28 Claremont Terrace, York

Archaeological Watching Brief Report

LS Archaeology

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Site	Claremont Terrace, York, YO31 7EJ	
Site Code	CTY19	
County	North Yorkshire	
Location	National Grid Reference	SE 60184 52516
	Easting and Northing	460184 452516
	Latitude Longitude	53.965230 -1.0841157
Planning Reference	18/02807/FUL	
Development	Single Storey Rear Extension	
Text and Images	Text: D. Signorelli Editing: Freya Lawson-Jones Images: L. Signorelli	
Specialist Contributions	York Osteoarchaeology (Human Remains) Dr. C. Cumberpatch (Medieval and Post-Medieval pottery)	I. Rowlandson (Roman Pottery) J. McComish (Ceramic Building Material and Tile)
Date of Issue	October 2019	
Site Dates	30th and 31st July 2019	
Client	Dr. Richard Walsh	

Summary

During the construction of a single storey rear extension at the former medieval burial ground site of St Giles Church, groundworks revealed articulated and disarticulated human remains. The burials had been disturbed by the construction of Claremont Terrace in the late 19th century. The archaeological deposits consisted of layers containing residual Roman, medieval, and post-medieval pottery interspersed amongst articulated and disarticulated human remains.

An articulated inhumation laid within a reused Roman Oolitic limestone and mortar lined grave was observed during groundworks. During the assessment of the articulated and disarticulated remains, a total of twelve individuals were identified and are believed to date to the known 12th-16th century burial ground of St Giles Church. However, the style of the grave may indicate that the burial ground was active Pre-Conquest.

Introduction

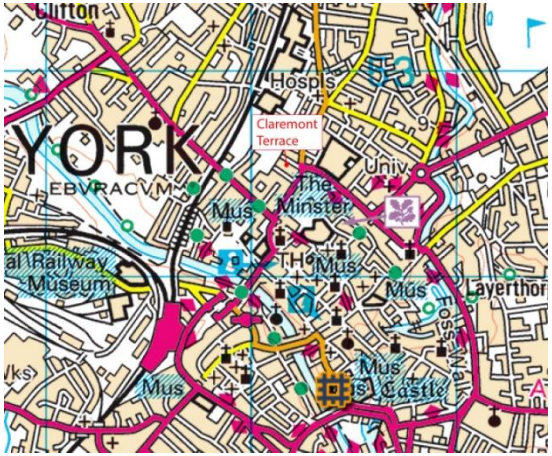


Figure 1: Claremont Terrace in relation to the central core of York

This report summarises the results of a recent archaeological watching brief carried out at 28 Claremont Terrace, York. Claremont Terrace is located off Gillygate and lies within the Central Area of Archaeological Importance and Historic Core Conservation area of York.

Groundworks undertaken during the construction of a single storey rear extension were monitored over the course of two days. Archaeological remains were observed at a depth of 0.20m below the rear yard surface. The site is located within an area that had been used as a burial ground during the medieval period, therefore there was a high probability that human remains would be exposed during groundworks. As expected, human remains were discovered immediately beneath the rear yard surfaces.

These burials had been disturbed in the19th century during the construction of Claremont Terrace, and the archaeological deposits consisted of layers with residual Roman, medieval and post-medieval pottery interspersed amongst the disarticulated human remains. Three articulated inhumations were identified and lifted during excavation, and no residual Roman or medieval pottery was present within these burials. A further three inhumations were identified during the osteoarchaeological assessment, and the deposits containing these individuals yielded single sherds of residual Roman Pottery. An articulated inhumation laid within a stone lined grave was also observed during ground works. This grave was constructed from reused Roman Olithic stone and mortar. During the assessment of the articulated and disarticulated remains, a total of twelve individuals were identified, and are believed to date to the 12th-16th century.

Aims and Objectives

The broad aims of the evaluation were:

- To ensure the watching brief, post excavation and archive are all carried out and fulfilled in accordance with guidance as stated in CIfA (2014); Standard and Guidance for an Archaeological Watching Brief.

Site-Specific Value:

- Are burials pertaining to the medieval period and/or 17th century still present, or did the construction of the 19th century streets on the site of St Giles effectively remove most of these deposits and inhumations?
- If inhumations are present, can evidence of plague victims or executions be determined and identified? (Appendix 1: LS Archaeology, (2019).

Related Texts

- LS Archaeology, (2019); 28 Claremont Terrace: A Written Scheme of Investigation

Methodology

The archaeological watching brief monitored the groundworks for the new rear extension of 28 Claremont Terrace, York. The impacted space measured 4.00m in length and 2.00m in width, resulting in a study area of 8.00m². The yard surface impacted by the extension was carefully removed prior to the start of the watching brief.
One of the extension walls is to be built abutting the eastern garden boundary wall. This required underpinning to take place in order to ensure the wall was not breached. In total, a trench measuring 4.0m in length by 0.5m in width would be excavated to a depth of 0.80m.

To ensure the boundary wall was not undermined during these groundworks, the foundation trench was to be excavated by hand in four alternative segments (Figure 1). Segments could then be backfilled with concrete creating stability for the wall. Each segment measured 1.00m in length, 0.50m in width and 0.80m in depth. The hand digging of the segments was monitored by an experienced archaeologist until archaeological horizons were encountered. Due to the restricted space within each trench, a photographic record was made rather than section drawings.

A licence for the Removal of Human remains was granted. Licence Number: 19-0224.

Figure 2: Plan of the ground floor of Claremont Terrace with the underpinning foundation trenches indicated (1-4)

Results

Context Index

Context	Type	BGL Depth (m)	Description
1	Structure	Not applicable	Brick Garden Boundary Wall
2	Fill	0.15 - 0.70	Redeposited/disturbed backfill of dark grey sandy-silty clay fill with redeposited human bone (Trench 1, 2, 3, 4). Later period St Giles Burial Ground
3	Layer	0.70 - 0.95	Redeposited/disturbed backfill of dark yellowish-brown sandy clay fill with articulated and disarticulated human bone (Trench 1, 2, 3, 4). This seals the earlier period of St Giles Burial Ground
4	Skeleton	0.35 - 0.50	Adult Female Skeleton within fill (3) in Trench 1
5	Skeleton	0.40 - 0.60	46+ Male Skeleton within fill (3) in Trench 1
6	Natural	0.95	Natural sand and gravel
7	Fill	0.15 - 0.70	Two 46+ Females and One 18-25 Male disarticulated skeletons in same as fill (2) in Trench 2
8	Skeleton	0.65 - 0.95	46+ Male Skeleton in Grave 9 within (3) in Trench 2
9	Structure	0.65 - 0.95	Limestone lined grave with a thick grey shaped mortar base within (3) in Trench 2
10	Fill	0.15 - 0.70	Same as fill (2) in Trench 3
11	Fill	0.15 - 0.70	Same as fill (2) in Trench 4
12	Fill	0.70 - 0.95	Same as fill (3) in Trench 4
13	Fill	0.70 - 0.95	Same as fill (3) in Trench 3
14	Fill	0.90 - 0.92	Thin black organic? Fill between fills (11) and (12)
15	Structure	0 - 0.15	Yard Ground surface mixed paving and concrete

Table 1: Context Index

To ensure the brick and mortar boundary wall was not undermined (Context (1)), the foundation trench was hand excavated in four segments each measuring 1.00m long by 0.50m wide. These segments were excavated to a depth of 0.95m below ground level (BGL).

Natural

At the base of each trench a very firm brown deposit made of clay, sand and gravel was exposed (Context (6)) at 0.95m BGL. This deposit was identified as natural, and was overlaid by a layer of a dark yellowish-brown sandy clay material (Contexts (3), (12) and (13)).

Site Stratigraphy

[1] 19th century Red brick Garden Boundary Wall		
[15] 19th – 20th century Yard Ground surface mixed paving and concrete		
	(2) = (7) = (10) = (11) Medieval redeposited and disturbed dark grey sandy-silty clay backfill with redeposited human bone **Phase 2- 19th century disturbance**	
(14) Black Organic Layer with possible decayed wood within (3)	(3) = (12) = (13) Medieval redeposited and disturbed dark yellowish-brown sandy clay fill with articulated and disarticulated human bone **Phase 1- St Giles Church Burial Ground**	[9] (8) Skeleton in Grave within (3) (4) (5) Skeletal Remains within (3)
	(6) Natural	

Table 2: Site Stratigraphy Visual Image (Context Data: Appendix 2)

Phase 1
Medieval Burial Ground of St Giles Church

This layer contained Contexts (3), (12) and (13) and was a moderately redeposited/disturbed grave backfill, sealing the earliest phase of the St Giles Burial Ground (Tables 1 and 2). It had a depth that fluctuated from 0.08m to 0.25m and was observed in all four Trenches. This backfill contained a small amount of disarticulated human bone (37 identified bones) and a range of residual pottery. In this report text, Context (3) shall also refer to Contexts (12) and (13). Within Context (3) the pottery and tile ranged from 2nd-5th century Roman, to 13th-16th century medieval (maximum date). Context (3) contained more Roman pottery than Context (2) and was exclusively 2nd to 5th century. The assemblage consisted of:

- Undated: One fragment of coarse mortar with a thin skin of white plaster painted pink. The upper surface of the plaster has unusual fine parallel ridges on the surface. One fragment of white plaster with the remains of a painted red stripe (Mc Comish, 2019. Appendix 3).
- Medieval: Three sherds of 13-16th century plain tile and two sherds of 13-16th century ridge tile (Mc Comish, 2019).

- Roman: Sherds from a 2nd century Roman decorated samian bowl, a sherd from a 3rd-4th century Roman grey ware dish with a plain rim, one sherd of Roman tegula flange, and a small Roman late 4th to early 5th century group which included sherds from a calcite-gritted Huntcliff jar, a samian sherd and a fine oxidised sherd. (Rowlandson, 2019. Appendix 4).

Disarticulated human bones and articulated skeletons were recovered from Context (3):

- Context (4) an adult female in Trench 1 (Figure 3)
- Context (5) a 46 year plus male in Trench 1 (Figure 2)
- Context (8) a 46 years plus male in a stone and mortar grave Feature [9] (Figure 4) within Trenches 2, 3 and 4 (York Osteoarchaeology, 2019. Appendix 5)

Figure 4: Partially exposed Skeleton 5 (Context (5))

Figure 3: Partially exposed Skeleton 4 (Context (4))

Context (4) and Context (5) were located within Trench 1 and were both partially complete supine, extended inhumations with their heads to the west. Context (4) was an adult female, with lamellar bone on the medial shafts of the tibia. Context (5) was a 46 plus male, who had a degenerative joint condition in the spine and upper limbs. Both of

these pathological traits indicate a strenuous physical life. Later disturbance of the site had caused both these inhumations to be partially complete to less than 31% (York Osteoarchaeology, 2019).

Additionally within Context (3) (and primarily within Trench 2) was a limestone and mortar grave with an inhumation; Feature [9], Context (8). There was no visible cut for this grave and not all of it was exposed as it extended beyond the foundation trench limits (Figure 4).

This grave (Feature [9]) was constructed with roughly dressed Oolitic limestone blocks bonded with coarse grained cream-grey mortar (McComish, 2019) and was filled with Context (8) and redeposited fill, Context (3). Each stone block measured approximately 0.20m in length, 0.10m in width and 0.20m in depth.

Figure 6: Limestone Grave with a mortar base Feature [9] and Skelton Context (8)

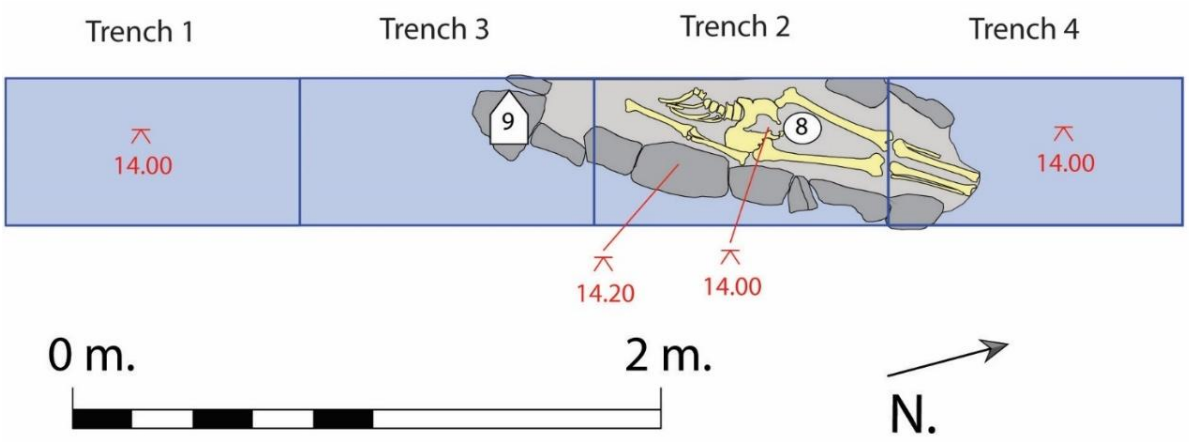


Figure 5: Plan of Grave Feature [9] and Skeleton Context (8)

The adult male (Skeleton (8)) was laid in a supine extended position with the head orientated to the west. This was within a limestone edged grave with a thick grey mortar base approximately 0.02m thick (Figure 5). The grave appeared to have been constructed in three stages: initially, the grave for the inhumation was dug out of the natural sand and gravel (Context (6)), deep enough to accommodate the limestone blocks along the grave cut edges. Next, the stone blocks were pressed securely into the edge of the natural creating the shape and structure of the grave. Finally, the thick grey mortar layer was spread onto the slightly concave natural which was observed after the skeleton (Context (8)) was removed. The mortar was partially spread onto the lower internal faces of the limestone blocks to create a solid seal between the blocks and the grave base. No lid was visible during the excavation of this grave. The limestone blocks were roughly dressed and appear Roman in date (McComish, 2019).

The Upper torso of Context (8), including the left arm, were not recovered due to part of the grave extending beyond the western edge of Trench 2.

Visible in Trench 4, the eastern end of this grave had been truncated by later activity resulting in the loss of the lower limbs (**Error! Reference source not found.**). A single residual Roman sherd from a North

frican amphora dating to the mid 2nd-3rd century was retrieved from Context (8).

Context (12) was isolated to Trench 4, and within it a thin black organic layer (Context (14)) measuring 0.02m deep, was observed at 0.90-0.92m BGL. Due to its friable woody texture, this was interpreted as decayed wood.

Phase 2

Late 19th Century Disturbance during the Construction of Claremont Terrace

Sealing Contexts (3), (12) and (13) was a heavily redeposited/ disturbed layer of dark grey sandy-silty clay consistently measuring 0.55-0.60m in depth (Contexts (2), (7), (10) and (11)) (Tables 1 and 2). Context (2) shall also refer to Contexts (7), (10) and (11). This backfill/disturbed ground contained a large amount of disarticulated human bones (357 identified bone) and a range of residual pottery. Within Context (2) the pottery ranged from 3rd-9th century with most sherds dating from the 13th-16th century. Roof tile dated from Roman to the 13th-16th century. Context (2) contained more medieval pottery than Context (3).

Figure 7: 19th century repositioned disturbed human bone within Context (2)

The assemblage consisted of:

- Undated: Coarse grained cream-grey mortar.
- Medieval: 12th-13th century York Glazed ware, 13th-15th century Oxidised Sandy ware, 14th-16th century Humberware, 16th-17th century late medieval Sandy ware, 19th century Unglazed Red Earthen ware flowerpot (Cumberpatch, 2019. Appendix 6). 6 sherds of 13-16th century plain roof tile: 1 fragment of roof slab, 3 sherds of 13-16th century plain tile and 2 sherds of 13-16th century ridge tile (McComish, 2019)
- Roman: Four sherds of 3rd century: a calcite-gritted vessel, white slipped Ebor ware, a grey ware jar base with a post-firing pierced hole and an Italian amphora. 2nd-3rd century: an Ebor ware sherd and a fragment from a North African amphora. 3rd-4th century: a sherd from a grey ware dish with a plain rim (Rowlandson, 2019).

Disarticulated human bones were recovered from Context (2), however during post excavation assessment 71 bones were reconnected to form three partially complete

skeletons all from Context (7): Skeletons 7a, 7b, 7c.

- Skeleton 7a 18-25 male Trench 2
- Skeleton 7b a 46 year plus female in Trench 2
- Skelton 7c a 46 years plus female Trench 2 (York Osteoarchaeology, 2019)

The red brick and mortar 19th century boundary wall and its foundations Feature [1] sat perpendicular to the rear paved and concrete yard, Feature [15], of 28 Claremont Terrace.

Conclusion

During the 12th to 17th centuries this site was utilised as a burial ground, meaning that there was high potential for human remains to be present underneath the 19th century terrace foundations. The hand excavated trenches for the underpinning and foundations contained a large amount of human remains which were located close to the surface of the rear yard.

Evaluation of the human bone, pottery, tile, and ceramic building materials has enabled two main phases of activity to be identified.

Claremont Terrace is situated close to the north facing corner of the Roman Legionary Fortress which was active during the 1st to the 5th century. Traces of Roman occupation can be seen on site through the pottery and tile which date to between the 2nd and 5th centuries. This residual Roman evidence could occur through the dumping of waste and on occasion the subsequent spreading on to agricultural land. It is possible that food was being cultivated in this location, however there was not enough evidence to allocate this potential activity its own phase.

The first phase applies to use of the site since the 12th century as a graveyard for St Giles Church. This is known historically, and the archaeological evidence concurs most notably through the presence of the limestone and mortar based grave and inhumation. This style of grave is generally rare, although there are some comparable examples locally; a grave of similar description was found during excavations at York Minster during the 1970's. This burial was located within a Pre-Conquest (1066 AD) cemetery associated with York Minster (Higman and Hill, 2001). The presence of this unusual grave could indicate that although St Giles Church was first mentioned in the 12th century, it may have been established and functioning as a burial ground prior to this date.

The roughly dressed Roman limestone reused to create the edging for the grave is notable, although the reuse of Roman building materials was common. The construction style of the grave indicates importance through status (Daniell, 1997).

St Giles church was amalgamated with St Olaves in 1586 and was demolished thereafter. However, plague victims and possibly executed criminals continued to be buried at the site of St Giles during the early and late 17th century respectively. Two of the site-specific research questions raised in the Archaeological Written Scheme of investigation focused upon the later use of the burial ground:

- Are burials pertaining to the medieval period and/or 17th century still present, or did the construction of the 19th century streets on the site of St Giles effectively remove most of these deposits and inhumations?
- If inhumations are present, can evidence of plague victims or executions be determined and identified?

The answer to these two questions is negative, as no burials identified as executions or plague were encountered. The first question also raises the issue of how much impact did the construction of Claremont Terrace have upon the burial ground? The archaeological evidence encountered suggests that there was a second Phase: Late 19th Century Disturbance during the Construction of Claremont Terrace.

Earlier archaeological deposits were disturbed during groundworks and leveling required for the new street. At this site inhumations appear not to have been removed and were instead incorporated into any backfill. On occasion the bones appear to be arranged with thought, such as the arrangement of the skulls (Figure 6).

The watching brief occurred over a relatively small area, however due to the density of archaeological deposits, the information to be extracted from Claremont Terrace in connection with the medieval origins of St Giles appears to be high.

Archive

28 Claremont Terrace was allocated an accession number by York Museum Trust: **YORYM: 2019.76**. The archive deposited at York Museum Trusts contains:

- Licence for the removal of human remains. Licence Number: 19-0224
- Hard copy of the watching brief report
- Site documents-context index, context records, skeleton register, skeleton records, plans, photographs, sections and sketches.
- Artifacts: Plaster samples (Roman or Medieval) from Contexts (3) and (13). Pottery assemblage.

The six articulated inhumations and 465 disarticulated human remains were reinterred at 28 Claremont Terrace on the 14th December 2019. A copy of this report shall be uploaded onto the Archaeological Data Service for inclusion in the OASIS online digital archive.

Bibliography

CIfA, (2014); Standard and Guidance for an Archaeological Watching Brief.

CIfA, (2014); Standard and Guidance Appendices.

CIfA, (2014); Code of Conduct.

City of York Council; Character Area 5 Gillygate.

Buckberry, J. (2007); On sacred ground: social identity and churchyard burial in Lincolnshire and Yorkshire, C. 700-1100 AD. In: Semple, S. and Williams, H. (eds), Anglo-Saxon studies in archaeology and history 14: early medieval mortuary practices. Oxford, Oxford University School of Archaeology, Institute of Archaeology.

Daniell, C. (1997); Death and Burial in Medieval England 1066-1550.

Hall, R. (2001); A Kingdom Too Far: York in the Early Tenth Century. In: Higman, N.G. and D.H. Hill (eds), Edward the Elder: 899-924.

MacRae, C. (2013): City of York Historic Characterisation Project - 2013, Character area statements.

Online Resources

mapapps.bgs.ac.uk

heritagegateway.org.uk

historicengland.org.uk

28 Claremont Terrace, York

An Archaeological Written Scheme of Investigation

LS Archaeology

Site	Claremont Terrace, York, YO31 7EJ	
Site Code	CTY19	
County	North Yorkshire	
Location	National Grid Reference	SE 60184 52516
	Easting and Northing	460184 452516
	Latitude Longitude	53.965230 -1.0841157
Planning Reference	18/02807/FUL	
Development	Single Storey Rear Extension	
Text and Images	D. Signorelli L. Signorelli	
Date of Issue	29th July 2019	
Site Dates	30th July	
Project by	LS Archaeology	
Client	Dr Richard Walsh	

Summary

An archaeological watching brief was undertaken during the groundworks required for the construction of a single storey rear extension at 28 Claremont Terrace York.

Introduction

A single storey extension to a three-storey 19th century Victorian terrace is to be constructed at 28 Claremont Terrace, York (Figure 1).

28 Claremont Terrace is situated in Gillygate, which lies within the York Central Area of Archaeological Importance and Historic Core Conservation Area.

As groundworks could potentially disturb buried archaeological deposits, a condition was attached to the approved planning permission. A watching brief is to be carried out during all groundworks. LS Archaeology have been commissioned by Andrew Osguthorpe Builder Ltd on behalf of his client Dr R. Walsh to carry out all archaeological works required.

This written scheme of investigation has been prepared to summarise:

- known archaeological and historical evidence of the development site
- methodologies to be deployed during the watching brief
- reporting, dissemination and archive arrangements

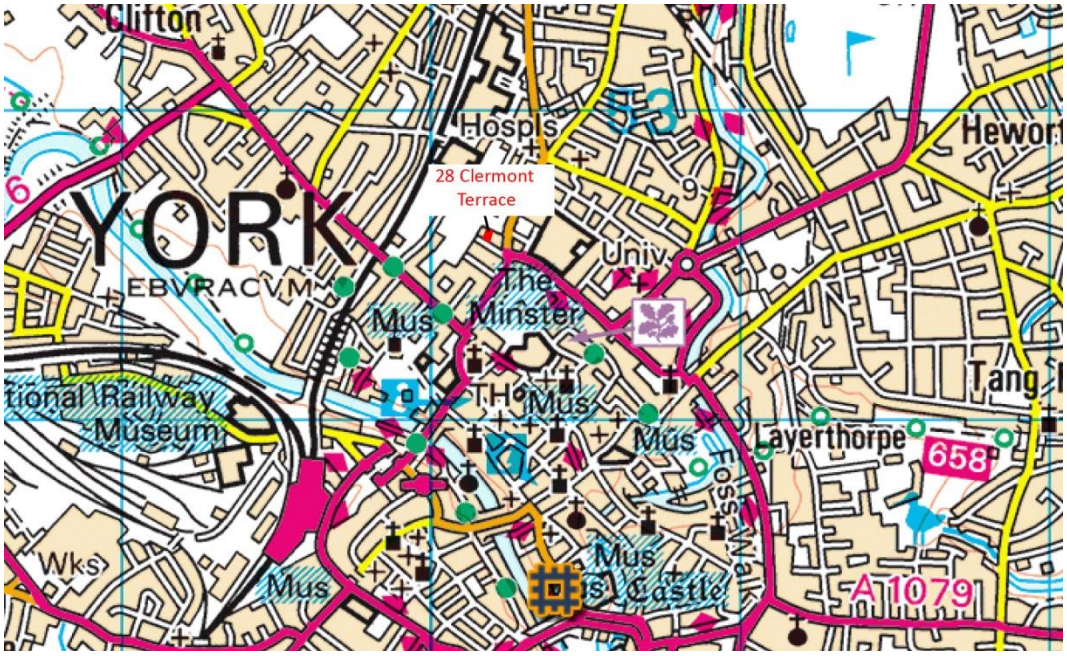


Figure 8: General reference map showing the site and its location (Streetmap)

Related Texts

There are no other archaeological/heritage texts relating to this development.

Planning

18/02807/FUL

A single storey rear extension.

Condition 3.

No work shall commence on site until the applicant has secured the implementation of a programme of archaeological work (a watching brief on all groundworks by an approved archaeological unit) in accordance with a specification supplied by the Local Planning Authority. This programme and the archaeological unit shall be approved in writing by the Local Planning Authority before development commences.

Reason: The site lies within an Area of Archaeological Importance and the development will affect important archaeological deposits which must be recorded during the construction programme.

Aims and Objectives

The broad aims of the evaluation are:

- To ensure the watching brief, post excavation and archive are all carried out and fulfilled in accordance with guidance as stated in CIfA, (2014); Standard and Guidance for an Archaeological Watching Brief.

Site-Specific Value:

- Are burials pertaining to the medieval period and/or 17th century still present, or did the construction of the 19th century streets on the site of St Giles effectively remove most of these deposits and inhumations?
- If inhumations are present, can evidence of plague victims or executions be determined and identified?

Development

A single storey extension is being constructed at the rear of 28 Claremont Terrace (Appendix 1).

The extension is relatively small, creating an area of 7.00m². It will therefore require minimal ground excavation.

Geology and Topography

The topography of the site is low-lying, with 28 Claremont Terrace (SE 60184 52516) being located at an elevation of approximately 16 meters AOD. The new extension measures approximately 2.00m x 3.50m with an area of 7.00m². The site currently functions as the external yard to the property.

Description	Geology	Characteristic of Natural	Archaeological relevance
1:50,000 scale superficial deposits	Vale of York Formation. These sedimentary deposits are glacigenic in origin. They are detrital, created by the action of ice and melt water.	Clay, Sandy, Gravelly	Depending on pH, may be favorable for the preservation of bone.
1:50,000 scale bedrock geology description	Sherwood Sandstone Group - Sandstone Sedimentary and fluvial in origin (river setting floodplain).	Natural at a deeper level may have lenses of deposits due to water channels/floodplain activity.	Indicates floodplain wetland and water logging which would have been detrimental for creating early settlements. However, this would be dependent upon the depth of the bedrock.

Table 3: Geological nature of the site and its archaeological relevance

Archaeological Summary

Significance

Gillygate lies immediately north-east of the Roman legionary fortress and medieval city, specifically the Minster precinct. Small scale investigations have revealed that some extra-mural Roman settlement had occurred in the area and evidence of a cobbled road surface suggests that there may be an early precursor to medieval Gillygate. The limited information available indicates that substantial stratified deposits can survive within this area despite later development taking place. Abundant archaeological evidence suggests Roman layers may be encountered between 0.6 and 2m below ground level. Medieval development was concentrated on the east side of Gillygate and archaeological deposits relating to this period are common. Post-medieval and later occupation may have truncated earlier deposits in some places. Some if this later activity is industrial by nature. (MacRae, 2013).

A desk-based web search revealed only one prior archaeological investigation in Claremont Street, York (Table 2).

Intervention Details	Results	Relevance
Claremont Terrace Watching Brief (York Excavation Group 1966)	During a watching brief, a medieval inhumation was discovered. The 12th century church of St Giles was located at the Gillygate end of Claremont Terrace. The Salvation Army building now occupies the spot. The church of St Giles would have had a surrounding burial area. St Giles church was amalgamated with St Olaves in 1586 and was demolished thereafter. However, plague victims and possibly executed criminals continued to be buried at the site of St Giles during the early and late 17th century respectively.	Human remains dating to the medieval and 17th century may be present on site.

Table 4: Prior local interventions and archaeological relevance to the application site

Cartographic Evidence

- Claremont (French: Clear/bright, prominent hill) Terrace lies off Gillygate which takes its name from the Church of St Giles, St Giles street.

Figure 9: 1853 Ordnance Survey Map showing the location of Claremont Terrace marked in red.

The Ordnance Survey map of 1853 shows that Claremont Terrace is still to be constructed; the area is open land known as the former site of St Giles Church. Buildings do exist, but these are clustered in the area fronting onto Gillygate.

Methodology and Mitigation

Watching Brief

- An archaeologist shall monitor all groundworks required to accommodate the construction of the new single story extension.

A back acting mini digger fitted with a toothed bucket will be used to remove the existing hard surfaces, however once these are broken, a toothless bucket shall be fitted to strip to the material below. The machine shall then strip in shallow spits to enable any archaeology to be observed. In the event of the discovery of potential archaeological features and/or artefacts, the main contractor and all sub-contractors will be obliged to facilitate the archaeologists.

The monitoring archaeologists will briefly assess any potentially significant features or deposits and, if appropriate, mark them for further investigation.

Archaeological mitigation works will involve appropriate investigation and recording of all potential archaeological features and find spots, and will require a phase of post-fieldwork analysis, reporting and archiving. The same standards will apply to this phase of investigation as those in the preliminary investigations.

Areas of stripping where there is no evidence for archaeological remains will be released for further construction operations.

Specifics for the Client/Developer

The supervising archaeologist will be Luigi Signorelli from LS Archaeology. The guidelines for archaeological excavation issued by the *Chartered Institute for Archaeologists* (2014) will be adhered to throughout.

The client/developer acknowledges that it is their responsibility to fully fund all necessary archaeological work relating to their development, including all necessary fieldwork, post-excavation requirements, specialist analyses, reporting, archiving and museum deposition fees, and if necessary publication, as well as costs relating to the administration of the aforementioned.

Recording

A standard single context recording system will be used to keep a document record of all archaeology encountered. If archaeology is encountered, then features shall be drawn in plan and section to 1:20 & 1:10 scales respectively on an archive stable *permatrace*. All archaeological features and sections will be digitally photographed.

Human remains may be present. If they are encountered and are disturbed or need to be removed, a license from the Ministry of Justice will be required and short delay may occur. Human remains will be treated in accordance with *Guidance for best practice for treatment of human remains excavated from Christian burial grounds in England* (EH 2005). All costs pertaining to this are the responsibility of the client/developer.

Where possible, all archaeological features as a minimum will be sample excavated to the following criteria: ditches 5%, pits 50%, post-holes 100%, burials 100% linear structures (walls etc.) 5%. All archaeological finds will be collected. Later finds will be noted but not collected.

Bulk soil samples will be taken from sealed deposits where a potential is identified for the survival of palaeo-environmental ecofacts or industrial residues. These will be assessed and analysed as necessary in the post-excavation phase. All costs pertaining to this are the responsibility of the client/developer.

If significant archaeology is encountered, scientific dating or analysis may be required for the interpretation of the findings. In this instance, the potential for two such dates should be allowed for. All costs pertaining to this are the responsibility of the client/developer.

On completion of work, all records, photographs, finds and samples will be processed, cleaned, conserved, suitably stored and catalogued in accordance with the *Institute for Archaeologists* guidance (2008) and the *First Aid For Finds* manual (Watkinson and Neal 2001).

Post Excavation Analysis

On completion of work, all records, photographs, finds and samples will be processed, cleaned, conserved, suitably stored and catalogued, in accordance with the *Institute for Archaeologists* guidance (2008) and the *First Aid For Finds* manual (Watkinson and Neal 2001).

Finds will be subject to specialist assessment as appropriate:

- Pottery: *Dr. Chris Cumberpatch (Post Roman) Ian Rowlandson (Prehistoric and Roman)* will undertake any necessary assessment.
- Human remains: *York Osteoarchaeology* will undertake any necessary analysis.
- Flint: *George Loffman* of the York Archaeological Trust;
- Animal bone: *Dr.Jane Richardson* of West Yorkshire Archaeological Services.
- All environmental soil analysis: *John Carrot* of the Palaeoecology Research Services.
- Metal objects and Conservation: *Ian Panter* at the York Archaeological Trust with assemblage assessment undertaken *by Nicola Rogers*.
- Slag: *Dr. Gerry Mc Donnell* Archaeometals.
- Small finds: *Nicola Rogers*.
- Ceramic Building Materials and Stone: *Jane McComish* of the York Archaeological Trust.

All costs pertaining to this work are the responsibility of the client/developer.

Finds definable as 'treasure' in accordance with the Treasure Acts 1996 and 2003 will be reported to the local coroner. In the unlikely event that they cannot be removed on the day of exposure, suitable security will need to be arranged. All costs pertaining to this are the responsibility of the client/developer.

Report and Dissemination

A report will be produced within two months of the cessation of excavations and monitoring. In some instances, this deadline may be extended because of external specialist schedules.

Digital copies of the report shall be emailed to the client/developer and the City of York Council.

A digital copy of the report will be uploaded to the *Online Access to Index of Archaeological Investigations* (OASIS) archive: https://oasis.ac.uk/pages/wiki/Main.

A digital copy will be added to LS Archaeology's Grey Literature catalogue held by the Archaeological Data Service https://archaeologydataservice.ac.uk/archives/view/greylit/browse.cfm?unit=LS%20Archaeology.

As a minimum, the report will include the following:

- Summary.
- Site Code.
- Planning and HER/SMR refs.
- Dates of fieldwork.
- National Grid Reference.

- Location plan with scale.
- Detailed plan showing excavated/monitored/surveyed areas and position of any archaeological features.
- Section and plan photographs of archaeological deposits and features with scales and Ordnance Datum heights (where possible).
- A written description of the methodology employed and analysis of any results
- Specialist reports as necessary.

Archive

The archive, excepting any items of 'treasure' and human remains, is the property of the client/developer. However, it is the expectation of the archaeological planning condition that any archive will be deposited with a suitable local museum, with full ownership transferred.

The York Museum is identified as the most suitable institution to receive any archaeological archive. It is anticipated that the museum will accept the archive, provided its terms and conditions are met. The museum makes a charge for deposition of £50 per archive box. This cost does not include the cost of the archive boxes, as well as any necessary administration/courier costs. Charges relating to the archive shall be fully discussed with the client if such a need arises.

Health and Safety

Health and Safety shall always take priority over archaeological requirements. All people conducting field work should do so under a defined Health and Safety policy and should observe safe working practices- the Health and Safety arrangements should be agreed and understood by all relevant parties before work commences. Risk Assessments should be carried out and documented for every project. All archaeologists have a professional and moral responsibility to report unsafe practice.

Before the commencement of the archaeological fieldwork, a Site-Specific Risk Assessment will be carried out and documented, and dynamic risk assessments undertaken each day and as conditions alter (e.g. change in the number and type of machines operating on site).

The archaeological contractor will ensure that all project staff undertake an appropriate site induction and abide by its requirements.

The archaeological contractor will ensure that all field archaeologists would be informed of:

- Tasks which they would be expected to perform.
- Locations of their work areas.
- Hazards on and around the sites, in particular involving the use of plant.
- Site facilities available and their locations.
- H&S equipment and materials available and their locations.
- Identities and locations of the First Aiders.
- Location of the nearest hospital.
- The safety training of all archaeological field personnel would be verified (e.g.CSCS/CSR/SafePass cards) before work commences and their PPE would be checked each day before starting work.

Bibliography

CIfA, (2014); Standard and Guidance for an Archaeological Watching Brief.

CIfA, (2014); Standard and Guidance Appendices.

CIfA, (2014); Code of Conduct.

MacRae, C. (2013) City of York Characterisation Project: Character Area 5 Gillygate

Allen Baxter & Associates (2012) York Central Historic Core Conservation Area Appraisal: Character Area Five: Gillygate

Kibblewhite, Toth and Hermann (2015) Science of the Total Environment, Volume 529*; Predicting the preservation of cultural artefacts and buried materials in soil*.

Online Resources

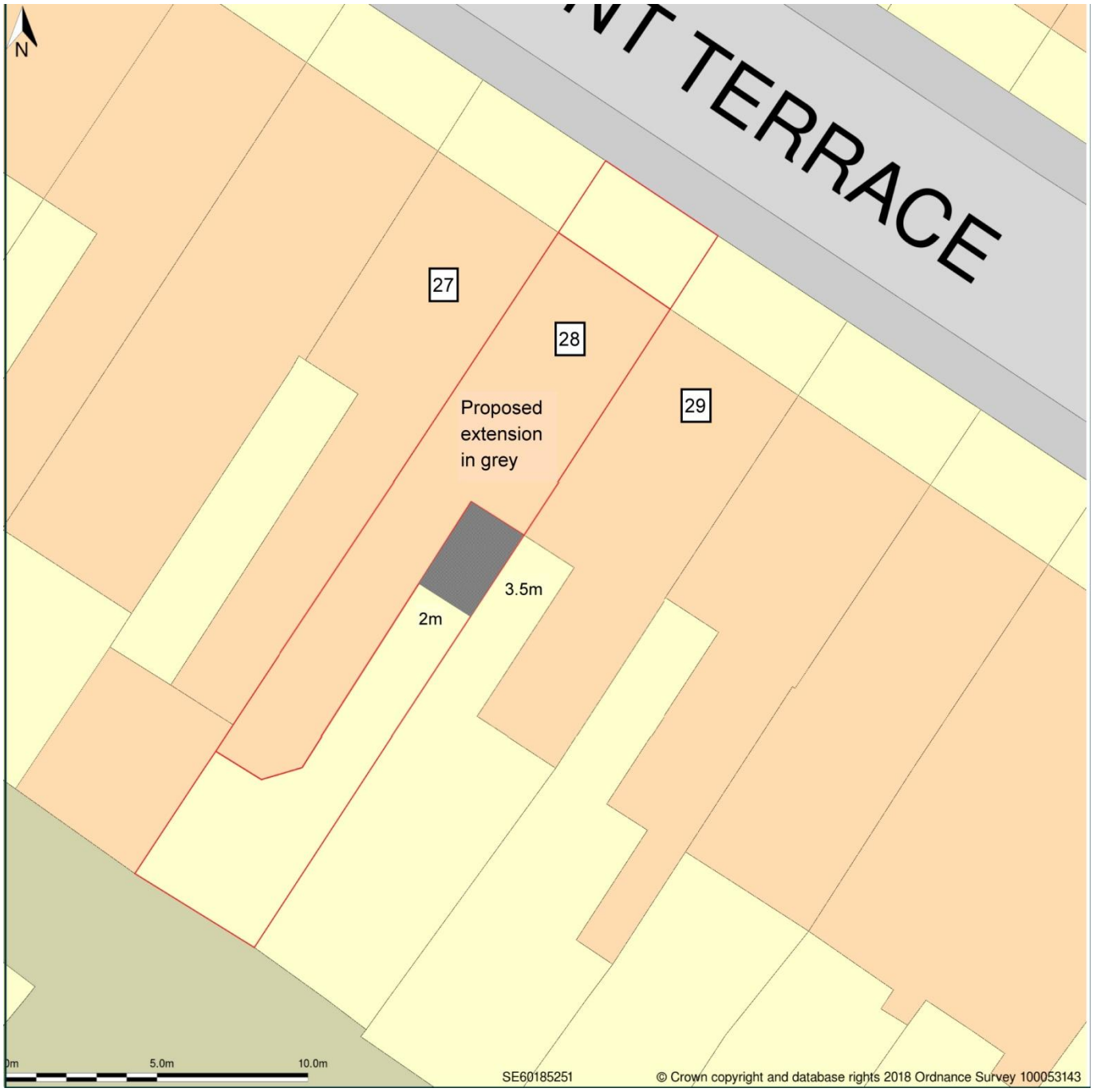
mapapps.bgs.ac.uk/geologyofbritain/home.html

heritagegateway.org.uk/Gateway

historicengland.org.uk/listing/the-list

www.yorkhistory.org.uk

Appendix 1: Site Plan with extension in grey



Appendix 2: Technical Information

Staffing	The principal archaeologists shall be Luigi Signorelli
Working Day	Work hours are from 8:00 pm until 4:00 pm with one hour of break time taken as and when required.
Health and Safety and Method Statement	The principal contractors own Risk Assessment should be made available to the archaeologist on site. This shall be adhered to during works. LS Archaeology prepares their own Risk Assessments specific to the nature of the excavation. First Aid: L. Signorelli
Insurance	Axa Insurance Policy Number : ACTRN4077078 £5 million Public Liability £1 million Professional Indemnity
Contact Information	LS Archaeology 4 Lendal House, Fulford Place, York YO10 4FE 01904 903208 07912485125 lsarchaeology@gmail.com

Appendix 2 Context Data

Context	Feature No.	Trench	Fill/Cut	Description	Shape	Profile	Length (m)	Width (m)	Depth (m)	Human Remains	Pottery
1		**N/A**	**Structure**	Boundary wall in garden. Red brick and hard grey mortar Victorian wall. Brick dimensions 0.24x0.11x0.08m. Wall extends to 2.00m in height.	Linear	Linear	14.5	0.24	2		
2		**1**	**Layer**	Very dark grey (10YR3/1) sandy silty clay mixed with a small amount of gravel, CBM and fragmented stones. A large amount of disarticulated human bones recovered. Same as: (7) (10) and (11).	Rectangular as seen	Layer	1.0 exc.	0.5m exc.	0.55	Medieval disarticulated human remains.	A small group of Roman 3rd century sherds- mostly Hollow ware including sherds from: a calcite-gritted vessel, white slipped Ebor ware, a grey ware jar base with a post-firing pierced hole and an Italian amphora. C12th-15th pottery prevalent in this context. Medieval and post-medieval sherds present. 3 sherds of 13-16th century plain tile and 2 sherds of 13-16th century ridge tile.
3		**1**	**Layer**	Mixed layer of a dark yellowish brown (10YR3/4) sandy-clay and gravel mixed with CBM and fragmented stones. Disarticulated human remains recovered. Very disturbed burial ground. This layer was not seen in Trench 2, only present in Trenches 1, 3 and 4. Same as Contexts (12) and (13).	Rectangular as seen	Layer	1.0 exc.	0.5m exc.	0.25	Medieval disarticulated human remains.	A small Roman late 4th to early 5th century group including sherds from: a calcite-gritted Huntcliff jar, a samian sherd and a fine oxidised sherd. 3 sherds of 13-16th century plain tile and 2 sherds of 13-16th century ridge tile. 1 fragment of coarse mortar with a thin skin of white plaster painted pink. The upper surface of the plaster has unusual fine

											parallel ridges on the surface.
4		**1**	**Skeleton**	Human articulated remains found within Context (3). Most of the skeleton extended beyond the eastern side of the pit. Only the lower legs survived at a depth of 0.70m from ground surface. Aligned on an NNE to SSW direction.		N/A	0.3	0.14	N/A	Supine, extended W-E inhumation. Medieval. Adult female.	
5		**1**	**Skeleton**	Human articulated remains found within Context (3). Most part of the skeleton extend beyond the eastern side of the pit. Only the torso and upper arms survived at a depth of 0.70m from ground surface. Aligned on an E-W direction.		Amorphous	0.4	0.24	N/A	Supine, extended W-E. Medieval. Male 46+	
6		**1,2,3,4**	**Natural**	Very firm/hard brown (10YR4/3) gravel clay and sand material. Identified as natural.	Rectangular as seen	Layer	N/A	N/A	N/A		
7		**2**	**Layer**	Very dark grey (10YR3/1) sandy-silty clay mixed with a small amount of gravel, CBM and fragmented stones. A large amount of disarticulated human bones recovered. Same as: (2) (10) and (11)	Rectangular as seen	Layer	1	0.5	0.55	7a-Disarticulated. Medieval. Male 18-25 7b-Disarticulated. Medieval. Female 46+ 7c-Disarticulated. Medieval. Female 46+	An Ebor ware sherd and a fragment from a North African amphora. Mid 2nd-3rd century.

8	**9**	**4**	**Skeleton**	Remains of inhumation within grave structure [9]. The upper torso was not retrieved since extended beyond the eastern edge of Trench 4. The feet appear to have been truncated by later activity associated with burial ground Context (2).		N/A	1.25	0.3	N/A	Supine, extended W-E inhumation. Medieval. Male 46+	A single Roman sherd from a North African amphora. Mid 2nd-3rd century.
9	**9**	**4**	**Structure**	Remains of a grave structure truncated at the east end. Measured 0.30m high, 1.50m long and 0.60m wide. Made of stones bonded with a grey, (poor) sandy mortar. No cap stones/lid present, nor stones used for base. However, the interior and base of the grave was lined with the same grey mortar. Each stone measured approximately 0.10m wide 0.25m long and 0.20m high. Cuts Context (3).	Linear	Rectangular	1.5	0.6	0.3	8	Block of wall facing with one smoothed surface, the other surfaces roughly dressed. Roman. Coarse grained cream-grey mortar.
10		**3**	**Layer**	Very dark grey (10YR3/1) sandy-silty-clay mixed with a small amount of gravel, CBM and fragmented stones. A large amount of disarticulated human bones recovered. Same as: (2), (7) and (11)	Rectangular as seen	Layer	1	0.5	0.6	Medieval disarticulated human remains. Largest proportion of remains found in this context.	C12th-C15th pottery sherds: Humber ware and oxidised sandy ware. 6 sherds of 13-16th century plain roof tile. 1 fragment of roof slab, Roman.
11		**4**	**Layer**	Very dark grey (10YR3/1) sandy-silty-clay mixed with a small amount of gravel, CBM and fragmented stones. A large amount of disarticulated human bones recovered. Same as Contexts (2), (7) and (10).	Rectangular as seen	Layer	1	0.5	0.6	Medieval disarticulated human remains.	A colour-coated sherd and a sherd from a Dressel 20 amphora with self-slipped surface. Late 2nd-3rd century.

12		**4**	**Layer**	Mixed layer of a dark yellowish-brown (10YR3/4) sandy-clay and gravel mixed with CBM and fragmented stones. This layer was not seen in pit 2, only present in pits 1, 3 and 4. Grave 9 seems to cut this layer. Very disturbed burial ground.	Layer	U-shaped	1	0.5	0.1		A sherd from a Roman grey ware dish with a plain rim. Late 3rd-4th century. 1 sherd of Tegula flange. Roman.
13		**3**	**Layer**	Mixed layer of a dark yellowish-brown (10YR3/4) sandy-clay and gravel mixed with CBM and fragmented stones. Disarticulated human remains recovered. This layer was present in Trenches 1, 3 and 4. Grave 9 seems to cut this layer. Very disturbed burial ground. Recorded in trench 3.	Layer	Layer	1	0.5	0.08	Medieval disarticulated human remains.	Sherds from a Roman decorated samian bowl. Mid to late 2nd century. 1 fragment of white plaster with the remains of a painted red stripe.
14		**4**	**Layer**	Very thin black layer of a silty-sand material (most likely to be of organic origin). Only present in trench 4, as an interphase between Contexts (11) and (12). Identified at a depth of 0.80m from ground surface. Due to heavy rain it was not possible to sample this layer. High contamination due to accumulation of mud in the trench.	Layer	Layer	1	0.5	0.02		
15		**1,2,3,4**	**Surface**	Rear Yard surface made of paving flagstones and concrete.	Rectangular	Layer	14	2	0.15		

Appendix 3 Jane McComish: Tile and Ceramic Building Materials Report

Assessment of Building Materials from Claremont Terrace, York

By J. M. McComish (York Archaeological Trust)

A small quantity of building materials from Claremont Terrace (site code CTY19) were examined on the 19th August 2019. The material was identified by form/geology but was not submitted to full recording given that the size and nature of the collection did not merit such work. With the exception of one stone block in Context 9 the material was all badly fragmented. The results are summarized in the table below.

Context	Material	Form
2	CBM	3 sherds of 13-16th century plain tile and 2 sherds of 13-16th century ridge tile.
3	CBM	1 sherd of Roman brick, too small to determine the original form.
3	Mortar/Plaster	1 fragment of coarse mortar with a thin skin of white plaster painted pink. The upper surface of the plaster has unusual fine parallel ridges on the surface.
9	Oolitic limestone	Block of Roman wall facing with one smoothed surface, the other surfaces roughly dressed.
9	Mortar	Coarse grained cream-grey mortar.
10	CBM	6 sherds of 13-16th century plain roof tile.
10	Micaceous sandstone	1 fragment of Roman roof slab.
12	CBM	1 sherd of Roman Tegula flange.
13	Plaster	1 fragment of white plaster with the remains of a painted red stripe.

There are two sherds of Roman CBM and a single fragment of a micaceous sandstone roof slab of Roman date. The site is located outside the fortress wall, and as such this material probably represents waste disposal, as the normal Roman practice was to dump waste beyond the confines of any settlement.

Context 9 was a grave lining comprising a mortar floor and stone walling. Stone lined graves and/or mortar floors are seen on Anglian, Anglo-Scandinavian and later 11-12th century cemeteries. Although the stone examined from Context 9 was of Roman date, this is of little help in dating the grave, as it was a re-used block of stone.

The bulk of the CBM is of medieval date and is of forms that are typical for York as a whole.

The mortar and plaster are so fragmentary that they are difficult to date. They could be either Roman or medieval.

No further research is recommended into this collection, and the only fragments worthy of retention are the two fragments of plaster.

Appendix 4 Ian Rowlandson: Roman Pottery Report

A report on the Roman Pottery from Claremont Terrace, York (CTY19)

I.M. Rowlandson

20th October 2019

Seventeen sherds (470g, 0.23 RE) of Roman pottery found from post-Roman deposits were presented for study. The material was archived and tabulated below. The group contained a typical range of Roman pottery that might be expected from post-Roman contexts in this part of York.

Samian from Context 13

Methodology

The pottery from the site was split by Chris Cumberpatch and the Roman material was recorded and presented here. The pottery has been archived using count and weight as measures according to the guidelines laid down for the minimum archive by *The Study Group for Roman Pottery* (Darling 2004) using the codes fabric and form codes in use for York prefixed with a 'Y' (Monaghan 1997) and the database structure and other codes developed by the City of Lincoln Archaeological Unit- CLAU (see Darling and Precious 2014). An attempt at a 'maximum' vessel estimate has been made following Pollard (1990). The archive record (below) is an integral part of this report and will be curated in an Access database available from the author in a digital format.

Dating

The table below provides a quantified spot dating summary by context. The majority of the Roman pottery was found stratified with post-Roman finds. The table below presents the date of the Roman pottery only; the full text of the

report and the other specialist reports should be consulted to ascertain the date attributed to each deposit.

CTY19- Roman pottery dating summary					
Context	**Spot date**	**Comments**	**Sherd**	**Weight (g)**	**Total RE %**
02	3C+	A small group including sherds from: a calcite-gritted vessel, white slipped Ebor ware, a grey ware jar base with a post-firing pierced hole and an Italian amphora.	4	107	0
03	L4-E5	A small group including sherds from: a calcite-gritted Huntcliff jar, a samian sherd and a fine oxidised sherd.	5	102	16
07	M2-3	An Ebor ware sherd and a fragment from a North African amphora.	2	25	0
08	M2-3	A single sherd from a North African amphora.	1	33	0
11	L2-3	A colour-coated sherd and a sherd from a Dressel 20 amphora with self-slipped surface.	2	171	0
12	L3-4	A sherd from a grey ware dish with a plain rim.	1	8	5
13	ML2	Sherds from a decorated samian bowl.	2	24	2

Overview of fabrics and forms

The fabrics and forms from the site as a whole are shown in the tables below.

Fabric summary							
Fabric code	**Fabric group**	**Fabric details**	**Sherd**	**Sherd %**	**Weight (g)**	**Weight %**	**Total RE %**
SAM	Samian	Undifferentiated	3	17.65%	27	5.74%	2
DR20	Amphora	Dr 20 amphorae	1	5.88%	166	35.32%	0
ITAMP	Amphora	Italian amphorae; undifferentiated	1	5.88%	53	11.28%	0
NAAM	Amphora	North African amphorae	2	11.76%	50	10.64%	0
YC1	Fine	Lower Nene Valley colour coat, cream	1	5.88%	5	1.06%	0
YE1	Oxidised	Eboracum 1	1	5.88%	8	1.70%	0
YE3	Oxidised	Eboracum 3	1	5.88%	14	2.98%	0
YW1	Oxidised	Ebor 1 white slipped	1	5.88%	4	0.85%	0
YG0	Reduced	Misc. grey fabrics	2	11.76%	46	9.79%	5
YK0	Calcareous	Misc. calcite-gritted handmade fabric	1	5.88%	12	2.55%	0
YK1	Calcareous	Calcite gritted 'Huntcliff' ware	3	17.65%	85	18.09%	16

Form summary							
Form	**Form Type**	**Form Description**	**Sherd**	**Sherd %**	**Weight (g)**	**Weight %**	**Total RE %**
A	Amphora	Unclassified form	4	23.53%	269	57.23%	0

Form summary							
Form	Form Type	Form Description	Sherd	Sherd %	Weight (g)	Weight %	Total RE %
37	Bowl	Samian form- see Webster 1996	2	11.76%	24	5.11%	2
YDD	Dish	'Dog dish'	1	5.88%	8	1.70%	5
YJ	Jar	Unclassified form	1	5.88%	38	8.09%	0
YJH3	Jar	Huntcliff	1	5.88%	67	14.26%	16
-	Unknown	Form uncertain	8	47.06%	64	13.62%	0

CTY19- Sherd data												
Context	Fabric	Form	Decoration	Vessels	Alt	D. No.	Comments	Join	Sherd	Weight	Rim diam	Rim eve
02	YK0	-		1			BS; HUNTCLIFF?		1	12	0	0
02	ITAMP	A		1	ABR		BS; ITA AM 2		1	53	0	0
02	YG0	YJ		1	PIERCED POST-FIRING		BASE		1	38	0	0
02	YW1	-		1			BS		1	4	0	0
03	YE3	-		1			BS		1	14	0	0
03	YK1	-		2	WHITE DEP INT		BS		2	18	0	0
03	SAM	-		1			BS; SAMCG?		1	3	0	0
03	YK1	YJH3		1	ABR		RIM		1	67	18	16
07	YE1	-		1			BS		1	8	0	0
07	NAAM	A		1			BS; NAF AM 2	08	1	17	0	0
08	NAAM	A		1			BS; NAF AM 2	07	1	33	0	0
11	YC1	-		1			BS		1	5	0	0
11	DR20	A		1			BS; BAT AM 2		1	166	0	0
12	YG0	YDD		1			RIM		1	8	30	5
13	SAM	37	MOULD	1			RIM; OVOLO AND GLADIATOR		2	24	0	2

Recommendations

The pottery should be retained and deposited in the relevant local museum. If further work was undertaken on this assemblage, the decorated samian from Context 13 could be identified by a specialist.

As the material was retrieved from post-medieval or modern deposits, this group had limited research potential.

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Tomber, R. and Dore, J., 1998, *The National Roman Fabric Reference Collection: A Handbook*, MoLAS Monograph 2, Museum Of London.

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Appendix 5 York Osteology: Osteological Analysis

Osteological Analysis

28 Claremont Terrace

York

Site Code: CTY19

NGR: SE 60184 52516

Report No 1719

October 2019

Prepared for

LS Archaeology

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Summary

York Osteoarchaeology Ltd was commissioned by LS Archaeology to carry out the osteological analysis of six inhumations and six contexts containing 465 disarticulated human bones. These were recovered from excavations ahead of construction of the single storey rear extension of the property at 28 Claremont Terrace, York, which was located within the York Central Area of Archaeological Importance and Historic Core Conservation. All articulated and disarticulated burials are thought to date to the high medieval (12th – 16th century) or post-medieval (17th century) period and are associated with the St Giles Church burial ground, which was built over in the 19th century. All articulated burials were positioned according to Christian burial traditions, supine and extended, with their heads to the West.

The six inhumations consisted of two mature adult females, one adult female, two mature males, and one young adult male. The disarticulated human remains represent at least eight adults, of which there are four males and four females, as well as two juveniles and two adolescents. Of the six identified skeletons, five showed evidence for degenerative joint changes in the spinal and/or extra-spinal joints. In one of the mature female skeletons (7C), the joint changes had caused the fusion of the left patella (the kneecap) to the distal femur (the thigh bone). Two individuals were also affected by osteoarthritis in the spine.

In the disarticulated bone assemblage, information about childhood metabolic disease (expressed as *cribra orbitalia*, or orbital porosity) and dental disease could be obtained. *Cribra orbitalia* was observed in sixteen orbits in total (affecting nine individuals). Jaw bones and teeth showed evidence for ante-mortem tooth loss, caries, and widespread dental plaque concretions, suggesting relatively poor dental hygiene. The presence of dental enamel hypoplasia was suggestive of evidence for stress during childhood.

Acknowledgements

York Osteoarchaeology Ltd would like to thank Donna and Gigi Signorelli of LS Archaeology for their help and support.

1.0 INTRODUCTION

In September 2019 York Osteoarchaeology Ltd was commissioned by LSA Archaeology to carry out the osteological analysis of six inhumations and six contexts of disarticulated human bone. The skeletal remains were recovered during excavations ahead of construction of a single storey rear extension of the property at 28 Claremont Terrace, York, which was located within the York Central Area of Archaeological Importance and Historic Core Conservation.

The human remains were recovered from a small area at the back of the house at 28 Claremont Terrace.

Six partial human skeletons were recovered from the area, along with numerous disarticulated human remains (Contexts 2, 3, 7, 10, 11 and 13) (Table 1). Skeletons 7A, B and C were disarticulated and were found in the backfill of Burial 8 (a mature adult male). All six partially complete skeletons are referred to in this report as identified skeletons/burials, and never as disarticulated remains to avoid confusion.

Table 1 Archaeological information of identified skeletons and disarticulated bone

Skeleton No	**Position**	**Orientation (headfirst)**	**Burial Type**	**Grave Goods**	**Date**
4	Supine, extended	W-E	Inhumation	-	Medieval
5	Supine, extended	W-E	Not seen	-	Medieval
7A	-	-	Disarticulated	-	Medieval
7B	-	-	Disarticulated	-	Medieval
7C	-	-	Disarticulated	-	Medieval
8	Supine, extended	W-E	Inhumation	-	Medieval
Disarticulated remains					
Context	**ID bones (n)**	**Total ID bones (n)**	**Total number of bone fragments***	**MNI**	**Date**
2	138	**465**	**773**	**12**	Medieval/post-medieval
3	33			Adult-8	
7	71			Juvenile-2	
10	138			Adolescent-	

11	81			2	
13	4				

*A number of identified bones comprised of several matching fragments

1.1 AIMS AND OBJECTIVES

The aim of the skeletal analysis of the identified skeletons and disarticulated bone was to determine the age, sex and stature of the skeletons, as well as to record and diagnose any skeletal manifestations of disease and trauma.

1.2 METHODOLOGY

The identified skeletons and disarticulated remains were analysed in detail, assessing the preservation and completeness, calculating the minimum number of individuals present as well as determining the age, sex and stature of the individuals. All pathological lesions were recorded and described.

2.0 OSTEOLOGICAL ANSLYSIS

Osteological analysis is concerned with the determination of the identity of a skeleton, by estimating its age, sex and stature. Robusticity and non-metric traits can provide further information on the appearance and familial affinities of the individual studied. This information is essential in order to determine the prevalence of disease types and age-related changes. It is crucial for identifying sex dimorphism in occupation, lifestyle and diet, as well as the role of different age groups in society. A summary of the osteological and palaeopathological data for the identified skeletons is given in Table 2, with a detailed catalogue of skeletons provided in Appendix A.

2.1 PRESERVATION

Skeletal preservation depends upon a number of factors, including the age and sex of the individual as well as the size, shape and robusticity of the bone. Burial environment, post-depositional disturbance and treatment

following excavation can also have a considerable impact on bone condition (Henderson 1987, Garland and Janaway 1989, Janaway 1996, Spriggs 1989). Preservation of human skeletal remains is assessed subjectively, depending upon the severity of bone surface erosion and post-mortem breaks, but disregarding completeness. Preservation is important, as it can have a large impact on the quantity and quality of information that it is possible to obtain from the skeletal remains.

Surface preservation, concerning the condition of the bone cortex, was assessed using the seven-category grading system defined by McKinley (2004), ranging from 0 (excellent) to 5+ (extremely poor). Excellent preservation implied no bone surface erosion and a clear surface morphology, whereas extremely poor preservation indicated heavy and penetrating erosion of the bone surface resulting in complete loss of surface morphology and modification of the bone profile. Surface preservation could be variable throughout an individual skeleton, so the condition of the majority of bones in the skeleton was taken as the preservation grade for the whole skeleton. The degree of fragmentation was recorded, using categories ranging from 'minimal' (little or no fragmentation of bones) to 'extreme' (extensive fragmentation with bones in multiple small fragments). Finally, the completeness of the skeletons was assessed and expressed as a percentage: the higher the percentage, the more complete the skeleton.

The identified skeletons were in a good to moderate state of preservation (Table 2). The completeness of the skeletons was also assessed and expressed as a percentage – the higher the percentage, the more complete the skeleton. Skeleton 8 was the most complete, with 60% of the bones present, while the completeness of the other five skeleton ranged from 10% (Skeleton 7C) to 30% (Skeleton 5).

Table 2 Summary of osteological and palaeopathological results

Skeleton No	**Preservation**	**Completeness**	**Age**	**Sex**	**Skeletal Pathology**	**Dental Pathology**
4	2	20%	A	Female	Periosteal reaction on tibiae	-
5	2	30%	46+	Male	Fusion of L5 and sacrum; Schmorl's nodes; DJC in spinal and extra-spinal joints	-
7A	2	25%	18-25	Male	Schmorl's nodes	-
7B	2	20%	46+	Female	DJC in spine and hips; OA in sacum and L5; coccyx fused to sacrum; no rib facets on T12	-
7C	3	10%	46+	Female	DJC in hip and L knee, with	-

					fusion of patella to distal femur	
8	2	60%	46+	Male	DJC in spine; OA in sacrum and L5; entheseal changes; periosteal reaction in tibiae	-

Key: SP = Surface preservation: grades 0 (excellent), 1 (very good), 2 (good), 3 (moderate), 4 (poor), 5 (very poor), 5+ (extremely poor) after McKinley (2004)

OA – osteoarthritis; DJC – degenerative joint changes, DEH – dental enamel hypoplasia

The disarticulated bone from all contexts was well preserved, with 427 of 465 (91.8%) bones having good surface preservation, seven bones having excellent surface preservation (1.5%), and 31 having moderate surface preservation (6.7%).

2.2 MINIMUM NUMBER OF INDIVIDUALS

A count of the 'minimum number of individuals' (MNI) recovered from a cemetery is carried out as standard procedure in osteological reports on inhumations in order to establish how many individuals are represented by the articulated and disarticulated human bones (without taking the archaeologically defined graves into account). The MNI is calculated by counting all long bone ends, as well as other larger skeletal elements recovered. The largest number of these is then taken as the MNI. The MNI is likely to be lower than the actual number of skeletons which would have been interred on the site but represents the minimum number of individuals which can be scientifically proven to be present.

Using the identified burials and disarticulated bone to calculate the MNI, it was established that at least eighteen individuals were represented. Six individuals were identified as separate burials in the excavated area, while in the disarticulated assemblage, there were at least eight adult individuals (of which there were four males and four females) and four non-adults. The adult MNI was based on the mandibles, while the non-adults were identified by the pelvis and unfused long bones.

2.3 ASSESSMENT OF AGE

Age was determined using standard ageing techniques, as specified in Scheuer and Black (2000a; 2000b) and Cox (2000). For non-adults age was estimated using the stage of dental development (Moorrees *et al.* 1963a; 1963b), dental eruption (Ubelaker 1989), measurements of long bones and other appropriate elements, and the development and fusion of bones (Scheuer and Black 2000b). In adults, age was estimated from stages of bone development and degeneration in the pelvis (Brooks and Suchey 1990, Lovejoy *et al.* 1985) and ribs (modified

version of methods developed by İşcan *et al.* 1984; 1985 and İşcan and Loth 1986 provided in Ubelaker 1989), supplemented through examination of patterns of dental wear (Brothwell 1981).

The individuals were divided into a number of age categories. Non-adults were subdivided into 'foetuses' (f: where the age estimate clearly fell below 38-40 *weeks in utero*), 'perinates' (p: where the age estimates converged around birth), 'neonates' (n: where the age estimate suggested 0-1 month), 'infant' (i; 1-12 months), juvenile (j; 1-12 years), and adolescent (ad; 13-17 years). Adults were divided into 'young adult' (ya; 18-25 years), young middle adult (yma; 26-35 years), old middle adult (oma; 36-45 years), and mature adult (46+ years). A category of 'adult' (a) was used to designate those individuals whose age could not be determined beyond the fact that they were eighteen or older.

Four of the six identified skeletons were mature adults aged 46 years old or older, while one individual was a young adult (18-25 years of age). One adult individual (Skeleton 4) could not be assigned a narrower age category.

In the disarticulated assemblage, two complete female left and right os coxae could be assigned the ages of young and old middle adult, respectively, while another right pelvis was identified as from a young adult female. Four male os coxae could be assigned the ages of a young adult, a young middle and old middle adult and a mature adult. The non-adult age categories in the disarticulated assemblage included two juveniles and two adolescents.

2.4 SEX DETERMINATION

Sex determination was carried out using standard osteological techniques, such as those described by Mays and Cox (2000). Assessment of sex involves examination of the shape of the skull and the pelvis and can only be carried out once sexual characteristics have developed, during late puberty and early adulthood. Evidence from the pelvis was favoured as its shape is directly linked to biological sex (the requirements of childbirth in females) whereas the shape of the skull can be influenced by factors such as age (Walker 1995). Measurements of certain bones were used to supplement the morphological assessment.

It was possible to estimate the sex in all six identified skeletons. An equal number of males and females were present in this assemblage.

Sex determination was also possible in some of the disarticulated human remains and it was based on the fragments of the skull (particularly the temporal bone) and pelvis. Based on this analysis, at least four males

and four females were present in this assemblage.

2.5 METRIC ANALYSIS

2.5.1 Stature

Stature depends on two main factors, heredity and environment; it can also fluctuate between chronological periods. Stature can only be established in skeletons if at least one complete and fully fused long bone is present, but preferably using the combined femur and tibia. The bone is measured on an osteometric board, and stature is then calculated using a regression formula developed upon individuals of known stature (Trotter 1970).

It was possible to determine the stature in four of the identified skeletons (Table 3). In most individuals, the femur was used for stature determination, while the ulna was used for Skeleton 5. The stature of male individuals in this population was taller than average in other late medieval populations in Britain (171cm, Roberts and Cox 2003: 396), while the female was shorter (average female stature was 159cm, ibid.).

Table 3 Stature and robusticity of the femoral and tibial shafts of identified skeletons

Skeleton number	**Sex**	**Stature (cm)**	**Robusticity of femoral and tibial shafts**			
			Platymeric index		**Platycnemic index**	
			R	**L**	**R**	**L**
4	F	157.1	83.3 (P)	-	77.9 (E1)	80.2 (E1)
5	M	177.6	-	-	-	-
7A	M	173.7	97.7 (E)	83.1 (P)	-	-
7B	F	-	75.2 (P)	-	-	-
7C	F	-	-	85.2 (E)	-	-
8	M	172.6	89.0 (E)	89.6 (E)	77.7 (E1)	77.3 (E1)

Key: P-platymeric (broad of flat); E-eurymeric (medium); E1-eurycnemic (rounded)

Leg measurements were obtained from the femora and tibiae of the adults and used to calculate the shape and robusticity of the femoral shaft (*platymeric* index) and the tibial shaft (*platycnemic* index; Bass 1987). Robusticity measurements could not be obtained from Skeleton 5, as no leg bones were present. All other skeletons could be measured for either femoral, or tibial shaft robusticity (Table 3). The right femur was *platymeric* (broad or flat) in Skeletons 4 and 7B, while right femur was *eurycnemic* (medium) in Skeletons 7A and 8. The left femur of Skeleton 7A was *platymeric*, but the left femora of Skeletons 7C and 8 were

eurycnemic. The tibiae of Skeletons 4 and 8 were both *eurycnemic* (rounded).

2.6 NON-METRIC TRAITS

Non-metric traits are additional sutures, facets, bony processes, canals and foramina, which occur in a minority of skeletons and are believed to suggest hereditary affiliation between skeletons (Saunders 1989). The origins of non-metric traits have been extensively discussed in the osteological literature and it is now thought that while most non-metric traits have genetic origins, some can be produced by factors such as mechanical stress (Kennedy 1989) or environment (Trinkhaus 1978).

A total of thirty cranial (skull) and thirty post-cranial (bones of the body and limbs) non-metric traits were selected from the osteological literature (Buikstra and Ubelaker 1994, Finnegan 1978, Berry and Berry 1967) and recorded. The majority of non-metric traits were observed on the skull. These were anomalies that would not have affected the individual. Only the results for the three most common cranial and post cranial non-metric traits are presented below, a full catalogue may be found in the appendix.

No cranial non-metric traits could be observed in the six identified skeletons, as their skulls were not present for analysis.

Post-cranial traits included a septal aperture in the left humerus of Skeleton 8. Numerous traits were observed on the femora, including bilateral Allen's fossa in Skeleton 7A, Poirier's facet and plaque in the left femur of Skeleton 4, and exostosis in trochanteric fossa in Skeletons 7B and 7C (bilateral), and 4 (only the right side was observable). Medial tibial squatting facet (additional facet in the ankle region) was observed in the right distal tibia of Skeleton 4, while lateral tibial squatting facets were present bilaterally in Skeleton 8.

2.7 CONCLUSION

The excavated human remains from 28 Claremont Terrace produced six identified adult skeletons and 465 disarticulated bones with a minimum number of individuals of twelve (eight adults and four non-adults). The identified skeletons comprised three males and three females, with two males and two females aged above 46 years at death, and one male aged between eighteen and 25 years, while one female could not be assigned a narrower age category other than adult. With regard to metric analysis, all males in the assemblage were above 172cm tall, while the only female for whom stature could be calculated was 157.1cm tall. The femora of the adults ranged from broad to medium in robusticity, while the tibiae were of rounded shape. A small number of non-metric traits were observed in five of the skeletons, and these were mostly present in the femora, although

a septal aperture was present on the left distal humerus of Skeleton 8, and squatting facets were observed in the distal tibiae of Skeletons 4 and 8.

It was possible to assign sex, and narrower age categories for some of the disarticulated skeletal remains. There were at least four males and four females in this assemblage. There was at least one young adult female, and a young middle and an older middle adult female present. The skeletal elements of males comprised all four adult age groups. The non-adult remains comprised at least two juveniles and two adolescents.

3.0 PATHOLOGICAL ANALYSIS

Pathological conditions (disease) can manifest themselves on the skeleton, especially when these are chronic conditions or the result of trauma to the bone. The bone elements to which muscles attach can also provide information on muscle trauma and excessive use of muscles. All bones were examined macroscopically for evidence of pathological changes. Fuller descriptions of the pathological lesions observed can be found in Appendix A.

3.1 CONGENITAL CONDITIONS

Heredity and environment can influence the embryological development of an individual, leading to the formation of a congenital defect or anomaly (Barnes 1994). The most severe defects are often lethal, and if the baby is not miscarried or stillborn, it will usually die shortly after birth. Such severe defects are rarely seen in archaeological populations, but the less severe expressions often are, and in many of these cases the individual affected will have been unaware of their condition. Moreover, the frequency with which these minor anomalies occur may provide information on the occurrence of the severe expressions of these defects in the population involved (*ibid*), and may provide information on maternal health (Sture 2001).

The only developmental anomaly in this assemblage was observed in Skeleton 7B: there were no rib facets in the twelfth thoracic vertebrae, possibly indicating that the twelfth ribs were missing congenitally. The absence of the twelfth ribs cannot be regarded as a pathological change, especially because no other spinal anomalies were observed in this individual. It is therefore likely that it had no impact on this individual's health and well-being during their lifetime. Some uncertainty remains about the number of lumbar vertebrae of Skeleton 5: five lumbar vertebrae were present, but there were remains of a fused lumbar vertebra on the left sacrum, the ala. Either this individual had six lumbar vertebrae, or the vertebrae and/or the sacrum had been mixed with another individual.

3.2 METABOLIC CONDITIONS

3.2.1 *Cribra Orbitalia*

Cribra orbitalia is a term used to describe fine pitting in the orbital roof which develops during childhood and often recedes during adolescence or early adulthood. Until recently, iron deficiency anaemia was the accepted cause of these lesions (Stuart-Macadam 1992), but a strong case has been made by Walker *et al.* (2009) for different types of anaemia as the causative factor. These include megaloblastic anaemia in the New World, suggesting a diet deficient in Vitamin B_{12} (i.e. plant-based and lacking in animal products) and/or folic acid. Such dietary deficiency could have been exacerbated through poor sanitation leading to infection and infestation with gut parasites (*ibid*). In malarious areas of the Old World, haemolytic anaemia (e.g. sickle cell anaemia and thalassemia) may be important in the development of *cribra orbitalia* (*ibid*). However, for areas such as northern Europe they have proposed that *cribra orbitalia* may be more likely related to conditions such as scurvy (Vitamin C deficiency) or chronic infections (*ibid*). *Cribra orbitalia* is often used as an indicator of general stress (Lewis 2000, Roberts and Manchester 2005) and is often found associated with agricultural economies (Roberts and Cox 2003).

It was only possible to observe *cribra orbitalia* in the disarticulated assemblage, but it gave some insight into the prevalence of the childhood condition in this population. It total, sixteen orbits from the frontal bones of nine individuals were affected. Unfortunately, it is impossible to determine whether this is a high or a low prevalence, since the actual number of individuals in the assemblage is not known. The presence of the condition in several individuals, however, does show that children in this population could experience prolonged periods of poor health.

3.3 INFECTIOUS DISEASE

Bone tissue cannot respond quickly to an infectious disease, so evidence of any acute illness with a quick resolution (i.e. the patient recovers or dies within a short space of time) will not be seen in the skeleton (Roberts and Manchester 2005). However, bone can respond to the presence of a chronic infection through laying down new bone. Initially, this new bone is disorganised and termed ‘woven bone’, but with time, as healing takes place, this bone is remodelled and becomes transformed into more organised ‘lamellar bone’. The presence of woven bone therefore indicates an infection that was active at the time of death, and lamellar bone indicates an infection that had healed; the presence of both together can suggest a recurring, or long-standing infection (Roberts and Manchester 2005). Although the new bone deposition may have been associated with a specific

disease in life, it is almost always impossible to diagnose this from the bones alone.

3.3.1 Periosteal Reactions

New bone deposits on the surfaces of the bones can indicate inflammation of a sheath of tissue (the periosteum) which surrounds all bones (Ortner 2003, 206-207). Inflammation may be due to infection, but low-grade trauma and chronic ulceration can also lead to new bone formation (Roberts and Manchester 2005; Ortner 2003, 206-207). Periosteal reactions are commonly observed in archaeological populations, particularly on the tibiae, and their prevalence has been used as a general measure of stress in past populations (Ortner 2003, 209). Woven bone deposits are indicative of inflammation that was active at the time of death, while lamellar bone indicates that the inflammation was healing.

Periosteal reactions were evident on the medial surfaces of both tibiae of Skeletons 4 (adult female) and 8 (mature adult male). The lamellar bone was well remodelled, suggesting that the inflammation was no longer active at the time of the individuals' death.

3.4 DEGENERATIVE JOINT DISEASE

The term joint disease encompasses a large number of conditions with different causes, which all affect the articular joints of the skeleton. Factors influencing joint disease include physical activity, occupation, workload and advancing age, which manifest as degenerative joint disease and osteoarthritis. Alternatively, joint changes may have inflammatory causes in the *spondyloarthropathies*, such as septic or rheumatoid arthritis. Different joint diseases affect the articular joints in a different way, and it is the type of lesion, together with the distribution of skeletal manifestations, which determines the diagnosis (Rogers 2000; Roberts and Manchester 2005).

3.4.1 Degenerative Joint Changes

The term joint changes encompasses a large number of conditions with different causes, which all affect the articular joints of the skeleton. Factors influencing joint changes include physical activity, occupation, workload and advancing age, which manifest as degenerative joint disease and osteoarthritis. Alternatively, joint changes may have inflammatory causes in the *spondyloarthropathies*, such as sceptic or rheumatoid arthritis. Different joint diseases affect the articular joints in a different way, and it is the type of lesion, together with the distribution of skeletal manifestations, which determines the diagnosis.

Degenerative joint changes (DJC) are the most commonly observed of all the joint diseases. DJC is

characterised by both bone formation (osteophytes) and bone resorption (porosity) at and around the articular surfaces of the joints, which can cause great discomfort and disability (Rogers 2000).

Considerable degenerative joint changes were noted in the left leg of the mature adult female (Skeleton 7C). Marginal osteophytes and porosity were observed in the auricular surface of the pelvis of this individual, while large entheseal changes were present on the patella for *rectus femoralis*. The patella was also fully fused to the distal femur, with the femoral condyle affected by osteophyte formation and porosity.

In Skeleton 5 (mature adult male), marginal osteophytes affected the shoulder and the lower arm, and related porosity was observed in the right clavicle, scapula and the humerus. Slight osteophytes were also observed in the right proximal ulna and the auricular surface of Skeleton 8 (mature adult male).

The intervertebral discs are the 'shock absorbers' of the spine, but these can degenerate as a result of gradual desiccation (age-related drying), which then causes transmission of the stress from the vertebral discs to the articular facets and ligaments (Hirsh 1983, 123). Spinal osteophytes form to compensate for the constant stress that is placed on the spine as a result of human posture (Roberts and Manchester 2005, 106). Increasing stress or activity can therefore lead to increased size and prevalence of osteophytes (*ibid*).

Degeneration of the spine mainly in the form of slight osteophyte formation around some thoracic and lumbar bodies was present in two mature adult individuals, a female and a male (Skeletons 7B and 8, respectively). In the mature female skeleton, the coccyx was fused to the sacrum, possibly because of degenerative changes.

More pronounced degenerative changes in the spine, whereby the osteophytes were more extensive and present on almost all observable thoracic and lumbar vertebrae, with some close to fusing along the right anterior margin, were observed in another mature adult male (Skeleton 5). This individual possibly had six lumbar vertebrae instead of five, or the vertebrae had been mixed with another individual, as discussed above; while the fifth lumbar vertebra looked normal, the sacrum had a fused bony bridge extending from the left ala superiorly, presumably from the fusion of the preceding lumbar vertebra (Plate 1).

Plate 1 Fusion of the lumbar vertebra (arrow) to the left ala of the sacrum in Skeleton 5

3.4.2 Schmorl's Nodes

Schmorl's nodes are another condition that can affect the spine. They manifest as indentations in the upper and lower surfaces of the vertebral bodies caused by the pressure of herniated vertebral discs (Aufderheide and Rodríguez-Martín 1998). Discs may rupture due to trauma, but vertebrae weakened by infection, osteoporosis or neoplastic disease may be more vulnerable (Roberts and Manchester 2005). Schmorl's nodes are often associated with degenerative changes to the vertebral bodies (Aufderheide and Rodríguez-Martín 1998, Hilton *et al.* 1976) and are most commonly seen in the lower thoracic vertebrae (Hilton *et al.* 1976).

Schmorl's nodes were present in three individuals from the identified skeletal assemblage. Two thoracic vertebrae were affected in Skeleton 5, while just one thoracic vertebra was affected in Skeleton 8 (both mature males). A more severe form of this condition was observed in Skeleton 7A (young adult male), affecting three thoracic and all five lumbar vertebrae.

3.4.3 Osteoarthritis

Osteoarthritis (OA) is a degenerative joint disease of synovial joints characterised by the deterioration of the joint cartilage, leading to exposure of the underlying bony joint surface. The resulting bone-to-bone contact can produce polishing of the bone termed 'eburnation'. Previously, other features were also associated with degeneration of the joint including osteophytes (bone formation) on the surface or around the margins, porosity on the joint surface and the development of cysts (Rogers 2000; Roberts and Manchester 2005). However, it is now believed that only eburnation alone should be used as a definitive indicator of osteoarthritis (Davina Craps *pers. comm.* 2015). OA is frequently associated with increasing age but can be the result of mechanical stress and other factors, including lifestyle, food acquisition and preparation, social status, general health and body weight (Larsen 1997; Roberts and Manchester 2005). OA was only recorded as present when eburnation was observed.

Osteoarthritis was noted in the spine of two mature male individuals. In Skeleton 8, the condition affected the inferior right facet of the 5th lumbar vertebra, and the superior right facet of the first sacral vertebra. In Skeleton 7B, the changes were observed in the same joints, but the left facets were affected.

3.5 TRAUMA

Obviously, the evidence for trauma in archaeological populations is restricted to that visible in the skeletal remains, unless soft tissue is preserved (Roberts and Manchester 2005, 85-86). Therefore, most of the soft-tissue injuries sustained by archaeological populations will be invisible, although occasionally soft tissue injuries can be inferred though ossification of the tissues at the site of damage, known as *myositis ossificans* (*ibid*).

3.5.1 Soft Tissue Trauma

Injury to the soft tissues can sometimes lead to ossification at the points where the tendons and ligaments attach to the bone (enthesophytes). A brief description of the potential soft tissue injuries observed is provided below. Further research may enable a better understanding of these lesions and their causes.

A moderate entheseal change was observed in the anterior proximal right femur of Skeleton 8, which was probably due to trauma to the iliofemoral ligament. The change was absent on the left femur. In this individual, a large entheseal change occurred on the left ulna olecranon, and in this case, it was likely related to an injury to the triceps muscle.

3.6 CONCLUSION

A range of congenital and pathological lesions was observed in the skeletal assemblage from 28 Claremont Terrace. Congenital absence of the twelfth ribs was observed in Skeleton 7B, and a possible sixth lumbar vertebra in Skeleton 5; healed infections as expressed by periosteal lesions affected the long bones of the legs in two individuals (Skeletons 4 and 8). Degenerative joint changes were mainly expressed as osteophyte formation and porosity in the spinal and extraspinal joints and were present in four individuals from the identified burials (Skeletons 5, 7B, 7C and 8). Osteoarthritis of the spine affected two mature male individuals, who also had degenerative joint changes (Skeletons 7B and 8). Only entheseal changes related to soft tissue injuries affecting certain muscles and ligaments, were observed, affecting a mature male individual (Skeleton 8).

Information about childhood metabolic conditions could only be derived from the disarticulated assemblage and revealed that this population was affected by prolonged periods of poor childhood health, expressed as *cribra orbitalia*.

4.0 DENTAL HEALTH

Analysis of the teeth from archaeological populations provides vital clues about health, diet and oral hygiene, as well as information about environmental and congenital conditions (Roberts and Manchester 2005).

While no teeth or jaws were observable in the identified skeletons, some understanding about the dental health in this population was offered by the dental health observations in the disarticulated remains. The conditions observed in the upper and lower jaws of the disarticulated remains are summarised below.

In total, twelve mandibles (complete and partial) and two maxillae were observed, along with a number of loose teeth.

4.1 CALCULUS

If plaque is not removed from the teeth effectively (or on a regular basis) then it can mineralise and form concretions of calculus on the tooth crowns or roots (if these are exposed), along the line of the gums (Hillson 1996, 255-257). Mineralisation of plaque can also be common when the diet is high in protein (Roberts and Manchester 2005, 71). Calculus is commonly observed in archaeological populations of all periods, although poor preservation or damage caused during cleaning can result in the loss of these deposits from the teeth (*ibid*, 64).

Calculus was the most common pathology affecting the teeth in the disarticulated assemblage, ranging in severity from flecks to considerable.

4.2 DENTAL CARIES

Dental caries (tooth decay) forms when bacteria in the plaque metabolise sugars in the diet and produce acid, which then causes the loss of minerals from the teeth and eventually leads to the formation of a cavity (Zero 1999). Simple sugars can be found naturally in fruits, vegetables, dried fruits and honey, as well as processed, refined sugar; since the latter three contain the most sucrose they are most cariogenic. Complex sugars are usually less cariogenic and are found in carbohydrates, such as cereals. However, processing carbohydrates, including grinding grains into fine powders or cooking them, will usually increase their cariogenicity (Moynihan 2003).

Dental caries affected two loose teeth in this assemblage.

4.3 ABSCESSES

Dental abscesses occur when bacteria enter the pulp cavity of a tooth causing inflammation and a build-up of pus at the apex of the root. Eventually, a hole forms in the surrounding bone allowing the pus to drain out and relieve the pressure. They can form as a result of dental caries, heavy wear of the teeth, damage to the teeth (e.g. fractures), or periodontal disease (Roberts and Manchester 2005).

Only one abscess was observed in this assemblage, affecting the first mandibular molar in a complete adult mandible.

4.4 ANTE-MORTEM TOOTH LOSS

Ante-mortem tooth loss (AMTL), or the loss of teeth during life, can occur as a result of a variety of factors, including dental caries, pulp-exposure from heavy tooth wear, or periodontal disease (occurring when inflammation of the gums, gingivitis, spreads to the underlying bone). Gingivitis can result when deposits of calculus on the teeth aggravate the gums. Once the tooth has been lost, the empty socket is filled in with bone (Hillson 1996, Roberts and Manchester 2005).

AMTL was quite prevalent in this assemblage, and it was observed in six mandibles and one maxilla, all from adult individuals.

4.5 DENTAL ENAMEL HYPOPLASIA

Dental enamel hypoplasia (DEH) is the presence of lines, grooves or pits on the surface of the tooth crown and occurs as a result of defective formation of tooth enamel during growth (Hillson 1996). Essentially, they represent a period when the crown formation is halted, and they are caused by periods of severe stress, such as episodes of malnutrition or disease, during the first seven years of childhood. Involvement of the deciduous (milk) teeth can indicate pre-natal stress (Lewis 2007). Trauma can also cause DEH formation, usually in single teeth.

Dental enamel hypoplasia was observed in five teeth, with one of them (first molar) in the mandible of an older juvenile.

4.6 DENTAL CONCLUSIONS

Although no prevalence rates were calculated for dental disease, because it was only observable in the disarticulated assemblage, a variety of dental diseases affected the jaw bones and teeth available for analysis. Of these, calculus and ante-mortem tooth loss were the most frequently observed, but two caries lesions, one abscess, and five teeth with dental enamel hypoplasia, were also present.

5.0 DISCUSSION AND SUMMARY

The excavations at 28 Claremont Terrace took place in the backyard of a terraced house, built over the former St Giles church burial ground in York. The church was built in the 12th century and was associated with the Skinners Guild. In 1586 the church was merged with St Olaves church and demolished, while the burial ground was used throughout the 17th century to bury the victims of plague and executed criminals (St Giles Church,

2017).

The excavated remains from 28 Claremont Terrace produced six identified adult skeletons, and there were at least twelve individuals (eight adults and four non-adults) in the disarticulated assemblage, recovered mainly from the fill of the identified burials. The identified skeletons comprised three males and three females, with two males and two females aged above 46 years at death, and one male aged between eighteen and 25 years, while one female could not be assigned a narrower age category. All males in the assemblage were above 172m tall, while the only female for whom stature could be calculated was 157.1cm tall. The stature of male was taller than the medieval average living height, while that of the females was shorter.

The femora of the adults ranged from broad to medium in robusticity, while the tibiae were of rounded shape. A small number of non-metric traits were observed in five of the skeletons, and these were mostly present in the femora, although a septal aperture was present on the left distal humerus of Skeleton 8, and squatting facets were observed in the distal tibiae of Skeletons 4 and 8.

In the disarticulated assemblage, there were at least four males and four females present. Of the females, one was a young adult, and two were young middle and older middle adults, respectively. The skeletal elements of males comprised all four adult age groups. The non-adult remains comprised at least two juveniles and two adolescents.

Pathological analysis revealed that there was a variety of conditions affecting this population, including congenital absence of the 12th ribs, infections as expressed by periosteal lesions on the long bones, degenerative joint changes mainly expressed as osteophyte formation and porosity in the spinal and extraspinal joints, and also osteoarthritis in two mature male individuals. Of traumatic lesions, only entheseal changes related to soft tissue injuries affecting certain muscles and ligaments, were observed, affecting a mature male individual (Skeleton 8).

Information about childhood metabolic conditions and dental disease could only be derived from the disarticulated assemblage and revealed that this population was prone to both. In particular, the frequency of dental plaque and ante-mortem tooth loss revealed poor oral hygiene and diet high in carcinogenic foods, such as carbohydrates. This is in line with the relatively high prevalence of these conditions in other late medieval populations, with an average of 59.2% of individuals having dental calculus, and 36.4% of individuals affected by AMTL (Roberts and Cox 2001, 262-3).

6.0 FUTURE RECOMMENDATIONS

A full osteological analysis of the human skeletal remains from 28 Claremont Terrace, York has been completed. Considering the small and incomplete nature of this skeletal assemblage, biochemical (isotope) and/or biomolecular (ancient DNA) analyses would yield very limited results and are unlikely to benefit further understanding of this skeletal assemblage.

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APPENDIX A: OSTEOLOGICAL AND PALAEOPATHOLOGICAL CATALOGUE

Catalogue of Inhumation Burials

Skeleton Number	**4**
Preservation	2
Fragmentation	Slight
Completeness	20%, femora and tibiae only
Age	Adult
Sex	Female? (metric analysis)
Stature	157.1
Non-Metric Traits	Poirier's facet, plaque, exostosis in hypotrochanteric fossa, medial tibial squatting facet
Pathology	Lamellar bone on medial tibial shafts
Dental Health	-

Skeleton Number	**5**
Preservation	2
Fragmentation	Moderate
Completeness	30%, right shoulder and upper arm, incomplete left arm and hand, the spine, sacrum, right pelvis
Age	46+, Mature adult
Sex	Male
Stature	177.6
Non-Metric Traits	
Pathology	DJC in all nine T vertebrae present; also in the right clavicle, scapula and humerus, left distal humerus, and ulna; Schmorl's nodes in T8 and T10; possible L6? And fusion of L6 to the sacrum
Dental Health	-

Skeleton Number	**7A**

Preservation	2
Fragmentation	Moderate
Completeness	25%, spine, pelvis and femora
Age	18-25, Young adult
Sex	Male
Stature	173.7
Non-Metric Traits	Allen's fossa
Pathology	Schmorl's nodes in T10-L4
Dental Health	-

Skeleton Number	**7B**
Preservation	2
Fragmentation	Moderate
Completeness	20%, spine, pelvis and femora
Age	46+, Mature adult
Sex	Female
Stature	-
Non-Metric Traits	Exostosis in hypotrochanteric fossa
Pathology	No rib facets on T12, DJD in spine (T12-S1) and hips, coccyx fused to sacrum, OA in L5/sacrum left facets
Dental Health	-

Skeleton Number	**7C**
Preservation	3
Fragmentation	Moderate
Completeness	15%, pelvis and femora
Age	46+, Mature adult
Sex	Female
Stature	-

Non-Metric Traits	Exostosis in hypotrochanteric fossa
Pathology	DJD in hip and knee, fusion of the left patella to the distal femur
Dental Health	-

Skeleton Number	**8**
Preservation	2
Fragmentation	Moderate
Completeness	60%, upper and lower arms, lower spine, pelvis, upper and lower legs
Age	46+, Mature adult
Sex	Male
Stature	172.6
Non-Metric Traits	Septal aperture (left humerus), bilateral lateral tibial squatting facets
Pathology	DJD in spine (T12-S1), OA in L5/sacrum right facets, entheseal changes right femur and left ulna, lamellar bone on medial tibial shafts
Dental Health	-

KEY:

SP = Surface preservation: grades 0 (excellent), 1 (very good), 2 (good), 3 (moderate), 4 (poor), 5 (very poor), 5+ (extremely poor) after McKinley (2004); C = Completeness; F = Fragmentation: min (minimal), sli (slight), mod (moderate), sev (severe), ext (extreme)

Present - Tooth presence; am - ante-mortem tooth loss; pm - post-mortem tooth loss; p - tooth present; p (u) – tooth present but unerupted; e – erupting; - - jaw not present

Caries - Calculus; F - flecks of calculus; S - slight calculus; M - moderate calculus; H - heavy calculus; a - all surfaces; b - buccal surface; d - distal surface; m - mesial surface; l - lingual surface; o - occlusal surface

DEH - dental enamel *hypoplasia*; l - lines; g - grooves; p - pits

Caries - caries; s - small lesions; m - moderate lesions; l - large lesions

Wear - dental wear; numbers from 1-8 - slight to severe wear

Disarticulated Human Remains

Context	Bone Element	Bone	Side	% Bone	SP	Frags	Age	Sex	Notes
2	Femur	Proximal shaft	U	20	2	1	A	U	
2	Sternum	All	LR	95	2	1	A	U	
2	Thoracic vertebra	All	LR	70	2	1	A	U	Degenerative Schmorl's nodes sup
2	Lumbar vertebra	Body	R	60	2	1	A	U	Degenerative Schmorl's node inf body
2	Femur	Proximal joint Proximal shaft Central shaft	L	55	2	1	A	U	
2	Femur	Distal shaft	U	35	2	1	YJ	U	
2	Thoracic vertebra	Spinous process	LR	35	2	1	A	U	
2	Sacrum	S1 S2 S3 S4	LR	80	2	1	A	M?	
2	Mandibular Tooth	First premolar	R	100	2	1	A	U	Dental Disease calc Mb,l
2	Clavicle	All	L	100	2	1	A	U	
2	Thoracic vertebra	Spinous process	LR	40	2	1	A	U	
2	Rib	Head	R	50	2	4	A	U	
2	1st rib		L	30	2	1	A	U	
2	Radius	Proximal joint	U	10	2	1	A	U	
2	Thoracic vertebra	All	LR	65	2	1	A	U	
2	Clavicle	Lateral joint	R	15	2	1	A	U	
2	Frontal	All	LR	95	2	1	A	M?	Metabolic cribra orbitalia in both orbits, type 2 porosity Individual a
2	Thoracic vertebra	Spinous process	L	35	2	1	A	U	
2	Rib	Sternal end	U	20	2	4	A	U	
2	Tarsals	Navicular	R	80	2	1	A	U	Degenerative MO2, Cyst
2	Sphenoid	All	LR	95	2	1	A	M?	Individual a
2	Temporal	All	R	95	2	1	A	F?	Individual b
2	Mandibular Tooth	Second premolar	L	100	2	1	A	U	Dental Disease calc Cb,l,d
2	Scapula	Lateral border	U	35	2	1	A	U	L lateral border
2	Lumbar vertebra	All	LR	100	2	2	A	U	Degenerative complete spondylolysis
2	Mandibular Tooth	Third molar	R	100	2	1	A	U	Wear 2

2	Rib	Head	L	25	2	3	A	U	
2	Hand phalanx	Intermediate	U	100	2	1	A	U	
2	Lumbar vertebra	All	LR	75	2	1	A	U	Degenerative Schmorl's nodes sup
2	Thoracic vertebra	Spinous process	R	30	2	1	A	U	
2	Frontal	All	LR	100	2	1	A	F?	Metabolic cribra orbitalia in both orbits, type 2 porosity Individual b
2	Humerus	All	L	90	2	4	A	U	4 matching fragments
2	Fibula	Distal shaft	U	20	2	1	A	U	
2	Frontal		LR	15	2	1	A	M?	Glabella
2	Pelvis	Auricular surface Illium	R	35	2	1	YJ	U	
2	Femur	Proximal joint Proximal shaft Central shaft	L	55	2	1	A	U	
2	Mandible	Ramus Anterior	LR	40	2	1	A	U	M1-M3; only R side
2	Mandibular Tooth	Third molar	L	100	2	1	A	U	Wear 1, Calculus Sb,l
2	Thoracic vertebra	Spinous process	LR	30	2	1	A	U	
2	Pelvis	Acetabulum Ischium Illium	R	75	2	1	OM A	F	
2	Pelvis	Auricular surface Pubis Illium	L	75	2	2	YM A	F	
2	Thoracic vertebra	Body	LR	40	2	1	A	U	
2	Clavicle	Medial joint	R	15	2	1	A	U	
2	Fibula	Proximal joint	L	25	2	1	A	U	
2	Scapula	Acromion	U	15	3	1	A	U	
2	Temporal	All	L	100	2	1	A	F?	Individual b
2	Thoracic vertebra	All	LR	80	2	1	A	U	
2	2nd rib		R	30	2	1	A	U	
2	Femur	Central shaft	U	20	2	1	A	U	
2	Manubrium	All	LR	90	2	1	A	U	
2	Lumbar vertebra	All	LR	95	2	1	A	U	Degenerative MO2, P2 sup body
2	Parietal	Anterior	R	40	2	0	A	U	
2	Metacarpal	5	L	90	2	1	A	U	

2	Thoracic vertebra	Spinous process	LR	35	2	1	A	U	
2	Mandibular Tooth	Canine	R	100	2	1	A	U	Dental Disease calc Mb,l
2	Radius	Proximal joint Proximal shaft	L	35	2	1	A	U	
2	Rib	Shaft	U	30	2	6	A	U	
2	Thoracic vertebra	Body	LR	45	2	1	A	U	Degenerative Schmorl's nodes sup
2	Rib	Shaft	R	50	2	1	YJ	U	
2	Rib	Head	L	30	2	6	A	U	
2	Unidentified	-	U	10	2	3	A	U	
2	Thoracic vertebra	All	LR	80	2	1	A	U	Degenerative Schmorl's node sup
2	Clavicle	All	R	95	2	2	A	U	
2	Temporal	All	R	100	2	1	A	M?	Individual a
2	Parietal	Anterior	L	25	2	1	A	U	
2	Scapula	Glenoid	U	15	2	1	A	U	
2	Metacarpal	2	R	100	2	1	A	U	
2	Mandibular Tooth	Canine	L	100	2	1	A	U	Dental Disease calc Cb,l
2	Radius	Central shaft Distal shaft	U	45	2	1	A	U	R shaft
2	Lumbar vertebra	All	LR	100	2	1	A	U	Degenerative Schmorl's nodes sup body; partial spondylolysis
2	Mandibular Tooth	Second molar	R	100	2	1	A	U	Wear 4
2	Occipital	All	LR	95	2	1	A	F?	Individual b
2	Scapula	Glenoid Lateral border	L	35	2	1	A	U	
2	Hand phalanx	Proximal	U	100	2	1	A	U	
2	Parietal	Anterior Posterior	LR	35	2	6	A	U	
2	Thoracic vertebra	Spinous process	R	35	2	1	A	U	
2	Parietal	All	LR	100	2	1	A	F?	Individual b
2	Metacarpal	1	L	100	2	1	A	U	
2	Fibula	Proximal shaft Central shaft	U	40	2	1	A	U	
2	Mandible	All	LR	75	2	1	A	F?	Dental Disease AMTL L first prem and all 3 molars; 11 alveoli present
2	Pelvis	Acetabulum Pubis Ischium	R	40	2	3	YA	M	

2	Femur	Proximal joint Proximal shaft Central shaft	L	55	2	2	A	U	Head and neck missing
2	Mandible	Ramus	LR	90	2	2	A	M?	Dental Disease AMTL Left molars 1
2	Pelvis	Pubis	R	30	2	1	OMA	M	
2	Mandibular Tooth	First molar	L	100	2	1	A	U	Wear 5
2	Thoracic vertebra	Spinous process	LR	40	2	1	A	U	
2	Femur	Distal shaft Distal joint	R	50	2	1	A	U	
2	Pelvis	Auricular surface Illium	L	60	2	3	YMA	M	
2	Temporal	All	L	100	2	1	A	M?	Individual a
2	Thoracic vertebra	Body	LR	40	2	1	A	U	Degenerative Schmorl's node sup. body
2	12th rib	All	R	85	2	1	YJ	U	
2	Fibula	Proximal shaft Central shaft	U	45	2	1	A	U	
2	Thoracic vertebra	All	LR	70	2	1	A	U	Degenerative Schmorl's nodes sup
2	Rib	Head	R	30	2	4	A	U	
2	Femur	Central shaft Distal shaft	L	50	2	1	A	U	
2	Clavicle	Lateral shaft	U	20	2	1	A	U	Left
2	Thoracic vertebra	Spinous process	LR	35	2	1	A	U	
2	Pelvis	Ischium	LR	15	2	3	A	U	3 small fragments
2	Mandibular Tooth	Second premolar	R	100	2	1	A	U	Dental Disease calc Mb,l
2	Scapula	Glenoid Lateral border	L	20	2	1	A	U	
2	Thoracic vertebra	Spinous process	LR	35	2	1	A	U	
2	12th rib	All	R	95	2	1	A	U	
2	Humerus	Central shaft Distal shaft Distal joint	L	55	2	1	ADOL	U	
2	Parietal	Anterior	U	25	2	1	A	U	
2	Thoracic vertebra	Body	LR	50	2	1	A	U	
2	Scapula	All	R	75	2	1	A	U	
2	Parietal	All	LR	100	2	1	A	M?	Individual a
2	Thoracic vertebra	Spinous process	L	15	2	1	A	U	

2	Rib	Shaft	U	20	2	6	A	U	
2	Humerus	All	R	100	2	1	A	U	
2	Occipital	All	LR	100	2	1	A	M?	Individual a
2	Sphenoid		L	25	2	1	A	U	L wing
2	Scapula	Blade	U	35	2	3	A	U	
2	Lumbar vertebra	All	LR	95	2	1	A	U	Degenerative Schmorl's node inf body
2	Femur	Distal joint	R	20	2	1	AD OL	U	Unfused condyle
2	12th rib	All	L	95	2	1	A	U	
2	Humerus	Central shaft	U	25	2	1	A	U	
2	Lumbar vertebra	All	LR	90	2	1	A	U	Degenerative Schmorl's nodes sup
2	Frontal	Orbit	R	20	2	1	A	M	
2	Sphenoid	All	LR	90	2	1	A	F?	Individual b
2	Ulna	Proximal joint Proximal shaft Central shaft Distal shaft	L	80	2	1	A	U	
2	Fibula	Central shaft	U	30	2	1	A	U	Infection lamellar and woven bone on the whole medial or lateral shaft
2	Frontal	Orbit	LR	45	2	2	A	F?	Metabolic cribra orbitalia type 2 left orbit type 1 right orbit
2	Lumbar vertebra	All	R	35	2	1	A	U	Degenerative MO2 inf body
2	Fibula	Central shaft Distal shaft Distal joint	L	70	2	1	A	U	
2	Parietal	Anterior Posterior	U	35	2	6	A	U	
2	Mandible	Ramus	LR	25	2	1	A	U	Alveolus for M3, R only
2	Patella	All	L	100	2	1	A	U	
2	Thoracic vertebra		LR	15	2	2	A	U	2 transverse processes
2	Pelvis	Pubis	R	30	2	1	OM A	F	
2	Lumbar vertebra	Spinous process	L	20	2	1	A	U	Degenerative MO2 inf body
2	Thoracic vertebra	Spinous process	LR	40	2	1	A	U	
2	Metacarpal	3	R	90	2	1	A	U	
2	Pelvis	Acetabulum Ischium	L	25	2	1	A	U	
2	Pelvis	Illium	U	30	2	3	A	U	
2	Pelvis	Auricular	L	75	2	1	MA	M	Degenerative MO2 on auricular

		surface Ischium Illium							surface and acetabulum
2	Thoracic vertebra	Body	LR	70	2	1	AD OL	U	
2	11th rib	All	R	85	2	1	A	U	
3	Mandible	Anterior	L	40	3	1	A	U	5 tooth positions, 1 left M1, all others lost PM
3	Scapula	Lateral border	U	2	3	3	A	U	-
3	Parietal	All	L	100	3	1	A	M?	-
3	11th rib	All	L	100	3	1	A	U	Degenerative, osteophytes at head
3	Clavicle	All	L	100	2	1	A	U	Degenerative, porosity at medial joint
3	Scapula	Lateral border	L	20	3	1	A	U	-
3	Zygomatic	All	R	5	2	2	A	U	-
3	Metacarpal	1	R	95	2	1	A	U	-
3	Frontal	All	LR	60	3	2	A	M?	-
3	Atlas	Body	LR	70	3	2	A	U	-
3	Temporal	Mastoid process Zygomtatic process Petrous	L	35	3	2	A	M?	-
3	Rib	Shaft	U	5	3	12	A	U	-
3	Rib	Head	L	100	3	3	A	U	-
3	Radius	Distal shaft Distal joint	L	40	2	1	A	U	-
3	Humerus	Central shaft	L	10	2	1	A	U	-
3	Maxilla	Sinus Nasal crest	R	95	2	1	A	U	5 TP, 1 x right PM2, 4 x PM tooth loss
3	Scapula	Acromion Glenoid	L	25	3	1	A	U	Degenerative osteophytes at glenoid
3	Parietal	All	R	100	3	1	A	M?	-
3	Scapula	Blade	R	15	3	2	A	U	-
3	Occipital	All	LR	100	2	2	A	M?	-
3	Axis	Body	LR	40	3	3	A	U	-
3	Mandibular Tooth	First molar	L	100	3	1	YA	U	-
3	Cranium	Fragments	U	5	3	25	A	M?	generic
3	Parietal	All	L	5	3	2	A	U	-

3	Pelvis	Illium	U	5	2	1	A	U	-
3	1st rib	All	L	100	3	2	A	U	Degenerative, osteophytes at head
3	Radius	Proximal joint	L	30	2	1	A	U	Degenerative, porosity at medial joint
3	Humerus	Proximal joint	L	10	2	1	A	U	-
3	Maxillary Tooth	Second premolar	R	100	3	1	A	U	-
3	Femur	Central shaft	R	5	2	1	A	U	-
3	Mandible	Anterior	LR	85	3	1	OM A	U	14 TP, 14 teeth, 14/14 with calculus, dental wear 6
3	Thoracic vertebra	All	LR	90	2	1	A	U	-
3	Manubrium	All	LR	95	2	1	A	U	-
7	Ulna	Proximal joint Proximal shaft Central shaft Distal shaft	R	85	2	1	A	U	-
7	Radius	Proximal joint Proximal shaft Central shaft	L	50	2	1	A	U	-
7	Lumbar vertebra	All	LR	100	3	1	A	U	Degenerative osteophytes at body
7	Ulna	Proximal joint Proximal shaft	R	35	2	1	A	U	-
7	Fibula	Distal shaft Distal joint	L	35	2	1	A	U	-
7	Lumbar vertebra	All	LR	100	3	1	A	U	-
7	Hand phalanx	Intermediate	U	100	2	1	A	U	-
7	Clavicle	All	R	35	2	1	A	U	DJC at acromial joint
7	Hand phalanx	Proximal	U	100	2	1	A	U	-
7	Hand phalanx	Proximal	U	100	2	1	A	U	-
7	Hand phalanx	Intermediate	U	100	2	1	A	U	-
7	Metacarpal	3	L	100	2	1	A	U	-
7	Hand phalanx	Intermediate	U	100	1	1	YJ	U	-

7	Metacarpal	4	L	100	2	1	A	U	-
7	Metacarpal	2	R	100	1	1	A	U	-
7	Rib	Head	U	40	2	2	UA	U	Degenerative, large osteophytes and porosity at tubercles
7	Metacarpal	5	L	100	2	1	A	U	-
7	Metacarpal	4	R	100	1	1	A	U	-
7	Rib	Shaft	U	2	2	31	UA	U	-
7	Rib	Head	L	100	3	2	A	U	-
7	Radius	Proximal shaft	R	15	2	1	A	U	-
7	Humerus	Distal shaft	L	30	2	1	A	U	-
7	Cranium	Fragments	LR	10	2	6	A	U	-
7	Humerus	Proximal shaft	R	10	3	1	A	U	-
7	Ulna	Distal joint	L	20	2	1	A	U	-
7	Lumbar vertebra	Body	LR	50	2	1	A	U	Schmorl's node
7	Radius	Proximal shaft Central shaft Distal shaft Distal joint	R	85	2	1	A	U	-
7	Ulna	Proximal joint Proximal shaft	L	40	2	1	A	U	-
7	Lumbar vertebra	All	LR	100	3	1	A	U	Degenerative porosity
7	Humerus	Central shaft Distal shaft Distal joint	R	50	2	2	A	U	-
7	Hand phalanx	Intermediate	U	100	2	1	A	U	-
7	Hand phalanx	Proximal	U	100	2	1	A	U	-
7	Hand phalanx	Proximal	U	100	2	1	A	U	-
7	Metacarpal	3	U	50	2	1	A	U	-
7	Metacarpal	2	L	100	2	1	A	U	-
7	Frontal	Orbit	U	2	3	1	A	U	-
7	Metacarpal	4	L	100	2	1	A	U	-

7	Metacarpal	2	R	100	1	1	A	U	-
7	Rib	Head	U	40	2	8	UA	U	-
7	Metacarpal	1	L	30	2	1	A	U	-
7	Metacarpal	5	R	95	1	1	A	U	-
7	Unidentified	-	U	2	2	1	UA	U	-
7	Pelvis	Acetabulum	L	2	2	1	UA	U	-
7	Humerus	Proximal joint	R	5	3	1	A	U	Degenerative porosity at joint
7	Ulna	Proximal joint Proximal shaft Central shaft Distal shaft	L	90	2	1	A	U	-
7	Occipital	All	LR	60	2	2	A	U	Neoplasm, button osteoma
7	Radius	Distal joint	R	5	2	1	A	U	-
7	Ulna	Proximal joint	L	25	2	1	A	U	-
7	Thoracic vertebra	All	LR	100	2	1	A	U	-
7	Ulna	Proximal joint Proximal shaft	R	35	2	1	A	U	-
7	Ulna	All	L	100	2	1	A	U	-
7	Lumbar vertebra	All	LR	100	3	1	A	U	-
7	Humerus	Distal joint	R	35	2	1	A	U	-
7	Hand phalanx	Proximal	U	45	2	1	A	U	-
7	Hand phalanx	Proximal	U	100	2	1	A	U	-
7	Hand phalanx	Proximal	U	100	2	1	A	U	-
7	Carpal	Triquetral	L	100	2	1	A	U	-
7	Metacarpal	5	U	100	1	1	A	U	-
7	Metacarpal	2	L	100	2	1	A	U	-
7	Metacarpal	3	R	100	2	1	A	U	-
7	Rib	Shaft	U	40	2	2	UA	U	Trauma, fracture, well healed
7	Metacarpal	5	L	100	2	1	A	U	-
7	Metacarpal	4	R	100	1	1	A	U	-
7	Rib	Sternal end	U	40	2	16	UA	U	-

7	Mandible	All	L	50	3	1	A	U	AM tooth loss
7	Pelvis	Acetabulum	R	2	2	1	UA	U	-
7	Unidentified	-	U	15	2	1	UA	U	-
7	Ulna	Distal shaft	L	15	2	1	A	U	-
7	Scapula	Glenoid	R	10	2	1	A	U	-
7	Radius	All	L	95	2	1	A	U	-
7	Thoracic vertebra	All	LR	100	2	1	A	U	Degenerative, osteophytes at body
10	Femur	Proximal joint Proximal shaft Central shaft	L	45	2	1	A	U	
10	Frontal		U	20	2	1	A	U	
10	Cervical vertebra	All	LR	90	2	1	A	U	
10	Humerus	Central shaft Distal shaft Distal joint	R	60	2	1	A	U	Degenerative MO 1
10	Mandibular Tooth	First molar	R	100	2	1	A	U	Dental Disease calculus SI
10	Metatarsal	3	L	70	2	1	A	U	
10	Cervical vertebra	All	LR	95	2	1	A	U	Degenerative MO2 and P2 on superior and inferior left facet
10	Radius	Distal shaft Distal joint	R	30	2	1	A	U	
10	Temporal	All	R	95	2	1	A	F?	
10	Manubrium	All	LR	90	2	1	A	U	Ossified cartilage
10	Sphenoid	All	LR	95	2	1	A	M?	Individual c
10	Radius	Proximal joint	R	35	2	1	AD OL	U	
10	Parietal	Posterior	R	30	2	1	A	F?	
10	Humerus	Central shaft	L	40	2	1	A	U	
10	Mandible	All	LR	95	2	2	A	M?	Dental Disease abscess at L M1; 15 alveoli
10	Tibia	Proximal joint Proximal shaft Central shaft	R	75	2	1	AD OL	U	
10	Parietal	Posterior	R	30	2	2	A	F?	
10	Humerus	Proximal shaft Central shaft	L	45	2	1	A	U	
10	Parietal	Anterior Posterior	LR	60	2	5	A	M?	

10	2nd rib	All	R	70	2	1	A	U	
10	Femur	Proximal shaft Central shaft Distal shaft Distal joint	L	75	2	3	AD OL	U	
10	Parietal	All	LR	90	2	3	A	F?	
10	Parietal	All	LR	100	2	1	A	M?	Individual c
10	12th rib	All	R	80	3	1	A	U	
10	11th rib	All	L	50	2	1	A	U	
10	Scapula	Coracoid Acromion Glenoid Lateral border	R	75	2	3	A	M?	
10	Scapula	Lateral border	L	20	2	1	A	U	
10	Sacrum	S1 S2 S3 S4 S5	LR	75	2	1	A	U	Degenerative P1 E1 on R sup. Facet
10	Clavicle	Lateral joint Lateral shaft Central shaft Medial shaft	R	90	2	1	A	U	Degenerative P2 on acromial end
10	Unidentified	-	U	15	2	4	A	U	Femur, tibia shaft fragments
10	Pelvis	Acetabulum Ischium	L	25	2	1	A	U	
10	Patella	All	R	100	2	1	A	U	Degenerative MO1
10	Thoracic vertebra	All	LR	90	2	1	A	U	Degenerative MO3 on body, Schmorl's node on sup. body
10	Pelvis	Acetabulum Pubis Ischium	R	45	2	2	AD OL	U	
10	Scapula	Blade	U	10	2	1	A	U	Blade fragment
10	Occipital	Condyle	L	20	2	1	A	U	
10	Thoracic vertebra	All	LR	85	2	1	A	U	Degenerative MO2 T6
10	Tibia	Central shaft	R	40	2	1	A	U	
10	Mandibular Tooth	Third molar	R	100	2	1	A	U	Dental Disease calculus Slbmd
10	Thoracic vertebra	Spinous process	U	10	2	1	A	U	
10	Occipital	Condyle	L	20	2	1	A	U	Also a small part of R sphenoid fused
10	Thoracic vertebra	All	LR	95	2	1	A	U	Degenerative MO2 T3
10	Tibia	Proximal joint Proximal shaft	R	55	2	1	A	U	Degenerative MO1 Infection lamellar bone med

		Central shaft							
10	Tibia	Proximal joint Proximal shaft Central shaft	L	65	2	1	A	U	Degenerative MO2 E1 Infection lamellar bone med
10	Scapula	Blade	U	20	2	2	A	U	
10	Thoracic vertebra	All	LR	90	2	1	A	U	Degenerative MO2 and P1 on rib facets T1
10	Metatarsal	1	R	95	2	1	A	U	
10	Mandibular Tooth	First premolar	R	100	2	1	A	U	Dental Disease calculus Sl,m
10	Femur	Central shaft Distal shaft Distal joint	L	50	2	2	A	F?	
10	Parietal	Posterior Squamous	U	50	2	2	A	U	
10	Cervical vertebra	All	LR	95	2	1	A	U	
10	Humerus	All	R	100	2	2	A	U	
10	Mandibular Tooth	Second molar	R	100	2	1	A	U	Dental Disease caries buccal small between root and crown; calculus Sm
10	Fibula	Proximal joint Proximal shaft	L	30	2	1	A	U	
10	Sternum		LR	45	2	1	A	U	
10	Axis	All	LR	95	2	1	A	U	Degenerative MO2 and P1 on inferior left facet
10	Radius	Proximal joint Proximal shaft	R	20	2	1	A	U	
10	Temporal	All	R	70	2	1	A	F?	
10	Temporal	Squamous	LR	15	2	1	A	U	A small part or R? Squama
10	Occipital	All	LR	100	2	1	A	M?	Individual c
10	Clavicle	Lateral joint Lateral shaft	R	35	2	1	AD OL	U	
10	Parietal	Anterior	R	30	2	1	A	U	
10	Humerus	Distal shaft Distal joint	L	30	2	1	A	U	
10	Mandible	Anterior	LR	35	2	1	A	F?	4 alveoli, no teeth, no pathology
10	Maxilla	All	LR	95	2	1	A	M?	Dental Disease AMTL 4 left (premolar 2 and all molars) and 3 right teeth (both premolars and M1) Other teeth lost post-mortem

									Individual c
10	Femur	Proximal shaft Central shaft Distal shaft Distal joint	R	80	2	1	AD OL	U	
10	Metacarpal	3	L	100	2	1	AD OL	U	
10	Occipital	Nuchal crest	LR	60	2	3	A	M?	
10	Zygomatic	All	LR	95	2	1	A	M?	Individual c
10	1st rib		R	40	2	1	A	U	
10	Clavicle	Central shaft Medial shaft Medial joint	L	75	2	1	A	U	
10	Frontal	All	LR	95	2	2	A	F?	Metabolic cribra orbitalia type 1 capillary impr. in both orbits
10	Rib	Head	R	35	2	10	A	U	
10	Rib	Head	L	35	2	8	A	U	
10	Clavicle	Lateral joint	R	20	2	1	A	U	
10	Scapula	Lateral border	L	30	2	1	A	U	
10	Thoracic vertebra	All	LR	95	2	1	A	U	Degenerative MO3 on body, Schmorl's node on inf. body T12
10	Thoracic vertebra		R	25	2	1	A	U	Transverse process
10	Fibula	Central shaft Distal shaft	U	45	2	2	A	U	
10	Mandibular Tooth	Canine	L	100	2	1	A	U	Dental Disease calculus Mlbmd, DEH grooves
10	Thoracic vertebra	All	LR	90	2	1	A	U	Degenerative MO2 on body, Schmorl's node on inf. body
10	Pelvis	Auricular surface Illium	R	80	2	2	OJ	U	
10	Rib	Sternal end	U	20	2	7	A	U	
10	Mandible	Ramus	L	40	2	1	A	U	Dental Disease AMTL molars
10	Thoracic vertebra	All	LR	85	2	1	A	U	Degenerative MO2 T5
10	Tibia	Central shaft Distal shaft	R	55	2	1	A	U	
10	Mandibular Tooth	Third molar	R	100	2	1	A	U	Dental Disease Calculus Sm,l,b,d
10	Tarsals	Talus	L	100	2	1	A	U	
10	Sphenoid		U	10	2	1	A	U	
10	Thoracic vertebra	All	LR	95	2	1	A	U	Degenerative MO1

									T2
10	Femur	Central shaft Distal shaft Distal joint	R	60	2	1	A	U	
10	Femur	Proximal shaft	L	30	2	1	A	U	
10	Scapula	Blade	U	20	2	1	A	U	
10	Cervical vertebra	All	LR	90	2	1	A	U	
10	Humerus	Proximal joint	R	15	2	1	A	U	
10	Mandibular Tooth	Second premolar	R	100	2	1	A	U	Dental Disease calculus MI
10	Femur	Distal shaft Distal joint	L	25	2	1	A	U	Degenerative MO3 E2
10	Cervical vertebra	All	LR	95	2	2	A	U	
10	Ulna	Distal shaft Distal joint	R	40	2	1	A	U	
10	Mandible	Condyle	R	35	2	1	A	U	
10	Manubrium	All	LR	90	2	1	A	U	
10	Atlas	All	LR	95	2	1	A	U	Degenerative MO 1 on dens articulation
10	Radius	Central shaft Distal shaft	R	35	2	1	AD OL	U	
10	Parietal	Anterior	R	30	2	1	A	U	
10	Humerus	Proximal joint	L	15	2	1	A	U	
10	Mandible	All	LR	60	2	1	A	F?	Dental Disease AMTL first incisors
10	Humerus	Proximal shaft Central shaft Distal shaft Distal joint	R	80	2	2	AD OL	U	
10	Parietal	Anterior	R	30	2	1	A	U	
10	Humerus	Proximal joint Proximal shaft Central shaft	L	50	2	1	A	U	
10	Occipital	Nuchal crest	LR	85	2	1	A	F?	
10	2nd rib		R	40	2	1	A	U	
10	Temporal	All	R	95	2	1	A	M?	Individual c
10	Tibia	Distal shaft	L	40	2	1	AD OL	U	
10	Occipital	All	LR	85	2	2	A	F?	
10	Frontal	All	LR	100	2	1	A	M?	Metabolic Cribra orbitalia type 1 capillary impressions in both orbits Individual c

10	1st rib	All	R	100	2	1	A	U	
10	1st rib	All	L	100	2	1	A	U	
10	Sacrum	S1 S2 S3 S4	LR	60	2	1	A	U	
10	Scapula	Coracoid Acromion Glenoid Lateral border	R	75	2	3	A	F?	
10	Scapula	Acromion	L	20	2	1	A	U	
10	Clavicle	Medial shaft	R	20	2	1	A	U	
10	Clavicle	Lateral joint	L	25	2	1	A	U	
10	Thoracic vertebra	All	LR	95	2	1	A	U	Degenerative MO3 on body, Schmorl's node on inf. body
10	Tibia	Distal joint	R	15	2	1	A	U	
10	Pelvis	Acetabulum Ischium	R	25	2	1	A	U	
10	Sacrum	S1	U	15	2	1	AD OL	U	
10	Maxillary Tooth	Canine	L	100	2	1	A	U	Dental Disease caries Sd, calculus Sm, DEH grooves
10	Thoracic vertebra	Body	LR	50	2	1	A	U	Degenerative Schmorl's node on superior body T8
10	Pelvis	Auricular surface Ischium Illium	R	50	2	1	A	F	Age YMA
10	Rib	Shaft	U	25	2	23	A	U	
10	Temporal	All	L	80	2	1	A	F?	
10	Thoracic vertebra	All	LR	95	2	1	A	U	Degenerative MO1 T4
10	Tibia	Proximal shaft	R	30	2	1	A	U	Infection extensive woven and lamellar bone med
10	Mandibular Tooth	Canine	R	100	2	1	A	U	Dental Disease calculus Sl,m; DEH grooves
10	Unidentified	-	U	10	2	2	A	U	
10	Temporal	All	L	95	2	1	A	M?	Individual c
10	Thoracic vertebra	All	LR	75	2	1	A	U	Degenerative MO1 and P1 on rib facets
10	Metatarsal	1	R	95	2	1	A	U	
11	Clavicle	All	R	100	2	1	A	U	
11	1st rib	All	R	95	2	1	A	U	
11	Tibia	Proximal shaft Central shaft Distal shaft	R	60	2	1	YJ	U	
11	Zygomatic	All	L	90	2	1	A	U	
11	Humerus	Proximal joint	R	45	2	1	A	U	

		Proximal shaft							
11	Mandibular Tooth	Deciduous First molar	L	100	2	1	YJ	U	
11	Occipital	Nuchal crest	LR	35	2	1	A	M?	
11	Thoracic vertebra	Spinous process	R	30	2	1	A	U	Degenerative MO3 P1 E1 on inf R facet
11	1st rib	All	L	90	2	2	A	U	
11	Occipital	Nuchal crest	LR	25	2	3	NA	U	
11	Femur	Distal shaft Distal joint	R	25	2	1	A	U	
11	Humerus	Proximal joint Proximal shaft Central shaft	L	65	2	1	A	U	
11	Frontal	Orbit	LR	30	2	4	A	M?	Metabolic cribra orbitalia type 4
11	Tarsals	Talus	L	95	2	1	A	U	
11	Mandible	Ramus Anterior	LR	70	2	1	A	F?	AMTL all teeth; L side incomplete
11	Pelvis	Auricular surface Illium	R	60	2	1	YA	F	
11	Fibula	Distal joint	L	15	2	1	A	U	
11	Rib	Head	U	25	2	2	A	U	
11	Lumbar vertebra	All	LR	95	2	1	A	U	
11	Tibia	Proximal joint	L	20	2	1	A	U	
11	Ulna	Proximal joint	U	15	2	1	A	U	
11	Thoracic vertebra	Body	LR	50	2	1	A	U	Degenerative Schmorl's node on inf body
11	Fibula	Central shaft	U	25	2	1	A	U	
11	Thoracic vertebra	All	LR	85	2	2	A	U	Degenerative P2 MO2 E1 on sup
11	Mandibular Tooth	Deciduous Second molar	R	100	2	1	YJ	U	Erupting
11	Cervical vertebra	All	LR	95	2	1	A	U	Degenerative MO2, P2 on sup body and MO2 and E on facets
11	Maxillary Tooth	First molar	R	100	2	1	OJ	U	Dental Disease DEH grooves
11	Scapula	Coracoid Acromion Glenoid Lateral border	R	70	2	2	A	U	
11	Rib	Head	R	35	2	3	A	U	
11	Parietal	Anterior	L	25	2	3	NA	U	
11	Ulna	All	R	95	2	1	A	U	
11	Temporal	All	L	70	2	1	A	U	
11	Parietal	Posterior	LR	30	2	1	A	U	
11	Humerus	Proximal joint	R	85	2	1	A	U	

		Proximal shaft Central shaft Distal shaft							
11	Clavicle	Lateral joint Lateral shaft	L	30	2	1	A	U	
11	Parietal	All	LR	50	2	21	A	U	
11	Metatarsal	3	R	100	2	1	A	U	
11	Femur	Proximal shaft	L	30	2	1	YJ	U	
11	Frontal	All	LR	25	2	3	NA	U	Metabolic cribra orbitalia type 2 R orbit
11	Tibia	Central shaft Distal shaft Distal joint	R	50	2	1	A	U	
11	Humerus	Central shaft Distal shaft Distal joint	L	65	2	1	A	U	
11	Sphenoid	All	LR	50	2	3	A	U	
11	Tarsals	Calcaneus	L	95	2	1	A	U	
11	Temporal	Petrous	U	30	2	1	A	U	
11	Sternum	Distal	LR	20	2	1	AD OL	U	Xiphoid
11	Fibula	Central shaft Distal shaft	L	50	2	1	A	U	
11	Rib	Shaft	U	20	2	13	A	U	
11	Lumbar vertebra	All	LR	90	2	1	A	U	
11	Tibia	Distal shaft Distal joint	L	25	2	1	A	U	
11	Humerus	Distal joint	U	15	2	1	A	U	
11	Thoracic vertebra	Spinous process	LR	30	2	1	A	U	Degenerative MO2 E1 on sup R and L inf facets
11	Cervical vertebra	Body	LR	35	2	1	A	U	
11	Mandible	All	R	45	2	1	YJ	U	m1 erupted m2 erupting
11	Cervical vertebra	All	LR	95	2	1	A	U	Degenerative MO2
11	Maxilla	All	R	50	2	1	OJ	U	M1 and incisors erupted; Dental Disease DEH grooves on M1; premolars and M 2 in situ
11	Scapula	All	R	85	2	4	A	U	
11	Radius	Distal shaft Distal joint	R	60	2	1	YJ	U	
11	Frontal	Orbit	L	25	2	1	A	M?	Metabolic cribra orbitalia type 3

11	Radius	All	R	100	2	1	A	U	
11	Temporal	All	L	95	2	1	A	F?	
11	Occipital	All	LR	25	2	2	A	U	
11	Humerus	Proximal joint Proximal shaft Central shaft Distal shaft	R	85	2	1	A	U	
11	Clavicle	All	L	90	2	1	A	U	Trauma healed fracture at acromial end; a deep impression and cyst at the sternal end, extending into the joint surface: related to the same traumatic event?
11	Frontal	All	LR	30	2	7	A	U	
11	Femur	Proximal shaft Central shaft Distal shaft Distal joint	R	85	2	4	A	U	
11	Humerus	Proximal joint Proximal shaft Central shaft Distal shaft	L	85	2	1	A	U	
11	Frontal	Orbit	LR	25	2	2	A	F?	Metabolic cribra orbitalia type 3; a bony spicule in the R orbit
11	Tarsals	Cuboid	L	95	2	1	A	U	
11	Mandible	Anterior	LR	35	2	1	A	M?	AMTL L molars 1
11	Tibia	Distal joint	R	20	2	1	A	U	
11	Tarsals	Calcaneus	L	95	2	1	A	U	
11	11th rib	All	U	75	2	1	A	U	
11	Lumbar vertebra	All	LR	90	2	1	A	U	Degenerative MO2
11	Femur	Proximal shaft Central shaft Distal shaft Distal joint	L	75	2	1	A	U	
11	Unidentified	-	U	15	2	3	A	U	
11	Thoracic vertebra	All	LR	80	2	1	A	U	Degenerative MO2 rib facets
11	Tibia	Distal joint	L	20	2	1	A	U	Trauma soft tissue ossified at lateral-posterior aspect where the fibula attaches
11	Fibula	Distal shaft	U	15	2	1	A	U	Trauma soft tissue ossified on medial? aspect
11	Thoracic vertebra	All	LR	85	2	1	A	U	Degenerative P3 MO2 E1 on sup L and both inf facets

11	Cervical vertebra	All	LR	65	2	1	A	U	Degenerative MO1 on sup body and MO2 and E1 on facets
11	Maxillary Tooth	Deciduous Second molar	R	100	2	1	OJ	U	Dental Disease caries Md
13	11th rib	All	L	30	2	1	A	U	
13	Rib	Shaft	R	60	2	1	A	U	
13	Frontal	Coronal Suture	U	30	2	1	A	U	
13	Tarsals	Talus	R	100	2	1	A	U	
					427	773		31	
Context	BoneElement	Bone	Side	%Bone	SP	Frags	Age	Sex	Notes
2	Femur	Proximal shaft	U	20	2	1	A	U	
2	Sternum	All	LR	95	2	1	A	U	
2	Thoracic vertebra	All	LR	70	2	1	A	U	Degenerative Schmorl's nodes sup
2	Lumbar vertebra	Body	R	60	2	1	A	U	Degenerative Schmorl's node inf body
2	Femur	Proximal joint Proximal shaft Central shaft	L	55	2	1	A	U	
2	Femur	Distal shaft	U	35	2	1	YJ	U	
2	Thoracic vertebra	Spinous process	LR	35	2	1	A	U	
2	Sacrum	S1 S2 S3 S4	LR	80	2	1	A	M?	
2	Mandibular Tooth	First premolar	R	100	2	1	A	U	Dental Disease calc Mb,l
2	Clavicle	All	L	100	2	1	A	U	
2	Thoracic vertebra	Spinous process	LR	40	2	1	A	U	
2	Rib	Head	R	50	2	4	A	U	
2	1st rib		L	30	2	1	A	U	
2	Radius	Proximal joint	U	10	2	1	A	U	
2	Thoracic vertebra	All	LR	65	2	1	A	U	
2	Clavicle	Lateral joint	R	15	2	1	A	U	
2	Frontal	All	LR	95	2	1	A	M?	Metabolic cribra orbitalia in both orbits, type 2 porosity Individual a
2	Thoracic	Spinous	L	35	2	1	A	U	

	vertebra	process							
2	Rib	Sternal end	U	20	2	4	A	U	
2	Tarsals	Navicular	R	80	2	1	A	U	Degenerative MO2, Cyst
2	Sphenoid	All	LR	95	2	1	A	M?	Individual a
2	Temporal	All	R	95	2	1	A	F?	Individual b
2	Mandibular Tooth	Second premolar	L	100	2	1	A	U	Dental Disease calc Cb,l,d
2	Scapula	Lateral border	U	35	2	1	A	U	L lateral border
2	Lumbar vertebra	All	LR	100	2	2	A	U	Degenerative complete spondylolysis
2	Mandibular Tooth	Third molar	R	100	2	1	A	U	Wear 2
2	Rib	Head	L	25	2	3	A	U	
2	Hand phalanx	Intermediate	U	100	2	1	A	U	
2	Lumbar vertebra	All	LR	75	2	1	A	U	Degenerative Schmorl's nodes sup
2	Thoracic vertebra	Spinous process	R	30	2	1	A	U	
2	Frontal	All	LR	100	2	1	A	F?	Metabolic cribra orbitalia in both orbits, type 2 porosity Individual b
2	Humerus	All	L	90	2	4	A	U	4 matching fragments
2	Fibula	Distal shaft	U	20	2	1	A	U	
2	Frontal		LR	15	2	1	A	M?	Glabella
2	Pelvis	Auricular surface Illium	R	35	2	1	YJ	U	
2	Femur	Proximal joint Proximal shaft Central shaft	L	55	2	1	A	U	
2	Mandible	Ramus Anterior	LR	40	2	1	A	U	M1-M3; only R side
2	Mandibular Tooth	Third molar	L	100	2	1	A	U	Wear 1, Calculus Sb,l
2	Thoracic vertebra	Spinous process	LR	30	2	1	A	U	
2	Pelvis	Acetabulum Ischium Illium	R	75	2	1	OMA	F	
2	Pelvis	Auricular surface Pubis Illium	L	75	2	2	YMA	F	
2	Thoracic vertebra	Body	LR	40	2	1	A	U	
2	Clavicle	Medial joint	R	15	2	1	A	U	

2	Fibula	Proximal joint	L	25	2	1	A	U	
2	Scapula	Acromion	U	15	3	1	A	U	
2	Temporal	All	L	100	2	1	A	F?	Individual b
2	Thoracic vertebra	All	LR	80	2	1	A	U	
2	2nd rib		R	30	2	1	A	U	
2	Femur	Central shaft	U	20	2	1	A	U	
2	Manubrium	All	LR	90	2	1	A	U	
2	Lumbar vertebra	All	LR	95	2	1	A	U	Degenerative MO2, P2 sup body
2	Parietal	Anterior	R	40	2	0	A	U	
2	Metacarpal	5	L	90	2	1	A	U	
2	Thoracic vertebra	Spinous process	LR	35	2	1	A	U	
2	Mandibular Tooth	Canine	R	100	2	1	A	U	Dental Disease calc Mb,l
2	Radius	Proximal joint Proximal shaft	L	35	2	1	A	U	
2	Rib	Shaft	U	30	2	6	A	U	
2	Thoracic vertebra	Body	LR	45	2	1	A	U	Degenerative Schmorl's nodes sup
2	Rib	Shaft	R	50	2	1	YJ	U	
2	Rib	Head	L	30	2	6	A	U	
2	Unidentified	-	U	10	2	3	A	U	
2	Thoracic vertebra	All	LR	80	2	1	A	U	Degenerative Schmorl's node sup
2	Clavicle	All	R	95	2	2	A	U	
2	Temporal	All	R	100	2	1	A	M?	Individual a
2	Parietal	Anterior	L	25	2	1	A	U	
2	Scapula	Glenoid	U	15	2	1	A	U	
2	Metacarpal	2	R	100	2	1	A	U	
2	Mandibular Tooth	Canine	L	100	2	1	A	U	Dental Disease calc Cb,l
2	Radius	Central shaft Distal shaft	U	45	2	1	A	U	R shaft
2	Lumbar vertebra	All	LR	100	2	1	A	U	Degenerative Schmorl's nodes sup body; partial spondylolysis
2	Mandibular Tooth	Second molar	R	100	2	1	A	U	Wear 4
2	Occipital	All	LR	95	2	1	A	F?	Individual b
2	Scapula	Glenoid Lateral border	L	35	2	1	A	U	
2	Hand phalanx	Proximal	U	100	2	1	A	U	

2	Parietal	Anterior Posterior	LR	35	2	6	A	U	
2	Thoracic vertebra	Spinous process	R	35	2	1	A	U	
2	Parietal	All	LR	100	2	1	A	F?	Individual b
2	Metacarpal	1	L	100	2	1	A	U	
2	Fibula	Proximal shaft Central shaft	U	40	2	1	A	U	
2	Mandible	All	LR	75	2	1	A	F?	Dental Disease AMTL L first prem and all 3 molars; 11 alveoli present
2	Pelvis	Acetabulum Pubis Ischium	R	40	2	3	YA	M	
2	Femur	Proximal joint Proximal shaft Central shaft	L	55	2	2	A	U	Head and neck missing
2	Mandible	Ramus	LR	90	2	2	A	M?	Dental Disease AMTL Left molars 1
2	Pelvis	Pubis	R	30	2	1	OMA	M	
2	Mandibular Tooth	First molar	L	100	2	1	A	U	Wear 5
2	Thoracic vertebra	Spinous process	LR	40	2	1	A	U	
2	Femur	Distal shaft Distal joint	R	50	2	1	A	U	
2	Pelvis	Auricular surface Illium	L	60	2	3	YMA	M	
2	Temporal	All	L	100	2	1	A	M?	Individual a
2	Thoracic vertebra	Body	LR	40	2	1	A	U	Degenerative Schmorl's node sup. body
2	12th rib	All	R	85	2	1	YJ	U	
2	Fibula	Proximal shaft Central shaft	U	45	2	1	A	U	
2	Thoracic vertebra	All	LR	70	2	1	A	U	Degenerative Schmorl's nodes sup
2	Rib	Head	R	30	2	4	A	U	
2	Femur	Central shaft Distal shaft	L	50	2	1	A	U	
2	Clavicle	Lateral shaft	U	20	2	1	A	U	Left
2	Thoracic vertebra	Spinous process	LR	35	2	1	A	U	
2	Pelvis	Ischium	LR	15	2	3	A	U	3 small fragments
2	Mandibular Tooth	Second premolar	R	100	2	1	A	U	Dental Disease calc Mb,l
2	Scapula	Glenoid Lateral border	L	20	2	1	A	U	

2	Thoracic vertebra	Spinous process	LR	35	2	1	A	U	
2	12th rib	All	R	95	2	1	A	U	
2	Humerus	Central shaft Distal shaft Distal joint	L	55	2	1	AD OL	U	
2	Parietal	Anterior	U	25	2	1	A	U	
2	Thoracic vertebra	Body	LR	50	2	1	A	U	
2	Scapula	All	R	75	2	1	A	U	
2	Parietal	All	LR	100	2	1	A	M?	Individual a
2	Thoracic vertebra	Spinous process	L	15	2	1	A	U	
2	Rib	Shaft	U	20	2	6	A	U	
2	Humerus	All	R	100	2	1	A	U	
2	Occipital	All	LR	100	2	1	A	M?	Individual a
2	Sphenoid		L	25	2	1	A	U	L wing
2	Scapula	Blade	U	35	2	3	A	U	
2	Lumbar vertebra	All	LR	95	2	1	A	U	Degenerative Schmorl's node inf body
2	Femur	Distal joint	R	20	2	1	AD OL	U	Unfused condyle
2	12th rib	All	L	95	2	1	A	U	
2	Humerus	Central shaft	U	25	2	1	A	U	
2	Lumbar vertebra	All	LR	90	2	1	A	U	Degenerative Schmorl's nodes sup
2	Frontal	Orbit	R	20	2	1	A	M	
2	Sphenoid	All	LR	90	2	1	A	F?	Individual b
2	Ulna	Proximal joint Proximal shaft Central shaft Distal shaft	L	80	2	1	A	U	
2	Fibula	Central shaft	U	30	2	1	A	U	Infection lamellar and woven bone on the whole medial or lateral shaft
2	Frontal	Orbit	LR	45	2	2	A	F?	Metabolic cribra orbitalia type 2 left orbit type 1 right orbit
2	Lumbar vertebra	All	R	35	2	1	A	U	Degenerative MO2 inf body
2	Fibula	Central shaft Distal shaft Distal joint	L	70	2	1	A	U	
2	Parietal	Anterior Posterior	U	35	2	6	A	U	
2	Mandible	Ramus	LR	25	2	1	A	U	Alveolus for M3, R only
2	Patella	All	L	100	2	1	A	U	

2	Thoracic vertebra		LR	15	2	2	A	U	2 transverse processes
2	Pelvis	Pubis	R	30	2	1	OM A	F	
2	Lumbar vertebra	Spinous process	L	20	2	1	A	U	Degenerative MO2 inf body
2	Thoracic vertebra	Spinous process	LR	40	2	1	A	U	
2	Metacarpal	3	R	90	2	1	A	U	
2	Pelvis	Acetabulum Ischium	L	25	2	1	A	U	
2	Pelvis	Illium	U	30	2	3	A	U	
2	Pelvis	Auricular surface Ischium Illium	L	75	2	1	MA	M	Degenerative MO2 on auricular surface and acetabulum
2	Thoracic vertebra	Body	LR	70	2	1	AD OL	U	
2	11th rib	All	R	85	2	1	A	U	
3	Mandible	Anterior	L	40	3	1	A	U	5 tooth positions, 1 left M1, all others lost PM
3	Scapula	Lateral border	U	2	3	3	A	U	-
3	Parietal	All	L	100	3	1	A	M?	-
3	11th rib	All	L	100	3	1	A	U	Degenerative, osteophytes at head
3	Clavicle	All	L	100	2	1	A	U	Degenerative, porosity at medial joint
3	Scapula	Lateral border	L	20	3	1	A	U	-
3	Zygomatic	All	R	5	2	2	A	U	-
3	Metacarpal	1	R	95	2	1	A	U	-
3	Frontal	All	LR	60	3	2	A	M?	-
3	Atlas	Body	LR	70	3	2	A	U	-
3	Temporal	Mastoid process Zygomtatic process Petrous	L	35	3	2	A	M?	-
3	Rib	Shaft	U	5	3	12	A	U	-
3	Rib	Head	L	100	3	3	A	U	-
3	Radius	Distal shaft Distal joint	L	40	2	1	A	U	-
3	Humerus	Central shaft	L	10	2	1	A	U	-
3	Maxilla	Sinus Nasal	R	95	2	1	A	U	5 TP, 1 x right PM2, 4 x PM tooth

		crest							loss
3	Scapula	Acromion Glenoid	L	25	3	1	A	U	Degenerative osteophytes at glenoid
3	Parietal	All	R	100	3	1	A	M?	-
3	Scapula	Blade	R	15	3	2	A	U	-
3	Occipital	All	LR	100	2	2	A	M?	-
3	Axis	Body	LR	40	3	3	A	U	-
3	Mandibular Tooth	First molar	L	100	3	1	YA	U	-
3	Cranium	Fragments	U	5	3	25	A	M?	generic
3	Parietal	All	L	5	3	2	A	U	-
3	Pelvis	Illium	U	5	2	1	A	U	-
3	1st rib	All	L	100	3	2	A	U	Degenerative, osteophytes at head
3	Radius	Proximal joint	L	30	2	1	A	U	Degenerative, porosity at medial joint
3	Humerus	Proximal joint	L	10	2	1	A	U	-
3	Maxillary Tooth	Second premolar	R	100	3	1	A	U	-
3	Femur	Central shaft	R	5	2	1	A	U	-
3	Mandible	Anterior	LR	85	3	1	OM A	U	14 TP, 14 teeth, 14/14 with calculus, dental wear 6
3	Thoracic vertebra	All	LR	90	2	1	A	U	-
3	Manubrium	All	LR	95	2	1	A	U	-
7	Ulna	Proximal joint Proximal shaft Central shaft Distal shaft	R	85	2	1	A	U	-
7	Radius	Proximal joint Proximal shaft Central shaft	L	50	2	1	A	U	-
7	Lumbar vertebra	All	LR	100	3	1	A	U	Degenerative osteophytes at body
7	Ulna	Proximal joint Proximal shaft	R	35	2	1	A	U	-
7	Fibula	Distal shaft Distal joint	L	35	2	1	A	U	-
7	Lumbar vertebra	All	LR	100	3	1	A	U	-

7	Hand phalanx	Intermediate	U	100	2	1	A	U	-
7	Clavicle	All	R	35	2	1	A	U	DJC at acromial joint
7	Hand phalanx	Proximal	U	100	2	1	A	U	-
7	Hand phalanx	Proximal	U	100	2	1	A	U	-
7	Hand phalanx	Intermediate	U	100	2	1	A	U	-
7	Metacarpal	3	L	100	2	1	A	U	-
7	Hand phalanx	Intermediate	U	100	1	1	YJ	U	-
7	Metacarpal	4	L	100	2	1	A	U	-
7	Metacarpal	2	R	100	1	1	A	U	-
7	Rib	Head	U	40	2	2	UA	U	Degenerative, large osteophytes and porosity at tubercles
7	Metacarpal	5	L	100	2	1	A	U	-
7	Metacarpal	4	R	100	1	1	A	U	-
7	Rib	Shaft	U	2	2	31	UA	U	-
7	Rib	Head	L	100	3	2	A	U	-
7	Radius	Proximal shaft	R	15	2	1	A	U	-
7	Humerus	Distal shaft	L	30	2	1	A	U	-
7	Cranium	Fragments	LR	10	2	6	A	U	-
7	Humerus	Proximal shaft	R	10	3	1	A	U	-
7	Ulna	Distal joint	L	20	2	1	A	U	-
7	Lumbar vertebra	Body	LR	50	2	1	A	U	Schmorl's node
7	Radius	Proximal shaft Central shaft Distal shaft Distal joint	R	85	2	1	A	U	-
7	Ulna	Proximal joint Proximal shaft	L	40	2	1	A	U	-
7	Lumbar vertebra	All	LR	100	3	1	A	U	Degenerative porosity
7	Humerus	Central shaft Distal shaft Distal joint	R	50	2	2	A	U	-

7	Hand phalanx	Intermediate	U	100	2	1	A	U	-
7	Hand phalanx	Proximal	U	100	2	1	A	U	-
7	Hand phalanx	Proximal	U	100	2	1	A	U	-
7	Metacarpal	3	U	50	2	1	A	U	-
7	Metacarpal	2	L	100	2	1	A	U	-
7	Frontal	Orbit	U	2	3	1	A	U	-
7	Metacarpal	4	L	100	2	1	A	U	-
7	Metacarpal	2	R	100	1	1	A	U	-
7	Rib	Head	U	40	2	8	UA	U	-
7	Metacarpal	1	L	30	2	1	A	U	-
7	Metacarpal	5	R	95	1	1	A	U	-
7	Unidentified	-	U	2	2	1	UA	U	-
7	Pelvis	Acetabulum	L	2	2	1	UA	U	-
7	Humerus	Proximal joint	R	5	3	1	A	U	Degenerative porosity at joint
7	Ulna	Proximal joint Proximal shaft Central shaft Distal shaft	L	90	2	1	A	U	-
7	Occipital	All	LR	60	2	2	A	U	Neoplasm, button osteoma
7	Radius	Distal joint	R	5	2	1	A	U	-
7	Ulna	Proximal joint	L	25	2	1	A	U	-
7	Thoracic vertebra	All	LR	100	2	1	A	U	-
7	Ulna	Proximal joint Proximal shaft	R	35	2	1	A	U	-
7	Ulna	All	L	100	2	1	A	U	-
7	Lumbar vertebra	All	LR	100	3	1	A	U	-
7	Humerus	Distal joint	R	35	2	1	A	U	-
7	Hand phalanx	Proximal	U	45	2	1	A	U	-
7	Hand phalanx	Proximal	U	100	2	1	A	U	-
7	Hand phalanx	Proximal	U	100	2	1	A	U	-

7	Carpal	Triquetral	L	100	2	1	A	U	-
7	Metacarpal	5	U	100	1	1	A	U	-
7	Metacarpal	2	L	100	2	1	A	U	-
7	Metacarpal	3	R	100	2	1	A	U	-
7	Rib	Shaft	U	40	2	2	UA	U	Trauma, fracture, well healed
7	Metacarpal	5	L	100	2	1	A	U	-
7	Metacarpal	4	R	100	1	1	A	U	-
7	Rib	Sternal end	U	40	2	16	UA	U	-
7	Mandible	All	L	50	3	1	A	U	AM tooth loss
7	Pelvis	Acetabulum	R	2	2	1	UA	U	-
7	Unidentified	-	U	15	2	1	UA	U	-
7	Ulna	Distal shaft	L	15	2	1	A	U	-
7	Scapula	Glenoid	R	10	2	1	A	U	-
7	Radius	All	L	95	2	1	A	U	-
7	Thoracic vertebra	All	LR	100	2	1	A	U	Degenerative, osteophytes at body
10	Femur	Proximal joint Proximal shaft Central shaft	L	45	2	1	A	U	
10	Frontal		U	20	2	1	A	U	
10	Cervical vertebra	All	LR	90	2	1	A	U	
10	Humerus	Central shaft Distal shaft Distal joint	R	60	2	1	A	U	Degenerative MO 1
10	Mandibular Tooth	First molar	R	100	2	1	A	U	Dental Disease calculus SI
10	Metatarsal	3	L	70	2	1	A	U	
10	Cervical vertebra	All	LR	95	2	1	A	U	Degenerative MO2 and P2 on superior and inferior left facet
10	Radius	Distal shaft Distal joint	R	30	2	1	A	U	
10	Temporal	All	R	95	2	1	A	F?	
10	Manubrium	All	LR	90	2	1	A	U	Ossified cartilage
10	Sphenoid	All	LR	95	2	1	A	M?	Individual c
10	Radius	Proximal joint	R	35	2	1	AD OL	U	

10	Parietal	Posterior	R	30	2	1	A	F?	
10	Humerus	Central shaft	L	40	2	1	A	U	
10	Mandible	All	LR	95	2	2	A	M?	Dental Disease abscess at L M1; 15 alveoli
10	Tibia	Proximal joint Proximal shaft Central shaft	R	75	2	1	AD OL	U	
10	Parietal	Posterior	R	30	2	2	A	F?	
10	Humerus	Proximal shaft Central shaft	L	45	2	1	A	U	
10	Parietal	Anterior Posterior	LR	60	2	5	A	M?	
10	2nd rib	All	R	70	2	1	A	U	
10	Femur	Proximal shaft Central shaft Distal shaft Distal joint	L	75	2	3	AD OL	U	
10	Parietal	All	LR	90	2	3	A	F?	
10	Parietal	All	LR	100	2	1	A	M?	Individual c
10	12th rib	All	R	80	3	1	A	U	
10	11th rib	All	L	50	2	1	A	U	
10	Scapula	Coracoid Acromion Glenoid Lateral border	R	75	2	3	A	M?	
10	Scapula	Lateral border	L	20	2	1	A	U	
10	Sacrum	S1 S2 S3 S4 S5	LR	75	2	1	A	U	Degenerative P1 E1 on R sup. Facet
10	Clavicle	Lateral joint Lateral shaft Central shaft Medial shaft	R	90	2	1	A	U	Degenerative P2 on acromial end
10	Unidentified	-	U	15	2	4	A	U	Femur, tibia shaft fragments
10	Pelvis	Acetabulum Ischium	L	25	2	1	A	U	
10	Patella	All	R	100	2	1	A	U	Degenerative MO1
10	Thoracic vertebra	All	LR	90	2	1	A	U	Degenerative MO3 on body, Schmorl's node on sup. body
10	Pelvis	Acetabulum Pubis Ischium	R	45	2	2	AD OL	U	
10	Scapula	Blade	U	10	2	1	A	U	Blade fragment
10	Occipital	Condyle	L	20	2	1	A	U	
10	Thoracic vertebra	All	LR	85	2	1	A	U	Degenerative MO2 T6

10	Tibia	Central shaft	R	40	2	1	A	U	
10	Mandibular Tooth	Third molar	R	100	2	1	A	U	Dental Disease calculus Slbmd
10	Thoracic vertebra	Spinous process	U	10	2	1	A	U	
10	Occipital	Condyle	L	20	2	1	A	U	Also a small part of R sphenoid fused
10	Thoracic vertebra	All	LR	95	2	1	A	U	Degenerative MO2 T3
10	Tibia	Proximal joint Proximal shaft Central shaft	R	55	2	1	A	U	Degenerative MO1 Infection lamellar bone med
10	Tibia	Proximal joint Proximal shaft Central shaft	L	65	2	1	A	U	Degenerative MO2 E1 Infection lamellar bone med
10	Scapula	Blade	U	20	2	2	A	U	
10	Thoracic vertebra	All	LR	90	2	1	A	U	Degenerative MO2 and P1 on rib facets T1
10	Metatarsal	1	R	95	2	1	A	U	
10	Mandibular Tooth	First premolar	R	100	2	1	A	U	Dental Disease calculus Sl,m
10	Femur	Central shaft Distal shaft Distal joint	L	50	2	2	A	F?	
10	Parietal	Posterior Squamous	U	50	2	2	A	U	
10	Cervical vertebra	All	LR	95	2	1	A	U	
10	Humerus	All	R	100	2	2	A	U	
10	Mandibular Tooth	Second molar	R	100	2	1	A	U	Dental Disease caries buccal small between root and crown; calculus Sm
10	Fibula	Proximal joint Proximal shaft	L	30	2	1	A	U	
10	Sternum		LR	45	2	1	A	U	
10	Axis	All	LR	95	2	1	A	U	Degenerative MO2 and P1 on inferior left facet
10	Radius	Proximal joint Proximal shaft	R	20	2	1	A	U	
10	Temporal	All	R	70	2	1	A	F?	
10	Temporal	Squamous	LR	15	2	1	A	U	A small part or R? Squama
10	Occipital	All	LR	100	2	1	A	M?	Individual c

10	Clavicle	Lateral joint Lateral shaft	R	35	2	1	AD OL	U	
10	Parietal	Anterior	R	30	2	1	A	U	
10	Humerus	Distal shaft Distal joint	L	30	2	1	A	U	
10	Mandible	Anterior	LR	35	2	1	A	F?	4 alveoli, no teeth, no pathology
10	Maxilla	All	LR	95	2	1	A	M?	Dental Disease AMTL 4 left (premolar 2 and all molars) and 3 right teeth (both premolars and M1) Other teeth lost post-mortem Individual c
10	Femur	Proximal shaft Central shaft Distal shaft Distal joint	R	80	2	1	AD OL	U	
10	Metacarpal	3	L	100	2	1	AD OL	U	
10	Occipital	Nuchal crest	LR	60	2	3	A	M?	
10	Zygomatic	All	LR	95	2	1	A	M?	Individual c
10	1st rib		R	40	2	1	A	U	
10	Clavicle	Central shaft Medial shaft Medial joint	L	75	2	1	A	U	
10	Frontal	All	LR	95	2	2	A	F?	Metabolic cribra orbitalia type 1 capillary impr. in both orbits
10	Rib	Head	R	35	2	10	A	U	
10	Rib	Head	L	35	2	8	A	U	
10	Clavicle	Lateral joint	R	20	2	1	A	U	
10	Scapula	Lateral border	L	30	2	1	A	U	
10	Thoracic vertebra	All	LR	95	2	1	A	U	Degenerative MO3 on body, Schmorl's node on inf. body T12
10	Thoracic vertebra		R	25	2	1	A	U	Transverse process
10	Fibula	Central shaft Distal shaft	U	45	2	2	A	U	
10	Mandibular Tooth	Canine	L	100	2	1	A	U	Dental Disease calculus Mlbmd, DEH grooves
10	Thoracic vertebra	All	LR	90	2	1	A	U	Degenerative MO2 on body, Schmorl's node on inf. body
10	Pelvis	Auricular surface Illium	R	80	2	2	OJ	U	
10	Rib	Sternal end	U	20	2	7	A	U	

10	Mandible	Ramus	L	40	2	1	A	U	Dental Disease AMTL molars
10	Thoracic vertebra	All	LR	85	2	1	A	U	Degenerative MO2 T5
10	Tibia	Central shaft Distal shaft	R	55	2	1	A	U	
10	Mandibular Tooth	Third molar	R	100	2	1	A	U	Dental Disease Calculus Sm,l,b,d
10	Tarsals	Talus	L	100	2	1	A	U	
10	Sphenoid		U	10	2	1	A	U	
10	Thoracic vertebra	All	LR	95	2	1	A	U	Degenerative MO1 T2
10	Femur	Central shaft Distal shaft Distal joint	R	60	2	1	A	U	
10	Femur	Proximal shaft	L	30	2	1	A	U	
10	Scapula	Blade	U	20	2	1	A	U	
10	Cervical vertebra	All	LR	90	2	1	A	U	
10	Humerus	Proximal joint	R	15	2	1	A	U	
10	Mandibular Tooth	Second premolar	R	100	2	1	A	U	Dental Disease calculus Ml
10	Femur	Distal shaft Distal joint	L	25	2	1	A	U	Degenerative MO3 E2
10	Cervical vertebra	All	LR	95	2	2	A	U	
10	Ulna	Distal shaft Distal joint	R	40	2	1	A	U	
10	Mandible	Condyle	R	35	2	1	A	U	
10	Manubrium	All	LR	90	2	1	A	U	
10	Atlas	All	LR	95	2	1	A	U	Degenerative MO 1 on dens articulation
10	Radius	Central shaft Distal shaft	R	35	2	1	AD OL	U	
10	Parietal	Anterior	R	30	2	1	A	U	
10	Humerus	Proximal joint	L	15	2	1	A	U	
10	Mandible	All	LR	60	2	1	A	F?	Dental Disease AMTL first incisors
10	Humerus	Proximal shaft Central shaft Distal shaft Distal joint	R	80	2	2	AD OL	U	
10	Parietal	Anterior	R	30	2	1	A	U	
10	Humerus	Proximal joint Proximal shaft Central shaft	L	50	2	1	A	U	

10	Occipital	Nuchal crest	LR	85	2	1	A	F?	
10	2nd rib		R	40	2	1	A	U	
10	Temporal	All	R	95	2	1	A	M?	Individual c
10	Tibia	Distal shaft	L	40	2	1	AD OL	U	
10	Occipital	All	LR	85	2	2	A	F?	
10	Frontal	All	LR	100	2	1	A	M?	Metabolic Cribra orbitalia type 1 capillary impressions in both orbits Individual c
10	1st rib	All	R	100	2	1	A	U	
10	1st rib	All	L	100	2	1	A	U	
10	Sacrum	S1 S2 S3 S4	LR	60	2	1	A	U	
10	Scapula	Coracoid Acromion Glenoid Lateral border	R	75	2	3	A	F?	
10	Scapula	Acromion	L	20	2	1	A	U	
10	Clavicle	Medial shaft	R	20	2	1	A	U	
10	Clavicle	Lateral joint	L	25	2	1	A	U	
10	Thoracic vertebra	All	LR	95	2	1	A	U	Degenerative MO3 on body, Schmorl's node on inf. body
10	Tibia	Distal joint	R	15	2	1	A	U	
10	Pelvis	Acetabulum Ischium	R	25	2	1	A	U	
10	Sacrum	S1	U	15	2	1	AD OL	U	
10	Maxillary Tooth	Canine	L	100	2	1	A	U	Dental Disease caries Sd, calculus Sm, DEH grooves
10	Thoracic vertebra	Body	LR	50	2	1	A	U	Degenerative Schmorl's node on superior body T8
10	Pelvis	Auricular surface Ischium Illium	R	50	2	1	A	F	Age YMA
10	Rib	Shaft	U	25	2	23	A	U	
10	Temporal	All	L	80	2	1	A	F?	
10	Thoracic vertebra	All	LR	95	2	1	A	U	Degenerative MO1 T4
10	Tibia	Proximal shaft	R	30	2	1	A	U	Infection extensive woven and lamellar bone med
10	Mandibular Tooth	Canine	R	100	2	1	A	U	Dental Disease calculus Sl,m; DEH grooves
10	Unidentified	-	U	10	2	2	A	U	

10	Temporal	All	L	95	2	1	A	M?	Individual c
10	Thoracic vertebra	All	LR	75	2	1	A	U	Degenerative MO1 and P1 on rib facets
10	Metatarsal	1	R	95	2	1	A	U	
11	Clavicle	All	R	100	2	1	A	U	
11	1st rib	All	R	95	2	1	A	U	
11	Tibia	Proximal shaft Central shaft Distal shaft	R	60	2	1	YJ	U	
11	Zygomatic	All	L	90	2	1	A	U	
11	Humerus	Proximal joint Proximal shaft	R	45	2	1	A	U	
11	Mandibular Tooth	Deciduous First molar	L	100	2	1	YJ	U	
11	Occipital	Nuchal crest	LR	35	2	1	A	M?	
11	Thoracic vertebra	Spinous process	R	30	2	1	A	U	Degenerative MO3 P1 E1 on inf R facet
11	1st rib	All	L	90	2	2	A	U	
11	Occipital	Nuchal crest	LR	25	2	3	NA	U	
11	Femur	Distal shaft Distal joint	R	25	2	1	A	U	
11	Humerus	Proximal joint Proximal shaft Central shaft	L	65	2	1	A	U	
11	Frontal	Orbit	LR	30	2	4	A	M?	Metabolic cribra orbitalia type 4
11	Tarsals	Talus	L	95	2	1	A	U	
11	Mandible	Ramus Anterior	LR	70	2	1	A	F?	AMTL all teeth; L side incomplete
11	Pelvis	Auricular surface Illium	R	60	2	1	YA	F	
11	Fibula	Distal joint	L	15	2	1	A	U	
11	Rib	Head	U	25	2	2	A	U	
11	Lumbar vertebra	All	LR	95	2	1	A	U	
11	Tibia	Proximal joint	L	20	2	1	A	U	
11	Ulna	Proximal joint	U	15	2	1	A	U	
11	Thoracic vertebra	Body	LR	50	2	1	A	U	Degenerative Schmorl's node on inf body
11	Fibula	Central shaft	U	25	2	1	A	U	
11	Thoracic vertebra	All	LR	85	2	2	A	U	Degenerative P2 MO2 E1 on sup
11	Mandibular Tooth	Deciduous Second molar	R	100	2	1	YJ	U	Erupting
11	Cervical vertebra	All	LR	95	2	1	A	U	Degenerative MO2, P2 on sup body and MO2 and E on facets

11	Maxillary Tooth	First molar	R	100	2	1	OJ	U	Dental Disease DEH grooves
11	Scapula	Coracoid Acromion Glenoid Lateral border	R	70	2	2	A	U	
11	Rib	Head	R	35	2	3	A	U	
11	Parietal	Anterior	L	25	2	3	NA	U	
11	Ulna	All	R	95	2	1	A	U	
11	Temporal	All	L	70	2	1	A	U	
11	Parietal	Posterior	LR	30	2	1	A	U	
11	Humerus	Proximal joint Proximal shaft Central shaft Distal shaft	R	85	2	1	A	U	
11	Clavicle	Lateral joint Lateral shaft	L	30	2	1	A	U	
11	Parietal	All	LR	50	2	21	A	U	
11	Metatarsal	3	R	100	2	1	A	U	
11	Femur	Proximal shaft	L	30	2	1	YJ	U	
11	Frontal	All	LR	25	2	3	NA	U	Metabolic cribra orbitalia type 2 R orbit
11	Tibia	Central shaft Distal shaft Distal joint	R	50	2	1	A	U	
11	Humerus	Central shaft Distal shaft Distal joint	L	65	2	1	A	U	
11	Sphenoid	All	LR	50	2	3	A	U	
11	Tarsals	Calcaneus	L	95	2	1	A	U	
11	Temporal	Petrous	U	30	2	1	A	U	
11	Sternum	Distal	LR	20	2	1	AD OL	U	Xiphoid
11	Fibula	Central shaft Distal shaft	L	50	2	1	A	U	
11	Rib	Shaft	U	20	2	13	A	U	
11	Lumbar vertebra	All	LR	90	2	1	A	U	
11	Tibia	Distal shaft Distal joint	L	25	2	1	A	U	
11	Humerus	Distal joint	U	15	2	1	A	U	
11	Thoracic vertebra	Spinous process	LR	30	2	1	A	U	Degenerative MO2 E1 on sup R and L inf facets
11	Cervical	Body	LR	35	2	1	A	U	

	vertebra								
11	Mandible	All	R	45	2	1	YJ	U	m1 erupted m2 erupting
11	Cervical vertebra	All	LR	95	2	1	A	U	Degenerative MO2
11	Maxilla	All	R	50	2	1	OJ	U	M1 and incisors erupted; Dental Disease DEH grooves on M1; premolars and M 2 in situ
11	Scapula	All	R	85	2	4	A	U	
11	Radius	Distal shaft Distal joint	R	60	2	1	YJ	U	
11	Frontal	Orbit	L	25	2	1	A	M?	Metabolic cribra orbitalia type 3
11	Radius	All	R	100	2	1	A	U	
11	Temporal	All	L	95	2	1	A	F?	
11	Occipital	All	LR	25	2	2	A	U	
11	Humerus	Proximal joint Proximal shaft Central shaft Distal shaft	R	85	2	1	A	U	
11	Clavicle	All	L	90	2	1	A	U	Trauma healed fracture at acromial end; a deep impression and cyst at the sternal end, extending into the joint surface: related to the same traumatic event?
11	Frontal	All	LR	30	2	7	A	U	
11	Femur	Proximal shaft Central shaft Distal shaft Distal joint	R	85	2	4	A	U	
11	Humerus	Proximal joint Proximal shaft Central shaft Distal shaft	L	85	2	1	A	U	
11	Frontal	Orbit	LR	25	2	2	A	F?	Metabolic cribra orbitalia type 3; a bony spicule in the R orbit
11	Tarsals	Cuboid	L	95	2	1	A	U	
11	Mandible	Anterior	LR	35	2	1	A	M?	AMTL L molars 1
11	Tibia	Distal joint	R	20	2	1	A	U	
11	Tarsals	Calcaneus	L	95	2	1	A	U	
11	11th rib	All	U	75	2	1	A	U	
11	Lumbar vertebra	All	LR	90	2	1	A	U	Degenerative MO2
11	Femur	Proximal shaft Central shaft	L	75	2	1	A	U	

		Distal shaft Distal joint							
11	Unidentified	-	U	15	2	3	A	U	
11	Thoracic vertebra	All	LR	80	2	1	A	U	Degenerative MO2 rib facets
11	Tibia	Distal joint	L	20	2	1	A	U	Trauma soft tissue ossified at lateral-posterior aspect where the fibula attaches
11	Fibula	Distal shaft	U	15	2	1	A	U	Trauma soft tissue ossified on medial? aspect
11	Thoracic vertebra	All	LR	85	2	1	A	U	Degenerative P3 MO2 E1 on sup L and both inf facets
11	Cervical vertebra	All	LR	65	2	1	A	U	Degenerative MO1 on sup body and MO2 and E1 on facets
11	Maxillary Tooth	Deciduous Second molar	R	100	2	1	OJ	U	Dental Disease caries Md
13	11th rib	All	L	30	2	1	A	U	
13	Rib	Shaft	R	60	2	1	A	U	
13	Frontal	Coronal Suture	U	30	2	1	A	U	
13	Tarsals	Talus	R	100	2	1	A	U	

Key

SP = Surface preservation: grades 0 (excellent), 1 (very good), 2 (good), 3 (moderate), 4 (poor), 5 (very poor), 5+ (extremely poor) after McKinley (2004); C = Completeness; F = Fragmentation: min (minimal), sli (slight), mod (moderate), sev (severe), ext (extreme)

Present - Tooth presence; am - ante-mortem tooth loss; pm - post-mortem tooth loss; p - tooth present; p (u) – tooth present but unerupted; e – erupting; - - jaw not present

Caries - Calculus; F - flecks of calculus; S - slight calculus; M - moderate calculus; H - heavy calculus; a - all surfaces; b - buccal surface; d - distal surface; m - mesial surface; l - lingual surface; o - occlusal surface

DEH - dental enamel *hypoplasia*; l - lines; g - grooves; p - pits

Caries - caries; s - small lesions; m - moderate lesions; l - large lesions

Wear - dental wear; numbers from 1-8 - slight to severe wear

Appendix 6 C. Cumberpatch: Medieval and Later Pottery Report

Medieval and later pottery from Claremount Terrace, York (CTY19)

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Introduction

A small assemblage of pottery from Claremont Terrace, York was examined by the author in September 2019. It consisted of twelve sherds of pottery from three contexts and the data from these are summarised in Table 1. The medieval and later wares were accompanied by a small group of Roman sherds which are the subject of a separate report.

The pottery

With the exception of a single sherd of Unglazed Red Earthenware (probably part of a flowerpot), all the pottery was of medieval to early post-medieval date and included a range of types common in York between the mid 12th and 15th centuries. The majority of sherds came from Context (2), a group which included the earliest and latest in the range. This was entirely consistent with the information supplied concerning the site in which it's highly disturbed nature was highlighted.

The details of the named types of sherds (York Glazed ware and Humberware; Contexts (2) and (10)) have been summarised elsewhere (Mainman and Jenner 2013).

Three sherds which could not be positively identified to a known type were classified as Oxidised Sandy ware (Contexts (2), (7) and (10)) and were assigned date ranges on the basis of their individual characteristics. The same was true of a slightly later sherd (Late Medieval Sandy ware), also from Context (2).

Summary

The pottery assemblage is typical of what might be expected from disturbed contexts within the city of York and reflects its later medieval history.

Bibliography

Mainman, A. and Jenner, A., 2013, Medieval pottery from York (Archaeology of York: The Pottery 16/9), Council for British Archaeology/York Archaeological Trust.

Context	Type	No	Wt	ENV	Part	Form	Decoration	Date range	Notes
2	Humberware	1	45	1	Rim/spout	Jug	Green glaze exterior	LC13th – C15th	Pulled spout with contact scar on top of rim
2	Humberware	2	13	2	BS	Hollow ware	Green glaze exterior	LC13th – C15th	Fine reduced sandy fabric
2	Humberware	1	7	1	BS	Hollow ware	Applied strip & green glaze exterior	LC13th – C15th	Fine reduced fabric
2	Humberware	1	9	1	BS	Hollow ware	Green glaze & triple incised wavy line exterior	LC13th – C15th	Hard, fine, pale grey reduced fabric
2	Late Medieval Sandy ware	1	3	1	BS	Hollow ware	Green glaze interior & exterior	C15th – C16th	Soft, orange, sandy fabric
2	Oxidised Sandy ware	1	10	1	BS	Hollow ware	Thin, patchy clear glaze exterior	LC12th – C14th	Hard, orange, sandy fabric with abundant fine quartz up to 0.3mm, rarely larger
2	Unglazed Red Earthenware	1	9	1	BS	Hollow ware	White slip band exterior	C19th?	Possible flowerpot
2	York Glazed ware	1	10	1	BS	Hollow ware	Bright green glaze exterior	c.1150 – c.1250	A fine, pale grey sandy-textured fabric
7	Oxidised Sandy ware	1	5	1	BS	Hollow ware	Thin clear glaze exterior	LC12th – C14th	Fine orange fabric with moderate quartz & rock fragments up to 0.5mm
10	Humberware	1	4	1	BS	Hollow ware	Green glaze exterior	LC13th – C15th	Reduced throughout; fresh break
10	Oxidised Sandy ware	1	2	1	BS	Hollow ware	U/Dec	Late Medieval	Hard, fine, red fabric

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