ERECTION OF AGRICULTURAL WORKER'S DWELLING AND ERECTION OF GENERAL PURPOSE AGRICULTURAL BUILDING, NEW GRIMWITH FARM, GREENHOW HILL, PATELEY BRIDGE, NORTH YORKSHIRE HG3 5JL (application C/02/148A)

ARCHAEOLOGICAL ASSESSMENT

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EXECUTIVE SUMMARY

In September 2018, Ed Dennison Archaeological Services Ltd (EDAS) were commissioned by Stuart and Francis Hall, through their agents WBW Surveyors Ltd, to undertake an archaeological assessment prior to the proposed construction of a new agricultural worker's dwelling with attached garage and adjacent new agricultural shed and yard, at New Grimwith Farm, Greenhow Hill, Pateley Bridge, North Yorkshire (NGR SE 0710 6311 centred). The proposed development is currently under consideration by the Yorkshire Dales National Park Authority (YDNPA) (application C/02/148A), and they requested the archaeological assessment. The work comprised an initial earthwork survey of the proposed development site, undertaken on 2nd October 2018, followed by the excavation of three trial trenches of varying lengths on 11th October 2018.

The earthwork survey identified a small denuded shaft mound, together with part of another on the northern edge of the site. These shaft mounds form part of a group of at least four of five such earthworks, set on a general north-west/south-east alignment, which follow the line of the Silver String, one of several minor and generally unproductive lead-bearing veins in the area. These strings were explored with shallow shafts, most probably dug by the Yorkshire Mining Company which was operating in this area between c.1852 and c.1881, although they could also relate to an earlier, undocumented, period of working. The shaft mound within the site measures c.10m-12m in diameter and up to 0.6m high, with the spoil mostly on the east and south sides. An exploratory trench showed that that shaft had a sub-oval plan, c.1.80m north-south by 1.30m east-west, and that it extended to at least 2.40m below ground level. It had been cut through the underlying bedrock, but the amount of adjacent spoil and the size of the shaft suggest it is relatively shallow, although it could be up to 10m deep. The lowest fill of the original cut for the shaft might represent either deliberate backfilling or subsequent collapse of the upper part. At a later date, most probably towards the end of the 19th century, a pit was dug into the top of the shaft and filled with domestic rubbish, almost certainly from Fancarl House.

A similarly-sized mound lies on the south side of the site, with a circular stone-lined well shaft 1.0m in diameter in the centre. Although it is on the same alignment as the adjacent mounds, and so could represent a former shaft mound, its characteristics suggest it is a later feature, and it was probably sunk in the second half of the 19th century to serve Fancarl House; it is named as a 'pump' on the 1891 and 1909 Ordnance Survey maps. A shallow curvilinear earthwork in the north-west corner of the site may relate to a small angled garden enclosure shown here in 1853. Other earthworks, one of which was investigated by the trenching, are not considered to be of archaeological interest.

An assessment of the impacts of the proposed development on the identified features has been made. The most significant impact is that on the shaft mound, and results in a Slight negative significance of effect. The mining remains within the site are of lesser importance than better preserved examples covering more extensive areas on Grimwith Fell to the north. In view of the work already undertaken, it might be appropriate to mitigate the impacts of the development (if approved) through an archaeological watching brief.

1 INTRODUCTION

1.1 In September 2018, Ed Dennison Archaeological Services Ltd (EDAS) were commissioned by Stuart and Francis Hall, through their agents WBW Surveyors Ltd, to undertake an archaeological assessment prior to the proposed construction of a new agricultural worker's dwelling with attached garage and adjacent new agricultural shed and yard, at New Grimwith Farm, Greenhow Hill, Pateley Bridge, North Yorkshire (NGR SE 0710 6311 centred).

1.2 The proposed development is currently under consideration for full planning permission by the Yorkshire Dales National Park Authority (YDNPA) (application C/02/148A). An archaeological assessment was requested by the YDNPA's Senior Historic Environment Officer (Mr Miles Johnson), so that any archaeological implications of the proposed development could be considered and addressed prior to determination. Such requests for additional information are in line with paragraph 189 of the revised National Planning Policy Framework (DCLG 2018), and it was suggested that the assessment should comprise a field evaluation in the form of a limited topsoil strip and excavation through a potential lead mining shaft and other remains which lie within the proposed development site.

2 SITE LOCATION AND DESCRIPTION

2.1 New Grimwith Farm is located some 4.25km to the south-west of the core of the village of Greenhow Hill and c.1.50km south of the eastern end of Grimwith reservoir (see figure 1). It is a modern development, built in the late 20th century. The proposed development site lies c.95m to the south-west of the farm, and is formed by a pasture field located between the farm and Fancarl House to the south-west, on the north side of the B6265 Pateley Bridge to Hebden road (see figure 2). The site can be accessed off the B6265 road though a gateway at the south-west corner, or from New Grimwith Farm via a second gateway at the north-east corner.

2.2 The pasture field is set at an elevation of c.312m AOD, with the ground surface sloping down from north to south, and also less markedly from west to east (see plate 1). The mining remains are represented by a number of denuded earthworks which are concentrated at the western end of the field. The underlying geology is represented by the Alston Formation of Carboniferous sedimentary bedrock formed some 328-337 million years ago, principally argillaceous limestones interbedded with subordinate sandstones, while mudstones and gritstones also occur slightly further to the north (*http://mapapps.bgs.ac.uk/geologyofbritain/home.html*). The predominant soil type is a Cambic stagnohumic gley soil of the Wilcocks Association, a slowly permeable but seasonally waterlogged fine loam with a peaty surface horizon, although there is an area of typical brown earth of the Malham 2 Association immediately adjacent, forming a well drained silty soil (Soil Survey 1983).

3 FIELDWORK METHODOLOGY

3.1 The aim of the archaeological assessment was to record the mining remains within the proposed development site, to try to ascertain their extent, form, scale and importance, to provide an appropriate level of information to assist with the planning application and, if necessary, see how this might influence the development. The extent of the work was defined by discussions between EDAS and the project architect, and confirmed as being appropriate by the YDNPA's

Senior Historic Environment Officer. All archaeological work was undertaken in accordance with standard guidance (e.g. CIfA 2014; English Heritage 2007).

Earthwork Survey

3.2 A detailed, pre-intervention, measured survey of the development site was made at a scale of 1:200, using traditional tape and offset methods. The survey covered the whole of the pasture field, an area measuring a maximum of c.86m east-west by c.32m north-south. Sufficient information was gathered to allow the survey area to be readily located through the use of surviving structures, fences, walls and other topographical features. The survey recorded the position at ground level of all earthworks and other features considered to be of archaeological or historic interest. In addition, two north-south profiles across the survey area were constructed at a scale of 1:100; heights AOD were estimated from Google Earth.

3.3 The resulting site survey was produced at a scale of 1:200 and presented as an interpretative hand-drawn wet ink hachure plan using conventions analogous to those used by Historic England (English Heritage 1999; 2002, 14; 2007, 31-35); it corresponds to a Level 3 survey as defined by Historic England (English Heritage 2007, 23-24). Within the survey area, each indentified site or component was given a unique identifier, and a detailed written description was produced based on notes taken in the field. A number of photographs were taken to illustrate specific and/or well-preserved components, and showing the landscape context of the site; a digital camera with 12 megapixel resolution was used and Historic England guidelines were again followed (English Heritage 2007, 14). All photographs have been numbered and catalogued with the subject, orientation, date taken and photographer's name, and cross-referenced to the digital files; the photographic catalogue appears as Appendix 2. The pre-intervention survey work took place on the 2nd October 2018.

Trial Trenching

3.4 Following the completion of the earthwork survey, three exploratory trenches of varying lengths were dug on the 11th October 2018 to investigate some of the earthworks which had been recorded. All trenches were excavated under archaeological supervision, using a tracked 360 degree excavator equipped with a 1.80m wide ditching bucket. The trenches were accurately located on the 1:200 scale earthwork survey plan so that any archaeological features could be related to the surface topography. Appropriate plans and section drawings were prepared of the archaeological features at a scale of 1:20.

3.5 Following standard archaeological procedures, each discrete stratigraphic entity (e.g. a cut, fill or layer) was assigned an individual context number and detailed information was recorded on *pro forma* context sheets. A total of ten archaeological contexts were recorded (see Appendix 1); deposits or layers are identified in the following text by round brackets while cuts are signified by square brackets. In-house recording and quality control procedures ensured that all recorded information was cross-referenced as appropriate. A photographic record was also maintained using a digital camera with 12 megapixel resolution. A small number of late 19th and early 20th century finds were recovered during the investigation, but these were not retained.

3.6 A fully indexed and ordered field archive was prepared, following the guidelines produced by Historic England and the National Archaeological Record. The archive comprises primary written documents, plans, sections and photographs,

and an index to the archive. It was subsequently deposited with the YDNPA at the end of the project (EDAS site code NGW18).

4 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

4.1 As noted above, the development site lies c.95m to the south-west of New Grimwith Farm, itself located some 4.25km to the south-west of the core of the village of Greenhow Hill (see figures 1 and 2). The mining landscape around Greenhow Hill has previously been investigated in detail by Martin Roe (Roe 2003) but unfortunately his survey area does not extend as far as New Grimwith Farm. The only published sources that deal with mining in the vicinity of the farm are those by Dunham and Wilson (1985, 204-230), and more recently Gill (1998). The following summary of the mining background to the study area has been complied from a variety of sources, listed in the Bibliography (Chapter 7) below.

4.2 Lead mining had a very long documented history in the area, dating back to the early medieval period, with the discovery of two lead ingots bearing Roman inscriptions suggesting that mining may have been taking place at a much earlier period. Both Fountains Abbey and Bylands Abbey had mining interests in the area from the mid 12th century, and the local mines continued to be productive into the early post-medieval period. From the mid 18th century, a series of deeper shafts were sunk, and slightly later horse levels were driven to exploit the lead-bearing veins within limestone beneath a covering of shale. Lead mining continued throughout the 19th century, whilst during the 20th century the mining of fluorspar also became important locally (Roe 2003, 4-5).

4.3 In terms of the proposed development site, the areas to the north, north-east and south-east were worked most comprehensively by the Yorkshire Mining Company between 1852 and c.1881. This included the driving of Whitaker's Level northward from Croft Gill, some 293m north-east of New Grimwith Farm, whilst a number of other north to south veins in the area were investigated using shallow shafts. These included the Silver String vein, which crosses the western part of the proposed development site. The nature of the limestone in this particular area means that these smaller strings were relatively shallow, and may even have been visible just below the topsoil (Mike Gill, *pers. comm.*). The Yorkshire Mining Company also drove the California Level from the north to tap the West Pipe, East Pipe, New Cross Vein and Croft Gill Vein in the area of Croft Gill. Attempts were also made by the Greenhaugh Mining Company to work barytes in the early 20th century in the Nussey Knot area, including re-working old dumps (Gill 1998, 36-41). An area of mining activity, following the north-west/south-east alignment of the Silver String Vein, is shown on the YDNPA Historic Environment Record maps crossing the proposed development site between Fancarl House and New Grimwith Farm, and extending slightly to the south, beyond the B6265 road (see figure 3).

4.4 The earliest detailed depiction of the survey area consulted during the writing of this report is the 1853 Ordnance Survey 6" to 1 mile map (sheet 134) (see figures 4 and 5). At this date, New Grimwith Farm had yet to be built, but the map does show Fancarl House. It has a small angular walled enclosure attached to the east side, probably a garden, with a small square structure on the northern side; part of this angular enclosure is likely to have projected into the development site. The angular enclosure is itself located within a much larger field running north-west from the road frontage; this fields forms one of several forming the enclosed fields associated with the house. No mining activity, in the form of shafts or surface

earthworks, is indicated in the immediate area of Fancarl House, although coal pits are shown on Grimwith Fell to the north.

4.5 The more detailed Ordnance Survey 25" to 1 mile map of 1891 (sheet 134/12) shows that the small angular enclosure depicted to the east of Fancarl House in 1853 had been removed, and the existing field which forms the current survey area had been created by dividing off the southern end of the larger field running north-west from the road frontage (see figures 4 and 5); the fact that this wall is later than the north-south adjacent wall is evidenced by the butt joint (see figure 7). Additional structures have been built in the Fancarl House complex, and an outlying field barn (named as 'High Lathe') has been built in the enclosed fields to the north. A 'Pump' is also marked on the north side of the roadside field boundary to the east of the house. No mining activity in the form of shafts or surface earthworks is shown in the immediate vicinity of the house, although a small circular area of stones is depicted c.60m to the north-north-west within one of the fields, and there is a small circular body of water further to north, immediately to the south of High Lathe; both these features follow the line of the Silver String Vein, and are likely to represent former shafts. The area is similarly depicted on the Ordnance Survey 1909 edition. The small circle of stones is marked as a shaft by Gill, on his map of mining remains in the area (Gill 1998, 37).

4.6 Aerial photographs taken in 2002 (Google Earth) show numerous shafts around the High Lathe enclosures, representing the former Cross Gill workings, most aligned almost east-west following the underground veins. However, few features are clearly shown in the roadside fields, which appear to have been improved thus 'smoothing' out any earthworks. Nevertheless, a small mound is shown adjacent to the roadside field boundary of the survey area, forming the site of the 'pump' shown on the 1891 map. The visit made to the site during the archaeological survey work revealed a denuded shaft mound some 15m to the north-west of the survey area and a second, more prominent, shaft mound some c.65m to the north-west again; this latter corresponds to the small circle of stones on the 1891 map and that plotted by Gill. There is also an isolated shaft mound to the south-east set 50m away on the opposite side of the B6265.

5 RESULTS OF THE FIELD INVESTIGATION

Earthwork Survey (see figure 7)

5.1 The earthwork survey area is actually set on a shallow north-east/south-west alignment but, for the purposes of the following description, it is assumed to be aligned east-west. As previously noted, the survey covered an area of c.86m east-west by c.32m north-south. The northern edge of the area is set at c.315m AOD, with the ground surface generally sloping downwards from north to south; the lowest point at c.310.50m AOD lies in the south-east corner (see plate 1). There is also a more gentle downward slope from west to east, again into the south-east corner of the field. Apart from the western side towards Fancarl House, where there is a post and wire fence, the survey area is bounded by drystone walls. The historic maps shows that those defining the south and east sides of the field were in place by 1853, whereas as that the north side was built between 1853 and 1891.

5.2 At the western end of the field, there are a series of generally curvilinear, rather spread scarps (A on figure 7), most either north or south-facing, covering an area c.18m square. The northernmost scarp, which is south-facing and stands up to 0.6m high, appears to be in two parts, the western part returning to the south; it might relate to the boundary of the small angled enclosure shown here in 1891. To

the north-east, against the drystone wall forming the northern boundary of the survey area, there is a low linear mound (B), measuring c.14m long and standing up to 0.3m high. It seems that mound forms part of the spoil collar of a very denuded shaft mound, visible as a shallow oval depression, which partially extends to the north of the field wall, with the wall crossing the top.

5.3 To the south-east of this spoil collar (B), there is the only complete shaft mound (C) within the survey area. The collapsed/backfilled shaft is formed by a sub-oval depression, measuring c.4m north-south by c.3m east-west, and up to 0.5m deep on the north side (see plate 2). The collar of spoil comprises a flat-topped bank, most prominent to the east and south of the shaft, where is stands up to 0.6m high; together, the shaft and collar have a combined average diameter of between c.10m-12m.

5.4 To the south of the shaft mound, set against the drystone wall forming the southern boundary of the survey area, is a prominent semi-circular mound (D), measuring a maximum of 10m across and standing up to 0.6m in height (see plate 3). In the approximate centre of the mound, an old metal trough and some timbers cover a stone-lined circular shaft, c.1.0m in diameter. The shaft is lined with roughly coursed and squared blocks of stone rubble, and is at least several metres deep, with water in the bottom. The shaft is placed in the same position as the 'Pump' marked on the Ordnance Survey maps of 1891 and 1909. It is thought that the shaft is a well, which formerly served Fancarl House but which fell out of use when Grimwith Reservoir (originally constructed in 1864) was massively extended after 1970, altering the local water table (Mr S Hall, *pers. comm.*). The mound in which the shaft is positioned is markedly better defined than the rest of the earthworks within the field. It is also noticeable that the adjacent drystone wall does not run over the mound, as is common practice in the area to create a stock-proof barrier when a wall line crosses an earlier shaft mound (e.g. as with shaft mound B to the north), but that the mound is apparently built up against the wall, rising to the same height (Mr S Hall, *pers. comm.*). Although there is a possibility that the mound might originally have been a shaft mound which has been re-used at a later date, the characteristics described above strongly suggest that it is not mining-related, and that it is a water source sunk in the second half of the 19th century.

5.5 There are fewer earthworks in the eastern two thirds of the field. Adjacent to the drystone wall forming the field's southern boundary, there is a shallow, curvilinear depression (E), broadly aligned north-south. It is a maximum of 9.0m long, 4.0m wide and up to 0.3m deep (see plate 4). A shallow, semi-circular depression (F), set c.6m to the north, continues the line of the curvilinear depression, and may be associated with it. Approximately 15m to the east of the above curvilinear depression, there is a second such feature (G), shorter and slightly deeper than the first. To the north and east of this, the remainder of the field is empty, except for a few very faint south-facing scarps.

Trial Trenching

5.6 Three trial trenches were dug by mechanical excavator as part of the archaeological investigation of the field (see figure 7). These were dug across the recorded earthworks, and are described below, from west to east.

Trench 1

5.7 The first trench was aligned north-west/south east across the main curvilinear earthwork within the group of scarps (A) at the western end of the field. The trench

measured 6.0m long by 1.80m wide, and was excavated to a maximum depth of 0.30m below ground level (BGL).

5.8 The uppermost deposit was the friable mid-brown sandy silt topsoil and turf (001) which extended on average to between 0.20m-0.30m BGL. The topsoil overlay a light brown/orange sandy clay sub-soil (007), which contained occasional inclusions of angular stone rubble up to 0.30m across (see plate 5). The subsoil (007) extended below the base of the trench. No archaeological features or deposits were exposed.

Trench 2 (see figure 8)

5.9 The second trench was aligned north-east/south-west across the shaft mound (C). The trench measured 10.10m long by 1.80m wide, and was excavated to a maximum depth of 2.30m BGL (c.309.60m AOD) (see plate 6).

5.10 As in the first trench, the uppermost deposit encountered was the friable mid-brown sandy silt topsoil and turf (001) which extended on average to between 0.20m-0.30m BGL. The topsoil overlay a light brown/orange sandy clay sub-soil (007), containing occasional inclusions of angular stone rubble up to 0.30m across. The subsoil extended to c.1.00m BGL, and overlay the lowest deposit encountered in the trench, the fractured surface of the natural limestone/sandstone bedrock (008) (see plate 7). The fractured surface was formed by large angular pieces of stone up to 0.40m square and 0.15m deep, but the rock soon became very hard, and was difficult to cut into, even when the mechanical excavator's scraper bucket was replaced with a toothed bucket. The bedrock (008) continued beneath the base of the trench.

5.11 Within the trench, the upcast from the shaft (009) had largely been thrown to the east, and it resembled the sub-soil (007), but had a higher frequency of angular stone rubble. The cut for the shaft [010] was not clearly defined due to subsequent collapse, backfilling and possible re-cutting at a later date. At its lowest level, the shaft appeared to be defined by the edges of the fractured bedrock (008) through which it cut. It had a sub-oval plan, measuring c.1.80m north-south by 1.30m east-west (see plates 8 and 9). This is close to the dimensions recorded for stone-lined mine shafts elsewhere in the Dales (for example, at the Tan Hill colliery, North Yorkshire (Richardson & Dennison, forthcoming), although there is no evidence that the shaft at New Grimwith Farm was ever stone-lined. The lowest visible level of the shaft appeared to terminate just short of the south side of the trench, but to continue beyond the north side of the trench. The sides of the cut [010] appeared to be reasonably vertical where they passed through the bedrock (008), but above this level (at c.1.20m BGL) the east side of the cut rose upwards at an angle of 45 degrees for a short distance before becoming much steeper and rising to meet the topsoil (001). The west side of the cut [010] was not clearly visible at an upper level in the south-facing section of the trench, probably because at a later date, a second cut [006] had been made (see below). The lowest fill (005) of the original cut for the shaft was a mixture of light brown/orange sandy clay and angular stone rubble; it was compacted, but not solid, and appeared to be looser in the north-east quadrant of the shaft. It seems likely that this represents a mixture of collapse and deliberate backfilling after the shaft was abandoned.

5.12 At a later date, almost certainly in the later 19th century, a second cut [006] was made into the upper part of the collapsed/backfilled shaft. This cut was sub-circular in plan, measuring a maximum of c.2.40m across and extending to a maximum depth of 1.10m BGL. In the trench's south-facing section, the west side

of the cut [006] sloped downwards from west to east relatively evenly at an angle of c.45 degrees. However, the east side was shallower and less even sloping, with a stepped profile, possibly the result of further re-cutting. In the north-facing section, the cut [006] was similar but with more evenly sloping east and west sides (see plate 9). The lowest fill of the cut (004) comprised a loose mixture of angular stone rubble, small quantities of red handmade brick and tile, and lumps of a light-grey lime mortar up to 0.40m across. It underlay a band of similar material (003), again with little or no soil. The uppermost and main fill (002) of the cut comprised a mixed deposit of mid brown sandy silt and sandy clay, with frequent inclusions of small angular stones and lenses of ash, coal and charcoal (see plate 8). All three fills (002, 003 and 004) contained late 19th century or early 20th century pottery, the majority of which was brown-glazed with only a small amount of blue and white transfer-printed ware; identifiable items included parts of a teapot, a pancheon bowl and storage jars. The uppermost fill (002) also contained a small quantity of animal bone. It is almost certain that these formed domestic refuse from Fancarl House, for which the shaft would have formed a useful rubbish pit.

Trench 3

5.13 The third trench was aligned east-west across the shallow curvilinear depression (E) on the southern side of the field. The trench measured 4.00m long by 1.80m wide, and was excavated to a maximum depth of 0.30m below ground level (BGL).

5.14 As in the other two trenches, the uppermost deposit was the friable mid-brown sandy silt topsoil and turf (001) which extended on average to between 0.20m to 0.30m BGL. This topsoil overlay a light brown/orange sandy clay sub-soil (007), with occasional inclusions of angular stone rubble up to 0.30m across. The subsoil (007) extended below the base of the trench (see plate 10). No archaeological features or deposits were exposed.

Discussion and Conclusions

5.15 The earthwork survey recorded three main features within the proposed development site; part of a shaft mound (B), a complete shaft mound (C) and a mound containing well (D). The shaft mounds form part of a group of at least four or five such features, set on a general north-west/south-east alignment; those in and nearest the survey area lie at c.15m centres. These shaft mounds cross an area of ground which slopes steeply downwards from north-west to south-east, and are following the line of the Silver String, one of several minor north-south and generally unproductive lead-bearing veins in the area that were 'tried' or explored with shallow shafts. These are most likely to have been dug by the Yorkshire Mining Company which was operating in this area between c.1852 and c.1881, although they could also relate to an earlier, undocumented, period of working.

5.16 The complete shaft mound within the survey area (C) measured between c.10m-12m in diameter and up to 0.6m high. The trenching work showed that the central shaft had a sub-oval plan, c.1.80m north-south by 1.30m east-west, and that it extended to at least 2.40m below ground level. As far as could be ascertained, the original cut for the shaft was roughly defined by the remaining edges of the bedrock through which it had been cut. The dimensions of the shaft are similar to other stone-lined mine shafts elsewhere in the Dales, although there is no evidence that this shaft was ever stone-lined. Without detailed information relating to local lead ore deposits, or documentary evidence such as surviving mine plans, it is impossible to estimate exactly how deep the shaft once was. However, the underlying limestone means that the tops of the vertical or near-vertical lead veins

would be relatively shallow, and the fact that there are at least three shaft mounds in close proximity, rather than being spaced at greater distances, suggests that they are unlikely to provide access to extensive underground workings, which would normally have been accessed by levels or adits. There may well have been some underground excavation along the line of the vein from the base or sides of the shaft, but any such working is likely to have been relatively limited in terms of distance.

5.17 Nevertheless, even as relatively shallow shafts presumably dating to the second half of the 19th century sunk to 'try' a vein, they could still easily once have been between 5m to 10m deep. The relatively limited nature of the surrounding spoil collar also suggests that the shaft is not especially deep, or that it is associated with much in the way of underground workings. Indeed, if the trial was unsuccessful, then the shaft may not have been open for very long. The lowest fill (005) of the original cut for the shaft mound might represent either deliberate backfilling or subsequent collapse of the upper part. At a later date, most probably towards the end of the 19th century, a pit [006] was dug into the top of the shaft and filled with domestic rubbish, almost certainly from Fancarl House.

5.18 Although it is on a similar alignment to the shaft mounds described above, and the possibility that it makes use of an earlier shaft cannot be completely discounted, the prominent semi-circular mound (D) positioned against the southern boundary of the survey area is most likely to be a well sunk in the second half of the 19th century to serve Fancarl House. A pump was set on the mound adjacent to the wall in 1891 and 1909, and is named on the historic Ordnance Survey maps.

5.19 The curvilinear shallow earthwork (A) on the north-west corner of the site may relate to the boundary of the small angled garden enclosure shown here in 1853. The remainder of the earthworks (E, F and G), one of which was investigated by the trenching, are probably either natural features or minor scarps associated with the agricultural use of the field over time. They are not considered to be of archaeological significance.

6 IMPACT OF THE PROPOSED DEVELOPMENT

Nature of the Development

6.1 The development comprises the construction of a new small dwelling for an agricultural labourer towards the north-west corner of the site (see figure 6). The two storey house will have a single storey garage attached to the west side and a small walled garden enclosure to the east, with new access created from the B6265 through a widening of an existing opening in the roadside wall. Foul drainage will run from the house to a new small-scale sewage plant located just inside the roadside wall to the east of the former well. The new access track will also serve a new concrete yard and associated agricultural shed (measuring 25m long by 20m wide) at the eastern end of the field; a certain amount of landscaping will be required to level this yard and shed into the natural north-south slope. A new line of trees will be planted inside the roadside wall to screen the yard and agricultural shed.

Assessment of Importance or Significance

6.2 Using the data gathered by this report, an initial assessment of the grade of importance or significance of each identified site or asset within the survey area can be made. This assessment is based on professional judgement, and a

combination of the Secretary of State for Culture, Media and Sport's criteria for scheduling Ancient Monuments or listing buildings of Special Architectural or Historic Interest, and the four values used by Historic England to assess significance, namely evidential value, aesthetic value, historical value and communal value (English Heritage 2008, 27-32).

6.3 A value or significance grading system can therefore be applied to the identified heritage assets, namely Very High/International, High/National, Medium/Regional, Low/Local, Negligible and Unknown. Further details on how these grades are generally applied is contained in Appendix 3.

6.4 The values of the four identified assets within the proposed development site can be summarised as follows. It was previous determined that earthworks E, F and G were not of archaeological origin.

Asset	*Name*	*Value*
A	Curvilinear earthwork, west side of development site	Negligible
B	Spoil collar, north side of development site	Negligible
C	Shaft mound, centre west side of development site	Low
D	Mound with well, south side of development site	Low

Assessment of Development Impact

Impact and Effect Grades

6.5 In general, an assessment of development impact on any heritage asset will depend on the value or significance of that asset combined with the degree or magnitude of potential impact. The value grades applied to the four identified assets within the development site are given above, and the magnitude of development impact can also be graded according to whether it is Substantial/Major, Moderate, Slight/Minor, Negligible or No Change. Details of how these grades can be applied is given in Appendix 3, and it should be noted that impacts can be positive as well as negative or adverse. The overall Significance of Effect or impact can then be determined by combining the value/significance of an asset and the magnitude of impact. Again, the way in which this overall effect is calculated is detailed in Appendix 3.

Impacts on Identified Assets

6.6 As presently proposed, the east end of the new agricultural dwelling coincides with shaft mound C, and will cause the destruction of all surface earthworks, resulting in a substantial or major adverse impact on this low value asset. Although the precise form of any foundation design is currently unknown, it seems likely that the c.10m-12m diameter and 0.6m high earthwork will need to be levelled to, and probably below, the existing ground surface to create a level building platform. Limited excavation showed that the central shaft within the shaft mound was sub-oval in plan, c.1.80m north-south by 1.30m east-west, and that it extended to at least 2.40m below ground level. Its full depth is unknown, but experience and local knowledge suggests it is unlikely to be more than 10m deep, although it must be stressed that this is professional judgement rather than fact. The shaft was also backfilled (either partially or completely) after use, and in the late 19th century it was partially re-excavated to receive domestic rubbish.

6.7 A structural engineer will be required to examine the shaft mound and determine whether construction of the new dwelling will be practicable and safe over it. However, given the relatively small size and potential depth of the shaft, and the

fact that it is rock cut, suggests that an engineering solution sufficient to bear the weight of the new construction could be formulated - such a solution would presumably involve backfilling and capping the shaft after a certain amount of ground-reduction, followed by an appropriately-sized concrete raft placed over the top.

6.8 The construction of the new small-scale sewage plant, to the east of the mound and well (D) located against the south side of the site, will not affect this feature, and it will be retained; this sewage plant may affect other earthworks (e.g. Site E), but it was noted above that these were not of archaeological origin. The section of other shaft mound (B) within the northern part of the survey area does not appear to be affected by the proposed development, and this should be retained if at all possible.

6.9 As can be seen from the table below, the proposed development will affect two of the identified assets. Of these, one is considered to be of Low value and one is of Negligible value. In the case of the shaft mound, the magnitude of impact is considered to substantial, and so a Slight negative overall significance of effect results.

Asset no and name	*Value*	*Magnitude of Impact (negative)*	*Overall Significance of Effect (negative)*
A: Curvilinear earthwork, west side of development site	Negligible	Slight?	Neutral
C: Shaft mound, centre west side of development site	Low	Substantial	Slight

6.10 The YDNPA's Senior Historic Environment Officer is of the opinion that the significance of the mining remains within the proposed development site is moderate, and that they represent a fairly common example of the type. The results of above assessment work have confirmed this, and it is noted that there are better preserved shaft mounds, covering more extensive areas, and mostly within their original landscape context, on Grimwith Fell to the north.

Recommended Mitigation Measures

6.11 When a proposed development is permitted in an area of historic landscape or that containing identified archaeological remains (irrespective of their date or complexity), it is expected that some form of archaeological intervention is undertaken, to mitigate the effects of the proposals so that any archaeological remains that might be disturbed or destroyed can be recorded. Such intervention may take place before or during development, and can involve archaeological excavation, evaluation (usually by trial trenching), or a watching brief (the monitoring of groundworks).

6.12 In view of the work already undertaken as part of this assessment, and given the value of identified assets, it might be appropriate to undertake an archaeological watching brief during that part of the development which coincides with the shaft mound (C), to identify and record any additional below-ground features that might be revealed. Such work would be limited in nature and extent, and would probably involve the production of measured drawings, photographs and descriptions as appropriate, during the ground-reduction or levelling works. An appropriate level of post-fieldwork assessment and reporting will also be required, proportional to the archaeological details recovered. However, it should be stressed that the decision

for any further work rests with the YDNPA, and if required, it is expected that it would be made a condition of any planning approval. It would also need to be defined by a 'Written Scheme of Investigation', which would need to be approved by the YDNPA in advance of any site development.

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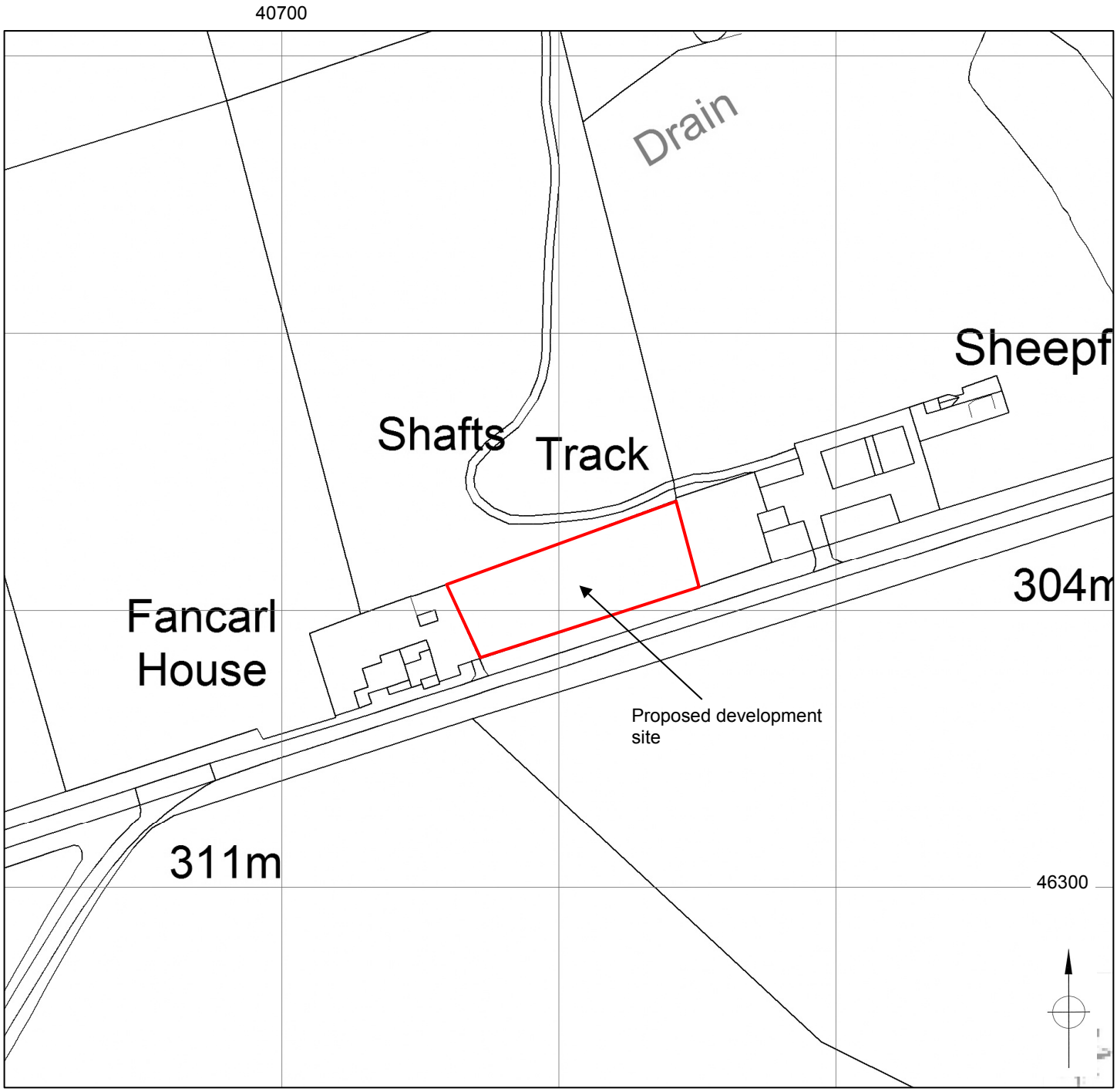
8 ACKNOWLEDGEMENTS

8.1 The archaeological assessment work was commissioned by the landowners and prospective developer, Stewart and Francesca Hall. Thanks are due to them and also David Claxton of WBW Surveyors Ltd for facilitating the project. The earthwork survey was undertaken by Shaun Richardson, assisted by Richard Lamb, and Shaun Richardson also monitored the excavation of the trenches. The final report and other drawings were produced by Ed Dennison, who retains responsibility for any errors or inconsistencies.

PROJECT: NEW GRIMWITH FARM	
TITLE: GENERAL LOCATION	
SCALE: NTS	DATE: OCT 2018
EDAS	FIGURE: 1



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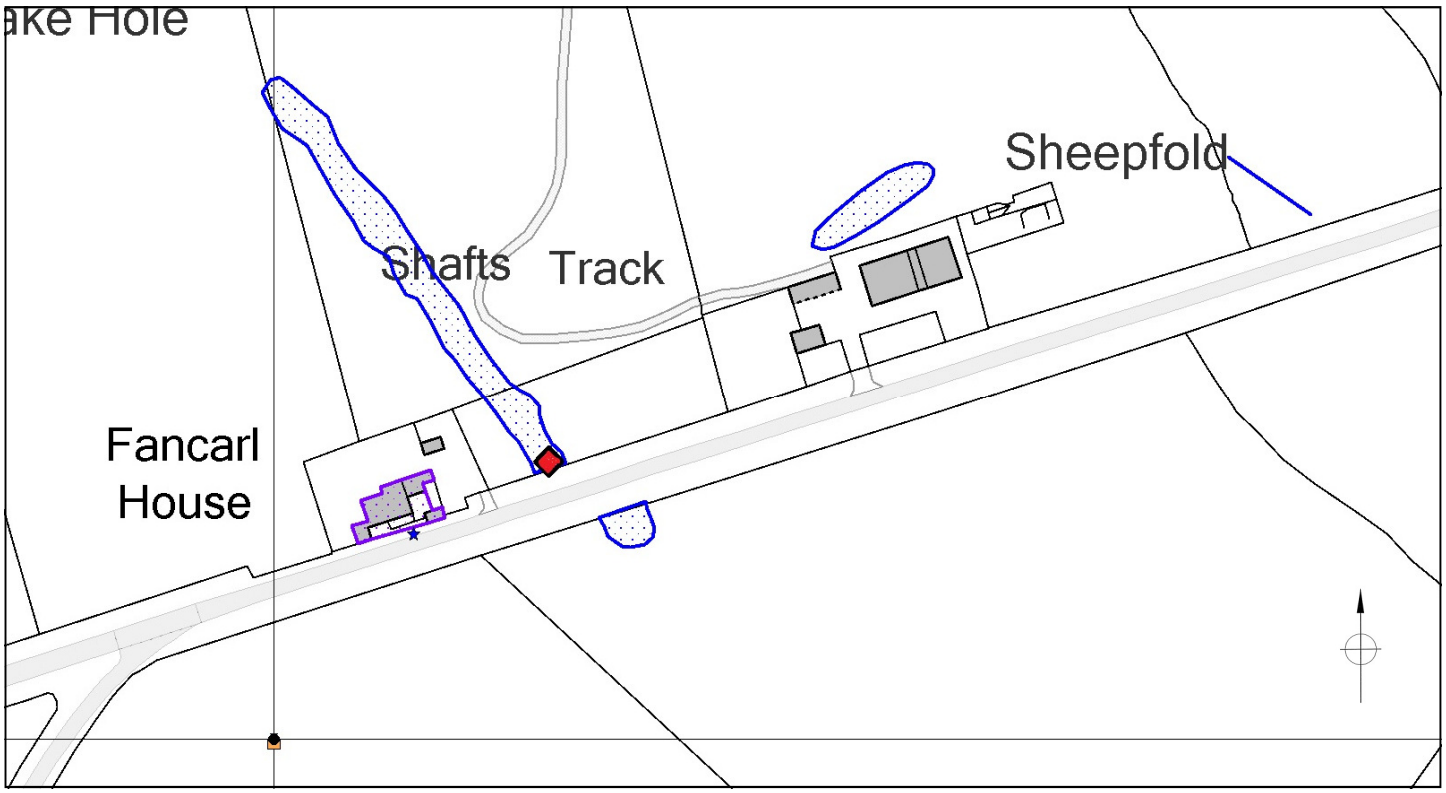
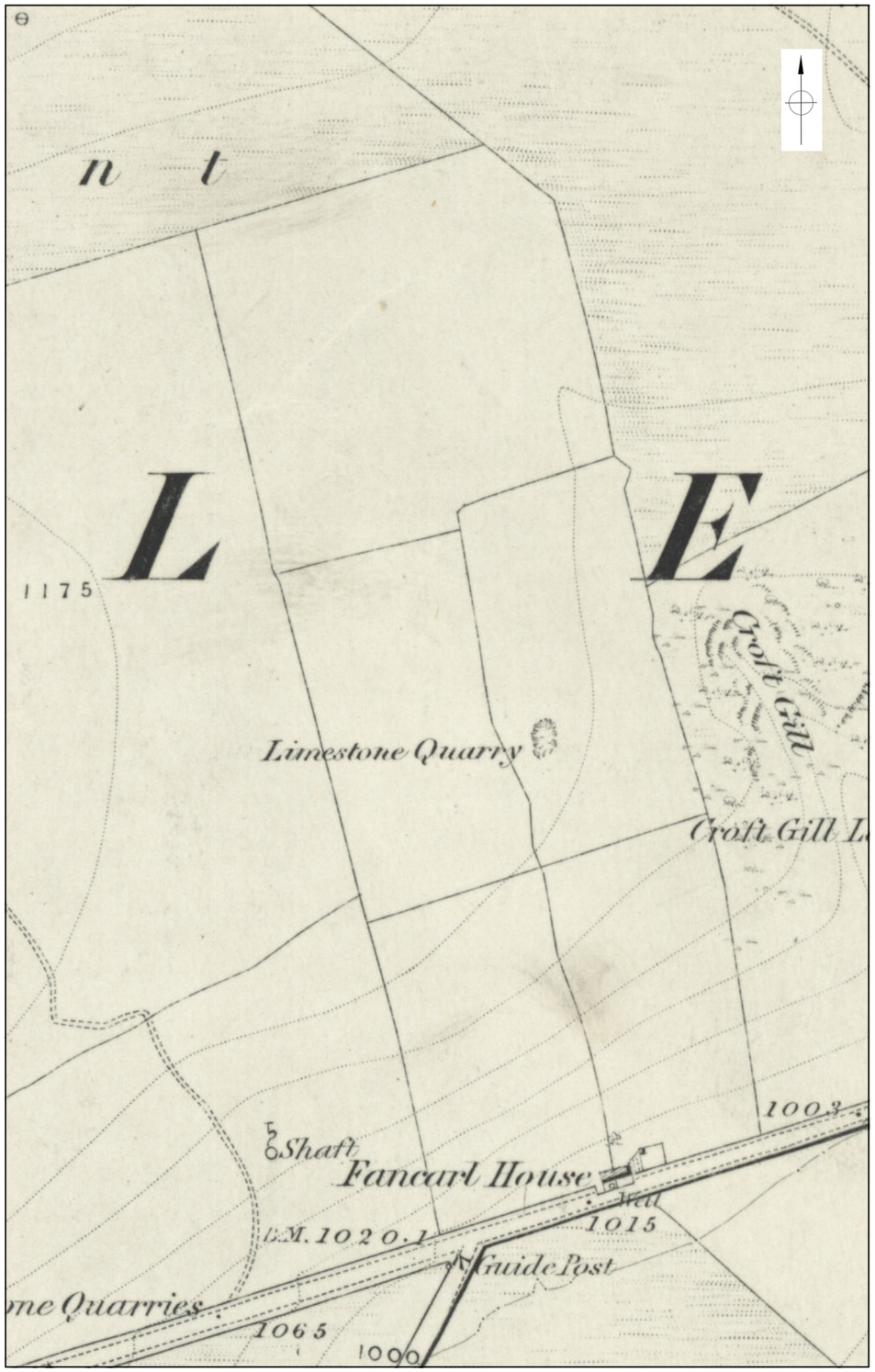
PROJECT: NEW GRIMWITH FARM	
TITLE: DETAILED LOCATION	
SCALE: AS SHOWN	DATE: OCT 2018
EDAS	FIGURE: 2

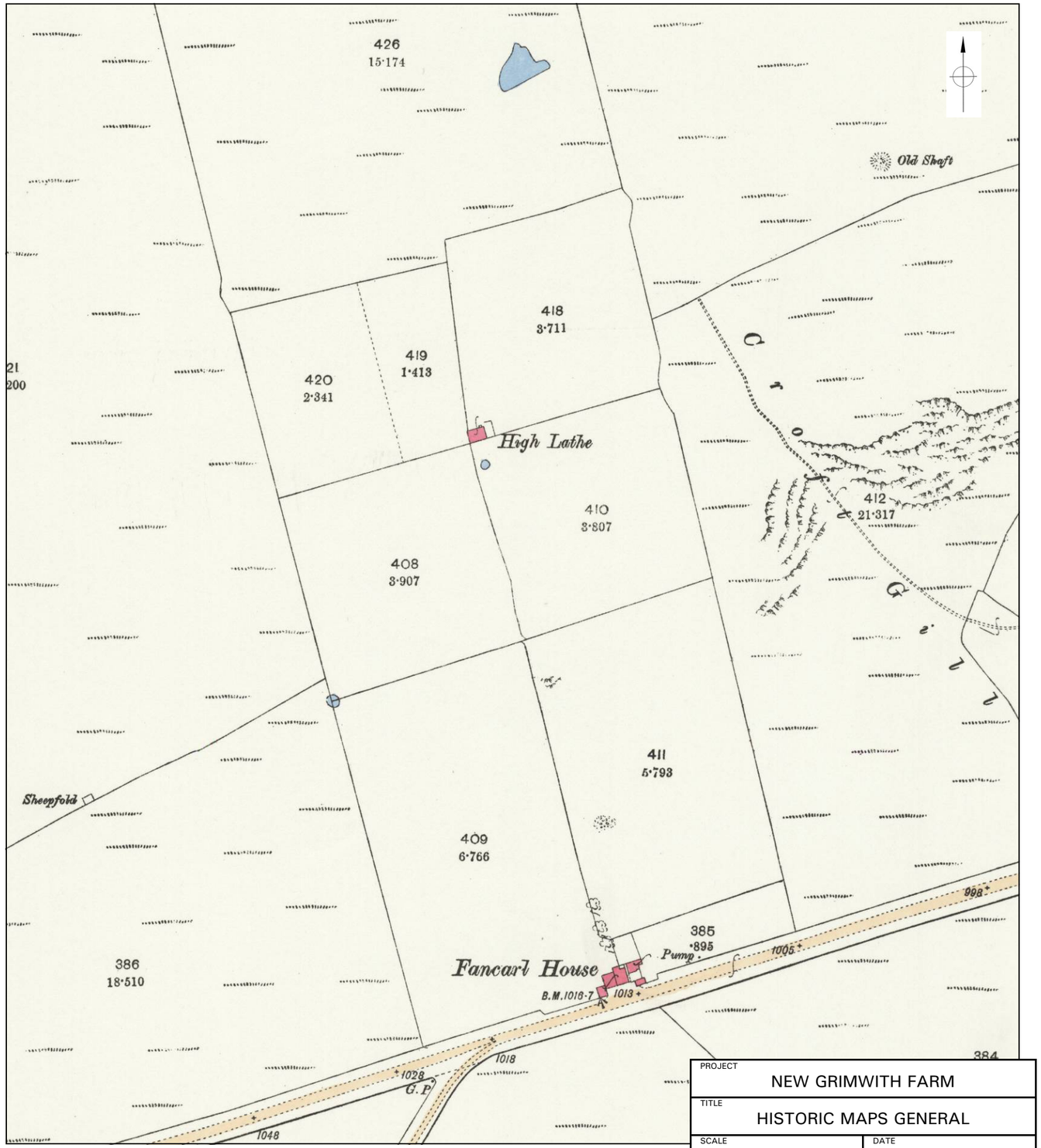


Map provided by YDNPA HER.

PROJECT: NEW GRIMWITH FARM	
TITLE: MINING ACTIVITY	
SCALE: NTS	DATE: OCT 2018
EDAS	FIGURE: 3

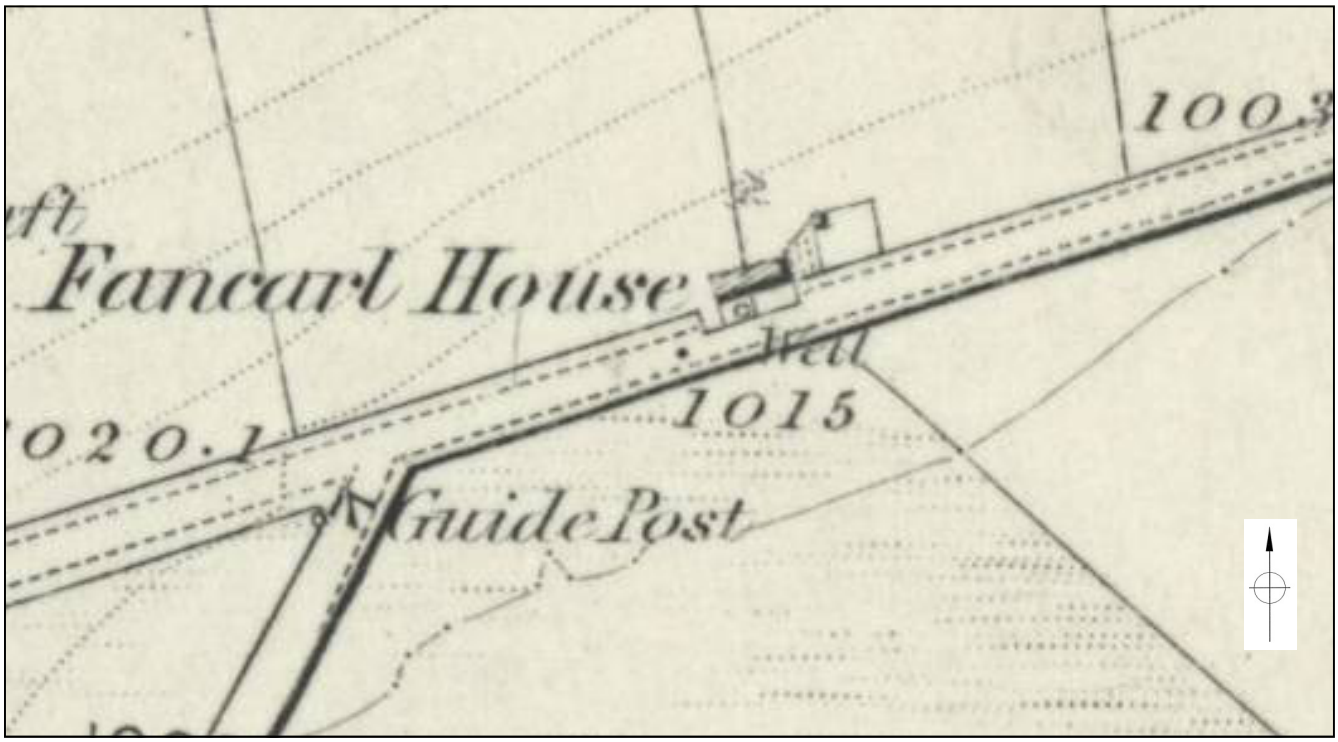


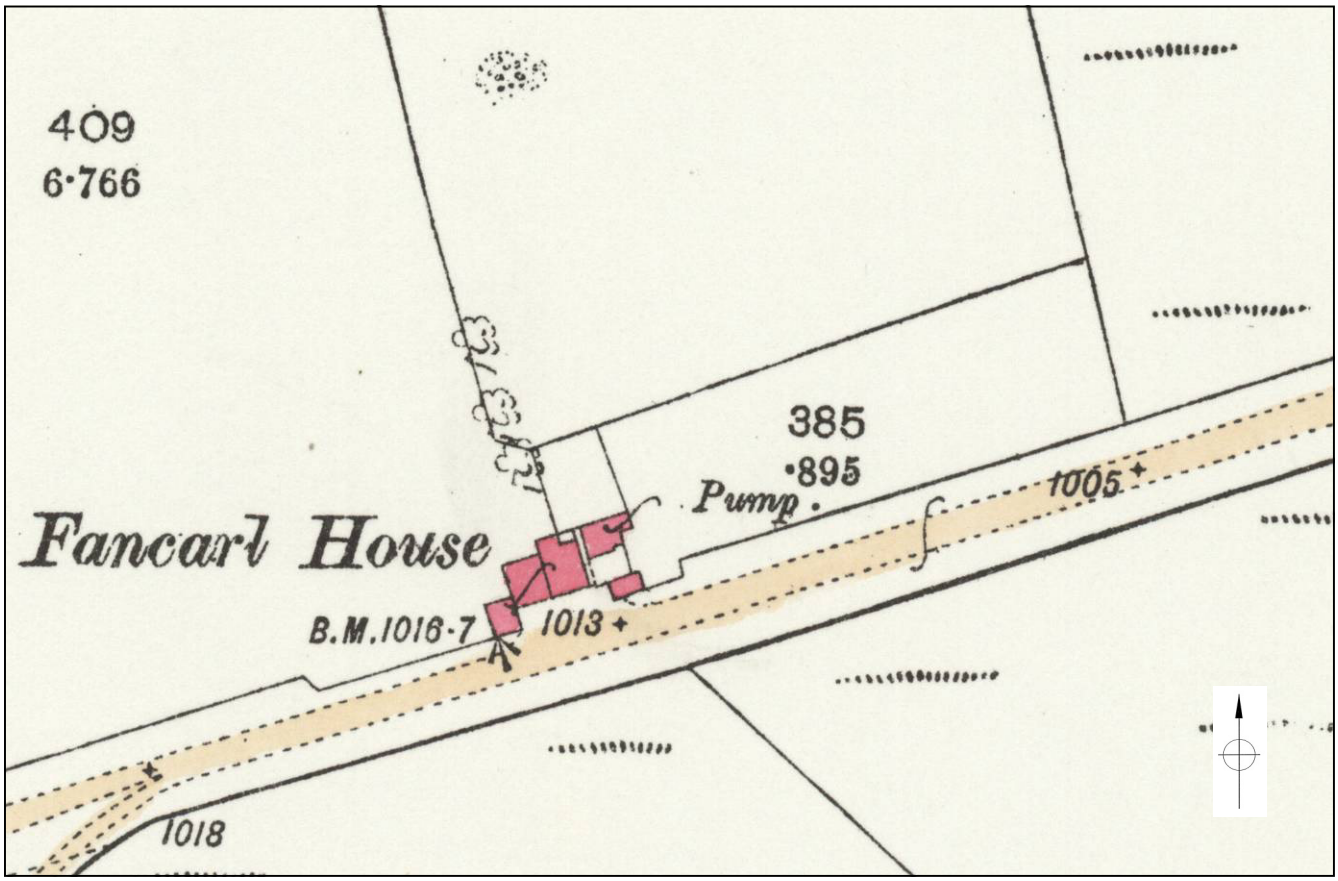
1853 Ordnance Survey 6" to 1 mile map Yorkshire sheet 134 (surveyed 1848-50).



1891 Ordnance Survey 25" to 1 mile map Yorkshire sheet 134/12 (surveyed 1889).

PROJECT	NEW GRIMWITH FARM
TITLE	HISTORIC MAPS GENERAL
SCALE: NTS	DATE: OCT 2018
EDAS	FIGURE: 4



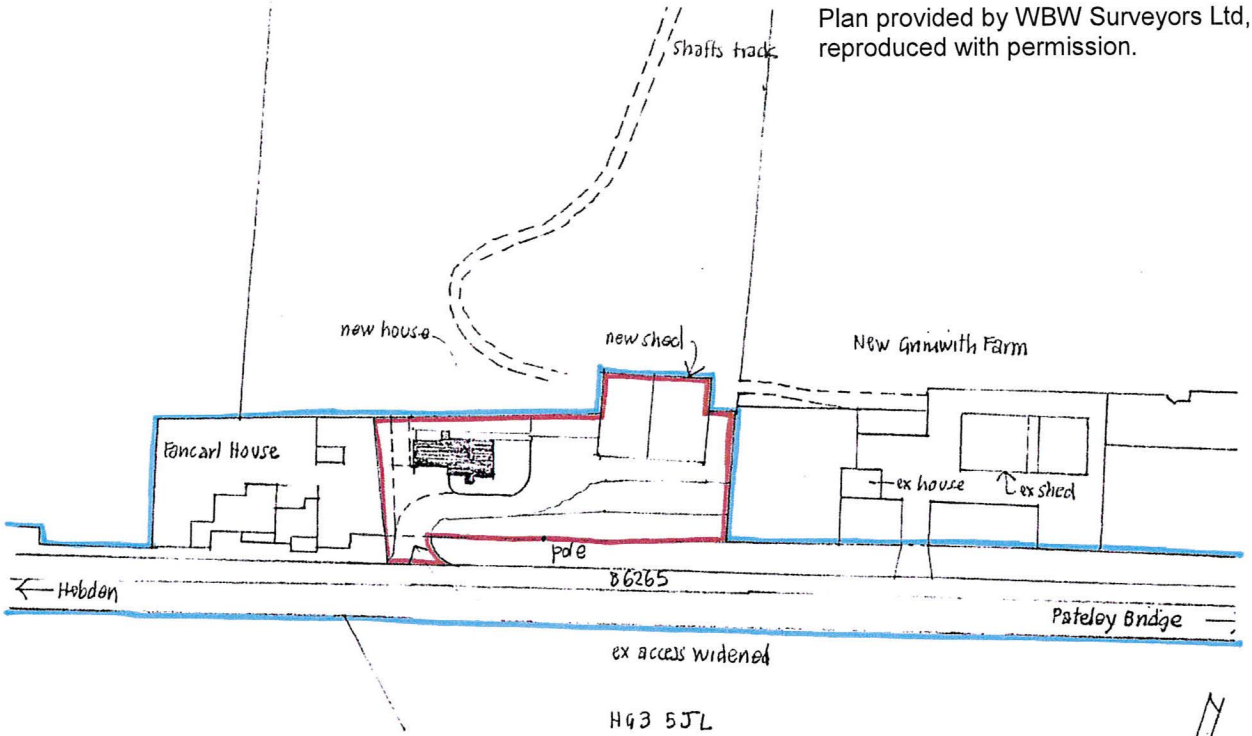


Top: 1853 Ordnance Survey 6" to 1 mile map Yorkshire sheet 134 (surveyed 1848-50).

Bottom: 1891 Ordnance Survey 25" to 1 mile map Yorkshire sheet 134/12 (surveyed 1889).

PROJECT	
NEW GRIMWITH FARM	
TITLE	
HISTORIC MAPS DETAIL	
SCALE	DATE
NTS	OCT 2018
EDAS	FIGURE 5

Plan provided by WBW Surveyors Ltd, reproduced with permission.



HG3 5JL

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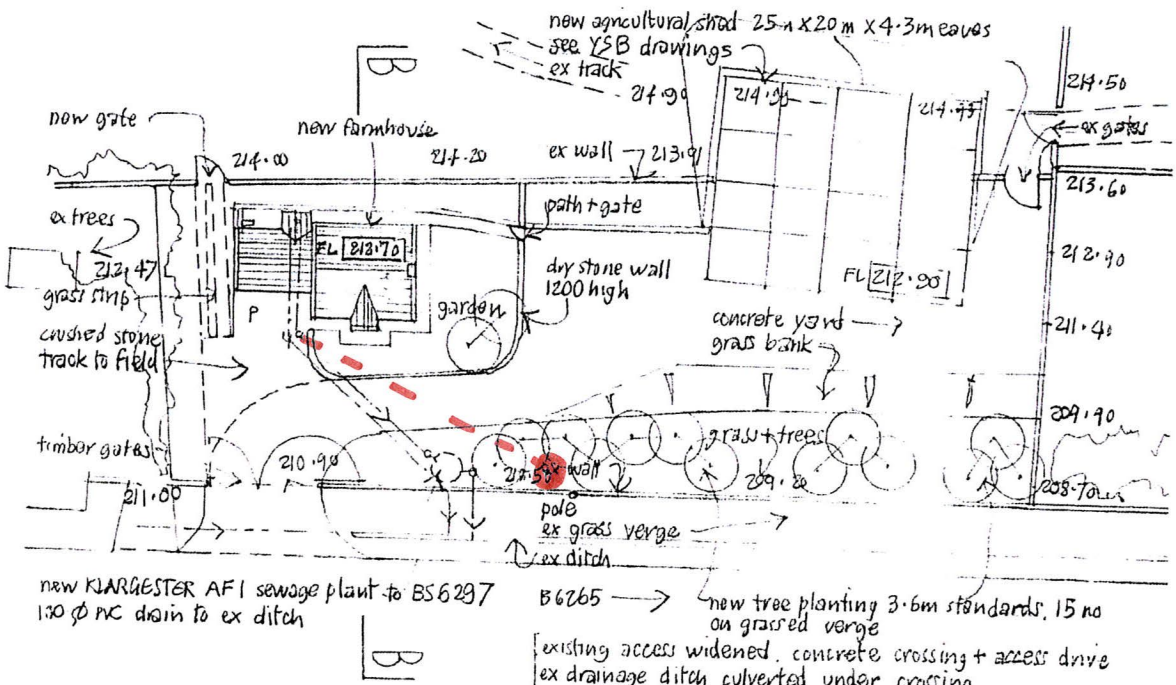
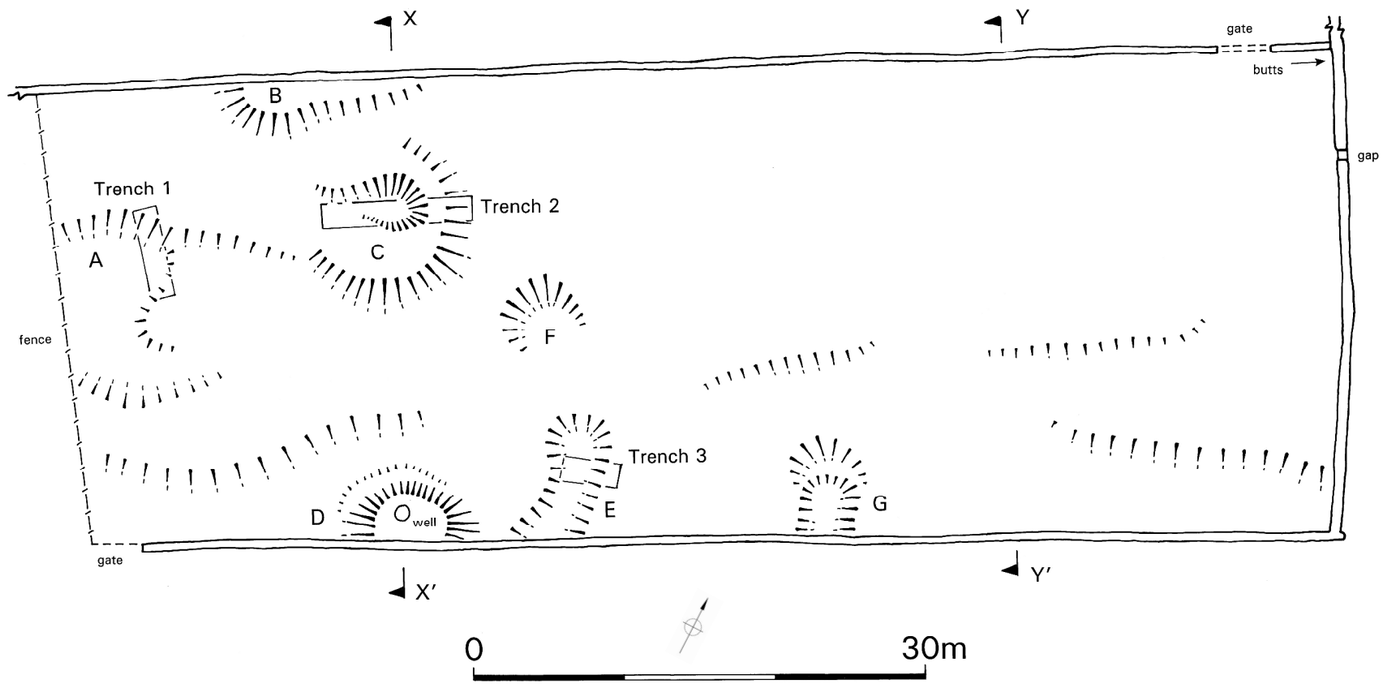
SITE/ROOF 1:500

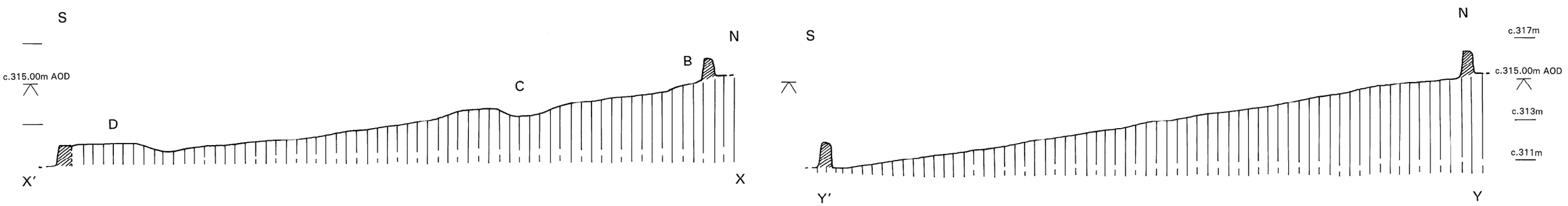


rev 'A' 15-6-18
agricultural shed revised, unequal spans, see YSB drawings

rev 'B' 5-7-18
building floor levels added, shed resited, section BB added

PROJECT: NEW GRIMWITH FARM	
TITLE: DEVELOPMENT PROPOSALS	
SCALE: NTS	DATE: OCT 2018
EDAS	FIGURE: 6





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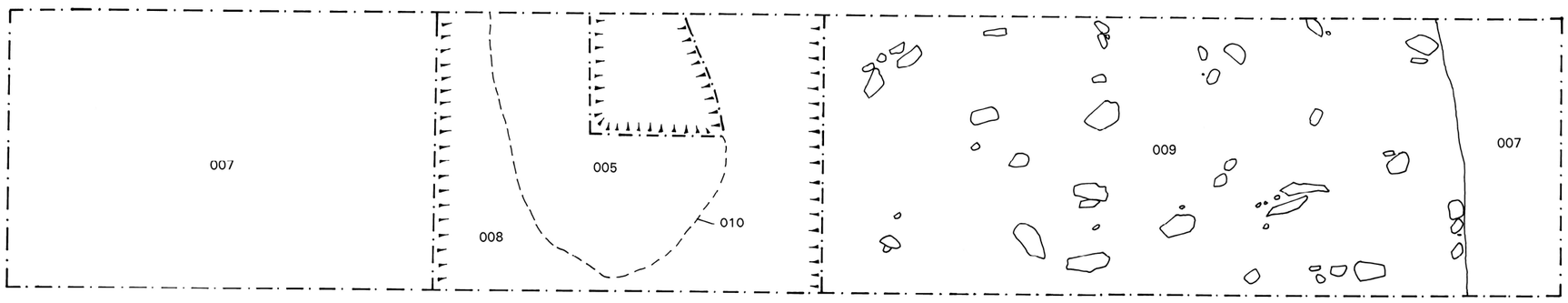
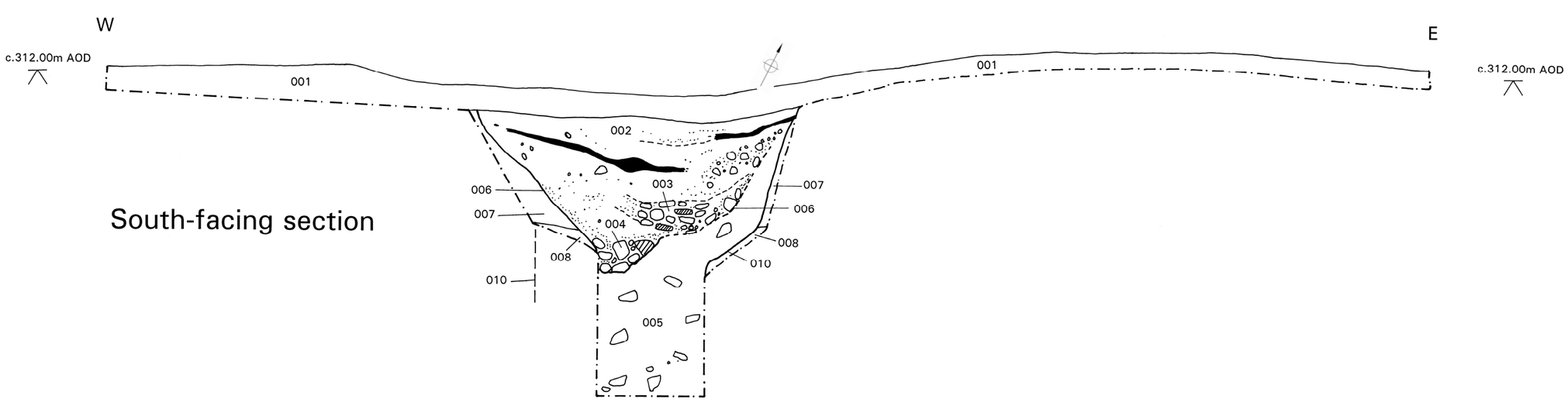
PROJECT: NEW GRIMWITH FARM	
TITLE: EARTHWORK PLAN AND SECTIONS	
SCALE: AS SHOWN	DATE: OCT 2018
EDAS	FIGURE: 7



Trench 2 Plan



South-facing section

0 3m

PROJECT: NEW GRIMWITH FARM	
TITLE: TRENCH 2 PLAN AND SECTION	
SCALE: AS SHOWN	DATE: OCT 2018
EDAS	FIGURE: 8

Plate 1: General view of survey area, looking SW (photo 1/391).

Plate 2: Shaft mound (earthwork C), looking NW (photo 1/396).

Plate 3: Mound with well (earthwork D), looking SE (photo 1/393).

Plate 4: Shallow depression (earthwork E), looking E (photo 1/399).

Plate 5: Trench 1 excavated across curvilinear earthwork (A), looking N (photo 2/471).

Plate 6: Trench 2 excavated across shaft mound (C), looking E (photo 2/461).

Plate 7: Trench 2, exposed shaft (C), looking NW (photo 2/466).

Plate 8: Trench 2, exposed shaft (C), looking N (photo 2/466).

Plate 9: Trench 2, exposed shaft (C), looking SE (photo 2/470).

Plate 10: Trench 3 excavated across shallow depression (earthwork E), looking W (photo 2/474).

APPENDIX 1
LIST OF CONTEXTS

APPENDIX 1: LIST OF CONTEXTS

Context	*Description and Interpretation*	*Area of Site*
001	Friable mid-brown sandy silt and turf, average 0.3m thick. Topsoil.	All trenches
002	Compacted mixed mid-brown sandy silt and sandy clay, with frequent inclusions of small angular stones and lenses of ash, coal and charcoal, c.0.45m thick. Contained late 19th century or early 20th century pottery and some animal bone. Top fill of cut 006.	Trench 2
003	Loose mixture of angular stone rubble, small quantities of red handmade brick and tile, and lumps of a light-grey lime mortar up to 0.40m across, up to 0.25m thick. Little soil. Contained late 19th century or early 20th century pottery. Central fill of cut 006.	Trench 2
004	Loose mixture of angular stone rubble, small quantities of red handmade brick and tile, and lumps of a light-grey lime mortar up to 0.40m across, 0.20m thick. Contained late 19th century or early 20th century pottery. Lowest fill of cut 006.	Trench 2
005	Compacted mixed light brown/orange sandy clay and angular stone rubble, less than 0.4m in size; possibly looser in NE quadrant of shaft. Lower fill of shaft 010, probably resulting from collapse and backfilling.	Trench 2
006	Cut for rubbish pit in top of shaft 010. Sub-circular in plan, c.2.40m across and 1.10m deep. W side sloped downwards from W to W at an even angle of c.45 degrees. E side more shallow with a stepped profile, possibly re-cutting.	Trench 2
007	Compacted light brown-orange sandy clay, average 0.8m thick, containing occasional inclusions of angular stone rubble up to 0.30m across. Sub-soil.	All trenches
008	Fractured limestone/sandstone bedrock, at least 1.20m thick, formed by large angular pieces of stone up to 0.40m square and 0.15m deep. Natural bedrock.	Trench 2
009	Compacted light brown-orange sandy clay, unknown depth, with very frequent angular stone rubble less than 0.40m in size. Upcast from excavation of shaft 010.	Trench 2
010	Cut for shaft, c.1.80m long x c.1.30m wide and at least 2.10m deep, better defined with reasonably vertical sides through bedrock 008. Above this the E side rises at an angle of 45 degrees for a short distance before becoming much steeper and rising to meet the topsoil (001). The W side not clearly visible at an upper level due to later disturbance (cut 006).	Trench 2

APPENDIX 2
PHOTOGRAPHIC CATALOGUE

APPENDIX 2: NEW GRIMWITH FARM PHOTOGRAPHIC CATALOGUE

Film 1: Colour digital photographs taken 2nd October 2018
Film 2: Colour digital photographs taken 11th October 2018

Film	*Frame*	*Subject*	*Scale*
1	385	Mound (earthwork D), stone lining of well, looking SE	-
1	390	Mound (earthwork D), stone lining of well, looking down	-
1	391	General view of survey area, looking SW	-
1	392	Shaft mounds to immediate NW of survey area, looking NW	-
1	393	Mound (earthwork D), looking SE	2 x 1m
1	394	Mound (earthwork D), looking W	2 x 1m
1	395	Mound (earthwork D), old trough and 'capping' to well, looking S	1m
1	396	Shaft mound (earthwork C), looking NW	2 x 1m
1	397	Shaft mound (earthwork C), looking NE	2 x 1m
1	398	Shaft mound (earthwork C), looking SE	2 x 1m
1	399	Shallow depression (earthwork E), looking E	2 x 1m
1	400	Shallow depression (earthwork G), looking E	2 x 1m
1	401	Shallow depression (earthwork G), looking W	2 x 1m
2	461	Trench 2, across shaft mound (C), looking E	2 x 1m
2	462	Trench 2, across shaft mound (C), looking NE	2 x 1m
2	463	Trench 2, across shaft mound (C), looking W	2 x 1m
2	464	Trench 2, across shaft mound (C), S-facing section, looking N	2 x 1m
2	465	Trench 2, across shaft mound (C), S-facing section, looking NW	2 x 1m
2	466	Trench 2, across shaft mound (C), S-facing section, looking NW	2 x 1m
2	467	Trench 2, across shaft mound (C), S-facing section, looking N	2 x 1m
2	468	Trench 2, across shaft mound (C), S-facing section, looking NE	2 x 1m
2	469	Trench 2, across shaft mound (C), N-facing section, looking S	2 x 1m
2	470	Trench 2, across shaft mound (C), N-facing section, looking SE	2 x 1m
2	471	Trench 1, across curvilinear earthwork (A), looking N	2 x 1m
2	472	Trench 1, across curvilinear earthwork (A), looking S	2 x 1m
2	473	Trench 3, across shallow depression (E), looking E	2 x 1m
2	474	Trench 3, across shallow depression (E), looking W	2 x 1m

APPENDIX 3
METHODOLOGY FOR IMPACT ASSESSMENTS ON HERITAGE ASSETS

APPENDIX 3: METHODOLOGY FOR IMPACT ASSESSMENTS ON HERITAGE ASSETS

Based on Highways Agency's 2007 Design Manual for Roads and Bridges volume 11, Section 3 Part 2 (HA 208/07), and in accordance with advice contained in the 2012 National Planning Policy Framework, and the previous Planning Policy Statement 5 (Planning for the Historic Environment).

Assessing Value or Significance of Heritage Assets

Value	*Examples*
Very High (International)	World Heritage Sites, Scheduled Monuments of exceptional quality, or assets of acknowledged international importance or can contribute to international research objectives. Other buildings and built heritage of exceptional quality and recognised international importance. Historic landscapes and townscapes of international value or sensitivity, whether designated or not, or extremely well preserved historic landscapes and townscapes with exceptional coherence, integrity, time-depth, or other critical factor(s).
High (National)	Scheduled Monuments, or undesignated archaeological assets of national quality and importance, or than can contribute significantly to national research objectives. Grade I and II* Listed Buildings, other built heritage assets that can be shown to have exceptional qualities in their fabric or historical associations not adequately reflected in their listing grade. Conservation Areas containing very important buildings or with very strong character and integrity, undesignated structures of clear national importance. Grade I and II* Registered Parks and Gardens, Registered Battlefields and designated or non-designated historic landscapes and townscapes of outstanding interest, quality and importance, or well preserved historic landscapes which exhibit considerable coherence, integrity time-depth or other critical factor(s).
Medium (Regional)	Undesignated archaeological assets of regional quality and importance that contribute to regional research objectives. Grade II Listed Buildings, historic unlisted buildings that can be shown to have exceptional qualities in their fabric or historical associations. Conservation Areas containing buildings that contribute significantly to its historic character. Historic townscapes or built-up areas with important historic integrity in their buildings, or built settings (e.g. including street furniture and other structures). Designated special landscapes, undesignated historic landscapes that would justify special historic landscape designation, landscapes of regional value, and averagely well preserved historic landscapes with reasonable coherence, integrity, time-depth or other critical factor(s). Assets that form an important resource within the community, for educational or recreational purposes.
Low (Local)	Undesignated archaeological assets of local importance, assets compromised by poor preservation and/or poor survival of contextual associations, or assets of limited value but with potential to contribute to local research objectives. Locally listed buildings, historic (unlisted) buildings of modest quality in their fabric or historical association. Historic landscapes or built-up areas of limited historic integrity in their buildings or built settings (including street furniture and other structures). Robust undesignated historic landscapes, historic landscapes with importance to local interest groups, historical landscapes whose value is limited by poor preservation and/or poor survival of contextual associations. Assets that form a resource within the community with occasional utilisation for educational or recreational purposes.
Negligible	Archaeological assets with very little or no surviving interest. Buildings of no architectural or historical note. Landscapes and townscapes that are badly fragmented and the contextual associations are severely compromised or have little or no historical interest.

Unknown	The importance of the asset has not been determined. Buildings with some hidden (i.e. inaccessible) potential for historic significance.

Assessing Magnitude of Impact (Negative or Positive)

Magnitude of Impact	*Typical Criteria Descriptors*
Substantial (Major)	*Negative:* Impacts will damage or destroy cultural heritage assets; result in the loss of the asset and/or its quality and integrity; causes severe damage to key characteristic features or elements; almost complete loss of setting and/or context of the asset. The asset's integrity or setting is almost wholly destroyed or is severely compromised, such that the resource can no longer be appreciated or understood. *Positive:* The proposals would remove or successfully mitigate existing damaging and discordant impacts on assets; allow for the restoration or enhancement of characteristic features; allow the substantial re-establishment of the integrity, understanding and setting for an area or group of features; halt rapid degradation and/or erosion of the heritage resource, safeguarding substantial elements of the heritage resource.
Moderate	*Negative:* Substantial impact on the asset, but only partially affecting the integrity; partial loss of, or damage to, key characteristics, features or elements; substantially intrusive into the setting and/or would adversely impact on the context of the asset; loss of the asset for community appreciation. The assets integrity or setting is damaged but not destroyed so understanding and appreciation is compromised. *Positive:* Benefit to, or restoration of, key characteristics, features or elements; improvement of asset quality; degradation of the asset would be halted; the setting and/or context of the asset would be enhanced and understanding and appreciation is substantially improved; the asset would be bought into community use.
Slight (Minor)	*Negative:* Some measurable change in assets quality or vulnerability with minor loss of, or alteration to, one (or maybe more) key characteristics, features or elements; change to the setting would not be overly intrusive or overly diminish the context; community use or understanding would be reduced. The assets integrity or setting is damaged but understanding and appreciation would only be diminished not compromised. *Positive:* Minor benefit to, or partial restoration of, one (maybe more) key characteristics, features or elements; some beneficial impact on asset or a stabilisation of negative impacts; slight improvements to the context or setting of the site; community use or understanding and appreciation would be enhanced.
Negligible	*Negative:* Very minor loss or detrimental alteration to one or more characteristics, features or elements; minor changes to the setting or context of the site. *Positive:* Very minor benefit to, or positive addition of, one or more characteristics, features or elements; minor changes to the setting or context of the site.
No change	No discernible change in baseline conditions.

Identifying Significance of Effect (Negative or Positive)

	Magnitude of Impact				
Value of Asset	*Substantial*	*Moderate*	*Slight*	*Negligible*	*No change*
Very High	Very Large	Large/ Very Large	Moderate/Large	Slight	Neutral
High	Large/ Very Large	Moderate/Large	Moderate/Slight	Slight	Neutral
Medium	Moderate/Large	Moderate	Slight	Slight/Neutral	Neutral
Low	Moderate/Slight	Slight	Neutral/Slight	Slight/Neutral	Neutral
Negligible	Slight	Neutral/Slight	Neutral/Slight	Neutral	Neutral