Listed Building Report

King's Cross Package 6

Western Range Building Stone Proposal

					Acceptance on behalf of Network		
Rev	Prepared by	Date	Approved by Garry Tyrell	Date	Required Y	Accepted by	Date
00	**Katherine Watts**	**12/12/11**		12/12/11			

Comments and observations

This document has been prepared for the discharge of conditions 14 and 17 of Listed Building Consent 2006/3394/L.

1.0 Introduction

This document has been prepared for the discharge of conditions 14 and 17. It covers all of the stone to be repaired within the Western Range Building.

Most of the stone in the Western Range Building has been painted with many layers of paint. This has made it difficult to assess visually the types stone present and has resulted in a relatively large number of petrographic analyses being carried out.

Most of the stone within the building is sandstone from a small geographical area in the North of England. There are some notable exceptions to this: the limestone window surrounds on the Central Block and the limestone sills of the third floor of the Link Building.

No stone has been analysed above plinth level on the Platform Elevation because no significant damage has been discovered. It is covered by the Main Trainshed roof so weathering is not an issue.

Following consultation with English Heritage and the Conservation Officer at LB Camden it was agreed that wherever an appropriate salvaged stone from the building was available this was to be used in preference to new stone. Consequently, all of the sandstone repairs were carried out with salvaged stone. Only the limestone repairs to the third floor sills of the Link Building were carried out in new stone because there was no appropriate salvaged material.

Stone was salvaged and reused from the following areas during the demolition works:

1. The sills of the ground floor windows (removed for the construction of the shop fronts).
2. The stone slabs of the Northern Wing Corridor (removed for the construction of the Northern gateline).
3. Paving slabs from the Basement (although these were not used for external masonry repairs)

The agreements on new stone types, reached and documented in this report, are therefore mainly redundant, but do show that the process was carried out in a way suitable for a Grade 1 Listed building.

2.0 Stone Item

2.1 East Elevation Plinth

2.1.1 Location

The stone sample was taken from the plinth on gridline W10 on Platform 8. The plinth extends along the length of the platform as well as along the Central Block on the West Elevation and it is capped in rectangular profiled stone lengths.

2.1.2 Analysis

The petrographic report (Jefferson Consulting Ltd, dated September 2009) states that the stone is "a relatively fine-grained and laminated sandstone, probably from the Rough Rock Flags of the Silesian 'Millstone Grit' of West Yorkshire". Although readily available at the time the station was built supplies of stone are limited now. The report suggests Rawdon stone as a very close match or Witton Fell Fine Grit as an alternative.

Extensive stone replacement of the plinth was undertaken during the recent Eastern Range refurbishment and, following petrographic analysis and visual matching, Dunhouse Blaxter was chosen in consultation with LB Camden and English Heritage as the best visual match.

2.1.3 Proposal

It was agreed on site on 20/01/10 with the Conservation Officer of LB Camden that Dunhouse Blaxter is the best new stone for the plinths.

Salvaged sandstone was used for repairs to the plinths.

2.1.4 Photos

Photo 1: Existing plinth with a sample of Dunhouse Blaxter on the left and Witton Fell Fine Grit on the right. It has been agreed that Dunhouse Blaxter is the best match.

2.2 East Elevation sills above Main Trainshed

2.2.1 Location

Two samples were taken from sills above the Main Trainshed roof. The stone sample 1 was taken from the sill of window 215/W2e which is on the second floor between gridlines W8 and W9. Stone

sample 2 was taken from the sill of window 230/W1e between gridlines W20 and W21. The sills above the trainshed roof are completely blackened with age (not painted) and some, close to the gutter, are covered in lead.

2.2.2 *Analysis*

The petrographic report (Sandberg Consulting Engineers, no. 41378/G/1) states that the two stone samples are "similar buff to beige fine to medium grained sandstone/gritstone generally exhibiting similar composition and textures but slightly different structures"

The report recommends possible matches stone from Copp Crag, Dunhouse, York Stone Soil Hill and Yorkshire Flagstone quarries for sample 1 or Moorside, Ladycross, Shipley, Elland Edge Flagrock and Yorkstone Watson quarry for sample 2.

2.2.3 *Proposal*

It was agreed on site on 02/03/10 with the conservation officer for LB Camden that Dunhouse Blaxter is the best match for sills above the Trainshed roof.

Salvaged sandstone was used for repairs to the sills.

2.2.4 *Photos*

Photo 2: Sill of window 215/W2e showing from where sample 1 was taken.

2.3 West Elevation sills

2.3.1 Location

The stone sample was taken from one of the sills at Ground Floor level between gridlines W22-23.

2.3.2 Analysis

The petrographic report (Jefferson Consulting Ltd, June 2009) states that the stone is "a fine-grained sandstone, probably from the Silesian 'Coal Measures' of West Yorkshire". Although readily available at the time the station was built supplies of stone are limited now. The report suggests a very close match is Woodkirk stone.

2.3.3 Proposal

It is anticipated that most stone sill replacement will be done using sills salvaged from the ground floor alterations to the Western Range. However, the sills are painted and it is difficult to be sure of their condition so new stone may be needed. Following visual matching on site with English Heritage and the Conservation Officer of LB Camden Woodkirk Stripy was chosen as the best match for the West Elevation window sills.

Salvaged sandstone was used for repairs to the sills.

2.3.4 *Photos*

Photo 3: Painted sill of window 108/W2e showing cut out ready for an indent repair.

2.4 West Elevation Central Block Window surrounds

2.4.1 *Location*

The stone sample was taken from the stone window surround of the first floor window on gridline W14-W15 (Central Block).

2.4.2 *Analysis*

The petrographic report (Sandberg Consulting Engineers, no. 41378/G) states that the stone is "orange cream to pale beige with a very pale grey hue, medium grained dolomitic limestone". similar to Gebdykes, Jackdaw Crag and Long Lane quarries

2.4.3 *Proposal*

It was deemed not necessary to repair this area as will no longer be exposed to the weather.

2.4.4 *Photos*

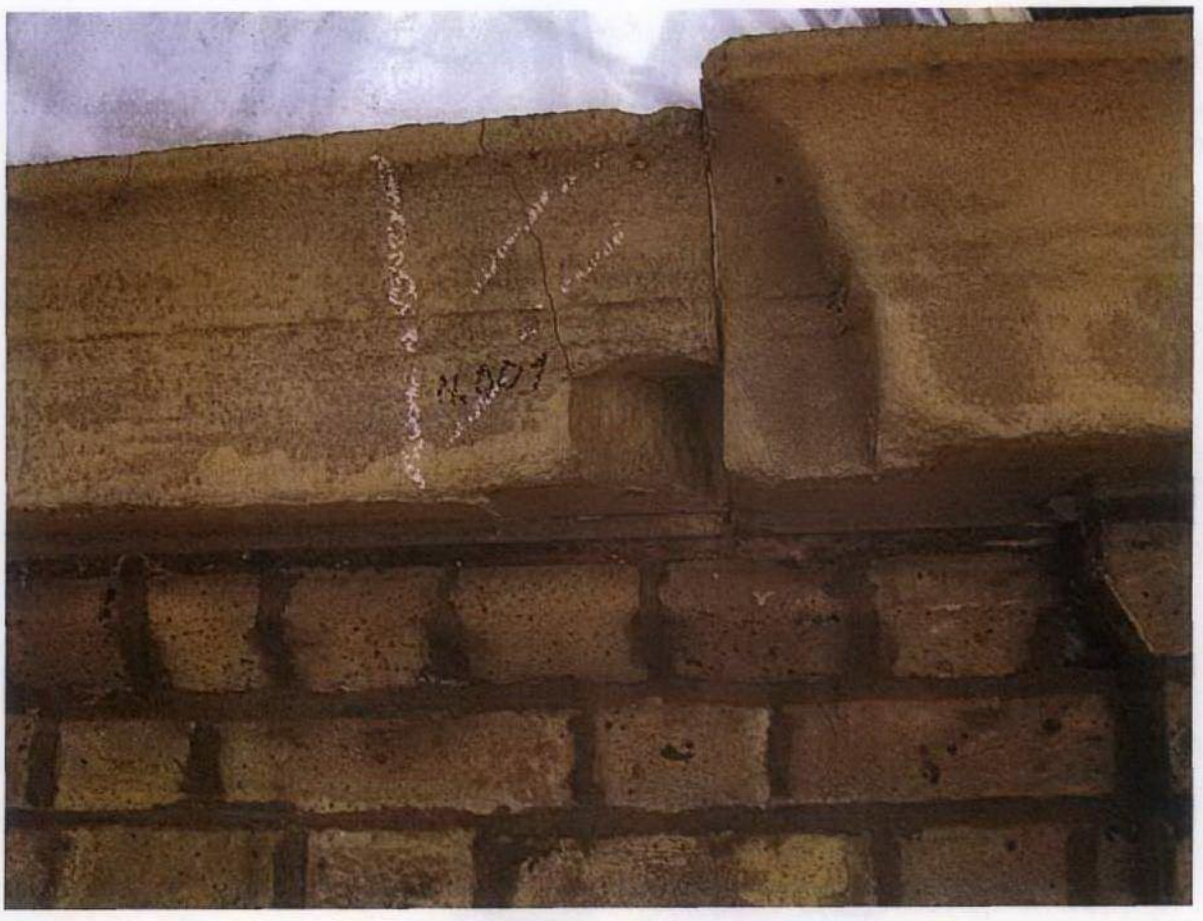


Photo 4: Sill of window 222/W4e showing from where stone sample was taken.

2.5 West Elevation Cornices

2.5.1 *Location*

Two stone samples were taken from cornices on the West elevation. The first (sample A) was taken from above the second floor on gridline 19 (Northern Wing). The second (sample B) was taken from the large cornice at the top of the Central Block.

2.5.2 *Analysis*

For sample A, the petrographic report (Sandberg Consulting Engineers, no. 41260/G) states that the stone is a "pale beige to buff, fine to medium grained, bedded sandstone, well compacted, hard and strong". No suggestions are made for replacement stone within the petrographic report.

For sample B, the petrographic report (Sandberg Consulting Engineers, no. 41378/G/2) states that the stone is a "buff to beige, fine to medium grained sandstone / gritstone... [with] faint bedding planes (lines)... [and] was moderately hard to moderately soft". Suggestions were given as Moorside, Ladycross, Shipley, Elland Edge Flagrock and Yorkstone Watson Quarry.

2.5.3 *Proposal*

Following visual matching on site with English Heritage and the Conservation Officer of LB Camden Woodkirk Stripey was chosen as the best match for the cornice repairs.

Woodkirk stone was used for the large flags of the Central Block cornice lid. Elsewhere salvaged stone was used.

2.5.4 *Photos*

Photo 5: Location of Northern Wing sample (sample A) analysed.

Photo 6: Location of Central Block sample (sample B) analysed.

2.6 West Elevation Link Building sills

2.6.1 Location

The stone sample was taken from the stone sill of the third floor window just north of gridline W24 (Link Building).

2.6.2 Analysis

The petrographic report (Sandberg Consulting Engineers, no. 41378/G/3) states that the stone is an 'off-white to faint cream, fine to medium grained Oolitic Limestone'. The suggested match is Portland Albion Stone. The third floor of the Link Building was built later than the rest of the building which may explain why a different type of stone was used for the sills.

2.6.3 Proposal

It was agreed on 22/03/10 by LB Camden that Portland Jordans Basebed is to be used for repairs.

2.6.4 Photos

Photo 7: Sill of window 313/W1e showing from where stone sample was taken.

2.7 Platform 8 Stone Thresholds for New Screens

2.7.1 Location

New stone is needed for the threshold pieces of the Platform 8 screens. This is a new design and there is no stone matching to be done.

2.7.2 Analysis

No analysis was necessary.

2.7.3 Proposal

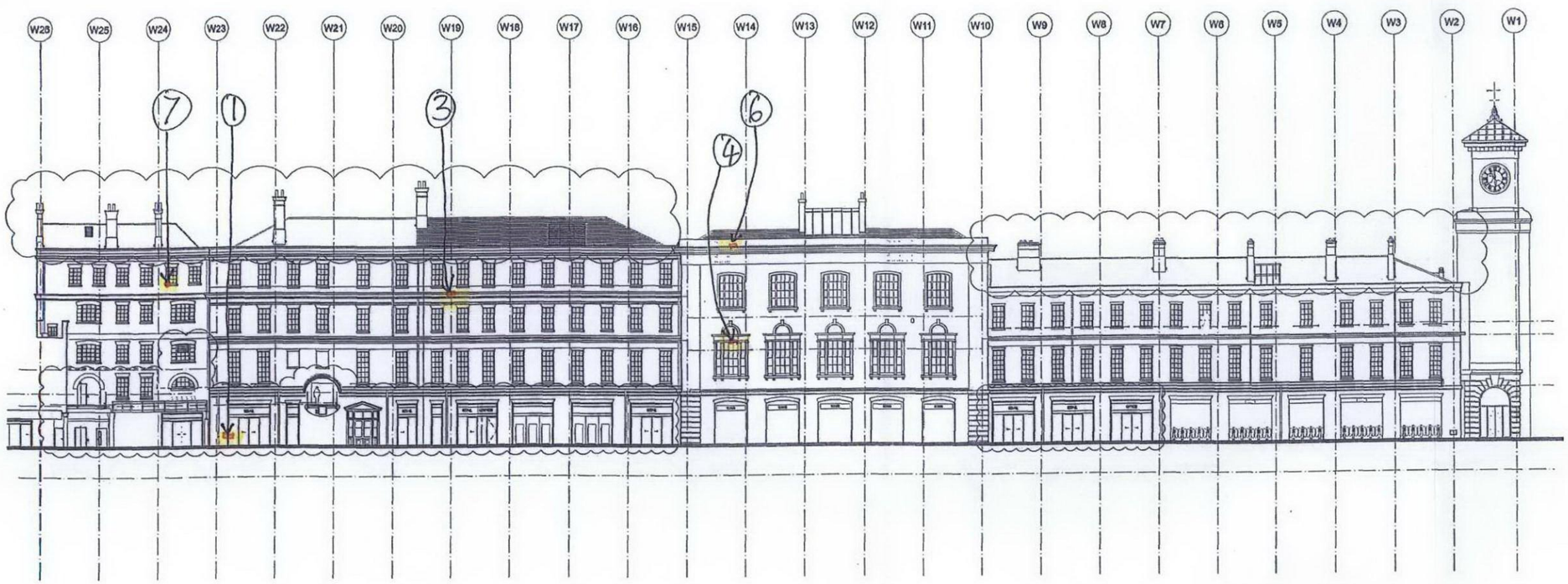
The pieces required for the stone thresholds are large (150mm thick and between 1100-1400x700mm). There is no salvaged stone of sufficient size to use in this area so a good quality,

hard-wearing new York stone was proposed. It was agreed on 20/10/10 with LB Camden and English Heritage to use Crosland Hill Hard Yorkstone for the thresholds.

3.0 Appendices

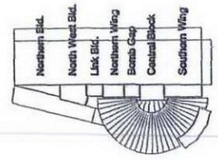
3.1 Stone Sample Locations Drawings

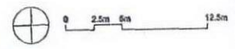
- West Elevation
- East Elevation



STONE SAMPLE LOCATIONS:
WEST ELEVATION

① Jefferson report dated June 2009
② Jefferson report dated Sept 2009
③ Sandberg report no 412.60/9
④ Sandberg report no 41378/9
⑤ Sandberg report no 41378/9/1
⑥ Sandberg report no 41378/9/2
⑦ Sandberg report no 41378/9/3





Notes

Drawings are based on survey data and may not accurately represent what is physically present.

Do not scale from this drawing. All dimensions are to be checked on site and any discrepancies noted in writing to the Employer's Representative.

All dimensions are in millimetres unless noted otherwise.

Drawings to be read in conjunction with the Architectural Specification and Mechanical, Electrical, Public Health and Structural Engineer's information.

Where there appears to be ambiguity between the drawings and other information, the Contractor shall seek the advice of the Employer's Representative for clarification.

Half tone line work shows scope by others.

Issue	Date	By	Chkd	Appd
04	09/07/10	JMP	FS	AD
	Revised in accordance with N.R. letter 10218038, dated 15 February 2010			
03	27/11/09	JMP	SS	AD
	Bridge link amended in accordance with the discharge of Condition 20			
02	29/02/08	DC	MC	SS
	For GRIP 5B Production Information			
01	07/12/07	JMP	MC	SS
	Issue forGRIP Stage 5a			

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Client
Network Rail

Job Title
King's Cross Station
Redevelopment Programme
Package 6

Drawing Title
Western Range Building
West Elevation - South

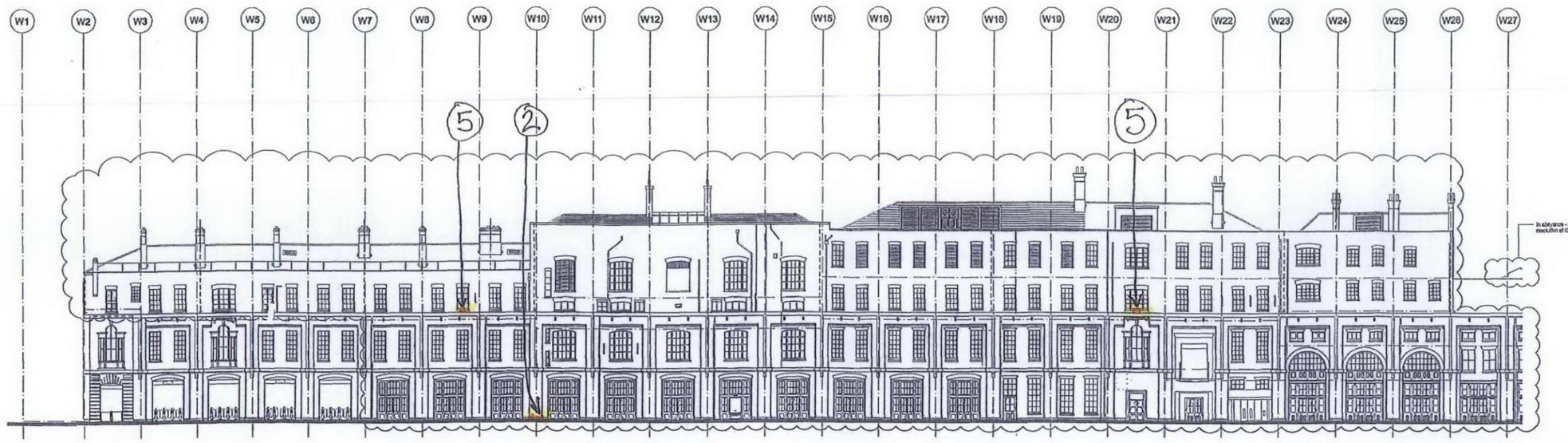
Scale at A1 1:250

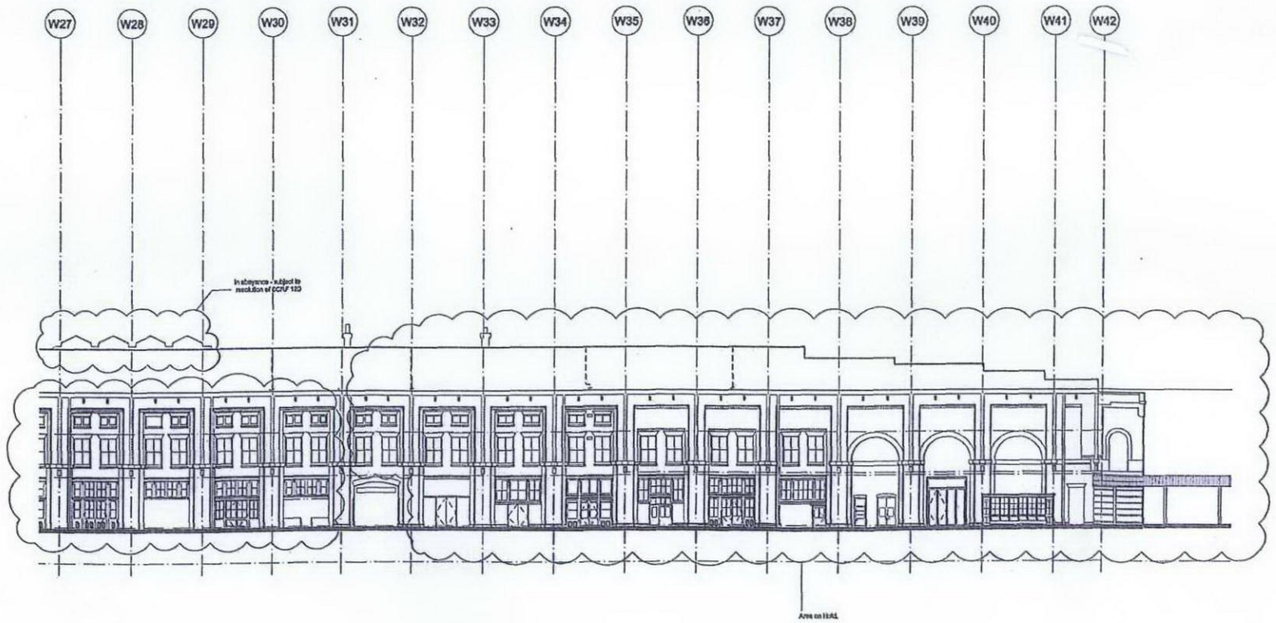
CCMS No

Drawing Status
For Construction

ORP Job No	Drawing No	Rev.
123345-00	KX6-CAE-0184	04

Do not scale

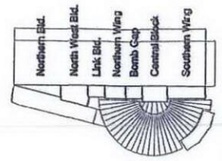




STONE SAMPLE LOCATIONS:

EAST ELEVATION

1. Jefferson report dated June 2009
2. Jefferson report dated Sept 2009
3. Sandberg report no 41260/9
4. Sandberg report no 41378/9
5. Sandberg report no 41378/9/1
6. Sandberg report no 41378/9/2
7. Sandberg report no 41378/9/3



0 2.5m 5m 12.5m

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02	29/02/08	DC	MC	SS
For GRIP 5B Production Information				
01	07/12/06	JMP	MC	SS
Issue for GRIP Stage 5a				
Issue	Date	By	Chkd	Appd

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Scale at A1 1:250

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Drawing Status
For Construction

ARP Job No	Drawing No	Rev.
123345-00	KX6-CAE-0181	03

Do not scale

3.2 Petrographic Reports

3.2.1 Jefferson Consulting Ltd Report dated June 2009

- West Elevation Sills