Figure 1.11 Wirksworth, Derbyshire. Conservation area

Figure 1.12 Wirksworth, Derbyshire. Conservation area

Figure 1.13 Wirksworth, Derbyshire. Conservation area

minimize the use of energy consumed in travel between essential activities and also in the operation of the buildings. Sustainable development places a premium on the conservation of natural resources, wildlife and habitat protection. Sustainable development also assumes high degrees of self-sufficiency at all levels of settlement structure. Part of this self-sufficiency is in food production and waste disposal. It may be prudent to conceptualize urban structure as integral to the bioregion and the countryside as integral to the urban structure, in which case the countryside – along with its capacity for food production – would be considered to penetrate right to the heart of the city.

ENERGY, BUILDINGS AND POLLUTION

2

INTRODUCTION

It is generally accepted that global warming is happening, and that the protective ozone layer remains in danger. Much of the atmospheric pollution – which in part is responsible for global warming – is caused by the burning of fossil fuels in the creation of energy to support city life. Global warming and its possible effects on, for example, European ski slopes, the submerging of populated islands, the loss to Britain of our climate-moderating Gulf Stream and the increasing occurrence of violent storms, is common knowledge. However, these are by no means the only environmental hazards stemming directly from current urban lifestyles on the planet. Other hazards include: contamination of water sources, overloading of environmental sinks such as the great river estuaries, acid rain, and air pollution in cities. Much of the pollution causing environmental damage can be attributed directly to the building process. For example, 50 per cent of the world's fossil fuel consumption is directly related to the servicing and use of buildings. In addition, energy is used to make building materials, to transport them to the site, and in their erection as part of the building. The servicing and use of buildings alone, results in the production of 50 per cent of the world's output of carbon dioxide, amounting to about one-quarter of the greenhouse gases.

Designers, developers and users of buildings – through the careful choice of environmentally friendly materials, the use of an ecological design approach, and sensible care and use of the building – could reduce considerably the quantities of pollutants entering the environment (Birkeland, 2002). Many examples of energy-sensitive building designs will be referred to throughout this book. Such design starts from an understanding of the building's 'energy footprint'. The simplest meaning attached to the term 'building's footprint' is the amount of site it covers. The 'energy footprint' uses the analogy of the building footprint, and extends the concept