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Dear Mr Hunter

## **KING'S COLLEGE CHAPEL, KING'S COLLEGE, CAMBRIDGE CB2 1ST – INSTALLATION OF SOLAR PANELS**

Thank you for consulting Historic England about King's College's petition for faculty to install solar panels on both slopes of the roof of the Chapel. Our advice is set out below, and supported by two appendices, attached.

### **Summary**

King's College Chapel, a masterpiece of the Perpendicular style, is one of the most exceptional of England's buildings. The proposed installation of solar panels on its roof would form part of King's College's strategic response to the climate crisis. Historic England considers that the work would harm people's appreciation of the Chapel's extraordinary architectural character – that is, harm its significance.

This petition, therefore, places two considerations, each of high importance, in tension. Historic England recommends that the College's petition should be refused, unless the Chancellor should conclude that the harm the proposed installation would cause would be outweighed by the public benefit which renewable power generation would provide.

### **Advice**

#### The Petition

King's College's petition seeks a faculty for the installation of 492 solar panels on the roof of the Chapel. The proposed installation forms one part of the College's response to the climate crisis. Its impact would be both upon the fabric of the Chapel and on its appearance and character; it would also give rise to questions of maintenance and management. Historic England considers that the effect of the





proposal on people's appreciation of the Chapel's architectural interest would be the principal impact.

The petition must be understood in the context of King's College's considered response to the climate crisis. This is explained in the supporting statements from both Caroe Architecture and Turley; and the Decarbonisation Report commissioned by the College from Max Fordham sets out a broad approach by which the College could reach net zero carbon by 2050. The College sees the need to renew the lead covering to the Chapel's roof – for which a faculty has already been granted – as providing an opportunity to install solar panels on the roof as part of this broad approach.

### The Significance of King's College Chapel; the Role of the Parapets and Roof Covering in its Appreciation; the Chapel and the City

King's College Chapel, begun in 1446 and completed in 1531, stands as one of England's most remarkable buildings. It is a building of European significance, as well, of course, as one known across the world. The Chapel is, above all, an extraordinary work of architecture and art, one of the outstanding manifestations of the Perpendicular style – England's late Gothic architectural manner.

The Chapel is a monumental structure, simple in form but bold in architectural expression. Its twelve bays are articulated by colossal buttresses separating vast traceried windows; its towering walls rise to a dramatic skyline; the single bay elevations to east and west are equally powerful.

The Chapel's skyline makes an important contribution to its architectural interest. With its turrets, finials and openwork parapets, it is among the richest elements of the exterior. The parapet is of considerable scale. It is pierced with tall, lozenge-shaped openings, cusped at top and bottom; the pattern of the opening is repeated in the merlons (the upward projections of the parapet).

The appearance of the Chapel's skyline plays its part in the viewer's complex appreciation of the Chapel, from within the College and in views from the surrounding streets, the Backs, the river and beyond. The changing relationships of the components of the skyline, as the viewer looks at the Chapel from changing positions, help to make the viewer's experience of the Chapel dynamic.

The openwork parapet appears solid when viewed obliquely, opening as the viewer moves to obtain a more direct view. When one can see through the parapets, they are seen sometimes against sky, and sometimes against the roof's lead covering. Both sky and lead contribute to the Chapel's skyline, and to the experience of its architecture.

Lead is the proper covering to the Chapel roof. The roof was built for, and has always been roofed with, lead; and it has always been seen roofed with lead. The lead roof covering contributes to the Chapel's architectural character.





The petition is right to note that the lead covering is not decorative – it is not, to take an example of lead at its most decorative (while also, of course, being, above all, functional) comparable with Scott's extraordinary lead covering to the lantern of Ely Cathedral. In our judgement, however, the petition is wrong to conclude that the lead covering is a thing apart from the architectural interest of the Chapel.<sup>1</sup> It is intrinsic to that interest.

The Chapel is Cambridge's greatest monument, visible across the city. The part played in views of the Chapel by the parapets and by the lead roof covering is varied, on account both of the direction of the views and their distance.

In some views, the Chapel roof can either not be seen or plays little part. These include both distant views from the surrounding countryside and the most celebrated view of the Backs, with the Chapel at its centre, as well as oblique views from the Market Square and the direct view of the east end from King's Parade.

In others, the roof can be seen, almost always as part of a larger whole. The north slope is visible from Garret Hostel Bridge, which affords the best public views along the Cam. In the view from the southern end of King's Parade – the most expansive town view – the roof can be clearly seen as part of the skyline, as it can within the Great Court – which provides the best frontal view of either of the long elevations. It also plays an important part in the views of the Chapel from Trinity and Queens Lanes.

The roof features prominently in the view from the tower of Great St. Mary's Church, which affords the best opportunity to appreciate the boldness and richness of the Chapel's skyline. It can be seen, but not clearly, in the prospect over Cambridge from Castle Mound.

From these views one can draw the following conclusions.

- a) Skyline and roof form part of a coherent architectural composition; the role of the roof's lead covering is intrinsic to the overall effect.
- b) Views of the roof may be limited, but contribute to the appreciation of the Chapel's architecture.
- c) The roof covering plays no part in the most celebrated view of the Chapel – that from the Backs – but is present in other important views.

While the contribution of the skyline, and of the relationship between the lead covering of the roof and the stonework of turrets, finials and parapets, to the Chapel's significance is important, it is also modest, when considered in the context of the Chapel's significance as a whole.

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<sup>1</sup> See, for example, Turley report, paragraph 3.7.





Skyline and roof covering form part of the Chapel's magnificent exterior. Arguably, this is, above all, a prelude to what lies within. The discipline and richness of the Chapel's fan-vaulted interior – the supreme example of its kind, the excellence of the Renaissance screen and stalls, and the remarkable quality and survival of the Henrician glass, combine with the building's exterior to make the Chapel a transcendent work of art. It remains, in form and detail, remarkably true to the conception of its founder and creators.

This consideration of the Chapel's significance has dealt essentially with the building's architectural interest. Significance may be considered to comprise archaeological, architectural, artistic and historic interests.<sup>2</sup> These are best seen not as discrete interests but as overlapping lenses. Architectural interest is the most relevant here, although the Chapel is rich in all these interests.

The Chapel is listed at grade I.<sup>3</sup>

The Chapel's setting within King's College comprises a group of largely 18<sup>th</sup> and 19<sup>th</sup> century building, which are themselves of high architectural and historic interest, as well as the historic landscape of the College's grounds. The Chapel also stands at the heart of Cambridge's exceptional townscape. These, however, are beyond the scope of this advice.

### The Impact of the Proposals on the Significance of the Chapel

The proposed solar installation would harm the significance of King's College Chapel. Its harmful impact would be primarily to the Chapel's architectural interest.

The harm would be caused by the visibility of the solar panels, the difference between their character and that of lead, and their consequent effect on the architectural character of the Chapel. Indirectly, this would also affect the Chapel's historic interest.

Broadly, the installation would seem unlikely to harm the historic fabric of the building, although we hope to explore this aspect of the proposals further with the applicants. Brief observations on the installation itself, its implications for the fabric and the subject of fire risk, are provided in Appendix 2.

Wherever one can now see the Chapel's lead roof covering, the solar panels would be visible. Their visibility would be limited, and in every view, they would form part of a much larger composition. Their presence would nevertheless damage the viewer's appreciation of the Chapel's architectural interest.

The appearance and character of the solar panels would be very different to that of lead. Although the panels themselves would be dark, the evidence of the mock-ups now in place shows that their appearance would change with the weather, due to their reflective quality. They would pick up the changing tone – and perhaps colour –

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<sup>2</sup> NPPF, Glossary, page 72

<sup>3</sup> <https://historicengland.org.uk/listing/the-list/list-entry/1139003?section=official-list-entry>



of the sky, shifting from light to dark under changing skies. What is proposed, in effect, is to lay a reflective screen across the greater part of both roof slopes.

This assessment is at odds with that offered by the College's consultants. The Turley report states, very simply, "The chosen panels will not be reflective".<sup>4</sup> This statement does not accord with our inspection of the panels, as seen both on the Chapel roof and from the ground. By way of comparison, the solar panels installed on the roof of Gloucester Cathedral (to which we refer below) are also reflective. These points are developed in Appendix 1.

In the views of the Chapel in which the lead roof covering cannot be seen, or plays little part, the solar installation would have little or no impact. These include distant views from the surrounding countryside and the most celebrated view of the Backs, as well as oblique views from the Market Square and the direct view of the east end of the Chapel from King's Parade.

In those in which the roof can be seen, however, the solar installation would be seen, to harmful effect. On account of its reflective quality, it would become a conspicuous part of the view of the north slope from Garret Hostel Bridge and in that from the southern end of King's Parade. It would be conspicuous from within Great Court, and in the views of the Chapel from Trinity and Queen's Lanes.<sup>5</sup>

In the view from the tower of Great St. Mary's Church, the exceptional prospect of the Chapel's roofscape and skyline would be transformed by the application of this contemporary material, forming a reflective screen. It would damage the unity of the architectural composition dating from the Middle Ages. The prospect over Cambridge from Castle Mound would be less obviously affected.

Considering the presence of the solar installation in these views prompts the following conclusions, on which the proposition at the heart of this letter – that the proposed solar installation would harm the significance of the Chapel – rests.

- a) Wherever they would be visible, the solar panels would be discordant: their appearance would shift with the weather, and be alien to that of the Chapel's historic materials.
- b) Their discordant character would detract from the Chapel's appearance, and erode its authenticity and integrity.
- c) While the solar panels would be visible only in some views, their impact would not be insignificant: some of the affected views are of great importance, and all contribute to the dynamic way in which the Chapel's architecture is best appreciated.

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<sup>4</sup> Turley report, page 25, paragraph 7.7 – there is further comment to the same effect elsewhere in the report

<sup>5</sup> The degree to which the solar panels would, or would not, be conspicuous would depend on the changing skies.





When the full significance of the Chapel is considered, the degree of harm to the sum of the Chapel's significance would be modest. This does not mean that it would be either inconsequential or of little importance, for reasons set out below.

The proposed installation would also cause some, very limited, harm to the significance of the fine historic buildings surrounding the Chapel, and to the townscape of central Cambridge. While the buildings are listed and the townscape designated as a conservation area, this effect of the proposals lies beyond the scope of this advice.

## Law and Policy

King's College Chapel falls within the faculty jurisdiction. Management of listed churches and other listed places of worship within this jurisdiction takes place under the Ecclesiastical Exemption. This is intended to provide an equivalent protection for their special architectural and historic interest to that provided by the secular system of listed building control established by the 1990 Planning (Listed Buildings and Conservation Areas) Act.

The Duffield Questions, formulated by the ecclesiastical courts, provide a logical apparatus to guide decision-makers, similar in effect to the policies of the Government's National Planning Policy Framework ("the Framework" / "NPPF") in respect of designated heritage assets.<sup>6</sup>

The Questions rest upon the fact that "there is a strong presumption against proposals which will adversely affect the special character of a listed building" (Question 5), and set out an ordered approach to considering whether proposals would cause such harm, the degree of harm caused, whether there is clear and convincing justification for such harm and, finally, whether public benefits consequent on proposals would outweigh the harm they would cause.

In addition to the policies relating to the conservation of historic buildings, the Church of England's policy in respect of climate change is relevant to this petition. The General Synod endorsed the Church's Routemap to Net Zero Carbon in July this year.<sup>7</sup> This provides guidance to enable the Church to reach net zero carbon by 2030.

In respect of the climate crisis, the policies of the Framework are again relevant, as this petition places the conservation of a designated heritage asset and the achievement of net zero carbon in tension. The Framework's policies promote the provision of renewable energy, recognise constraints, and encourage a strategic approach. These policies should be understood in the light of the Government's target for the United Kingdom to reach net zero carbon by 2050.

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<sup>6</sup> <https://www.churchofengland.org/resources/churchcare/church-buildings-council/how-we-manage-our-buildings>

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1005759/NPPF\\_July\\_2021.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf)

<sup>7</sup> <https://www.churchofengland.org/about/environment-and-climate-change/net-zero-carbon-routemap>



The relevant passage of the Framework's policy in respect of the determination of planning applications for renewable energy development reads as follows.

"When determining planning applications for renewable and low carbon development, local planning authorities should:

- a) not require applicants to demonstrate the overall need for renewable or low carbon energy, and recognise that even small-scale projects provide a valuable contribution to cutting greenhouse gas emissions; and
- b) approve the application if its impacts are (or can be made) acceptable..."

Renewable energy generation is thus to be taken as a public benefit, regardless of the scale of a project; but, while the approval of such proposals is desirable, a project's adverse impacts may justify refusal.

The Framework's policy for plan-making is also pertinent, and the relevant part is reproduced here.

"To help increase the use and supply of renewable and low carbon energy and heat, plans should:

- a) provide a positive strategy for energy from these sources, that maximises the potential for suitable development, while ensuring that adverse impacts are addressed satisfactorily (including cumulative landscape and visual impacts);
- b) consider identifying suitable areas for renewable and low carbon energy sources, and supporting infrastructure, where this would help secure their development..."

Again, while promoting the provision of additional renewable energy generation, the Framework recognises constraints, and encourages the identification of suitable areas for such generation – presumably ones in which such constraints either do not exist or are minimal.

In sum, law and policy relevant to the determination of this petition within the faculty jurisdiction provides a balanced approach to the assessment of proposals for renewable energy generation. This strongly promotes its provision, while recognising constraints and encouraging a strategic, place-based approach.

### Historic England's Position

Historic England recommends that King's College's petition for faculty should be refused, unless the Chancellor should conclude that the harm the proposed installation would cause would be outweighed by the public benefit which this instance of renewable power generation would provide. Below we set out the rationale for this recommendation, using the structure provided by the Duffield Questions.





Question 1 – Would the proposals, if implemented, result in harm to the significance of the church as a building of special architectural or historic interest?

The proposals would harm the significance of King's College Chapel. As has been explained above, they would damage the architectural character and interest of the building, by over-laying much of the renewed lead roof covering with an additional covering of radically different character. Indirectly, they would also harm the Chapel's historic interest.

The reflective quality of the extensive solar installation would make it quite different in appearance to the lead roof covering itself, which it would largely obscure. The changing tone and colour of the panels would attract attention, detracting from the architectural character the roof and skyline, which together make an important contribution to the Chapel's architectural interest and, therefore, to its significance.

As noted above, we provide brief observations on other aspects of the proposed installation in Appendix 2. While further work remains to be done, the points raised there are unlikely to be determinative.

Question 2 does not apply, as it deals with cases in which the building's significance would not be harmed.

Question 3 – If the answer to question 1 is “yes”, how serious would the harm be?

King's College Chapel is a building of the greatest significance, due to its richness of interest, especially architectural and artistic, as well as historic and archaeological.

While the architecture of its exterior is monumental and bold, and while the Chapel's skyline, one of the richest parts of the exterior, makes an important contribution to the architecture of the exterior, the Chapel's interior contributes still more to the building's significance. The Chapel's significance is also enriched by the landscape and townscape in which it stands.

Given the richness of the Chapel's significance, it must be the case that the impact of the proposals on its significance as a whole would be modest. That does not, of course, mean that the harm following from the proposals would be of modest consequence. The strong presumption against proposals which would entail harm indicates otherwise. It is also the case that the more significant the building, the stronger the presumption should be.<sup>8</sup>

Question 4 - How clear and convincing is the justification for carrying out the proposals?

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<sup>8</sup> This is the burden of the Court of Arches observation, “In answering questions 1 and 3, the particular grading of the listed church is highly relevant, whether or not serious harm will be occasioned” – <https://www.churchofengland.org/resources/churchcare/church-buildings-council/how-we-manage-our-buildings> - which reflects the National Planning Policy's requirement that “great weight should be given to the asset's conservation (and the more important the asset, the greater the weight should be)” – NPPF, 199







Historic England considers the justification for the proposals questionable, for reasons we set out below. We note the justification relates to the public benefit the proposals would secure, and in raising these points we do not mean to anticipate the balancing exercise, to be undertaken by the Chancellor.

Any increased provision of renewable energy is to be taken as a public benefit. The National Planning Policy Framework's policy in respect of the determination of applications for renewable energy generation states this clearly (NPPF, 158, a), and it accords with the Church's Routemap to Net Zero Carbon. It does not follow, however, that any public benefit would justify any harm.

A number of considerations lessen the strength of the justification in this case. While the renewable energy that the solar installation would generate would be a public benefit, it is one which must be considered in a broad context.

First, while the provision of renewable energy generation is a public benefit, consideration of the degree to which this public benefit might justify harm requires some consideration of scale or quantity. The Max Fordham Decarbonisation Report suggests that the installation would secure a reduction of about 1.4% in the College's carbon emissions.<sup>9</sup> It will be for the Chancellor to consider the relative weight to be ascribed to this reduction and to the harm which the proposals would cause to a building of extraordinary significance.

Second, consideration of justification also requires some consideration of the strength of the case for what is proposed, albeit consideration "falling short of need or necessity".<sup>10</sup> While the Routemap to Net Zero provides a clear indication of the importance of renewable energy generation, it does not provide guidance on how to set this against the "strong presumption against proposals which will adversely affect the special character of a listed building", which is central to the Duffield Questions. Here, the Framework's policies, which, while promoting the provision of renewable energy, encourage a strategic approach to this objective and recognise constraints, are pertinent.

This is a case in which it would be reasonable to ask, as anticipated by the Framework, whether the impact of the proposals would be unacceptable (NPPF, 158, b).

In addition, the Framework establishes a requirement that local planning authorities provide a positive strategy maximising the potential for renewable energy generation, while addressing visual impacts, and encourages them to identify suitable areas for renewable energy generation (NPPF, 155, a, b).

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<sup>9</sup> Max Fordham, Decarbonisation Report, page 30, table headed "King's College CO2 Emissions Reduction" – percentage calculated from table

<sup>10</sup> Court of Arches observations on the Duffield Questions -

<https://www.churchofengland.org/resources/churchcare/church-buildings-council/how-we-manage-our-buildings>





Other buildings and spaces across Cambridge offer opportunities to generate more renewable energy without harm to the Chapel (or other historic buildings of exceptional importance) or other unacceptable or adverse impacts.

Historic England considers that the limited contribution that the proposals would make to the reduction of the College's carbon emissions, the indication within the Framework that impacts can be unacceptable, and the Framework's promotion of a strategic approach to the provision of renewable energy generation, raise questions about the justification for this proposal.

It is possible to install sources of renewable energy on many historic buildings without notable harm to their significance, as illustrated by the installation of solar panels on the nave roof of Gloucester Cathedral – the best-known example of such a project.<sup>11</sup> At Gloucester, the solar panels are almost wholly hidden by the solid parapet of the nave, and appear only in one, restricted, view of the cathedral. The balance between the almost minimal impact of the installation and the benefit it will provide appears quite different to that at King's College.

Question 5 – Bearing in mind that there is a strong presumption against proposals which will adversely affect the special character of a listed building, will any resulting public benefit (including matters such as liturgical freedom, pastoral well-being, opportunities for mission, and putting the church to viable uses that are consistent with its role as a place of worship and mission) outweigh the harm?

The last of the Duffield Questions falls to the Chancellor to answer. Historic England trusts that our advice on the significance of King's College Chapel, on the harmful impact upon that significance which the proposals would cause, and on the degree of that harm, as well as that on the justification advanced for the proposals and, as we see it, its weaknesses, will assist in the determination of the petition.

### **Recommendation**

Historic England recommends that King's College's petition for a faculty to install solar panels on the roof of the Chapel should be refused, unless the Chancellor concludes that the harm it would cause to the significance of the Chapel would be outweighed by the public benefits of increased renewable energy.

Yours sincerely,

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<sup>11</sup> See Appendix 1





Historic England

cc Oliver Caroe, Caroe Architecture; Dr Jon Burgess, Turley

Enclosed: appendices 1 and 2 (combined document)



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