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ARO45: Lang Loan, Edinburgh

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Catherine Smith and Bob Will**

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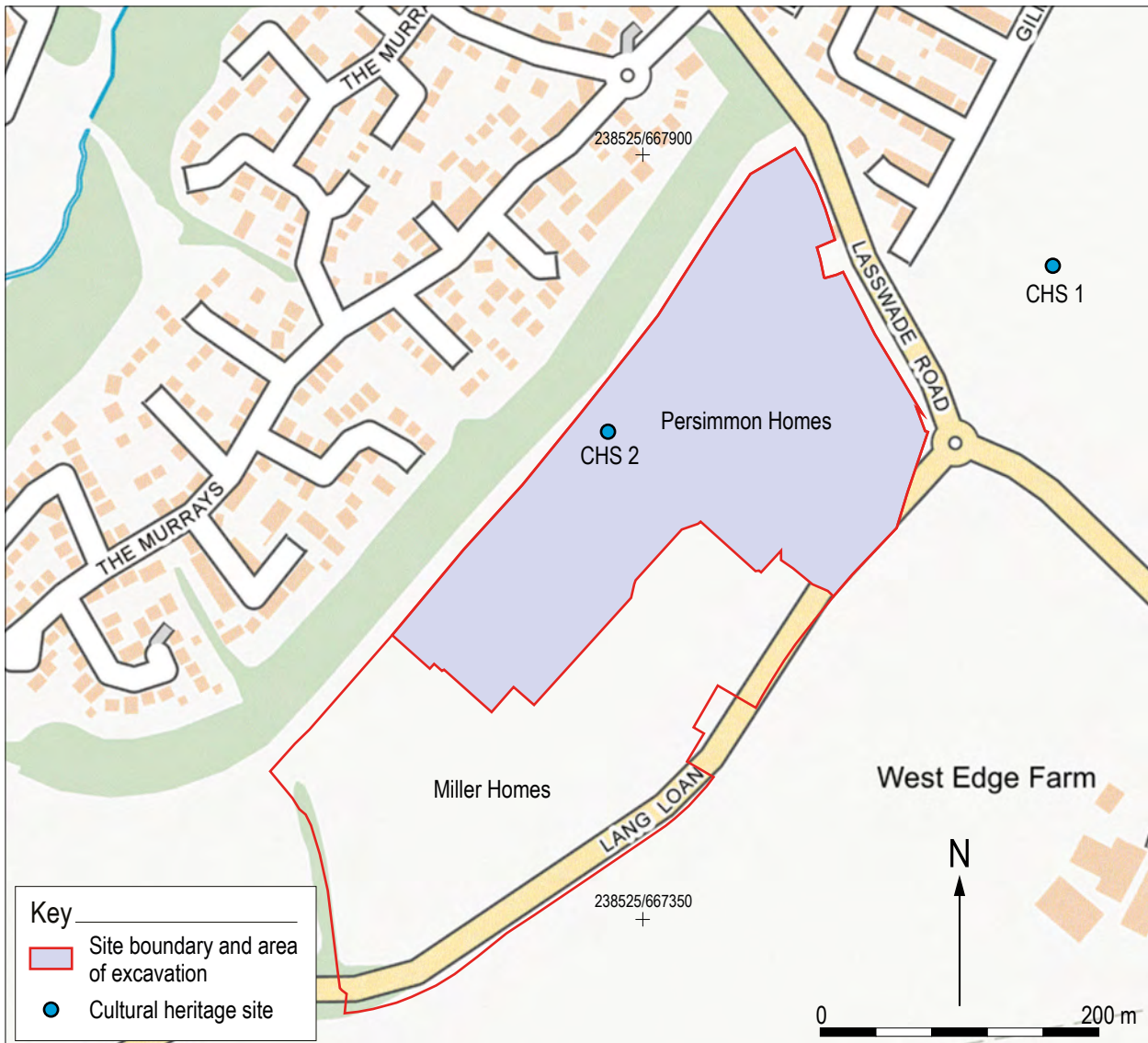
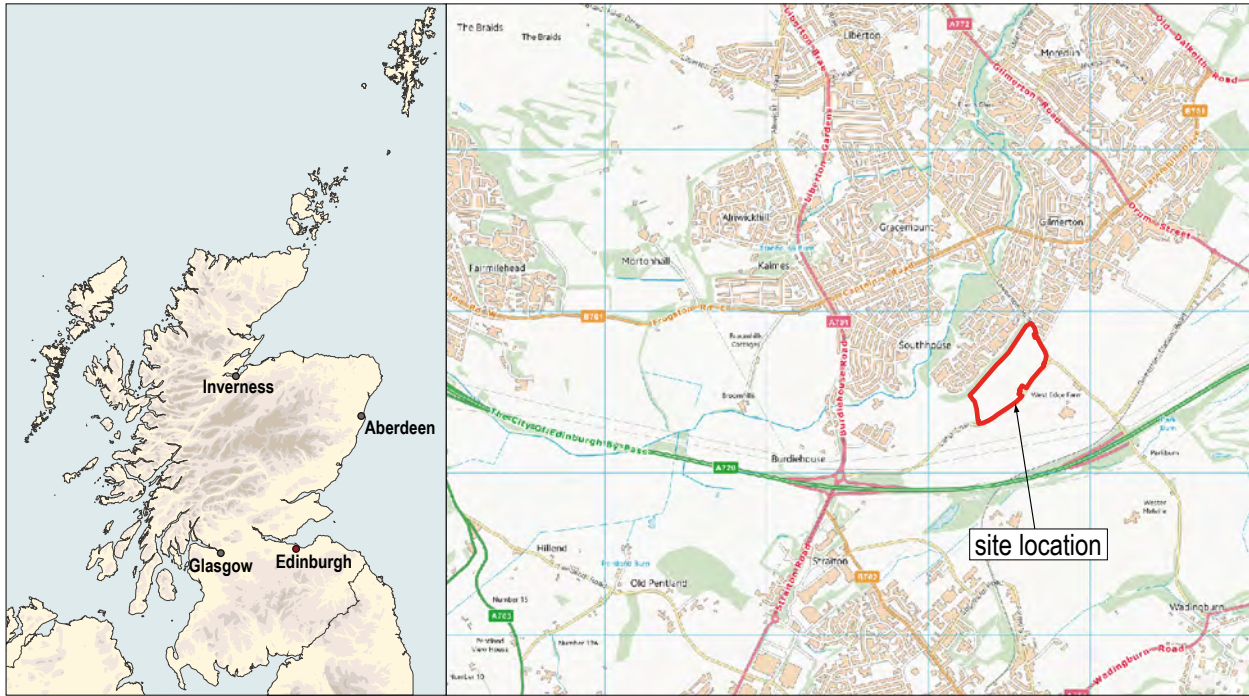
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Figure 1: Site location.

Summary

Prior to a residential development at Lang Loan, Edinburgh, GUARD Archaeology Ltd was commissioned to undertake an archaeological monitored topsoil strip, map, and sample on the site on behalf of Persimmon Homes. The work commenced in May 2018 after a metal detecting survey and trial trench evaluation also carried out in November 2017 by GUARD Archaeology.

As a result of the previous phases of work, further archaeological investigation was carried out that revealed 118 features associated with medieval rig and furrow agriculture, coal extraction and limestone quarrying dating from the seventeenth to the nineteenth century (McNicol 2019). Surprisingly, no prehistoric features were uncovered despite its close proximity to a prehistoric landscape also excavated by GUARD Archaeology to the east of the development area (Westgarth 2020).

However, the significance of this site is that it is a rare example of the evidence of continuity of changes to the landscape from medieval farming, through the industrial revolution and coal exploration, to modern limestone quarrying.

Introduction

In November 2018, GUARD Archaeology conducted an archaeological monitored topsoil strip, map, and sample of an area proposed for a residential development at Lang Loan, West Edge Farm on the outskirts of Edinburgh on behalf of Persimmon Homes. The work followed on from a metal detecting survey and trial trench evaluation also carried out by GUARD Archaeology the previous November. The metal detecting survey uncovered a mixture of nineteenth and twentieth century metal finds, including horseshoes, square-headed iron nails, and agricultural fragments. The trench evaluation also uncovered several features relating to post-medieval and modern quarrying activity across the site.

An area, amounting to approximately 69% of the total development area was stripped and features associated with post-medieval and modern industrial activity in the area were revealed, together with a series of medieval rig and furrow agriculture and field boundaries. A small quantity of medieval and later finds including a gold half sovereign dated to 1863 was also uncovered.

In consultation with the City of Edinburgh Archaeologist and the client, a little more than half of the features uncovered were mapped and left unexcavated, but excavation of the remainder was carried out to the point where their significance, date and function, could be ascertained.

Samples from pits across the site were collected with the aim of establishing a chronological consistency with prehistoric remains recovered by GUARD Archaeology at West Edge, located to the east of the present site (Westgarth 2020).

Site Location and Description

The development area is located at Lang Loan, West Edge Farm, Edinburgh at NGR: centred on NT 2850 6757. It comprised a 65,175 m² area, located within the northern half of one field which was most recently used for growing crops (Figure 1). The site is bounded to the north-east by Lasswade Road, to the south-east by Lang Loan, to the north-west by woodland, and to the south by a current residential development site.

The solid geology consists of a mixture of Hopetoun Member – Sedimentary Rock Cycles, Strathclyde Group Type; Hurler Limestone – Limestone; Lower Limestone Formation – Sedimentary Rock Cycles, Clackmannan Group Type; and Blackhall Limestone - Limestone. (British Geological Survey 2021, Geology of Britain Viewer).

The area was fairly flat with a slight dip towards the northern edge, and on average a 0.3 m thick layer of topsoil overlay the natural geology across

the site. The latter comprised orangey-brown sandy-clay subsoil with patches of brownish-grey sand, overlying bedrock.

Archaeological Background

A cultural heritage assessment carried out by GUARD Archaeology identified the following sites within the development area: a cropmark enclosure (CHS 1; NMRS NT26NE 58), and a former limestone quarry (CHS 2)(Figure 1).

Potential prehistoric settlement within the development area is represented by the cropmark enclosure identified from aerial photography (CHS 1; photographed by RCAHMS in 1983, catalogue number SC 1458812). However, a trial evaluation by GUARD Archaeology in 2017 revealed no evidence of prehistoric activity in this area.

The former quarry (CHS 2) is first shown on the Ordnance Survey 6 inch map of 1855 (Figure 2), where it is annotated as 'limestone quarries',

suggesting that the quarries were operational at that time (Edinburghshire, Sheet 6). The quarry was still operational in 1877, but by the 1895 OS edition it was annotated as 'old quarries' (Edinburghshire Sheet VIII.NW). The quarry had been partially in-filled by 1909 and was fully backfilled during the later twentieth century.

The metal detecting survey and the evaluation by trenches in 2017 confirmed significant post-medieval and modern land uses of the area, with a mixture of agricultural fragments and general metal waste of nineteenth to twentieth century date. The high volume of later metal waste, mostly iron fragments, is related to the mass production of cheap cast-iron objects, which in the absence of a formal waste disposal system meant that much of it ended up as midden material spread onto fields. The evaluation highlighted a number of features relating to nineteenth quarrying activity, along with possible medieval rig and furrow (McNicol and Ruiz Nieto 2018).

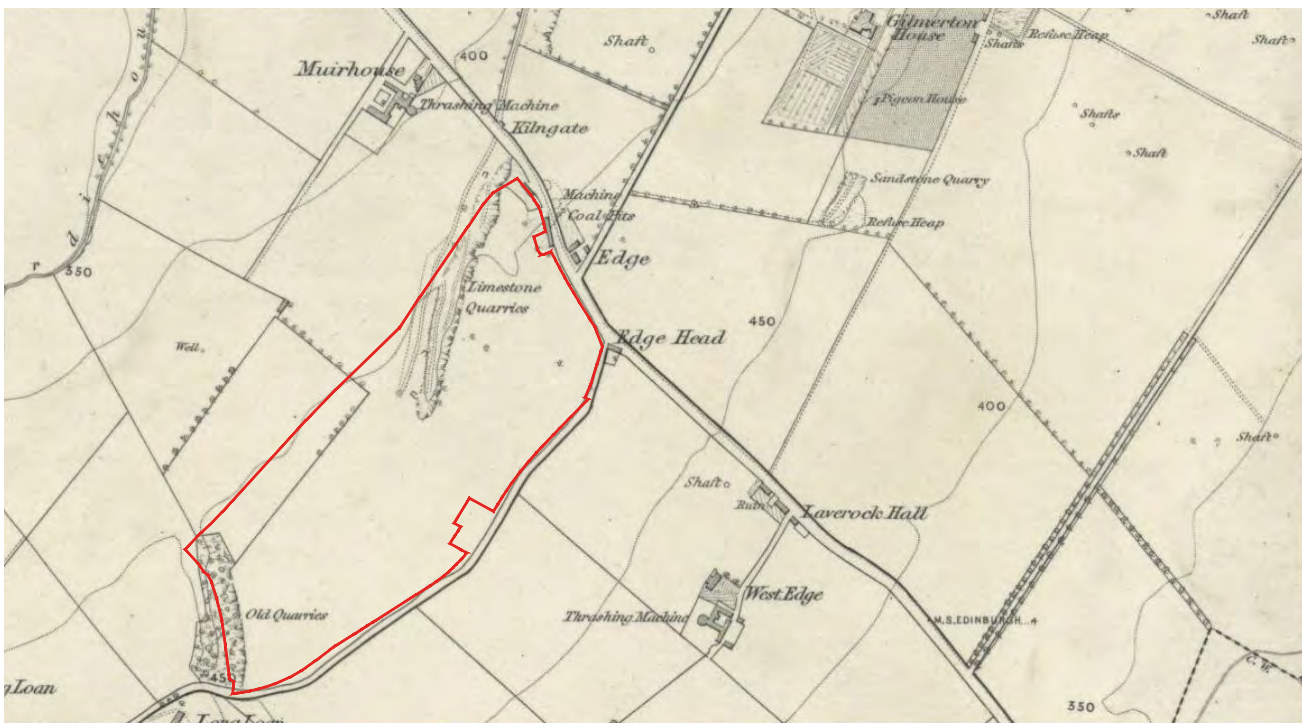


Figure 2: Excerpt from the 1855 Ordnance Survey 6" map Edinburghshire, Sheet 6 (includes: Edinburgh; Lasswade).
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The Excavation

By Dave McNicol

Building on the results of the previous evaluation the excavation aimed to map the extent and nature of the quarry workings and also the rig and furrow within the development area. The presence of other archaeological deposits within the area was also investigated to ensure that any surviving archaeological remains encountered were fully recorded.

An area of c. 45,148 m² was stripped of its topsoil to reveal a large number of archaeological features (118), mainly related to nineteenth century quarrying activity. With the exception of a 1863 gold half sovereign (SF 25) found in an unstratified layer, all of the finds recovered consisted of a mixture of nineteenth century or later glass, pottery, tile, clay pipe fragments, buttons and animal bone.

Limestone quarrying

The main scar (176) for the nineteenth century limestone quarry was revealed running approximately north/south through the middle of the site (Figure 3, Plate 1), for a distance of 290 m. It also continued beyond the site to the north and was visible within the adjacent Miller

Homes site to the south where it terminated. Its width varied up to a maximum of 96 m. To the immediate west, the edge of a possible connecting scar (513), or related quarrying activity, was partially uncovered.

A smaller quarrying scar (094) was revealed that ran parallel and to the east of the main scar. This measured 136 m in length within the site, and extended south into the Miller Homes area of the development. It had an average width of 11.5 m. This followed the line of a visible limestone outcrop, indicating that the quarrying activity was fairly limited in comparison to the main scar (176).

Five large areas of disturbance were located to the north-east of the quarry scar 094. Their location, size, and amorphous shapes may suggest that these are all related to the main limestone quarrying activity on site, rather than the smaller scale coal quarrying.

Quarry pits/shafts

A total of 47 possible quarry pits or shafts were uncovered on the site. The majority of these formed a north/south alignment directly to the east of the limestone quarries 094 and 176, with three located to the west of limestone quarry 176. All of these were sub-circular in



Plate 1: Edge of quarry scar 176 running from bottom left to middle right. Viewed from the south.

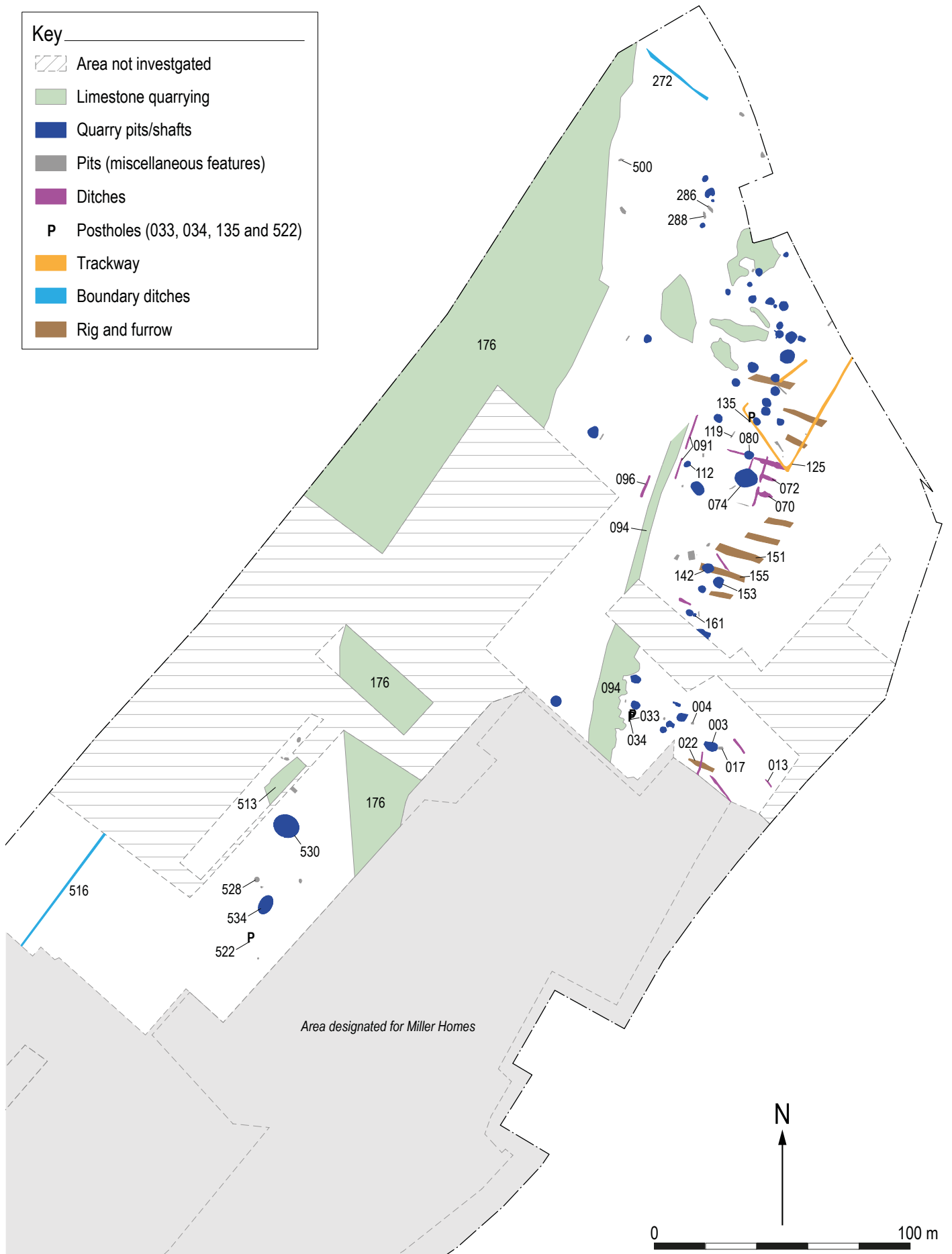


Figure 3: Site plan with excavated features.

shape and measured between 1.8 m and 7.2 m in diameter (Figure 3, Plate 2). Eleven of these features were partially excavated and revealed depths of at least 1 m, with the base not reached within the majority of them due to Health and Safety concerns. All of the possible quarry pits or shafts were filled with similar deposits comprising brownish-grey silty-clay with patches of redeposited natural, along with inclusions of coal, ash, and nineteenth century waste (glass, pottery, and animal bone) (Plate 3). It is likely that these represent coal mining pits. The smaller size of some of these features may indicate that the coal seam in these areas was also relatively small.

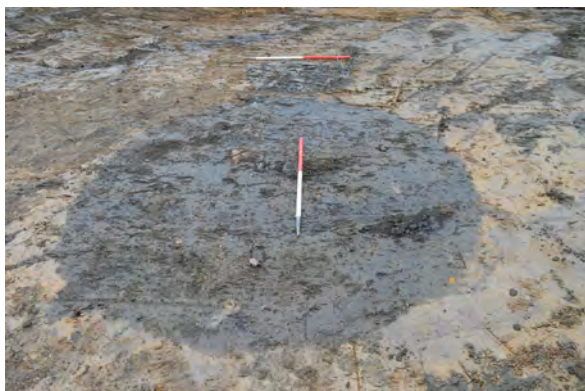


Plate 2: Quarry pit/shaft 161. Viewed from the west.

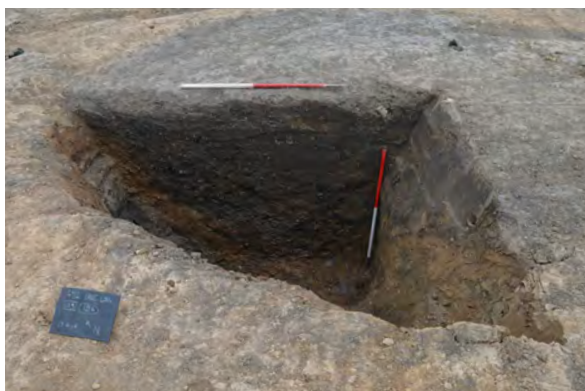


Plate 3: Section of quarry pit 154. Viewed from the south-west.

Miscellaneous pits, postholes and deposits

Eighteen rectangular pits were uncovered across the site in close proximity to the probable quarry pits or shafts. These ranged in length from 1.2 m by 0.6 m to 3 m by 2.6 m, for example 119 (Plate 4). Eight of these pits were partially excavated and revealed an average depth of between 0.3 m and 0.6 m, with two (004, Plate 5, and 061) having depths greater than 1.3 m and may represent exploratory test pits for the quarry. The shallower

pits may also represent exploratory test pits, or possibly foundation pits for quarry machinery. The majority of the features were filled with either blackish-grey or brownish-grey silty-clay with coal and stone inclusions, such as 017 (Plate 6). Two pits were filled with redeposited natural, and at least three of the them 286, 288 (Plate 7) and 500, were filled with a high concentration of nineteenth century waste, and are therefore likely to represent waste pits.



Plate 4: Rectangular pit 119. Viewed from the west.



Plate 5: Section of rectangular pit 004. Viewed from the north-west.



Plate 6: Section of rectangular pit 017. Viewed from the west.



Plate 7: Section of waste pit 288. Viewed from the north.

Nine possible pits contemporary with mining activity were uncovered on the site. All of these pits contained fills comprising dark blackish-grey or greyish-brown silty-clay deposits with frequent coal and stone inclusions, similar to the fills of the surrounding quarry pits or shafts (see pit 528, Plate 8). Although contemporary with the quarrying activity on site, the function of these features is uncertain.

A further four possible pits (505, 507, 509 and 526) were uncovered to the west of quarry scar 176. All of these features were filled with similar greyish-brown silty-clay deposits. No finds or coal fragments were recovered from any of them and therefore their date is uncertain. However, given

their location, in the vicinity of quarry scar 513 and quarry pit or shaft 534, it is likely that they are contemporary with the quarrying activity on the site, although their function is uncertain.



Plate 8: Section of pit 528. Viewed from the south-west.

Four possible postholes (033, 034, 135 and 522) were also recorded. All four were filled with similar dark brownish-grey silty-clay deposits with coal and stone inclusions. However, given their uneven shape and lack of any other similar features across the site, it is likely that these represent areas of disturbance, rather than archaeological features.

Three deposits of dumped waste, most likely from the nearby quarry pits and shafts, were also uncovered on site. All of these comprised grey silty-clay with coal and stones.

Quarrying related linear features

Two parallel linear features (091 and 096), measuring 0.46 m and 0.88 m in width respectively, were uncovered running either side of quarry scar 094. These were filled with greyish-brown silty-clay and mottled orangey-grey silty-clay respectively. Both deposits included coal and stones, with the fill of linear feature (096) also containing burnt bone and medieval pottery, including a base fragment of white gritty ware (SF 04) (see Medieval pottery, below). Environmental analysis of its soil samples also indicated the presence of carbonised oat grains (see Archaeobotany, below). Only one of the linear features (096) was excavated and revealed a depth of 0.22 m (Plate 9). Their location, parallel to the quarry scar, along with the quantity of coal fragments within their fills, suggests they were part of a drainage system taking water away from the quarry edge.

A further ten linear features were uncovered on the site, measuring on average between 0.3 m and 0.6 m in width, with depths of between 40 mm and 0.13 m. Three (013, 014 and 015) were located to the south of the site, in close proximity to quarry pit or shaft 003. All three were filled with similar compact blackish-grey silt and shale deposits (Plate 10). The compact and stone-rich fills of these features may suggest they were used as pathways or as the foundations for quarrying equipment.



Plate 9: Linear drainage ditch 096. Viewed from the south.



Plate 10: Linear ditch 013. Viewed from the SSE.

The remaining seven linear features uncovered on the site were filled with either brownish-grey or dark grey silty-clay deposits, all of which contained stone and coal fragments (Plate 11). Six of these were located around quarry pits or shafts 074 and 080, with the seventh located adjacent to quarry pits or shafts 142 and 153. Given their close proximity to these quarry pits/shafts, it is likely that they formed part of a temporary drainage system to keep water away from the nearby quarrying activity. The amorphous nature of linear features 070, 072 and 080 may be due to part of them consisting of deposits of up-cast material from the nearby quarry pits and shafts, or an overflow of material from the drains.



Plate 11: Linear ditch 070. Viewed from the south-west.

A possible pathway or trackway (125), enclosing a roughly triangular area which contained five quarry pits/shafts, and in close proximity to a further nine quarry pits/shafts (including 074), was uncovered at the eastern end of the site. It measured on average 1.1 m in width, with a depth of up to 90 mm, and was filled with compact dark black shale and coal deposits (Plate 12).



Plate 12: Possible trackway/pathway 125. Viewed from the south-east.

Field boundaries and rig and furrow

Two field boundary ditches, aligned roughly NW/SE (272) and NE/SW (516) were uncovered towards the northern and western ends of the site respectively. Ditch 272 measured 1.5 m in width, with a depth of 0.5 m and was filled with brown silty-clay (Plate 13). Its position fits the approximate location of a boundary shown on the 1855 OS map (Figure 2), most likely associated with the limestone quarry, as it was not shown on the later 1895 OS map recorded after the quarry had ceased to operate.



Plate 13: Section of boundary ditch 272. Viewed from the north-west.

The second ditch (516) measured 0.96 m in width, with a depth of 0.43 m, and was filled with brownish-grey silty-clay (517) (Plate 14). Its position matches the approximate location of a field boundary shown on the 1855 OS map (Figure 2).



Plate 14: Boundary ditch 516. Viewed from the south-west.

A group of up to ten linear and parallel ditches most likely representing the remains of medieval rig and furrow were uncovered within the eastern half of the site. These were all aligned roughly WNW/ESE and measured on average 2.4 m in width, with a depth of 0.12 m (022, Plate 15). They were all filled with similar greyish-brown sandy-clay deposits, with four of them truncated by the later quarrying activity on the site.

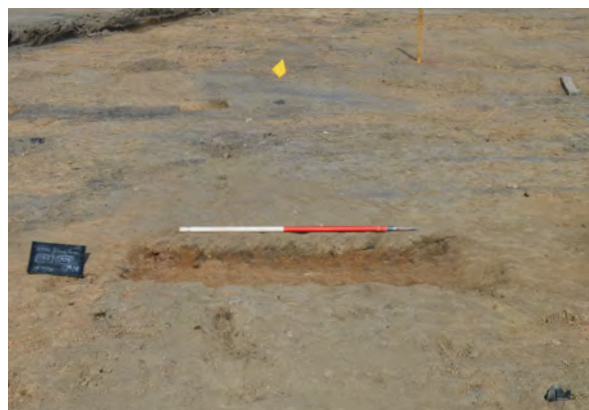


Plate 15: Section of rig and furrow 22. Viewed from the south-east.

Specialist Reports

Archaeobotany

By Diane Alldritt

Introduction

Ten environmental samples taken during the archaeological strip, map and record excavation work were examined for carbonised plant macrofossils and charcoal. Material sorted from seven of the sample retents was also analysed for identifiable remains. While the majority of the samples were heavily contaminated by post-medieval and modern activity, one significant cache of carbonised cereal grain from linear feature 096 was identified.

Methodology

The bulk environmental samples were processed by GUARD Archaeology using a Siraf style water flotation system (French 1971). The samples were from 1 litre up to 10 litres in volume. The flots were dried before examination under a low power binocular microscope typically at x10 magnification. All identified plant remains including charcoal were removed and bagged separately by type.

Wood charcoal was examined using a high powered Vickers M10 metallurgical microscope at magnifications up to x200. The reference photographs of Schweingruber (1990) were consulted for charcoal identification. Plant nomenclature utilised in the text follows Stace (1997) for all vascular plants apart from cereals, which follow Zohary and Hopf (2000).

Results

Eight out of the ten environmental samples were found to be sterile of carbonised plant remains with a small amount of charred detritus <2.5 ml in volume found in ditch 516/517, whilst linear

feature 096/097 produced a slightly larger 10 ml cache of cereal grain. Modern plant detritus was recorded in low amounts <2.5 ml up to 2.5 ml in volume, mostly consisting of degraded root detritus together with a few modern seeds. Overall, the samples were dominated by finds of clinker and coal arising from extensive post-medieval and modern industrial activities taking place across the site.

The results of samples submitted for radiocarbon dating are given in Table 1 and discussed below.

Discussion

Seven samples were examined from the site with the majority found to be sterile of carbonised plant remains. Sample 4 from linear feature 096/097 was the exception containing a concentrated deposit of cereal grain potentially originating from medieval agricultural activity.

Linear feature 096/097 produced a nicely preserved cache of carbonised cereal grain, mainly identified as *Avena* sp. (oat) with a couple of grains of *Avena sativa* (common oat) found preserved in the floret. The deposit also contained a small amount of *Hordeum vulgare* sl. (barley) and a few *Secale cereale* (rye) grains. One small 5 mm fragment of *Corylus* (hazel) charcoal was also identified. This deposit is probably from medieval corn drying activity taking place in the vicinity with the burnt waste from numerous drying episodes being swept out and deposited in the linear feature.

Pits 003/019, 004/021, 017/018 and 112/110 and mine shaft 153/154 were sterile with finds of only coal and clinker throughout. These were probably all from nineteenth century quarrying activity.

Rig and furrow 151/152 had been subject to bioturbation and intruded upon by modern activity, with finds of crushed clinker and coal, modern seeds and a fragment of plastic found in the sample.

Sample Nr	Lab Code	$\delta^{13}\text{C}$	Context	Radiocarbon Age BP	Dates at 2 sigma
4	SUERC-94437 (GU55479)	-27.2 ‰	Cereal : <i>Avena</i> spp from 97 fill of linear drain 96	861 ± 24	1052 – 1080 cal AD 1152 – 1249 cal AD
4	SUERC-94438 (GU55480)	-25.9 ‰	Charcoal : <i>Corylus</i> from 97 fill of linear drain 96	862 ± 21	1054 – 1079 cal AD 1152 – 1225 cal AD

Table 1: Radiocarbon dates.

Three samples produced a small amount of charred detritus recorded from ditch 516/517 whilst the others were found to be sterile.

Ditch 516/517 contained trace charred remains including a few <5 mm slivers of *Quercus* (oak) charcoal together with a single very degraded and rubbed barley cereal grain in amongst clinker and coal fragments. The ditch was possibly a medieval feature that had been heavily mixed by later activity.

The fill of pit 536/537 was sterile with only clinker, coal and geological material present, indicating this is probably a post-medieval or modern feature.

The environmental samples mostly produced remains that reflected the post-medieval and modern quarrying activity taking place at the site with finds of clinker and coal fragments throughout the deposits. Linear ditch 096/097 provided evidence for potential medieval farming activity containing a mixed deposit of cereal grain mainly oat with a small amount of barley and rye also present. Ditch 516/517 also contained cereal grain but only a single grain of barley together with a small amount of oak charcoal which were probably residual remains and had been heavily mixed by modern activity.

Radiocarbon dating

Samples of hazel charcoal and carbonized cereal grains of oat were selected as suitable for C14 radiocarbon dating from deposit (097) within the linear feature (096). Both provided consistent radiocarbon dates suggesting activities relating to the burning of hazel and carbonization of cereal grains on the site were medieval, dating from the mid twelfth century to the mid thirteenth century AD (Table 1).

Animal bone

By Catherine Smith

Introduction

The monitored topsoil stripping at Lang Loan recovered several fragments of animal bone. All fragments were weathered: the majority were calcined by heat and in general were in a poor or very poor condition.

Species present

Species identification was limited due to the very poor condition of the bone. Most of the fragments could be categorised only as indeterminate mammal. However, cattle and sheep/goat bones were present. These were a cattle upper molar (SF 05) retrieved from the topsoil covering the site, part of a cattle mandible (SF 34) from pit fill 187 and several fragments probably from the same sheep/goat scapula (SF 21) found in the fill of feature 158 identified as rig and furrow.

With only one possible exception, a medullary fragment recovered from a linear feature 141 (SF 22), the indeterminate mammal fragments were all calcined by heat. These calcined fragments came from the fill of a linear ditch 097 (SF 12), a gully 110 associated with mining (SF 14) and the fill of a possible pit 136 (SF 15).

Discussion

The features from which these few bone fragments were recovered were pits, gullies, and the fill of rig and furrow. One explanation for their presence is inclusion in material used for manuring the fields. Domestic sweepings and night soil were commonly used for this purpose in the post-medieval period and although undocumented, the practice is thought to have originated at a much earlier date.

The presence of cattle and sheep or goat is unsurprising since these species were the most commonly kept livestock throughout both the medieval and post-medieval periods in Scotland. It is also not unexpected that evidence of other domestic animals such as pigs and horses was absent, given the poor condition of the surviving bones.

Medieval pottery

By Bob Will

Three sherds of medieval pottery were recovered during the investigations at Lang Loan and comprised a large fragment (SF 04) of the base of a cooking pot and two body sherds (SF 13) from a different vessel.

The sherds are in a Scottish White Gritty Ware fabric (Table 2). The base sherd (90 mm in diameter) is probably from a cooking pot due to the presence of burning and sooting on the underside (Plate 16a). There is a streak of dull green/brown glaze on the base but that may have dripped from another pot during firing as pots were often stacked upside down in the kiln. The fabric of the base is quite uneven and varies in thickness from 6 mm by the angle with the walls to 3 mm in its centre, although this may be due to the presence of finger impressions, several of which can be detected across the base (Plate 16b). Unfortunately, the walls of the vessel do not survive so it is not possible to determine the shape of the vessel although the surviving walls do angle outwards.

The sherds would date to the late thirteenth or early fourteenth century and represent one of the main fabric types found in Scotland. This fabric has been the subject of a research project sponsored by Historic Environment Scotland

that suggested that there were several kiln sites throughout Scotland (Jones *et al.* 2006) but only one kiln site has been investigated at Colstoun in East Lothian. This fabric turns up throughout Scotland particularly along the east coast and large assemblages have been recovered from Edinburgh, St Andrews and Perth.



Plate 16: a) exterior, and b) interior of the Scottish White Gritty Ware base SF 04.

Small find number	Context	Fabric	Sherds numbers	Weight (g)	Description
04	97	Scottish White Gritty Ware	1	131	Base fragment from cooking pot with sooting on underside and streak of glaze
13	110	Scottish White Gritty Ware	2	2.2	Undecorated body sherds

Table 2: Medieval pottery catalogue.

Fabric	Total sherds	Rims	Bases	Handles	Body sherds	Weight (g)
White earthenware	14	2	3		9	66.2
Red earthenware	5	1			4	49.6
Unglazed earthenware	4	3			1	89.2
Stoneware	4		1		3	3.1
Total	27	6	4	0	17	208.1

Table 3: Modern pottery fabric types.

Modern pottery

By Eleanor James

There were 26 sherds of pottery collected during investigation at Lang Loan (Table 3). These sherds have been catalogued according to guidelines and standards produced by the Medieval Pottery Research Group (MPRG 2016).

Alongside the pottery sherds there were also three undecorated and unmarked stem fragments of clay pipe including one mouthpiece SF 27.

Stoneware

There are four sherds of stoneware in the assemblage, one fragment SF 24 is a base sherd from a medium-sized grey bodied stoneware and brown salt glazed bottle, two small sherds are degraded stoneware that has been affected by either water or heat, and the smallest body sherd is from a cream and white glazed object. These types of vessels were made in vast quantity by many manufacturers and were used for various liquids from whisky to ink (Will 2017).

White earthenware

There are six fragments identified as 2 body, 2 rim and 2 base sherds of 'willow pattern' blue transfer decorated white earthenware (SFs 08, 10, 03, 32 and 36) (Plate 17). The largest piece SF 32 is from a base and the size suggests a dinner plate. SF 36 is much finer, and was most likely from a teacup or small bowl. Transfer decoration was the most popular decoration technique from the nineteenth to the twentieth century. Willow pattern was widely produced and at various price ranges to cater for buyers with a range of incomes. Two sherds SF 02 and SF 01 are painted, SF 01 is a small flat sherd with a green glaze, whereas SF 02 has three glazes, blue, brown and white and is an example of mocha ware which can be dated from the late eighteenth century to the twentieth.

Porcelain

Body sherd SF 07 (Plate 17), has a poorly executed design in black ink, which includes human figures. SF 07 is from a multifaceted object, perhaps octagonal, and is most likely from a storage jar. It was found in topsoil and its condition is poor. Its provenance is uncertain and the piece is probably late in date.



Plate 17: White earthenware examples from the site. Top row from left - SF 08, 10 and 07 (porcelain), middle row from left - SF 035, 02 and 09, bottom row - SF 03.

Red earthenware

There are five sherds of glazed red earthenware, two finer pieces with dark brown interior and exterior glaze, a rounded rim sherd SF 36 probably from a small storage jar or bowl, and a body sherd SF 32. This brown glaze was common in the nineteenth to twentieth centuries, and it was used by a range of potteries including Rutherglen and Belfield. It was a popular glaze for teapots, but was used for other tablewares. The last three sherds are slip decorated earthenware, probably from large bowls or plates. The liquid clay slip can be applied in different techniques but these sherds are covered in plain brown or cream slip. Slipware is very common and was made by many potteries (Will 2019). There are three fragments of unglazed earthenware. The flatness of SF 37 suggests it is a roof tile, whereas the presence of a rim on SF 18 suggests it is more likely to be from a ceramic drain or gutter.

Discussion

The range of fabrics represented in this assemblage is indicative of the nineteenth to twentieth centuries, the majority of the sherds are domestic and examples of pottery used as table ware. The contexts are either associated with the mining activities on the site, or with redeposited topsoil, which fit with the time range of the pottery.

Glass

By Robin Murdoch

This small assemblage is quite informative given that it consists mainly of wine bottles (possibly also ale bottles, the two were virtually indistinguishable) of fairly standard forms for their date (Table 4). The existence of such bottles with dated seals allowed an evolutionary typology to be developed covering the period from their introduction c. 1630 to the start of semi-automatic mould-blown types c. 1821 (Dumbrell 1992). The evolution of their shape was quite radical and the presence of this type of bottle on most sites dating from that period can be very informative. The bottles above, represent three different dates, the earliest being SF 20 c. 1690-1715. This was the period of the 'onion'

bottle, a broad round-sided slightly flattened shape with a short widely splayed neck. This neck shape is not found at any other time. The narrowness and neatness of the string ring might suggest a date before 1700 rather than later.

SF	Context	Description
		Wine bottle neck in two conjoining shards in palish dull green, surfaces dulled through possible loss of moderate corrosion. Neck is short, c. 61 mm, widely splayed. The string ring is quite small, triangular and neatly made and is only 1.5-2 mm below slightly out-turned lip. Aperture 19 mm.
20	150	Three further shards, same colour and condition. Likely date range 1690-1715. Not 'shaft and globe' shape as suggested on the finds bag, more probably 'onion' bottle.
31	185	Wine bottle neck in dark dull green, patchy moderate corrosion. Neck height c. 90 mm, enhanced lip over square section string ring nipping in neck. Aperture 15.5 mm (slightly elliptical), last quarter eighteenth century.
39	1	Jewel-like item in clear probable lead crystal. Roughly circular, surviving diameter 24 mm. Both sides conical and decorated with wheel cut facets. Overall thickness between cone tips c.15 mm, patchy shatter damage. Two circular holes c. 1.5 mm diameter 15 mm apart drilled through item. These contained small lengths of metal wire. Probably intermediate bead in chandelier pendant, eighteenth-nineteenth century?
101	517	Part wine bottle base in mid-green, moderate corrosion some of which has detached. Original diameter c. 100-110 mm, evidence of belling, kick 25-30 mm. Mid-eighteenth century.

Table 4: Catalogue of glass.

SF 101 dates to the middle of the eighteenth century and has a diameter somewhat reduced from the 'onion' bottle variety. It would have had vertical sides but the lower sidewall would show belling, an outward bulge caused by the creation of the kick (the indent in the base). The basic shape was blown in a dip mould and then removed to create the kick. Pushing in the base allowed some outward movement of the lower sidewall, hence the belling.

The neck SF 31 probably dates to the last quarter of the eighteenth century. The defining feature here is the enhanced lip where extra glass has been added to extend the lip into a broader feature. This shape of lip is not encountered before c. 1760 and the square section string ring is also of that sort of date.

Finally SF 39 is an unusual find. It is almost certainly an intermediate bead from a pendant on a lead crystal chandelier. The fact that both sides are facet decorated means that the item would have been free hanging. The two holes would have been used to connect the bead to another item above and below. Cleaning out the holes revealed that they contained fragments of metal wire used to connect the bead to other parts. Beads of this sort seem to have been fairly common on glass chandeliers in the eighteenth and nineteenth centuries so it is not possible to closely date the item.

Coins

By **Natasha Ferguson**

A half gold sovereign (SF 25, Plate 18) was recovered from an unstratified context. The gold coin was minted in London in 1863 with the obverse depicting a Victoria 'young head' bust (Spink 2001). The reverse shield is the Ensigns Armorial with the shield surmounted by the crown. The dimensions are 19.3 mm and it weighs 3.99 g. At 22 carat gold the value of such a coin was significant, with the nominal value of half a pound sterling or 10 shillings and therefore may have represented a considerable loss to the owner. As an unstratified find it is unclear whether the coin has been lost in the vicinity, or through Victorian waste disposal as night soil. In this context, given the rural, albeit industrial location, and proximity to Edinburgh, a more likely source of high value denominations, the latter appears more probable.



Plate 18a and b: Gold sovereign.

Discussion

By **Natasha Ferguson**

Within this compact area is a landscape featuring medieval rig and furrow and field boundaries, disturbed by later coal extraction and limestone quarrying. Coal extraction at Gilmerton, although perhaps in reference to the main Gilmerton Coal Quarry located to the east, appears as early as 1627. It carries on throughout the eighteenth and nineteenth centuries, breaking only between 1828 and 1849 due to the expiry of a coal lease, but continuing again in 1850. Information on the limestone quarrying on the site is scarce, although it is noted that limestone quarrying restarted at Gilmerton in 1824 and continued until around 1828 (Russell 2012).

The two quarrying scars represent the impact of industrial activity on the landscape (094 and 176), running approximately north/south through the middle of the site and likely following the line of limestone seams which were mined at Edgehead Quarry or Gilmerton Limestone Mine. The smaller quarry scar (094), associated with the drainage ditches containing the medieval material, followed a visible limestone outcrop and was only partially quarried. This would suggest that the quarrying activity was either only short-lived or that the quantity or quality of limestone from here was not enough to continue work. This may explain why the associated drainage ditch (096) contained fewer contaminated deposits from the surrounding area. The main quarry scar (176) is shown on the 1855 OS map, marked as Limestone Quarries. Neither the smaller quarry scar (094) nor the contemporary quarry pits and shafts are marked on any of the OS maps. This is likely due either to the scale of recording, or to the possibility that they were in and out of use between the surveying of the maps.

The smaller quarry pits and shafts uncovered on the site likely represent coal mining or exploratory shafts, as although it is possible to mine limestone from a shaft, this is far more difficult (Nisbet 2005/6). Coal would have been used, at least partially, in lime kilns for sourcing lime from the extracted limestone. This process was usually carried out in close proximity to the quarrying activity and an area directly to the north of the site is marked as Kilngate on

the 1855 OS map (Figure 2), suggesting this was where it was carried out, as no evidence of any kilns were uncovered on the site. Lime was used on agricultural land as well as for mortar in construction.

The artefact assemblage of bottle glass and glazed ceramic fragments reflects activity mainly in the eighteenth and nineteenth centuries and it is difficult to discern whether it was settlement activity relating to the industrial presence on the site, or the deposition of night-soil for fertilisation in the late nineteenth century. Of interest are the fragments of eighteenth-century bottle glass, with the earliest example SF 20 dating to the period c. 1690-1710, and could therefore relate to the earliest coal mining activity in the area.

Of note is the lack of prehistoric material in the artefact assemblage which was surprising given the presence of prehistoric features and the discovery of a Romano-British double petal and boss harness mount excavated by GUARD Archaeology directly east of the site at West Edge Farm (Westgarth 2020). A sampling strategy agreed with the City of Edinburgh Archaeology Service was established to determine the chronological nature of linear features and pits encountered on site, which were similar in character to those at West Edge Farm. Of the soil samples most were found to be sterile of environmental remains and primarily contained modern coal and clinker fragments (See Archaeobotany).

Returning to the earlier agricultural landscape, the earliest features uncovered on the site relate to medieval farming practices indicated by traces of rig and furrow aligned roughly WNW/ESE and situated towards the south-eastern edge of the site. As with the majority of samples, the fill of one feature 151/152 indicated significant intrusion from bioturbation and contaminated by modern seeds and plastics. However, the fill (097) of linear ditch (096) running parallel to a quarry scar (094), and assumed to be part of a drainage system related to the quarry, contained interesting medieval evidence in the form of pottery, charcoal, and carbonised cereal grains. The pottery, a base sherd of White Gritty Ware (SF 04) dates to the late thirteenth or early fourteenth century and represents a large cooking dish (see Medieval pottery).

The environmental analysis recovered evidence of carbonised cereal grains, mainly oats but also a small amount of barley and rye. A fragment of hazel charcoal was also recovered and cereal grain of oat was subject to radiocarbon dating which provided a consistent date of mid twelfth century to mid thirteenth century. Their presence is suggestive of grain-drying and possibly malting activity in the vicinity. The drying of grains using a kiln was necessary for milling wheat and oats, and for the germination of barley for brewing (Dixon 2002, 53). Within this process any burnt grains are cleaned out of the kiln and swept aside into the surrounding area. While any evidence of a kiln has been lost, the linear drainage feature (096), which appears to be contemporary with the quarry scar, may have accumulated earlier soil deposits before further quarrying activity and significant industrial contamination of the landscape took place.

From the early seventeenth century onwards small exploratory coal pits peppered the landscape in amongst the rigs of oats and barley. By the early nineteenth century coal shafts had been sunk and large open-cast limestone quarries cut through the fields, with blocks of stone hauled away by industrial machinery and transport. Widespread contamination of the site with clinker coal and coke deposits highlights the significant environmental change and landscape transformation which took place over two centuries or more. Archaeological projects around the south and east of Edinburgh in recent years have also encountered early coal mining sites, such as at South Gilmerton Farm (Murray 2016), and the more extensively excavated mining landscape at Newcraighall, east of Edinburgh. At this latter site, prehistoric pits survived extensive exploration by mine shafts, subsequent rig and furrow cultivation, and the imposition of a designed landscape. Finds of medieval and post medieval pottery as well as glass and metal objects were located there (Hunter Blair and Cross 2018). Although current work by GUARD Archaeology Ltd at Edmonstone is locating and recording evidence of coal mining pits alongside prehistoric features, earlier archaeological interventions in the area by Headland Archaeology in 2008 also revealed coal mining pits dating to the sixteenth/seventeenth century (Canmore entry: <http://canmore.org.uk/site/346453>). Other work by GUARD, University

of Glasgow in 2008 at Edmonstone surveyed and recorded designed landscape structures and an evaluation revealed coal mining activities as well as further elements of the designed landscape (Francoz and Leslie 2008), indicating multiple uses of the landscapes around Edinburgh. The site at Lang Loan offers a fascinating example of economic reformation in the modern era from medieval agriculture to the increasingly high impact industrial processes of the nineteenth century (see ScARF: Industrial Revolution).

Conclusion

The absence of prehistoric features and material on site was unexpected, particularly given the close proximity of the prehistoric landscape encountered by GUARD Archaeology excavations in an area directly east of the development area. However, while later nineteenth century industrial activity in the form of quarrying and coal extraction appears to dominate the archaeological landscape, traces of earlier medieval agricultural practice have survived. Here landscape transformation is visible with the first exploratory coal pits of the seventeenth century to the larger scale limestone extraction through open-cast quarrying. Changes in the landscape throughout the industrial reformation were significant in Scotland and this site neatly represents a dense microcosm of that transformation.

Finds and Archives

The finds have been declared to the Treasure Trove Unit, to be dealt with by the Scottish Archaeological Finds and Allocations Panel, and the archive will be deposited with the National Record of the Historic Environment, Edinburgh.

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