Visual Impact Analysis
Swiss Cottage Library – Solar PV installation

Introduction
This Visual Impact Analysis has been prepared to support the planning application number **2016/2911/P** and should be read in connection with the Design and Access Statement, the Heritage Assessment and documentation submitted with this planning application.

Swiss Cottage Library is a grade II listed building therefore it is important to assess the visual impact of the proposed solar PV panels' installation project on the flat roof of the library. Following an email communication from 21/09/2016 with the Planning and Conservation Officers, 3 strategic view locations have been agreed for the analysis, i.e. Swiss Cottage Open Space, Finchley and Adelaide Roads – please refer to Figure 1 for the locations.

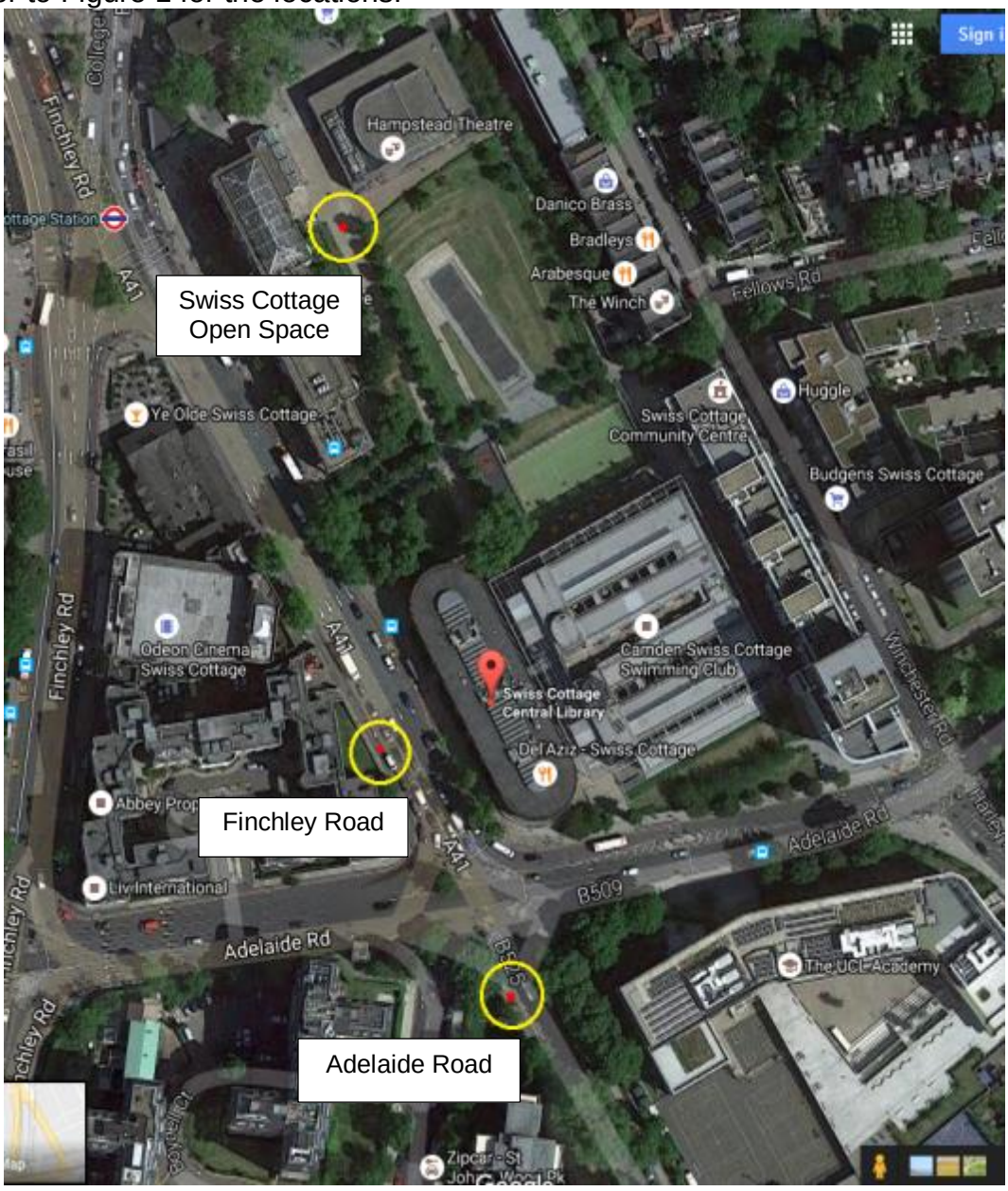


Figure 1. Location of the strategic views for the visual impact analysis.

Proposed solar PV panels layout
The proposed solar PV panels' layout has been revised by the chosen installer in consultation with the building's Property Manager and the Building Surveyor from Camden. It is proposed to locate the panels 1501mm away from the edge of the roof, with some panels kept at the 1302mm distance to allow enough access for maintenance of the existing plant at west side of the roof. Shadowing from the existing plant has been also taken into the consideration in the final design of the layout. Please refer to Appendix A for the proposed solar PV layout drawing.

The panels will be West-East orientated – please refer to Appendix B for an example photo of the proposed system. It is proposed to install the panels at 10^0 pitch to ensure the panels cannot be seen from the street view, however, still keeping the self-cleaning capacity of the panels. Therefore, the highest point of the panels will be 271mm against the height of the roof parapet of 230mm as indicated on the Figure 2 below. Please see Appendix C for the specifications of the proposed system.

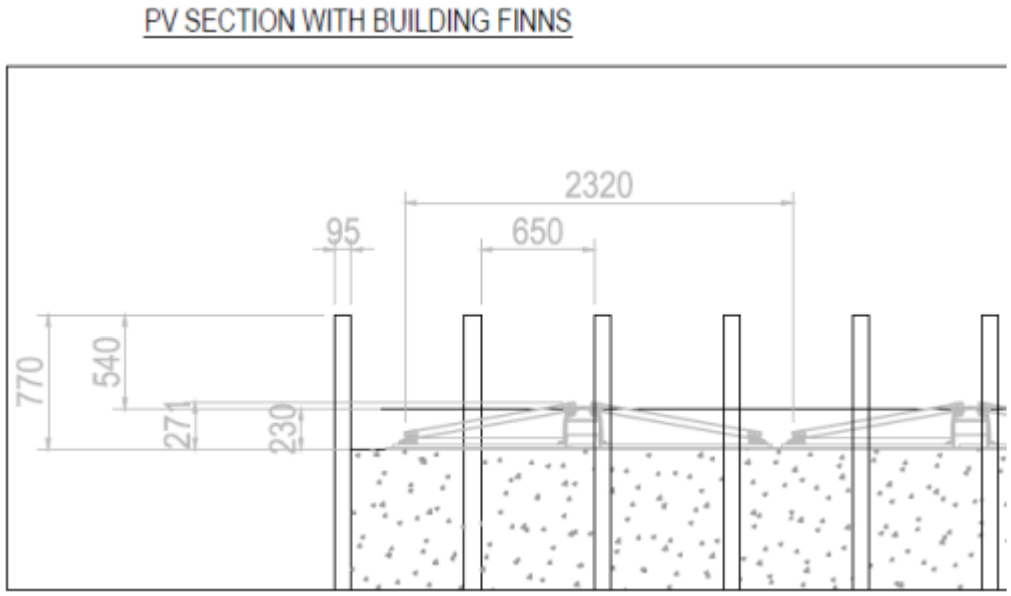


Figure 2. Cross section of the solar PV panels, the roof parapet and the building fins.

Visual Impact Assessment
In order to analyse the visual impact of the proposed installation, the panels on the layout closest to the edge of the roof and the strategic views were chosen for the assessment – please see Figures 3-5 for details.

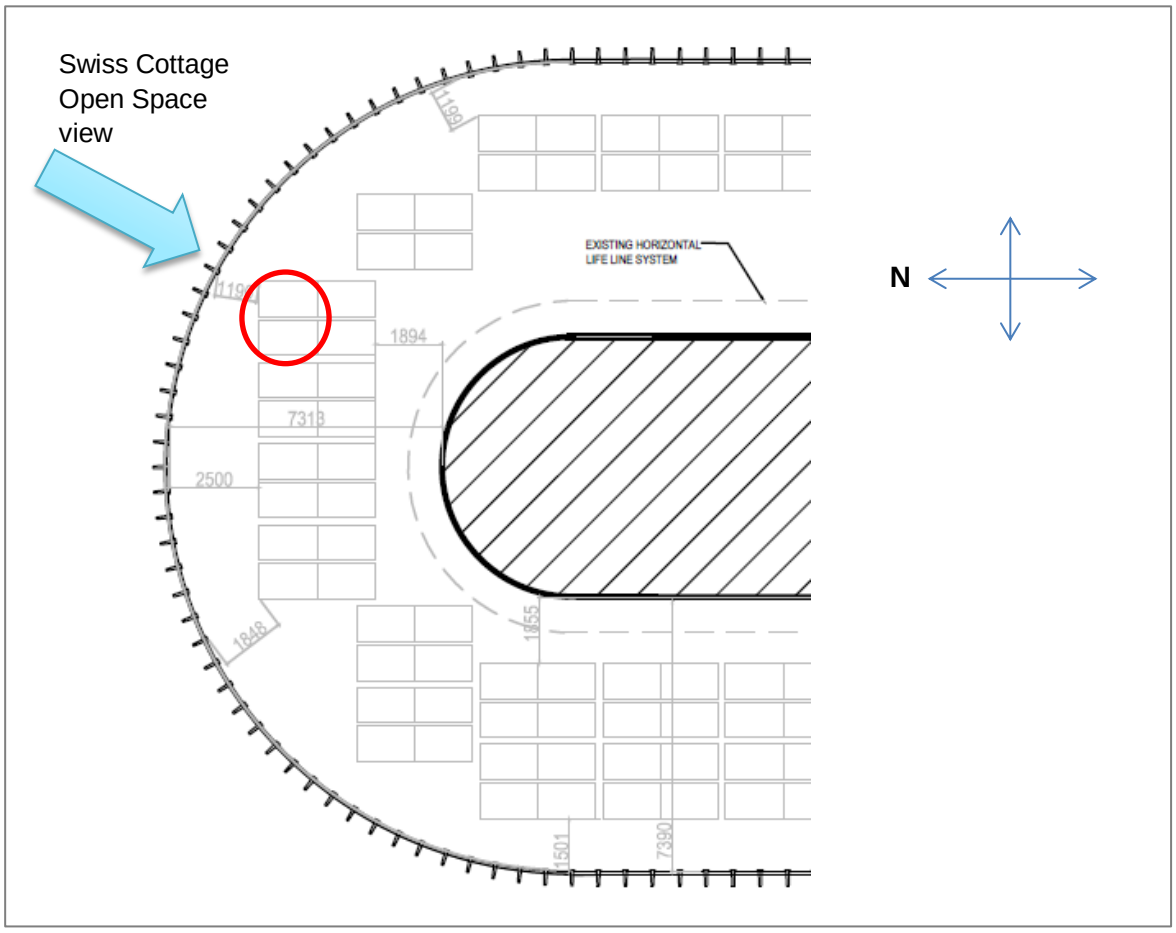


Figure 3. Panels chosen for the analysis – Swiss Cottage Open Space view.

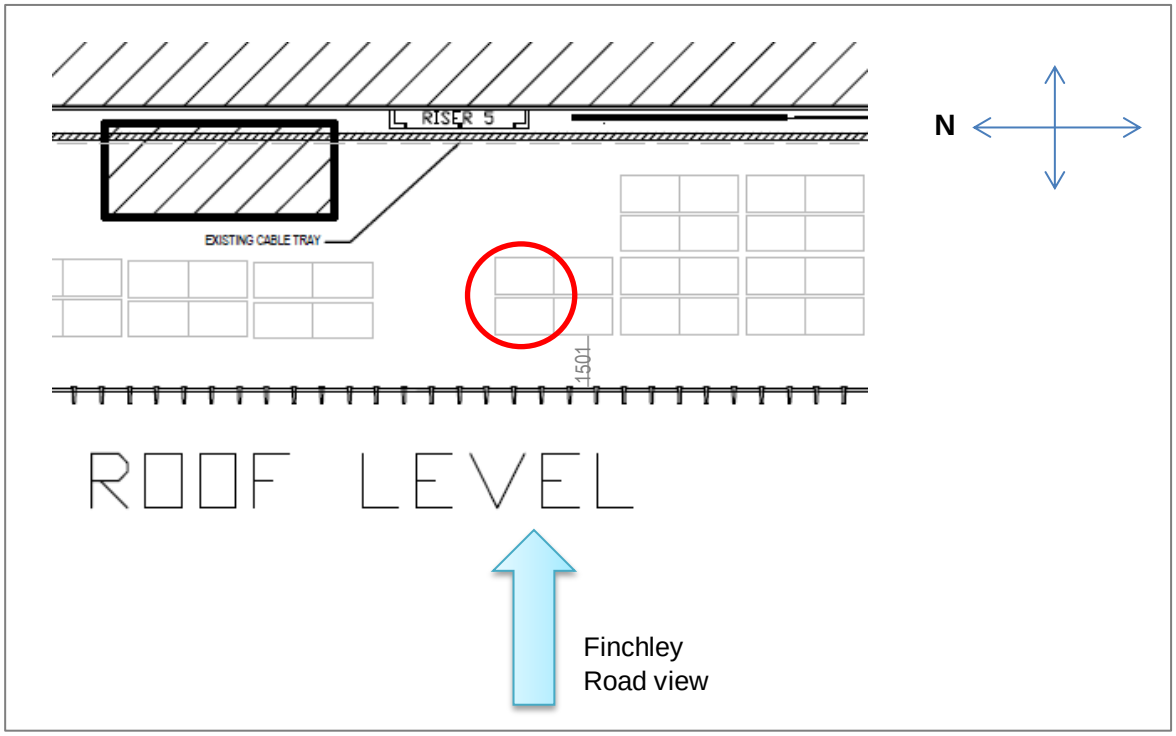


Figure 4. Panels chosen for the analysis – Finchley Road view.

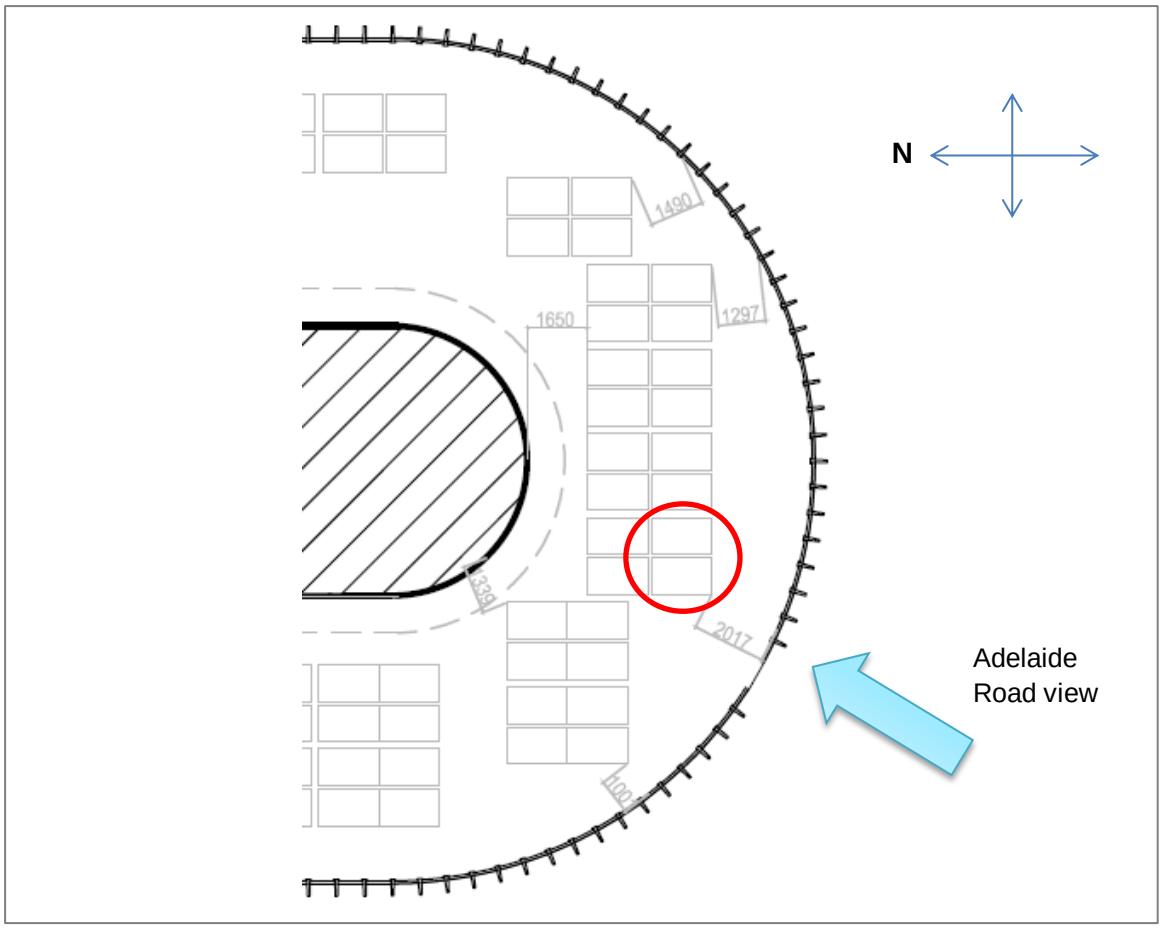


Figure 5. Panels chosen for the analysis – Adelaide Road view.

Two methods were used to assess the visual impact of the proposed installation:

Desktop analysis

The height of the building and the height of the panels were used to calculate the distance to the point of where the panels would be seen. Please see Appendix D for detailed calculations. The results are summarised in Table 1 below.

	Swiss Cottage Open Space view	Finchley Road view	Adelaide Road view
Distance to the point where the panels could be seen (from the library)	337.7m	433.9m	685.3m
Distance[1] to the agreed view point (from the library)	102.08m	26.5m	49.8m
Can the panels be seen at the strategic views?	**No**[2]	**No**	**No**

Table 1. The distance from the library where the panels could be seen vs. the distance to the agreed strategic views.

[1] The distance is approximate and was established using Google Earth application.

[2] The furthest point for Swiss Cottage Open Space, pass Hampstead Theatre, is around 150m (according to Google Earth application).

The table demonstrates that the distance from the library to the points at which the panels could be theoretically seen compared to each of the strategic view locations is significantly higher. Therefore, the proposed solar PV panels are unlikely to compromise the building's aesthetic.

Photographic evidence

A site visit was conducted to photograph a set of mock cardboard solar PV panels with the same dimensions as the panels proposed by the chosen contractor at the key locations of the roof as indicated on Figures 3-5 above. Please see Appendix E for the photographic evidence that supports the outcomes of the desktop analysis, i.e. the proposed installation will not be seen from the strategic views.

Conclusions

The proposed layout of the solar PV panels has been set back from the edge of the roof and it is proposed to install the panels at 10^0 pitch to ensure they cannot be seen from the street view. Both desktop analysis and onsite simulation with a set of mock cardboard solar PV panels confirmed that the installation will not be seen from the strategic view locations, i.e. Swiss Cottage Open Space, Finchley and Adelaide Roads.

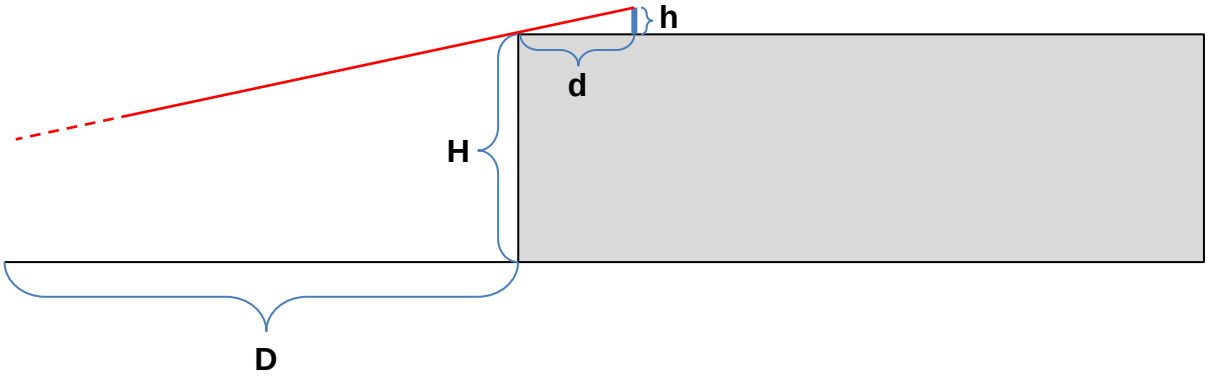
Appendixes

A. Proposed solar PV layout (5146598-ATK-Z1-ZZ-PL-E-3311-FINAL PV LAYOUT.pdf attached)
B. Example of the proposed system (attached)
C. The specifications for the proposed system (attached)
D. Desktop analysis calculations
E. Photographic evidence

Appendix D

Desktop analysis calculations

The methodology for the calculations is described below:



D – distance from the library where the solar PV panels would be seen
d – distance of the solar PV panels from the edge of the roof[3]
H – height of the building[4]
h – the height of the panels above the roof's parapet (270-230=40mm)

$$\frac{D}{H} = \frac{d}{h} \rightarrow \boldsymbol{D = H * \frac{d}{h}}$$

Swiss Cottage Open Space view

d = 1190mm = 1.19m
H = 11350mm = 11.35m
H = 40mm = 0.04m

$$D = 11.35 * \frac{1.19}{0.04}$$

$$\mathbf{D = 337.66m}$$

Finchley Road view

d = 1500mm = 1.5m
H = 11570mm = 11.57m
H = 40mm = 0.04m

$$D = 11.57 * \frac{1.5}{0.04}$$

$$\mathbf{D = 433.875m}$$

Adelaide Road view

d = 2017mm = 2.02m
H = 13570mm = 13.57m
H = 40mm = 0.04m

$$D = 13.57 * \frac{2.02}{0.04}$$

$$\mathbf{D = 685.285m}$$

[3] Taken from the proposed solar PV layout drawing
[4] Calculated from the Western Elevation drawing

Appendix E

Photographic evidence

North side of the roof – Swiss Cottage Open Space view

Figure 1. Set of mock cardboard solar PV panels set 1.2m away from the edge of the roof.

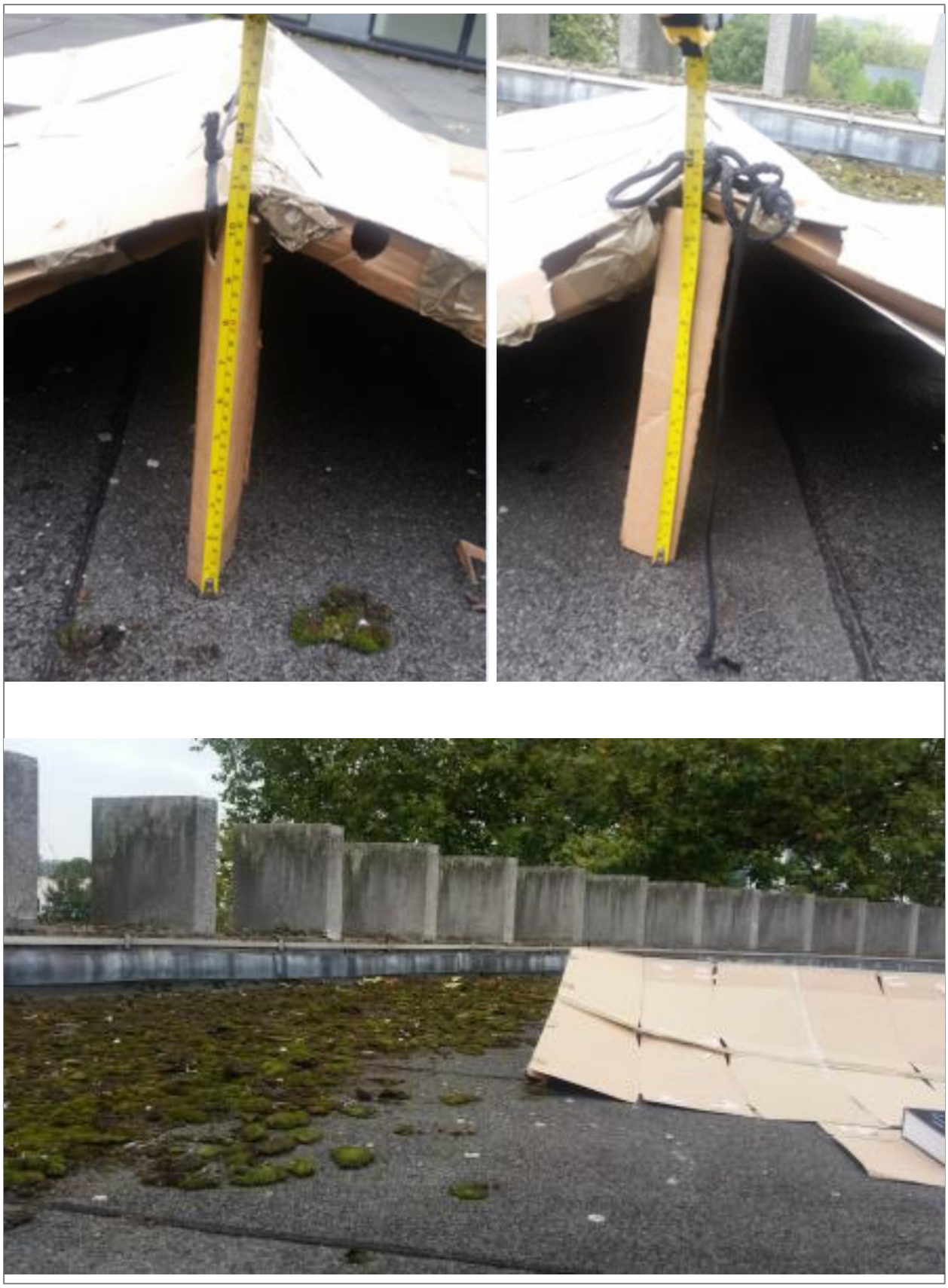


Figure 2. The height of the set of panels is 0.27m.

Figure 3. Swiss Cottage Open Space view – the panels cannot be seen.

Figure 4. Swiss Cottage Open Space view, further away from the strategic view point – the panels cannot be seen.

Figure 5. The highest viewing point at Swiss Cottage Open Space, further away from the strategic view point – the panels cannot be seen.

West side of the roof – Finchley Road view

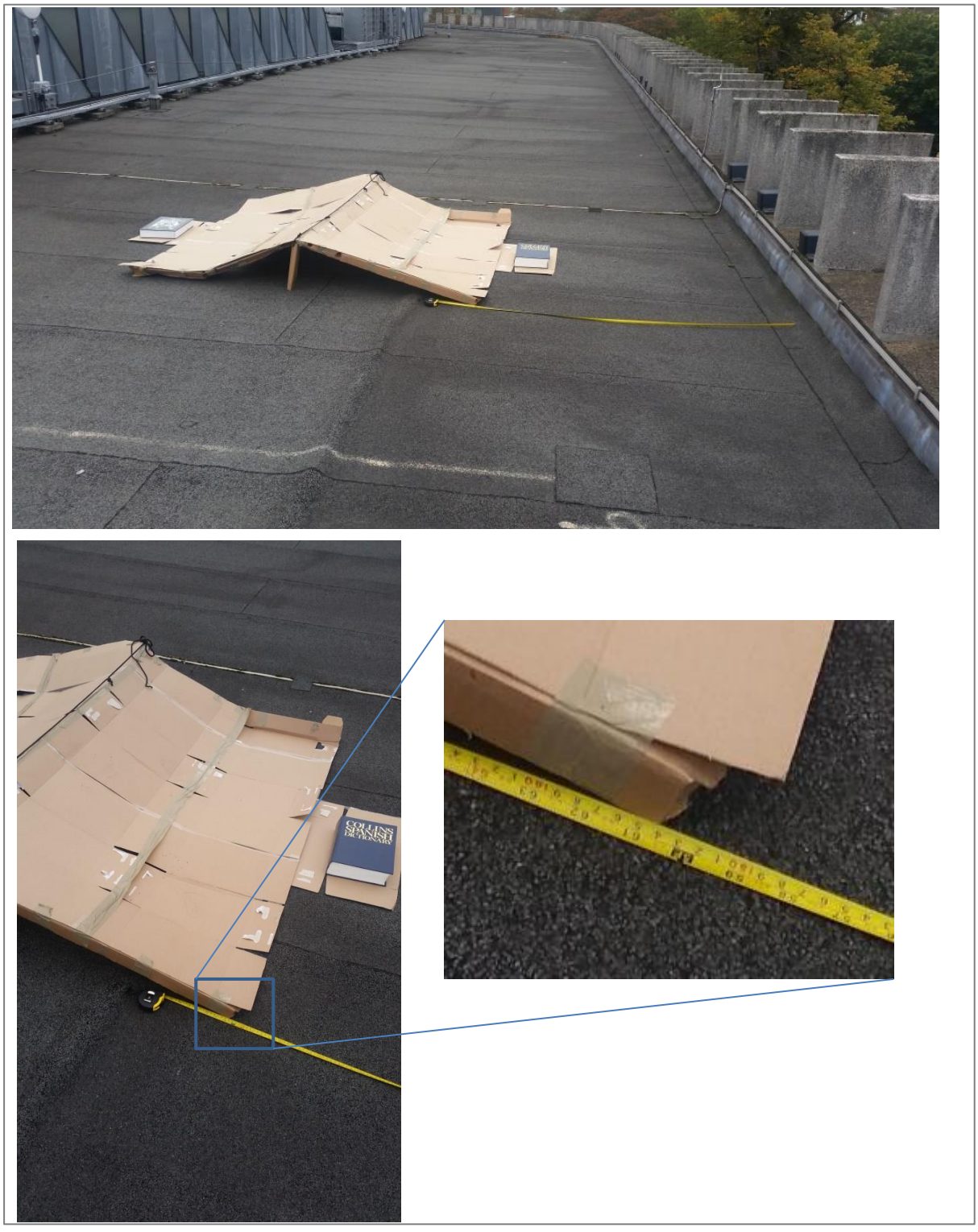


Figure 6. Set of mock cardboard solar PV panels set 1.5m away from the edge of the roof.

Figure 7. The height of the set of panels is 0.27m.

Figure 8. Finchley Road view – the panels cannot be seen.

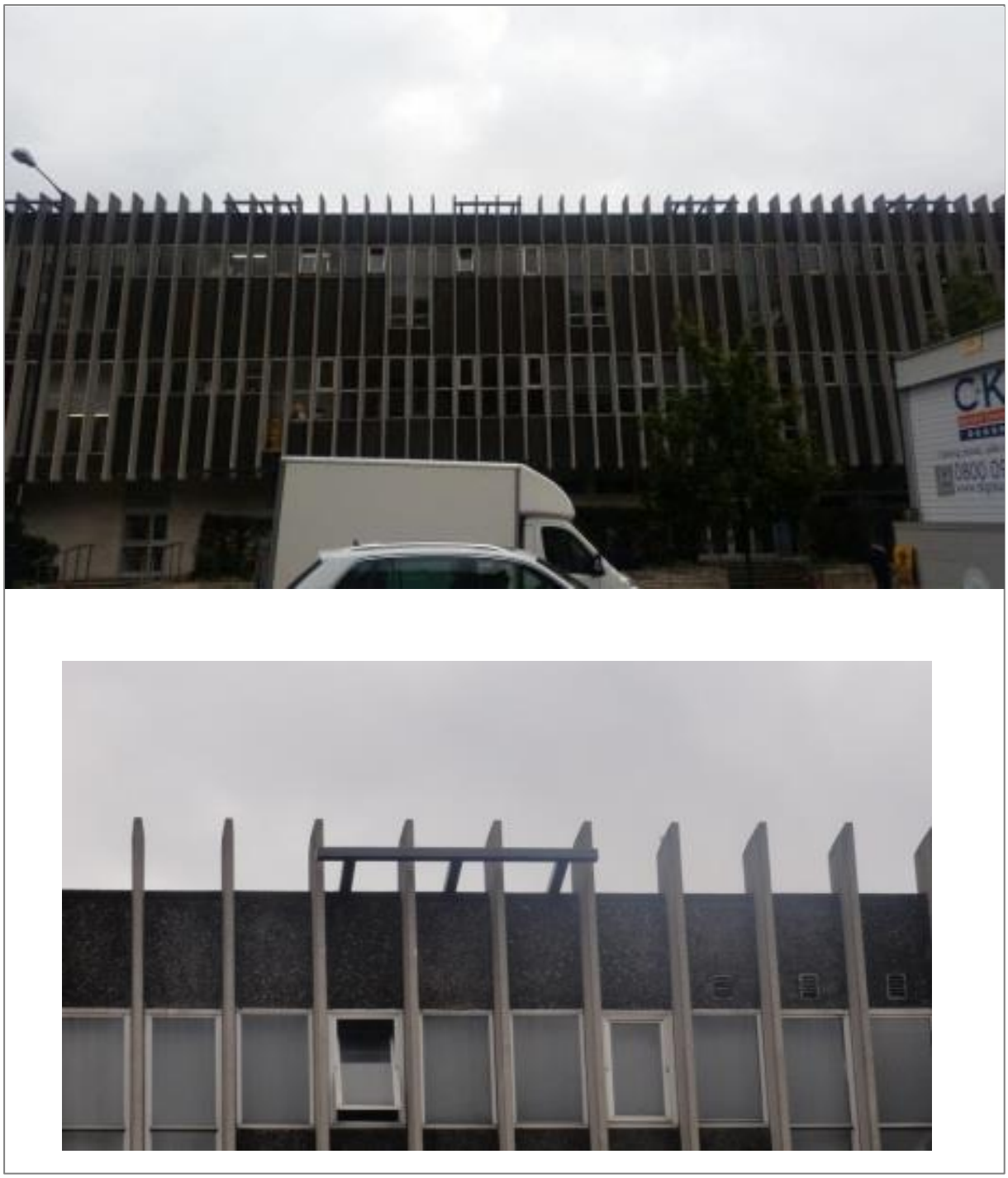


Figure 9. Finchley Road view – the panels cannot be seen.

South side of the roof – Adelaide Road view

Figure 10. Set of mock cardboard solar PV panels set 2m away from the edge of the roof.

Figure 11. The height of the set of panels is 0.27m.

Figure 12. Adelaide Road view – the panels cannot be seen.

Figure 13. Adelaide Road view – the panels cannot be seen.

Figure 14. Adelaide Road view, further away from the strategic view point – the panels cannot be seen.