



# The Archbishop's Palace Conservation Trust

*A Safe pair of hands*

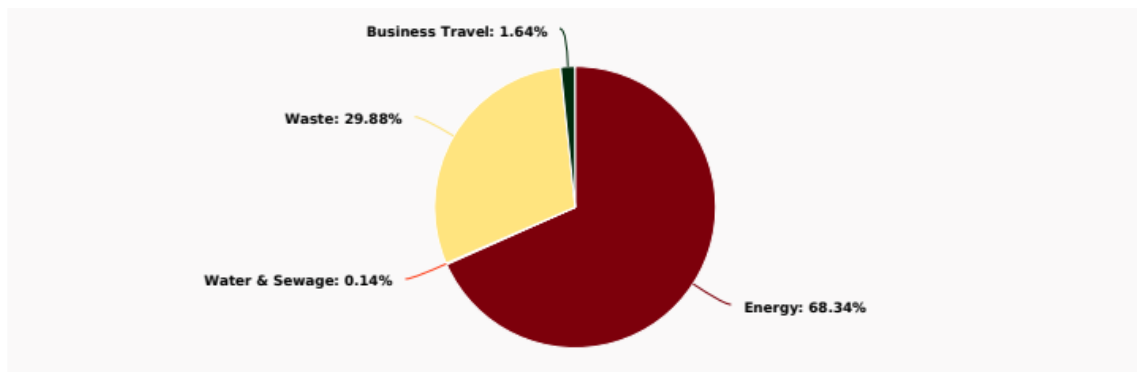
## The Trust's Carbon Footprint

### 1. The first snapshot

We have calculated the Trust's Carbon Footprint for the year ending 30<sup>th</sup> June 2023 using the tools from Julie's Bicycle website approved by the Arts Council <sup>1</sup>. This snapshot covers:

- The NW Tower
- The Gatehouse
- The Project Office in Chantry Cottage

The results indicate that the Trust generates about 1 tonne of carbon dioxide equivalent (CO<sub>2</sub>e).



This table presents your organisation's environmental impacts in Consumption and Carbon Dioxide Equivalent (CO<sub>2</sub>e) terms.

IMPACT	CONSUMPTION	CARBON
Energy		801 kg CO <sub>2</sub> e
Water & Sewage	8 m <sup>3</sup>	2 kg CO <sub>2</sub> e
Waste	1 tonnes	350 kg CO <sub>2</sub> e
Business Travel	160 km	19 kg CO <sub>2</sub> e
	Emissions Total	1 tonnes CO <sub>2</sub> e

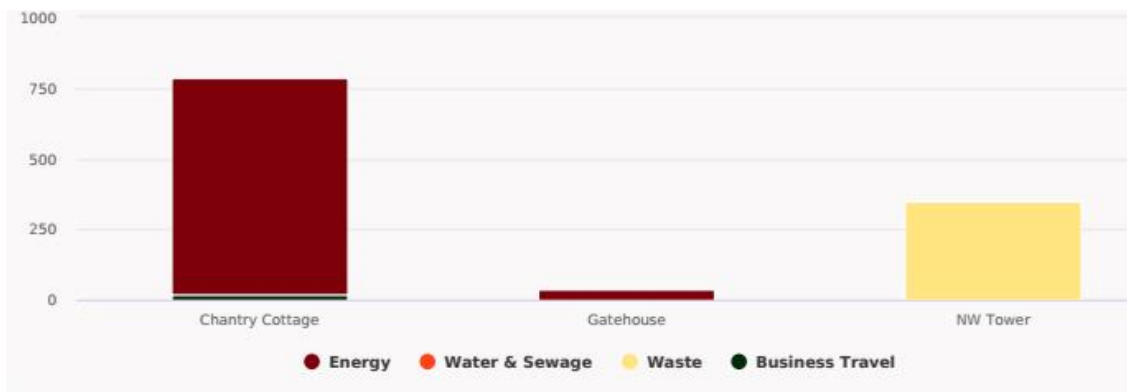
Figure 1: The total APCT carbon footprint for y/w June 2023

As might be expected at the current stage of the project, the majority of the emissions come

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<sup>1</sup> <https://juliesbicycle.com/our-work/creative-green/creative-climate-tools/>

from the Project Office, predominantly from energy for the IT equipment. The calculations assume that the equipment is running for 2000 hours each year which is probably pessimistic, given that the lights are turned off when the office is not occupied, and the IT equipment is Energy Star compliant.



This table presents your organisation's environmental impacts in Carbon Dioxide Equivalent (CO<sub>2</sub>e).

FOOTPRINT	TOTAL
Chantry Cottage	786 kg CO <sub>2</sub> e
Gatehouse	35 kg CO <sub>2</sub> e
NW Tower	351 kg CO <sub>2</sub> e

Figure 2: Emission by site for y/e June 2023

Much of the Project Office work involves emails and using the figures from the Carbon Literacy Project<sup>2</sup> these contribute another 114Kg of CO<sub>2</sub>e, bringing the office contribution to 900kg. It is difficult to see how this figure can be reduced significantly without impacting on the operation of the project.

The carbon footprint of the NW Tower is almost entirely due to the disposal of waste from the stabilisation works which are estimated to be 1.5 cubic metres per year. This will appear in the figures for next year but there will then be a period when no work is being carried out and therefore no waste generated.

As shown in Figure 2, the carbon footprint of the Gatehouse is negligible. It should also be noted that neither the Tower nor the Gatehouse are heated, and there is minimal electrical power use.

These figures are for the Trust alone, and do not take into account emissions from the procurement of building materials and our contractors. The principal contractor is a Carbon Neutral Organisation (see §2.4 below).

## 2. Offsets

The Trust is fortunate that its lease includes Palace Field and the Paddock (the site of the South-East Tower). This area of 1.6 Ha encompasses about 10,000m<sup>2</sup> of grass and an environmental area which is managed for diversity. There are about 20 mature trees and

<sup>2</sup> <https://carbonliteracy.com/the-carbon-cost-of-an-email/>

many more saplings.

A typical tree can absorb around 21 kilograms of carbon dioxide (CO<sub>2</sub>) per year. However, this figure is only achieved when the tree is fully grown: saplings will absorb significantly less than this. Based on these figures, the trees on Palace Field could sequester about 0.5 Tonnes of CO<sub>2</sub> each year.

The estimates for the annual carbon sequestration of grass range from 0.24 tonnes to 2.7 tonnes. It appears to depend on how the grassland is managed and what treatments are applied. If we assume 1.5 Tonnes/hectare, then the grassed areas of Palace Field could sequester 1.5 tonnes per year. The total for the area would then be 2 tonnes/year. Carbon absorption will be increased as the hedgerow planted in late 2022 grows to maturity.

The Trust intends to plant additional trees in the environmental area and the Heritage Orchard will be extended. Different trees vary in their absorption potential but we are constrained in our planting to species that are indigenous to the Darent Valley. Careful selection of suitable trees will be required.

### **3. The future**

This is the first snapshot of our carbon footprint and we will be revisiting the data each year, with the aim of monitoring our progress to net zero.

We shall also be adding data to evaluate the carbon footprint of events such as the May Day celebrations and the Christmas Grotto held in the Tower.

To support of aim of reducing the footprint as much as possible, the Trust's environmental policy sets out a number of steps to minimise waste and emissions.

#### **3.1 The Tower**

Subject to consent from Historic England, the Trust intends to:

- a. Ensure that the new roof is adequately insulated to prevent heat loss,
- b. Install secondary double glazing to the windows in the North-West Tower
- c. Install photo-voltaic cells on the roof to generate electricity for the interpretation centre, and the educational study centre in the Gatehouse, with excess electricity being stored in a battery
- d. Employ water harvesting from the roof of the Tower and the extension to provide grey water for toilets etc.
- e. Use primary double glazing for the windows in the new extension

#### **3.2 The Gatehouse**

Subject to consent from Historic England, the Trust intends to prevent heat loss by:

- a. Installing double doors to the main entrance
- b. Installing adequate insulation in the walls and roof space
- c. Installing secondary double glazing to the windows in the buildings

Water usage will be minimised by using grey water in the toilets obtained from the water harvesting system.

### **3.3 The Office**

- a. Equipment in the office will be Energy Star compliant and will be turned off when unused for any length of time (eg, overnight)
- b. Heating will be thermostatically controlled at 18C.
- c. Lighting will be turned off when the office is unoccupied.
- d. Wherever possible, documents will be held electronically and only printed when necessary. Double sided printing will be used.
- e. Paper and other office consumables (eg, printer cartridges) will be recycled.

The Trust's constitution permits the use of teleconferencing (eg, Zoom) for its meetings. This reduces travel and the associated carbon emissions.

### **3.4 Restoration works**

- a. Contractors working on the restoration will be encouraged to comply with the Scope Guidelines to minimise their carbon footprint (see Appendix A).
- b. Where possible, local contractors will be used, to minimise emissions from travel to and from the site.
- c. Where possible, materials (eg, timber, stone and bricks) will be sourced locally so as to minimise transport-related emissions.
- d. Timber will be obtained from sustainable sources.
- e. Contractors will be instructed not to discharge any waste into, or near to the stream and will be advised that it is environmentally sensitive.
- f. Volatile organic compounds will only be used where there is no practical substitute.

### **3.5 Operations**

- a. Displays in the Interpretation Centre will be designed to use the minimum of electricity.
- b. Electronic equipment (eg, the photogrammetry facility) will be Energy Star compliant and will be turned off when not in use.
- c. Retail equipment (eg, the till) will be selected for energy efficiency and will be turned off when the centre is closed.
- d. When temporary displays are no longer required, the materials will be recycled.

### **3.6 Events**

- a. Events using Palace Field will be planned with careful consideration to minimise their environmental impact.
- b. Where events are organised by third parties, the responsible organisation will be asked to take environmental issues into consideration.
- c. Events will be subject to the same monitoring and review as other Trust operations.

### **3.7 Visitors**

- a. Visitors will be encouraged to travel to the Palace using public transport, on foot and by cycling. Visitor information and other publicity information will promote car-free travel.
- b. No car park will be provided.
- c. The Trust does not intend to operate a café although it may install a drinks machine. Cups for the machine will be selected so that they can be recycled and will be collected in a clearly marked recycling bin.