# JANE DAVIES CONSERVATION

## Architectural Paint Research

## 4 & 5 Tower Green, Tower of London

Sample 150 (fragment 2) showing the earliest paint schemes and timber substrate. The sample is from panelling on the ground floor near front door of 5 Tower Green photographed in dark-field light at 200× magnification. Printed magnification not calculated.

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## ABSTRACT

The aim of the present research is to investigate the architectural paint of 4 and 5 Tower Green. To this end, several site visits were undertaken by Jane Davies and Hannah Tempest of Jane Davies Conservation between November 2016 and November 2017. Visual inspection of the painted surfaces was undertaken under magnification and paint samples were taken after discussion with George Roberts and Jane Spooner of Historic Royal Palaces (HRP). A total of 300 cross-section samples were taken. Preliminary paint analysis of the front doors of 4 and 5 Tower Green has previously been carried out by Catherine Hassall in 2009[1] and is useful for comparison.

Although there are some interesting variations between spaces, an overall decorative history can be identified within the two houses. The earliest schemes tended to be either timber-coloured, *faux* graining or off-white/drab colour. These are commonly repeated several times with some variation. In the early 18th century, a characteristic mixed grey was applied to some areas and is seen on samples from the main ground floor room of number 4, and from the ground floor middle and north rooms, staircase and second floor north room of house 5 as the eighth decoration. There is also a distinctive early mixed green on samples from the entrance hall and staircase of house 4, first floor south room and second floor north room of house 5. It is not entirely clear whether the green is contemporary with the grey decoration or slightly later. These decorations are, in turn, coated with approximately 20 off-white/beige/buff decorations prior to the introduction of repeated green decorations around the mid-19th century. The green schemes can be dated by the use of zinc white, which was only used within architectural paint from around 1850 onwards. Some samples have up to ten green schemes but these are not present on every sample; some have fewer. The green decorations are overpainted, probably from the first quarter to the middle of the 20th century, with pale and off-white schemes.

[1] Hassall, C., 4 & 5 Tower Green, Tower of London report No. 555 [paint analysis on the front doors], unpublished paint analysis report for HRP, 17th July 2009.

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# 1 INTRODUCTION

## 1.1 ARCHITECTURAL HISTORY AND BRIEF FOR RESEARCH

The buildings now known as 4 and 5 Tower Green are located on the west side of Tower Green within the Tower of London. They are believed to have been construction in the 17th century, probably incorporating earlier stables. Prior to the current programme of research and conservation which is being undertaken by Historic Royal Palaces (HRP), the history of 4 and 5 Tower Green was poorly understood and interpretation was often based on stylistic grounds as opposed to physical evidence. HRP's current research project seeks to rectify this and includes archival research by the curatorial department, as well as schemes of historic building recording, paint analysis and dendrochronology. The following architectural paint analysis has been commissioned by HRP as part of their broader programme of research; investigation is and is carried out within this context.

The construction of the houses was described by George Roberts, Tower Future Projects Curator, in his 2017 research report, which provides a good starting point for consideration of the architectural paint schemes:

> The houses consist of two brick-built, timber-framed houses of three storeys with attics and basement, double-depth in plan and of five window range. They have been constructed against the inner face of the curtain wall adjacent to the Queen's House. Built of red brick laid to English bond, with plain projecting bands marking storey level and three gables to attic level on the east façade. Fenestration includes a Georgian six-panelled door with overlight to No. 5 and late 19th- century six-panelled door to No. 4, both under segmental brick arches. No. 5 has two early-mid 18th-century sashes the rest being of early 19th-century date. Casements of 2-3 lights under flat arches serve the second and attic floors and date to the late 19th-century. Cross-gabled modern plain tile roof with brick ridge and end stacks, internally of collar-beam construction … Internally the houses have been much altered, however, six deep embrasures with two-centred arches and loop lights are visible in the enclosed length of the Inner Curtain Wall which makes up the lower extent of the west wall of the properties. They are of early brick with stone quoins. The houses are panelled throughout and the staircase to No. 5 has turned balusters. Two areas of late-seventeenth-century painted panelling also survive in Number 5.[2]

### *Brief history of the properties*

Previous published accounts of the buildings' history have generally suggested that construction took place in the 1630s.[3] This date was probably based on their appearance as well as their similarity to an image of the 1616–1617 Parson's House, visible in a 1737 print. However, the archival

[2] Roberts, G., *Research Report: 4 & 5 Tower Green*, Tower of London, HRP, 16th June 2017. pp.5-6.

[3] Parnell, G. (ed.), *The Tower of London.* London: Batsford. 1993. p.62, 80, cited Roberts, G., *Research Report: 4 & 5 Tower Green*, Tower of London, HRP, 16th June 2017. p.6. The timber-framed Parson's House was demolished and replaced with the current chaplain's house in 1749.

## 1 INTRODUCTION

research undertaken for Roberts' 2017 research report dates their construction just over 50 years later to 1685. Roberts proposes that 'rather than being a completely new build, they were instead re-built from an earlier stable building, elements of which may still survive in the ground-floor of the buildings.'[4] Prior to the 17th century, various developments of the area took place, including construction of the Beauchamp Tower and the walls between the Bell and Devereux Towers during the reign of Edward I (r. 1272 to 1307). This work included constructing embrasures within the depth of the curtain wall along the entire stretch from the Bell to Devereux Towers. Four of the embrasures remain within 5 Tower Green and two are within 4 Tower Green, and can still be accessed from the basements and ground floors of the properties.

To the south of 4 & 5 Tower Green is the Queen's House. Originally constructed for the Lieutenant of the Tower of London, the Queen's House was built in 1540, at which time it would have been one of the highest-status residences at the Tower with various amenities, including a stable. Evidence points to the fact that the stables were located on the site of 4 and 5 Tower Green.[5] Fears of the potential for fire led to the commission of two reports in the 1680s, both of which recommended that all stables within the walls of the Tower should be destroyed or repurposed. It was probably following this that the Lieutenant's stables were taken down and rebuilt or converted to create accommodation for Yeoman Warders at 4 and 5 Tower Green. Archival records indicate that work was carried out on the construction of the dwellings in 1685.[6] It is likely that at least some of the material of the stables was used to construct 4 and 5 Tower Green. Dendrochronology supports this, with samples from some of the oak timbers within the properties showing felling dates in the early 1600s. The pine timbers of the buildings' roofs have been dated by dendrochronology to the 1680s indicating that these were brought in especially for the construction of the properties.[7]

The properties have undergone a great many changes over the years, for example: a chapel was constructed in 1687, suggesting changes to the party wall between the Queen's House and 4 and 5 Tower Green; 4 Tower Green was extended into another building to the north and this extension was later demolished; doors which interconnect the two properties have been closed off; staircases have been altered; panelling has been covered, installed and moved; bathrooms have been installed and moved; and fires have broken out. Traces of all the above-mentioned events and more are discernible in the architectural paint of the properties. The aim of the present architectural paint research is to investigate the original and early paint schemes and

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[4] Roberts, G., *Research Report: 4 & 5 Tower Green*, Tower of London, HRP, 16th June 2017. p.6.

[5] Ibid. p.8.

[6] Ibid. pp.9-10.

[7] Arnold, A. and Howard, R., *Numbers 4 & 5 Tower Green, Tower of London; Tree- Ring Analysis of Oak and Pine Timbers,* unpublished Report for HRP, 2017, pp.16-20.

to shed light on the nature and dates of later alterations to the properties, with the ultimate aim of adding to the body of knowledge about the properties in order to inform their future care, treatment and contextualisation.

***Brief for research***

A brief for research was prepared by George Roberts, Tower Future Projects Curator, July 2016:[8] This identified areas to be sampled together with the aims of paint analysis[9] and research questions[10].

## 1.2 SOURCES OF DATA

***Physical evidence***

- 300 paint samples from 4 and 5 Tower Green taken by Jane Davies and Hannah Tempest of Jane Davies Conservation, between November 2016 and November 2017
- *In situ* examination of 4 and 5 Tower Green undertaken by Jane Davies and Hannah Tempest of Jane Davies Conservation during sampling visits.

***Previous analytical reports***

- Arnold, A. and Howard, R., *Numbers 4 & 5 Tower Green, Tower of London; Tree- Ring Analysis of Oak and Pine Timbers,* unpublished dendrochronology report for HRP, 2017,

[8] Roberts, G., *Brief for Architectural Paint Analysis, 4 & 5 Tower Green, Tower of London*, brief by George Roberts, Tower Future Projects Curator, HRP, July 2016. pp.2-5.

[9] The paint analysis of 4 & 5 Tower Green were undertaken with the following aims in mind: Do the surviving paint schemes help us to better understand the internal and external development of these two buildings? To inform the proposed renovation of 4 & 5 Tower Green with regard to the paint schemes with which it has previously been decorated.

[10] In addition to the broad research questions required to address the general aims of the project detailed above the analysis should also endeavour to answer the following specific research questions: Can the paint analysis support the theory that Number 5 Tower Green was a higher-status residence in the eighteenth and nineteenth centuries than Number 4?"

# 1 INTRODUCTION


- Hassall, C., *4 & 5 Tower Green, Tower of London report No. 555* [paint analysis on the front doors], unpublished paint analysis report for HRP, 17th July 2009.


***Secondary sources***


- Ateeq, H., *4 & 5 Tower Green, Tower of London Inventory of Fixtures and Fittings*, unpublished report, Historic Royal Palaces, July 2017.
- Brooking, C., *Report on Fixtures and Fittings at Numbers 4 & 5 Tower Green, Tower of London*, unpublished report for HRP, March 2017.
- Roberts, G., *Brief for Architectural Paint Analysis, 4 & 5 Tower Green, Tower of London*, brief produced by George Roberts, Tower Future Projects Curator, HRP, July 2016.
- Roberts, G., *Research Report: 4 & 5 Tower Green, Tower of London*, HRP, 16th June 2017.

# 2 METHODOLOGY

## 2.1 REMOVAL OF PAINT SAMPLES

Samples were taken with the aid of a scalpel blade, numbered and placed in separate storage containers. The location of numbered samples was recorded graphically, in writing and the locations photographed. Site visits were made on the following dates; first site visit: 22nd November 2016 (JD), second visit: 29th November 2016 (JD), third visit: 13th December 2016 (JD), fourth visit: 31st January 2017 (JD), fifth visit: 25th April 2017 (JD), sixth visit: 9th May 2017 (HT), seventh visit 10th November 2017 (JD + HT), eighth visit 30th November 2017 (JD).

## 2.2 PREPARATION & EXAMINATION OF PAINT SAMPLES

Samples were mounted in polyester resin and polished in cross-section with a range of graded abrasives. Samples were examined microscopically at high magnification under dark field reflected and ultraviolet illumination (UV was used in conjunction with with Leica filters A and D), photographed and drawn when necessary. Once an understanding of the sequence of paint layers had been established microchemical tests were undertaken to identify pigments on a number of key strata.

Dispersions of pigment were created by placing small amounts of pigment onto a clean glass slide. A glass cover slip was then placed on top, and the slide was heated before a small amount of Cargille MeltmountTM was placed at the edge of the coverslip and allowed to melt and wick underneath the coverslip, embedding the sample. These samples, or 'dispersions', were viewed at up to 500× magnification in reflected dark-field and ultraviolet light, and up to 630× magnification in transmitted polarised light with both plane and crossed polars. Optical properties such as particle morphology, refractive index and birefringence were observed in order to identify the pigments. Cross-section microscopy, PLM and micro-photography were undertaken by Jane Davies and Hannah Tempest on behalf of Jane Davies Conservation.

## 2.3 SEM OF PAINT SAMPLES: DUAL BEAM SPECTROSCOPY

Scanning electron microscopy coupled with energy-dispersive X-ray spectroscopy (SEM.EDX) can give extremely useful information about the inorganic components present in paint, which can help to identify the pigments present. SEM.EDX was carried out on behalf of Jane Davies Conservation by Dr Andrew Beard, Department of Earth Sciences, Birkbeck, University of London. Cross-section samples were coated in carbon prior to analysis. The instrument used was an Oxford Instruments Aztec system with a Jeol JXA8100 probe.

# 3 ARCHITECTURAL PAINT RESEARCH

Spaces within the two houses are referred to by different names within different documents, therefore to aid clarity we have tabulated descriptive information in Appendix 2, Table 1. Each area is discussed under individual points within Section 3, and in sample by sample detail in Appendix 3.

## SUMMARY AND DISCUSSION OF FINDINGS

Paint samples from houses 4 and 5, Tower Green, contain a wealth of physical information which has been microscopically analysed to identify pigments and techniques indicative of different dates of paint preparation and application. Unsurprisingly, given the age of the houses and the intensive use and improvement cycles to which domestic interiors are often subject, the samples show a history of numerous redecorations, some preceded by invasive preparation (sanding and stripping), others including minor repairs and larger introductions of new timber elements. Some of the samples have lacunae in the paint history, which tends to suggest they were covered for a period of time.

Because of the extent of physical intervention, the absence of early paint should not be considered conclusive evidence that an architectural element is not early. However, the presence of early paint is absolute confirmation that the element is at least as old as the earliest paint identified, even is it has been repurposed and has a more modern appearance.

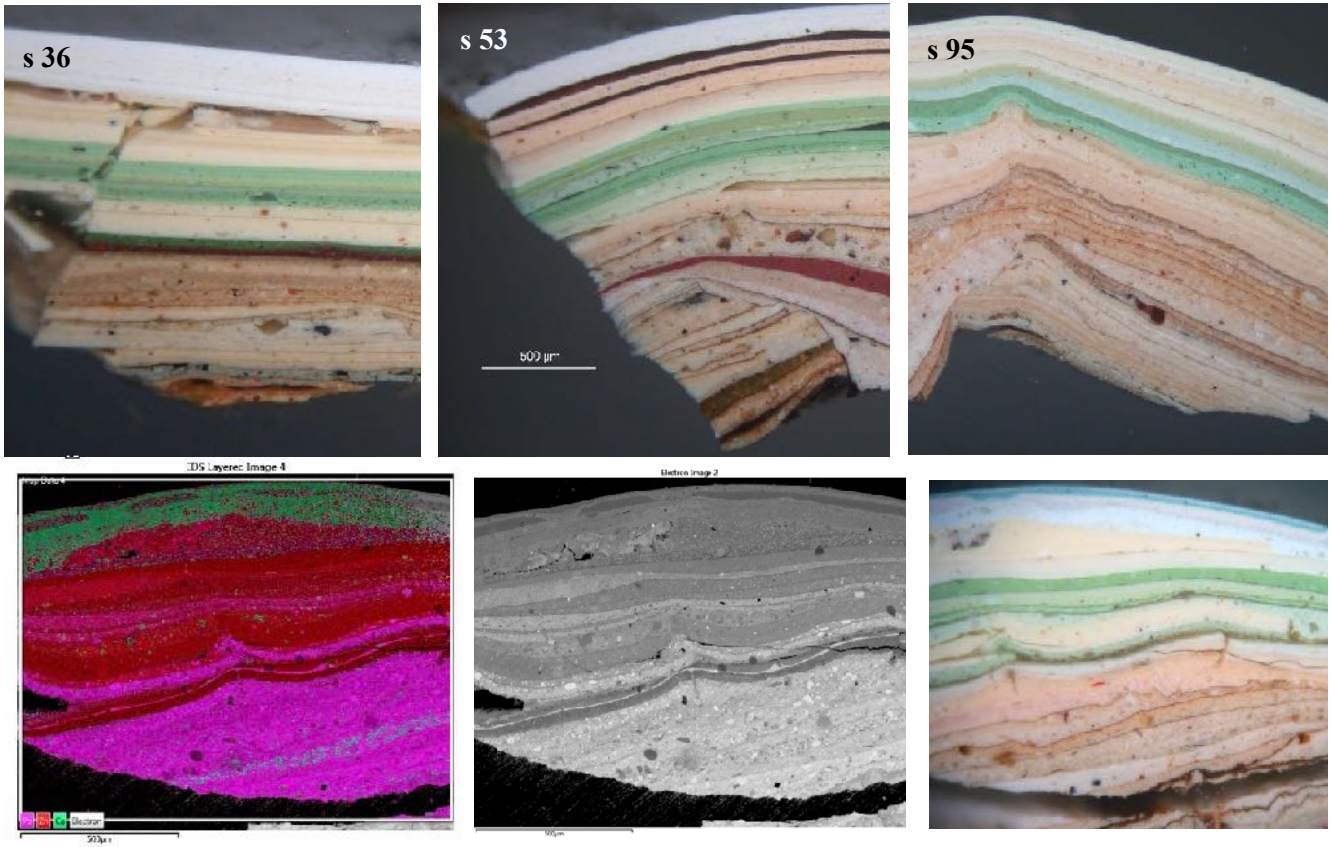
### General decorative history

Notwithstanding some interesting variations between spaces, an overall decorative history can be identified. The earliest schemes are either timber-coloured, *faux* graining or off-white/drab colour. These are repeated up to six times with some variation. A characteristic grey appears on samples from the main ground floor room of number 4, and from the ground floor middle and north rooms, staircase and second floor north room of house 5 as the eighth decoration.[11] There is also a distinctive early green (mixed from yellow, black and translucent pigment, probably chalk) on samples from the entrance hall and staircase of house 4, first floor south room and second floor north room of house 5.[12] It is not entirely clear whether this is contemporary with the grey decoration or slightly later. These decorations are, in turn, coated with approximately 20 off-white/beige/buff decorations prior to the introduction of repeated green decorations around the mid-19th century. The green schemes can be dated by the use of zinc white (identified in cross-section based on its characteristic green sparkly appearance under UV, confirmed by SEM.EDX of certain samples) which was only used within architectural paint from around 1850 onwards. Some samples have up to ten green schemes but these are not present on each sample; some have fewer. The green decorations are replaced, probably from the first quarter to the middle of the 20th century, by pale and off-white schemes.

[11] The samples with early grey and their locations are identified in Summary Table 3, Appendix 2

[12] The samples with early mixed green and their locations are identified in Summary Table 4, Appendix 2

## 3 ARCHITECTURAL PAINT RESEARCH



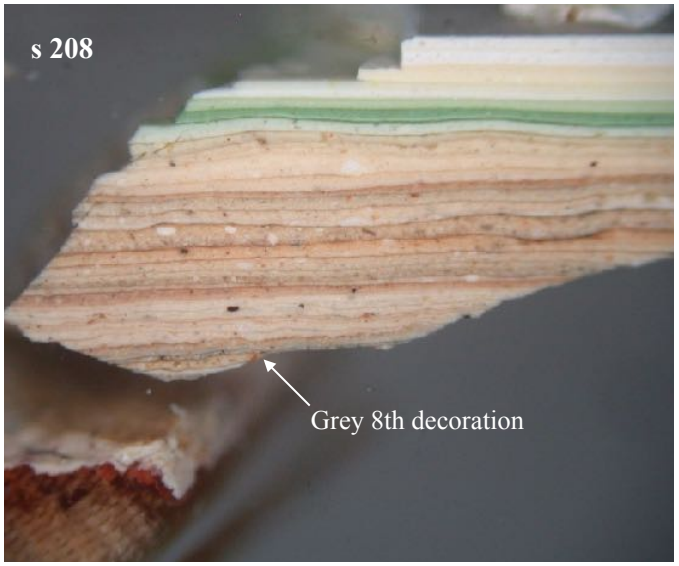

The samples pictured show the typical general paint history: timber, *faux* graining or off-white early decorations, followed by numerous buff/beige decorations before the introduction of repeated greens in the mid-19th century, prior to their replacement with modern pale snd off-white schemes.

The elemental map, far left, shows lead (Pb) in pink, zinc (Zn) in red and calcium (Ca) in green. The layers of the sample capture the typical transition from lead-based paints to zinc-containing paints and a further change to titanium-white-based paints. The upper layers contain titanium as well as calcium.

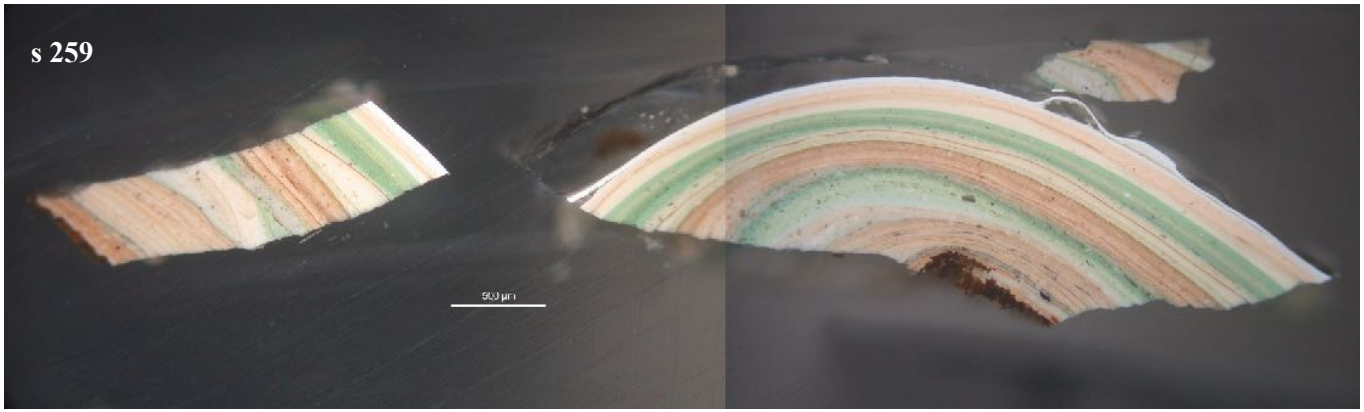
*Above, top row, left-right*: Sample 36 from house 4, main ground floor room dado rail; sample 53 house 4 stairs from ground to first floor, baluster; sample 95 from house 5, ground floor, middle room, horizontal wall plank panelling. All photographed in cross-section under dark-field illumination at 50× magnification. Printed magnification not calculated.

*Above, bottom row, left-right*: Sample 237 from house No. 5, second floor, south room, window mullion, backscattered electron image mapped to show lead (Pb) in pink, calcium (Ca) in green and zinc (Zn) in red; backscattered electron image; in cross-section under dark field illumination at 50× magnification. Printed magnification not calculated.

## 3 ARCHITECTURAL PAINT RESEARCH




Sample 208 from No. 5, staircase from first to second floor, (5S.15 door frame roll moulding) shows a relatively typical and full sequence of decorations. It starts with the second type of dark-red priming used as the third scheme in house 5. It includes the characteristic grey layer of the eighth scheme, followed by numerous (in this case 20) beige and buff schemes before the introduction of green decorations from the mid-19th century onwards. Modern pale decorations can be seen at the top of the sample.




Sample 259 has evidence from the fifth decoration onwards, including the grey eighth decoration, and a pale blue-green as the 17th decoration, repeated with slight variation in hue at 18th and 19th decorations, followed by five or more buff schemes until the 19th-century introduction of several green schemes (24-28 here). The 18th-century green/pale-blue schemes on the panelling of the main ground floor room, house 4, with the use of more expensive pigments to create bright interior decoration confirms the high status of this domestic interior.

*Above, top row, left-right:* Sample 208 from house 5, staircase from first to second floor, (5S.15 door frame roll moulding) under dark-field reflected light; sample 208 under UV illumination with Leica filter cube A.

*Bottom:* Composite image of all fragments of sample 259. All photographed in cross-section under dark-field illumination at 50× magnification. Printed magnification not calculated.

## 3 ARCHITECTURAL PAINT RESEARCH

**Earliest paint schemes in the houses, *c.*1680–1700**

The earliest paint schemes in 4 and 5 Tower Green are associated with horizontal boarding and joinery elements.

A few cross-section samples have a paint history which appears to stretch back as far as the 1680s; a selection of these samples is shown on the following pages. The samples are from a range of locations within both houses,[13] which suggests there is significant and considerable survival of 17th-century work in both properties. There may be many more areas of early paint than has been identified by paint sampling to date; paint sampling through intact paint layers, however carefully assessed, can miss or exclude significant underlying material as sample sizes are so small.

Sample 150 from the entrance hall panelling of house 5 is one of the most complete samples within either house and has evidence of up to 50 painted decorations, including material which appears to date from the 1680s. This sample bears evidence of an off-white decoration over the priming. Others, such as sample 171 from the ground floor door between the houses, appear to show painted graining very similar to the fictive panelling currently visible in the first floor north room of house 5 (samples 288 to 293).

The earliest schemes are timber-coloured, graining or off-white/drab colour. Evidence for early decorations consists primarily of a distinctive reddish priming containing red and white lead, iron oxide red and calcium carbonate (probably as natural chalk), followed by rather translucent layers containing lead white and calcium carbonate (again, probably chalk) with rather large pigment particles.

The first-floor north room of house 5 contains types of panelling from at least four different dates. Brooking writes: 'The panelling on the south wall is early to mid 18th-century and has evidence of a joint. The north wall panelling is older than the south. The west wall fictive panelling has a late 17th-century scheme, which contains planted simple mouldings. The horizontal boarding is unusual.'[14] Roberts provides information on occupancy:

> By June 1695…it seems that Number 5 had been occupied by Thomas Hawley, the Tower's Major and Gentleman Porter…his apparent high status and senior positions at the Tower of London make him a possible candidate for the installation of the painted fictive panelling which survives on the first floor of Number 5 Tower Green. Another possible candidate is Hawley's successor, Marmaduke Soule. Soule appears to have become resident in No.5 Tower Green after Hawley's death in 1696…[The fictive panelling was] covered up by later panelling, possibly dating 1720–1740 which has survived throughout the house. The panelling may have been contemporary with the installation of the sash windows, which appears to have occurred between 1730 and the 1740s.[15]

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[13] Samples 8, 150, 171, 210, 211, 243, 244, 258, 288, 289, 290, 291, 292, 293.

[14] Brooking, C.J., *Report on Fixtures and Fittings at Numbers 4 & 5 Tower Green, Tower of London*. Unpublished research report for HRP, March 2017. pp.14-17

[15] Roberts, G., Research Report: 4 & 5 Tower Green, Tower of London, unpublished report provided by HRP, dated 16.6.2017. p.14-5.

## 3 ARCHITECTURAL PAINT RESEARCH

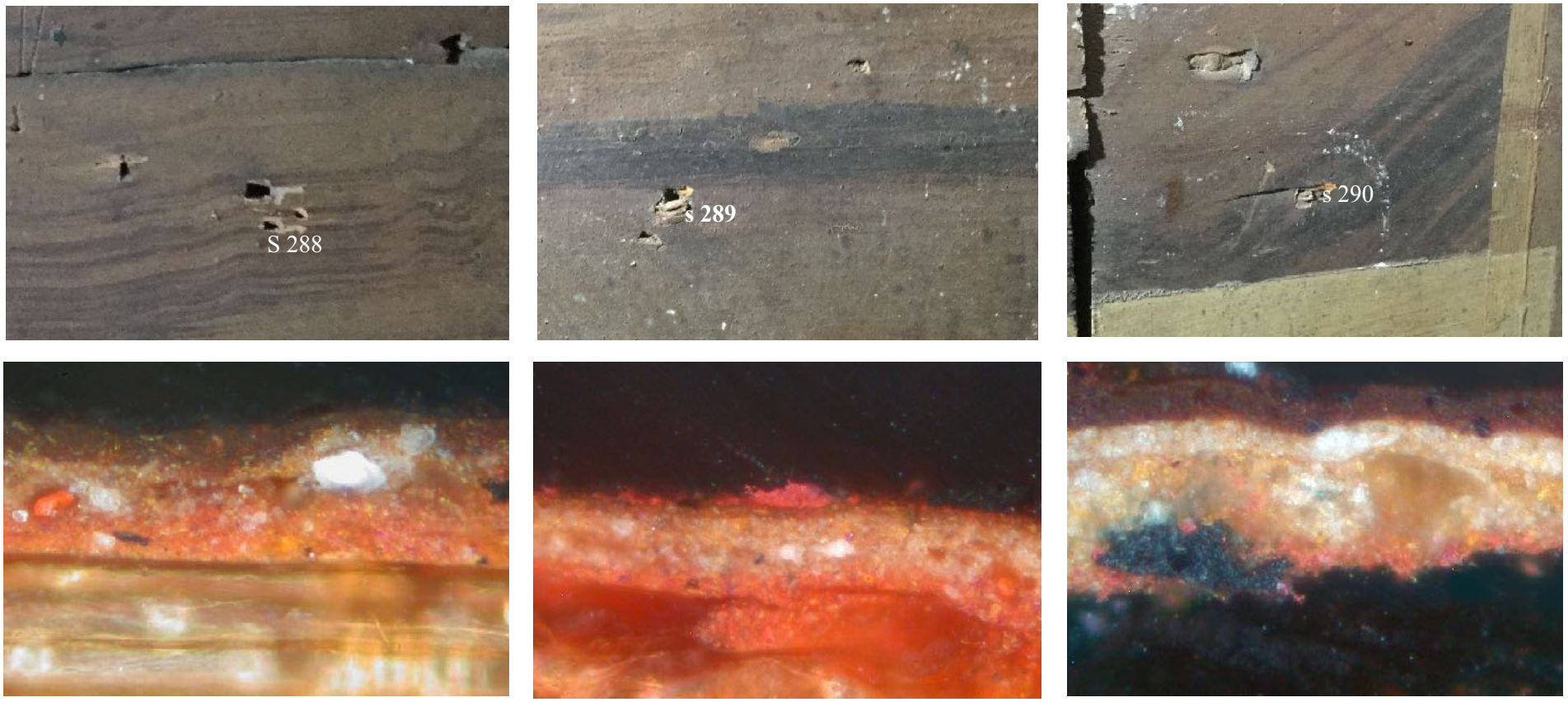
*Above left:* General view of the painted panelling on horizontal boards, south side of the first floor north room of house 5.

*Above right*: Detail of original 'walnut' graining and subsequent oak panelling. Applied mouldings are assumed to have been present as part of the oak graining, but are now missing.

## 3 ARCHITECTURAL PAINT RESEARCH


*Above*: Composite image showing sample locations on fictive panelling showing sample locations.

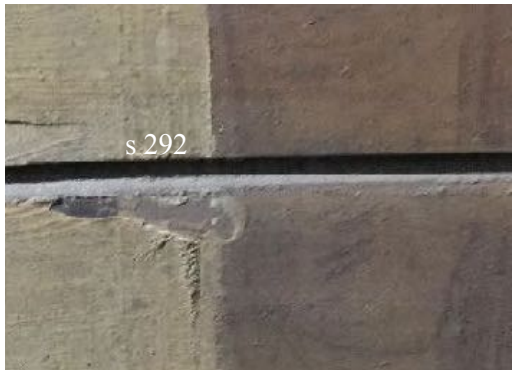
## 3 ARCHITECTURAL PAINT RESEARCH

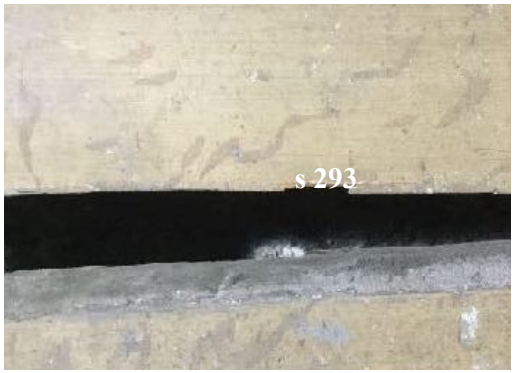


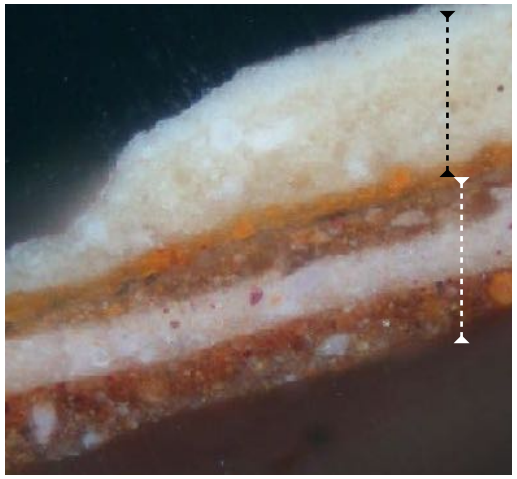

*Above left:* Sample 288 location (top) and in cross-section (bottom); *above centre:* sample 289 location (top) and in cross-section (bottom); *above right:* sample 290 location (top) and in cross-section (bottom). Cross-sections photographed under dark-field reflected light at 500× magnification. Printed magnification not calculated.

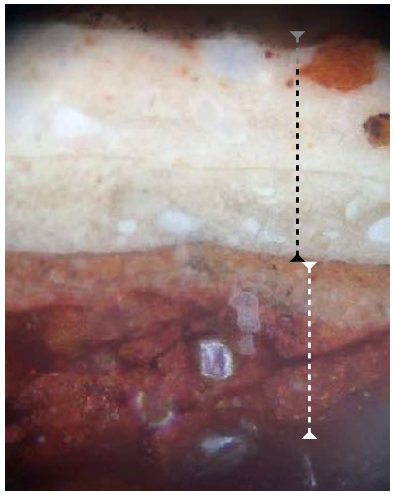
The red lead/red iron oxide priming can be clearly seen on and within the upper cells on the timber substrate. This is followed by reddish-brown and brownish-red layers. Sample 290 has a mixed carbon black and red lead layer at the base of the sample; the substrate is not present. Samples 288 and 290 both have a distinct dark-brown layer relating to the figuring of the graining on the upper surface of the sample. Sample 289 has a thin, red, rather medium-rich glaze on its surface. The red translucent band is just discernible in the location photograph but was clearly visible *in situ*.

## 3 ARCHITECTURAL PAINT RESEARCH

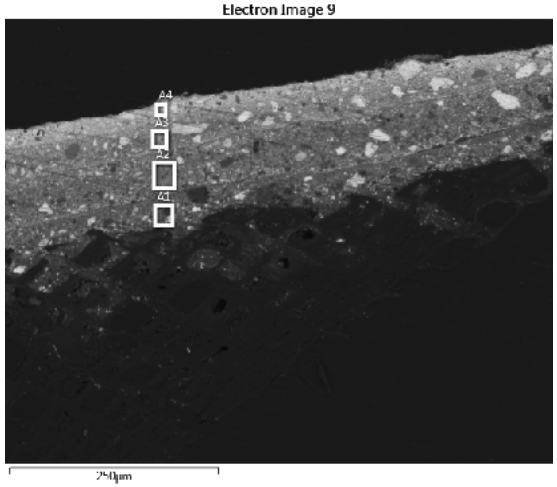



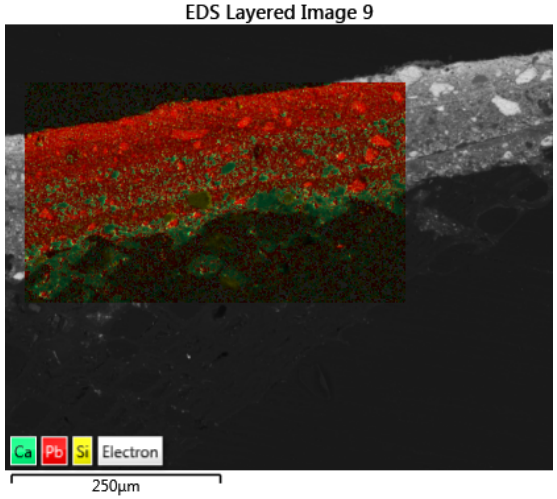


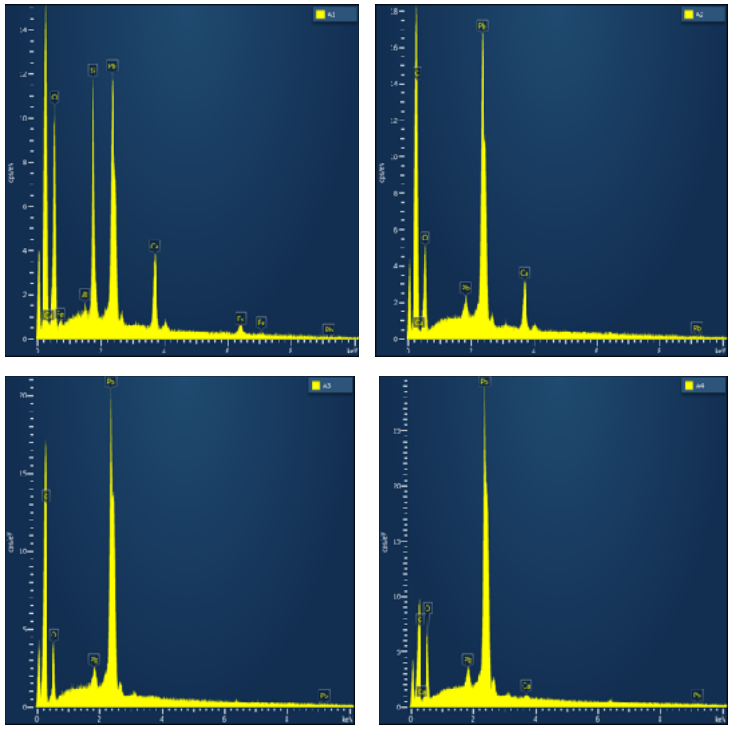

*Above left:* Sample 291 location (top) and in cross-section (bottom); *above centre:* Sample 292 location (top) and in cross-section (bottom); *above right:* Sample 293 location (top) and in cross-section (bottom). Cross-sections photographed under dark-field reflected light at 500× magnification. Printed magnification not calculated.

The red lead/red iron oxide priming can be clearly seen on and within the upper cells on the timber substrate on samples 291 and 293. There is no substrate included in sample 292. The next layer is a heterogeneous buff paint, then either reddish brown, off-white or yellowish brown paints, depending on the figuring of the graining. Samples 292 and 293 both have the second-scheme 'oak' graining as the upper layers; sample 292 is quite plain with an initial yellow layer then two pale layers, but sample 293 has both pale layers and a deeper buff paint on its surface, relating to the figuring of the oak graining.

## 3 ARCHITECTURAL PAINT RESEARCH



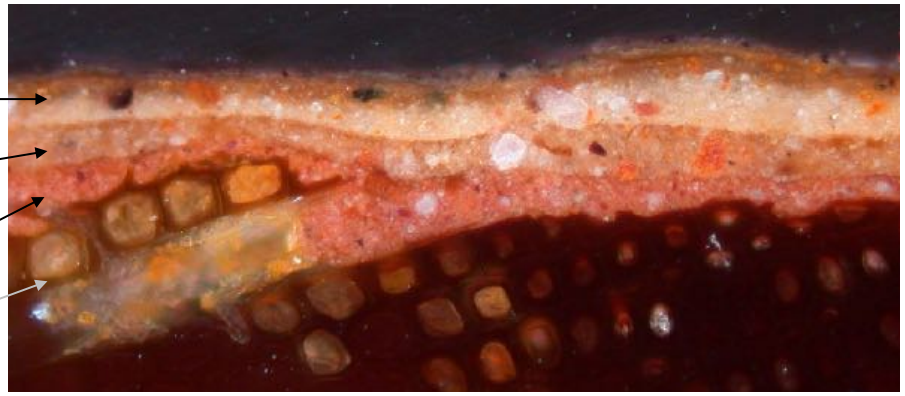



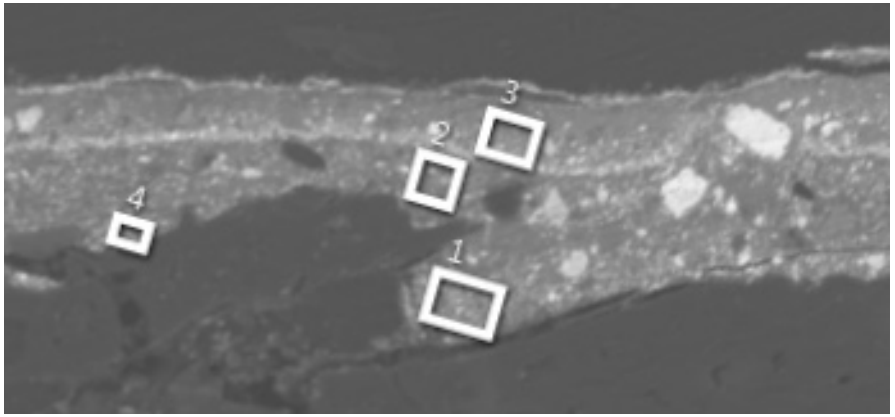
Spectrum 1 identifies lead, iron, calcium, silicon and aluminium.
Spectrum 2 detects lead and calcium.
Spectrum 3 identifies lead.
Spectrum 4 detects lead and calcium.

*Above, overall:* Scanning-electron microscopy (SEM) and EDX of sample 293. *Above top left:* Backscattered-electron image of sample 293 with EDX spectra areas marked; *above, top right:* Cross-section photographed under dark-field illumination photographed at 100× magnification (printed magnification not calculated); *above, lower left:* Backscattered-electron image of the sample with elements mapped in colour (calcium (Ca) is green, lead (Pb) is red, silicon (Si) is yellow); *above, lower right:* EDX spectra 1-4.

## 3 ARCHITECTURAL PAINT RESEARCH

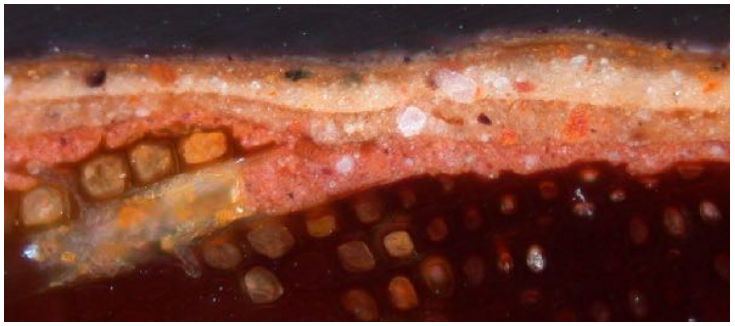


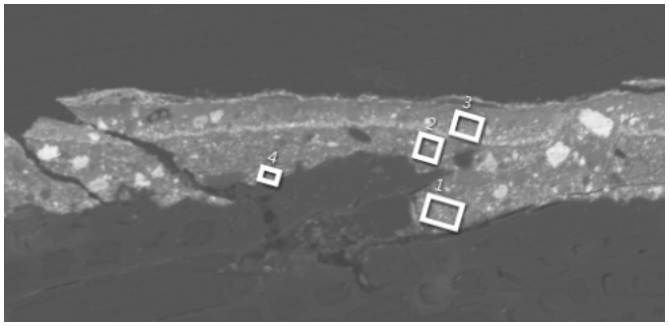

EDX spectra for the regions indicated in the right-hand image suggest red and white lead, natural earth as umber plus chalk in the red priming. Spectra 2 and 3 both suggest white and red lead plus iron oxide natural earth pigments and a little chalk.

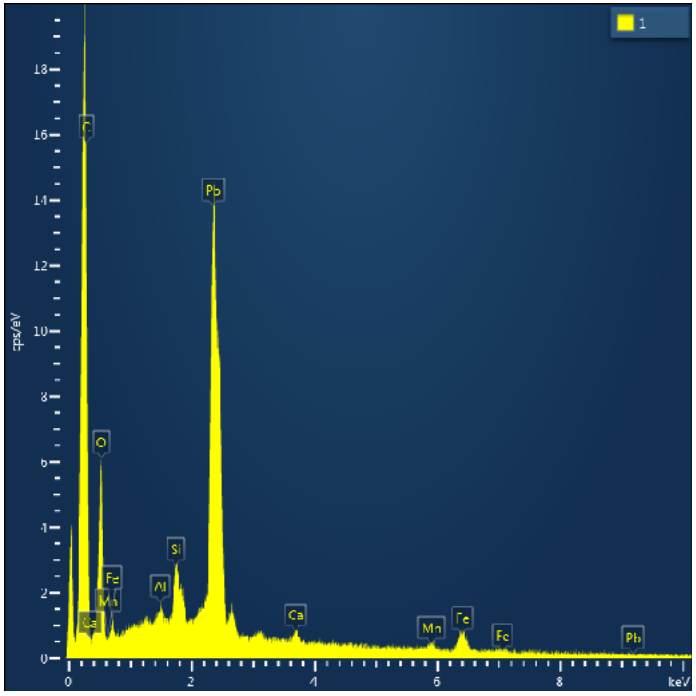


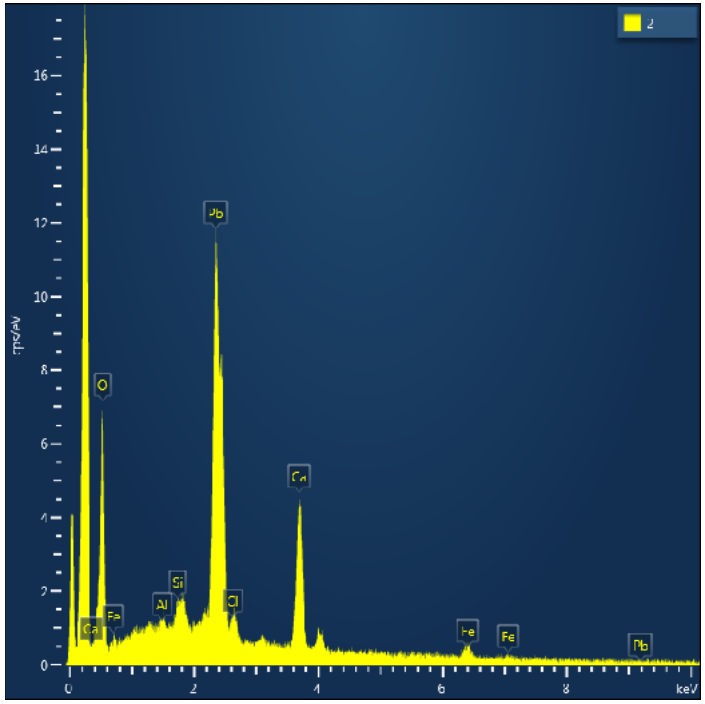

*Above left*: Sample location of cross-section 171, from the locking rail of the ground-floor door between 4 and 5 Tower Green (No. 5, 4.3 (2) N. wall, 1630/80s door to No.4); *above, top right:* Sample 171 photographed in cross-section under dark-field reflected light at 200× magnification (printed magnification not calculated). The paint scheme on this sample is almost identical to the painted panelling samples as 288-293; *above, lower right:* Backscattered image showing locations for EDX spectra,

## 3 ARCHITECTURAL PAINT RESEARCH







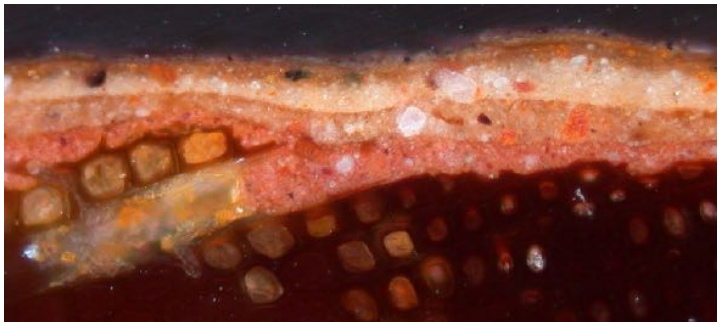



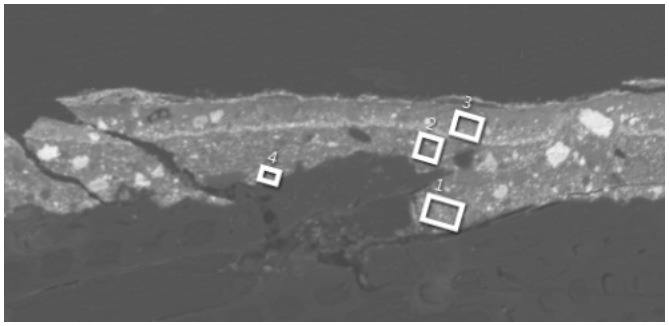

Spectrum 1 (far left) identifies lead (Pb), and traces of iron (Fe), manganese (Mn), silicon (Si) and aluminium (Al), plus calcium (Ca). These suggest red and white lead, natural earth as umber, plus chalk.

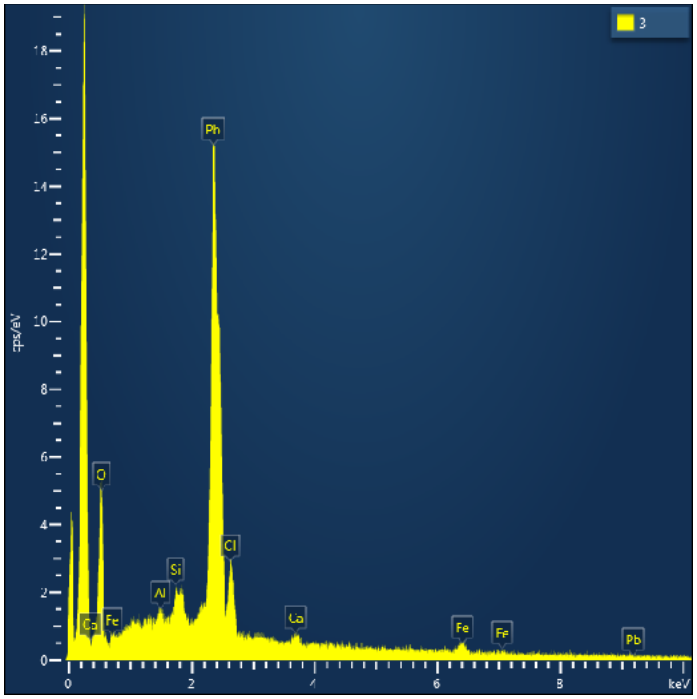
Spectrum 2 (left) identifies lead (Pb), and traces of iron (Fe), silicon (Si) and aluminium (Al), plus calcium (Ca). This layer appears to contain white and red lead plus iron oxide natural earth pigments and a little chalk.

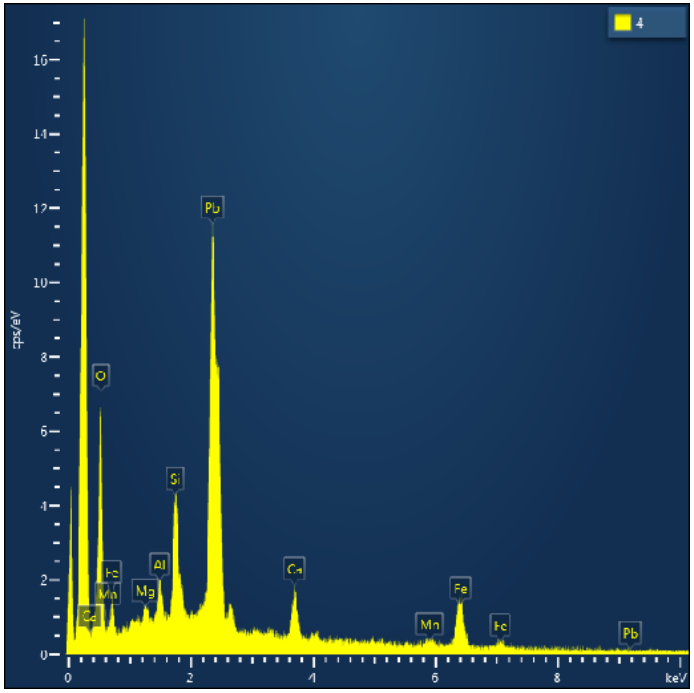
*Above, top left:* Sample 171 (from the ground-floor door between 4 and 5 Tower Green) photographed in cross-section under dark-field light at 200× magnification (printed magnification not calculated); *above, top right row, left-right:* Backscattered-electron image with EDX spectra areas marked; *above, bottom row, left-right:* EDX spectra 1 and 2.

## 3 ARCHITECTURAL PAINT RESEARCH





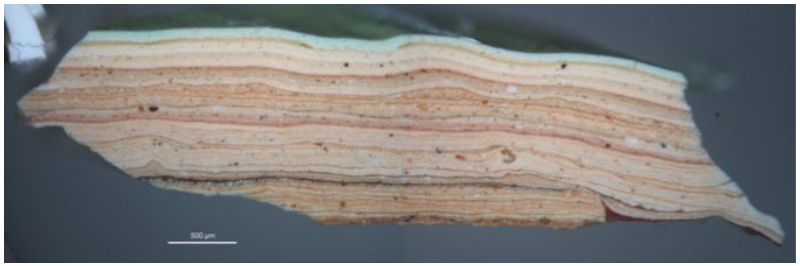



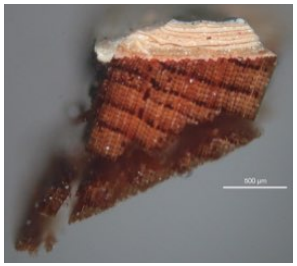

Spectrum 3 (far left) identifies lead (Pb), and traces of iron (Fe), silicon (Si) and aluminium (Al), plus calcium (Ca). The layer appears to contain white and red lead plus iron oxide natural earth pigments and a little chalk.

Spectrum 4 (left) identifies lead (Pb), and traces of iron (Fe), magnesium (Mg), silicon (Si), manganese (Mn) and aluminium (Al), plus calcium (Ca). These suggest red and white lead, natural earth in the form of/ including umber, plus chalk.

*Above, top left:* Sample 171 (from the ground-floor door between 4 and 5 Tower Green) photographed in cross-section under dark-field light at 200× magnification (printed magnification not calculated); *above, top right row, left-right:* Backscattered-electron image with EDX spectra areas marked; *above, bottom row, left-right:* EDX spectra 3 and 4.

## 3 ARCHITECTURAL PAINT RESEARCH



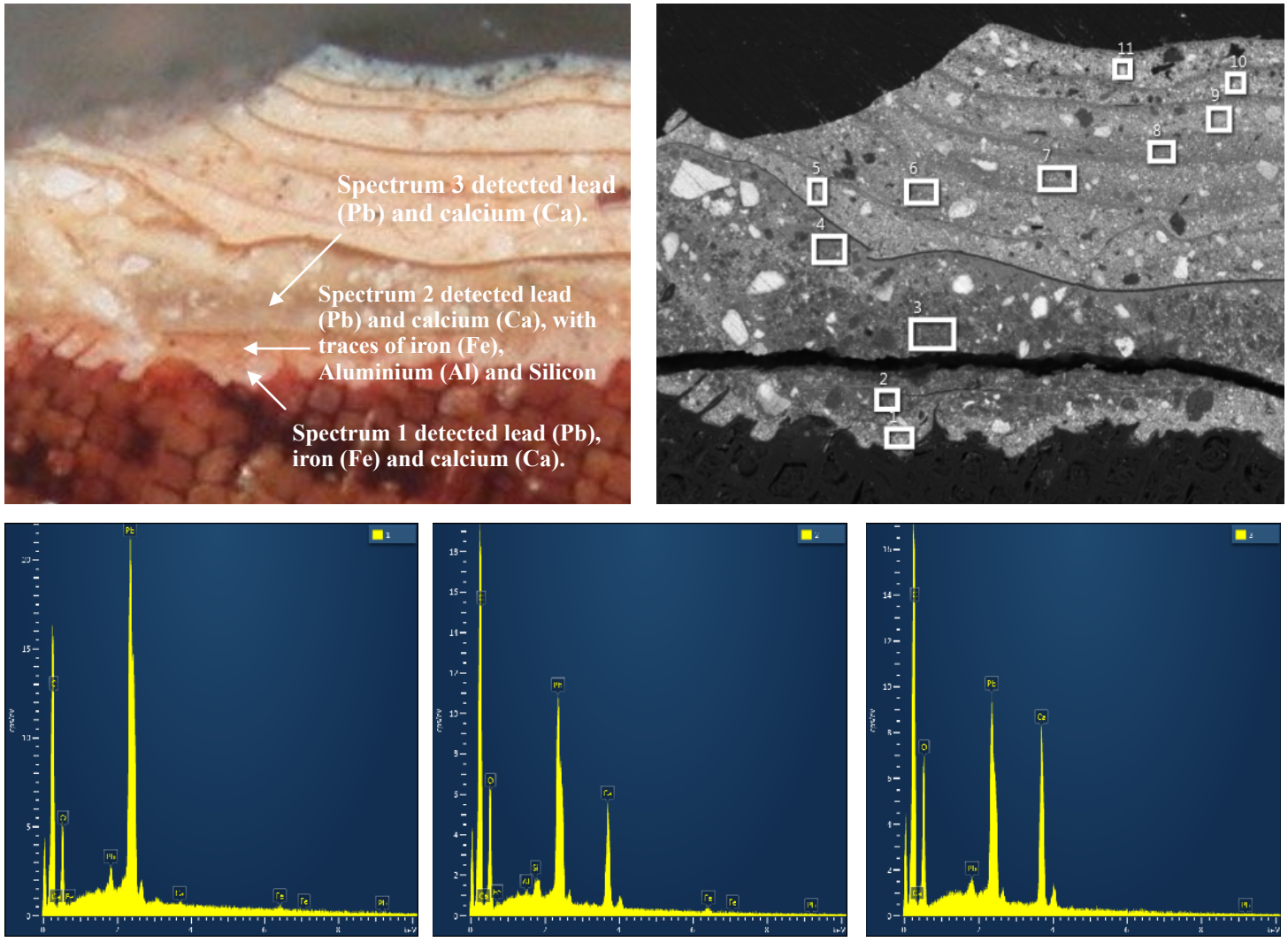


*Overall:* Sample 150 (2 fragments) from panelling between 5G.16 and entrance door.

*Above, top left*: sample location; *bottom left and bottom centre-left*: sample photographed in cross-section under dark-field reflected light at 50× magnification with scale bar (two separate images showing both fragments; larger image is a composite).

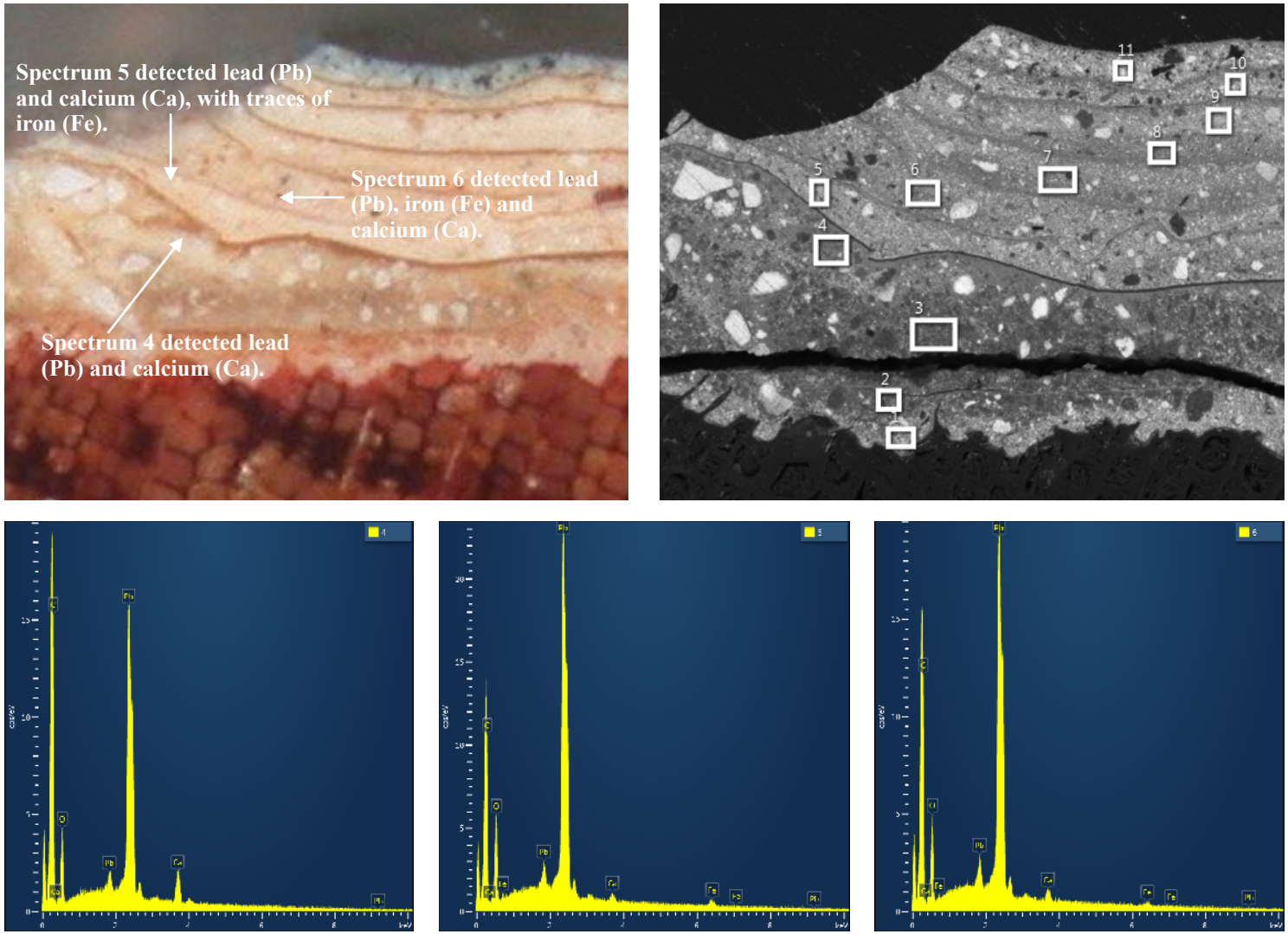
*Above right and above centre-right:* both fragments at 200× magnification, aligned to show corresponding early layers. Printed magnifications not calculated.

## 3 ARCHITECTURAL PAINT RESEARCH

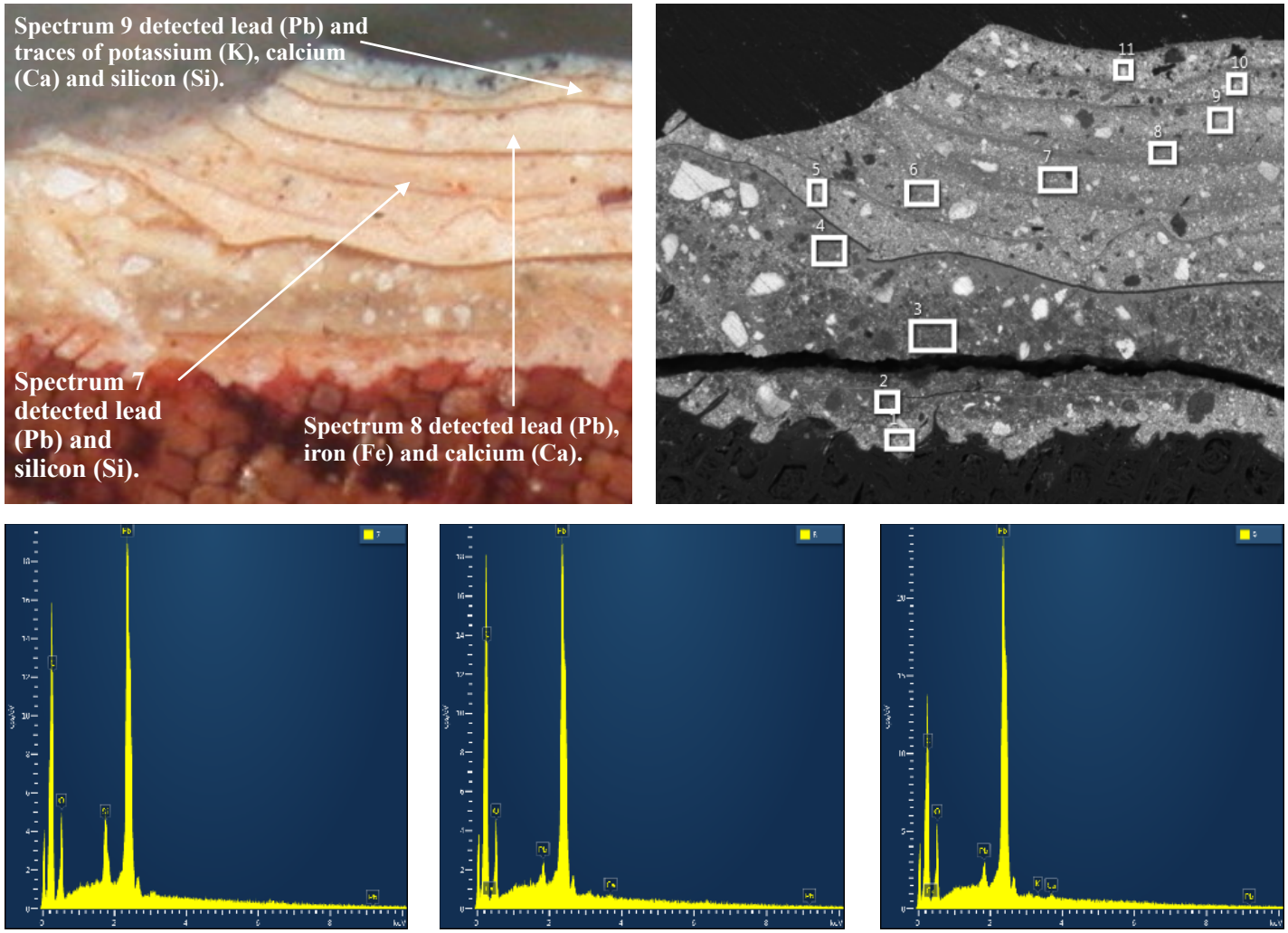



*Above, top left:* Sample 150 (from panelling near entrance of number 5) photographed in cross-section under dark-field illumination at 200× magnification (printed magnification not calculated); *above, top right:* Backscattered-electron image with spectra areas marked up; *above, lower row left-right:* Sample 150 SEM.EDX spectra 1, 2 and 3.

## 3 ARCHITECTURAL PAINT RESEARCH

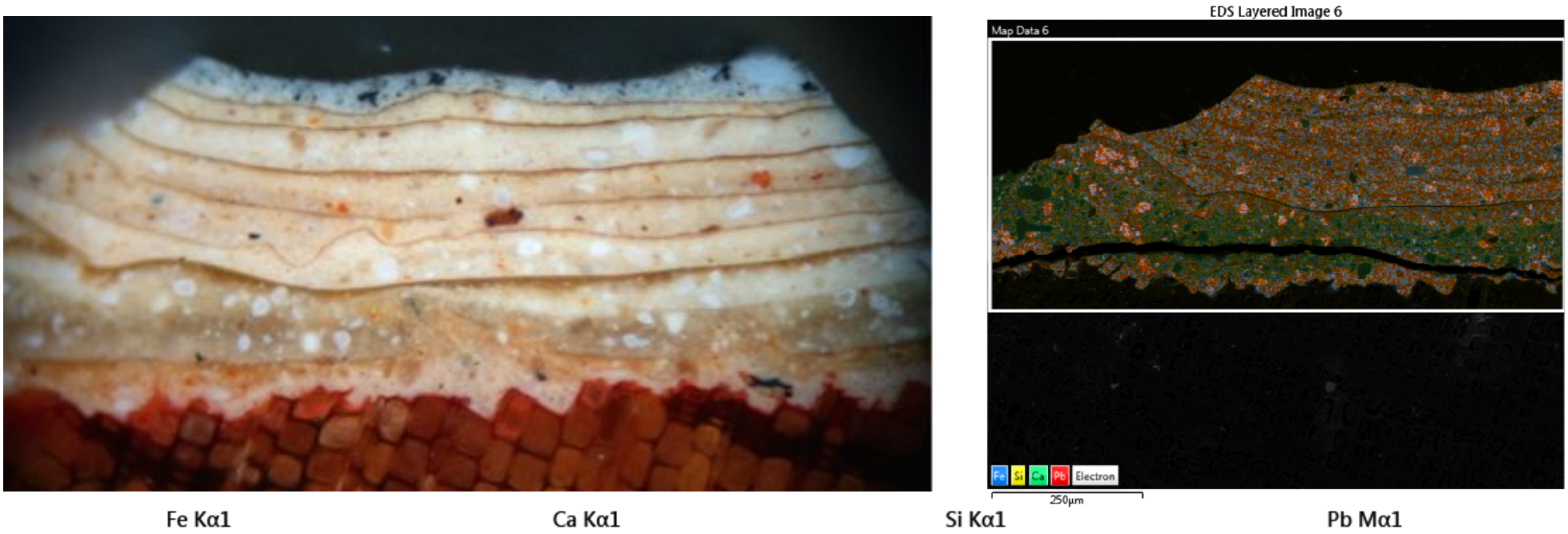



*Above, top left:* Sample 150 (from panelling near entrance of number 5) photographed in cross-section under dark-field illumination at 200× magnification (printed magnification not calculated); *above, top right:* Backscattered-electron image with spectra areas marked up; *above, lower row left-right:* Sample 150 SEM.EDX spectra 4, 5 and 6.



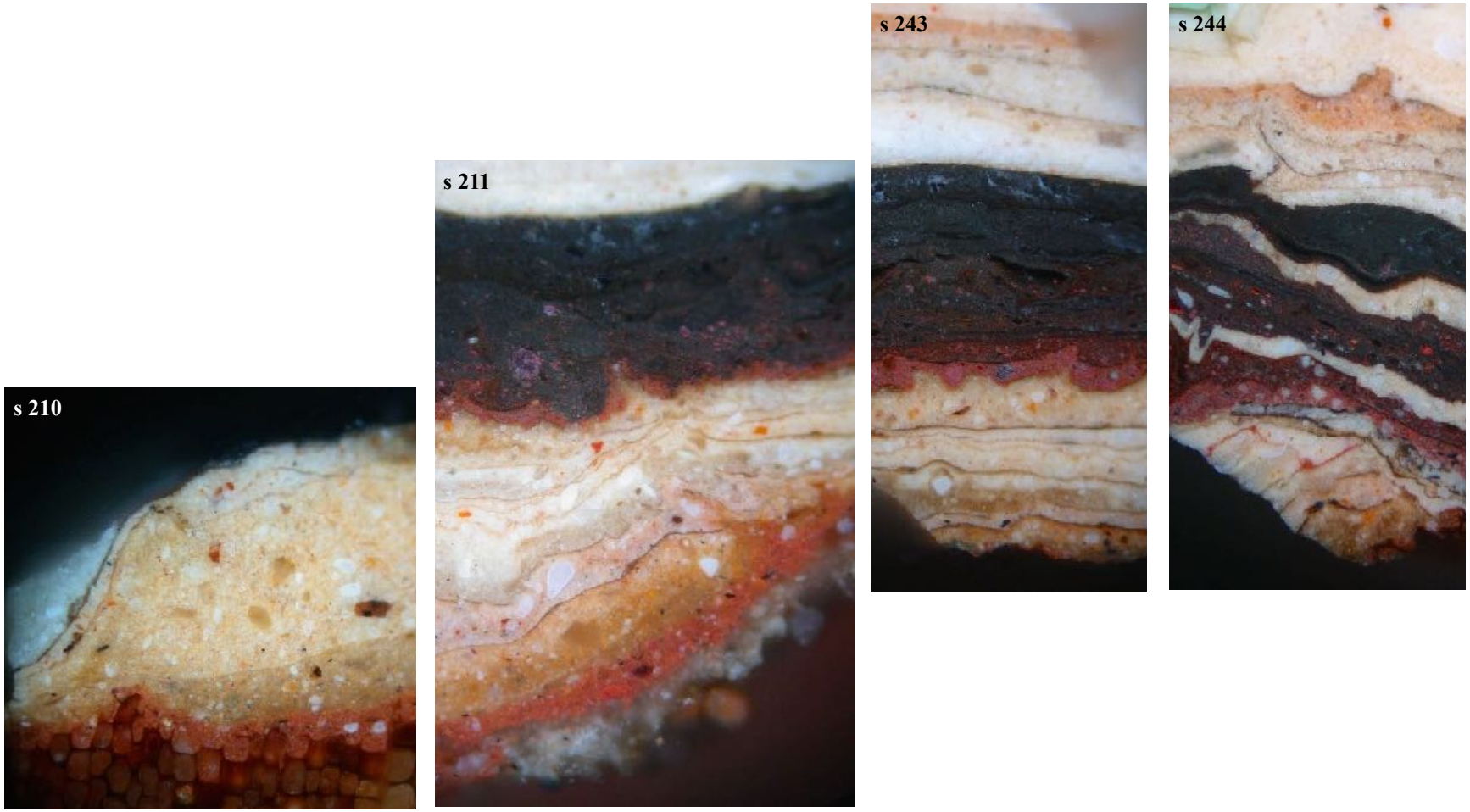

*Above, top left:* Sample 150 (from panelling near entrance of number 5) photographed in cross-section under dark-field illumination at 200× magnification (printed magnification not calculated); *above, top right:* Backscattered-electron image with spectra areas marked up; *above, lower row left-right:* Sample 150 SEM.EDX spectra 7, 8 and 9.

## 3 ARCHITECTURAL PAINT RESEARCH




*Above, overall:* SEM.EDX mapping of sample 150 (fragment containing lower layers) identifies the location of key elements: iron (Fe) mapped in blue, calcium (Ca) mapped in green, silicon (Si) mapped in yellow and lead (Pb) mapped in red.

## 3 ARCHITECTURAL PAINT RESEARCH




*Above, overall:* Examples of paint samples which show very similar primary layers.

*Above left*: Sample 210 (No. 5, second-floor, north room, door panel bed (1630/80s)); *above centre-left:* Sample 211 (No. 5, second-floor, north room, door panel moulding); a*bove centre-right:* Sample 243 (No. 5, staircase first to second floor, door to south room, moulding), *above right:* Sample 244 (No. 5, staircase first to second floor, door to south room, panel surround). All photographed in cross-section under dark-field reflected light at 200× magnification. Printed magnification not calculated.

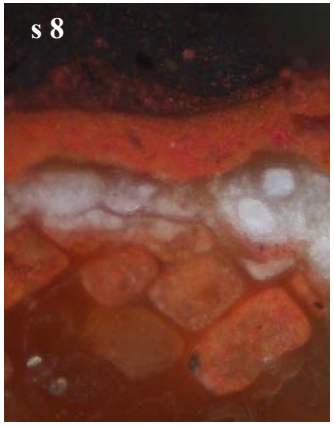
n.b. Samples 210 and 211 are from house no. 5, second-floor, north room, door panel bed and door panel moulding, which have both been dated to the 1630/80s on stylistic grounds.

## 3 ARCHITECTURAL PAINT RESEARCH

**Anomalous 18th- and 19th-century paint?**

Two paint samples – 8 and 258, from the inner face of the ground-floor entrance door of house 4 and a newel post from one of the staircases of house 5 respectively – bear paint schemes which are superficially similar to the earliest paint. They are, however, considered likely to be anomalous, later schemes, rather than original material.

Sample 8 has some characteristics which might at first glance appear to indicate a 17th-century date. The stratigraphy is as follows: the red lead and red iron oxide priming can be clearly seen on and within the upper cells of the timber substrate; this is followed by a medium-rich and partially translucent white-lead-based layer, which also has an appearance that is misleadingly characteristic of 17th-century paint; over this is a red lead and iron oxide red ground layer, a layer of mixed carbon black and red lead, followed by darker paint layer with a little red lead. Despite the appearance of these layers, when compared with samples such as 211 which have retained a full paint history it appears that the first paint layers on sample 8 are likely to be slightly later, probably dating from the 18th century. This would fit better with stylistic evidence which suggests the door is 18th-century. Reddish primings continued to be used as preparation for timber in the 18th century and do not necessarily indicate a 17th-century date.



*Far-left and centre-left*: Sample 8 (from house no.4, ground floor, inner face of entrance door) photographed in cross-section at 200× and 500× magnification.

*Near-left*: Sample 211 from house no. 5, second-floor, north room, door panel moulding at 200× magnification. Samples photographed in cross-section under dark-field reflected light. Printed magnification not calculated.

## 3 ARCHITECTURAL PAINT RESEARCH

Likewise, sample 258 appears to be anomalous later paint with a superficial resemblance to the earliest paint seen elsewhere. This sample was taken from the newel post of the stairs from the ground floor middle room to the basement of house 5. The cross-section shows that the first scheme in this region bears no priming, but the translucent lead white followed by layers of iron oxide and red lead appear similar to 17th-century paintwork. However, this staircase has been dated to the early 19th century, possibly 1840s, on stylistic grounds: there is evidence of stop chamfering on the balusters and Charles Brooking noted the spacing of the balusters as being unusual.[16] Therefore, it is considered likely that the paint on this element dates from the 19th century. Lead white, iron oxide and red lead are all pigments that were in use well into the 19th century and, to varying extents, into the 20th century, so their presence in a 19th-century paint layer is not problematic.

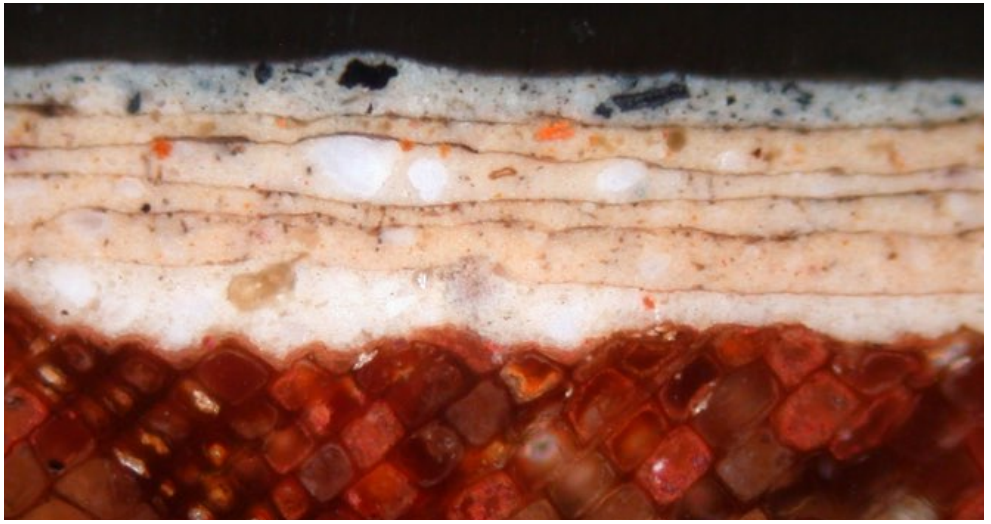

*Above left*: Sample 258 location; *above right:* Sample 258, photographed in cross-section under dark-field reflected light at 500× magnification (printed magnification not calculated).

[16] Ateeq, H., *4 & 5 Tower Green, Tower of London Inventory of Fixtures and Fittings*, unpublished report, Historic Royal Palaces, July, 2017, pp.187-188.

## 3 ARCHITECTURAL PAINT RESEARCH

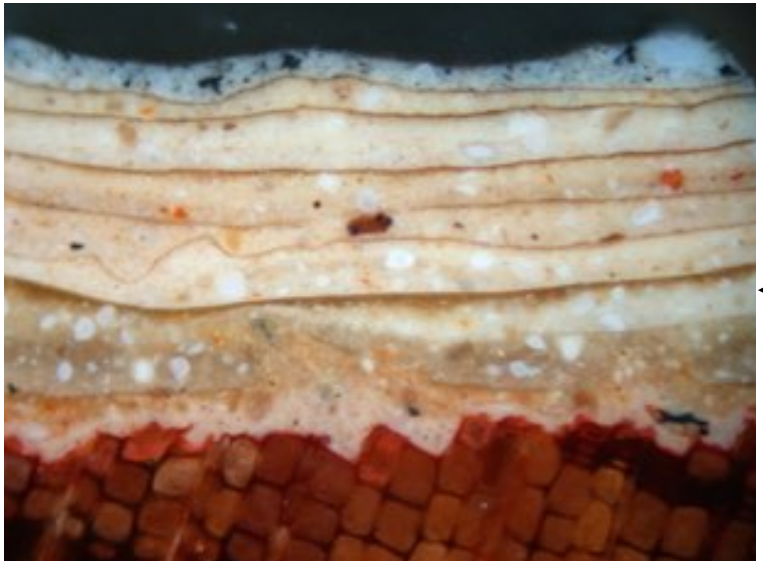
**Paint schemes from *c*.1700–1800**

The earliest paint on the horizontal plank panelling to the south to the main entrance in the hall of house 5, seen in cross-section as sample 151, starts with a fairly early scheme that corresponds to the third decoration seen in the most complete samples discussed previously. The panelling to the north of the entrance door (sample 150), on the other hand, has the two very earliest paint schemes and may have been moved from elsewhere, already painted twice, when the entrance hall timber elements were formed, either in the very late 17th or, more probably, the early 18th century. It is notable that the panelled region to the south of the entrance door bears no paint after the slightly later-18th-century eighth decoration – a grey mixture primarily composed of lead white and a carbon-based black with the appearance of charcoal, which appears as a dull grey-green colour on the visible paint surface. The grey-green surface appearance is an optical effect which relates to the combination of the grey pigment mixture and the yellowing of the oil binder, which can discolour when not exposed to light for a long period. It is assumed that this panelling was covered over by additional panelling or another finish for the major part of the decorative history of the house. This grey mixture is also seen in the sample from the panelling to the north of the entrance door (sample 151), but in this region it was painted over subsequently. Sample 151 is composed of two fragments of paint, the lowest of which happened to cleave after the grey paint layer, but there is later paint directly over the grey layer seen in the upper paint fragment of this sample.



*Above left:* Sample 151 location (plank panelling to south of entrance door of 5 Tower Green); *above right:* Sample 151 photographed in cross-section under dark-field reflected light at 200× magnification (printed magnification not calculated).

## 3 ARCHITECTURAL PAINT RESEARCH



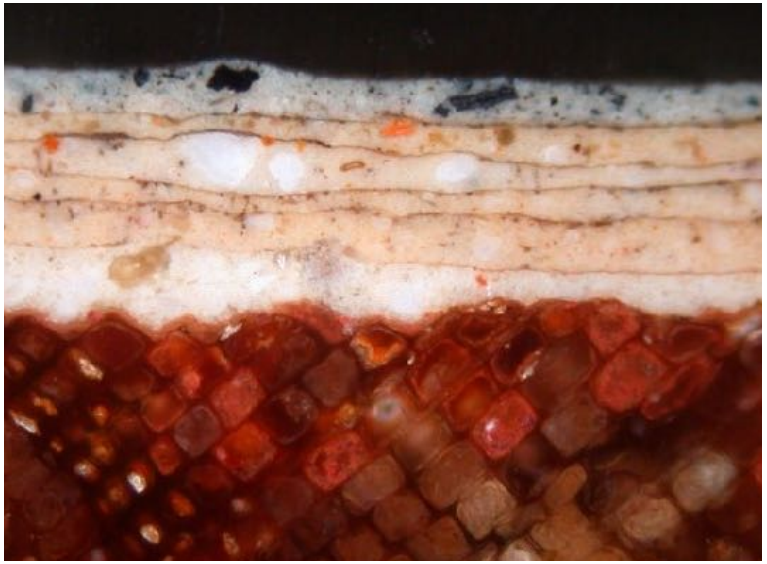
**8**: grey mix of lead white and charcoal black
**7:** buff
**6:** buff
**5:** buff
**4:** buff
**3:** off-white – in sample 151 this is on a red iron oxide primer

*Earlier layers, seen on sample 150 only:*

***2:*** *off-white on translucent off-white undercoat*

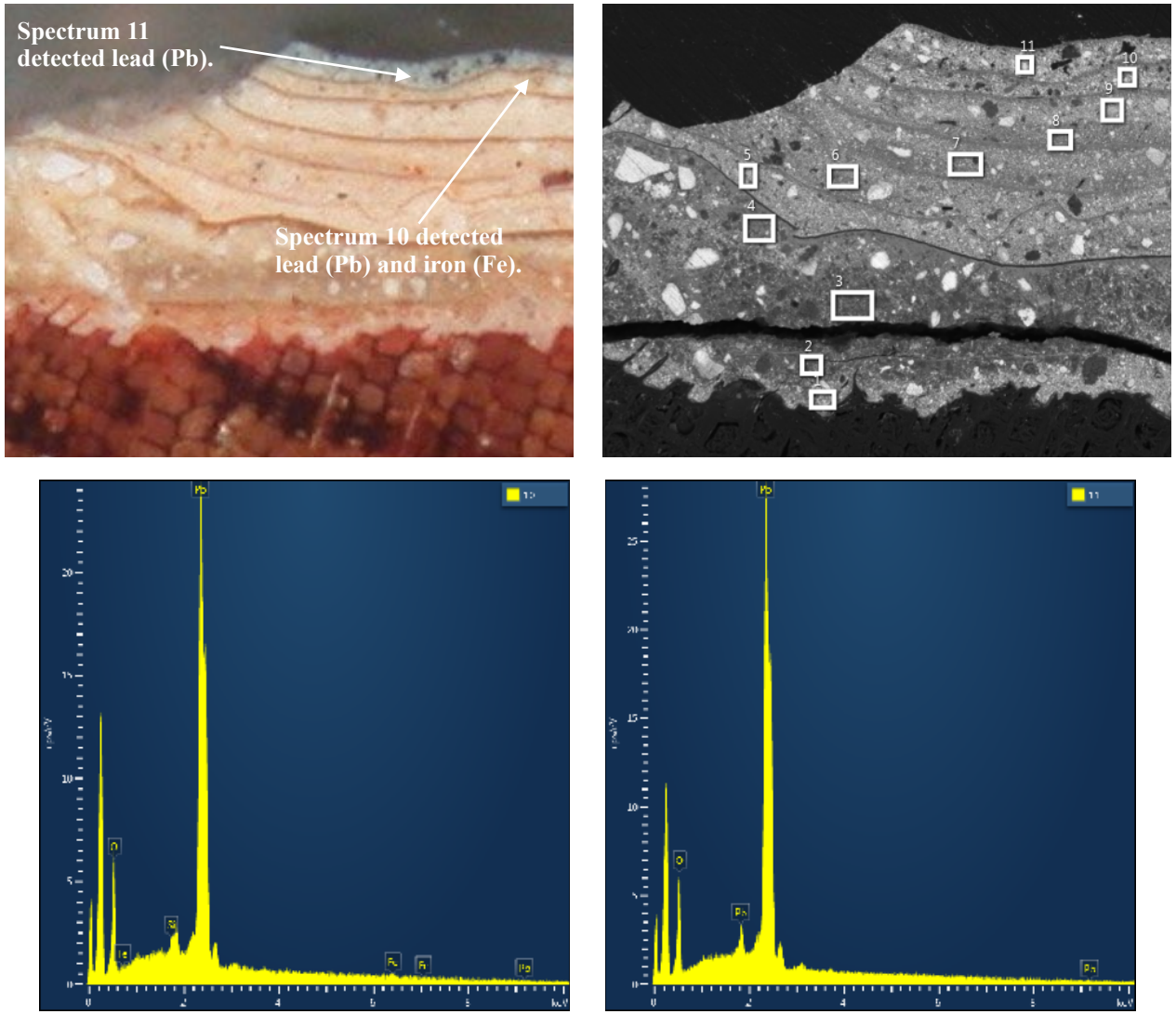
***1:*** *warm buff on buff undercoat on red iron oxide priming*

Timber substrate



*Above, overall:* Comparison of the 18th-century paint of sample 151 (right) with the lower fragment of sample 150 (left), which includes the earliest 17th-century paint schemes as well as 18th-century paint up to the distinctive grey scheme, which is the uppermost paint layer seen in both cross-sections. The first decoration on the horizontal panel sample from the right side (south) of the entrance door (151) corresponds with the third decoration seen on the panelling to the left (north) of the entrance door (150). Samples are aligned to show the corresponding schemes.

*Above, left*: Lower fragment of sample 150 (from house 5 panelling between door to north room, ground floor and entrance door) photographed in cross-section under dark-field reflected light at 200× magnification; *above, right:* Sample 151 (from house 5 plank panelling to south of entrance door) photographed in cross-section under dark-field reflected light at 200× magnification (printed magnification not calculated).




*Above, top left:* Sample 150 (from panelling near entrance of number 5) photographed in cross-section under dark-field illumination at 200× magnification (printed magnification not calculated); *above, top right:* Backscattered-electron image with spectra areas marked up; *above, lower row left-right:* Sample 150 SEM.EDX spectra 10 and 11.

## 3 ARCHITECTURAL PAINT RESEARCH

The distinctive grey of the 18th-century eighth scheme is seen in other cross-sections from various regions within the two properties. Sample 36, from the dado rail in the main ground-floor room of house 4, includes the grey which is present over two earlier paint schemes. This sample appears to commence at the sixth scheme; however, the lower layers could actually be earlier as labour-intensive graining is often retained for several schemes while plain painted surfaces tend to be redecorated more frequently. Sample 43, from the dado within the western embrasure of the main ground-floor room of house 4, includes early graining on a timber substrate, which is probably the same graining as in the base of sample 36. Sample 174, from the roll moulding of the ground-to-first-floor staircase of house 5, shows the grey eighth scheme over a beige-on-white decoration. The white decoration is on the timber substrate, suggesting that this timber element dates from the sixth decoration, probably sometime in the early 18th century.

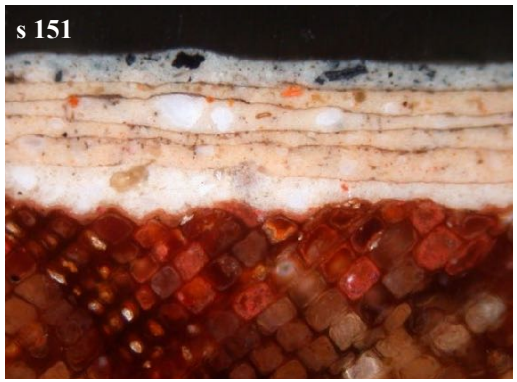
*Below, left:* Sample 151 (as illustrated on previous pages) with characteristic grey eighth scheme lined up with same decoration on other samples.

*Below, upper-centre*: Sample 36 (dado, main ground-floor room, house 4).

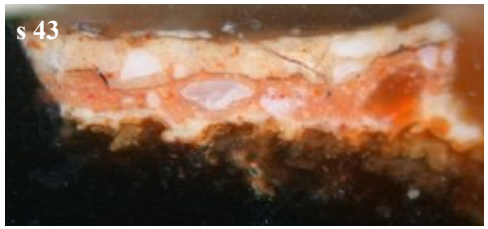
*Below, lower-centre*: Lower fragment only of sample 43 (dado, embrasure, main ground-floor room, house 4) showing early graining on timber substrate, which is probably the same graining as the base of sample 36.

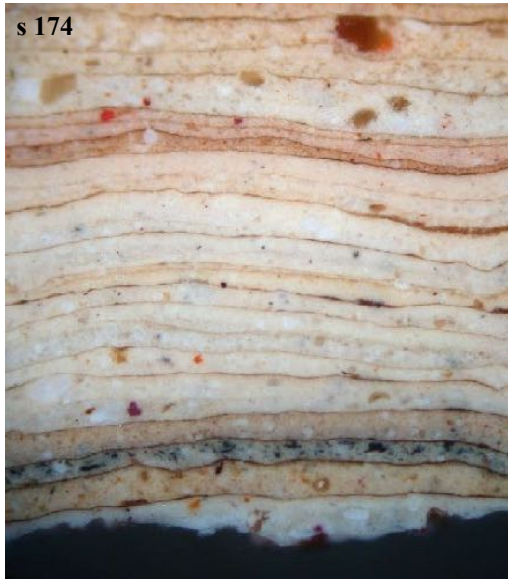
*Below, upper- and lower-right:* Upper and lower fragments of sample 174 (roll moulding of the ground-to-first-floor staircase, house 5).

All samples photographed in cross-section under dark-field reflected light at 200× magnification. Printed magnifications not calculated.



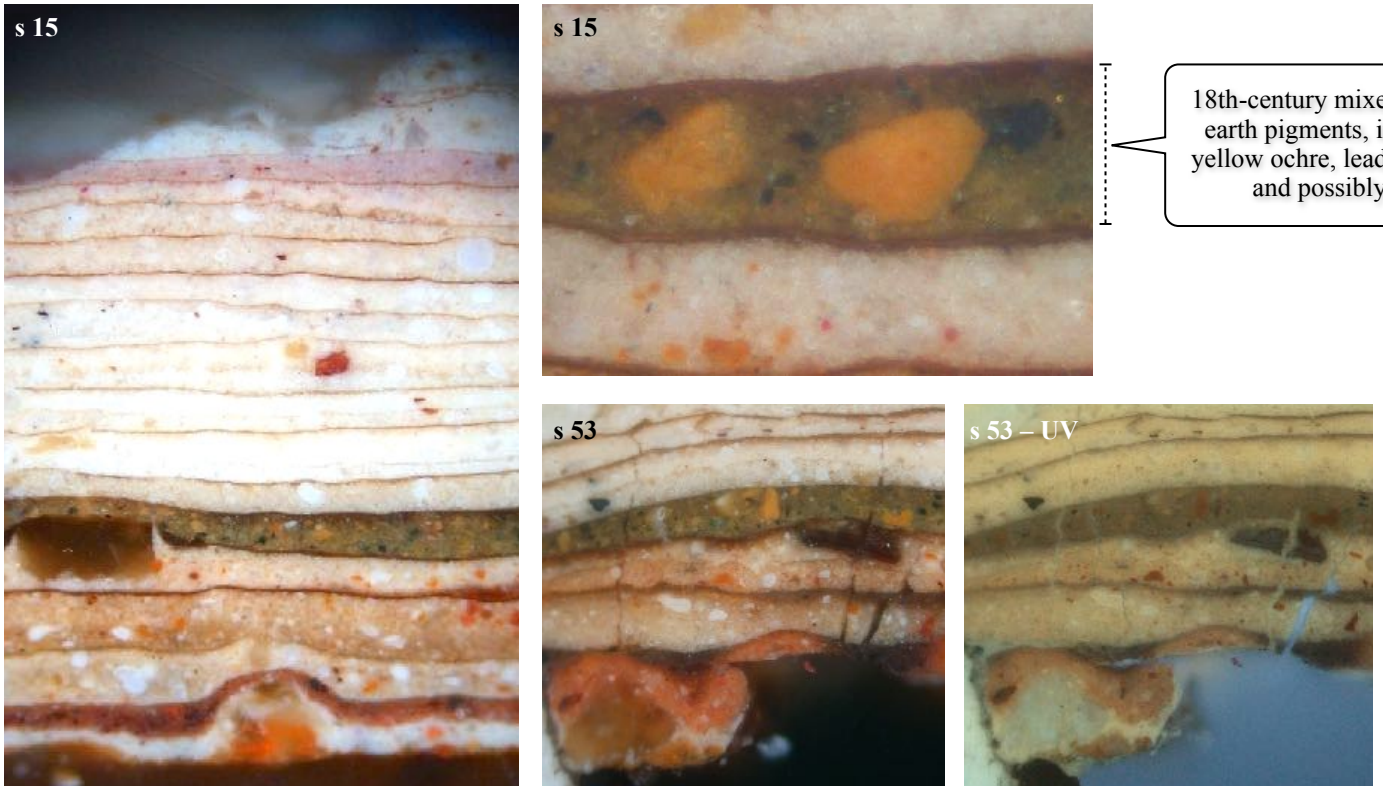





## 3 ARCHITECTURAL PAINT RESEARCH

Several samples include an early green decoration, which appears to be roughly contemporaneous with (or slightly later than) the 18th-century grey scheme discussed previously. The green mixture includes earth pigments including umber and yellow ochre, as well as lead white, carbon black and probably some red lead. It appears the presence of this specific finish reunites the entrance hall and staircase of house 4 and provides evidence of the historic connection between spaces which was lost in 1853 when the staircase and hall areas were altered.[17]



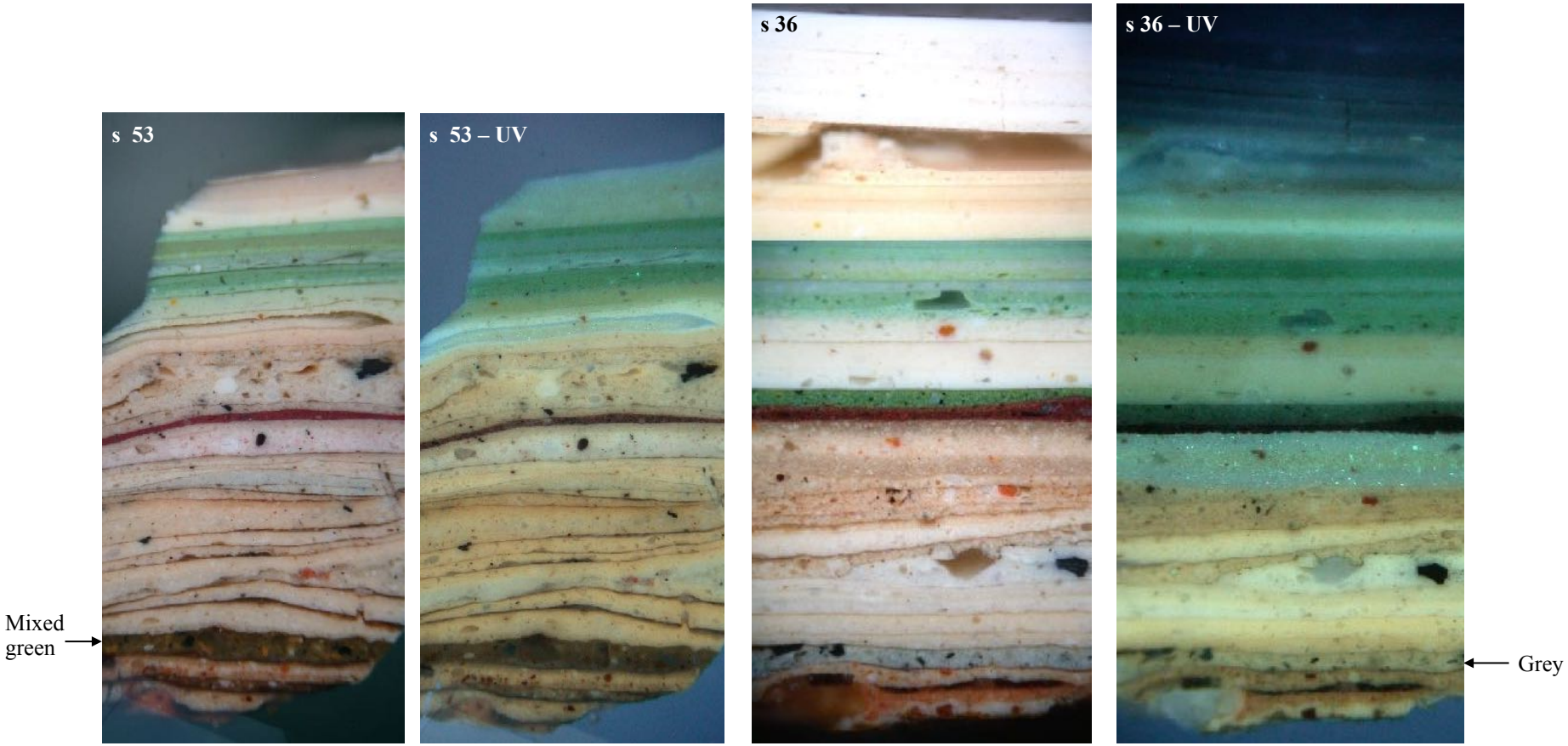

*Far left:* Sample 15, from north-wall panel bed, entrance hallway of house 4, photographed under dark-field reflected light at 100× magnification; *left, top-centre:* Sample 15 photographed under dark-field reflected light at 500× magnification.

*Left*, *bottom-centre and -right*: Sample 53, from baluster of staircase between ground and first floors of house 4, showing early graining and the distinctive early green decoration, photographed in cross-section under dark-field reflected light and UV illumination with Leica filter cube A at 200× magnification.

Printed magnifications not calculated.

[17] Research Report: 4 & 5 Tower Green, Tower of London, unpublished report provided by HRP, dated 16.6.2017. p.21: 'the interior of the house … [was] re-modelled post-1853, with the door into the northern ground-floor room now being used as a cupboard, while the staircase to the first-floor was altered so it could be entered from the surviving ground-floor room. The original hall was altered so the basement could be entered directly from it, reusing older panelling which has been cut to form the cupboard.'

## 3 ARCHITECTURAL PAINT RESEARCH

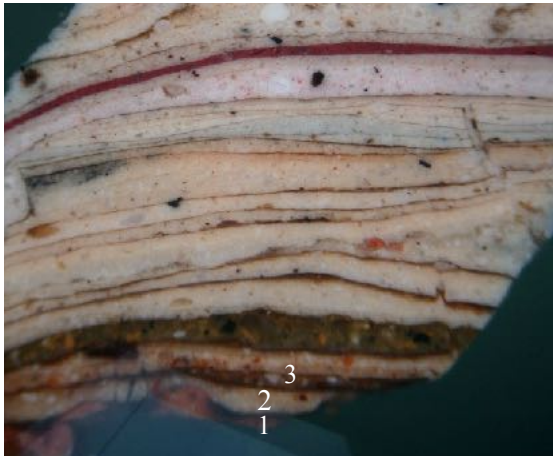


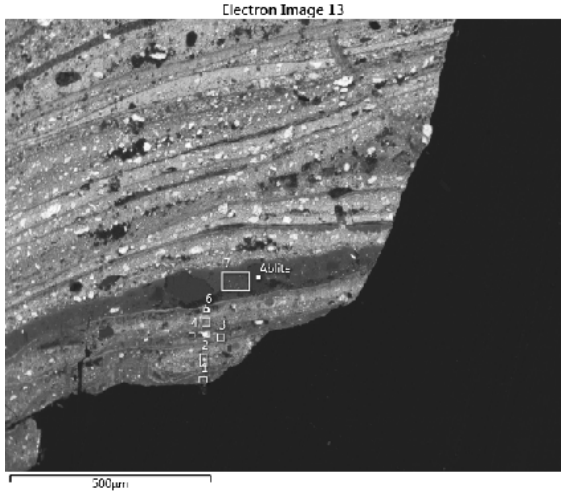

*Above, left and centre-left*: Sample 53 (baluster of staircase between ground and first floors of house 4) showing early graining and a distinctive early green decoration, which appears to be of similar general date to the characteristic grey. Sample photographed in cross-section under dark-field and UV illumination with Leica filter cube A at 100× magnification.

*Above, centre-right and right:* Sample 36 (dado, main ground-floor room, house 4) with graining and distinctive grey, photographed in cross-section under dark-field and UV illumination with Leica filter cube A at 100× magnification.

Samples aligned to show corresponding schemes. Printed magnifications not calculated.

## 3 ARCHITECTURAL PAINT RESEARCH

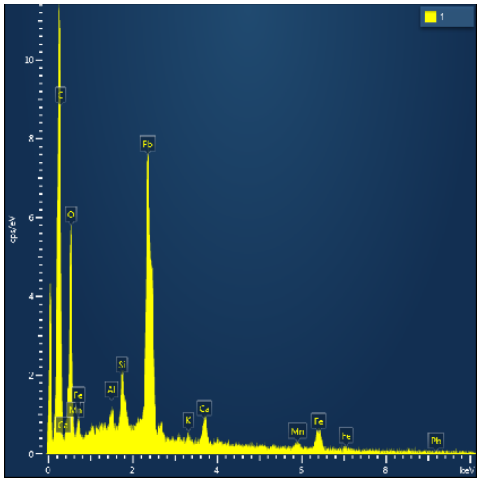


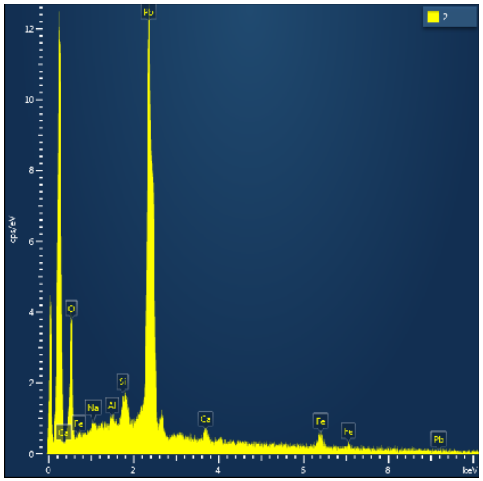



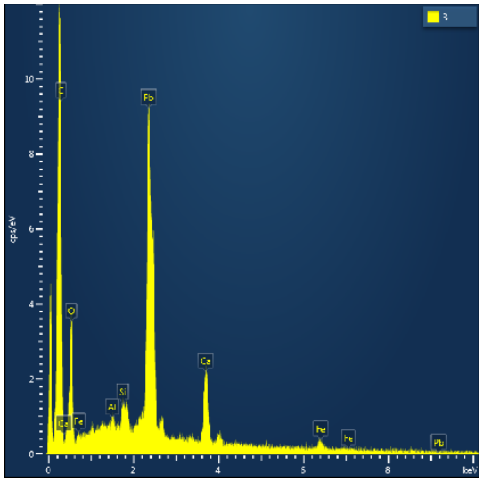

Spectrum 1 identifies lead (Pb), iron (Fe), manganese (Mn), silicon (Si) and aluminium (Al). Given the appearance of the layer this indicates lead white, lead red and some natural brown umber.

Spectrum 2 detected lead (Pb) and iron (Fe), with a little calcium (Ca), aluminium (Al) and silicon (Si), suggesting natural earth pigment with some chalk and lead white.

Spectrum 3 has similar peaks to spectrum 2, perhaps with a little more calcium (Ca), which may indicate a higher proportion of chalk.

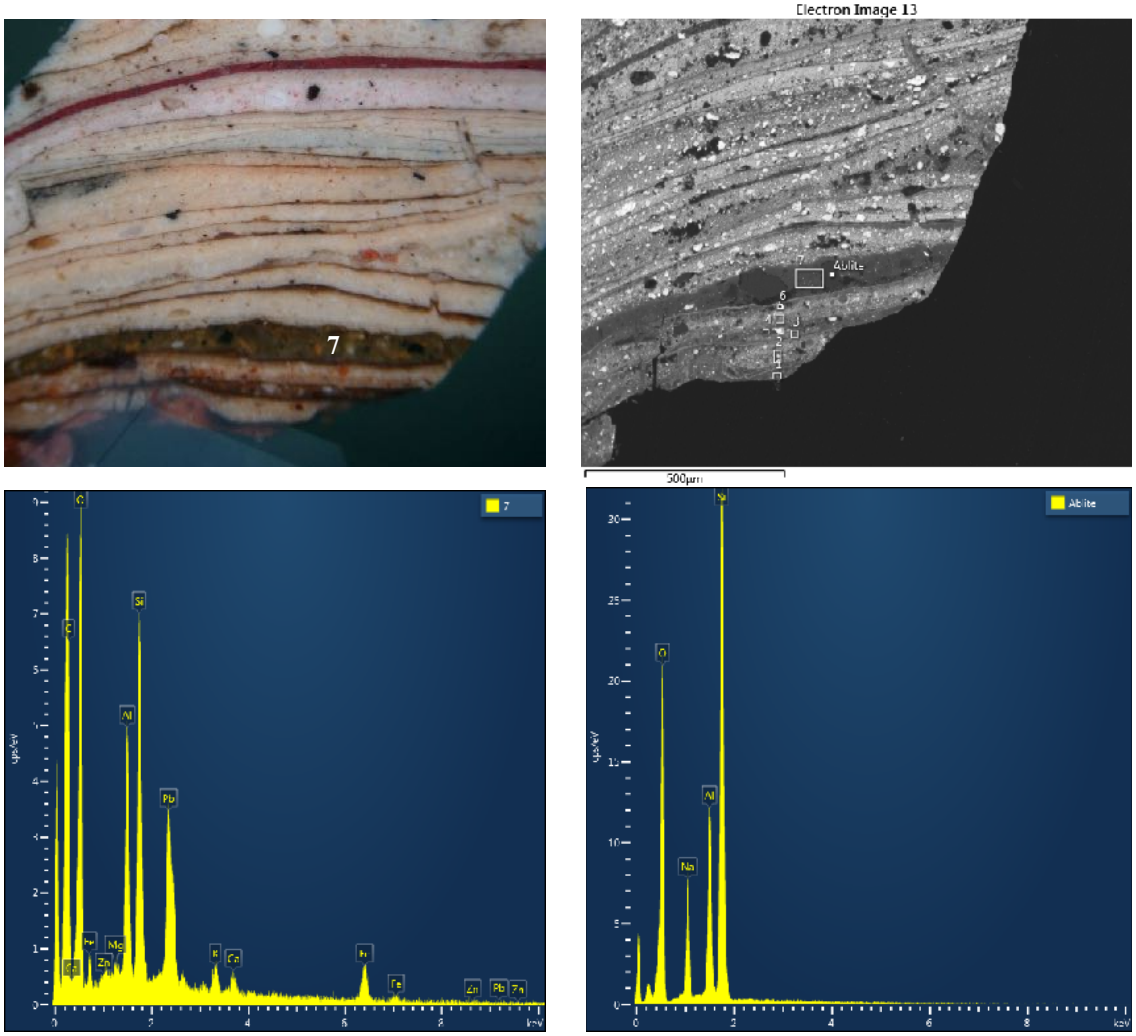






*Above, top left:* Sample 53 (from panelling near entrance of number 5) photographed in cross-section under dark-field illumination at 200× magnification (printed magnification not calculated); *above, top right:* Backscattered-electron image with spectra areas marked up; *above, lower row left-right:* Sample 53 SEM.EDX spectra 1, 2 and 3.

## 3 ARCHITECTURAL PAINT RESEARCH




Spectrum 7 identifies lead (Pb), iron (Fe), calcium (Ca), silicon (Si), aluminium (Al), potassium (K), and a trace of zinc (Zn).

The mixed green layer appears to contain yellow ochre (natural iron oxide earth), lead white, carbon black and ablite (a white feldspar mineral).

*Above, top left:* Sample 53 (from panelling near entrance of number 5) photographed in cross-section under dark-field illumination at 200× magnification (printed magnification not calculated); *above, top right:* Backscattered-electron image with spectra areas marked up; *above, lower row left-right:* Sample 53 SEM.EDX spectrum 7 and spectrum from point analysis suggesting ablite.

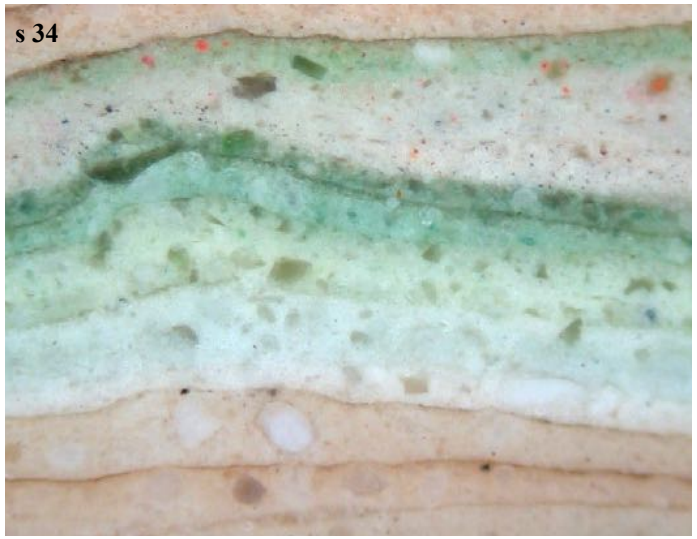
## 3 ARCHITECTURAL PAINT RESEARCH

The removal of asbestos-containing panelling in some parts of the properties revealed some regions of earlier paint. Sample 259, from panel surround of the north-wall panelling previously hidden by the asbestos panelling in the main ground-floor room of 4 Tower Green, has evidence from the fifth decoration onwards, including the grey eighth decoration. A pale blue-green is present as the 17th decoration in this region, and was repeated with slight variation in hue as the 18th and 19th decorations, which must have been applied in the 18th century. These schemes are followed by five or more buff schemes, until the 19th-century re-introduction of green decoration, which was repeated several times (schemes 24-28 in this sample).

The 18th-century green and pale-blue schemes on the panelling of the main ground floor room of house 4, with the use of more expensive pigments to create bright interior decoration confirms the high status of this domestic interior despite that fact that this was, relatively, the less prestigious of the two dwellings.



A little red pigment – either red lead or iron oxide – is present in the undercoat (and incorporated in the overlying green paint layer, possibly picked up from the undercoat accidentally), of one of the later of the 18th-century green schemes seen on the plank lining of the house-4 side of the ground-floor internal door between the two houses.




*Far left:* Sample 259 (panelling revealed by removal of asbestos panelling, main ground-floor room of house 4). This sample has evidence from the fifth decoration onwards, including the grey eighth decoration, and a pale blue-green as the 17th decoration, repeated with slight variation in hue at 18th and 19th decorations, followed by five or more buff schemes until the 19th-century introduction of several green schemes (24-28 here). Sample photographed at 200× magnification under dark-field light.

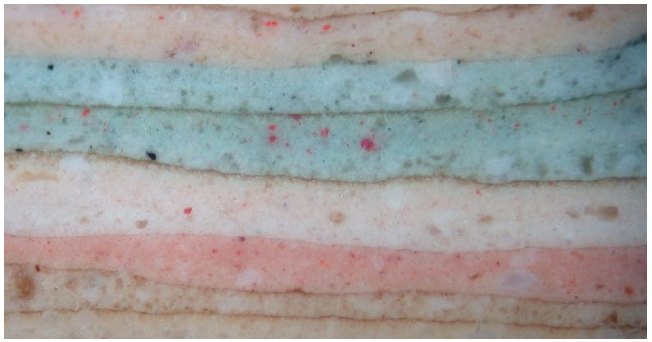
*Centre left:* Sample 34 (plank lining of door between houses 4 and 5, No. 4 side) photographed at 200× magnification under dark-field light.

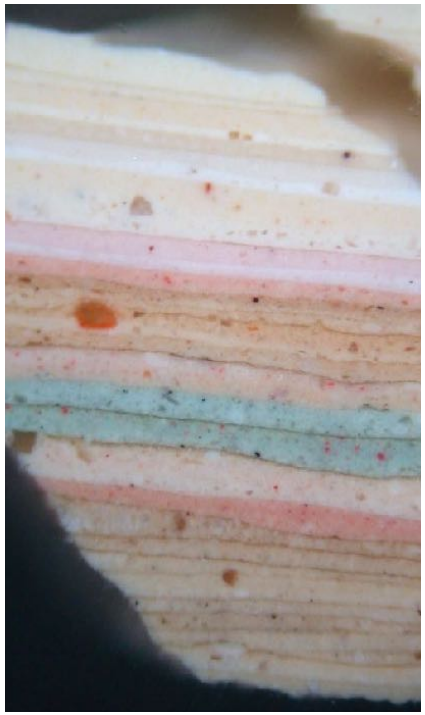
*Near left:* Detail of 200×-magnification image of sample 34 showing green schemes.

Printed magnifications not calculated.

## 3 ARCHITECTURAL PAINT RESEARCH

The main first-floor room of house 4 includes high-quality ovolo mouldings as part of the chimney breast, which are believed to date from the late 17th century.[18] The 18th-century paint in this region includes buff paint and two pink schemes – brighter and paler respectively – which may date to the latter part of the 18th century, followed by a pale blue which includes particles of red pigment, and a second similar pale blue without the red pigment. SEM.EDX indicates that these layers contain barium, suggesting a 19th-century date. Several buff schemes are then repeated before the later re-introduction of pink.





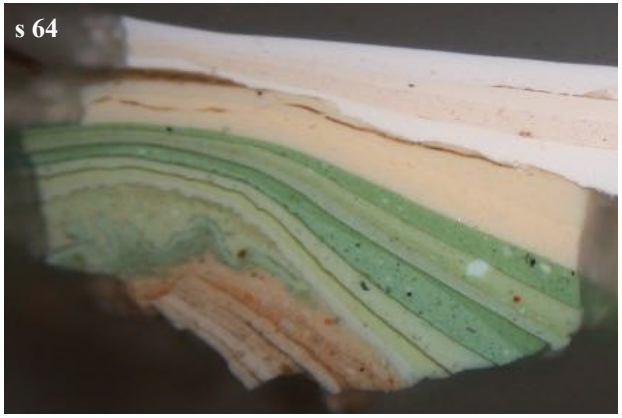
*Above left:* Chimney breast in main first-floor room of house 4.

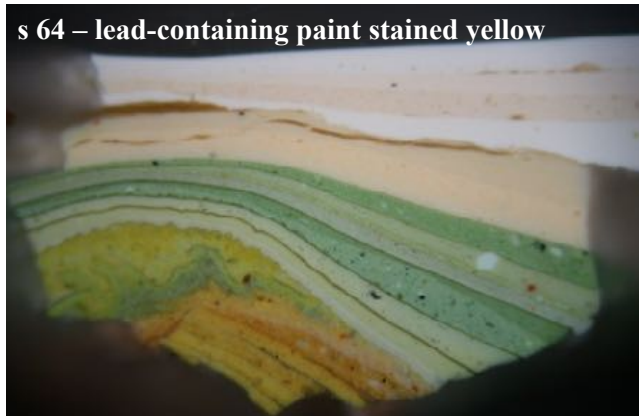
*Above centre:* Sample 59 (from chimney breast in main first-floor room, house 4) – detail of sample photographed in cross-section under dark-field reflected light at 200× magnification; a*bove right:* Sample 59 photographed in cross-section under dark-field reflected light at 200× magnification. Printed magnifications not calculated.

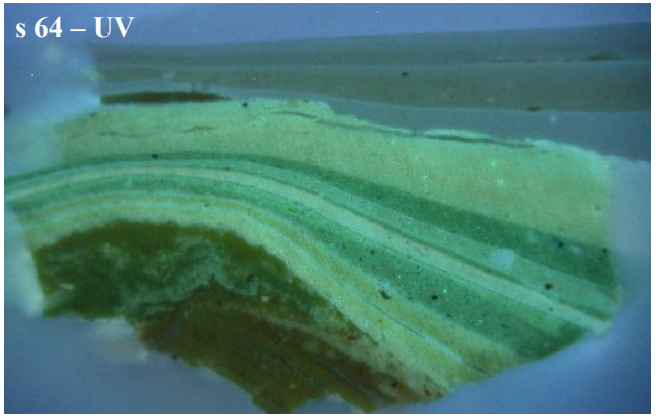
[18] [18] Ateeq, H., '4 & 5 Tower Green, Tower of London Inventory of Fixtures and Fittings' unpublished report, Historic Royal Palaces. July 2017, pp. 18-19.

**Paint schemes, *c.*1800–1900**

The mid 19th century saw the introduction of zinc-containing paints throughout the properties. These are clearly visible in cross-section due to the distinctive fluorescence of zinc oxide under UV. The transition from the earlier use of predominantly lead-based paints to zinc-white-based paints, and then to titanium-based paints, which incorporate stainers as opposed to coloured pigments, is clearly seen in cross-section 64 from the architrave upright of the doorframe in the second-floor room of 4 Tower Green, below. The early lead-based paints have been stained yellow with potassium chromate in the central image, while the later zinc-based paints appear bright and sparkly in UV in the right-hand image, and the overlying modern paints appear dark under UV in the same image.



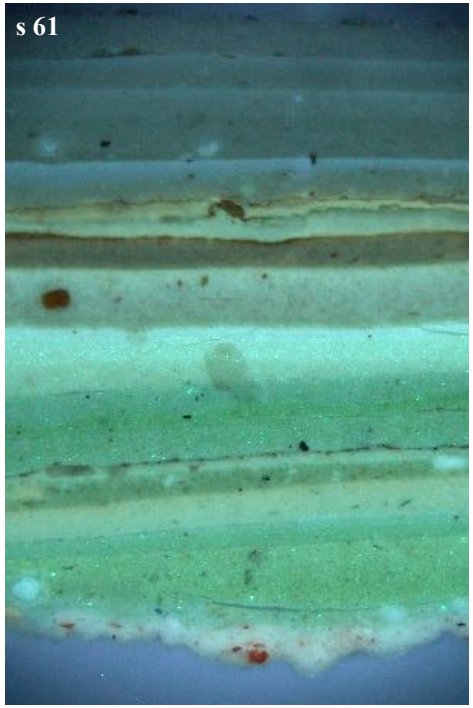



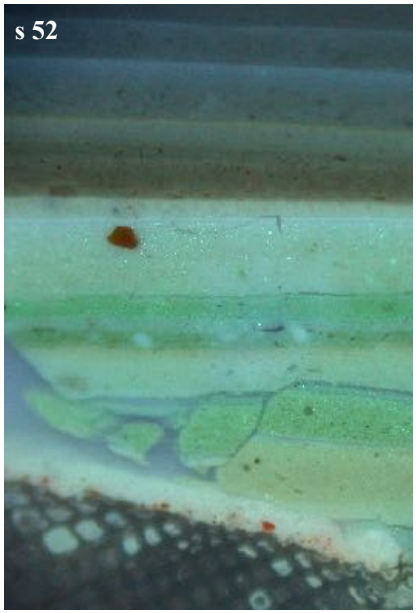

*Above left:* Sample 64 photographed in dark-field reflected light at 100× magnification; *above centre:* As before after staining for lead with potassium chromate; *above right:* Sample 64 after staining for lead with potassium chromate under UV illumination with Leica filter cube A. Printed magnifications not calculated.

## 3 ARCHITECTURAL PAINT RESEARCH

Some architectural elements, such as parts of the skirting and wall panelling on the staircases of house 4, were 19th-century repairs or additions. These elements often have a distinctive mixed pink priming, which is typical of 19th-century paintwork. A mid-19th-century zinc-containing green is seen directly on the pink priming, and is followed by several similar schemes, before being painted off-white, peach, pink and white.





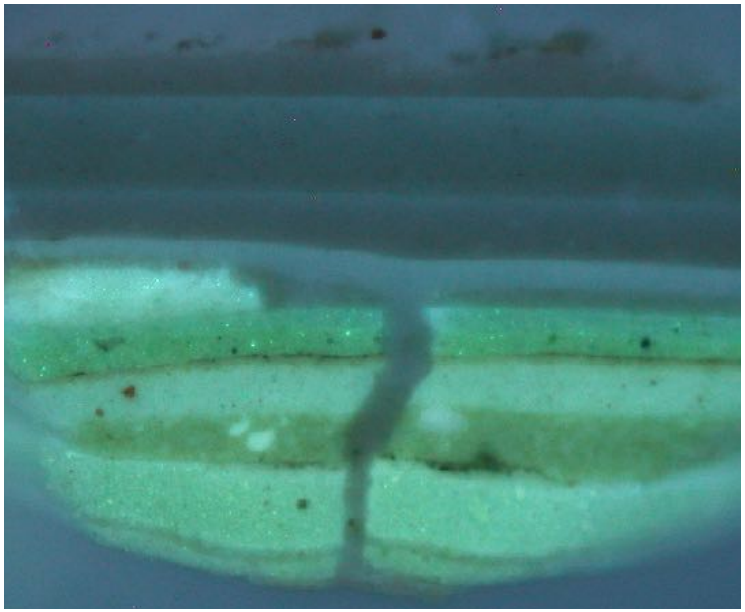

*Above, left and centre-left:* Sample 61 (from the skirting of the first-to-second-floor staircase of house 4) photographed in cross-section at 200× magnification under dark-field reflected light and UV light with Leica filter cube A.

*Above, centre-right and right:* Sample 52 (from the corner bead of the wall panelling of the ground-to-first-floor staircase of house 4) photographed in cross-section at 200× magnification under dark-field reflected light and UV light with Leica filter cube A.

Printed magnifications not calculated.

**Paint schemes, 1900–present**

Paintwork dating from the second half of the 20th century to the present day tends to consist of alkyd paints coloured with stainers as opposed to pigments, which are typical of this period. These paints tend to appear very pale in cross-section when viewed under dark-field reflected light but appear much dark under UV illumination than the preceding zinc-containing oil-bound paint layers, which have a sparkly appearance under UV.



*Above, left and right*: Sample 7 (interior entrance door frame, hallway, house 4) photographed in cross-section under dark-field reflected light and under UV illumination with Leica filter block A, both at 200× magnification. Printed magnification not calculated.

The mid- to late-20th-century alkyd paint layers appear pale under dark-field light and dark under UV, whereas the earlier oil-bound paints, here containing zinc white, fluoresce. The more modern paint can be seen running into a crack in the earlier oil-bound paint.

# APPENDICES

## APPENDIX 1: SAMPLE LOCATION LIST

Sample location list by area as itemised under points 4.2 and 4.3 in HRP 'Brief for Architectural Paint Analysis':

***Discussed under Section 3.1 - external windows***

| | |
|---|---|
| Sample 1 | No. 4 external window frame sash box |
| Sample 2 | No. 4 external frame outer moulding |
| Sample 3 | No. 4 external window sash |
| Sample 4 | No. 5 external centre window sash box (good sample) |
| Sample 5 | No. 5 external centre window frame outer moulding |
| Sample 6 | No. 5 external centre window sash |

***Discussed under Section 3.2.1 - no. 4, entrance hallway***

| | |
|---|---|
| Sample 7 | No. 4, 4.2 (1) hallway, interior entrance door frame |
| Sample 8 | No. 4, 4.2 (1) hallway, interior entrance door |
| Sample 9 | No. 4, 4.2 (1) cupboard door frame |
| Sample 10 | No. 4, 4.2 (1) cupboard door panel bed |
| Sample 11 | No. 4, 4.2 (1) cupboard interior lining tongue and groove boarding |
| Sample 12 | No. 4, 4.2 (1) cupboard surround |
| Sample 13 | No. 4, 4.2 (1) cupboard door tongue and groove plank |
| Sample 14 | No. 4, 4.2 (1) N wall, panelling corner bead |
| Sample 15 | No. 4, 4.2 (1) N wall, panel bed |
| Sample 16 | No. 4, 4.2 (1) N wall, applied timber |
| Sample 17 | No. 4, 4.2 (1) N wall, hand rail |
| Sample 18 | No. 4, 4.2 (1) S wall, panel frame |
| Sample 19 | No. 4, 4.2 (1) S wall, skirting moulding |
| Sample 20 | No. 4, 4.2 (1) S wall, skirting riser |
| Sample 21 | No. 4, 4.2 (1) S wall, stairs down to basement, panelling, lower raised panel |
| Sample 22 | No. 4, 4.2 (1) S wall, door to main room, architrave outer moulding |
| Sample 23 | No. 4, 4.2 (1) S wall, door to main room, door jamb |
| Sample 31 | No. 4, 4.2 (2) E elevation, partition between stairs and passage to NW embrasure tongue & groove panelling |
| Sample 270 | No 4, 4.2 (1) hallway, interior door |
| Sample 273 | No 4, 4.2 (1) ground floor, entrance hall: retake sample 10 to include substrate |

***Discussed under Section 3.2.2 - No. 4 basement***

| | |
|---|---|
| Sample 24 | No. 4, 4.2 (2) Basement NW embrasure passage tongue & groove panelling |
| Sample 261 | No. 4, 4.2 (2) basement, purple wall revealed by removal of Asbestos panelling - NW corridor, east wall |
| Sample 25 | No. 4, 4.2 (2) SW embrasure, timber ceiling beam |
| Sample 26 | No. 4, 4.2 (2) SW embrasure, timber upright |
| Sample 27 | No. 4, 4.2 (2) SW embrasure, casement window |
| Sample 28 | No. 4, 4.2 (2) SW embrasure, shelf |
| Sample 29 | No. 4, 4.2 (2) E cupboard |
| Sample 30 | No. 4, 4.2 (2) S cupboard door (looks like re-used panelling) |
| Sample 32 | No. 4, 4.2 (2) NW embrasure window |
| Sample 260 | No. 4, 4.2 (2) main basement room, north wall panelling revealed by removal of Asbestos - panel to right of basement entrance to stairs |
| Sample 274 | No 4, 4.2 (2) basement, main room: cupboard under the stairs |

***Discussed under Section 3.2.3 - No. 4 ground floor main room***

| | |
|---|---|
| Sample 33 | No. 4, 4.2 (3) internal window |
| Sample 34 | No. 4, 4.2 (3) plank lining to door to No. 5 |
| Sample 35 | No. 4, 4.2 (3) panel surround 4G OIS 10 |
| Sample 36 | No. 4, 4.2 (3) dado rail (below 4G IOS 13) |
| Sample 37 | No. 4, 4.2 (3) panel bed E elevation chimney-breast |
| Sample 38 | No. 4, 4.2 (3) N entrance door architrave |
| Sample 39 | No. 4, 4.2 (3) N entrance door flat (appears modern) |
| Sample 40 | No. 4, 4.2 (3) N wall panelling dado rail |
| Sample 41 | No. 4, 4.2 (3) W embrasure (old kitchen tongue & groove planking |
| Sample 42 | No. 4, 4.2 (3) W embrasure, E elevation S side panel surround |
| Sample 43 | No. 4, 4.2 (3) W embrasure, E elevation S side dado rail |
| Sample 44 | No. 4, 4.2 (3) W embrasure, E elevation S side panel bed |
| Sample 45 | No. 4, 4.2 (3) S wall cupboard frame |
| Sample 46 | No. 4, 4.2 (3) S wall cupboard door |
| Sample 47 | No. 4, 4.2 (3) stored door 4/B D1 |
| Sample 48 | No. 4, 4.2 (3) skirting below 4.G. OIS - 14 |
| Sample 49 | No. 4, 4.2 (3) E elevation chimney-breast skirting |
| Sample 50 | No. 4, 4.2 (3) E wall window, panelling below window |
| Sample 259 | No. 4, 4.2 (1) main ground floor room, north wall panelling revealed by removal of Asbestos panelling - panel surround |
| Sample 272 | No 4, 4.2 (3) ground floor, main room: green panelling beneath east wall window |

***Discussed under Section 3.2.4 - No. 4, staircase between ground and first floor***

| | |
|---|---|
| Sample 51 | No. 4, 4.2 (4) N wall stair cupboard |
| Sample 52 | No. 4, 4.2 (4) N wall panelling corner bead |

Sample 53 No. 4, 4.2 (4) stairs baluster
Sample 54 No. 4, 4.2 (4) stairs newel
Sample 55 No. 4, 4.2 (4) S wall cupboard
Sample 275 No 4, 4.2 (4) staircase between ground and first floors: west wall diagonal panelling – to compare with sample 56 from corner diagonal panelling

***Discussed under Section 3.2.5 - No. 4, first floor main room***
Sample 56 No. 4, 4.2 (5) NW corner cupboard, n wall planking
Sample 57 No. 4, 4.2 (5) 4/1 D1 architrave
Sample 58 No. 4, 4.2 (5) SW corner cupboard, S wall panelling surround
Sample 59 No. 4, 4.2 (5) S wall chimney-breast panel W elevation surround
Sample 60 No. 4, 4.2 (5) S wall chimney-breast panel moulding
Sample 77 No. 4, 4.2 (5) n wall timber frame, lime wash and hair plaster from edge of timber, same level as lime washed timber (behind later batons with evidence of laths)
Sample 276 No 4, 4.2 (5) first floor: retake of sample 55 from south wall cupboard to include substrate
Sample 277 No 4, 4.2 (5) first floor: retake sample 57 from architrave (4/1 D1)
Sample 278 No 4, 4.2 (5) first floor: door frame (4/1 D3)
Sample 279 No 4, 4.2 (5) first floor: additional sample from chimney breast ovolo

***Discussed under Section 3.2.6 - No. 4, staircase between first and second floor***
Sample 61 No. 4, 4.2 (6) staircase skirting W wall, S side

***Discussed under Section 3.2.7 - No. 4, second floor front room***
Sample 62 No. 4, 4.2 (7) 4.2. OIS D1 architrave
Sample 63 No. 4, 4.2 (7) 4.2. OIS 2 D2 architrave lintel
Sample 64 No. 4, 4.2 (7) 4.2. OIS 5 D2 architrave W upright
Sample 65 No. 4, 4.2 (7) S window, S side lining, corner moulding
Sample 66 No. 4, 4.2 (7) E wall-face between windows
Sample 67 No. 4, 4.2 (7) E wall skirting
Sample 68 No. 4, 4.2 (7) W wall, door behind baton
Sample 280 No 4, 4.2 (7) second floor, east (front) room: ceiling beam near N wall
Sample 281 No 4, 4.2 (7) second floor, east (front) room: S wall blocked door
Sample 282 No 4, 4.2 (7) second floor, east (front) room: comparative sample from wall to right of blocked door

***Discussed under Section 3.2.8 - No. 4, second floor rear room***
Sample 69 No. 4, 4.2 (8) rear room E wall skirting
Sample 283 No 4, 4.2 (8) second floor, west (back) room: newer skirting in the back room. Discussed in section 3.2.8
Sample 284 No 4, 4.2 (8) second floor, west (back) room: external window, roll moulding on frame.

***Discussed under Section 3.2.9 - No. 4, staircase from second to third floor***

Sample 70 No. 4, 4.2 (9) stair tread edge
Sample 71 No. 4, 4.2 (9) stairs tongue & groove planking
Sample 285 No 4, 4.2 (9) staircase between second and third floors, roll moulding underside of stairs to third floor.

***Discussed under Section 3.2.10 - No. 4, third floor***

Sample 72 No. 4, 4.2 (10) S cupboard door panel moulding
Sample 73 No. 4, 4.2 (10) N wall skirting
Sample 74 No. 4, 4.2 (10) E wall timber gutter boxing in
Sample 75 No. 4, 4.2 (10) near S window, roof timber (currently painted black)
Sample 76 No. 4, 4.2 (10) N wall, timber soffit

***Discussed under Section 3.3.1 - No. 5, entrance hallway***

Sample 130 No. 5, 4.3 (1) 5G D3 door stop roll moulding to room
Sample 131 No. 5, 4.3 (1) 5G D3 door intermediate stop moulding
Sample 132 No. 5, 4.3 (1) 5G D3 triangular corner piece

Sample 144 No. 5, 4.3 (1) door architrave below 5 G.16 roll
Sample 145 No. 5, 4.3 (1) door architrave outer moulding
Sample 146 No. 5, 4.3 (1) entrance door roll moulding
Sample 147 No. 5, 4.3 (1) entrance door locking rail
Sample 148 No. 5, 4.3 (1) entrance door frame
Sample 149 No. 5, 4.3 (1) entrance door modern moulding
Sample 150 No. 5, 4.3 (1) panelling between 5G.16 and entrance door
Sample 151 No. 5, 4.3 (1) planking to S. of entrance door
Sample 152 No. 5, 4.3 (1) plaster above planking to S. of entrance door

***Discussed under Section 3.3.2 - No. 5, ground floor, north room***

Sample 153 No. 5, 4.3 (2) panel below window
Sample 154 No. 5, 4.3 (2) shutters window side surround
Sample 155 No. 5, 4.3 (2) shutters room side, central piece surround
Sample 156 No. 5, 4.3 (2) hidden cupboard in wall
Sample 157 No. 5, 4.3 (2) door to hallway, outer architrave
Sample 158 No. 5, 4.3 (2) door to hallway, frame
Sample 159 No. 5, 4.3 (2) S. wall panelling surround
Sample 160 No. 5, 4.3 (2) S. wall panelling dado
Sample 161 No. 5, 4.3 (2) S. wall panelling skirting
Sample 162 No. 5, 4.3 (2) W. wall upper embrasure/ cupboard internal shelf

Sample 163 No. 5, 4.3 (2) W. wall upper embrasure/ cupboard casement window
Sample 164 No. 5, 4.3 (2) W. wall upper embrasure/ cupboard plank panelling cupboard lining
Sample 165 No. 5, 4.3 (2) W. wall cupboard door
Sample 166 No. 5, 4.3 (2) W. wall cupboard panelling surround
Sample 167 No. 5, 4.3 (2) N. wall cupboard door frame, hanging frame
Sample 168 No. 5, 4.3 (2) N. wall cupboard door/ panel surround
Sample 169 No. 5, 4.3 (2) N. wall cupboard dado
Sample 170 No. 5, 4.3 (2) N. wall chimney-breast, edge roll moulding
Sample 171 No. 5, 4.3 (2) N. wall, 1630/80s door to No.4, locking rail
Sample 172 No. 5, 4.3 (2) N. wall, 1630/80s door to No.4, door step
Sample 271 No 5, 4.3. (2)ground floor north room window, sash box (good exterior sample see 3.1)

***Discussed under Section 3.3.3 - No. 5, ground floor, middle room***
Sample 85 No. 5, 4.3 (3) centre ground floor, seat below window
Sample 86 No. 5, 4.3 (3) centre ground floor, panelling below window
Sample 87 No. 5, 4.3 (3) N. wall to hall, roll moulding
Sample 88 No. 5, 4.3 (3) 5G 22 architrave
Sample 89 No. 5, 4.3 (3) N. wall cupboard door
Sample 90 No. 5, 4.3 (3) N. wall cupboard door surround
Sample 91 No. 5, 4.3 (3) N. wall planking soffit
Sample 92 No. 5, 4.3 (3) N. wall inside cupboard jamb
Sample 93 No. 5, 4.3 (3) N. wall planking
Sample 94 No. 5, 4.3 (3) W. wall 5G.01.W 17 (1920s?) slanted timber
Sample 95 No. 5, 4.3 (3) W. wall planking 5.G.01.W 27
Sample 96 No. 5, 4.3 (3) N. wall architrave
Sample 97 No. 5, 4.3 (3) N. wall door
Sample 98 No. 5, 4.3 (3) Ceiling (1920s?) support
Sample 99 No. 5, 4.3 (3) Ceiling beam above repair
Sample 100 No. 5, 4.3 (3) 5.G.D1 5Tongue & groove-GF 002 Door 1 locking style panel edge
Sample 101 No. 5, 4.3 (3) 5 Tongue & groove GF 002 Door 3 panel moulding

Sample 122 No. 5, 4.3 (3) 5G.02.E/18 panel surround
Sample 123 No. 5, 4.3 (3) 5G.02.E/18 dado
Sample 124 No. 5, 4.3 (3) 5G.02.E/13 panel surround
Sample 125 No. 5, 4.3 (3) 5G.02.E/13 dado
Sample 126 No. 5, 4.3 (3) 5G. Ent (L) -1
Sample 127 No. 5, 4.3 (3) 5G. Ent (L) - 4
Sample 128 No. 5, 4.3 (3) 5G. Ent (L) cornice

Sample 129 No. 5, 4.3 (3) 5G.12 panel surround

***Discussed under Section 3.3.4 - No. 5, ground floor, south room***
Sample 102 No. 5, 4.3 (4) GFS W elevation panelling, panel surround
Sample 103 No. 5, 4.3 (4) GFS W elevation panelling, top roll moulding
Sample 104 No. 5, 4.3 (4) old staircase skirting
Sample 105 No. 5, 4.3 (4) post alteration skirting
Sample 262 No. 5, basement accessed through hatch from former bathroom cubicle, S. embrasure (old bathroom) – SW corner panelling, edge moulding to left of window
Sample 263 No. 5, basement accessed through hatch from former bathroom cubicle, S. embrasure (old bathroom) – SW corner tongue & groove panelling (south wall)
Sample 264 Number 5, basement accessed through hatch from former bathroom cubicle, S. embrasure (old bathroom) – window frame
Sample 265 No. 5, basement accessed through hatch from former bathroom cubicle, S. embrasure (old bathroom) – window casement
Sample 266 No. 5, basement accessed through hatch from former bathroom cubicle, S. embrasure (old bathroom) – detached door, lower panel surround, side of door with hinges on right
Sample 267 No. 5, basement accessed through hatch from former bathroom cubicle, S. embrasure (old bathroom) – detached door, lower panel surround, side of door with hinges on left
Sample 268 No. 5, basement accessed through hatch from former bathroom cubicle, S. embrasure (old bathroom) – Tread of old stairs, left-hand-side looking up
Sample 269 No. 5, basement accessed through hatch from former bathroom cubicle, S.embrasure (old bathroom) – Skirting on the right of the stairs

***Discussed under Section 3.3.5 - No. 5, stairs from ground floor middle room to basement***
Sample 78 No. 5, 4.3 (5) central embrasure, casement window
Sample 79 timber piece on floor adjacent to N. wall
Sample 80 No. 5, 4.3 (5) shelf support, S. side
Sample 81 No. 5, 4.3 (5) E. wall skirting, N. Side
Sample 82 No. 5, 4.3 (5) E. wall planking, low level S. side
Sample 83 No. 5, 4.3 (5) W. wall, plaster above shelf
Sample 84 No. 5, 4.3 (5) E. wall, door jamb

Sample 256 No. 5, stairs ground floor middle room to basement, stair tread
Sample 257 No. 5, stairs ground floor middle room to basement, stair string
Sample 258 No. 5, stairs ground floor middle room to basement, stair newel

***Discussed under Section 3.3.6 - No. 5, basement***
Sample 106 No. 5, 4.3 (6) basement, S. embrasure, window casement
Sample 107 No. 5, 4.3 (6) basement, S. embrasure, base of window reveal
Sample 108 No. 5, 4.3 (6) basement, S. embrasure, larder (meat store) door
Sample 109 No. 5, 4.3 (6) basement, S. embrasure, S. cupboard, outer sill
Sample 110 No. 5, 4.3 (6) basement, S. embrasure, S. cupboard interior of door
Sample 111 No. 5, 4.3 (6) basement, central embrasure, casement

Sample 112 No. 5, 4.3 (6) basement, E. door large room side
Sample 113 No. 5, 4.3 (6) basement, E. door small room side
Sample 114 No. 5, 4.3 (6) basement, E. door frame
Sample 115 No. 5, 4.3 (6) basement, large room side pt
Sample 116 No. 5, 4.3 (6) basement, N. embrasure, window cement
Sample 117 No. 5, 4.3 (6) G5 D2
Sample 118 No. 5, 4.3 (6) G5 D3
Sample 119 No. 5, 4.3 (6) 51 D2
Sample 120 No. 5, 4.3 (6) 5I D1
Sample 121 No. 5, 4.3 (6) 52 D1

Sample 255 No. 5, 4.3 (6) Basement beam

***Discussed under Section 3.3.7 - no. 5, staircase ground to first floor***
Sample 133 No. 5, 4.3 (7) staircase newel post, ground to first floor
Sample 134 No. 5, 4.3 (7) moulding to side of newel post 5G 14
Sample 135 No. 5, 4.3 (7) staircase infill moulding
Sample 136 No. 5, 4.3 (7) staircase hall skirting moulding
Sample 137 No. 5, 4.3 (7) staircase hall infill moulding cavetto
Sample 138 No. 5, 4.3 (7) staircase turned baluster
Sample 139 No. 5, 4.3 (7) staircase bottom newel post
Sample 140 No. 5, 4.3 (7) staircase skirting
Sample 141 No. 5, 4.3 (7) staircase panel surround
Sample 142 No. 5, 4.3 (7) staircase panel moulding
Sample 143 No. 5, 4.3 (7) staircase panel bed

Sample 173 No. 5, 4.3 (7) staircase, edge of tread
Sample 174 No. 5, 4.3 (7) staircase, roll moulding
Sample 175 No. 5, 4.3 (7) s staircase, edge of crosspiece/ historic shelf
Sample 176 No. 5, 4.3 (7) staircase, roll moulding at edge of next flight up to second floor
Sample 177 No. 5, 4.3 (7) staircase, newel post first to second floor
Sample 178 No. 5, 4.3 (7) staircase, spindle baluster
Sample 179 No. 5, 4.3 (7) staircase, first floor skirting moulding
Sample 180 No. 5, 4.3 (7) staircase, south wall, panelling cornice
Sample 181 No. 5, 4.3 (7) staircase, 5s.8 door, architrave roll moulding (1830s)
Sample 182 No. 5, 4.3 (7) staircase, window reveal, south side

Sample 245 No. 5, 4.3 (7) staircase,

Sample 246 No. 5, 4.3 (7) staircase,

***Discussed under Section 3.3.8 - No. 5, first floor, north room***
Sample 183 No. 5, 4.3 (8) first floor north room, south wall panel surround
Sample 184 No. 5, 4.3 (8) first floor north room, south wall panelling dado
Sample 185 No. 5, 4.3 (8) first floor north room, south wall skirting
Sample 186 No. 5, 4.3 (8) first floor north room, 5.1.02W -20 panel surround
Sample 187 No. 5, 4.3 (8) first floor north room, north wall panel surround
Sample 188 No. 5, 4.3 (8) first floor north room, fireplace skirting
Sample 189 No. 5, 4.3 (8) first floor north room, east wall, window shutter, room side right side panel surround
Sample 286 No 5, 4.3 (8) first floor, north room: upper shutter of window
Sample 287 No 5, 4.3 (8) first floor, north room: lower shutter of window
Sample 288 No 5, 4.3 (8) first floor, north room: fictive panelling with graining on west wall of north room
Sample 289 No 5, 4.3 (8) first floor, north room: fictive panelling with graining on west wall of north room
Sample 290 No 5, 4.3 (8) first floor, north room: fictive panelling with graining on west wall of north room
Sample 291 No 5, 4.3 (8) first floor, north room: fictive panelling with graining on west wall of north room
Sample 292 No 5, 4.3 (8) first floor, north room: fictive panelling with graining on west wall of north room
Sample 293 No 5, 4.3 (8) first floor, north room: fictive panelling with graining on west wall of north room

***Discussed under Section 3.3.9 - No. 5, first floor, south room***
Sample 190 No. 5, 4.3 (9) first floor south room, south window frame right side (1680s)
Sample 191 No. 5, 4.3 (9) first floor south room, south window casement (19th century)
Sample 192 No. 5, 4.3 (9) first floor south room, north window box frame to window (early 18th)
Sample 193 No. 5, 4.3 (9) first floor south room, north window, sash (mid-Victorian)
Sample 194 No. 5, 4.3 (9) first floor south room,5.1,17 horizontal plank panel
Sample 195 No. 5, 4.3 (9) first floor south room, 5.1.17 panel surround
Sample 196 No. 5, 4.3 (9) first floor south room, south cupboard door 5.1.12 panel surround
Sample 197 No. 5, 4.3 (9) first floor south room, west wall 5 FS 23 5.1.01W.9 panel surround
Sample 198 No. 5, 4.3 (9) first floor south room, west wall, 5.1.01W-39 panel skirting
Sample 199 No. 5, 4.3 (9) first floor south room, south wall, roll moulding to fireplace
Sample 200 No. 5, 4.3 (9) first floor south room, north door architrave outer moulding
Sample 201 No. 5, 4.3 (9) first floor south room, north door frame roll moulding
Sample 294 No 5, 4.3 (9) first floor, south room: detached full-length shutters (5.1.01E7 ) which Brooking thought were early. Panel bed.
Sample 295 No 5, 4.3 (9) first floor, south room: detached full-length shutters (5.1.01E7 ) which Brooking thought were early. Panel surround.

***Discussed under Section 3.3.10 - No. 5, staircase from first to second floor***
Sample 202 No. 5, 4.3 (10) staircase to second floor, stair edge of tread
Sample 203 No. 5, 4.3 (10) staircase to second floor, skirting

Sample 204 No. 5, 4.3 (10) staircase to second floor, west wall panel surround moulding
Sample 205 No. 5, 4.3 (10) staircase to second floor, west wall panel surround
Sample 206 No. 5, 4.3 (10) staircase to second floor, west wall panel bed (thick paint)
Sample 207 No. 5, 4.3 (10) staircase to second floor, south wall horizontal plank panelling
Sample 208 No. 5, 4.3 (10) staircase to second floor, 5S. 15 door frame roll moulding
Sample 294 No 5, 4.3 (10) staircase between the first and second floors: baluster.
Sample 295 No 5, 4.3 (10) staircase between the first and second floors: baluster.
Sample 296 No 5, 4.3 (10) staircase between the first and second floors: baluster
Sample 297 No 5, 4.3 (10) staircase between the first and second floors: newel

***Discussed under Section 3.3.11 - No. 5, second floor, north room***
Sample 209 No. 5, 4.3 (11) second-floor, north room, door frame
Sample 210 No. 5, 4.3 (11) second-floor, north room, door panel bed (1630/80s)
Sample 211 No. 5, 4.3 (11) second-floor, north room, door panel moulding
Sample 212 No. 5, 4.3 (11) second-floor, north room, edge closing jamb
Sample 213 No. 5, 4.3 (11) second-floor, north room, room face of plank door, top hinge
Sample 214 No. 5, 4.3 (11) second-floor, north room, room face. edge of door plank
Sample 215 No. 5, 4.3 (11) second-floor, north room, * wall panel surround
Sample 216 No. 5, 4.3 (11) second-floor, north room, * wall panel moulding
Sample 217 No. 5, 4.3 (11) second-floor, north room, window mullion, roll moulding
Sample 218 No. 5, 4.3 (11) second-floor, north room, window mullion, mullion
Sample 219 No. 5, 4.3 (11) second-floor, north room, ceiling beam
Sample 220 No. 5, 4.3 (11) second-floor, north room, ceiling beam support (1920s?)
Sample 221 No. 5, 4.3 (11) second-floor, north room, south wall, west door panel surround
Sample 222 No. 5, 4.3 (11) second-floor, north room, south wall, west door, frame roll moulding
Sample 223 No. 5, 4.3 (11) second-floor, north room, south wall, west door, panel surround
Sample 224 No. 5, 4.3 (11) second-floor, north room, 5.2,02N 36, panel, lowest rail (skirting)
Sample 225 No. 5, 4.3 (11) second-floor, north room, 5.2,02N 39, panel, upright.
Sample 226 No. 5, 4.3 (11) second-floor, north room, 5.2.1, panel below window.

***Discussed under Section 3.3.12 - no. 5, second floor, west room***
Sample 229 No.5, 4.3 (12) second floor, west room, S2.13 door panel
Sample 230 No.5, 4.3 (12) second floor, west room, north wall skirting
Sample 231 No.5, 4.3 (12) second floor, west room, E wall door S2.9 door surround panel
Sample 232 No.5, 4.3 (12) second floor, west room, E wall, frame/upright right-hand-side
Sample 233 No.5, 4.3 (12) second floor, west room, E wall, planted panel overdoor.

Sample 298 No 5, 4.3 (12) second floor: small west (back) bedroom: ceiling beam above cupboard/adjoining door on north wall. We have a sample from same/equivalent beam in north room.
Sample 299 No 5, 4.3 (13) No 5, 4.3 (12) second floor: small west (back) bedroom: wall panel (with thick paint layers)below floral 1950s wallpaper.

***Discussed under Section 3.3.13 - No.5, second floor, south room***
Sample 234 No.5, 4.3 (13) second floor, south room, panel S2.20 below window
Sample 235 No.5, 4.3 (13) second floor, south room, seat below window, horizontal panel
Sample 236 No.5, 4.3 (13) second floor, south room, seat below window, skirting
Sample 237 No.5, 4.3 (13) second floor, south room, window mullion
Sample 238 No.5, 4.3 (13) second floor, south room, panel surround E wall
Sample 239 No.5, 4.3 (13) second floor, south room, panel bed
Sample 240 No.5, 4.3 (13) second floor, south room, N wall skirting
Sample 241 No.5, 4.3 (13) second floor, south room, door to stairs architrave
Sample 242 No.5, 4.3 (13) second floor, south room, door to stairs planking
Sample 243 No. 5, 4.3 (13) staircase first to second floor, door to (13), moulding
Sample 244 No. 5, 4.3 (13) staircase first to second floor, door to (13), panel surround

Sample 247 No.5, 4.3 (13) second floor, south room, door to staircase architrave
Sample 299 No 5, 4.3 (13) second floor, south room: door of small cupboard beneath attic stairs

***Discussed under Section 3.3.14 - No. 5, staircase from second to third floor***
Sample 227 No. 5, 4.3 (14) second-floor, staircase, panel below window
Sample 228 No. 5, 4.3 (14) second-floor, staircase, mullion

Sample 245 No. 5, 4.3 (14) Staircase from second to third floor, tread
Sample 246 No. 5, 4.3 (14) Staircase from second to third floor, N. wall skirting.
Sample 248 No. 5, 4.3 (14) Staircase from second to third floor, tongue & groove, vertical plank.
Sample 249 No. 5, 4.3 (14) Staircase from second to third floor, door architrave
Sample 250 No. 5, 4.3 (14) Staircase from second to third floor, newel post

***Discussed under Section 3.3.15 - No. 15, third floor room***
Sample 251 No. 5, 4.3 (15) Third-floor room, panelling (currently removed) from north wall, 5.3.22 panel surround
Sample 252 No. 5, 4.3 (15) Third-floor room, panelling (currently removed) from north wall, 5.3.21 (5R.4) panel bed
Sample 253 No. 5, 4.3 (15) Third-floor room, N wall skirting (painted grey)
Sample 254 No. 5, 4.3 (15) Third-floor room, N wall upright (painted grey)
Sample 300 No 5, 4.3 (15) attic: detached panelling 5.3-22 – exposed brown paint

## APPENDIX 2: SUMMARY TABLES RELATING TO 3 ARCHITECTURAL PAINT RESEARCH

### TABLE 1: COMPARATIVE NOMENCLATURE

| **Point** | Point in Paint research brief July 2016 | Description | **HRP Inventory July 2017** |
|---|---|---|---|
| **3.1** (A3.1) | 4.1 (1) | **Exterior windows**, representative samples from windows on the east face of both buildings (all elevations). | |
| **3.2.1** (A3.2.1) | 4.2 (1) | **No. 4,** panelling in the **entrance hallway**, including inside the door and the interior of the two cupboards on the north wall. | |
| **3.2.2** | 4.2 (2) | No. 4, painted areas in the **basement**. This should include the cupboards in the main room as well as the small area of moulded panelling in the passage way leading to the former toilet. | **B/01** |
| **3.2.3** | 4.2 (3) | No. 4, panelling in the **main ground-floor room**. | **G/01** |
| **3.2.4** | 4.2 (4) | No. 4, **staircase between the ground and first floors**. This should include the area of panelling over the staircase into the basement, the cupboard on the north wall and the cupboard below the staircase between the first and second floors. | |
| **3.2.5** | 4.2 (5) | No. 4, **first floor room**. Especially the panelling on the south wall as well as the doors of the two built-in cupboards. | **1/01** |
| **3.2.6** | 4.2 (6) | No. 4, **staircase between first and second floor**, including panelling. | |
| **3.2.7** | 4.2 (7) | No. 4, **second floor, front room**. It would be good to take samples from the door frames of the blocked door to Number 5 Tower green, and the door leading from the staircase into the room. | **2/01** |
| **3.2.8** | 4.2 (8) | No. 4, **second floor, rear room**. Samples should be taken from the small window looking on to Elizabeth's Walk, as well as the internal window on the north wall. Samples from the skirting especially on the south wall. | **2/02** |
| **3.2.9** | 4.2 (9) | No. 4, **staircase between second and third floors**. If any areas suitable for sampling exist, then samples should be taken from this staircase. | |
| **3.2.10** | 4.2 (10) | No. 4, **third floor room**. From the weatherboarding on the north wall as well as other painted surfaces including casing around the internal guttering and the built-in cupboard on the south wall. The panelling around the top of the staircase should also be sampled. | **3/01** |

| | | | |
|---|---|---|---|
| **3.3.1** (A3.3.1) | 4.3 (1) | **No. 5**, panelling in the **entrance hallway**, and the door frames into the two ground-floor rooms. | |
| **3.3.2** | 4.3 (2) | No. 5, g**round-floor, north room**. Panelling, door, window shutters and the painted surfaces inside the internal cupboard on the west wall. | **G/02** |
| **3.3.3** | 4.3 (3) | No. 5, **ground-floor, middle room**. Panelling plus both the cupboard under the staircase and the cupboard in the west wall. Doors to other rooms as well. | **G/03** |
| **3.3.4** | 4.3 (4) | No. 5, **ground-floor, south room**. Panelling on former toilet cubicle. Also basement accessed through trap door. | |
| **3.3.5** | 4.3 (5) | No. 5, **staircase from ground-floor middle room to basement**. Panelling, cupboards and the staircase itself. | |
| **3.3.6** | 4.3 (6) | No. 5, **basement**. Doors and panelling on the cupboards against the north wall, beam in main room and timberwork in the south embrasure on the west wall. | **B/02** |
| **3.3.7** | 4.3 (7) | No. 5, **staircase ground to first floor**. Panelling and staircase. | |
| **3.3.8** | 4.3 (8) | No. 5, **first-floor, north room**. Panelling, door and window shutters. Samples should not be taken from the *trompe l'œil* panelling on the west wall. | **1/02** |
| **3.3.9** | 4.3 (9) | No. 5, **first-floor, south room**. Panelling, door and window shutters. | **1/03** |
| **3.3.10** | 4.3 (10) | No. 5, **staircase first to second floor**. Panelling and staircase. | |
| **3.3.11** | 4.3 (11) | No. 5, **second-floor, north room**. Panelling and door. | **2/03** |
| **3.3.12** | 4.3 (12) | No. 5, **second-floor, west room**. Internal and external window frames. Wood strips on north and east walls. | **2/05** |
| **3.3.13** | 4.3 (13) | No. 5, **second-floor, south room**. Panelling on east wall and door. Cupboard under staircase on east wall. | **2/04** |
| **3.3.14** | 4.3 (14) | No. 5, **staircase from second-third floor**. | |
| **3.3.15** | 4.3 (15) | No. 5, **third-floor room**. Panelling (currently removed) from north wall. | **3/02** |

**TABLE 2: SAMPLES WITH THE EARLIEST DECORATION IDENTIFIED**

| Sample number | Location | Point | Comments |
|---|---|---|---|
| *8* | *No. 4, 4.2 (1) hallway, interior entrance door* | *3.2.1* | *This sample may be later* |
| 150 | No. 5, 4.3 (1) panelling between 5G.16 and entrance door | 3.3.1 | |
| 171 | No. 5, 4.3 (2) N. wall, 1630/80s door to No.4, locking rail | 3.3.2 | |
| 210 | No. 5, 4.3 (11) second-floor, north room, door panel bed | 3.3.11 | |
| 211 | No. 5, 4.3 (11) second-floor, north room, door panel moulding | 3.3.11 | |
| 243 | No. 5, 4.3 (13) staircase first to second floor, door to (13), moulding | 3.3.13 | |
| 244 | No. 5, 4.3 (13) staircase first to second floor, door to (13), panel surround | 3.3.13 | |
| *258* | *No. 5, 4.3 (5) stairs ground floor middle room to basement, stair newel* | *3.3.5* | *This sample may be later* |
| 288 | No 5, 4.3 (8) first floor, north room: fictive panelling, west wall of north room | 3.3.8 | |
| 289 | No 5, 4.3 (8) first floor, north room: fictive panelling, west wall of north room | 3.3.8 | |
| 290 | No 5, 4.3 (8) first floor, north room: fictive panelling, west wall of north room | 3.3.8 | |
| 291 | No 5, 4.3 (8) first floor, north room: fictive panelling, west wall of north room | 3.3.8 | |
| 292 | No 5, 4.3 (8) first floor, north room: fictive panelling, west wall of north room | 3.3.8 | |
| 293 | No 5, 4.3 (8) first floor, north room: fictive panelling, west wall of north room | 3.3.8 | |

**TABLE 3: SAMPLES WITH CHARACTERISTIC GREY LAYERS AS THE 8TH DECORATION**

| Sample number | Location | Point | Comments |
|---|---|---|---|
| 35 | **No. 4, main ground floor room**, panel surround 4G OIS 10 | 3.2.3 | |
| 36 | No. 4, **main ground floor room**, dado rail (below 4G IOS 13) | 3.2.3 | |
| 42 | No. 4, **main ground floor room**, W embrasure, E elevation S side panel surround | 3.2.3 | |
| 259 | No. 4, **main ground floor room,** north wall, panel surround | 3.2.3 | panelling revealed by removal of Asbestos |
| 150 | **No. 5, entrance hall,** panelling between 5G.16 and entrance door | 3.3.1 | |
| 155 | No. 5, **ground floor north room**, shutters room side, central piece surround | 3.3.2 | |
| 160 | No. 5, **ground floor north room**, S. wall panelling dado | 3.3.2 | |
| 168 | No. 5, **ground floor north room**, N. wall cupboard door/ panel surround | 3.3.2 | |
| 124 | No. 5, **ground floor, middle room**, 5G.02.E/13 panel surround | 3.3.3 | |
| 143 | No. 5, **staircase ground to first floor**, staircase panel bed | 3.3.7 | |
| 174 | No. 5, **staircase ground to first floor,** staircase, roll moulding | 3.3.7 | |
| 178 | No. 5, **staircase ground to first floor,** staircase, spindle baluster | 3.3.7 | |
| 206 | No. 5, **staircase to second floor**, west wall panel bed (thick paint) | 3.3.10 | |
| 208 | No. 5, **staircase to second floor**, 5S. 15 door frame roll moulding | 3.3.10 | |
| 226 | No. 5, **second-floor, north room**, 5.2.1, panel below window. | 3.3.11 | |
| 228 | No. 5, **second-floor, staircase**, mullion | 3.3.14 | |

**TABLE 4: SAMPLES WITH CHARACTERISTIC MIXED GREEN LAYERS**

| Sample number | Location | Point | Comments |
|---|---|---|---|
| 15 | **No. 4, entrance hall**, 4.2 (1) N wall, panel bed | 3.2.1 | |
| 53 | No. 4, **staircase between ground and first floors**, 4.2 (4) stairs baluster | 3.2.4 | |
| 294 | **No 5, first floor, south room,** 4.3 (9): detached shutters (5.1.01E7 ) Panel bed. | 3.3.9 | Brooking thought these shutters were early. |
| 221 | No. 5, **second-floor, north room**, 4.3 (11), south wall, west door panel surround | 3.3.11 | |
| 222 | No. 5, **second-floor, north room**, 4.3 (11), south wall, west door, frame roll moulding | 3.3.11 | |
| 223 | No. 5, **second-floor, north room**, 4.3 (11), south wall, west door, panel surround | 3.3.11 | |
| 224 | No. 5, **second-floor, north room**, 4.3 (11), 5.2,02N 36, panel, lowest rail (skirting) | 3.3.11 | |
| 225 | No. 5, **second-floor, north room**, 4.3 (11), 5.2,02N 39, panel, upright. | 3.3.11 | |