

ARCHAEOLOGICAL  
SERVICES  
DURHAM UNIVERSITY

on behalf of  
Cameron Hall Developments

Wynyard Hall Cookery School  
Billingham  
Teesside

archaeological monitoring

report 4050  
July 2016

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## 1. Summary

### The project

- 1.1 This report presents the results of an archaeological watching brief conducted during a development at Wynyard Hall. The works comprised the monitoring of foundations prior to the construction of a cookery school.
- 1.2 The works were commissioned by Cameron Hall Developments and conducted by Archaeological Services Durham University.

### Results

- 1.3 Archaeological deposits were identified in the stripped area to the south of the annex wall. These comprised foundations for two greenhouses and a few ephemeral foundations for other buildings to their north. The greenhouses correspond with buildings present from the 2nd edition Ordnance Survey plan of 1897 onwards. Another large greenhouse fills the gap between these buildings and the garden wall on these plans; no evidence for this building was seen (except for a concrete floor slab covering a small part of the total area). It is probable that this building was a lean-to structure, filling the gap between the main greenhouses and the garden wall, and therefore did not have substantial foundations.
- 1.4 The western greenhouse is depicted as narrower on the 1st edition plan of 1857. This could simply be due to the generally lower level of surveying accuracy shown by this edition, but may indicate modification or rebuild to this building. Since the foundations went below formation level for the new structure, this possibility could not be investigated.
- 1.5 Two more greenhouses are depicted on the 1st edition, to the north of the surviving foundations and attached to the garden wall. The ephemeral features recorded in this area could have been parts of the foundations to these earlier structures. Their poor survival indicates that their foundations were almost entirely removed before the lean-to building was added.
- 1.6 Archaeological deposits comprising two cellars were identified in the stripped area to the south of the annex wall. One contained a still *in situ* boiler for heating the greenhouses to the south; the other was empty but filled with brick rubble. They are below formation level for the new structure and have been left *in situ*, although the loose brick fill of the latter was removed and replaced by firmer material.
- 1.7 The trial trench identified two ditches below the garden deposits. Soil samples from these produced medieval or post-medieval material, although one also produced a residual ecofact of Iron Age or Roman date. This adds to the evidence for earlier activity on the site found by previous investigations. The ditches were below formation level for the new structure and were not further disturbed by construction works.

### Recommendations

- 1.8 No further works on the archaeological resource identified is recommended.

## 2. Project background

### Location (Figure 1)

- 2.1 The site is located within part of the walled gardens at Wynyard Park, in the parish of Billingham, Teesside (NGR centre: NZ 41802 26079). There is a triangular annex to the west of the main walled garden; the site lies partly to the north and partly to the south of the north wall of this annex, and covers an area of approximately 430 sq m. To the east is the main walled show garden, to the west are Garden House, Dairy Cottage and other former farm buildings, now converted into private residences, to the south-east is Wynyard Hall, and to the north is parkland.

### Development

- 2.2 A cookery school and associated parking are being constructed. The planning application reference number is 13/0441/LBC.

### Objective

- 2.3 The objective of the monitoring programme was to identify and record any archaeological features or artefacts uncovered during groundworks.

### Specification

- 2.4 The works have been undertaken in accordance with a Written Scheme of Investigation provided by URS and approved by the planning authority. The regional research framework (Petts & Gerrard 2006) contains an agenda for archaeological research in the region, which is incorporated into regional planning policy implementation with respect to archaeology. In this instance, the scheme of works was designed to address agenda PM5: Landscapes and mansions of the 18th century.

### Dates

- 2.5 A trial trench was excavated on 21st January 2016. Monitoring of construction works was undertaken between 24th May and 7th June 2016. This report was prepared for July 2016.

### Personnel

- 2.6 Fieldwork was conducted by Jamie Armstrong, Andy Platell and Mark Randerson. This report was prepared by Jamie Armstrong and Andy Platell, with graphics by David Graham. Specialist reporting was conducted by Dr Carrie Armstrong (palaeoenvironmental), Dr Carrie Armstrong (animal bone) and Jenifer Jones (other finds). Sample processing was undertaken by Alan Rae. The Project Manager was Daniel Still.

### Archive/OASIS

- 2.7 The site code is **BWH16**, for **Billingham Wynyard Hall 2016**. The archive is currently held by Archaeological Services Durham University and will be transferred to Tees Archaeology in due course. The residues were discarded following examination. The flots and charred plant remains will be retained at Archaeological Services Durham University. Archaeological Services Durham University is registered with the **Online AccesS to the Index of archaeological investigationS project (OASIS)**. The OASIS ID number for this project is **archaeol3-258267**.



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

- 3.1 At the time of the monitoring, the development area comprised a gravelled car parking area to the north of the garden wall, and an ornamental rose garden that had recently been cleared to its south.
- 3.2 The site was roughly level with a mean elevation of approximately 59m OD. A high brick wall crosses from east to west across the centre of the site, forming the north wall of the annex to the walled garden. To the south is the interior of this annex; to the north, beyond the car parking area, is a road and then enclosed fields.
- 3.3 The bedrock geology of the area comprises Permo-Triassic calcareous mudstone of the Roxby Formation, which is overlain by Devensian diamicton till.

### **4. Archaeological and historical background**

#### **Previous archaeological works**

- 4.1 A heritage statement (Simpson & Brown 2012) has been prepared for the whole of the surviving walled garden, including areas to the east that were developed as part of a separate planning application. The heritage statement named the current development area as 'the Rose Garden' as that was its use at the time of writing. The name however is slightly confusing as this usage was of very recent date and not of historic significance, and the walled show garden to the east (which the report was largely concerned with) has been renamed as 'the Rose Garden' following its restoration in 2014. The current development area is therefore referred to as 'the annex' in this report.
- 4.2 Geomagnetic and earth resistance surveys were undertaken in 2013 (Archaeological Services 2013), again covering the whole of the surviving walled garden. These identified a series of probable paths in the show garden; these are recorded on historic Ordnance Survey mapping. Probable foundations of previous glasshouses were also identified, both in the show garden and in the annex.
- 4.3 Archaeological monitoring of groundworks within the main part of the walled garden (Archaeological Services 2015) recorded several garden features as well as a potential Iron Age or Roman ditch.

#### **The Walled Garden and surrounding area**

- 4.4 The walled garden was formed during at least two phases. The first phase appears to date from the late 18th century and is visible in some of the brickwork in the main walled garden to the east of the development area. The second phase may have taken place when a campaign of improvements was instigated in 1819 by the 3rd Marquess of Londonderry. An undated plan shows the 'new' kitchen garden located west of the show garden, while the 1856 Ordnance Survey map shows that both the show garden and the kitchen garden were walled and almost contiguous, standing either side of the curved pleasure grounds which followed the edge of Brierly Beck.
- 4.5 The kitchen garden was the productive part of the garden complex. It was further from the Hall and pleasure gardens than the show garden, and had farm buildings adjacent to it. The undated plan of the garden shows the triangular annex between the show garden and the kitchen garden. It identifies this as the 'melon ground' but otherwise provides no details. A group of glasshouses is shown here on the 1856

Ordnance Survey map. These were for produce and were not shown to visitors. The show glasshouses were built along the south wall of the main walled garden, facing the Flower Garden.

- 4.6 The 1856 Ordnance Survey map shows the northern half of the triangular annex was occupied by several rows of long, narrow, east-west aligned greenhouses, arranged in two columns with a narrow central gap between them. The northern row was directly built against the south side of the garden wall. On the north side of the wall a long lean-to structure is depicted, which is likely to have functioned as storage sheds and would also have housed any heating system.
- 4.7 The 1897 Ordnance Survey map shows that the greenhouses along the garden wall (although not the other rows) had been extended (or rebuilt), continuing both westwards and eastwards beyond the limits of original rows and filling the narrow central gap, and also extended south to adjoin the first of the free-standing rows. There is little alteration after this until the 1960s, when some parts of the various greenhouses were removed. However they were not fully cleared until the 1990s, after which time the area was re-laid as a rose garden. The sheds along the northern side of the garden wall remained, although in a state of disrepair.

## 5. The archaeological monitoring

### Introduction

- 5.1 A trial trench was excavated within part of the proposed development area to the north of the north wall of the annex in January 2016. During construction works in May and June, ground was first reduced to formation level across the footprint of the new structure. This consisted of an area measuring 32m by 8m to the south of the wall and an area measuring 44m by 4m to its north, including the area of the previous trial trench (Figure 2). Following this ground reduction; strip trenches and foundation pads were excavated for foundations for the new building within the reduced area on both sides of the wall. The trial trench and monitoring works to the north and to the south of the annex wall are all described separately below.

### Trial trench (Figures 3, 5 and 6)

- 5.2 The trial trench was 3.4m by 0.6m, and was excavated to a depth of 1m below ground level. It was located against the north face of the annex wall. Glacial subsoil, a light brown firm sandy-clay [313], was identified at a depth of 0.58m (58.92m OD). This was cut by two linear features. The first of these [F310: 0.6m+ by 0.85m, 0.37m deep] was located at the south end of the trench and was parallel with the existing garden wall. It had regular sides and a flat base, and was filled with a grey clayey-silt [309]. The second feature was at a north-west / south-east orientation [F312: 0.7m+ by 0.7m, 0.32m deep]. This also had regular sides and a flattened base and was filled with a grey clayey-silt [311]. No finds were recovered from either feature. Foundation level for the new structure proved to be at the level of the top of these features; they were not disturbed by development works and were not further investigated during the monitoring programme.
- 5.3 Overlying both features was a buried subsoil layer, a sticky brown silty-clay [307: 3.4m+ by 0.6m, 0.22m thick]. Cutting this was an east-west trench [F314: 0.6m+ by 0.2m+, 0.49m deep] for the foundation of the garden wall [F308; Figure 6]. This comprised 5 courses of brickwork: the bottom course of bricks was laid on their

sides in header bond. Above these were two courses of stretcher bond, and then two regular courses of header bond. The foundation then stepped back (south) 0.2m and the remaining brickwork above was laid in English Garden Wall bond. The foundation trench was backfilled with a light yellowy-brown sticky clay [315].

- 5.4 Overlying this and only visible in the eastern section of the trench at its southern end was a yellow sandy-clay [306: 1.1m by 0.5m+, 0.1m thick]. On the west side of the trench layer 315 was overlain by a thin layer of dark reddy-brown sandy-gravel [305: 3.4m+ by 0.3m+, 0.01m thick]. This formed a bedding layer for a brick surface [F304: 3.4m+ by 0.3m+, 0.11m thick]. This comprised unbonded bricks laid on their side in stretcher bond. This floor was part of the eastern end of a larger lean-to structure against the garden wall to the south: the marks of this building are still visible in the present masonry. A building is depicted along much of the length of the wall from the 1st edition OS map onwards (1857). Overlying the brick floor and deposit 306 was a dark grey silty-sand aggregate layer [303: 3.4m+ by 0.6m+, 0.03-0.15m thick]. This formed the base for a layer of concrete [F302: 3.14m+ by 0.6m+, 0.13m thick]: broken brick fragments were adhered to the base of this. On top of this was the modern gravel surface [301: 0.1m thick].

**Area south of the annex wall (Figures 4, 7 to 15)**

- 5.5 An area measuring 32m by 8m south of the annex wall was reduced to a general level of 59.2m OD. This entailed the removal of around 0.5m to 0.7m of material from the whole development area. Foundations for former greenhouses were identified at just above or below this formation level. Machining was therefore stopped at the top of these foundations; they were recorded and then where necessary removed by further machining, with the ground being reduced to the correct formation level. A slightly overgrown strip of opened ground, around 1m wide, was present at the western end of the development area. This had the appearance of a trial trench and exposed foundations for the greenhouses at its base. However no trial trench was excavated by Archaeological Services in this location and there is no record of any other organisation conducting archaeological investigations in this area; it is assumed to have been excavated by contractors for the developer to determine ground conditions.
- 5.6 Foundations for two separate greenhouses were present, in the south-west and south-east corners of the site respectively and separated by a 3m wide gap in the centre. Towards the south, walls (partly removed longitudinally for the western greenhouse) formed the southern baulk to the development area. These walls were not fully exposed and could either have formed internal divisions to the greenhouses or been their southern sides. Both greenhouses extended beyond the end of the development area, in a westerly and easterly direction respectively. Although both were on the same alignment (*i.e.* parallel to the garden wall), the western one was stepped 0.5m to the north of the eastern one (this explains why part of its southern wall was removed). Also internally the two greenhouses differed slightly in structure.
- 5.7 The eastern greenhouse was at least 16m long by 3m wide (Figure 7). Its external wall [F408] was two-bricks wide with a single brick reinforcing buttress every 2m along its outside edge and a one-brick wide internal division wall every 1m along its length (Figure 8). Space between these division walls was filled with rubble, including brick, mortar and silt. It was not removed as it lay below foundation level. The wall forming the southern baulk to the trench [F425] had no buttresses or

division walls along its visible length and therefore differed slightly from the northern wall.

- 5.8 A path [411; 0.9m wide] ran lengthwise down the greenhouse, centrally between the north and south walls. Although at first glance this appeared to be composed of small tiles, excavation proved that these 'tiles' were actually a sculpted surface to conventional house bricks, the surface to each being moulded into two rows of five small 'tiles'. The bricks were set in a concrete foundation (Figure 9). The path extended over the western wall to the greenhouse and stopped at a large stone slab [424] immediately beyond. This is likely to have formed an entrance to the greenhouse although no evidence for any door jambs or other such features survived.
- 5.9 To the south of the path was a deposit of dark grey-brown silt that contained a little rubble [413]. Two large metal water tanks [F414] were set into this deposit (Figure 10). Both measured 1m long by 0.6m wide by 0.8m deep. No evidence survived for any plumbing associated with these tanks.
- 5.10 A large pit [F410] full of rubble (including bricks from the path) cut through the centre of the path.
- 5.11 The western greenhouse was at least 13m long by 3.5m wide (Figure 11). As with the eastern greenhouse, its northern wall [F415] was two bricks wide, but unlike the eastern one, this wall had no external buttresses or internal divisions. As with the eastern greenhouse, another wall [F420] formed the southern baulk to the trench. This was partly removed (as it projected further north into the development area) exposing further brickwork immediately beyond. This could not be fully investigated as it lay outside the development area; it appeared to be a separate wall built onto the face of the first one.
- 5.12 Two parallel paths, separated by a single brick wide dividing wall, ran along the length of this greenhouse (Figure 12). These were made from tiles, although these differed slightly on each path. The northern path [416] had tiles scored with lengthwise grooves while the southern one [417] had flat tiles alternating between grey and brown in colour. The southern path was aligned exactly on the path through the eastern greenhouse, and like that one continued over the end wall of the greenhouse to finish immediately beyond it. The northern one finished within the end wall of the greenhouse and was at a slightly greater depth so that it was not originally exposed by machining. To the north of the northern path was a 0.3m wide strip of ground filled with rubble [419] and to the south of the southern path was a 0.8m wide strip of ground filled with grey-brown silt [418].
- 5.13 At the eastern end of the greenhouse was a small extension 2.5m long by 1m wide. This had a brick floor [422] with a metal drain cover in its north-east corner (Figure 13). Parts of a ceramic drain pipe [F423] heading in a south-west direction towards this were visible for a short distance outside the greenhouse. To the south of the brick floor, but still within the walls of this extension, was a raised platform composed of two layers of bricks set on their sides [F421]. No sockets, brackets or other fixtures were present to give any indication of what this raised platform may have been designed for.

- 5.14 To the north of both greenhouses were some shallow features that only partially survived, indicating greater ground disturbance here. A one-brick wide brick wall [F407] was present at the eastern end of the development area, orientated east-west and 1m north of the main wall of the eastern greenhouse. It only extended 6m west into the site, before being lost entirely. A similar distance north of the western greenhouse was a line of rubble containing brick, stone and tile [406]. This could possibly have been the remains of a foundation wall. Again it faded out westwards.
- 5.15 Two brick walls flanking a metal pipe [404] was present within 1m of the annex wall (Figure 14). The pipe was possibly for heating, and may have been associated with the boiler identified north of the wall (see below). The bricks differed between these walls; they were laid lengthwise and in a whitish mortar on the south wall and they were laid crosswise and in a reddish mortar on the north wall. Towards its centre, this pipe was below formation depth and was not disturbed. At either end it faded out and was lost. Towards the east at least this was due to modifications during the lifespan of the various greenhouses as its terminus was covered by a large concrete floor slab [401]. It could not be determined whether the western terminus was due to modifications of the greenhouses or due to disturbance during their demolition and conversion of the area to a rose garden. A large cut [F403] filled with rubble including much brick [402] was present in the north-centre of the trench, filling much of the ground north of the gap between the two greenhouse foundations.
- 5.16 A brick duct [F405], probably for heating the wall, was present in the middle of the annex wall (Figure 15). This consisted of a brick-lined passage, stretching for around 1m along the bottom of the wall before turning upwards and heading into the interior of the wall. It is a later addition to the wall, as the brickwork surrounding it is a replacement of the original fabric. The duct is on the immediately opposite side of the wall to a rubble-filled cellar on the north side (see below) but even after this cellar was cleared out no evidence could be found for a connection through the wall. The duct could also not be traced along the length of the wall beyond its visible extent.
- 5.17 The various garden features were overlain by demolition rubble and then a thick layer of topsoil, laid down for creation of the rose garden.

**Area north of the annex wall (Figures 4, 16 to 18)**

- 5.18 An area measuring 42m by 4m north of the annex wall was reduced to a general level of 59.2m OD. This entailed the removal of around 0.3m to 0.5m of material from the whole site. Since the development area north of the wall was wider than that south of it, this northern area extended for around 10m westwards of its extent south of the wall.
- 5.19 Towards the western end of the stripped area, orange clay natural subsoil [513] was present; this was cut by an infilled cellar that contained the remains of a boiler for heating the greenhouses to the south (Figure 16). It lay below foundation depth and was therefore left *in situ*. Only its upper surface was cleaned and recorded. The boiler [509] consisted of a metal cylinder, 0.5m in diameter and at least 1.5m long (Figure 17). It partly ran under the annex wall in an arched recess. Towards this wall there was a metal pipe rising out of its top and turning to disappear into the fabric of the wall. There was a flange in the centre of the boiler; this had possibly originally held a flue pipe. The northern end of the cylinder was open and filled with clay.

Originally there would have been a door here to allow stoking of the fire, although this was not visible within the limited area exposed.

- 5.20 The boiler was surrounded by brick walls [508] that originally supported an arch over it; the arch collapsed during machining of the structure. Towards the west the brickwork was partly overlain by a deposit of fine grey ash, presumably waste from the boiler fire. To the north of the boiler was a wider stoking chamber that was stepped out slightly eastwards from chamber that held the boiler. Again this had an arched roof that had collapsed during machining. The chamber was entirely filled with a thick brown clay (that also filled the interior of the boiler). This was a deliberate infill deposit.
- 5.21 To the west of the boiler and stoking chambers was a cellar with brick walls [F512]. It was infilled with a dark grey-brown silty clay containing brick and mortar fragments [511]. This was not excavated and its depth is unknown. It is not clear whether it was associated with the boiler house or not; assuming that it was associated then it may have been a fuel store. Two water pipes (one still live) and an electric cable (also still live) entered the north-west corner of the stoking chamber from the north and west.
- 5.22 To the east of the boiler house, there was a brick wall [50] running parallel to the annex wall, but 3m to its north. This was the same distance north of the annex wall as the possible fuel storage cellar described above, but unlike the cellar this wall had very shallow foundations and was entirely removed by ground reduction. It is likely to have been the outer wall of the long lean-to structure visible on Ordnance Survey maps.
- 5.23 A large concrete slab [506], 2m to the east of the boiler house, was the infill of the trial trench described above. The brick floor recorded in the evaluation [305] was not seen again; it was probably disturbed by the machine during removal of this concrete slab.
- 5.24 To the east of the boiler house there were deposits of grey-brown clay [514] close to the annex wall and yellow-brown clay [515] further north. These were not excavated as they were below formation depth. The former is a combination of the two ditch fills [309] and [311] recorded and sampled during the evaluation. The latter is the natural subsoil. Here, its weathered surface was visible, indicating that this area had not been truncated as deeply as the ground to the west of the boiler house, where a less weathered, orange colour was visible.
- 5.25 A second cellar [F504] was present 12m east of the boiler house. Again this extended 3m out from the annex wall, but was deeper than the wall of the intervening area. The cellar was full of building rubble [503]. This was too loose to form a stable foundation and on the advice of the consulting engineer the cellar was emptied by machine. The cellar was 6m long and 3m wide, by 1.3m deep (Figure 18). It had brick walls and a concrete floor, although on the north and east sides this concrete extended 0.5m up the walls as well. There were brick platforms in both the north-east and north-west corners, although both were damaged during machining. There was a hole in the concrete in the south-east corner; natural clay was visible behind the cellar. A chamfered groove was present in the centre of the floor. There was a rectangular recess in the annex wall within the cellar. This had a wooden lintel and a metal grille across its face. It was on the directly opposite face to the heating



duct [405] seen in the area to the south of the wall. However there was no evidence for the duct passing through to this side of the wall.

- 5.26 Ground 6m to the east of cellar [F504] to the eastern end of the development area was heavily disturbed by modern drains, with a large stone slab forming a drain cover in its centre.

## **6. The artefacts**

### **Pottery assessment**

#### **Results**

- 6.1 Context [311] had a small (22 x 14 x 5-6mm max) partial body sherd, <2g wt, its external margin lost. The fabric is reduced and moderately tempered with fine rounded white grit. Its incomplete state makes it difficult to date, but it could be a fragment of medieval reduced greenware type pottery.

#### **Recommendation**

- 6.2 No further work is recommended.

### **Animal bone assessment**

#### **Results**

- 6.3 The hand-recovered assemblage comprises a single unstratified cattle-sized rib fragment. Twenty-one further tiny bone fragments were recovered from the bulk soil sample from [309], including six fragments from a sheep-sized vertebra. No diagnostic features were present to determine any of the fragments to species.

#### **Discussion**

- 6.4 This assemblage is extremely small and provides little information. Two of the bone fragments from [309] were calcined, and the presence of calcined bone indicates the exposure of bone to relatively high temperatures (Ubelaker 1978), above c.600 degrees Celsius (McCutcheon 1992). The unstratified rib fragment appears sawn, a butchery technique originating in the late eighteenth century and becoming commonplace in the nineteenth century. Further small cut marks were also observed along the length of the rib. The working evidence from these contexts suggests modification of the individuals after death and butchery for consumption or disposal, indicating the presence of some butchery waste. The condition of the bone fragments was relatively good and does demonstrate the potential for further material to be recovered from the site.

#### **Recommendation**

- 6.5 No further work is recommended on this assemblage due to its small size.

### **Building materials assessment**

#### **Results**

- 6.6 Context [304] produced a complete brick, 215 x 100-115 x c.60-65mm. It appears to be mould-made, though its dimensions are somewhat variable. The fabric has areas of orange, grey, grey/brown and red and is finely tempered. Mortar traces are apparent on the faces and short ends. Most edges and corners are sharp, but one of the long edges is weathered, smoothed and rounded through long exposure to the elements. There is no frog or stamp. Dimensions of the brick suggest a 17th or early 18th century date.

- 6.7 The sample from context [309] had two small (<10g wt) fragments with no original edges from two different bricks.

**Recommendation**

- 6.8 No further work is recommended.

## 7. The palaeoenvironmental evidence

### Summary of results

- 7.1 The assessment provided evidence of domestic hearth waste comprising cereal crop remains predominantly of cf. bread wheat and barley. These crop species are typical of medieval or post-medieval deposits. Two grasses and a single weed seed were also present. A single spelt wheat glume base was recovered from one of the ditch fills, which is likely to reflect the inclusion of some earlier residual material.

### Methods

- 7.2 A palaeoenvironmental assessment was carried out on two bulk samples taken from ditch fills of unknown origin. The samples were manually floated and sieved through a 500 $\mu$ m mesh. The residues were examined for shells, fruitstones, nutshells, charcoal, small bones, pottery, flint, glass and industrial residues, and were scanned using a magnet for ferrous fragments. The flots were examined at up to x60 magnification using a Leica MZ6 stereomicroscope for waterlogged and charred botanical remains. Identification of these was undertaken by comparison with modern reference material held in the Palaeoenvironmental Laboratory at Archaeological Services Durham University. Plant nomenclature follows Stace (2010). Habitat classifications follow Preston *et al.* (2002).

- 7.3 The works were undertaken in accordance with the palaeoenvironmental research aims and objectives outlined in the regional archaeological research framework and resource agendas (Petts & Gerrard 2006; Hall & Huntley 2007; Huntley 2010).

### Results

- 7.4 The two ditch fills produced small flots comprising limited quantities of clinker/cinder, tiny charcoal fragments and coal/coal shale. A small number of bone and fired clay fragments were recovered from ditch fill [309] while a single pot fragment was recovered from ditch fill [311].
- 7.5 The small assemblages of charred plant macrofossils were dominated by cultivated remains, with wheat and barley grains recovered from both samples. A diagnostic glume base of spelt wheat was present in ditch fill [309] and a bread wheat rachis fragment was observed in ditch fill [311]. Two grass seeds in ditch fill [311] and a weed seed of cf. selfheal in ditch fill [309] were also present. The results are presented in Table 1.2. Material suitable for radiocarbon dating is available for both of the samples.

### Discussion

- 7.6 The presence of bone, clinker/cinder and a few charred plant macrofossils indicates the remains of domestic waste within the ditches. Many of the grains were in poor condition due to degrading and pitting, preventing further identification in some instances. This poor preservation is typical of hearth waste, possibly reflecting rapid



combustion and intense heat (Boardman & Jones 1990), or exposure to repeated burning.

- 7.7 The samples provided evidence for the presence of both bread and spelt wheat. While the variability of wheat grain morphology prevents the identification of wheat grains to species with certainty many of the wheat grains had the characteristic shape associated with *Triticum aestivo-compactum* (bread wheat). A bread wheat rachis fragment was recovered from ditch fill [311] confirming the presence of this species. A range of cereal crops including barley and bread wheat is typical for medieval and post-medieval sites throughout Britain (Greig 1991). Spelt wheat was represented by a single glume base from ditch fill [309], with a number of cf. bread wheat grains also recovered from this feature. Spelt wheat first appears in England during the Bronze Age and is more commonly associated with Iron Age and Roman sites (Greig 1991; Huntley & Stallibrass 1995). The single spelt glume base found in ditch fill [309] is likely to be residual. Spelt wheat chaff was recovered during previous nearby excavations from a probable Iron Age/Roman ditch feature (Archaeological Services 2015), with local production of the crop suggested from the charred plant remains in that feature.

### **Recommendations**

- 7.8 No further analysis is required for the plant macrofossils, however if additional work is undertaken at the site, other features with the potential to preserve palaeoenvironmental remains should be sampled and assessed. The results of this assessment should be added to any further palaeoenvironmental data produced.

## **8. The archaeological resource**

- 8.1 Archaeological deposits were identified in the stripped area to the south of the annex wall. These comprised foundations for two greenhouses and a few ephemeral foundations for other buildings to their north. The greenhouses correspond with buildings present from the 2nd edition Ordnance Survey plan of 1897 onwards. Another large greenhouse fills the gap between these buildings and the garden wall on these plans; no evidence for this building was seen (except for a concrete floor slab covering a small part of the total area). It is probable that this building was a lean-to structure, filling the gap between the main greenhouses and the garden wall, and therefore did not have foundations.
- 8.2 The western greenhouse is depicted as narrower on the 1st edition plan of 1857. This could simply be due to the generally lower level of surveying accuracy shown by this edition, but may indicate modification or rebuild to this building. Since the foundations went below formation level for the new structure, this possibility could not be investigated.
- 8.3 Two more greenhouses are depicted on the 1st edition, to the north of the surviving foundations and attached to the garden wall. The ephemeral features recorded in this area could have been parts of the foundations to these earlier structures. Their poor survival indicates that their foundations were almost entirely removed before the lean-to building was added.
- 8.4 Archaeological deposits comprising two cellars were identified in the stripped area to the south of the annex wall. One contained an *in situ* boiler for heating the

greenhouses to the south; the other was empty but filled with brick rubble. They are below formation level for the new structure and have been left *in situ*, although the loose brick fill of the latter was removed and replaced by more solid material.

- 8.5 The trial trench identified two ditches below the garden deposits. Soil samples from these produced medieval or post-medieval material, although one also produced a residual ecofact of Iron Age or Roman date. This adds to the evidence for earlier activity on the site found by previous investigations. The ditches were below formation level for the new structure and were not further disturbed by construction works.

## 9. Recommendations

- 9.1 No further works on the archaeological resource identified is recommended.

## 10. Sources

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## Appendix 1: Data tables

**Table 1.1: Context data**

The \* symbols in the columns at the right indicate the presence of artefacts of the following types: C ceramic building material.

### Trial Trench

No	Description	C
301	Gravel	
F302	Concrete floor	
303	Aggregate	
F304	Brick surface	*
305	Aggregate	
306	Layer	
307	Buried subsoil	
F308	Foundation of garden wall to south	
309	Fill of ditch	
310	Cut for ditch	
311	Fill of ditch	
312	Cut for ditch	
313	Glacial subsoil	
F314	Foundation trench for wall F308	
315	Backfill of F314	

### Area 1

No	Description
F400	N wall of garden annex
401	Concrete floor surface
402	Fill of F403
F403	Rubble filled pit
404	Brick lined heating pipe channel
F405	Heating duct in wall F400
406	Brick/tile rubble – possible robbed out wall foundation
407	Brick wall with v shallow depth
F408	Brick wall of eastern greenhouse
409	Fill of F410
F410	Rubble filled pit
411	Brick path
412	Rubble fill to N of path 411
413	Soil fill to S of path 411
F414	Metal water tanks
F415	Brick wall of western greenhouse
416	Northern tile path
417	Southern tile path
418	Soil fill to S of paths 416/417
419	Rubble fill to N of paths 416/417
F420	Brick wall forming S side of (visible part of) western greenhouse
421	Brick platform to E of western greenhouse
422	Brick surface containing a drain to N of 421
F423	Cut for drain
424	Stone slab
425	Brick wall forming S side of (visible part of) eastern greenhouse

## Area 2

No	Description
500	N wall of garden annex
501	Fill of F502
F502	Cut for modern drain
503	Fill of cellar F504
F504	Cellar wall
505	East-west brick wall with shallow foundations
506	Concrete slab – backfill of trial trench
507	Clay infill of boiler house F508
F508	Brick walls of boiler house
509	Boiler
510	Ash deposit
511	Loose infill of outer part of boiler house
512	Outer wall of boiler house
513	Orange clay - natural
514	Grey-brown clay to east of boiler house
515	Yellow-brown clay to east of boiler house
516	Area disturbed by drains at east end of development area
517	Stone drain cover

**Table 1.2: Data from palaeoenvironmental assessment**

Sample		1	2
Context		309	311
Feature number		310	312
Feature		Ditch	Ditch
Material available for radiocarbon dating		✓	✓
Volume processed (l)		7.5	5
Volume of flot (ml)		40	25
<i>Residue contents</i>			
Bone (calcined)	indet. frags	(+)	-
Bone (unburnt)		+	-
Charcoal		(+)	-
Fired clay		+	-
Pot (number of fragments)		-	1
<i>Flot matrix</i>			
Bone (unburnt)	indet. frags	++	-
Clinker / cinder		+	+
Coal / coal shale		-	(+)
Uncharred seeds		(+)	-
<i>Charred remains (total count)</i>			
(c) Cerealia indeterminate	grain	7	4
(c) <i>Hordeum</i> sp (Barley species)	grain	5	1
(c) <i>Triticum aestivum</i> (Bread Wheat)	rachis fragment	-	1
(c) <i>Triticum</i> cf. <i>aestivum</i> sp (cf. Bread Wheat)	grain	5	4
(c) <i>Triticum spelta</i> (Spelt Wheat)	glume base	1	-
(c) <i>Triticum</i> sp (Wheat species)	grain	-	1
(x) Poaceae undiff. (Grass family)	>2mm caryopsis	-	2
(x) cf. <i>Prunella vulgaris</i> (cf. Selfheal)	nutlet	1	-

[c-cultivated; x-wide niche. (+): trace; +: rare; ++: occasional; +++: common; ++++: abundant]

## Appendix 2: Stratigraphic matrix

### Trench 1

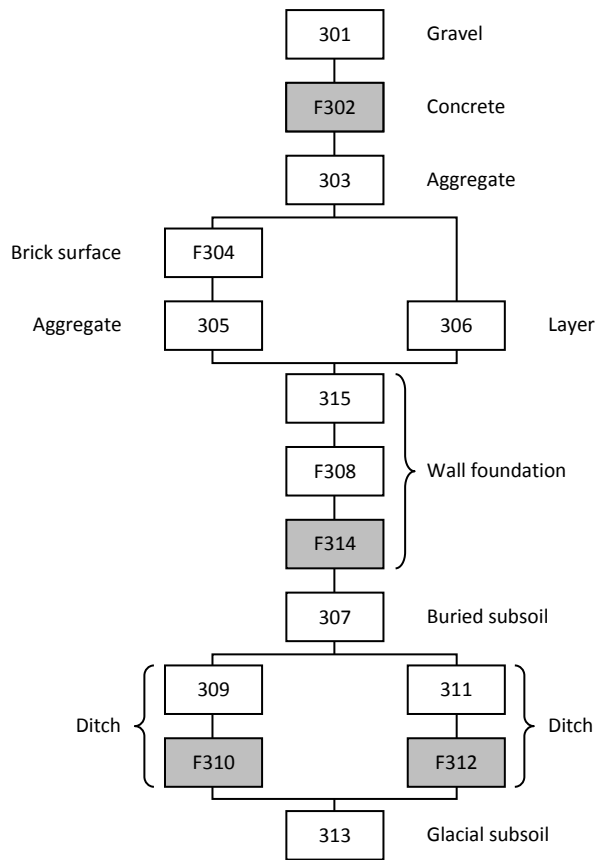




Figure 1: Site location

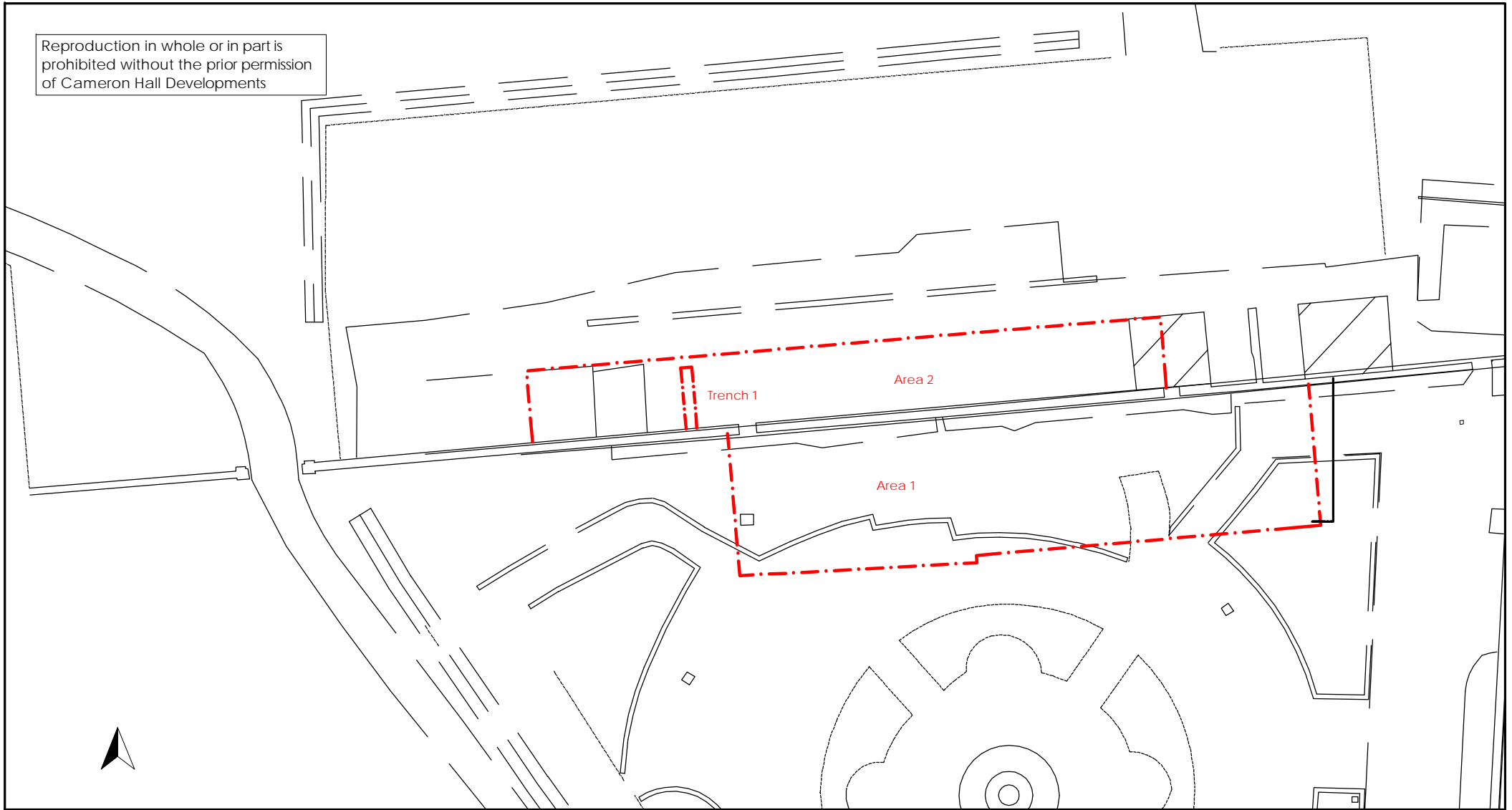
Reproduced from Explorer 305 & 306 1:25 000 by permission of Ordnance Survey on behalf of The Controller of Her Majesty's Stationery Office. © Crown copyright 2009. All rights reserved. Licence number AL100002176



 site location

0 1km  
scale 1:25 000 for A4 plot

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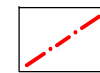
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on behalf of  
**Cameron Hall Developments**

Wynyard Hall Cookery School  
Billingham  
Teesside

archaeological monitoring  
report 4050

Figure 2: Location of monitoring



monitored area



scale 1:300 for A4 plot

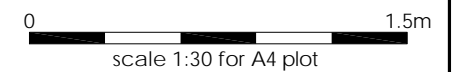






on behalf of  
**Cameron Hall  
Developments**

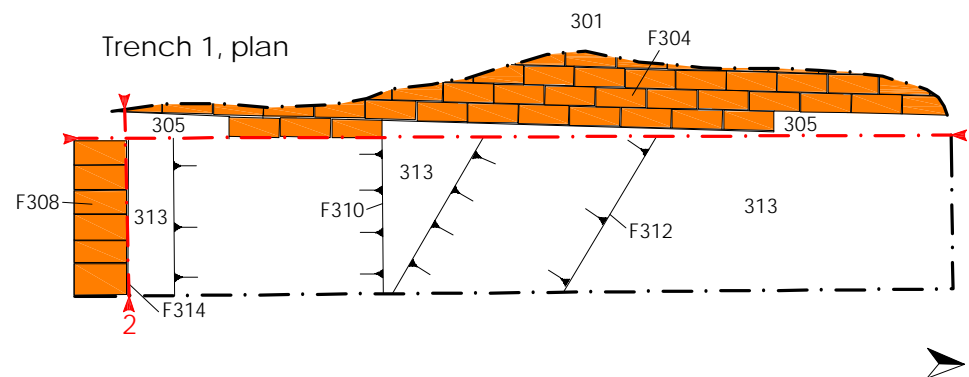
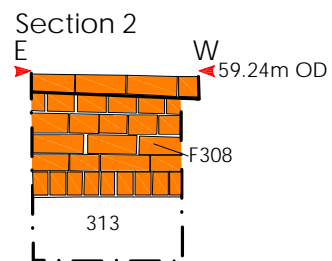
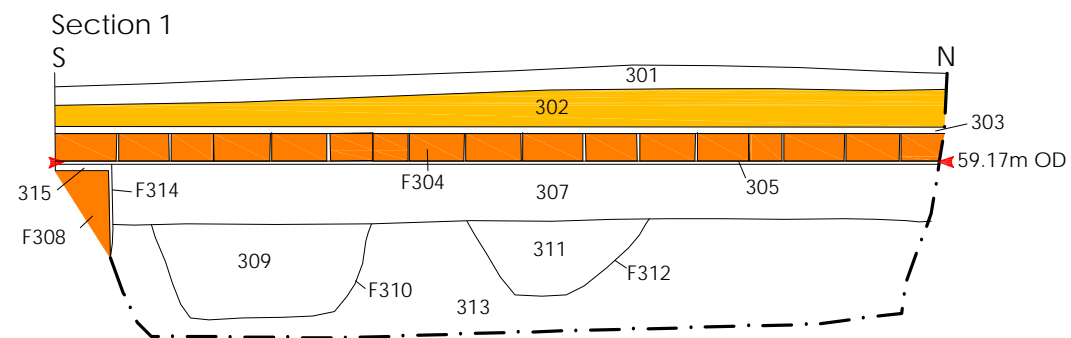
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archaeological monitoring  
report 4050

Figure 3: Trench 1, plan and sections



-  extent of excavation
-  section
-  brick
-  concrete



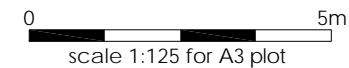
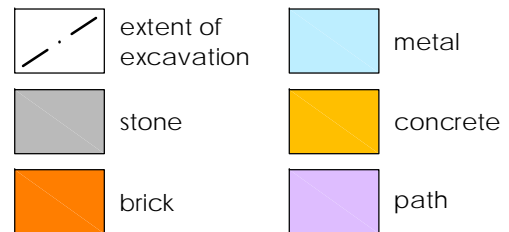
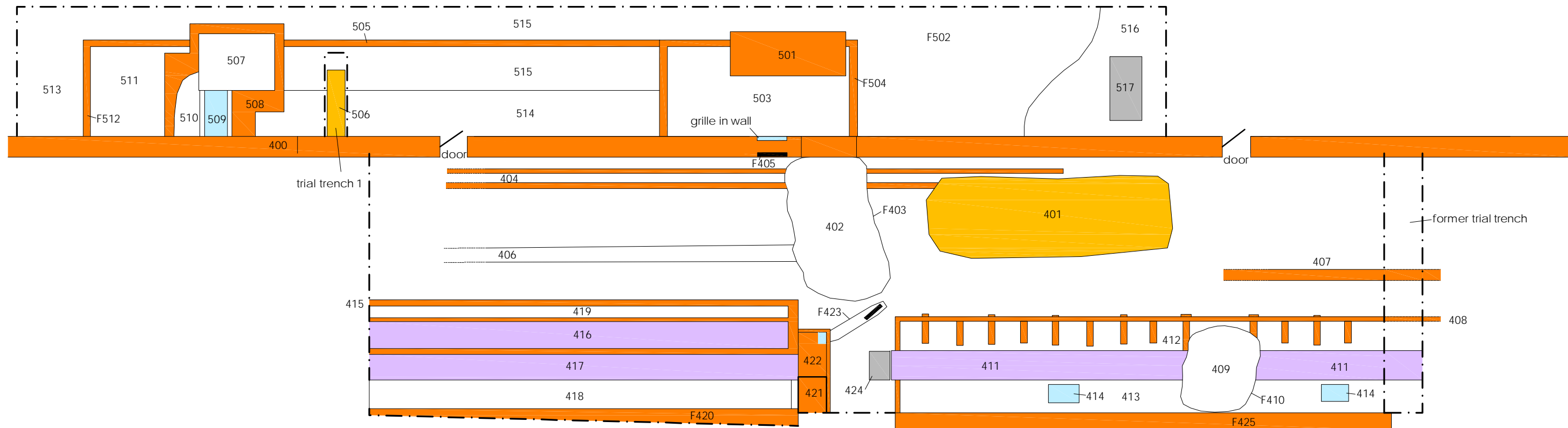


Figure 4: Area 1 and 2, plans

Area 2



Area 1





Figure 5: Trial trench section, looking west



Figure 6: Wall foundation F308, looking south





Figure 7: Eastern greenhouse, looking south-east



Figure 8: Wall foundation F408, looking west





Figure 9: Tiled path 411 during removal, looking south



Figure 10: Water tank F414 after removal, looking south-west





Figure 11: Western greenhouse with eastern one behind, looking east



Figure 12: Tiled paths 416 and 417, looking east





Figure 13: Brick extension at east end of west greenhouse, looking south



Figure 14: Parallel walls lining pipe duct 404, looking west





Figure 15: Heating flue F405 in annex wall, looking north



Figure 16: Cellar F512 for heating boiler, looking south-west





Figure 17: Heating boiler 509, looking south



Figure 18: Cellar F504, looking south-east