Should new Data Centres be built on greenfield or brownfield sites?

The global focus on sustainability is challenging all businesses to re-examine their carbon footprint. The data centre industry is no exception, and this scrutiny is heightened by the significant power used by the sector. But, the environmental impact of the proliferation of data centres is wider than power alone.

At Evolution Data Centres we focus on building sustainable facilities, but, like others in our industry we must also keep a close eye on construction cost and build timescales. Of course, delivering a quality product is ultimately the aim, but we must not ignore the environmental challenges in doing so.

The decision whether to develop greenfield or brownfield sites is a hot topic, due to the environmental benefits of reusing existing buildings. There has been an increase in the availability and the lower cost of commercial property left vacant by the impact of Covid-19 and changes in industry focus.

So, the case for brownfield sites seems obvious...

“…why build new, when you can reuse a perfectly good existing building?”

Why not take advantage of existing power and telecoms connections, prime city commercial or industrial locations and create jobs with economic benefit at the same time? Also, if you add the environmental benefits, potentially time to market advantages verses greenfield, positive reputational and brand impact, public goodwill from re-generation, as well as tax and environmental credits, it seems like an easy decision. But is it that simple?

The challenge is securing these benefits. Every brownfield site is different and potentially needs complex changes to make the site fit for purpose. This requires a thorough evaluation of the site to determine its viability including structural, electrical, mechanical and environmental assessments.

The ideal data centre building has set of basic requirements, including large halls interconnected by corridors, plant rooms, good outside capacity for generators, transformers and chillers and a large enough perimeter to ensure that the site can be secured. Ideally it will also come with space for expansion. In many cases these factors alone would rule out most existing commercial buildings.

Even if a site can be repurposed, what percentage of the floor space can actually be used for computing infrastructure? It will certainly be lower than that of a purpose-built facility. Are you inheriting any residual issues, such as site contamination, or the requirement to scrap existing materials from the site? Indeed, you are effectively inheriting an existing carbon footprint from the original construction, so you need to ask yourself what steps, if any, you can take to improve an historic build?

By comparison…

” … Greenfield sites provide greater build flexibility and can allow for multi-phase growth.”

The developer can build exactly to their specification and use the best and most cost-effective materials. This can also lead to lower operational costs, better utilisation and improved cost per square metre. On the downside, greenfield sites can take longer to build and may require more approvals and increased community engagement. They are also generally perceived to have a greater negative environmental impact, after all, a site that was once green now has a building on it! However, if you consider the lifetime of a facility designed to meet stringent environmental requirements, the long-term impact may be less.

” There is an obvious tension between build cost and environmental impact.”

But, as with most business decisions it’s still true to say that cost usually wins. However, over time our industry will need to be prepared to compromise, because, if we don’t our customers will demand that we do, and if not customers, are we leaving ourselves open to Government intervention? And if we don’t, what legacy are we leaving for the next generation?