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ANALYTICAL REPORT

Part Two:
Analysis of Historic Paints

Allandale Train Station,
Barrie, Ontario, Canada



January 18, 2011

Analytical Report

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INTRODUCTION

At the request of Alana Young of E.R.A. Architects Inc., additional samples were submitted for analysis to investigate the earliest paint finish on the features of the Allandale Train Station.

Three samples were received on December 9, 2010 and two on January 6, 2011.

The work which has been done includes the following:

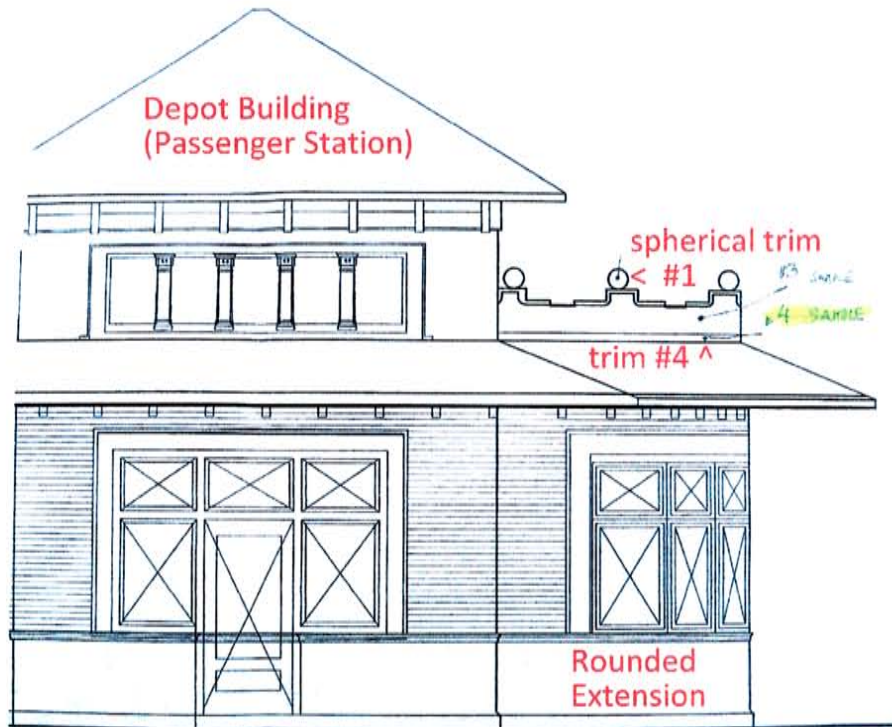
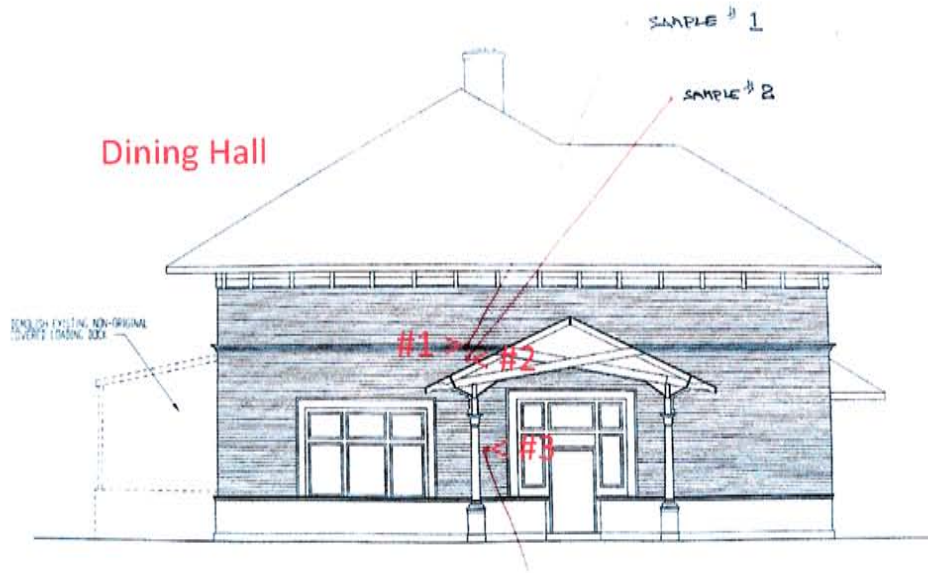
- (a) mounting of samples in polyester resin and preparation of polished cross-sections for examination of layer structures using light microscopy,
- (b) preparation of photomicrographs
- (c) qualitative determination of the colour of the earliest layers, and
- (d) preparation of the final report.

SAMPLES

The samples were submitted as follows, and the locations are indicated on the architectural drawings below:

- Sample 1, Dining Hall, Trim
- Sample 2, Dining Hall, Cladding
- Sample 3, Dining Hall, Cladding
- Sample 1, Spherical Decoration on the rounded extension of the Depot Building
(Passenger Station, east elevation)
- Sample 4, Trim on the rounded extension of the Depot Building
(Passenger Station, east elevation).

Sampling Locations



METHODS OF EXAMINATION

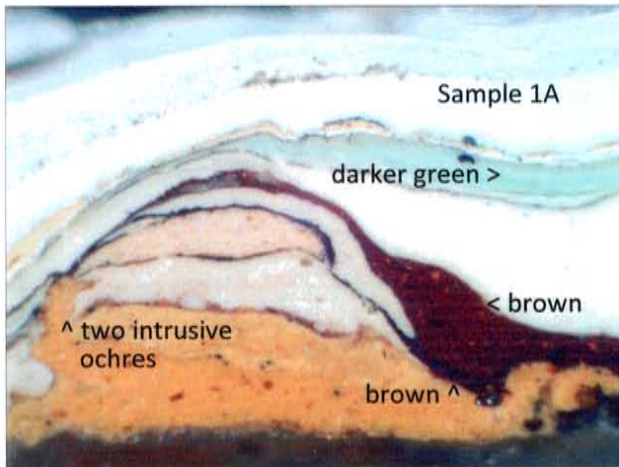
The methods of examination used were described in the report of September 7. As noted therein, the evaluation of colour presented in these reports is intended as a general guide for the interpretation of the painted surfaces.

RESULTS AND DISCUSSION

Colour cards corresponding to the Moore colour numbers for the paints described below are included in the **Appendix** (with the printed version of the report). It should be noted that some of the colours indicated below differ only slightly. This may be due to differences in weathering conditions or alternatively, it may be due to variation between batches of paint. In addition, it should be borne in mind that particularly for the light-coloured layers, the presence of dirt can affect the qualitative colour determination.

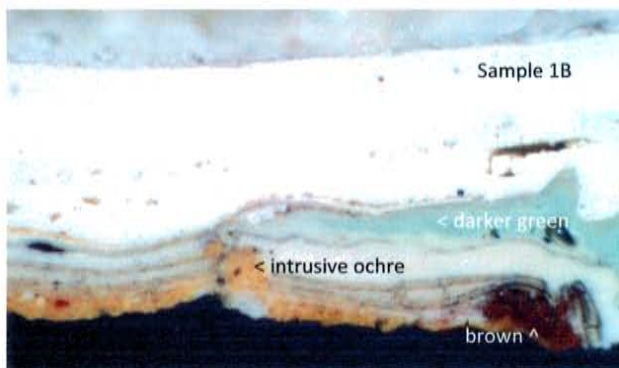
The colours in the photographs of the cross-sections are an approximation of the true colours.

Sample 1: Dining Hall, Trim

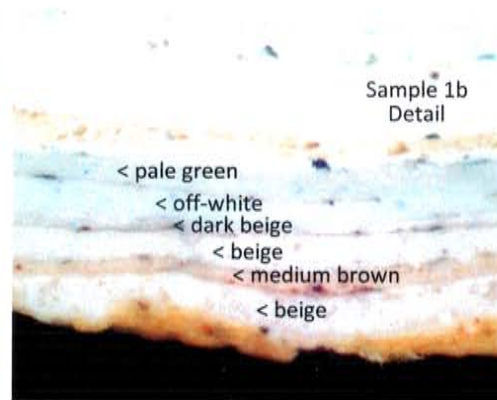
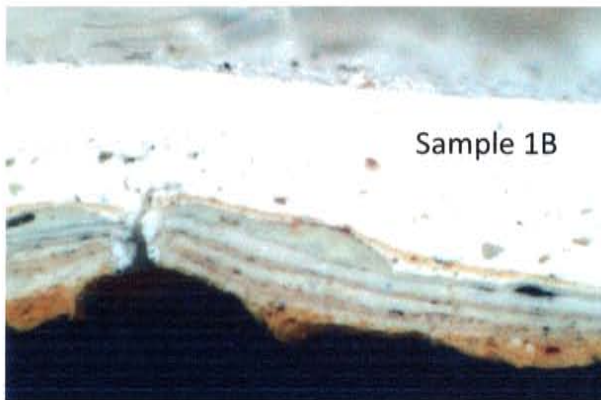


The sample from the trim showed approximately 15 to 16 layers.

In the earliest layers of the cross-sections from this sample, there were some paints which were intrusive – that is, they were applied later but penetrated through cracks into and underneath the earlier layers. In this case, these are notably the yellow ochres and probably also the dark browns. The absence of upper layers with these same colours indicates that they have been lost or removed at a later date and thus are not represented in their proper position in the layer structure. In addition, the presence of some paints which occur only in part of the cross-sections (such as the darker green) suggests that the trim element may have been, at times, painted in more than one colour.



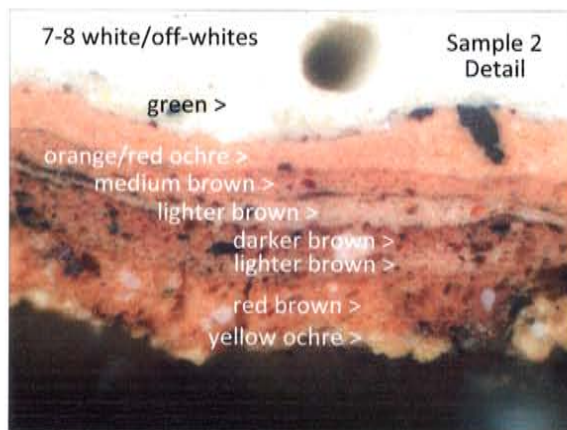
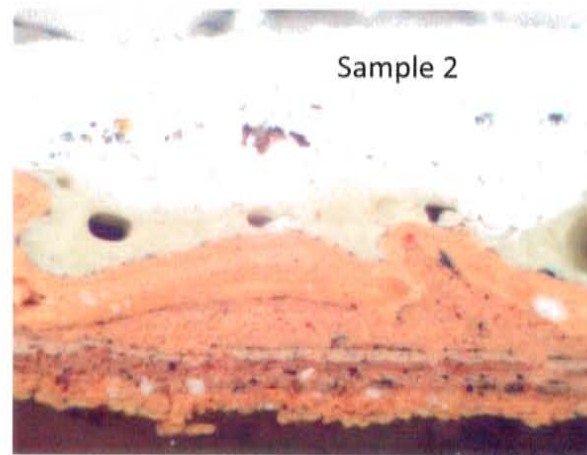
The area on the left of cross-section 1B (above) showed layers that were more regular in thickness, and the initial colours there were tones of beige and medium browns. The paints are thin and deteriorated, so the colour assignments are approximate. The first paint was a beige like HC-83, followed by a medium brown similar to HC-77. A pale beige (OC-48) and darker beige (HC-108) followed. An off-white like HC-174 and a pale green preceded a grey off-white and an orange/red ochre. There were about 5 or 6 white and off-white paints completing the sequence.



Samples 2 and 3: Dining Hall Cladding

These two samples were similar and showed approximately 14 to 16 layers in total.

The initial colours were warm tones of ochre and browns.

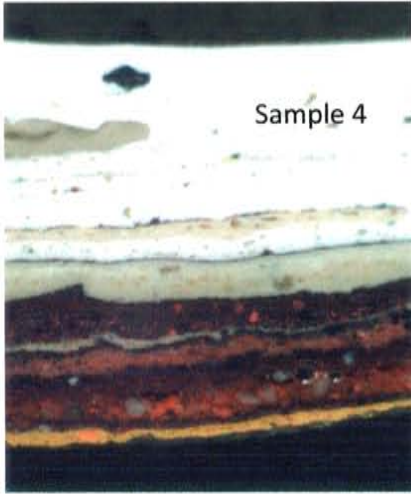


The first layer was a yellow ochre, which varied somewhat in colour but was generally most similar to R9935. Following this was a red brown closest to 1210. As there was no clear delineation between these layers, it is probable that they were applied close together in time, probably as a primer/sealer and paint combination. The next layer differed slightly between the samples, as there were two browns in Sample 2 (a lighter one similar to HC-73, followed by a darker one more like 2107-10) and a single brown in Sample 3 (in the range of 2107-10 to 2109-20). A lighter red brown like HC-46 followed in both cases. Dirt layers in these two samples were less consistently present than in the previous samples with similar layer structure (Samples 1 to 3 from the Depot Building).

The next three layers comprised a medium brown, an orange/red ochre and a pale green. The most recent layers were 7 or 8 white and off-white paints.

Sample 1: Spherical Decoration on the Rounded Extension of the Depot Building

Sample 4: Trim on the Rounded Extension of the Depot Building

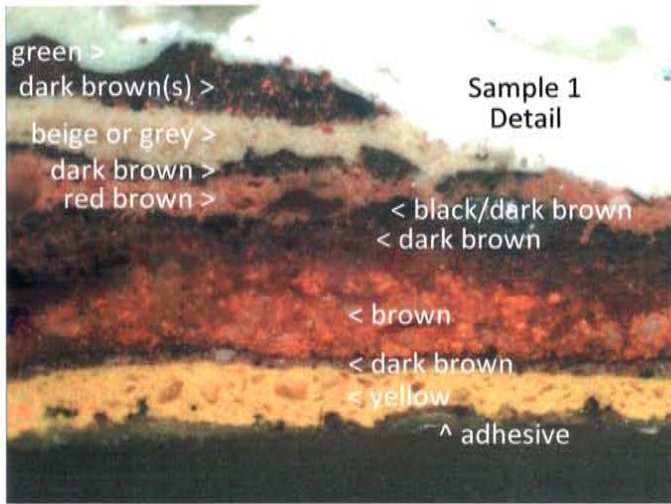


Sample 4

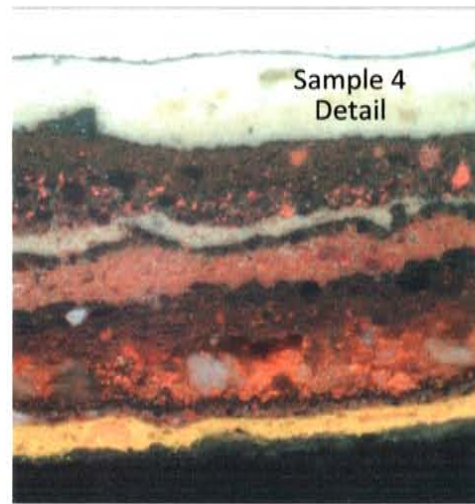
The samples from these features comprised 18 to 20 layers and had similar layer structures.

- The first layer was a bright yellow similar to 2154-20.
- Above this was a dark brown like HC-70, which was followed by a coarsely ground red brown (overall colour approximately HC-49).

The subsequent four layers were shades of brown, and a beige/grey preceded the final dark brown. Green, white, orange/red ochre and 6-7 white and off-white layers completed the sequence.



Sample 1
Detail



Sample 4
Detail

A millimetre-sized flake of gold paint was included with this sample – in cross-section this can be seen to be a layer of gold-coloured metallic flake paint on a grey or brown base (there was too little substrate attached to assess a colour).



CONCLUSIONS

The Dining Hall was added around 1905. The samples from the cladding and trim showed 14 to 16 layers. However, patches of intrusive ochres and dark brown paint which show up in the cross-sections of samples from the trim suggest that some mid-level layers on this feature have been lost through deterioration or preparation for painting.

In the early years, the cladding and trim on the Dining Hall were painted in contrast. The colours of the cladding were basically the same as those on the Depot Building. The first was a yellow ochre, followed by a red brown (possibly a paint/primer combination). The next three or four colours were various shades of brown. On the trim, the earliest paint was a light beige (a shade around HC-83) and this likely coordinated with the red brown (1210) of the cladding. Based on this combination, the second layer on the trim was a darker beige (like HC-77) which was contrasted with dark brown cladding (varying in colour around 2107-10). The third pairing comprised lighter colours, with pale beige (OC-48) on the trim and the cladding painted in a brown lighter than the previous one (HC-46). Subsequent combinations were grey beige with medium brown cladding, cream with red ochre cladding, and later, green colours were used in both areas (possibly two tones on the trim).

The two samples from high trim features on the upper part of the rounded extension of the Depot Building showed identical layer structures and some colours which did not occur elsewhere. There were 18 to 20 layers in the cross-sections. The first paint was a bright yellow (2154-20), followed by a dark brown like HC-70 and a coarsely ground red brown with overall appearance similar to HC-49. The next two layers were very dark brown and nearly black.

A very tiny flake of gold paint included in the sample from the spherical decoration on the Depot Building was a single layer of gold-coloured metallic flake paint on a grey or brown base.

Appendix:
**Colour Cards Corresponding
To Early Paint Colours**

Note: Colour cards for the cladding of the Dining Hall are the same as for the Depot Building and the full set was provided with the previous report.

mystic gold

HC-37

HC-37

jackson tan
platinum

HC-46

HC-46

mayflower red
châtaigne

HC-49

HC-49

van buren brown
épice

HC-70

HC-70

plymouth brown

HC-73

HC-73

alexandria beige
beige

HC-77

HC-77

grant beige
paloma

HC-83

HC-83

kingsport gray
chanterelle

HC-86

HC-86

cromwell gray

HC-103

HC-103

sandy hook gray
sable

HC-108

HC-108

lancaster whitewash
ivoire

HC-174

HC-174

hazy skies
ciel nuage

OC-48

OC-48

chocolat
bonbon au chocolat
chocolate candy brown

2107-10

2107-10

classic brown
brun classique

2109-10

2109-10

hearthstone brown
brun van dyck

2109-20

2109-20

cypressdale brown
terre brûlée

2092-10

2092-10

pancake syrup
sirop d'érable

2104-10

2104-10

golden bark
trois-mâts

2153-10

2153-10

spicy mustard
moutarde épice

2154-20

2154-20