature "**45**". Spit 1 [**100**] excavated. Scale in 500mm increments.
Photo 14. W-facing section of "**44**". Oblique view. Spit 1 [**200**] excavated. 1m scale.
Photo 15. W-facing section of "**44**". Acute view. Spit 1 [**200**] excavated. 1m scale.
Photo 16. N-facing section of "**44**". Oblique view. Spit 1 [**200**] excavated. 1m scale.
Photo 17. N-facing section of "**44**". Acute view. Spit 1 [**200**] excavated. 1m scale.
Photo 18. Looking E along "**45**". Spit 2 [**101**] excavated. 1m scale x2.
Photo 19. Looking W across "**44**". Spit 1 [**200**] and sondage [**218**] excavated. 1m scale.
Photo 20. Looking E across "**44**". Spit 1 [**200**] and sondage [**218**] excavated. 1m scale.
Photo 21. Looking S across "**44**". Spit 1 [**200**] and sondage [**218**] excavated. 1m scale.
Photo 22. Looking N across "**44**". Spit 1 [**200**] and sondage [**218**] excavated. 1m scale.
Photo 23. S-facing baulk of "**44**" sondage [**218**]. Oblique view. 1m scale.
Photo 24. S-facing baulk of "**44**" sondage [**218**]. Elevation view. 1m scale.
Photo 25. N-facing baulk of "**44**" sondage [**218**]. Oblique view. 1m scale.
Photo 26. N-facing baulk of "**44**" sondage [**218**]. Elevation view. 1m scale.
Photo 27. E-facing baulk of "**44**" sondage [**218**]. Oblique view. 1m scale.
Photo 28. E-facing baulk of "**44**" sondage [**218**]. Elevation view. 1m scale.
Photo 29. W-facing baulk of "**44**" sondage [**218**]. Oblique view. 1m scale.
Photo 30. W-facing baulk of "**44**" sondage [**218**]. Elevation view. 1m scale.
Photo 31. Working shot, spitting "**44**".
Photo 32. Working shot, three post-pads emerge [**105**][**107**][**109**] at W end of "**45**".
Photo 33. Looking S across "**44**". Spit 2 [**202**] excavated. 1m scale.
Photo 34. Looking N across "**44**". Spit 2 [**202**] excavated. 1m scale.
Photo 35. Looking W across "**44**". Spit 2 [**202**] excavated. 1m scale.
Photo 36. Looking E across "**44**". Spit 2 [**202**] excavated. 1m scale.
Photo 37. N-facing baulk of "**44**". Oblique view. 1m scale.
Photo 38. N-facing baulk of "**44**". Elevation view. 1m scale.
Photo 39. NNW-facing section of [**105**] in "**45**". Oblique view. 100mm scale.
Photo 40. NNW-facing section of [**105**] in "**45**". Acute view. 100mm scale.
Photo 41. Half-sectioned [**105**] in "**45**". Vertical view. 100mm scale.
Photo 42. E-facing section of [**107**] in "**45**". Oblique view. 100mm scale.
Photo 43. E-facing section of [**107**] in "**45**". Acute view. 100mm scale.

Photo 44. Half-sectioned [**107**] in "**45**". Vertical view. 100mm scale.
Photo 45. Cup- and groove-marked stone Δ**1** in "**45**". Vertical view 100mm scale.
Photo 46. Cup- and groove-marked stone Δ**1** in "**45**". Oblique view 100mm scale.
Photo 47. WSW-facing baulk of "**45**" over ditch sondage [**129**]. Oblique view 1m scale.
Photo 48. WSW-facing baulk of "**45**" over ditch sondage [**129**]. Elevation view 1m scale.
Photo 49. Half-sectioned [**109**] in "**45**". Vertical view. 100mm scale.
Photo 50. E-facing section of [**109**] in "**45**". Oblique view. 100mm scale.
Photo 51. E-facing section of [**109**] in "**45**". Acute view. 100mm scale.
Photo 52. Half-sectioned [**119**] in "**45**". Vertical view. 100mm scale.
Photo 53. E-facing section of [**119**] in "**45**". Oblique view. 100mm scale.
Photo 54. E-facing section of [**119**] in "**45**". Acute view. 100mm scale.
Photo 55. Looking S across "**45**". 1m scale x2.
Photo 56. Looking N across "**45**". 1m scale x2.
Photo 57. Looking W across "**45**". 1m scale x2.
Photo 58. Looking E across "**45**". 1m scale x2.
Photo 59. Looking E across post-pads near southern baulk in "**45**". 1m scale x2.
Photo 60. Looking N across post-pads near western baulk in "**45**". 1m scale x2.
Photo 61. Looking S across post-pads near western baulk in "**45**". 1m scale x2.
Photo 62. External surface of yellow-brown indurated mass from (**102**), showing apparent granular texture. 40mm field of view.
Photo 63. Broken face of an indurated mass from (**104**). Here the iron enrichment is represented by a very dark brown material forming a sheet-like coating on void surfaces and former organic materials. 40mm field of view.
Photo 64. Two fragments of micaceous schist from (**102**), showing how they are being split apart by the secondary mineral growth. 40mm field of view.
Photo 65. Three gravel particles from (**202**): Schist (L), cracked (burnt?) chert (C), quartz (R). 40mm field of view.

10.2 Selected Photographs

Photo 01. HER **12445**. Looking S. 1m scale.

Photo 04. HER **12444**. Looking S. 1m scale.

Photo 10. Looking N across "**45**". Spit 1 [**100**] excavated. 1m scale.

Photo 16. N-facing section of "**44**". Oblique view. Spit 1 [**200**] excavated. 1m scale.

Photo 18. Looking E along "**45**". Spit 2 [**101**] excavated. 1m scale x2.

Photo 22. Looking N across "**44**". Spit 1 [**200**] and sondage [**218**] excavated. 1m scale.

Photo 23. S-facing baulk of "**44**" sondage [**218**]. Oblique view. 1m scale.

Photo 26. N-facing baulk of "**44**" sondage [**218**]. Elevation view. 1m scale.

Photo 32. Working shot, three post-pads emerge [**105**][**107**][**109**] at W end of "**45**".

Photo 36. Looking E across "**44**". Spit 2 [**202**] excavated. 1m scale.

Photo 38. N-facing baulk of "**44**". Elevation view. 1m scale.

Photo 46. Cup- and groove-marked stone Δ**1** in "**45**". Oblique view 100mm scale.

Photo 47. WSW-facing baulk of "**45**" over ditch sondage [**129**]. Oblique view 1m scale.

Photo 58. Looking E across "**45**". 1m scale x2.

Photo 59. Looking E across post-pads near southern baulk in "**45**". 1m scale x2.

Photo 60. Looking N across post-pads near western baulk in "**45**". 1m scale x2.

Photo 62. External surface of yellow-brown indurated mass from (**102**), showing apparent granular texture. 40mm field of view.

Photo 63. Broken face of an indurated mass from (**104**). Here the iron enrichment is represented by a very dark brown material forming a sheet-like coating on void surfaces and former organic materials. 40mm field of view.

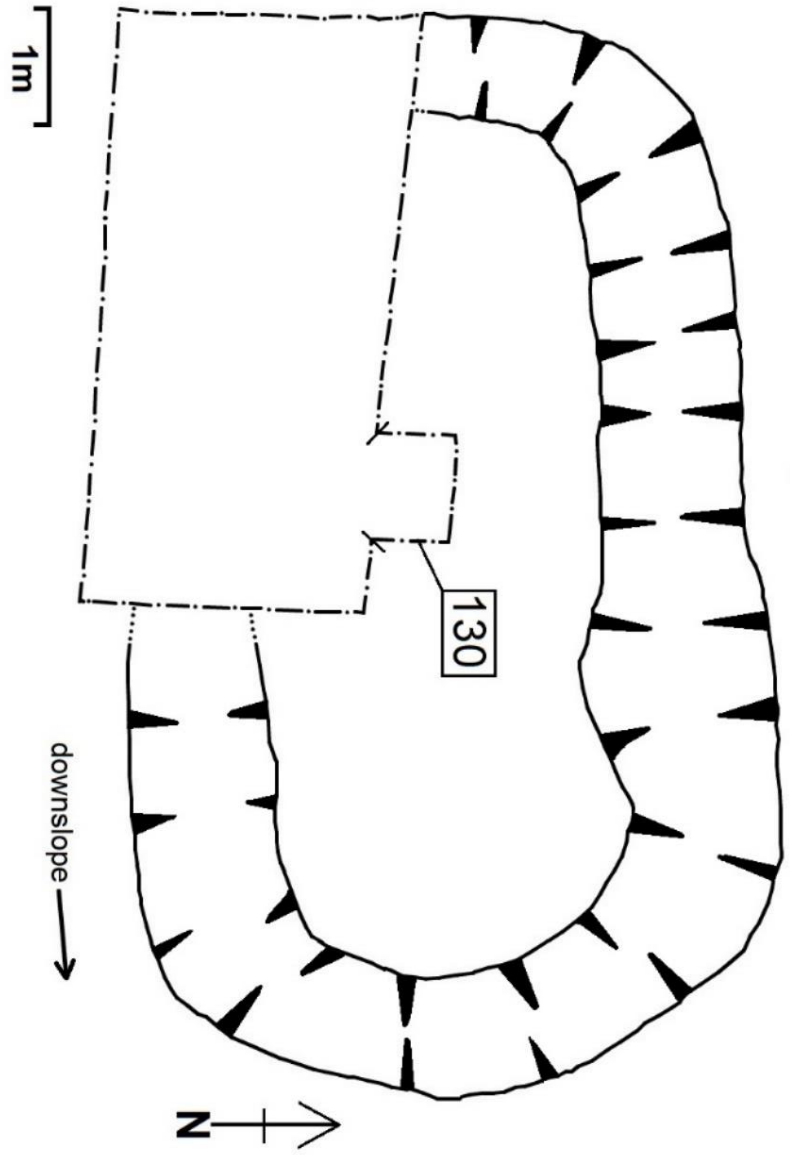
Photo 64. Two fragments of micaceous schist from (**102**), showing how they are being split apart by the secondary mineral growth. 40mm field of view.

Photo 65. Three gravel particles from (**202**): Schist (L), cracked (burnt?) chert (C), quartz (R). 40mm field of view.

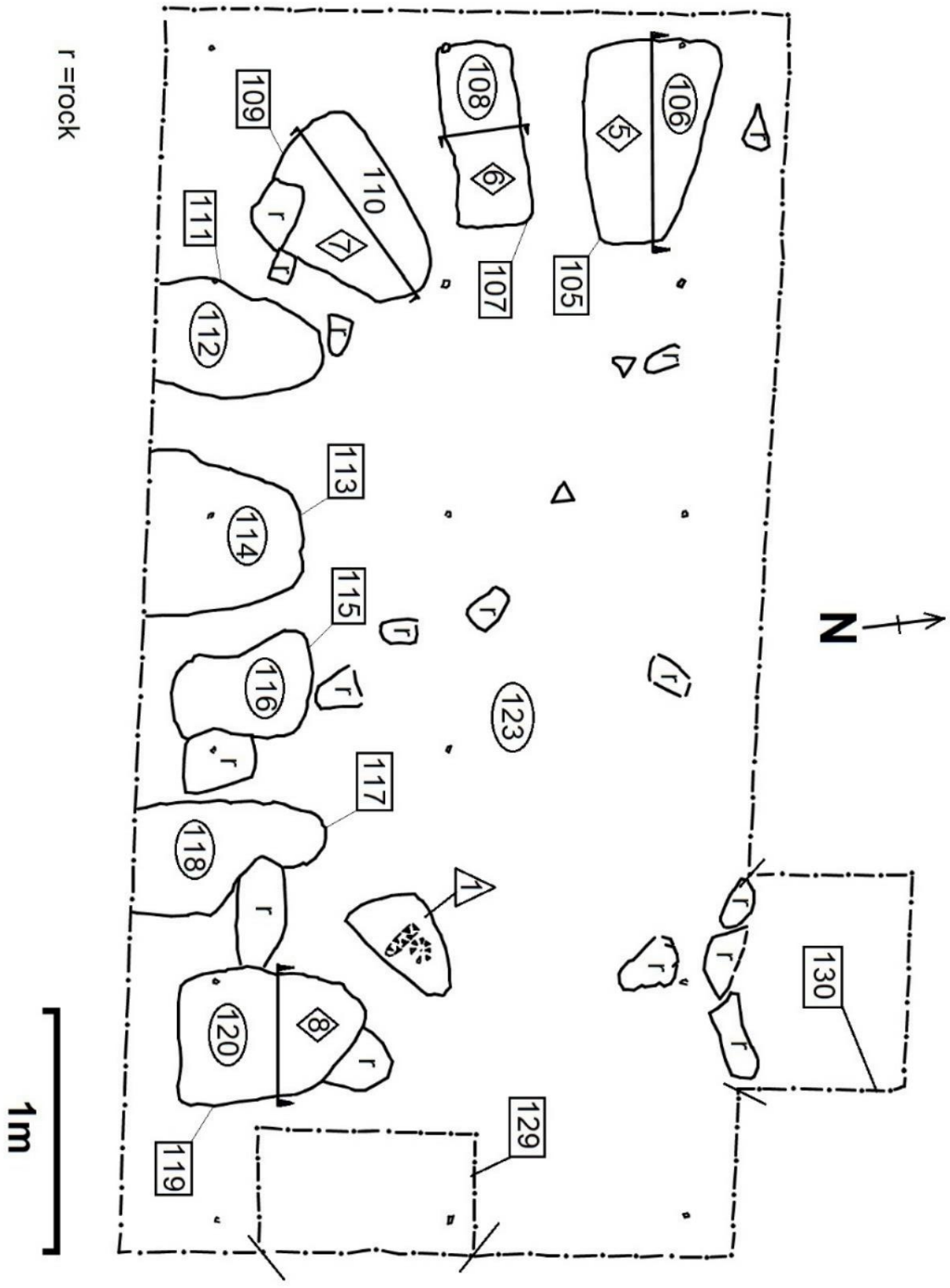
11 Illustrations

11.1 List of Illustrations

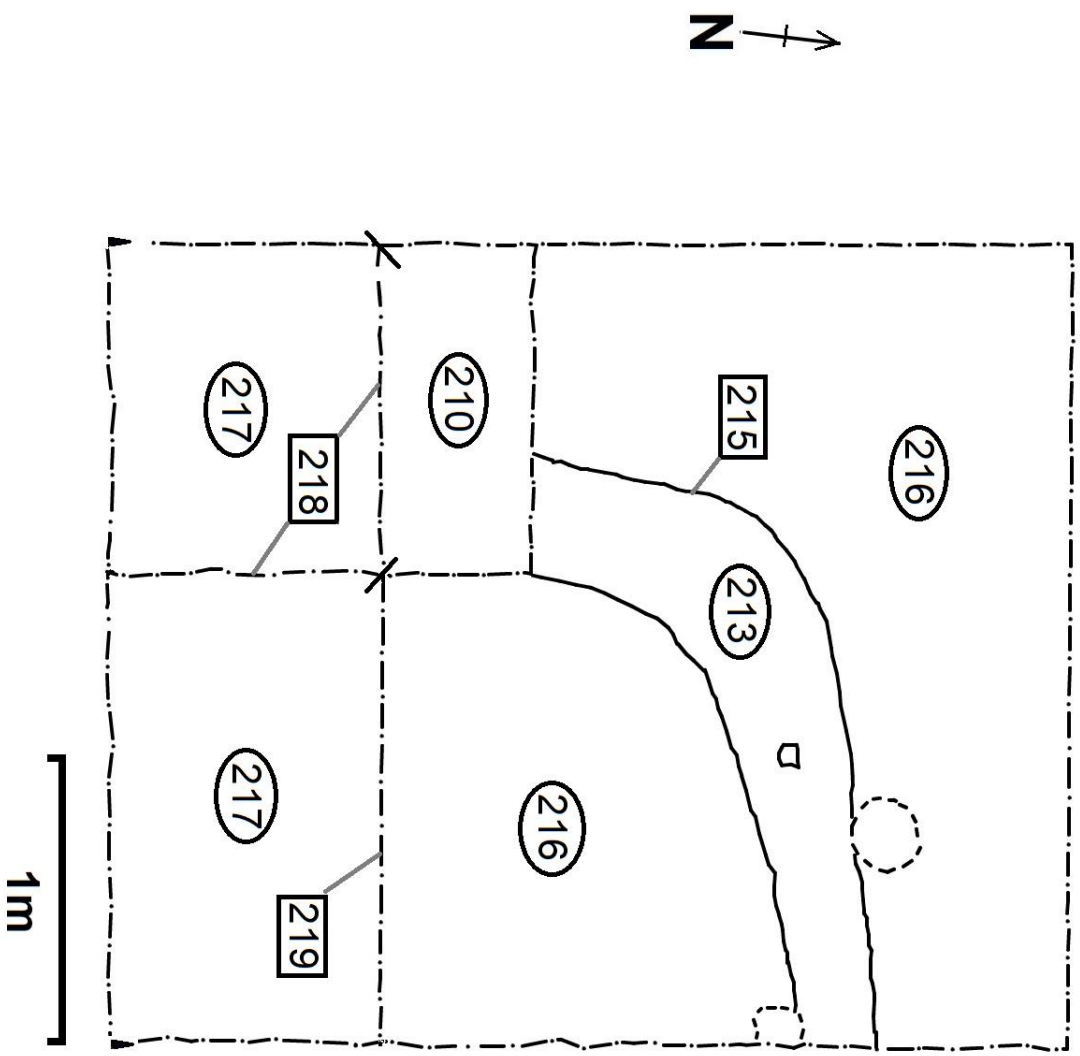
11.2 Reproduced Illustrations



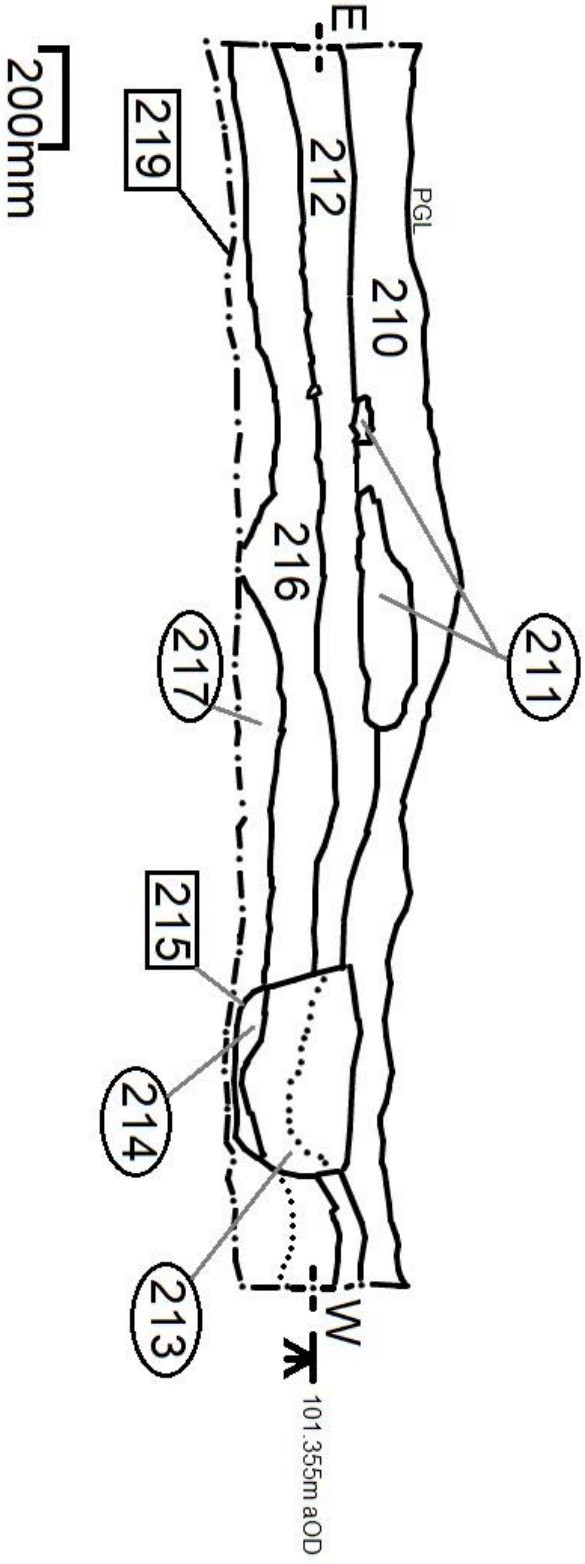
1. Plan of Stack Stand One "**45**" showing excavation.



2. Plan of Stack Stand One "**45**" excavated area.



3. Plan of Stack Stand Two "**44**" excavated area.



4. N-facing baulk of [**219**] in Stack Stand Two "**44**".

Appendix 1. Levels booked in m aOD.

Location	TBM	BS	IH	IS/FS	RL	St
Right-hand gatepost	*X*(=100)	3.3	103.3			1
"**44**" section datum	*X*(=100)	3.3	103.3	1.945	101.355	1

Appendix 2. List of Samples.

◊1. 10-litre sample from Spit 1 [**100**], centre, stack stand "**45**". Processed.
◊3. 10-litre sample from Spit 2 [**101**], centre, stack stand "**45**".
◊4. 10-litre sample from Spit 3 [**103**], centre, stack stand "**45**". Processed.
◊5. 10-litre sample of (**106**), fill of post-hole/post-pad [**105**]. stack stand "**45**".
◊6. 10-litre sample of (**108**), fill of post-hole/post-pad [**107**]. stack stand "**45**".
◊7. 10-litre sample of (**110**), fill of post-hole/post-pad [**119**]. stack stand "**45**". Processed.
◊8. 10-litre sample of (**120**), fill of post-hole/post-pad [**119**]. stack stand "**45**". Processed.
◊20. 10-litre sample from Spit 1 [**200**], centre, stack stand "**44**".
◊21. 10-litre sample from Spit 1 [**201**], internal bank (**211**), stack stand "**44**".
◊22. 10-litre sample from Spit 2 [**202**], internal bank (**211**), stack stand "**44**".
◊23. 10-litre sample from Spit 2 [**203**], centre, stack stand "**44**".
◊24. 10-litre sample from Spit 3 [**204**], internal bank (**211**), stack stand "**44**".
◊25. 10-litre sample of (**213**), upper ditch fill, stack stand "**44**". Processed.
◊26. 10-litre sample of (**214**), lower ditch fill, stack stand "**44**". Processed.

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