5F Climate Change

Evidence

5.69 Climate change is happening and will have profound effects on the landscapes and wildlife of the South Downs, as well as for people living, working and visiting the National Park. The built environment is a key source of greenhouse gas emissions and the form of development now and in the future will determine how well we can adapt to climate change as well limiting the worse impacts of global warming.

5.70 Met Office climate projections[28] predict that at Shoreham Cement Works, the hottest summer day temperature will rise to about 36.6C to 41.5C. An increase in the incidence and severity of drought is likely to lead to water shortages locally. Meanwhile, warmer winters will lead to increased seasonal rainfall, with predictions of rainfall on the wettest winter days increasing 52% more than now. The intensity and frequency of extreme storm events is set to increase meaning key infrastructure is at greater risk of storm damage.

5.71 The changing climate does also offer some opportunities locally. Hotter drier summers may mean more visitors, and an extension of the trend for staycations following the pandemic. Longer hours of summer sunlight will also have a positive impact on the potential for solar or PV energy production and lower reliance on the national grid.

5.72 In 2021, the SDNPA commissioned a consumption based carbon footprint assessment[29] of the whole National Park. This provides a detailed picture of greenhouse gas emissions resulting from activity in National Park, including those attributed to residents, visitors and industry. The assessment shows that residents' annual carbon footprint per capita is significantly higher than the UK national average. Private car use dominates the carbon footprint of residents, which is unsurprising given the rural context, but emphasises the need for sustainable transport and measures to encourage a modal shift from the private car to buses, cycling and walking. Also 43% of residents are believed to commute outside the National Park. Providing local job opportunities and facilities for remote-working could help address this.

Issues

5.73 Cement is the key ingredient in concrete and has shaped much of our modern built environment. However, it has a massive carbon footprint. Cement production has ceased at Shoreham Cement Works and redevelopment of the site offers the potential, through innovation and ambition, to transform what was once a major

[28] Information accessed here 03-03-22 What will climate change look like in your area? - BBC News
[29] A greenhouse gas emissions assessment and target recommendations for the South Downs National Park, Small World Consulting Ltd, 2022

source of carbon emissions to a zero carbon development, generating renewable energy and potentially even removing carbon from the atmosphere.

5.74 The buildings on site, being made predominantly of concrete contain significant amounts of embodied energy and should ideally be re-used. This is unlikely to be practical in its entirety for a number of reasons, but as a minimum, the concrete structures and foundations should be recycled for other uses, preferably on site.

5.75 Any redevelopment will need to be matched by substantial investment in sustainable transport, for example, increasing the frequency and accessibility of the existing bus service. Providing car clubs could reduce private car use and there may also be scope to make parts of the site 'car-free' and have parking hubs. Making connections to the South Downs Way and Downs Link will be crucial for promoting walking and cycling links to the wider countryside and nearby settlements.

5.76 The site could offer the potential for a range of onsite renewable energy generation from solar energy in the unshaded areas of the site to potential use of the River Adur for hydro- power or water source heat pumps. There may also be scope to benefit from emerging technology and innovations such as the green hydrogen hub being developed at Shoreham Port. Landscape sensitivity will need to be balanced against renewable energy generation.

5.77 The character of the site, the steep cliffs, exposed quarry and presence of substantial made ground and contamination present particular challenges in adapting to climate change. Buildings will need to be designed to avoid overheating and public open space will need shade to be useable in the summer. However, tree planting is likely to only be suitable in the **Riverside** area. Sustainable drainage will need to be carefully designed to ensure contaminants do not enter groundwater and pollution pathways are not created.

How the issues affect the five areas

5.78 The impacts of both solar glare and radiation experienced within the **Cement Works** and the **Bowl** could be considerable during hot and sunny weather given the steepness of the cliff faces, the exposed chalk and limited shading.

5.79 The site is largely protected by the flood defences on the River Adur, although Flood Zone 3a ('High Probability' of fluvial or tidal flooding), is predicted to encroach on the southern part of the **Riverside**, at the existing access road into the area.

5.80 Overall the site is at low risk from surface water flooding. However, there is a surface water flow path in the **Cement Works** at high risk of flooding, located close to the tunnel passing under the A283.

Options

5.81 There are two main options arising from the climate change evidence:

- Existing Local Plan policy requires major development to be zero carbon and zero waste.
- This could be extended to require a zero whole life assessment covering construction, operational and ongoing extensions/repairs. Some offsetting will likely to be needed and any energy demands not met by onsite renewables generation could be required to be met by investment in new renewable energy off-site.

Question 13: What renewable energy generation do you think the site could offer?

Question 14: What opportunities do you think there are for the design of the redevelopment to ensure resilience to climate change?