



# HAYMARKET RAILWAY STATION CAPACITY PROJECT

Archaeological Monitoring and Historic Building Recording

commissioned by Morgan Sindall

10/02449/PA 10/02430/LBC

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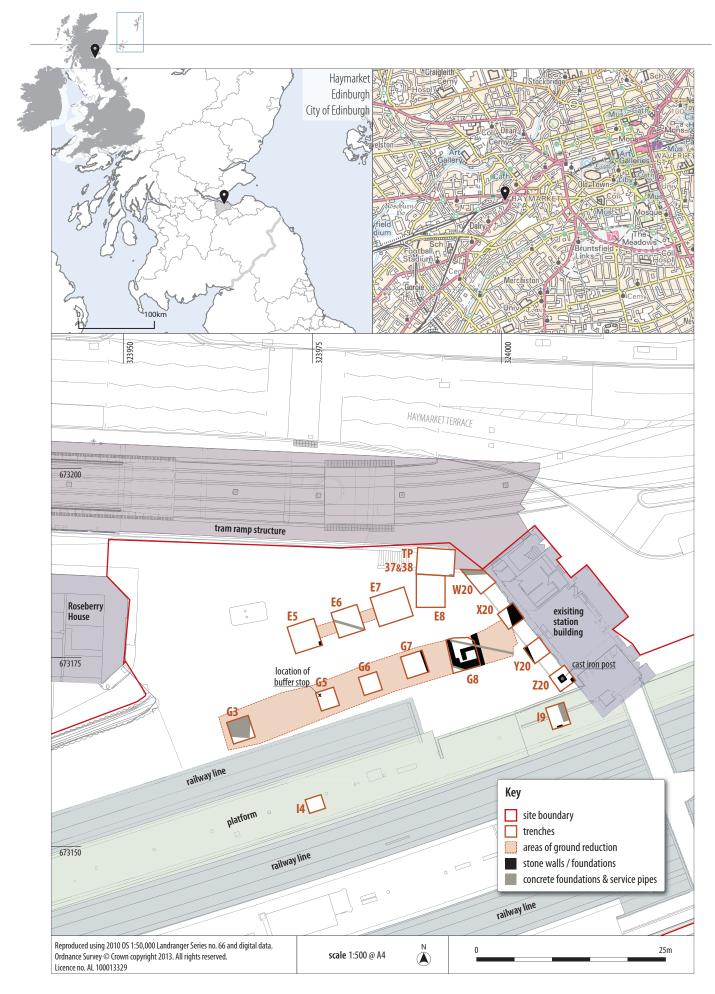


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**Illus 1** *Site location* 

# HAYMARKET RAILWAY STATION CAPACITY PROJECT

# Archaeological Monitoring and Historic Building Recording

Headland Archaeology was commissioned by Morgan Sindall to undertake a programme of archaeological monitoring and historic building recording during a major capacity enhancement project at Haymarket Station, Edinburgh.

The monitoring work concentrated on the site of a former car park to the west of the main station building and revealed a number of features relating to the 19th century railway station, including an earlier railway alignment and foundations for adjacent platforms and buildings. The potential for earlier remains was found to be very low due to substantial truncation caused by the construction and expansion of the railway during the mid to late 19th century.

The historic building recording documented many changes made to the ground floor, basement and sub-basement of the existing station building and a series of rooms adjacent to Platform 4. These could mostly be tied to major renovations in 1894 and 1984.

# 1 INTRODUCTION

Headland Archaeology was commissioned by Morgan Sindall to undertake archaeological monitoring and historic building recording at Haymarket Station, Edinburgh during a major capacity enhancement project. This involved the construction of a new station building in the car park to the west of the Main Station building and the refurbishment of the existing station buildings.

A planning condition (Planning Ref. 10/02449/PA and 10/02430/LBC) placed by the City of Edinburgh Council Archaeology Service (CECAS) required archaeological monitoring of all excavations deeper than 500mm below original ground level, and historic building recording to English Heritage Level 2 standard (Menuge 2006) of any parts of the original buildings that was to be affected by the development. The work was undertaken under the terms of a Written Scheme of Investigation (Headland Archaeology 2012) prepared in April 2012 and agreed with CECAS. Monitoring took place between 18th September and 17th October 2012. Historic building reporting was undertaken in tandem with soft stripping of the existing buildings, with visits on 23rd January 2013, 24th and 27th January 2014 and 24th–25th February 2014.

### 1.1 Archaeological background

Historic Research relating to the site has been supplied and consulted (IDP Architects 2010). This report contains a basic written history and an excellent selection of plans and other images of Haymarket as it has evolved. An unfortunate omission is a reproduction of the plans for the station as originally built. An enhanced summary of the report is included here.

Prior to the development of the railway in the 19th century the land formed part of the Coates estate which dates to the medieval/post medieval period. There was potential to encounter remains of this period during the monitoring work.

Haymarket Station was built between 1840 and 1842 as the Edinburgh terminus of the Edinburgh and Glasgow Railway by engineer John Miller, possibly to a design by David Bell (Hay and Stell 1986, 223). The station consisted of a classical 3-storey booking hall with an ornamented cast iron train shed behind. By 1846 the line had been extended eastwards by tunnel (Railbrit Website) to the Joint Railway Station at Waverley Bridge (which was rebuilt as Waverley Station in 1868-74 to a design by James Bell). This required alterations to the station layout, including the creation of further through platforms to the south. The Haymarket Inn (latterly the Caledonian Ale House) was constructed adjacent to the north-west in the 1860s. A second railway tunnel was added in 1894, at which point a series of rooms were built into the retaining wall south of the tracks. Over time the remaining terminal platforms were closed forming a 4-track through station as it stands today. The main station building was given 'A' listed status by Historic Scotland in 1964 (historic Scotland Website). The original train shed was used as a covered car park until its removal in 1984 to the Bo'ness & Kinneal Railway. At this time the old platform canopies and footbridge were replaced and changes made to the booking hall. In 2006, one of the terminal platforms north of the through lines was reconstructed; in 2010 the Caledonian Ale house was demolished to make way for the Haymarket tram stop.





General view of trenches G3–G6, facing west. The concrete bases have already been poured

### Illus 3

Remains of possible buffer stop, shortly after removal from Trench G5

### Illus 4

Sandstone wall at the east side of Trench G7, facing west

### Illus 5

Sandstone structures in Trench G8, facing west. The wall in the background is that on the eastern side of Trench G7

Despite many minor alterations the main booking hall remains much in its original state, with modifications mainly concerning interior layout and access to the platforms at the rear of the building.



### AIMS AND METHODS

### 2.1 Monitoring

The monitoring work was intended to allow the preservation by record of any archaeologically significant remains in advance of construction.

A total of 16 trenches were excavated to the west of the existing station building in advance of the construction of concrete foundation piles; with some additional ground reduction for safety and the installation of ground beams and a waste water tank (Illus 1). Further foundation trenches in this area, predominantly in the north-western

Stepped sandstone foundation in Trench X20, facing east

### Illus 7

Sandstone wall at western side of Trench Y20, facing west

### Illus 8

Iron column base in Trench Z20, facing south-east

part of the site, encountered bedrock at a depth less than 500mm; therefore these were not archaeologically monitored. Excavations within existing platforms to the south were not monitored due to the negligible potential of encountering archaeologically significant remains. The construction in 1846 of a tunnel running east towards Waverley Station would have required a substantial cutting here, removing any earlier remains.

Excavation was undertaken by a mini excavator equipped with a flat-bladed ditching bucket, except when particularly hard deposits such as heavy rubble were encountered; in which case a toothed bucket was used. The excavations were monitored constantly by an archaeologist, who recorded the stratigraphy and any significant remains.

### 2.2 Historic Building Recording

Historic Building recording was undertaken in line with the requirements of a Level 2 record (RCHME 1996). The aim of this level of survey is to produce a descriptive record, including:

- Plans (to scale) of all main floors as existing (supplied by IDP Architects with additional detail added by Archaeology). buildings of well-known types or with a repetitive internal structure may be planned on one floor only, but a note or sketch plan will be made to show the arrangements of other floors. Plans will show the form and location of structural features of historic significance (e.g. blocked doors & windows, former fireplace openings, masonry joints, changes in internal level). Where only a façade or limited historic fabric survives the modern building will only be shown in outline.
- Photography, including general views of the exterior of buildings,











Wall stub in southern side of Trench 19, facing south

### Illus 10

General view of north-east facing façade. Unfortunately the view was blocked by hoarding at the time of fieldwork

### Illus 11

General view of north-west facing elevation. The new building can be seen to the right

### Illus 12

General view of the upper two stories of the south-west facing elevation from within the new station building

views of the overall appearance of principal rooms and circulation areas and of 19th– early 20th century architectural details.

 A written account including an expanded summary statement describing each building's type, purpose, materials and possible date(s); an outline account of the building's plan, form, function, age and development sequence; the names of architects, builders, patrons and owners if known and a note of each building's past and present relationship to its setting.

Any variations to the original WSI were agreed on site with CECAS and the client. It was agreed that the first floor (partly used as office space) and attic levels of the booking hall building need not be recorded as no alterations were made in relation to the present renovation.





General view of the basement level of the south-west facing elevation from within the undercroft of the new station building

### Illus 14

General view of north-west facing elevation. The new building can be seen to the left

### Illus 15

View of ceiling of underhang on Platform 1, showing remaining interior panelling

## 3 RESULTS

### 3.1 Monitoring

The results of the monitoring are briefly described below by area of excavation. Please refer to **Illus 1** for trench locations and Appendix 1 for detailed trench records, including dimensions.

### 3.1.1 Trenches G3-G8

Trenches G3-G8 were located immediately to the north of the railway line serving platform 0, which had been temporarily infilled to facilitate construction work. An area c. 1.5 m around the trenches was reduced in level by up to 0.7m to allow safe access where necessary (Illus 2). Excavation revealed a deep (up to 2.4m) layer of made ground overlying geological subsoil comprising boulder clay. The made ground consisted of very mixed dumped deposits, including gravel, stones, masonry fragments, timber and wood. The possible remains of an iron buffer stop were encountered in this layer towards the northwestern corner of Trench G5 (Illus 3). The item did not appear to be in situ but was very heavy and may not have been moved far from its original location.

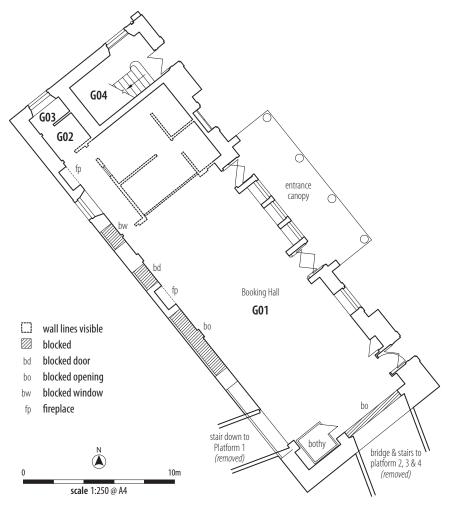
A sandstone wall was encountered in the eastern edge of Trench G7 (Illus 4). This wall was aligned perpendicular to the existing railway lines and may represent the eastern limit of an earlier, infilled railway line. The level of undisturbed geological deposits to the east of this wall was also c. 1m higher, suggesting that the railway line had been cut deeper into the natural clay.

Further sandstone structures were encountered in Trench G8 (**Illus 5**). Three sides of a rectangular foundation structure were exposed, as well as a further, small, L-shaped wall. These were truncated in two places by









more recent service pipes, and the voids backfilled with similar rubble to that encountered in trenches G3–G7.

A large concrete foundation was encountered in trench G3 at 2.2m below original ground level.

## 3.1.2 Trenches E5—E8 and Test Pits 37—38

Trenches E5–E8 were located some 9m to the north of trenches G3–G8. Test Pits 37 and 38 were treated as one trench and were located immediately north of Trench G8. Excavation revealed 0.9–1.5m of made ground overlying mudstone. The corner of a sandstone structure was revealed in the south-eastern corner of Trench E5, but was not explored further. No further remains of archaeological significance were uncovered.

### 3.1.3 Trenches W20, X20, Y20 and Z20

These trenches were located adjacent to the south-west side of the existing station building. Between 0.5 to 1.7m of gravel and mixed rubble was encountered, overlying geological boulder clay subsoil in Trenches W20 and X20, and mudstone bedrock in Trenches X20 and Z20. A concrete slab relating to the construction of the tram ramp structure was encountered in the north side of Trench W20.

At the eastern side of Trench X20, a stepped sandstone foundation was exposed. This was aligned approximately north-south and

### Illus 16

Annotated plan of ground floor

stood 1.64m high (**Illus 6**). A sandstone wall on a similar alignment was found at the western side of Trench Y20 (**Illus 7**). These may represent part of the foundations for a two-storey building that joined the original station building to the train shed and pedestrian overbridge; which dates to the end of the 19th century. The stonework in Trench X20 was removed entirely to make way for a foundation pile, while that in Trench Y20 remained in situ, with only the upper stone removed to allow a drainage pipe to cross.

A cast iron column base set in a concrete foundation was found in Trench Z20 (Illus 8). It was not clear whether this was part of the 19th century train shed or a later structure. The corner of a sandstone structure was also revealed at the eastern side of this trench, which was most likely part of the foundations for the main station building.

### 3.1.4 Trenches I4 and I9

These trenches were excavated through the structure that makes up Platforms 0 and 1. Trench I4 had been previously excavated and backfilled with gravel and

mixed rubble. Similar material was found in Trench 19, to a depth of 0.9m, overlying mudstone. The northern end of a sandstone wall standing 0.8m high was found at the southern end of this trench (Illus 9); a substantial concrete foundation slab lay to the east.

### 3.2 Historic Building Recording

### 3.2.1 Exterior and setting

The main station building is situated at the south-western end of West Maitland Street, and terminates a long view from the west end of Princes Street. The building is rectangular, measuring 25m x 10m externally with the longer axis oriented northwest to south-east (Illus 1). The two-storey main façade (facing north-east) consists of seven bays of which the middle three are recessed. A single-storey central Tuscan porch provides shelter for the entrance (Illus 10). The stonework is a yellowish sandstone ashlar, albeit much weathered. Openings are emphasised by broad offset margins with scrolled brackets and consoles (Hay and Stell 1986, 223-4). A circular clock projects from the apex of the low-pitched roof, which is largely hidden by a substantial parapet with dentilled cornice. The façade on the whole remains largely as original other than modern signage and the replacement of the north-westernmost window under the porch by a door.

General view of room G01, facing north-west

### Illus 1

General view of Room G01, facing south-east. The sag in the ceiling is clearly visible. A 1980s reinforcement beam can be seen as a deeper casement on the ceiling in the background

### Illus 19

Fireplace in the north-east facing elevation of B01

The remaining elevations have little decoration other than pronounced quoins, although the cornice continues round the two shorter sides of the building. There are six original chimney stacks, one on each gable end and four along the rear elevation.

The north-west elevation (**Illus 11**) is largely as built but for a blocked window on the first floor, an inserted service vent and some areas of stone replacement. An external stair leading to platform level behind the building has been removed during construction of the adjacent tram stop.

The three-storey south-west elevation (Illus 12 and 13) consists of six bays at first floor level, with a more functional arrangement at ground and basement (platform) level. At the time of fieldwork, the new building had advanced to the point where the basement floor was no longer visible to the public, being hidden in the undercroft. Several alterations to windows, doors and connecting openings are visible. A small gabled dormer has been added, most likely relating to the 1894 modifications, when some of the roof space was opened up for use as accommodation. One window at first floor level has been sealed at the same time as the result of a new fireplace being inserted behind. Several changes have been made at ground floor level, relating to the removal of a raised wooden structure that provided a connection between the booking hall and the train sheds, which were on a different orientation. The structure led to the stairs and footbridge and also contained an agent's room. It was removed as part of the 1984 renovation, leaving two windows, a doorway and a large opening unused. These were sealed sympathetically with matching sandstone. A replacement opening was made closer to the southern corner to connect with stairs to Platform 1; this in turn will be sealed up as part of the present renovations. Two new openings will be made to connect the old building with the new. The basement









**Illus 20**Security box in southern corner of G01

wall was aligned parallel to the tracks, and provided access to passenger toilets through a central doorway. There were originally four windows at this level, two on either side of the door, though the eastern pair have subsequently been hidden by a 1980s brick structure. The space below the overhang has remnants of the original tongue-in-groove panelled ceiling (Illus 15).

### 3.2.2 Interior – Ground Floor (Illus 16)

At the time of the survey, the majority of the ground floor had been opened up into a single large space (G01, **Illus 17**). Nearly all internal walls, principally those of the ticket office and supporting rooms to the north-west, had been

stripped out as part of the present works. It is evident from the remains and earlier plans that there were never any internal structural walls. The building was narrow enough (7m internal width) for the external walls to carry full-span iron beams for each floor. These beams looked rather slight where visible through plasterboard and there was a pronounced sag in the ceiling of the ground floor. This appears to have been reinforced during the 1980s alterations by the addition of several much heavier steel beams (**Illus 18**). Supports

floor also shows signs of modifications, although most appear to be related to the 1894 alterations. There is evidence (see below) of a floor level change at the northern end, which is supported by the two very high door frames at this end. This change appears to have been made before or during the 1894 alterations, and would have removed access to the sub-basement from this floor. Two of the basement windows (one blocked) appear to have been adapted from doors at around this time. Four of the five windows at this

level will be blocked during the present works, though the doors will continue to be used.

Several modifications were noted on the south-east elevation (Illus 14). The two first floor windows have both been blocked: the eastern one in 1894 with the insertion of a fireplace behind, the other when the southern internal staircase was removed, probably in 1984. One further small blocked window relating to this staircase can be seen on the ground floor. A large ground floor opening (now blocked) formed the connection to the 1984 footbridge, and replaced an earlier window and a door which led to a small projecting walkway leading to the front of the building, also removed. The basement level of this elevation has been entirely realigned, leaving the ground floor overhanging Platform 1, supported by heavy iron beams and columns. This change appears to have been made in 1894, presumably for passenger safety – the space between the original southern corner of the booking hall and the railway lines would have been very narrow. The replacement external

B01 B02 **B04** B03 B15 **B08** B07 B10 B06 B05 **B09** B11 **B12** Platform 1 10m scale 1:250 @ A4

**Illus 21** Annotated plan of basement floor

View down stairs in B01, facing south-east

### Illus 2

North-west facing elevation of B02, showing original floor height between the two blocked doors

### Illus 24

General view of B03 prior to soft-strip and floor removal

and other remnants of a lowered ceiling were evident throughout, reducing the height from 4.2m to around 3.3m in the central part and 2.3m at either end. The walls were of squared sandstone, built to courses and with timber supports for plaster finishing. Blocked openings were sealed internally with brick, except for the large opening on the northwest facing elevation which had been recently been infilled with breeze blocks.

The doors, windows and large openings are as described for the external elevations, although further detail was evident in the form of timber lintels and stone relieving arches over original doors and windows. One fireplace (Illus 19) and a cavity for a second were observed on the northeast facing elevation. A small mobile security bothy stood in the southern corner (Illus 20). Two much smaller spaces (G02 and G03) at the northern corner of G01 had previously served as a toilet. A spacious staircase (G04) provided separate external access to the first floor. A large iron support beam for these stairs could be seen from G03, along with neat plasterwork suggesting that this may have been exposed at one point.

### 3.2.3 Interior – Basement Floor (Illus 21)

The basement floor consists of some 15 rooms and smaller spaces, which have served as cloakrooms, lost luggage, plant rooms, stores, toilets and offices. As described above, the southern corner of this floor has been remodelled to create extra platform space, resulting in a broadly trapezoidal plan. In general, the internal walls dividing the rooms were of brick and were not needed to support the floor above.

Room B01 (Illus 22) was part of a stairwell that connected Rooms B03 and B04, an external basement under the steps on the north-west side of the building, and a sub-basement. The floor level in Rooms B01–B04 was originally 1m higher than present, to allow the use of some















South-east facing elevation of B04 showing B01 through hole in wall and a blocked-up doorway of the former sub-basement

### Illus 26

General view of B05 showing doorways to B06, B07 and B08

### Illus 27

Stone slab ceiling in B15, facing south-east. These slabs support the portico above

### Illus 28

Remnants of the original function of B11, facing west

of the foundation space as a sub-basement (see below). When the sub-basement came out of use (as part of the 1894 renovations), the floor level of rooms B02–04 was lowered to match the platform level, and two former windows to the south-west elevation were converted into doors. B01 remained at the same height, maintaining access between the external basement (which also had access to the outside) and a small boiler room (SB04) below, but entry was blocked from the other rooms. Access to the external basement was blocked at a later date; that basement has also been subsequently removed.

The altered floor level was also visible in Room B02 (Illus 23) – the lower portion of the partition walls were darker and two bricked-up doorways at original basement and sub-basement heights were evident in the north-west facing elevation. On the opposite elevation, the original basement fireplace has been moved down to present basement level. Remains of lathe and plaster are evident; the ceiling had been removed.

Room B03 and B04 were originally an inspector's office and store respectively, though had been in use as a mess room prior to the present renovations. They were only partly stripped at the time of fieldwork. Much of the plasterboard remained, although the lowered ceiling had been removed (Illus 24). The floor was also removed to allow the infilling of the sub-basement with foam concrete. A fireplace and chimney had been added in 1894 in the southern corner of B03. The upper part of the doorway to SB04 was exposed in the southeast facing elevation of B04 (Illus 25), as was the doorway from B01 at the earlier (higher) floor level. A tongue-and-groove panelled ceiling was visible in B04.

Illus 29

Retaining wall visible in B14, facing south-east

Room B05 (Illus 26) was a small corridor providing access to an office (B06) and two store rooms (B07 and B08). The brick dividing walls appear to have been built post-1894, when the combined space was used as a left luggage room. They may be part of the 1980s work. A large steel supporting beam has been inserted to support the floor above and may also date to this time. Most of the plaster and some remnants of original timber panelling on south-eastern facing elevations of rooms B06-08 were still in place at the time of fieldwork. There is no other evidence to suggest there has been access through to rooms B03-04. A blocked doorway is evident in the north-west facing elevation of B05, adjacent to the external door. This appears

to have been blocked in 1894. A small, stone-built store room (B15) is accessed through a doorway in the south-west facing elevation of B08. It has a heavy stone-slab ceiling which supports the portico above (Illus 27).

Room B09 was formerly a cloakroom, and has more recently held the electrical systems for the station. Much of the plaster remained on the south-west and south-east facing elevations. The ceiling was



of tongue-in-groove panelling, including wooden cornicing. A small store (B10) mirrored B15 on the north-east side of the room.

Room B13 was a small hallway providing access to B11 and B12 from Platform 1. These rooms were originally joined and used as a public toilet in 1894, and more recently split into two workshop stores. Evidence of the earlier function was preserved in the form of white glazed brickwork in Room B11 (Illus 28) and above the

(removed) lowered ceiling in Room B12. An iron beam was inserted in 1894 as part of the structure to carry the floor joists above in the absence of the original supporting external wall. Some remains of an original tongue-in-groove ceiling are evident, caught between the joists and the new external wall, as seen under the overhang outside. A small high-level hatch gives access to a small cupboard in the southeast corner.

Finally, B14 is a small brown brick structure built under the overhang on Platform 1. It is likely to have been built in the 1980s and was used as a small store. Inside, the curved end of the massive retaining wall for the railway cutting is visible (Illus 29) as well as a very substantial vertical cast iron pipe, presumably for drainage. Again the tongue-in-groove ceiling panelling is evident above the (removed) lowered ceiling.

# SB03 SB03 SB03 SB03 SB02 brick fireplace brick blocked blocked door blocked window fp fireplace

### 3.2.4 Interior – Sub-Basement Floor (Illus 30)

As described above, the sub-basement was a part of the foundation structure consisting of five small rooms accessed by a staircase

# Illus 30

Annotated plan of basement floor



North-east facing elevation of SB01, after the basement floor was removed

### Illus 32

Boiler in SB04, facing north-west

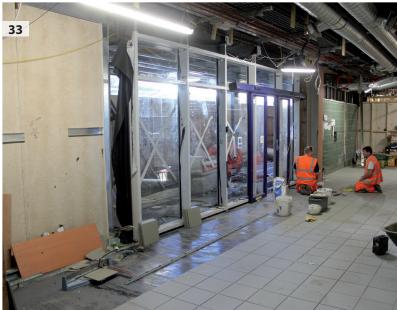
### Illus 33

General view of refitting work at the rooms adjacent to Platform 4, facing north-east

### Illus 34

Oblique view of retaining wall over Platform 4, facing east. The massive cast-iron beam that carries the ceiling is visible behind the new canopy structure







from the basement. The 1894 proposals show that this floor was in use as a small dwelling.

The north-west facing elevation of Room SB01 (Illus 31) featured a blocked opening presumed to be a window, although it is not clear in what manner light was transmitted to it from platform level. Adjacent to this is a small stone fireplace, somewhat masked by a brick support for the new hearth slab in the B03 above. A bricked-up doorway in the south-east facing elevation would have provided access to Room SB05, which was found to have been filled in with concrete, most likely in the 1980s. The brick partition between SB01 and SB02 was inserted when the rooms went out of use, presumably to provide support for the new floor. The purpose of Room SB03 was unclear. Beneath the staircase to B01 was a small boiler room SB04 which remained in use some way beyond 1894.

0

### Illus 35

Cast-iron barrel vaults in rooms adjacent to Platform 4

Some of the ironwork was still in situ on the brick-built boiler (**Illus 32**).

### 3.2.5 Rooms adjacent to Platform 4 (Illus 33)

A series of rooms were built within the retaining wall at the south side of the station, with Distillery Lane above. Prior to the present renovation they were in use as a café, toilets and offices. At the time of fieldwork, these had been soft-stripped and refitting was underway (Illus 34), leaving the main structure as the only original feature. This was only visible at points behind hoarding and new internal finishes.

The south wall was built of a mixture of large squared stone blocks with brick at the upper courses, although it had been refaced with breeze blocks, probably during the 1980s refurbishment. The northern wall was of sandstone ashlar, with a heavy cast-iron beam inserted to carry the ceiling (Illus 35). This consisted of lateral cast-iron barrel vaults riveted together (Illus 36) with an extra beam inserted every twelfth vault. This structure removed the need for internal supporting walls and it is possible that the layout of this space has been altered several times.

### 4 DISCUSSION AND CONCLUSIONS

The monitoring work at Haymarket station revealed a number of features relating to the 19th century railway station, including a deep cut for a railway north of the existing line serving Platform 0. This had been infilled with rubble during the redevelopment of the station in the early 1980s. At the eastern end of the site lay the remains of sandstone foundations for the platform area at the end of this line and those of a building connecting the original station building to the train shed and pedestrian overbridge. The space between these walls had been built up with rubble, most likely during construction in order to support the platform areas.

Most of these features had been cut through the geological subsoil (boulder clay) to bedrock, thus leaving very little potential for earlier remains. In the north-western part of the site, the bedrock was found to be shallower than 500mm from ground level indicating that the boulder clay and any earlier features that may have been cut into it had been previously removed.

The historic building recording has created a detailed record of the modifications made to the main 1842 building and the rooms adjacent to Platform 4. These can for the most part be dated to one or other of the two main renovations undertaken in 1894 and 1984. It can be concluded that despite the many structural and decorative changes the building has been subjected to, the basic appearance and function has remained relatively intact.



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Railbrit Website Chronology for Edinburgh and Glasgow Railway, <a href="http://www.railbrit.co.uk/chronology/dates.php?coname=Edinburgh%20and%20Glasgow%20Railway">http://www.railbrit.co.uk/chronology/dates.php?coname=Edinburgh%20and%20Glasgow%20Railway</a>, accessed March 20th, 2014.

# **APPENDICES**

# Appendix 1 Site registes

# Appendix 1.1 Trench register

Trench	Dimensions (m)	Description
G3	3x3	1.1m type 1 gravel, 1.2m mixed rubble — grey-brown mixed gravelly material with frequent large stones, broken service pipe, slate, tarmac, frogged brick and wood frags. Solid concrete slab at base.
G5	2.5 x 2.5	0.4m tarmac and gravel, 1.7m made ground (as G3 but contains more stone frags and possible iron buffer stop), 1.1 natural orange-brown boulder clay onto mudstone bedrock.
G6	2.5 x 2.5	0.4m tarmac and gravel, 1.2m made ground (as G3), 1.2m made ground as above but containing more wood and large stones (up to 1m diameter, not dressed), 0.8m dark grey somewhat silty boulder clay onto mudstone bedrock.
G7	3x3	0.3m tarmac and gravel, 1.7m made ground as G3 on 0.3m mudstone bedrock. East side defined by two course sandstone wall (0.3m high, 0.4m deep) built on 1m boulder day over bedrock.
G8	4.5 x 4.5	$0.1 m\ tarmac\ and\ gravel, 0.6 m\ sandstone\ walls\ in filled\ with\ mixed\ rubble, 0.3 m\ silt-stained\ boulder\ clay\ onto\ 0.2 m\ mudstone\ bedrock.$
E5	3.7 x 3.7	0.1m gravel, 0.4m mixed sand, gravel and stones, 0.5m grey-brown gravelly day mixed with rubble, 0.2m orange/grey boulder clay onto 0.2m mudstone bedrock. Wall in SE corner 1.1m high.
E6	3.6 x 3.5	0.6m gravel, 0.8m mixed rubble onto 0.3m mudstone bedrock.
E7	4.7 x 4	0.2m gravel, 1.5m rubble, somewhat mixed with boulder clay at base onto 0.5m mudstone bedrock.
E8	4x3.8	0.2m gravel, 1.4m silty sand with occasional large boulders but little rubble, onto 0.1m mudstone bedrock.
W20	4x2.5	South side: 0.7m mixed rubble as X20, 0.7m grey-brown boulder clay onto 0.2m mudstone bedrock. N side: 0.5m type 1 gravel, 0.2m concrete slab (for tram ramp), 0.7m boulder clay onto 0.2m mudstone bedrock.
X20	2.5 x 2.5	0.1m tarmac, 0.4m type 1 gravel, 1.2m Mixed rubble onto mudstone bedrock. Stepped sandstone foundation on east side. Upper step 0.45m high in 3 courses, blocks 0.15m by 0.5—0.7m; Lower step 1.24m high in three courses, block width not seen. Built on mudstone bedrock.
Y20	2.5 x 2.5	0.1m tarmac, 0.5m type 1 gravel including plastic ducts, 0.85m dark grey silt-stained boulder clay onto 0.2m mudstone bedrock. Sandstone wall on west side of trench, six courses standing 1m high built directly on bedrock. Blocks 0.15x0.6m, depth not seen.
Z20	2.5 x 2.5	0.2m tarmac and gravel, 0.9m mixed rubble. Bedrock not seen. Cast Iron post (0.3m diameter) set in 0.8m wide square concrete foundation. Small corner of sandstone wall in Ecorner.
14	2.2 x 1.9	Re-excavation of existing pit. Concrete in N, E and W edges, filled with type 1 gravel. South side profile shows 0.1m concrete, grey brown loam with mortar and brick frags (levelling).
19	3 x 2.5	0.2m tarmac and gravel, 0.7m mixed rubble onto 0.2m bedrock. Sandstone wall stub in south side of trench, 0.4m thick, 0.8m high. Concrete foundation to east.
Pits 37+38	5 x 3.5	1.0m type 1 gravel, 0.3 mixed yellow-grey-brown compact boulder clay onto mudstone bedrock. Concrete + rebar in SE corner.

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Appendix	<b>(1.2</b>	Photographic register	Photo		Description
Photo Dir	irection cing	Description		facing	Nifesing section Transh IO showing conditions well
001 –	idily	ID shot	037	S	N facing section, Trench I9 showing sandstone wall
001 – 002 N		S facing section, Trench G5	038	SE	General view, Trench 19
002 N 003 W		General view, Trench G5	039	NE	Room SB01 NE corner showing blocked door to room
			040	N	Room SB01 N wall showing bricked up door
004 –		Detail of possible buffer stop found in Trench G5	041	NW	Room SB01 showing access hatch to room two in W wall
005 S		N facing section, Trench G6	042	SW	Room SB01 SW corner
006 W		E facing section , Trench G6, showing sleepers	043	SE	Room SB01 SE corner showing fireplace
007 W		Concrete slab at base of Trench G3	044	NE	Room SB01, blocked up window in E wall
008 W		W facing section, Trench G3	045	NE	Room SB02, access hatch from room SB01
009 E		General view	046	NW	Room SB02, doorway to Room SB04
010 S		Concrete slab at base of Trench G3	047	SW	Room SB02, SW corner
011 W	1	Working shot	048	SE	Room SB02, SE corner
012 SW	V	Working shot	049	W	Room SB02, hole to room SB04 and wall plaster
013 W	1	Concrete slab at base of Trench G3	050	W	Room SB02, decorative wall plaster close up
014 SW	V	Concrete slab at base of Trench G3	051	NW	Room SB03, NW corner
015 W	1	E facing section, Test Pits 37+38	052	SW	Room SB03, SW corner
016 S		N facing section, Test Pits 37+38	053	N	Room SB04, boiler
017 E		General view, Test Pits 37+38	054	W	Room SB04, metal plate plugging hole in wall
018 SE		General view, Test Pits 37+38	055	NE	Room SB04, NE corner
019 NN	WW	General view, Trench Y20	056	SE	Room SB04, door to stairs
020 E		Stepped foundations at E side of Trench X20	057	N	Room SB04, looking up stair case
021 E		Sandstone wall at E side of Trench G7	058	E	Room SB04, door from room SB02
022 E		Stepped foundations at E side of Trench X20	059	N	Room B01, top of stairs
023 W	1	Stone wall, W side of Trench Y20	060	_	Room SB01, view up chimney
024 W	1	Stone structures in Trench G8	061	_	Working shot
025 E		Stone structures in Trench G8	062	_	Working shot
026 S		N facing section, Trench W20	063	NW	Hole in wall between B04 and B01
027 S		N facing section, ground reduction E of Trench G8	064	_	Room B03, working shot
028 S		N facing section, ground reduction E of Trench G8	065	N	Room B04, general shot
029 N		N facing section, Trench E7	066	SW	Room B03, general shot
030 SW		NE facing section, Trench E6	067	NE	Room B03, external general
031 W		E facing section, Trench E8	068	S	Room SB04, view into SB02
032 S		N facing section, Trench E5	069	SE	Room B01, view into B04
		-			
		-			
		-			
033 NW 034 W 035 SE 036 W	W	S facing section, Trench E5 E facing section, Trench E5 Cast iron column base in Trench Z20 Cast iron column base in Trench Z20	100 101 102 103	NW NW N	Room G01, general view SE facing elevation Room G01, general view SE facing elevation Room G01, doorway at NE end Room G02, SW facing elevation

to	Direction facing	Description	Photo	Direction facing	Description
	NE	Room G03, SW facing elevation, no scale	141	SE	NW facing façade, general
	NE	Room G03, SW facing elevation, no scale	142	N	SE facing façade, general
	NE	Room G03, SW facing elevation, no scale	143	W	SE facing exterior, Platform 1 overhang of main building
	NE	Room G03, SW facing elevation, no scale	144	E	SE facing exterior, Platform 1 overhang of main building
	Е	Room G03, timber wall under stairwell	145	W	General view under new building
	NNE	Room G03, SE facing elevation	146	NW	General view under new building
	NNE	Room G03, SW side upper, no scale	147	NE	SW façade, basement, SE end
	SW	Room G01, NE facing g elevation, fireplace	148	NE	Room B09, external detail of door to electrical room
	WSW	Room G01, window at NW end	149	SW	Room B09, electrical room, internal SW elevation
	SSW	Room G01, blocked doorway NW end	150	N	Room B09, electrical room, internal NW elevation
	SW	Room G01, NW side, window and chimney?	151	S	Room B09, electrical room, internal NW elevation
	SW	Room G01, main door blocked	152	NE	Room B09, electrical room, internal NE elevation
	N	Room G01, general shot of NW end	153	S	Room B09, electrical room, internal SE elevation
	SW	Room G01, SE end between two large openings	154	N	Room B09, electrical room, internal SE elevation
	SW	Room G01, SE opening	155	SW	Ceiling
	SSW	Room G01, security box	156	NNE	Room B10, store behind electrical room
	SE	Room G01, NW facing elevation, general shot	157	ESE	Room B10, store behind electrical room
	NE	Room G01, SW facing elevation, door at SE end	158	NE	External, door to room B05
	NE	Room G01, SW facing elevation, window	159	NW	Room B13 external, Platform 1 SSE facing elevation
	NE	Room G01, SW facing elevation, central door	160	NE	Room B14 external, Platform 1 brick port
	NE	Room G01, SW facing elevation, central window	161	NW	Room B14 external, Platform 1 brick port
	NE	Room G01, SW facing elevation, central door	162	W	Platform 1, ceiling in overhang
	N	Room G01, NW corner	163	NE	External, windows between rooms B06 and B03
	NW	Room G01, general view	164	NE	External, door to B03
	SE	Room G01, general view	165	NE	External, door to B12
	N	SW facing external and façade general	166	N	Join to new tram structure
	N	SW facing external and façade general	167	E	Basement SW facing elevation, general view
	SSE	SW facing external and façade general	168	NE	Room B02, SW facing elevation
	SSE	SW facing external and façade general	169	E	Room B02, E corner
	Е	SW facing external, large opening SE end	170	S	Room B02, NW facing elevation
	Е	SW facing external, large opening SE end	171	S	Room B02, NW facing elevation upper
	Е	SW facing external, old opening blocked	172	NNE	Room B02, NW facing elevation
	NE	SW facing external , window blocked	173	NNE	Room B02, NW facing elevation upper
	NE	SW facing external, door blocked	174	SW	Room B02, NE facing elevation
	NE	SW facing external, window	175	SW	Room B02, NE facing elevation upper
	W	NE facing façade, general	176	SW	Room B02, ceiling
	W	NE facing façade, general	177	N	Room BO2, SE facing elevation

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Photo	Direction facing	Description	Photo	Direction facing	Description
	N	Room B02, SE facing elevation upper	215	NW	Room BO4, SE facing elevation, former doorway
	NE	Room B05, SW facing elevation	216	W	Room B04, NE facing elevation
	SSW	Room B05, NW facing elevation	217	W	Room B04, NE facing elevation middle
	SSW	Room B05, NW facing elevation upper	218	W	Room B04, NE facing elevation upper
	SW	Room B05, NE facing elevation	219	SE	Room B04, NW facing elevation
	W	Room B05, SE facing elevation	220	SE	Room B04, NW facing elevation middle
	W	Room B05, SE facing elevation upper	221	SE	Room B04, NW facing elevation middle
	NW	Room B06, SE facing elevation	222	SE	Room B04, NW facing elevation upper
5	NW	Room B06, SE facing elevation middle	223	NE	Room B04, SW facing elevation
7	NW	Room B06, SE facing elevation upper	224	NE	Room B04, SW facing elevation middle
8	W	Room B06, NE facing elevation upper	225	NE	Room BO4, SW facing elevation upper
9	W	Room B06, NE facing elevation middle	226		Room B02 view up to ground floor
90	W	Room B06, NE facing elevation lower	227	NW	Room B01, viewed through hole in wall of B04
1	SE	Room B06, NW facing elevation lower	228	NW	Room B01, viewed through hole in wall of B04 upper
92	SE	Room B06, NW facing elevation upper	229	W	Room SB01, NE facing elevation
3	N	Room B06, SW facing elevation	230	S	Room SB01, NW facing elevation
4	W	Room B06, SW facing elevation upper	231	S	Room SB01, NW facing elevation upper
5	NW	Room B07, SE facing elevation	232	SE	Room SB01, NW facing elevation
6	SE	Room B07, NW facing elevation	233	N	Room SB01, N corner
7	SE	Room B07, ceiling	234	NW	Room SB01, SE facing elevation
8	SE	Room B15, NW facing elevation	235	NW	Room SB01, SE facing elevation
19	WNW	Room B15, SE facing elevation	236	S	Room SB02, NE facing elevation
00	WNW	Room B15, SE facing elevation middle	237	NNW	Room SB02, SE facing elevation
)1	WNW	Room B15, SE facing elevation lower	238	W	Room SB02, SE facing elevation upper
2	SE	Room B15, NW facing elevation lower	239	NE	Sub Basement, stairwell to room B01
3	NW	Room B08, SE facing elevation	240	SE	Room B01, view down stairwell
4	SE	Room B08, NW facing elevation	241	S	Room B01, doorway to room B04
5	N	Room B08, SW facing elevation	242	SE	Room B01, view down stairwell
6	N	Room B08, SW facing elevation upper	243	N	Room B01, SE facing elevation
7	SW	Room B03, NE facing elevation	244	N	Room B01, SE facing elevation, upper
18	SW	Room B03, NE facing elevation upper	245	SW	Room B01, NE facing elevation
9	E	Room B03, NW facing elevation	246	NE	Room B01, SW facing elevation
)	E	Room B03, NW facing elevation upper	247	NE	Room B01, SW facing elevation upper
	N	Room B03, SE facing elevation	248	SW	Room B03, general with scaffold
	N	Room B03, SE facing elevation middle	249	S	Room SB03, NE facing elevation
	N	Room B03, SE facing elevation upper	250	S	Room SB03, NE facing elevation
1	NW	Room B03, CCP board	251	E	Room SB03, NW facing elevation

hoto	Direction facing	Description	Photo	Direction facing	Description
52	N	Room SB03, NW facing elevation	289	-	Working shot — Ally pointing at fireplace
53	W	Room SB03, SW facing elevation	290	-	Working shot — concrete pour SB
54	NW	Room SB04, oven	291	-	working shot — checking concrete
55	N	Room SB04, general	292	-	Working shot — concrete pumper
56	W	Room SB04, general upper	293	W	Platform 2, E facing elevation
57	SE	Room SB04, upper stairs	294	N	Platform 2, S facing elevation
58	S	Room SB04, NW facing elevation upper	295	N	Platform 2, S facing elevation upper
59	S	Room SB04, NW facing elevation lower	296	E	Platform 2, W facing elevation
50	E	Room SB02, NW facing elevation between stairwell	297	E	Platform 2, W facing elevation upper
51	SW	Room B03, NW facing elevation floor removed	298	S	Platform 2, N facing elevation
52	N	Room B03, view to stairs	299	S	Platform 2, N facing elevation upper
63	N	Room B13, S facing elevation	300	W	Platform 3, E facing elevation
54	N	Room B13, ceiling	301	NE	Platform 3, S facing elevation
65	E	Room B13, W facing elevation	302	NE	Platform 3, S facing elevation
66	S	Room B13, N facing elevation	303	SE	Platform 3, N facing elevation
67	S	Room B13, N facing elevation upper	304	E	Platform 3, W facing elevation
58	NW	Room B13, E facing elevation	305	NW	Platform 3, S facing elevation, 80s tiles
59	SE	Room B12, N facing elevation	306	_	Plan as proposed
70	SE	Room B12, N facing elevation upper	307	S	Detail of cellar
71	S	Room B12, NE facing elevation	308	-	Detail of broad rib
72	S	Room B12, NE facing elevation middle	309	E	View over false ceiling
73	S	Room B12, NE facing elevation upper	310	E	Platform 4, W facing elevation
74	NW	Room B14, SE facing elevation	311	W	Platform 4, general
75	NW	Room B14, SE facing elevation upper	312	W	Platform 4 general
76	E	Room B12, SW facing elevation	313	S	Wall and beam outside comms room
77	Е	Room B12, SW facing elevation middle	314	5	Comms room N facing elevation
78	E	Room B12, SW facing elevation upper	315	SE	Comms room, detail of brick and stone
79	NW	Room B14, SE facing elevation	316	NW	Comms room, S facing elevation upper
80	NW	Room B14, SE facing elevation upper	317	E	Comms room, top left corer W facing elevation
31	E	Room B14, SW facing elevation	318	SE	Detail of stone and iron outside comms room
32	E	Room B14, SW facing elevation upper	319	SE	Platform 4, revetment wall at W end
33	SE	Room B14, NW facing elevation (left)	320	SE	Pumpkin café
34	SE	Room B14, NW facing elevation (left) upper	321	SE	Platform 9, 80s brickwork
85	SE	Room B14, NW facing elevation (right)	322	_	B03, concrete poured, working shot
36	SE	Room B14, NW facing elevation (right) upper	323	E	Room B14, W facing elevation
37	Е	Room B14, ceiling	324	E	Room B14, W facing elevation middle
8	S	Room B14, ceiling	325	E	Room B14, W facing elevation middle

Photo	Direction facing	Description
326	E	Room B14, W facing elevation upper
327	N	Room B14, S facing elevation
328	N	Room B14, S facing elevation middle
329	N	Room B14, S facing elevation middle
330	N	Room B14, S facing elevation upper
331	S	Room B14, N facing elevation
332	S	Room B14, N facing elevation middle
333	S	Room B14, N facing elevation middle
334	S	Room B14, N facing elevation upper
335	S	Room B14, N facing elevation upper
336	_	Cellar
337	-	Cellar
338	E	Platform 1, overhang
339	W	Platform 1, overhang
340	E	Platform 1, retaining wall
341	NE	Platform 1, overhang ceiling



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