

ETD07/004



## EDINBURGH TRAMS

*A Data Structure Report for Watching Briefs on Utility Diversions  
for the Edinburgh Trams Project 2008–2010*

*for TIE*

*May 2013*



**HEADLAND**  
ARCHAEOLOGY Ltd





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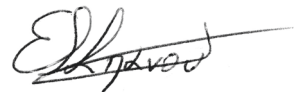
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**Illus 1**

*Site location*



# EDINBURGH TRAMS

## A Data Structure Report for Watching Briefs on Utility Diversions for the Edinburgh Trams Project 2008–2010

Headland Archaeology were commissioned to undertake archaeological monitoring associated with the service diversions for the Edinburgh Trams Project in Leith and any discoveries associated with the general callout in place over the entire length of the tram route. The excavations for the service diversions comprised linear trenches and test pits in Leith, London Road, Princes Street and Haymarket. This report covers the work undertaken between November 2008 and October 2009 for Carillion plc; call-outs were also carried out for work done by Turriff, Sky Blue and Clancy Docwra in late 2009 and early 2010.

The trenches monitored in Leith revealed the remains of 16th and 17th century surfaces and midden deposits dating to the post-medieval development of the burgh. A number of later walls dating to the Victorian period were also identified, as well as evidence for the earlier tram network in this part of town. Test pits outside South Leith Parish Church confirmed the presence of burials extending eastwards across Constitution Street.

Eight adult and two infant burials were discovered and excavated at the junction of London Road and Elm Row, including a double inhumation. A wall running north-south was found and thought to define the extent of this previously unknown graveyard. It is thought that graveyard may relate to the Greenside Leper Hospital established in the area in 1591 on the site of the earlier Carmelite Friary. Pottery from the graveyard soil surrounding the burials has been dated to the 15th–17th centuries.

Excavations near the Royal Scottish Academy on Princes Street revealed a series of brick-built vaulted structures with rubble walls, connected by a passageway running parallel to the street. Finds from the interior of the structures date them to the 19th century. Two concrete built underground chambers discovered at Haymarket and West Maitland Street appear to relate to the earlier tram network and may have been used as service tunnels.

## 1. INTRODUCTION

This report presents the results for the archaeological monitoring associated with the service diversions for the Edinburgh Trams Project in Leith and any discoveries associated with the general call-out in place over the entire length of the tram route (*Illus 1*). Headland Archaeology was commissioned by Carillion plc to undertake the work, which took place between November 2008 and October 2009; call-outs were also carried out for work done by Turriff, Sky Blue and Clancy Docwra in late 2009 and early 2010. An environmental statement prepared by Parsons Brinckerhoff Ltd and Halcrow Group on behalf of Transport Initiatives Edinburgh (TIE) identified a series of archaeological mitigation proposals. The mitigation followed a brief prepared by Parsons Brinckerhoff, Halcrow Group and City of Edinburgh Council Archaeology Service (CECAS – advisors to the City of Edinburgh Council as planning authority).

## 2. ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

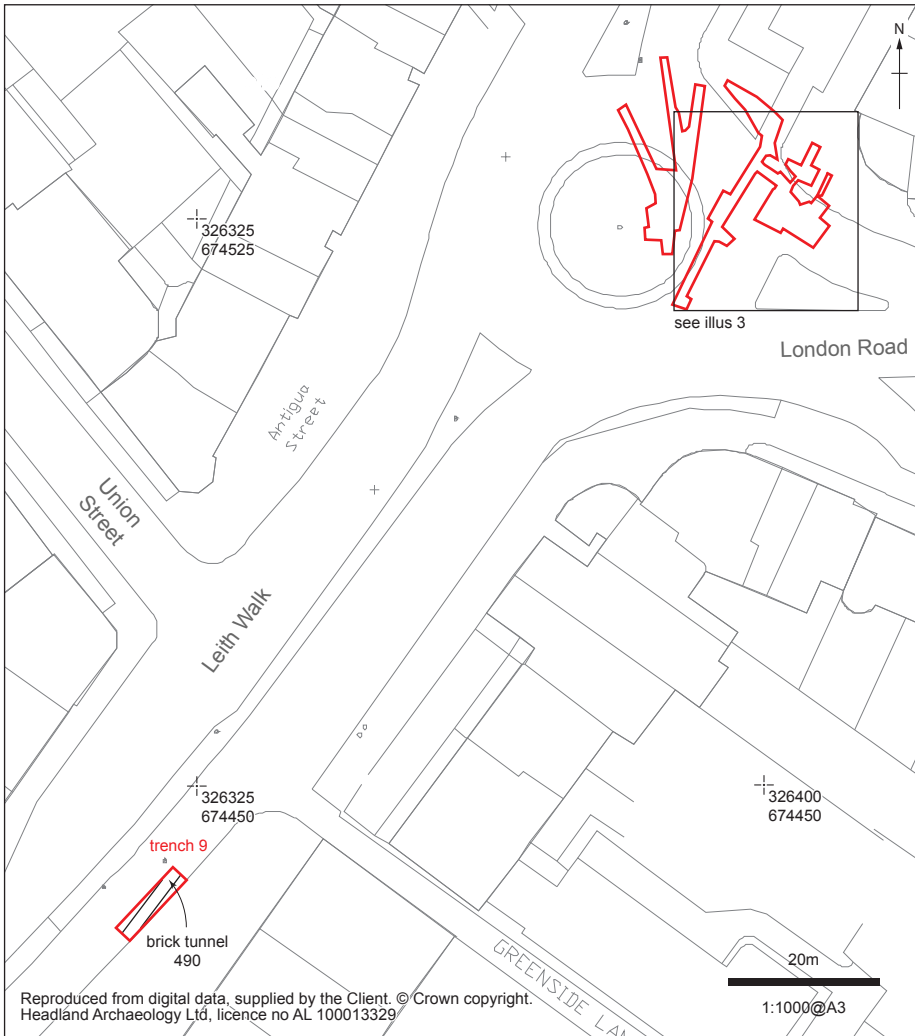
The route monitored by the watching brief runs from the medieval burgh of Leith through the 18th century New Town and World Heritage

Site to Haymarket. The medieval burgh of Leith was established around the 12th century by David I and by the 13th century had developed into Scotland's main port, serving the separate burgh of Edinburgh. By the 16th century Leith dominated the trade of central Scotland and became key to the control of southern Scotland. The 16th century burgh was twice destroyed, twice fortified and once besieged.

The route of the tram line where utility diversions were taking place was along Leith Walk, northwards along the late eighteenth-century Constitution St, on the eastern edge of the 16th burgh of Leith, and along Tower St on to an area of reclaimed ground now occupied by docks and modern developments.

Edinburgh and Leith were originally quite separate burghs, with open ground in between. Leith Walk is known to lie along the line of a defensive embankment at the time of Cromwell (mid-17th century). The buildings along the Walk mostly date to the 19th century with Pilrig St, about half way down, representing the boundary between Edinburgh and Leith. London Rd was built in the late 18th or early 19th century and is first shown on Kirkwood's map of 1817 as a lane.

Princes St dates to the late 18th century and the establishment of the planned New Town of Edinburgh. The Nor' Loch was drained to

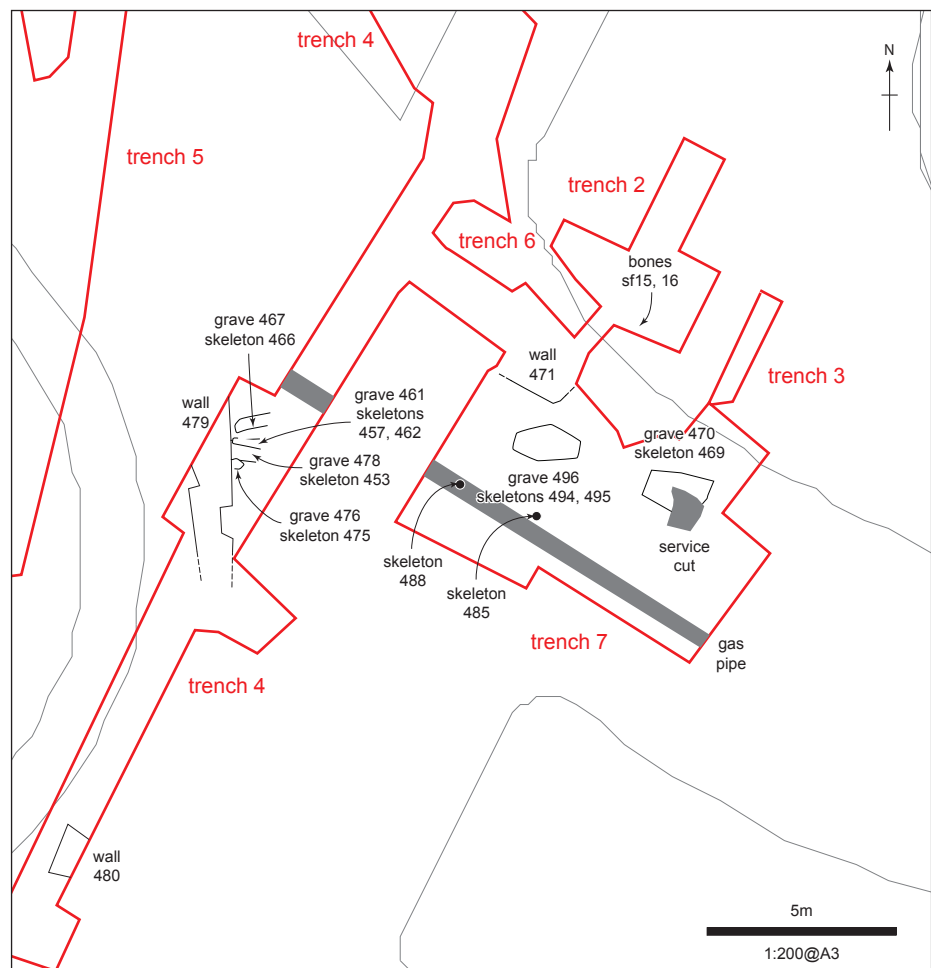


◀ **Illus 2**

*Location of trenches at London Rd*

2

**Illus 3** ▶  
*Detail of graves and features at London Rd*



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make Princes St Gardens and wealthy residents began moving from the cramped Old Town into the broad streets of the New. Little is known of what preceded the New Town; the area is thought to have consisted of gardens and open fields prior to its development.

The Haymarket area was part of the large Dalry Estate, part of the Barony of Inverleith. From the medieval period to the 17th century the estate remained rural in character until Sir Alexander Brand purchased it in the early 18th century. The estate was divided into smaller holdings, which were purchased by wealthy Edinburgh residents in order to construct not only new homes but small industrial enterprises as well. The construction of the Union Canal in 1817–1822 and the railway lines in the 1840s led to a spread of industry and housing in the area from the new transport links. From 1860 to 1900 the construction of the terraced housing that characterises the present day Haymarket took place.

### 3. OBJECTIVES AND METHODS

In line with national planning and historic environment policy it was proposed that where possible any archaeological remains were preserved in situ. Where this was not possible the main objective of the archaeological works was to record any archaeological remains threatened by the proposed development.

The brief for the archaeological works set out three different levels of response, tailored to meet the differing levels of archaeological potential in the areas affected by the utilities diversions. These were set out as follows:

- **Level 1** Reactive Watching Brief – monitoring of groundworks;
- **Level 2** Proactive Watching Brief with Time Access Contingency;
- **Level 3** Programme of Archaeological Works.

The work undertaken on Constitution St to the north of Bernard St and Ocean Drive was undertaken as a Level 2 Response as set out in the brief. Archaeological staff were present on site during groundbreaking works, which comprised linear machine cut trenches to locate and divert live services. The ratio of monitoring archaeologists to machines/work gangs/areas was 1:1. The strategy and results were reviewed in consultation with the CECAS Archaeologist. Where archaeological features/deposits were uncovered appropriate records were made. There was a time contingency for access to record archaeological or historical features built into the construction programme. The work on Constitution St to the south of Queen Charlotte St was undertaken as a Level 3 Response; this was mostly covered by the excavation of the Constitution St burials, reported on separately; a small number of separate trenches are reported on here.

In addition to the specific areas of Leith covered by the watching brief, a general callout facility was employed to investigate any unexpected finds made over the entire length of the tram route. This included sites at London Rd, Princes St and Haymarket.

Recording followed Headland Archaeology standard methods. Colour slide/print and black and white print film was used; plans

of structures where recorded at 1:50 and 1:20, sections and profiles at 1:10 and 1:20 and pro-forma record sheets were used. A distance laser measuring device (Disto) and digital photography was used for metric surveys of structures and confined spaces. The skeletons at London Rd were recorded with a combination of hand drawn plans and rectified digital photography.

### 4. LONDON RD – GENERAL CALL-OUT

Archaeologists were called out to the works being undertaken at the junction of Leith Walk and London Rd (*Illus 2*) when Carillion staff identified human remains in one of the trenches. The cranial remains in Tr1 were recorded but not excavated at this stage. Subsequent trenches in this area were monitored and a number of burials were found in Trenches 4 and 7 on the corner of Elm Row and London Rd (*Illus 3*).

The natural bedrock was overlain by an orange brown fine sand layer [483], visible most clearly in Tr5, to the west of the burials. In Tr4 a stone-built wall [479] running north to south had been built on top of this material, which is interpreted as an undisturbed 'B' horizon. To the east of the wall the burials had been cut into this material, which had developed into a graveyard soil [456/464].

#### 4.1 Trench 4

Wall [479] was made up of stones bonded with lime mortar and was 1.14m wide and of a single course 0.25m high. It appeared to delimit the extent of the graveyard as the burials in Tr4 were aligned perpendicular to it (*Illus 4*) and no further burials were found on the other side of it. The skeletons in Tr4 had been partly truncated below the upper legs during the initial excavation of the trench. On identification of at least three burials within the trench, the excavation was extended to the west in order to fully reveal the disturbed skeletons.

The northernmost skeleton [458/466] was laid with its head facing to the north and its arms by its sides. The scapula appeared to have been slightly disturbed. The femurs were recorded in section and the upper parts excavated, but the lower legs had been removed by machine. The cut for the grave was not clear as the fill of the grave was indistinguishable from the surrounding graveyard soil [456]. An estimation of the line of the cut for this and the other graves was surveyed in order to indicate the location of the skeleton (*Illus 3*). To the south of this was skeleton [453]; this skeleton was also laid with the head turned to the north and arms at the sides. The lower spine had been disturbed during the excavation of the western part of the trench and the pelvis was not recovered. Part of the left femur and tibia fragments were recorded and removed during the initial excavation of the trench. To the south of this skeleton was an infant inhumation [475], which was in very poor condition and appeared to have been disturbed as many of the ribs were misplaced. The remaining bones comprised skull fragments and ribs only.

Higher up in the graveyard soil was skeleton [457], which lay around 0.25m above skeletons [453] and [458/466]. The skeleton was laid flat with the head tilted slightly backwards and the arms at the sides (*Illus 5*). The pelvis, fingers and parts of the upper legs were recorded and removed during the initial excavation of the trench; however



### Illus 4

Skeleton [453] and wall [[479], with grave cut for skeleton [458/467] to north



### Illus 5

Skeleton [457] in Tr4, with skull of child [462]



### Illus 6

Skeleton [469], Tr7, under excavation



most of the rest of the legs had already been removed by machine. The skeleton had a shroud pin (SF 22) located towards its right shoulder. Fragments of a child skull and ribs [462] were found in the chest area of the burial.

Directly overlaying skeleton [457] was demolition deposit [455], comprising silt mixed with lime mortar fragments. This deposit appears to be the result of the demolition of wall [479] and perhaps marks the end of the use of the graveyard. Made ground [481] up to 0.65m in depth and comprising mid brown sandy loam with brick, stone and charcoal inclusions overlay the demolition deposit. The construction cut for a wall [459] was visible in this material. The wall [459] ran on a similar alignment to [479] and comprised a single course of large unshaped stones partly bonded with lime mortar. A possible continuation of this wall [480], comprising a single course of stones, was seen further south in Tr4 (*Illus 3*). The later walls were sealed by a further make-up deposit of mixed brown sandy silt and rubble fragments, which lay directly beneath the modern road surfaces.

## 4.2 Trench 7

The earliest deposit exposed in Tr7 was the graveyard soil [464]. This comprised firm mid brown sandy silt with occasional charcoal, stone, mortar and bone fragments. Cut into this material was the construction cut for a wall [471]. The wall was made up of a single course of three large boulders set in a rough L-shape forming a corner. The depth of the structure suggests it may be a return of wall [479] as seen in Tr4 or associated with its demolition.

There were two near complete burials in Tr7 and two partial/disturbed burials. Skeleton [469] was located to the south-east of wall [471] and was on the same alignment as those in Tr4 (*Illus 6*). The head was turned to face south and the arms were crossed over the chest. A shroud pin was found with the burial. As with the skeletons in Tr4 there was little difference between the grave fill and the surrounding graveyard soil and the line of the grave cut shown on plan is therefore an estimate based on the position of the skeleton.

To the east of [469] was a double inhumation (*Illus 7*). This burial was revealed on the excavation of an extension to Tr7 undertaken in order to fully expose the cranial remains initially discovered by Carillion staff in Tr1. The southern skeleton [494] was truncated below

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the sternum by the cut for a service pipe and the skull had been partly displaced. The right arm was bent with the hand placed on the neck and the left arm was laid at the side. Some of the foot bones were located but toes bones were absent. The skeleton to the north [495] was facing south towards skeleton [494] and the left arm lay over [494]. A fragment of shell (SF 23) was found in the right hand along with a possible iron object (SF 23).

The remaining skeletal remains in the trench were only partial. Skeleton [485] had been heavily truncated by a gas pipe to the south (*Illus 3*) and only the lower legs remained; these were in very poor condition. Skeleton [488] comprised a right arm and pelvis, upper right femur fragment and lower vertebrae (*Illus 3*). The skeleton had been truncated from above by the later gas pipe.

The burials were all sealed by a demolition layer [463], the same as [455] in Tr4. This was overlain by make up material [454] and the modern road surfaces.

### 4.3 Trenches 8 & 9

To the south of the burial ground along Leith Walk two later structures were observed by archaeologists. A stone culvert [497], approximately 1m in width and 0.85m in height was recorded in a trench outside the Royal Bank of Scotland at Blenheim Place (*Illus 2*). The culvert had been cut into mixed dark brown silty sand and appeared to have once housed an iron pipe, so is assumed to be quite late.

Further south, on the eastern side of Leith Walk, a brick-built tunnel was found 0.8m below the present road surface (*Illus 2*). The tunnel was 1m wide and c3m deep with a brick base (*Illus 8*). The tunnel had been filled with gravel and rubble and capped with corrugated iron. A concrete-filled arch and possible electrical fittings were present on the eastern side of the structure and a small rectangular alcove 0.5m wide was present on the west side 1.5m from the base. Iron girders, possibly representing tram rails, sat above the corrugated iron.

## 5. LEITH – LEVEL 2 & 3 WATCHING BRIEFS

### 5.1 Constitution St Level 2 watching brief

Laura Scott

Excavation outside the Police Station and 44 Constitution St (*Illus 10*) revealed layers of wind-blown sand and 17th century midden deposits,



**Illus 7**  
Double inhumation  
[494] and [495]



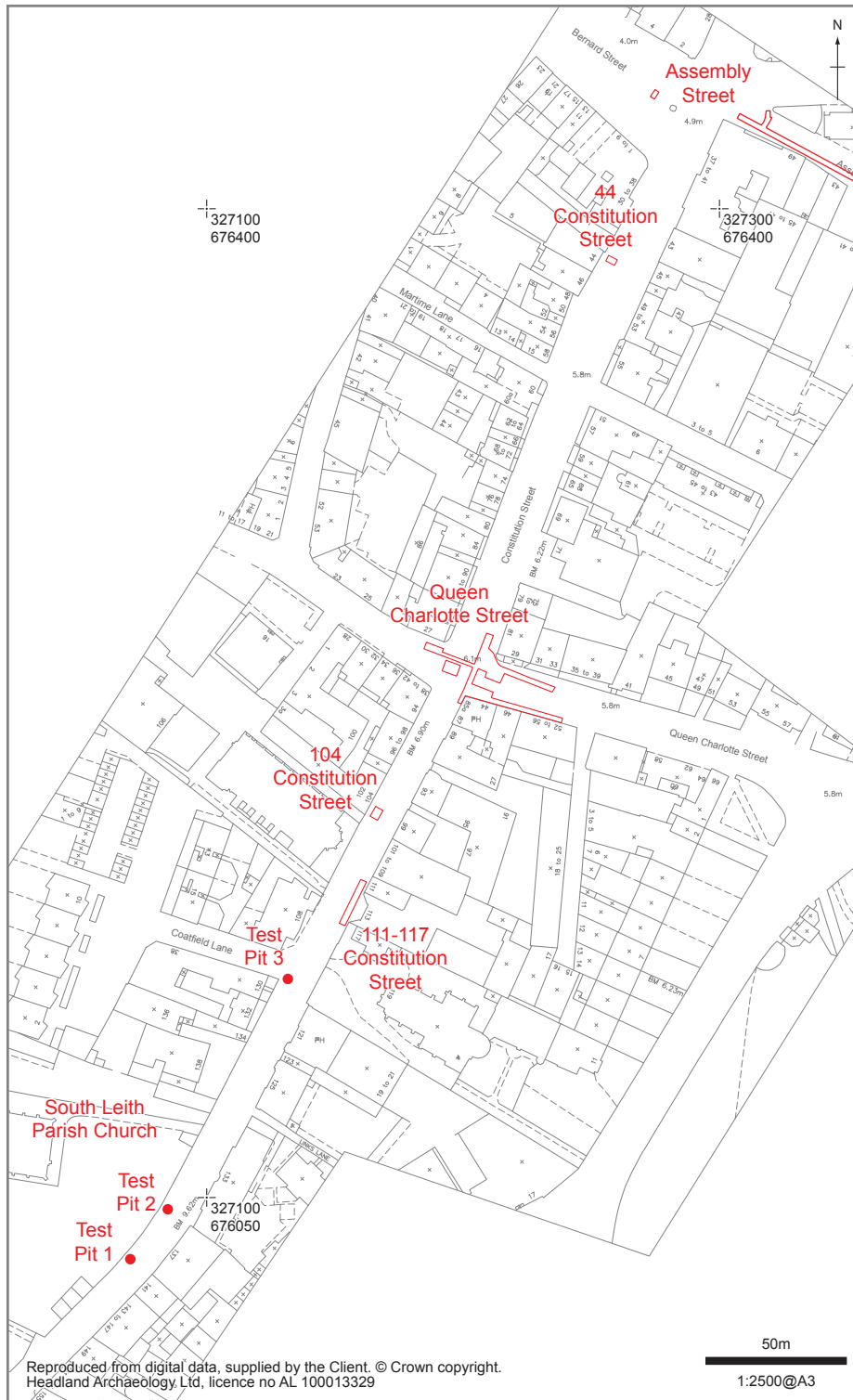
**Illus 8**  
Brick tunnel [490],  
Tr9 Leith Walk

similar to the results from earlier watching briefs in this area (Humble & Murray 2008). A stone-built culvert [520] was cut through the midden deposits and is thought to be of 19th century date.

Two trenches were excavated along Constitution St by Sky Blue in order to remove and rebuild the sewers (*Illus 9*). One was located outside 80 Constitution St, opposite St John's House, and the other was located outside 104 Constitution St. Although the trenches were heavily disturbed by service pipes, remains of a well constructed, faced, stone wall were encountered in the trench fronting 80 Constitution St, 2.15m below the present road surface and 0.4m to the east of a sewage channel (*Illus 10*).

The wall ran north to south, with 5m of its length visible in the trench. It was 0.3m wide and was covered with re-deposited yellow sand. It was exposed to a depth of 0.8m, where the water table was encountered.

A surface, 1.3m long, consisting of a single layer of unfrogged red bricks, was located between the wall and the sewer (*Illus 11*). It is



### Illus 9

Location of trenches in Leith

possible that the floor surface related to the construction of the sewer, and provided a 'platform' for the men to work from.

A wall [531], of similar construction and alignment as that above, was uncovered in the trench outside 104 Constitution St, 1.36m below the current ground surface. It was exposed to a depth of 1.2m and was located 0.4m to the east of the sewer. The wall was cut through a sand deposit, interleaved with organic material, and was sealed with

a greyish brown sandy loam make up deposit [534]. Above this the remains of tram lines were seen in the east facing section sealed with concrete. At the base of the trench sealed beneath wind blown sand was a possible occupation deposit [536] containing animal bone and oyster shell, 1.5m below the present ground surface.

A small cannon ball was discovered by workmen in the base of a trench fronting 111–115 Constitution St. The cannon ball was not seen

## Headland Archaeology

in situ, but according to their description of the findspot, appeared to be from a disturbed, mixed sandy loam deposit.

A trench running east to west across Queen Charlotte St was extended in width and length. Remains of a possible ditch [538] were encountered at the western end of the trench fronting 27 Queen Charlotte St, at a depth of 1.2m. It was only partially visible in the section, as the formation level rose from 1.6m to 0.8m beneath the current ground surface in this area.

### 5.2 Constitution St Level 3 watching brief

Ross Murray

A series of test pits were excavated by Sky Blue in order to remove and replace manholes on Constitution St (Illus 9). Six test pits were excavated on either side of three existing manholes in order to provide the site engineer with deposit depths. All test pits were excavated to a depth of 1.2m below the present road surface.

Four of the test pits had been excavated by the time Headland Archaeology was contacted and the site was inspected by archaeologists. They were all in a Level 3 response area where 'groundworks will be controlled archaeologically, with detailed contingencies for unhindered access to record archaeological features as they are uncovered'. This only occurred in the case of the final two test pits.

Two pairs of test pits were excavated next to the graveyard of South Leith Parish Church. The southernmost test pits contained disarticulated human bone and a probable grave cut. A clean sandy deposit was encountered at a depth of 1m. This deposit was encountered in a previous evaluation (Murray 2008) and was known to contain undisturbed graves.

Disarticulated human bone was recovered from the second pair of test pits. The clean sandy deposit was also encountered at a depth of 1m.

The third pair of test pits was a short distance to the north of the known limits of the graveyard. These were archaeologically monitored. No human bone was recovered. A dirty sandy deposit was encountered at a depth of c1m.

### 5.3 Assembly St

Mikael Simonsson

A water pipe connection trench approximately 18m long and c1.1m deep was opened on Assembly St and ran east to west along the street (Illus 9).



**Illus 10**  
Stone wall at 80  
Constitution St



**Illus 11**  
Brick surface at 80  
Constitution St



**Illus 12**  
Wall [1472] on  
Assembly Str



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**Illus 13**  
 Location of trenches on Princes St





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A rubble stone wall [1472], 0.5m wide, 0.5m high and 0.8–1m below the present ground surface was visible in the south section and partly within the trench (*Illus 12*). The wall was up to three courses high and was bonded with yellow and orange mortar, with what appears to have been a sloping capstone at the top. Remains of a similar wall [1473] were visible in the western part of the north section running parallel to [1472], with a gap of 0.7m between the two walls. Both walls were heavily truncated by a 19th century sewer pipe trench located in the gap in between them. The south side of [1472] had also been partly removed by a gas main. In the east part of the trench both walls had been completely removed by a modern water pipe and concrete foundation.

No finds or other dating evidence was collected and the function and date for the walls is unclear. However, given the overall appearance of the walls, it is most likely a shallow and narrow open culvert which pre-dates the 19th century, potentially related to the older defences. There is no corresponding structure on the historic mapping, but the 19th century sewage pipe might relate to the urinal shown on the 1895 Ordnance Survey Town Plan of Edinburgh.

A small assemblage of animal bones were noted and recorded from a sandy 19th century backfill in the trench north of the Burns Monument at the junction of Constitution St, Baltic St, Assembly St and Bernard St.

## 6. PRINCES ST – GENERAL CALL-OUT

### 6.1 100 Princes St

*Laura Scott & Mikael Simonsson*

A trench measuring 6 x 7.5m was opened and excavated c15m east of the National Portrait Gallery (*Illus 13*) in order to re-route a water main. During the excavations three brick-built and vaulted structures aligned north-south [1476, 1477 & 1478] with associated rubble-built walls [1475, 1479 & 1480] were uncovered (*Illus 14*). All the structures were in good condition at the time of recording. Due to health and safety concerns, only one of the structures was recorded from the inside via a small slot opened in the roof of structure [1476]; this enabled a metric laser (Disto) measured survey to be undertaken.

At the time of the Disto survey the floor of [1476] was covered by black clayey silt [1487], probed to a depth of 1.1m. This fill was later extracted through a manhole using an industrial vacuum. When removed, the soil was dumped, sampled, metal-detected and examined for any dating evidence. Two fragments of white ceramic and a golf ball, probably dating to the 1800s, were recovered from the fill. Two soil samples were also taken directly from the floor of the chamber with the aim of recovering any other dating evidence and to establish whether the chamber was infilled in more than one episode. The chamber was again recorded and photographed



**Illus 14**  
External view of  
chambers



**Illus 15**  
Eastern elevation of structure  
[1476/505] showing blocked doorway

following the removal of the spoil; the description of the chambers that follows is based on the two episodes of recording undertaken.

Structure [1476] measured 2.6m by 2.4m and was 2.8m in height. The eastern and western elevations [505, 506 respectively] were constructed of randomly coursed stone at the base, with some brick fragments. The uppermost courses and the vaulted ceiling were constructed from light red well-fired bricks, arranged on edge and on end, in a Flemish pattern. The bricks were bonded with hard, whitish yellow mortar and the walls were finished with a thin layer of white lime mortar.

The north part of the structure comprised rubble built wall [1479/507] and the south end rubble built wall [1475/504]. Both the



**Illus 16**  
*View of chamber [1477] showing floor deposit, brick vaulting and rubble built northern wall*



**Illus 17**  
*Concrete chamber at West Maitland St*

northern and southern elevations were constructed from randomly coursed stone bonded with a hard yellowish white mortar. Both walls were 0.9m wide and stood proud externally above the brick built structures. Rubble and brick bonding material [1481] and [1486] was found filling the gaps between the structures, probably for support.

Three blocked-up doorways were located on the east, west and south walls (*Illus 15*). The doorways on the east and west walls were completely blocked with large rubble blocks and compacted soil. The doorway on the south side led to two smaller passageways leading east and west. The western passage was linked to structure [1477] and the eastern led to another structure further east of the trench. The southern wall was only partially blocked, presumably so that it could still be accessed from the manhole on Princes St, which appeared to be of fairly recent antiquity.

Blocked recesses were also observed at the northern end of the east and west walls of the chamber. Both were of similar dimensions

and appeared to be related. It is possible that they may originally have held a beam of some description.

The outline of what appeared to be a rectangular fitting for a structure, perhaps a tank or a trough was apparent on the northern wall. The wall was indented at this point and a deposit of iron panning had collected beneath the feature, coating the wall below. In the vault above the feature a square, wood-lined cavity, infilled with red brick was present. Although the function of the cavity was unclear it is suggested that it may have been for ventilation purposes. The top half of the northern wall was coated with a thin lime mortar.

Although the purpose of the indentation in the northern wall is unknown it is possible that the feature was supported by a beam, or structure which originally ran east to west.

Brick-built structures [1477] and [1478] were inaccessible and the exposed areas of these structures were recorded in plan. A digital camera was lowered into a small gap into structure [1477] showing a chamber very similar to [1476] with passageways towards east and west. A door in the southern wall was also noted and appeared to have been deliberately blocked by a large rubble deposit. The same type of deposit as found at floor level in [1476] was also noted (*Illus 16*). Structure [1477] also showed a small opening in the roof, which was covered by a sandstone flag stone [1482] measuring 0.78 by 0.48m. Between structures [1477] and [1478] was a small well-constructed rubble built wall [1480], running east to west and of the same character as [1475] and [1479]. The wall was 0.58m wide and 0.4m high. The function of this wall is not entirely clear.

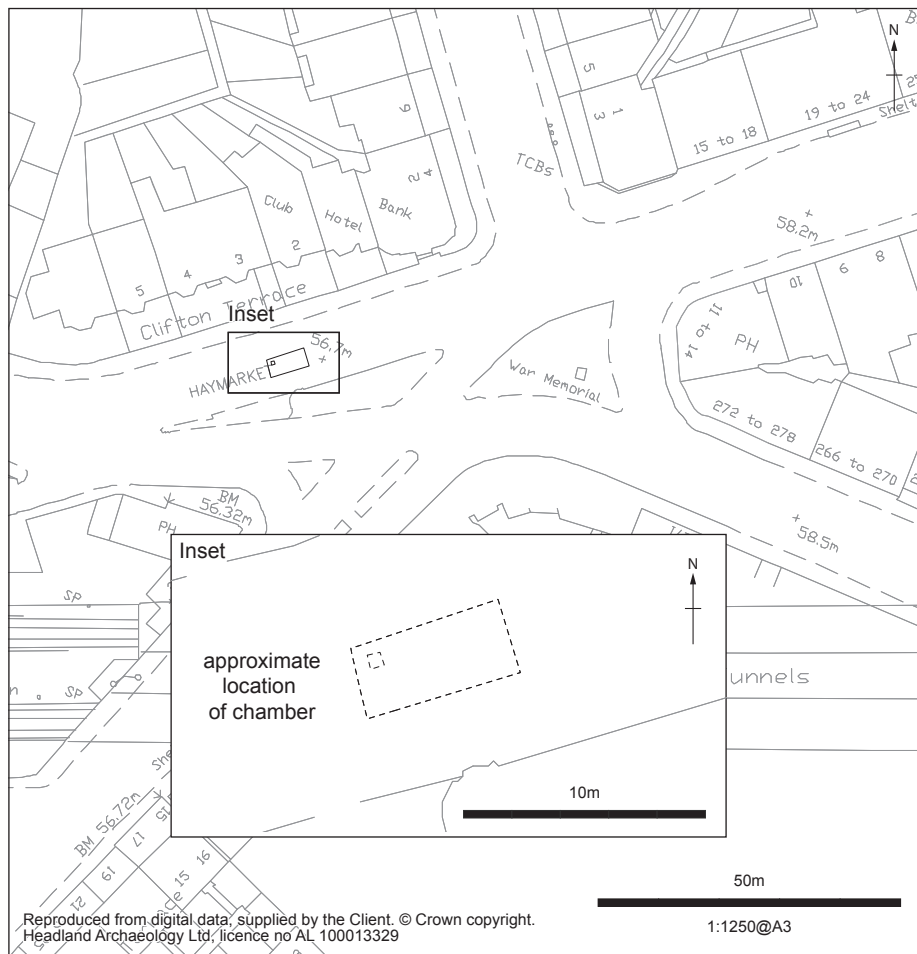
Directly overlying all the structures in the trench was dark grey clayey silt [1485] with rare inclusions of coal and fragmented animal bone. The deposit was up to 0.25m in thickness and was noticeably thinner above [1476], [1477] and [1478]. It was interpreted as a primary deposit covering the structures. Overlying [1485] were deposits [1484] and [1483], both interpreted as late make-up deposits relating to the construction of Princes St. No foundation cuts for any of the structures were noted.

It is proposed that the chamber will be preserved in situ.

## 6.2 West Maitland St / Palmerston Place

*Allison Borden*

A below-ground concrete structure was cut into by a JCB and archaeologists were called out to record it (*Illus 13*). The structure ran west to east below West Maitland St and was rectangular in plan,



**Illus 18**

*Location of trenches at Haymarket*

at least 5m in length and approximately 2m in width from north to south. The eastern extent was not exposed in the trenches so it may be much longer. Within the west side of the structure was a reverse L-shaped chamber parallel to the south side of the structure, with two cast iron rods lying across the top (*Illus 17*). Steel plates and two sets of cables were visible near the east edge of the trench. The structure appears to continue to the east and is visible in a second, N-S trench 5m to the east.

Given previous structures unearthed during the tram works, it is possible that this structure is a cable tunnel related to earlier trams that ran along West Maitland St.

## 7. HAYMARKET – GENERAL CALL-OUT

*James McMeekin*

Following an initial investigation of an underground confined space located in Grosvenor St, Haymarket in September 2008 (Humble & Murray 2008), further investigations were undertaken in May 2009 (*Illus 18*).

The underground space comprised a corridor of approximately 45–5m in length, oriented roughly east to west. Due to necessary health and safety measures the investigation was limited in nature

and access was only possible to the extent of the safety rope and where a direct line of sight could be maintained with a person at the point of access.

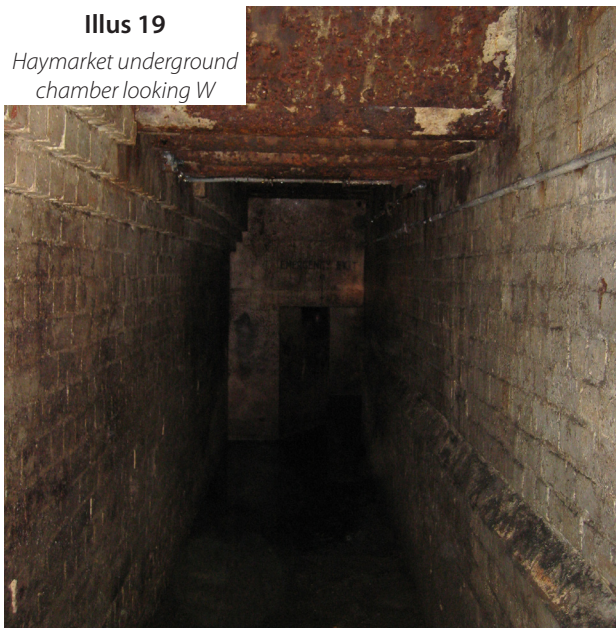
The walls of the corridor or tunnel were composed of machine-made brick bonded with cement (*Illus 19*). Substantial steel girders ran north to south across the tops of the side walls. Above these, smaller steel girders and wooden struts ran from east to west. Large amounts of concrete were also present around the metal areas of the structure. Interlocked steel sheet piles formed the 'ceiling', approximately 2.15m above the floor surface. The floor surface was obscured by rubble and debris and standing water.

Corrugated iron sheets were present in the collapsed material towards the eastern extent of the area investigated (*Illus 20*). These may have originally been used for lining the ceiling area. Sizeable sandstone blocks were also observed in the rubble material. These stones may represent collapse or have originally belonged to a separate structure. Drainage pipes and a floor gully were also observed at this eastern end. A semicircular groove cut into the southern wall about 1m up ran the extent of the area investigated and may represent a cut intended to receive a pipe or service (*Illus 21*). Several cables were observed to run along the length of the corridor; it is not known whether these services are still active. One such cable was held in place by a series of plastic cable holders, marked 'Made in England'.



**Illus 19**

*Haymarket underground chamber looking W*



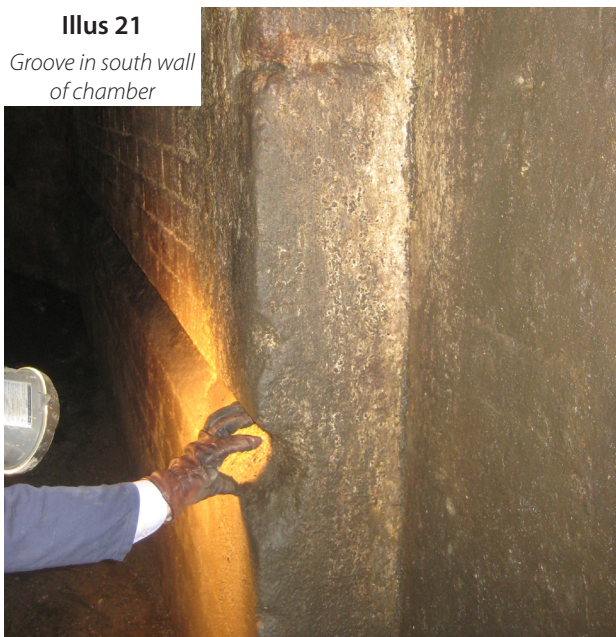
**Illus 20**

*Haymarket underground chamber looking E*



**Illus 21**

*Groove in south wall of chamber*



Towards the western end of the area investigated a low doorway marked 'Emergency Exit' was observed before the corridor turned sharply to the north before returning to its east to west orientation. The ground surface continued to slope away to the west and the level of standing water was observed to increase accordingly.

Archaeologists were also called out to the west end of Princes St, where the works had demolished part of a concrete structure. The structure was not seen in situ but the presence of girders and a possible turntable reported by the workmen suggests this may have been a similar structure to that seen at Haymarket and West Maitland St.

## 8. DISCUSSION

### 8.1 Leith

The trenches monitored at the north end of Constitution St and streets to the north through the medieval burgh have shown similar results to those of the earlier watching briefs at the south end of Constitution St and the northern end of Leith Walk (Humble & Murray 2008). Despite the difficulty of working in long narrow trenches, the service diversions have highlighted areas of good preservation on Constitution St and Queen Charlotte St in particular. The various surfaces and midden deposits found beneath the streets probably date to the 16th and 17th century development of the town and are probably the remains of early routes into the burgh as shown on Naish's plan of 1709. Similar surfaces relating to the medieval and post-medieval development of the burgh were found during works to replace water mains in North Berwick (Dingwall 2009).

The disarticulated human remains encountered on Constitution St outside of South Leith Parish Church provide further evidence of the extent of the graveyard as recorded in the previous evaluation of this area and the subsequent full excavation of the burial ground prior to the construction of the new tram network (Murray 2008; Spanou forthcoming).

### 8.2 London Rd

The burials encountered at the junction of Elm Row and London Rd were an unexpected discovery. On early maps the area appears undeveloped until the establishment of London Rd in the early 19th century. The trenches are, however, close to the site of a 15th century chapel and 16th century monastery and later leper hospital. The Rude Chapel stood on the west side of Calton Hill and is thought to have been founded around 1456 (RCAHMS 1951). The chapel was given to the Monastery of Carmelite Friars in 1526, which subsequently became the Greenside Hospital for lepers in 1591 (NT27SE 36); the building appears to have stood on a flat piece of ground at the north-east end of Greenside Row (Cowan & Easson 1976; Chalmers 1887-94; NSA 1845).

Excavations on Greenside Row to the south of the present excavations close to the presumed site of the Greenside monastery and leper hospital presumed to have stood in the area revealed no archaeological remains; however it was thought that the site had previously been cleared (Holmes 1988). The monastery/hospital appears to have been demolished by the 17th century as it is not shown on any early maps of the area.

The wall encountered in Tr4 appears to define the western limit of the burial ground. Although the trenches appear to be some distance from the supposed location of the site of the monastery itself, it is possible that once it became a hospital the burial ground may have been extended.

### 8.3 Princes St & Haymarket

The ground works at Princes St uncovered three brick built subterranean chambers with rubble built back and front walls and doors facing south towards Princes St Gardens. The chambers were all linked to each other through small passageways and there is evidence that more chambers might exist to the east and west of these. The chambers seem to have been deliberately blocked with rubble infill and were all partially filled by a black sediment deposit. One of the chambers showed evidence for a ventilation opening in the roof, covered by a sandstone flagstone.

The finds and the bricks date the structures to the 19th century. Map evidence shows no structures at the location prior to Kirkwood's map of 1817, which shows an entrance to a subterranean structure. On the Ordnance Survey Town Plan over the area from 1849–1853 no structure can be seen and the current outline of Princes St Gardens are in place. The iron staining and the possible location of tanks on the rear wall of the structures suggests they may have latterly had more of an amenity function.

A painting by Alexander Naismith showing the construction of the Royal Scottish Academy on the Mound, seems to show some kind of activity on Princes St in the approximate location of the chamber – obtaining a detail of the painting might assist in further research. It was also common practice in the New Town for vaults to be built as part of the preparatory works for building, particularly where construction is taking place on or in made ground. It is possible that this chamber represents this type of early stage of building, as the layout matches that of New Town basements, with cellars running under the road line. Speculative building enterprises in the New Town were also known to fail or stop in their tracks, which is what may have happened here.

The underground chambers at West Maitland St and Haymarket appear to relate to the earlier tram network. It seems probable that the Haymarket structure represents an access or service tunnel. The modern materials and construction methods encountered together with the substantial load carrying capability of the upper areas of the structure may indicate that this service tunnel was used for access to the tramlines operated by the Edinburgh Corporation in the area. The last of the Edinburgh Corporation Trams ran on 16th November 1956. Although only parts of the structures at the west end of Princes St and West Maitland St were exposed, the structures appear similar to that at Haymarket in that they comprised sheet

piles, steel girders and similar machine made brick. This suggests a network of such access tunnels or service corridors that most likely corresponded to the old tram network.

## 9. AN ASSESSMENT OF THE HUMAN REMAINS FROM LONDON RD, EDINBURGH

*Emma Tetlow*

### 9.1 Introduction

The material discussed is from excavations at the junction of London Rd and Leith Walk, Edinburgh. The material was recovered from two trenches (4 & 7), part of archaeological mitigation associated with utility diversions in advance of the construction of the Edinburgh Tram system, and consisted of the remains of nine individuals. The material from Tr4 included the remains of three adults [466, 453 & 457] and two children [475 & 462]. The remains of [457 & 462] were found together, and the child appears to have been placed on the chest of the adult. Material from Tr7 was composed of a single [469] and a double inhumation [494 & 495], and two sets of partial remains truncated by an early gas pipe [485] and by a later gas pipe [488]. No firm date for any of these inhumations has yet been obtained; they are currently assumed to date from the late medieval/early post medieval period.

### 9.2 Methods

The criteria used to undertake this assessment were those outlined by Mays et al. (2004) and Brickley and McKinley (2004). Each set of remains will be discussed individually, and a number of points will be addressed for the purposes of assessment:

- Skeletal completeness;
- Preservation;
- Sex (Brothwell 1981);
- Age at death (based on dental attrition (Brothwell 1981) and morphological changes in the pelvis (Todd 1921; Brooks & Suchey 1990);
- Evident palaeopathology;
- Salient observations not covered by the above categories.

When discussing the remains at assessment level, two considerations should be taken into account:

1. The aging and sexing of the individuals present and any comments on palaeopathology is provisional. Further work on these remains would facilitate more conclusive aging, sexing and presence/absence of any pathological features. As a result, the data presented here should be regarded as preliminary.
2. The proportions of the skeleton recorded are subjective assessments. A complete record of the skeletal components can only be established by further, full analysis of the remains.



## 9.3 Trench 4

### 9.3.1 466

The remains were approximately 40% complete and the preservation of the bones was considered good if slightly corroded. The post-cranial skeleton is entirely absent below the femoral head. The sciatic notch suggests that the remains were male, despite the gracile nature of the cranium and the relatively small mastoid process. The cranial traits were somewhat ambiguous (Brothwell 1981). The age based on dental attrition would suggest an age of between 17 and 25 (Brothwell 1981), the pubic symphysis indicates an age range of between 19 and 29 years (Todd 1921; Brooks & Suchey 1990) and the left and right clavicle, which demonstrate complete epiphysal fusion would also suggest this age range (Brothwell 1981).

No pathology was immediately apparent. A visual scan of the thoracic vertebrae highlighted an interesting wear pattern on several of the vertebrae. The lower third molar is absent on the right.

### 9.3.2 453

The remains were approximately 50% complete and the preservation of the bones was considered fair and corroded. Several of the long bones were subject to post depositional processes and as a result had suffered significant breakage. The sciatic notch and diagnostic features of the skull suggests that the remains were female, the skeleton was gracile in appearance (Brothwell 1981). The age of this skeleton was difficult to establish, based on dental attrition would suggest an age of between 33 and 45, the pubic symphysis indicates an age range of between 21 and 58 years (Todd 1921; Brooks & Suchey 1990; Brothwell 1981).

No pathology was immediately apparent. The lower third molar is absent on the right.

### 9.3.3 453a

The remains of this individual consisted of a single, robust tibia. The epiphyses were absent as is any pathology.

### 9.3.4 457

The remains were approximately 45% complete and the preservation of the bones was considered excellent with little evidence of corrosion. The cranium was completely fragmentary, much of the maxilla and zygomatic bone are absent, as is the upper dentition. The post cranial skeleton is entirely absent below the shaft of the right femur. The sciatic notch suggests that the remains were male, the longer bones of the post-cranial skeleton are extremely robust. The age, based on dental attrition would suggest an age of between 25 and 35 (Brothwell 1981), the pubic symphysis was too worn to use as an tool for aging without extensive referencing with comparative material.

No pathology was immediately apparent. A visual scan of the thoracic/cervical vertebrae highlighted an interesting wear pattern on several of the vertebrae. The remains of a child [462] were found with these remains.

### 9.3.5 462

The remains were approximately 20% complete and the preservation of the bones of the post cranial skeleton were considered poor and corroded whilst those of the cranium could be described as fair, if fragmentary. Several of the long bones were present, and have been provisionally identified as fragments of scapula, the proximal end of both femurs, a rib and a fragment of the mandible. Whilst the sex of the remains could not be established, the surviving fragment of mandible contained a series of deciduous teeth which appeared not to have erupted. This would provisionally suggest that the infant was between 6 and 18 months old at the time of death (Brothwell 1981). No pathology was immediately apparent.

### 9.3.6 475

The remains were approximately 15% complete and the preservation of the bones of the post cranial skeleton were considered poor and corroded whilst those of the cranium could be described as fair. The majority of the long bones were absent, with the exception of the right femur, the left and right tibia and the right humerus, the ribcage also appears to be complete and both clavicles were present. The sex of the remains could not be ascertained, age is also difficult to estimate, the remains are clearly those of an infant or young child, possibly aged between six months and two years at time of death. No pathology was immediately apparent.

## 9.4 Trench 7

### 9.4.1 469

The remains were approximately 50% complete. The cranium is fragmentary with teeth still present in fragments of both the maxilla and mandible. Several elements of the post cranial skeleton are broken, as a result of post-depositional damage, including both scapulae, the left ischium, and pubic bone and the base of the sacrum, the proximal head of the fibula was also detached. Despite this, the overall preservation of the bones is considered good, and corrosion limited. The sciatic notch, in this case, provided somewhat ambiguous evidence for the sex of the individual which is tentively female; at assessment level, the cranium is too fragmentary to reconstruct to examine its dimorphic traits. The age, based on dental attrition indicates age at death of 35+ years (Brothwell 1981), as with the sciatic notch, the pubic symphysis is somewhat ambiguous, the symphyses being extremely worn.

### 9.4.2 494

The remains consisted of a virtually complete skeleton, the preservation of the bones was considered good with little evidence of corrosion. The cranium is fragmentary and, at this stage cannot be used to determine sex. Fragments of the upper palate remain and despite being broken, the mandible is complete. Overall, the preservation of the bones is considered good, and corrosion limited. The sciatic notch suggests that the remains were male; the bones of the post-cranial skeleton could also be described as robust. The age, based on dental attrition indicates suggest the age at death was 35+ (Brothwell 1981), the pubic symphyses were too worn to provide further information. No pathology was immediately apparent.

### 9.4.3 495

The remains consisted of a virtually complete skeleton, the preservation of the bones was considered good with little evidence of corrosion. The cranium is fragmentary with teeth still present in fragments of both the maxilla and mandible, but at this preliminary assessment stage the fragmentary remains of the cranium cannot be used to determine sex. Several elements of the post-cranial skeleton are broken as a result of post-depositional processes, including both the right radius and ulna, both humeri and scapulae and the left fibula. Despite this, the overall preservation of the bones is considered good, and corrosion limited. The sciatic notch suggests that the remains were male (Brothwell 1981); the bones of the post-cranial skeleton could also be described as robust and also possibly suggest that the individual had been relatively tall. The age based on dental attrition indicates age at death of 17–25 years and the pubic symphysis indicates suggest the age at death was 19–29 (Brothwell 1981).

No pathology was immediately apparent. The 3rd molar is absent from both the left and right side of the mandible, the 'wisdom teeth' usually appear between 15 and 25 years of age.

## 9.5 Partial remains from Trench 7

### 9.5.1 485

The remains associated with this individual are extremely restricted and preclude aging or sexing. The remains consist of the well preserved remains of the right and left femoral head and the shaft from the right.

### 9.5.2 488

The remains associated with this individual are extremely restricted and preclude aging or sexing. Despite their fragmentary nature, the remains are well preserved and consist of a number of pelvic fragments, the proximal head of the right femur and the distal head of the left, several vertebrae, fragments of the scapula and a radius and ulna, the ulna from this individual is possibly pathological.

## 9.6 Other unstratified and partial remains

Unstratified remains from the site included a sacrum, fragments of cranium and several partial femur.

## 9.7 Discussion and recommendations on the human bone

This small assemblage has a number of features which renders the remains worthy of further full analysis and other analytical work. Each individual has only been subject to a brief assessment of potential, and the age and sex of each skeleton is subjective. Whilst the accepted criteria has been employed to establish both traits, the assessment has not been exhaustive, and each method employed has a number of problems associated with its application. Whilst the remains were scanned for any immediate signs of pathology, no systematic examination was undertaken at this stage, again, further full analysis will highlight further evidence of anomalies associated with disease or fracture.

Probably the most important contribution that these remains can make to the existing history of Edinburgh, north east of Calton Hill is providing a date for their inhumation, hence radiometric dating of some of the remains is deemed essential. Circumstantial evidence currently suggests a late medieval or early post-medieval date, which is also supported by the finds, at least in the case of nos [469 & 466] from which shroud pins were recovered. These items are rarely found with inhumations prior to the 1500s, and are found in graves until the 19th century (J Franklin pers. comm.). Exactly why these individuals were inhumed here is open to some discussion, but dating of these remains should allow further contextualising of the circumstances of their burial at this site. Records of ecclesiastical buildings in the area are scant and this group of remains were clearly deposited purposefully. The close spacing of human remains in such a small area would also suggest a larger, formal cemetery.

If possible, further research is also recommended to establish the relationship between a number of the skeletons. In the case of nos [466, 453, 457 & 462], from Tr4 and nos [494 & 495] from Tr7, familial relationship is possible. The remains of no. [453] were clearly inhumed with no. [475], and the remains of the infant appear to have been placed on the chest of the adult. This would not necessarily indicate that they were related, as poor families could often not afford the full burial trappings for an infant, and a baby or small child might be placed in any available coffin and interred with an unrelated adult. This practice occurred right up until the modern era (C Jukes and E Tetlow pers. comm.). In the case of the individuals from London Rd, both possibilities are more than feasible. The adult was a female, and so the infant could quite easily have been her child. In the case of nos [466 & 453], the 3rd molar is missing from the right mandible of both individuals. This trait, whilst common in 20% of the population, is genetic (Brothwell 1981), so it is possible that the incumbents of the double inhumation, nos [494 & 495] were related.

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## 10. FINDS ASSESSMENT

*Julie Franklin*

Early finds are mostly from Constitution St including fragments of medieval white gritty ware pottery (12th to 15th century) and a brass jeton (late 15th or 16th century). A small scattering of medieval finds also came from London Rd. Post-medieval finds include some interesting pottery, such as sherds from imported Spanish, Dutch and German vessels. There are also clay pipes from Edinburgh and Newcastle and imported decorative vessel glass. A cast iron cannonball (context [427]) is associated with 17th or early 18th century finds and is probably contemporary with them. Modern finds include sherds making up most of a late 18th century creamware bowl, a complete stoneware inkwell, some sherds from late 18th century wine bottles and two later 19th century mineral water bottles embossed with Edinburgh and Leith maker's names. The architectural fragments are of uncertain date, but presumably relate to buildings in the vicinity of where they were found and further work in this area may prove of interest. There is also a sherd of green glazed floor tile from Constitution St of possible 16th century date. Though fragmentary it may be evidence for a high status building in the vicinity.

The assemblage is stored in 6 boxes, with three large finds stored separately and some additional organic finds in refrigerated storage. A complete catalogue of finds is available as a MS Access database.



Material	Qty	Notes of interest
Pottery (medieval – post-medieval)	106 sherds	Local wares of 13th to early 18th century date, including some large sherds and unusual forms. 28 imported sherds (Netherlandish tin-glazed earthenware, German stoneware, Spanish olive jar, Chinese porcelain)
Pottery (modern)	140 sherds	Reconstructable creamware vessels Stamped stoneware bottles
Coins etc	1 find	Late 15th/16th century jeton
Copper alloy	4 finds	Early post-medieval lace tag, 2 wire pins and eyelet
Lead	3 finds	Window came fragment
Iron	66 finds	Large 2.25lb cannonball, horseshoe, several coffin nails
Other metal	4 finds	Modern
Clay pipe	84 sherds	6 bowls, all 17th century, three with 17th century makers marks, including 'G.C.' of Newcastle
Glass	328 sherds	Base sherd from possibly early post-med decorated drinking vessel. Several sherd from late 18th or early 19th century wine bottles. Embossed mineral water bottles
Stone	8 finds	Perforated disc, roof slates
Lithics	3 finds	1 retouched, undiagnostic
Ceramic	1 find	Kiln prop
Bone object	1 find	Peg
Plastic	3 finds	Golf ball, linoleum fragment
Leather	4 pieces	Shoe and other fragments
Textile	2 finds	Fragments, one silk?
Wood	3 objects	Furniture leg, one unidentified perforated object
16 Industrial waste	5.150kg	Iron slag & glass waste fragments
Ceramic building material & sanitary ware	461 sherds	Fragment of floor tile, white slipped and green glazed, possibly 16th century? Mostly fragments of brick, pan tiles etc. Large sherd of toilet bowl
Architectural frags	3 pieces	Part of a decorative column, roll moulded stone
Plaster	2 finds	Decorative modern sherds
Mortar	2.684kg	Fragments

#### Doubles context nos

Id	Area	St	Context	Sf	Sample	Material	Qty	Object	Description	Spot date	Period	Box
427	Ti7	London Rd	463	0	0	Pottery	1	Local	PMR, olive glazed	16th/17th	PM	1
433	–	London Rd	464	0	0	Lithics	1	Flint Flake	retouched	–	–	5
426	Ti7	London Rd	464	0	0	Mortar	1	Fragmnet	small sherd, from between stones	–	–	6
434	–	London Rd	464	0	0	Pb	1	Strip	lozenge shaped section, narrowing at one end	–	–	2
428	Ti7	London Rd	464	0	0	Pottery	1	Import	Yorkshire, small sherd	13th/14th	Medi	1
429	Ti7	London Rd	464	0	0	Pottery	8	Local	WG, Redware, small sherds, poor condition	14th/15th	Medi	1
422	–	–	454	0	0	Pottery	1	Import	TGE - lost glaze, has hole drilled in ring base pre firing for suspension	17th/19th	PM	1
413	–	–	463	0	0	Pottery	1	Local	PMR	17th/e.18th	PM	1
421	–	–	464	0	558	Mortar	–	–	Mortar sample from cobbles	–	–	6
412	–	–	465	0	0	Clay Pipe	1	Bowl	small bulbous	e/m.17th	PM	5
414	–	–	465	0	0	Pottery	1	Import	French coarseware? Loire/late Saint type	16th/17th	PM	1



## Headland Archaeology

Id	Area	St	Context	Sf	Sample	Material	Qty	Object	Description	Spot date	Period	Box
435	–	–	468	0	0	Cu	1	Pin	small wire pin, in two pieces	16th/19th	PM	2
384	–	–	454	0	0	Pottery	1	Local	PMR	17th/e.18th	PM	1
376	–	–	454	0	0	Clay Pipe	2	Bowls	stamped heel, *GC' within heart and 'PCE'- Patrick Crawford and GC of Newcastle	m/L.17th	PM	5
383	–	–	454	0	0	Pottery	1	Modern	Brown glazed redware	18th/19th	Mod	1
382	–	–	454	0	0	Clay Pipe	7	Stems	Wide bore	17th/e.18th	PM	5
406	–	–	471	0	559	Glass	1	Window	–	–	PM/Mod	5
407	–	–	471	0	559	Glass	1	Bottle	–	–	PM/Mod	5
408	–	–	471	0	559	Fe	1	Object	Lump	–	–	2
409	–	–	471	0	559	MWD		Fe Slag	Iron slag or other industrial waste	–	–	3
415	–	–	471	0	0	Pottery	1	Local	PMR	17th/e.18th	PM	1
416	–	–	471	0	0	Pottery	1	Modern	Brown glazed redware	18th/19th	Mod	1
405	–	–	471	0	559	CBM	5	Brick	Fragments	–	PM/Mod	4
423	–	Princes St	1476	0	561	CBM	1	Brick	Brick sample from Mikael's vaults. Red fabric, 230 x 105 x 65mm	–	–	19
424	–	Princes St	1480	0	560	CBM	1	Brick	Brick sample from Mikael's vaults. Red fabric, incomplete, 195+ x 115 x 60mm	–	–	19

## 11. PALAEOENVIRONMENTAL SAMPLES ASSESSMENT

Abby Mynett & Sarah-Jane Haston

### 11.1 Introduction

A total of twenty samples were processed from areas undergoing watching briefs ahead of the Edinburgh Trams development. Samples were taken from five areas: London Rd (8 samples), Constitution St (7 samples), Queen Charlotte St (3 samples) and Princes St (2 samples).

### 11.2 Methodology

All samples were processed in laboratory conditions using a standard floatation method (cf. Kenward et al 1980). The floating debris (flot) was collected using a 250µm sieve and, once dry, were analysed using a stereomicroscope at magnifications of x10 and up to x100 where necessary to aid identification. Identifications were confirmed using modern reference material and seed atlases including Cappers et al (2006). Any material remaining in the flotation tank (retent) was wet-sieved through a 1mm mesh and air-dried. This was then sorted by eye and any material of archaeological significance

### 11.3 Results

The results for the site are presented in [Table 1](#) (Retent finds) and [Table 2](#) (Floatation finds). Material identified, which would be suitable for AMS dating is shown in all tables. All plant material was preserved by charring.

### 11.4 Charred plant remains

Charred cereal was present in twelve samples with the majority of remains being low in frequency and their preservation condition being highly broken and abraded. The grain assemblage includes primarily hulled barley (*Hordeum vulgare*) and oat (*Avena* sp.). A single wheat grain was also recorded (*Triticum* sp.) along with indeterminate cereal grains (*Cerealia* indet.) which were too fragmentary to identify to a family or species level. Together with the cereal grain charred weed taxa were found in two samples with goosefoots (*Chenopodium* sp.) grape pips (*Vitis vinifera*) present. Charcoal fragments were found in four samples, however, only in one sample (572) were the fragments large enough (1cm or larger) for identification and/or AMS dating (see [Tables 1 & 2](#)).

### 11.5 Other finds

Together with the plant remains a range of other finds were also recovered (see [Table 1](#)). The other finds can be broadly described in four categories including domestic refuse, building materials, industrial materials and burial remains. Domestic refuse recovered includes pottery sherds, fragments of clay pipe, leather and potentially glass (although this may also fit into the other two categories) together with burnt and unburnt bone (mammal and fish), marine shell including oyster (*Ostrea edulis*), mussel (*Mytilus edulis*), scallop (*Pecten maximus*), limpet (*Patella* sp.), winkle (*Littorina* sp.), whelk (*Buccinum* sp.), and cockle (*Cardium edule*) which is typical for medieval and post-medieval urban assemblages, coal and cinders in roughly equal amounts. The coal and cinders probably originated from hearth sweepings, which were incorporated into the sampled deposits. The construction materials recovered in the samples

Table 1

Retent sample results

Context	Sample	Feature	Sample vol (l)	Ceramic			Other Building Material		Metal			Industrial waste			Organics			Burnt bone	Unburnt bone	Shell	Uncharred plant	Charred plant	Charcoal		Material available for AMS Dating	Cinders	Coal	Comments
				Pottery	Medi-PM	Clay pipe	CBM	Mortar	Stone	Stone	Glass	Glass	Cu	Fe	Magres	Leather	Wood						Mammal	Fish				
<b>London Rd</b>																												
460	558	Grave fill	4	-	-	-	+++	-	+	-	-	+	-	-	-	-	-	+++	++++	++	-	-	+	-	-	-	-	-
		Grave fill																										
457	559	Below Skeleton (427)	2	-	-	-	+++	-	-	-	-	-	-	-	-	-	-	+++	++	+	-	-	-	-	-	-	-	-
465	560	Grave fill	20	-	-	-	++	-	+	-	-	+	-	-	-	-	-	+++	+	-	-	-	-	-	-	-	-	-
474	561	Grave fill	2	-	-	-	+	-	-	-	-	-	-	-	-	-	-	+++	-	+	-	-	-	-	-	-	-	-
464	562	Deposit	20	-	-	-	+	-	-	-	-	-	-	-	-	-	-	+	+	+	-	-	-	+	-	-	-	-
477	563	Grave fill	10	-	-	-	+	-	-	-	-	-	-	-	-	-	-	+++	+	-	-	-	+	+	+	-	-	-
456	564	Deposit (456)	20	-	-	-	+++	-	+	-	-	+	-	-	-	-	-	+	+	+	-	-	-	-	-	-	-	-
493	565	Fill of Grave [496]	10	-	-	-	-	-	-	-	+	-	-	-	-	-	-	+++	+++	+	+	-	-	-	-	-	-	-
<b>Constitution St</b>																												
515	567	Possible Ground Surface	2	-	-	-	++	-	+	-	+	+	+++	-	+	-	+	-	++	-	-	-	-	-	-	-	-	-
516	568	Deposit	2	-	-	-	++	-	+	+	+	++++	-	+	-	-	+++	-	++	-	-	-	-	-	-	-	-	-
517	569	Midden Deposit	2	-	-	-	++	-	+	-	+	+	-	++	-	-	+++	-	+++	-	-	-	-	-	-	-	-	-







**Table 2**  
Flot sample results

Context	Sample	Total flot vol (ml)	Cereal grain			<i>Cerealia</i> indet.	Other plant remains	Charcoal qty	Charcoal max size (cm)	Material available for AMS dating	Comments
			<i>Avena</i> sp.	<i>Hordeum</i> <i>Vulgare</i>	<i>Triticum</i> sp.						
<b>London Rd</b>											
460	558	5	–	–	–	+	–	–	–	–	Modern seed ++
457	559	5	–	–	–	–	–	+	<0.5	–	Modern seed/root ++
465	560	15	–	–	–	++	–	–	–	–	Modern seed/root +++, wood +
474	561	5	–	–	–	–	–	–	–	–	Archaeologically sterile
464	562	30	+	–	–	++	–	–	–	–	–
477	563	10	–	–	–	–	–	+	<0.5	–	Modern seed/roots +++)
456	564	25	–	–	–	+	–	–	–	–	Modern seed/roots +++)
463	565	5	+	–	–	+	–	–	–	–	–
<b>Constitution St</b>											
515	567	15	–	–	–	–	–	–	–	–	Mollusc +++) , modern seed and root +++)
516	568	10	–	–	–	+	–	–	–	–	–
517	569	10	–	–	–	–	–	–	–	–	Archaeologically sterile
518	570	5	–	–	–	–	–	–	–	–	Unburnt mammal bone +
529	571	75	+	–	–	–	–	–	–	–	Modern seed/root +++++, beetle ++, wood +
533	572	15	+	++	–	+	<i>Chenopodium</i> sp. +	–	–	Charred grain ++	–
536	573	20	+	+	+	+	–	–	–	–	–
<b>Queen Charlotte St</b>											
539	575	5	–	+	–	+	–	+	0.8	–	–
1489	1562	50	–	–	–	–	<i>Vitis vinifera</i> +	–	–	–	Modern seed/root +++++, wood +, slag ++
1498	1568	25	–	–	–	+	–	–	–	–	Metallic +++) , modern seed/root +++)
<b>Princes St</b>											
502	1564	40	–	–	–	–	–	–	–	–	Metallic ++, modern seed/root +++++
503	1565	50	–	–	–	–	–	–	–	–	Metallic ++, modern seed/root +++++

**Key** + = rare, ++ = occasional, +++ = common and +++++ = abundant  
NB charcoal over 1cm is suitable for identification and AMS dating

include brick and mortar fragments. Industrial materials found in the samples include: metallic waste (eg slag) and metallic objects, such as iron nails. For further information on the finds recovered please refer to the finds report. Nine human burials in total were recovered from the London Rd site, and burial remains including the smaller human bones were recovered from associated sampled deposits. For more information on the burial remains please refer to the human bone assessment.

## 11.6 Discussion

The results are discussed below in relation to the four sampled areas.

### 11.6.1 London Rd

The eight samples from London Rd are sparse in palaeoenvironmental material with charred cereal grain in rare to occasional quantities recovered from only five samples, with oat and indeterminate cereals

present (see [Table 2](#)). Charcoal fragments are also only present in small quantities and of a small size (c0.5cm) in only two samples, which together with the grain are suggestive of scattered material across the site. Of more abundance at London Rd is the amount of unburnt mammal bone recovered, while unburnt fish bone is also frequent within the samples. Other remains identified in the grave fills and graveyard soils included mortar in rare to common amounts and glass, metallic objects including possible coffin nails, metallic waste, coal and cinders all in rare amounts.

### 11.6.2 Constitution St

The seven samples from Constitution St were poor for palaeoenvironmental material with only three samples (571, 572 & 573) found to contain charred cereal grain in rare to occasional quantities. Hulled barley, wheat and oat were all present along with indeterminate grain and a single goosefoot seed indicative of disturbed and damp/wet waste ground (Stace 1997) present in sample (572). Wood charcoal was present in a small amount in only one sample (572) taken from the fill (533) of the construction cut for wall [531].

Alongside the charred plant remains recovered at the site the samples were again rich in marine shell and burnt and unburnt bone, largely mammal, and including fish bone, which together with the coal, cinders and pottery fragments and metallic waste represents a mix of domestic and industrial debris. Sample (571) taken from the midden deposit (529) contained only a rare number of oats and other uncharred plant material but very high concentrations of marine shell and mammal and fish bone .

### 11.6.3 Queen Charlotte St

The three samples from Queen Charlotte St were found to contain similar low frequencies of plant remains and high frequencies of burnt and unburnt and marine shell. Charred cereal remains were recovered in two samples (575 & 1568) and comprised rare amounts of oat and indeterminate cereal. The remains of a charred grape pip (*Vitis vinifera*) was identified in sample (1562). Dried grapes were imported from further south with much of the exotic food products being shipped from the Mediterranean regions. The consumption of these foods was likely to have been restricted and the presence of such material from the site indicates the potential high status of the inhabitants of London Rd and the surrounding area. Charcoal fragments were found to be present in small sizes within only one sample (575). There is also evidence of industrial activity with metallic waste present in abundance in samples (575 & 1563) (see [Table 1](#)).

### 11.6.4 Princes St

The two samples (1564 and 1565) assessed from the vault deposits (502 & 503) contained no evidence of charred plant remains. Metallic remains were present in the flot samples and the retent table again demonstrates evidence for building and industrial materials in rare to occasional quantities. Cinder and coal remains were also present in rare and occasional amounts with no charcoal being identified in any of the samples. The lack of charcoal remains on site compared to coal might suggest that the latter was used more commonly as a fuel in this community.

## 11.7 Conclusion

The sparse quantities of grain scatter across the site would suggest that they have been deposited via secondary means such as windblown actions rather than from cultivation and domestic practices. In addition to this no features associated with the processing and cooking of grain have been identified on site ETD07.

Industrial activities are evident from the metallic waste identified in fourteen of the samples ([Table 1](#)).

Large amounts of domestic refuse in the form of mammal and fish bone have been identified from the samples on site and give an insight into the society's diet and demography.

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## APPENDICES

## Appendix 1 Site registers

## Appendix 1.1 Context register

Context	Area	Tr	Type	Description	Dimensions (m)
453	LR	4	Skeleton	Simple grave, supine inhumation, E-W, head turned to N, arms at sides, hands on pelvis. Lower part of body truncated on machining of trench. Hands absent when trench extended for full excavation.	L: 0.7 (surviving); W: 0.32
454	LR	4	Deposit	Brown Sandy silt with frequent stones and mortar. Make-up deposit immediately below modern surface.	D: 0.2
455	LR	4	Deposit	Greyish white silt and over 50% lime mortar fragments and stone. Post-medieval demolition deposit from wall [479].	D: 0.3 –0.4
456	LR	4	Deposit	Firm brown silt with few small stones. Graveyard soil. Same as [464].	D: 0.6
457	LR	4	Skeleton	Simple grave, supine inhumation, E-W with arms at sides, left hand on pelvis. Lower part of body partly truncated by machine, pelvis, hands and remaining legs removed separately from rest of burial. With SK [462].	–
458	LR	4	Skeleton	Truncated by machine, parts of upper legs recorded in section and removed, rest of Skeleton left in situ. Same as [466].	–
459	LR	4	Structure	Wall runs N-S across W side of trench, large unshaped stones (0.4 x 0.2 x 0.1), single courses, lime mortar bonding at S end only.	W: 0.6, H: 0.4
460	LR	4	Deposit	Mid to dark brown silty sand with frequent angular stones and lime mortar lumps. Fill of grave [461].	–
461	LR	4	Cut	Rectangular cut runs E-W, truncated by trench to E.	L: 0.75+, W: 0.16+
462	LR	4	Skeleton	Skull fragments of child burial with Skeleton [457]. Possible disturbance through construction of wall [459].	–
463	LR	7	Deposit	Dark grey sandy silt with common rubble, stone and mortar fragments. Demolition deposit, same as [455].	D: 1.2
464	LR	7	Deposit	Mid brown sandy silt with occasional charcoal, stone and mortar flecks. Graveyard soil, same as [456].	–
465	LR	4	Deposit	Mid brown fine silty sand with occasional small stones. Fill of grave cut [467].	–
466	LR	4	Skeleton	Simple grave, E-W supine inhumation, head facing N slightly raised, arms at sides, truncated at upper femurs. Upper part of skeleton [458].	–
467	LR	4	Cut	No cut visible as fill and graveyard soil indistinguishable. Cut of SK [466].	L: 0.96+, W: 0.34+
468	LR	7	Deposit	Dark brown sandy loam with frequent charcoal and moderate stone. Fill of grave cut [470].	–
469	LR	7	Skeleton	Simple grave, E-W supine inhumation, head to S, arms crossed over chest, feet missing except single toe, not truncated. Shroud pin present.	–
470	LR	7	Cut	No cut visible as fill and graveyard soil indistinguishable. Cut of SK [469].	L: 1.73, W: 1
471	LR	7	Structure	Three large granite boulders (0.45 x 0.45 x 0.35) in L-shape. Possible wall foundation or demolition from [479].	L: 1.6, W: 0.6 N-S; L: 1.6, W: 0.45 E-W
472	LR	7	Deposit	Mottled brown and white mortar and sandy loam with frequent charcoal. Fill of construction cut [473].	–
473	LR	7	Cut	Linear cut runs E-W, gently sloping sides and flat base, continues W beyond trench. Cut for wall [471].	L: 1.73, W: 1
474	LR	4	Deposit	Mid to dark brown fine silty sand with occasional very small stones. Fill of grave cut [476].	–
475	LR	4	Skeleton	Simple grave, infant inhumation, possibly disturbed as many ribs out of position.	–
476	LR	4	Cut	Grave cut, barely visible in plan. Cut for SK [475].	L: 0.23, W: 0.17
477	LR	4	Deposit	Mid brown silty sand with occasional small stones. Fill of grave cut [478].	–
478	LR	4	Cut	No cut visible as fill and graveyard soil indistinguishable. Cut of SK [453].	–
479	LR	4	Structure	Stone wall runs N-S, poorly faced on E side, stones 0.55 x 0.5 x 0.3, bonded with lime mortar, single course. Wall foundation possibly associated with [471].	W: 1.14, H: 0.25
480	LR	4	Structure	Stone wall runs N-S, continuation of 459/479.	–



Context	Area	Tr	Type	Description	Dimensions (m)
481	LR	4	Deposit	Mid brown sandy loam with frequent stone and charcoal flecks and occasional brick fragments. Made ground above demolition [455]. Same as [454]?	0.67
482	LR	4	Cut	Linear cut with vertical sides and flat base. Cut for wall [459].	D: 0.62
483	LR	5	Deposit	Orange-brown firm fine sand with occasional stones. Similar to Graveyard soil, possible undisturbed old B horizon?	D: 1.2
484	LR	7	Deposit	Reddish brown sandy loam with frequent charcoal and moderate stone. Fill of grave cut [486].	—
485	LR	7	Skeleton	Simple grave, EW heavily truncated supine burial, only lower legs remain.	—
486	LR	7	Cut	No cut visible as fill and graveyard soil indistinguishable. Cut of SK [485].	—
487	LR	7	Deposit	Mid brown fine sand with occasional small stones. Fill of grave [489].	—
488	LR	7	Skeleton	Heavily truncated supine inhumation, right arm and upper right leg and pelvis only bones present.	—
489	LR	7	Cut	Cut for skeleton [488], not visible in section and truncated in plan.	—
490	LR		Structure	Brick-built tunnel capped with corrugated iron with brick base. Possible electrical fittings present on E side, backfilled with grey gravel and brick. Iron girders above corrugated iron. Tram bed/cable tunnel.	W: 1, D: 3
491	LR	7	Deposit	Blackish brown mottled silt with frequent disarticulated human bone, oyster shell, wood fragments. Fill of cut [492].	—
492	LR	7	Cut	Linear cut runs N-S with rounded sides and flat base. Services cut, truncates burials.	L: 1 (N-S), W: 1
493	LR	7	Deposit	Mid brown sandy silt. Fill of grave cut [496].	—
494	LR	7	Skeleton	Double grave, southern burial, supine inhumation, E-W, truncated below sternum, jaw displaced, R arm bent with hand at neck, L arm by side, some fingers missing, toe bones absent.	—
495	LR	7	Skeleton	Double grave, northern burial, supine inhumation, E-W, R arm damaged, hands missing, toes disarticulated, head faces S, L arm over [494], shell fragment in R hand.	—
496	LR	7	Cut	Linear cut runs E-W, precise extent unclear in plan as fill similar to graveyard soil. Cut for SK [494] and [495].	L: 1.64, W: 1.
497	LR	8	Structure	Stone culvert.	W: 1.03, D: 0.85
498	LR	8	Deposit	Mixed dark brown silty sand with occasional stones. Material surrounding culvert [497].	—
499	QCS		Deposit	Mid brown loamy sand with occasional small stones. Made ground following culvert construction.	W: 01.2, D: 0.3
500	QCS	1A	Deposit	Compacted small-medium sub-rounded stones and gravel, 1.6m below street level. Metalled surface same as [1493].	—
501	CS	80 CS	Deposit	Mid reddish brown coarse sand with frequent stones, occasional bone and shell.	D: 0.56
502	PS	100 PS	Deposit	Mid brown silty clay loam with frequent small stones and occasional roots. Deliberate backfill (topsoil) of vaulted chambers [504-507/1476]. Removed by industrial vacuum and therefore mixed. Same as 1487.	D: 2
503	PS	100 PS	Deposit	Mid brown silty clay loam with small stone inclusions. Deposit covering floor [508] of chamber - sampled directly and less mixed than [502].	—
504	PS	100 PS	Structure	Random coursed grey stones (0.33 x 0.24) bonded with yellow lime mortar. Southern wall of vaulted chamber [509/1476].	L: 2.8, W: 2.6, H: 2.8
505	PS	100 PS	Structure	Base of wall randomly coursed stonework to 2.1m, upper courses red bricks in Flemish bond bonded with lime mortar and roughly finished. Partially blocked square indentation at N end 1.4m from floor. East wall of chamber [509/1476].	L: 2.8m, W: 2.4
506	PS	100 PS	Structure	Base of wall randomly coursed stonework to 2.1m, upper courses red bricks in Flemish bond bonded with lime mortar and roughly finished. Partially blocked square indentation at N end 1.4m from floor. Doorway infilled with rubble. Mirror image of E wall. West wall of chamber [509/1476].	L: 2.8, W: 2.4
507	PS	100 PS	Structure	Randomly coursed greyish yellow stone (0.33 x 0.24) bonded with gritty lime mortar. Base of wall stained with iron rich residue. Square shaped stone feature protrudes from wall 0.1m. Top of vault lime washed. Northern wall of chamber [509/1476].	L: 2.8, W: 2.6
508	PS	100 PS	Structure	Large stone blocks in matrix of mid brown silty clay. Uneven floor surface of chamber [509/1476].	L: 2.8, W: 2.6



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Context	Area	Tr	Type	Description	Dimensions (m)
509	PS	100 PS	Group	Brick built chamber with doors (now blocked) on E, S and W sides leading to similar chambers, possible structure formerly attached to N wall. Same as [1476].	—
510	PS	100 PS	Structure	Red brick vault, flemish bond, with lime mortar. Contains square hole lined with wooden linytels, infilled with brick – possible chimney or vent. Vaulted ceiling of [509/1476].	L: 2.8, W: 2.3, H: 2.8
511	CS	44 CS	Deposit	Yellowish brown mixed sandy clay with very frequent angular stone and concrete inclusions. Made ground built up prior to road construction.	D: 0.12
512	CS	44 CS	Deposit	Dark brownish black sand with frequent coal and bitumen and occasional small stone and mortar fragments. Made ground.	D: 0.04
513	CS	44 CS	Deposit	Yellowish brown sandy gravel with occasional small oyster shell and charcoal fragments. Possible make up - midden mixed with blown sand?	D: 0.23
514	CS	44 CS	Deposit	Yellow sandy clay with occasional angular stones, mortar and charcoal fragments. Made ground.	D: 0.06
515	CS	44 CS	Deposit	Dark brown sandy loam with small mortar flecks and charcoal fragments. Possible buried ground surface.	D: 0.2
516	CS	44 CS	Deposit	Mid brown sandy loam with occasional mortar flecks. Possible made ground.	—
517	CS	44 CS	Deposit	Greyish brown sandy loam with frequent oyster shell fragments and occasional animal bone. Midden deposit - possibly 17th century.	D: 0.04
518	CS	44 CS	Deposit	Yellowish brown sand. Windblown sand.	—
519	CS	44 CS	Cut	Linear cut with vertical sides. Cut for culvert [520].	D: 1.3
520	CS	44 CS	Structure	Roughly coursed stones bonded with yellowish mortar, capped with large stone slabs 0.5 x 0.28 x 0.05, runs E-W. Stone culvert.	W: 0.55, H: 0.4
521	CS	44 CS	Deposit	Dark brown sandy loam with red brick fragments and concrete. Fill of cut [519].	D: 1.3
522	CS	Police Station	Deposit	Same as [524].	—
523	CS	Police Station	Deposit	Yellow sandy gravel with small rounded clasts and small charcoal fragments. Fill of [527].	D: 0.4
524	CS	Police Station	Deposit	Yellow sand with occasional small charcoal fragments and medium-large pebbles. Windblown sand interleaved with lenses of organic material.	D: 0.34
525	CS	Police Station	Deposit	Greyish brown sandy loam with frequent mortar fragments and large angular stones and concrete fragments. Late make up deposit.	D: 0.78
526	CS	Police Station	Deposit	Same as [1493] and [525].	—
527	CS	Police Station	Cut	Linear cut with vertical sides. Service pipe cut, pipe removed.	D: 0.4
528	CS	Police Station	Deposit	Pale yellowish white sand with very occasional small charcoal fragments. Sand dune?	D: 0.06
529	CS	—	Deposit	Black clayey sand with frequent animal bone and horn fragments and occasional angular stone. Midden deposit, similar to [1492].	—
530	CS / QCS	—	Deposit	Yellowish brown sand with occasional large stones and clay fragments. Redeposited sand, possibly for levelling.	D: 1.2
531	CS	104 CS	Structure	Randomly coursed, undressed sandstone wall bonded with grey mortar. Possibly associated with sewer.	W: 0.25, H: 1.2
532	CS	104 CS	Cut	Linear cut with steep sides and flat base. Cut for wall [531].	—
533	CS	104 CS	Deposit	Greyish brown clayey sand with occasional oyster shell and clay lumps. Fill of [532].	—
534	CS	104 CS	Deposit	Greyish brown sandy loam with frequent mortar fragments, large angular stones and occasional concrete. Make-up deposit.	D: 0.6–1
535	CS	104 CS	Deposit	Yellow sand with occasional marine shell and small charcoal flecks. Wind blown sand - similar to [524].	D: 0.9
536	CS	104 CS	Deposit	Greyish brown sandy loam with animal bones, oyster shell and large angular stones. Occupation deposit.	—



Context	Area	Tr	Type	Description	Dimensions (m)
537	QCS	27 QCS	Deposit	Dark brown sand and rubble. Modern make-up.	D: 1.2
538	QCS	27 QCS	Cut	Cut for possible ditch, not visible in plan, with shallow sides and rounded base.	D: 0.5
539	QCS	27 QCS	Deposit	Mid brown sandy loam with frequent charcoal fragments, occasional oyster shells and angular stones. Fill of ditch [538].	D: 0.5
540	QCS	27 QCS	Deposit	Yellow sand with occasional small rounded stones and oyster shell fragments. Natural sand.	—
541	CS	80 CS	Structure	Sandstone wall (0.44 x 0.25), runs N-S, faced on W side, bonded with grey shelly mortar, 5-6 courses high.	W: 0.3, D: 0.28
542	QCS	27 QCS	Deposit	Greyish brown sandy loam with mortar fragments, large angular stones and concrete fragments. Late make-up deposit = 1493, 526, 525.	D: 1.02
543	CS	80 CS	Structure	Unfrogged red bricks laid side by side, single course, unbonded and set in waterlogged sand. Brick surface, possibly associated with construction of sewer to west.	L: 1.3, W: 0.25
1453	CS	Port O Leith	Deposit	Dark brown fine sand with frequent small water rounded stone and charcoal. Modern disturbance.	D: 0.9
1454	CS	Port O Leith	Deposit	Black clayey sand and gravel with high organic content. Midden.	D: 0.05
1455	CS	Port O Leith	Deposit	Pale yellow loose sand and gravel with shell inclusions. Natural sand.	—
1456	CS	Port O Leith	Structure	Large water rounded cobbles in sand matrix. Cobbled surface.	—
1457	CS	Port O Leith	Deposit	Pale yellow sand with gravel and charcoal inclusions. Made ground/wind blown sand.	—
1458	CS	Port O Leith	Deposit	Mixed deposit of sand, brick, stone and rubble. Modern demolition rubble.	—
1459	CS	Port O Leith	Structure	Squared granite blocks, roughly coursed, no bonding, gaps between blocks filled with small pieces of slate, slopes from W to E. Sea wall.	W: 8.05, H: 0.35+
1460	H	—	Structure	Large sandstone blocks (0.6 x 0.4 x 0.2) unbonded on top of wall [1461]. Capping of well [1461].	—
1461	H	—	Structure	sandstone blocks (0.3 x 0.2 x 0.1) roughly coursed, unbonded. Drystone well.	—
1462	H	—	Structure	Circular cut, vertical sides, full depth not reached. Cut of well.	Diameter: 1.3
1463	H	—	Deposit	Dark brown loose and crumbly clayey silt with frequent small stones. Fill of cut [1462].	—
1464	ML	—	Structure	Sub-rounded sandstone cobbles, various sizes, with occasional lime mortar bonding. Cobbled surface.	—
1465	ML	—	Deposit	Grey silty sand with rare charcoal and mortar flecks. Made ground.	D: 0.35
1466	ML	—	Deposit	Grey silty sand, very compacted in NE corner of trench, with rare charcoal and mortar flecks. Made ground.	D: 0.15
1467	ML	—	Structure	Small water rounded stones in sand matrix with rare charcoal. Rough metalled surface.	—
1468	ML	—	Deposit	Yellowish brown mottled with grey sand with frequent small stones and rare mortar fragments. Made ground.	D: 0.85
1469	H	—	Structure	Square sandstone blocks (0.4 x 0.4 x 0.1) runs E-W, stone base and sides. Stone culvert, joins [1470] to W.	—
1470	H	—	Structure	Sandstone blocks (0.7 x 0.4 x 0.15), runs N-S, stone base and sides. Stone culvert.	H: 0.2
1471	H	—	Deposit	Mid to dark brown sandy clay with large angular stones. Fill of culvert [1469].	D: 0.15
1472	AS	—	Structure	Stone rubble wall, 3 rough courses, bonded with yellowish orange mortar. Possible culvert.	W: 0.5, H: 0.5
1473	AS	—	Structure	Stone rubble wall, 3 rough courses, bonded with yellowish orange mortar. Possible open culvert.	—
1474	AS	—	Deposit	Rubble fragments and crushed mortar. Rubble core of wall [1472].	W: 0.5, D: 0.5
1475	PS	100 PS	Structure	Coarse rubble wall, E-W, 2 courses, bonded with gritty loose mortar. Front wall of structures [1476], [1477], [1478].	W: 0.24, H: 0.46
1476	PS	100 PS	Structure	Light red brick built vault bonded with mortar, flemish bond, finished with lime wash. Arched brick chamber. Same as [509].	L: 2.9, W: 2.6, H: 2.3+

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Context	Area	Tr	Type	Description	Dimensions (m)
1477	PS	100 PS	Structure	Light red brick built vault bonded with mortar, flemish bond, small ventilation opening at top covered by sandstone slab. Arched brick chamber.	L: 2.6, W: 1.23
1478	PS	100 PS	Structure	Light red brick built vault bonded with mortar, flemish bond, possible mortar finish. Arched brick chamber.	L: 1.23+, W: 1.1+
1479	PS	100 PS	Structure	Coarse rubble built wall, bonded with mortar. Rear (northern) wall of chambers [1476], [1477], [1478].	L: 2.1, W: 0.9, D: 3.3
1480	PS	100 PS	Structure	Coarse rubble built wall bonded with gritty mortar, E-W. Dividing wall between [1478] and [1477].	W: 0.58, H: 0.4
1481	PS	100 PS	Structure	Mortared rubble bonding material in gap between [1476] and [1477].	W: 1, D: 0.25
1482	PS	100 PS	Structure	Single block of yellow sandstone. Lintel/cap stone in roof of [1477].	L: 0.8, W: 0.5, T: 0.07
1483	PS	100 PS	Deposit	Mid grey sandy clay with frequent coal fragments and occasional ceramic fragments. Modern make-up deposit.	D: 0.6
1484	PS	100 PS	Deposit	Light brown sandy clay with frequent coal fragments and common large sub-angular stones. Modern make-up.	D: 0.16
1485	PS	100 PS	Deposit	Dark grey clayey silt with rare coal fragments and animal bone fragments. Deposit directly above structures.	D: 0.25
1486	PS	100 PS	Structure	Light red brick surface, no clear pattern/coursing bonded with gritty white mortar. Brick and mortar bonding between [1477] and [1478].	W: 1.25
1487	PS	100 PS	Deposit	Black clayey silt. Fill of chamber [1476].	D: 1.1
1488	QCS	Compass Bar	Deposit	Black clayey sand with frequent small rounded stones, occasional animal bones and rare wood fragments. Midden.	D: 0.21
1489	QCS	Compass Bar	Deposit	Dark brown clayey sand with frequent small-medium sub-rounded stones. Possible old ground surface - same as [1493]?	D: 0.28
1490	QCS	Compass Bar	Deposit	Dark yellow-mid brown slightly stony loamy sand with frequent brown clay lenses and small sub-rounded stones. Make-up deposit.	D: 0.4
1491	QCS	Compass Bar	Deposit	Modern make-up deposit.	D: 0.77
1492	QCS	Compass Bar	Deposit	Black clayey sand with frequent grey sand lenses. Midden.	D: 0.1
1493	QCS	Compass Bar	Structure	Small, flat sub-angular stones in black sandy clay matrix. Crude cobbled surface.	D: 0.07
1494	QCS	46 QCS	Deposit	Modern make-up deposit.	—
1495	QCS	46 QCS	Deposit	Yellow sand with frequent oyster shell. Natural?	—
1496	CS	121 CS	Structure	Large stone blocks, randomly coursed, N-S, bonded with yellow mortar, faced on E and W sides. Wall associated with foundation wall for church at 118.	W: 0.65, H: 0.4+
1497	CS	121 CS	Deposit	Greyish brown sand with mortar fragments. Make up material surrounding wall [1496].	D: 0.4
1498	QCS	—	Deposit	Dark brownish black loamy sand with occasional coal and mortar fragments and small rounded stones.	D: 0.25

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**Key** LR = London Rd; CS = Constitution St; QCS = Queen Charlotte St; PS = Princes St; H = Haymarket; AS = Assembly St; WMS = West Maitland St; ML = Maritime Lane

## Appendix 1.2 Photographic register

Film	Photo	D fac	B&W	C slide	Description	Film	Photo	D fac	B&W	C slide	Description
17	2-5	W	√	√	Sea wall [1459]	17	11	SE	√	√	NE facing section over cobbles [1464]
17	6	S	√	√	Entire sea wall	17	12	E	√	√	General view of cobbled surface [1464]
17	7,8	S	√	√	Well [1461] at Haymarket	17	13	SE	√	√	View of deposit [1466] under cobbles [1464]
17	9	N	√	√	View of cobbled surface [1464] Maritime Lane	17	14	W	√	√	Working shot
17	10	E	√	√	View of cobbled surface [1464] Maritime Lane	17	15	W	√	√	Rough metallised surface [1467]



Film	Photo	D fac	B&W	Cslide	Description
17	16	SE	√	√	North facing section of trench containing surfaces [1464] and [1467]
17	17	N	√	√	Metalled surface [1467]
17	18	E	√	√	Metalled surface [1467]
17	19,20	E	√	√	Trin Maritime Lane containing surface [1464]
17	21,22	W	√	√	Stone capped culvert [1469] Haymarket
17	23,24	W	√	√	Stone capped culvert [1470] Haymarket
17	25,26	N	√	√	Section of deposits above culverts [1469] and [1470]
18	2,3	SW	√	√	Tr2 post-ex
18	4,5	SE	√	√	Tr2 post-ex
18	6	NW	√	√	General location shot of Tr2
18	8,9	NE	√	√	View of leg bones in W facing section in Tr2 extension
18	10,11	N	√	√	Tr2
18	12,13	NW	√	√	Tr2 East facing section
18	14,15	N	√	√	Tr2 extension view of wall from south
18	16,17	S	√	√	Tr2 extension view of wall from north
18	18	E	√	√	Tr2 location shot
18	19	SW	√	√	Tr3 at W end
18	20	N	√	√	Tr3 showing south facing section at W end
18	21	SE	√	√	Tr5 from south end
18	22	S	√	√	Tr2b post-ex from N
18	23	N	√	√	Tr2 post-ex
18	24	N	√	√	View of Tr5 from S end
18	25	W	√	√	Tr5 view of east facing section
18	26	N	√	√	Tr4 south facing section 6m from W end
18	27	N	√	√	View of extended Tr5 from S
18	28	E	√	√	View of Tr4 from W
18	29	S	√	√	North end of N-S section of Tr2 from N
18	30	E	√	√	West facing section of Tr2 at N end of N-S section
18	31	E	√	√	West facing section Tr2 after extension in NE corner
18	32	E	√	√	Tr2 after excavation of extension in NE corner
18	33	N	√	√	View of Tr5 extension from south
18	34,35	SW	√	√	Tr4 showing skeleton [453]
18	36	SW	√	√	Tr4 showing skeleton [453] with scale
19	1,2	W	—	√	E facing section Tr4 showing skeletons [458], [457], [453]

Film	Photo	D fac	B&W	Cslide	Description
19	3	W	—	√	Close up of section showing skeleton [458] Tr4
19	4	W	—	√	Close up of section showing skeleton [457] Tr4
19	6	N	—	√	Working shot of excavation of Tr5c
19	7	S	—	√	View of Tr4 extension showing wall line
19	8	E	—	√	View of Tr4 extension showing wall line with burial [457]
19	9	N	—	√	Wall [459] Tr4
19	10	S	—	√	Wall [459] Tr4
19	11	W	—	√	Wall [459] with skeleton [457] in section
19	12	S	—	√	Post-ex of wall [459] onto [455]
19	13	E	—	√	Partial excavation of Skeleton [457] showing possible cut
19	14	S	—	√	Partial excavation of Skeleton [457] showing possible cut
19	15	S	—	√	Partial excavation of Skeleton [457] showing possible stone backfill
19	16	S	—	√	Working shot of excavation of skeleton [457]
19	17	S	—	√	Skeleton [457] and skull [462]
19	18	E	—	√	Skeleton [457] and skull [462]
19	19	S	—	√	Skeleton [457]
19	20	E	—	√	Skeleton [457]
19	21	N	—	√	View of skeleton [457] in Tr4
19	22,23	S	—	√	Tr7 graveyard soil [464] and skull
19	24	S	—	√	Skeleton [466] in Tr4 extension
19	25	E	—	√	Skeleton [466] in Tr4 extension
19	26	above	—	√	Skeleton [466] in Tr4 extension
19	27	W	—	√	Skeleton [469] with scale
19	28	S	—	√	Skeleton [469] with targets
19	29	S	—	√	Skeleton [469] with targets
19	30	N	—	√	View of cut [473] and stones [472]
19	31	S	—	√	Infant skeleton [475]
19	32	E	—	√	Infant skeleton [475]
19	33	E	—	√	Infant skeleton [475] and wall
19	34	E	—	√	Wall [480]
19	35	N	—	√	Wall [480]
19	36	S	—	√	Skeleton [475] and targets
20	1	above	—	√	Skeleton [453]
20	2	E	—	√	Skeleton [453]

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Film	Photo	D fac	B&W	Cslide	Description	Film	Photo	D fac	B&W	Cslide	Description
20	3	S	—	√	Skeleton [453]	23	2	S	√	√	General shot showing exposed [1476] and removed [1479]
20	4	E	—	√	Skeleton [453] and wall [479]	23	3	N	√	√	Detailed shot of arch of [1477] in gap between [1477] and [1475]
20	5	S	—	√	Skeleton [453] with targets	23	4	N	√	√	Detailed shot of arch of [1477] in gap between [1477] and [1475] continued
20	6	N	—	√	S facing section of Tr4	23	5	S	√	√	General shot showing part of N side of [1476] exposed and [1479] part removed
20	7	S	—	√	Shots of stone wall [479]	23	6	S	√	√	Shot of stone associated with [1475] and in front of [1477]
20	8	E	—	√	Shots of stone wall [479]	23	7	E	√	√	Chambers [1453], [1477] and [1481]
20	9	NW	—	√	Shots of stone wall [479]	23	8,9	E	√	√	General shot showing setting of trench and structures
20	10	N	—	√	Shots of stone wall [479]	23	10	S	√	√	Elevation of [1475] West part
20	11	NW	—	√	Skeleton [485]	23	11	S	√	√	Elevation of [1475] East part
20	12,13	SE	—	√	Working shots	23	12	E	√	√	Shot showing [1477], [1481] and [1475]
20	14	N	—	√	South facing section showing skeleton [488]	23	13	W	√	√	Shot showing [1477], [1481] and [1475]
20	15	N	—	√	S end of Tr4	23	14	E	√	√	Detail shot of brick wall [1477]
20	16	N	—	√	S facing section of Tr7b	23	15	N	√	√	Cleaned slot onto roof of [1477]
20	17	SW	—	√	Working shot of Tr7b	23	16	N	√	√	Section showing [[1485], [1484] and [1485]
20	18	W	—	√	Post-ex shot Tr7b	23	17	S	√	√	Joint between [1478], [1480] and [1475]
21	1	S	—	√	View of brick structure [490]	23	18	W	√	√	Joint between [1478] and [1481]
21	2	SW	—	√	View of brick structure [490]	23	19	N	√	√	[1480] abutting [[1478]
21	3	N	—	√	View of brick structure [490]	23	20	E	√	√	[1480] abutting [[1478]
21	4,5	E	—	√	View of arch in brick structure [490]	23	21,22	E	√	√	[1481] with [1480] and [1479] removed with associated deposits
21	7,8	S	—	√	Working shot, media visit	23	23	N	√	√	Wall [1479] East end
21	9		—	√	Working shots (9a–9g) excavating skeletons [494] and [495]	23	24	N	√	√	Wall [1480] with [1479] in the background
21	10	N	—	√	Skeletons [495] and [494] with scale	23	25	N	√	√	Gap and top of vault of [1477]
21	11	W	—	√	Skeletons [495] and [494] without scale	23	26	E	√	√	General shot of brick vault structures, Princes St
21	12	N	—	√	Shot of upper half skeleton [[494] with targets	23	27	E	√	√	Possible culvert Princes St
21	13	N	—	√	Shot of lower limbs skeleton [494] with targets	23	28	E	√	√	Trin Assembly St showing water pipe and concrete block
21	14	N	—	√	Shot of lower half skeleton [495] with targets	23	29	N	√	√	Wall in trench Assembly St showing severe truncation damage
21	15	N	—	√	Shot of upper half skeleton [495] with targets	23	31	N	√	√	Wall in TrAssembly St, North elevation
22	2	W	—	√	Stone culvert [497]	23	32	SE	√	√	Wall in TrAssembly St, South elevation
22	3	W	—	√	General shot of trench	23	33	E	√	√	Wall in TrAssembly St, South elevation
22	4	N	—	√	General shot of trench	23	34	W	√	√	Wall in TrAssembly St, South elevation
22	5	W	—	√	Close up of culvert [497]	24	2		√	√	General shot
22	6	E	—	√	West facing section of trench opposite [497]						
23	1	E	√	√	General shot showing structures in Princes St with shoring						



Film	Photo	D fac	B&W	Cslide	Description
24	3,4	S	√	√	Wall [531]
24	5,6	W	√	√	Wall [531] detail
24	7	S	√	√	Wall [531] lower courses
24	8	E	√	√	West facing section in trench outside 104 Constitution Street
24	9	S	√	√	North facing section in trench outside 104 Constitution Street
24	10,11	S	√	√	Wall [531]
24	12-14	W	√	√	Wall [531] detail
24	15	S	√	√	Detail of stone block at end of wall [531]
24	16	S	√	√	Wall [531]
24	17	W	√	√	Midden deposit in 2nd trench at Compass Bar, Constitution St
24	18,19		√	√	Midden deposit in 2nd trench at Compass Bar, Constitution St
24	20	E	√	√	General shot of trench fronting Police Station, Constitution St
24	21,22	N	√	√	South facing section outside Police Station, Constitution St
24	23	S	√	√	Detail of culvert [520]
24	24	E	√	√	West facing section of Test pit fronting 44 Constitution St
24	25		√	√	West Passageway, Princes St chamber
24	26		√	√	East Passageway, Princes St chamber
24	27		√	√	General shot of interior of [1476]
24	28	S	√	√	Section and profile through [1476] and [1479]
24	29,30	E	√	√	General shot of trench
24	31	S	√	√	Shot of opening in [1476]
24	32	W	√	√	Shot of opening in [1476]
24	33	N	√	√	General shot showing opening in [1476] from south
25	2,3	W	√	–	East facing section Tr115–117 Constitution St
25	4	S	√	–	General shot of trench outside 104 Constitution St
25	5	E	√	–	Trouside 27 Queen Charlotte St
25	6	N	√	–	South facing section outside 27 Queen Charlotte St
25	7–10	E	√	–	Wall [541] West facing elevation detail
25	11,12	N	√	–	Wall [541]
25	13	S	√	–	General shot of trench outside 104 Constitution St

Film	Photo	D fac	B&W	Cslide	Description
25	14	N	√	–	Midden deposit in trench outside 27 Constitution St
25	15	W	√	–	Midden deposit in trench outside 27 Constitution St – in E facing section
25	16	N	√	–	Midden deposit in trench outside 27 Constitution St – in E facing section
25	17–19	N	√	–	Surface [543]
25	20	E	√	–	Tr fronting 46 Queen Charlotte St
25	21,22		√	–	General site shot
25	23	E	√	–	Tr across Queen Charlotte St
25	24	N	√	–	General shot of trench at 124 Constitution St
25	25	N	√	–	South facing section of trench at 124 Constitution St
25	26	NW	√	–	Made ground in trench on Queen Charlotte St
25	27	N	√	–	Tron East side of Queen Charlotte St

### Appendix 1.3 Sample register

Sample	Context	Location	Description
558	460	London Rd	Grave fill
559	457	London Rd	Grave fill
560	465	London Rd	Grave fill
561	474	London Rd	Grave fill
562	464	London Rd	Deposit
563	477	London Rd	Grave fill
564	456	London Rd	Deposit
565	493	London Rd	Grave fill [496]
566	–	–	not used
567	515	Constitution St	Possible occupation deposit/ground surface
568	516	Constitution St	deposit beneath [515]
569	517	Constitution St	c18th century midden
570	518	Constitution St	Yellow sand
571	529	Constitution St	Organic rich midden deposit
572	533	Constitution St	Fill of construction cut for wall [531]
573	536	Constitution St	Greyish brown deposit
574	531	Constitution St	Mortar sample from wall [531]
575	539	Queen Charlotte St	Fill of ditch
1558	1464	Maritime Lane	Mortar sample from around cobbles
1559	1471	Haymarket	Fill of stone culvert [469]
1560	–	–	not used

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Sample	Context	Location	Description
1561	1476	Princes St	Brick sample from vaulted structure
1562	1489	Queen Charlotte St	Sample from possible old ground surface
1563	1498	Queen Charlotte St	Sample from made ground deposit
1564	502	Princes St	Sample from vaults
1565	503	Princes St	Sample from vault floor

Sample numbers 558–565 were found to be duplicated. These numbers have been retained for London Rd samples. Samples 558–565 from watching briefs elsewhere on the tram route have been renumbered 1558–1565.

## Appendix 1.4 Drawing register

Dwg	Scale	Location	Description
147	1:20	London Rd	East facing section Tr4 showing skeletons [453], [457], [458]
148	1:20	London Rd	Plan of skeleton [453]
149	1:20	London Rd	Plan of wall [459]
150	1:20	London Rd	Plan of skeletons [[453] and [462]
151	1:20	London Rd	Plan of skeleton [466]
152	1:10	London Rd	South facing section of Tr4
153	1:20	London Rd	Plan of stone wall [479]
154	1:20	London Rd	Plan of skeleton [485]
155	1:20	London Rd	Plan of wall [471]
156	1:20	W Maitland St	Plan of concrete structure
157	1:10	W Maitland St	West elevation of concrete structure
158	–	Princes St	Sketch plan of culvert
159	1:50	Princes St	Pre-ex plan of vaulted structures
160	1:10	Princes St	Section through [1483], [1484] and [1485] showing relationship to [1477]
161	1:20	Princes St	Profile showing top of vaulted structures and wall [1475]
162	1:20	Princes St	Plan showing intrusive slot into [1476]
163	1:20	Princes St	North facing section through [1476] and [1481]
164	1:20	Princes St	North facing elevation of [1476]
165	–	Princes St	Measured sketch of structure [1476]
166	1:50	Queen Charlotte St	South facing section Compass Bar
167	1:20	Constitution St	Wall [1496]
168	1:20	Princes St	Elevation of E wall of vault [505]
169	1:20	Princes St	Southern elevation of vault [504]
170	1:20	Princes St	West elevation of vault [506]
171	1:20	Princes St	North elevation of vault [504]

Dwg	Scale	Location	Description
172	1:50	Princes St	Location plan of vault
173	1:20	Princes St	Floor plan of vault [509]
174	1:20	Constitution St	West facing section of test pit outside no.44
175	1:50	Constitution St	Plan of test pit outside no.44
176	1:20	Constitution St	South facing section of E-W trench
177	1:100	Constitution St	Location plan of trenches outside Police Station
178	1:20	Queen Charlotte St	West facing section of N-S trench
179	1:50	Constitution St	Plan of wall [531] outside no. 104
180	1:20	Constitution St	East facing elevation of wall [531]
181	1:20	Constitution St	North facing section of trench outside no. 104
182	1:20	Queen Charlotte St	South facing section outside no. 32
183	1:100	Queen Charlotte St	Location plan of Tr2
184	1:20	Constitution St	South facing elevation of wall [541]
1147	1:20	Constitution St	Pre-ex plan of cobbles [1456]
1148	–	–	not used
1149	–	–	not used
1150	1:20	Constitution St	Sea wall [1459] part exposed
1151	1:20	Constitution St	Sea wall [1459] fully exposed
1152	1:20	Haymarket	Well
1153	1:20	Constitution St	Cobbles outside Port O'Leith
1154	1:10	Constitution St	North facing section of trench outside Port O'Leith
1155	1:20	Haymarket	Culvert [1469] and [1470] near well, Haymarket
1156	1:50	Assembly St	Trand wall [1472] and [1473]
1157	1:50	Assembly St	Continuation of plan 1156 to east

Drawing numbers 147–57 were found to be duplicated. These numbers have been retained for the London Rd site. Drawings from Watching Briefs elsewhere on the site have been renumbered as 1147–1157.

## Appendix 1.5 Small finds register

Sf	Context	Location	Description
11	U/S	London Rd	Green glazed ceramic fragment
12	U/S	London Rd	Ceramic fragment from Tr4
13	U/S	London Rd	Ceramic fragment from Tr6
14	U/S	London Rd	Tibia of child from Tr4 from spoil
15	U/S	London Rd	Human remains from Tr2
16	U/S	London Rd	Leg bones from section in Tr2
17	U/S	London Rd	Leg bones from Tr4
18	U/S	London Rd	Human bone from Tr2b



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<b>Sf</b>	<b>Context</b>	<b>Location</b>	<b>Description</b>
19	455	London Rd	Animal bone from Tr7
20	454	London Rd	Bone from [454] over wall area
21	454	London Rd	Ceramic fragments and glass from near wall [459]
22	460	London Rd	Remains of a pin located close to skull of [457]
23	493	London Rd	Shell (?) found in right hand of skeleton [495]
24	493	London Rd	Fe object







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