Spotlight on...
carbon reduction

CONSIDERATE CONSTRUCTORS SCHEME

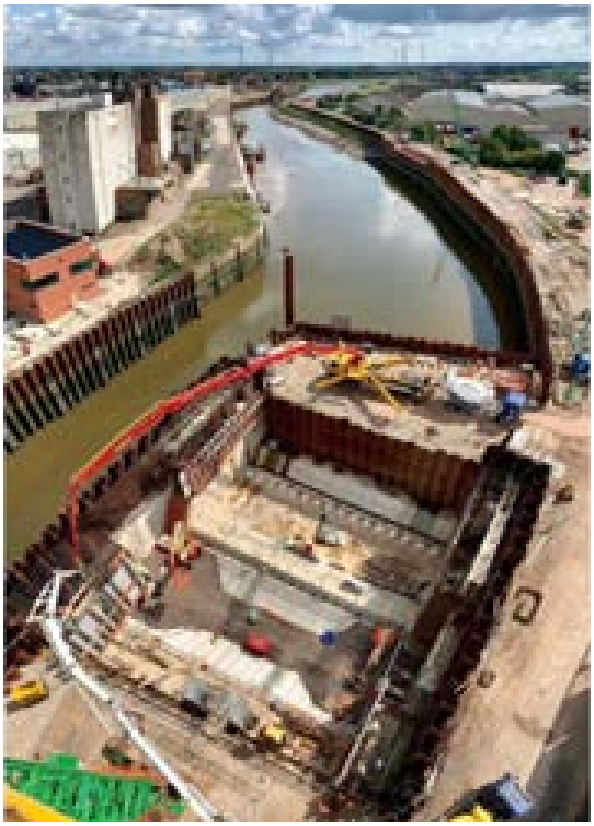
Case Study: BAM Nuttall
Low Carbon Concrete used in Boston Barrier

The main barrier structure includes a 25m wide rising sector gate at the core, with reinforced flood walls and cantilever steel piled walls along both riverbanks which tie into existing flood defences downstream.

The rising sector gate is housed in 6,000 m3 reinforced concrete structure which was installed within a twin wall cofferdam in the tidal Haven Banks.

Due to the complex structure, only in-situ reinforced concrete was considered. To reduce carbon emissions, the cement content in the concrete mix was reduced from 400 kg/m3 to 380 kg/m3 while maintaining the same performance criteria.

Furthermore, in the concrete used for the whole barrier structure, 70% of cement was replaced by ground-granulated blast furnace slag (GGBS) decreasing the embodied carbon of the concrete mix used.



CARBON REDUCTION VALUE

- **By reducing the cement content in concrete, 120,000 kg of cement were saved across the 6,000 m3 of concrete. That led to save 100 tonnes of CO2.**
- **The use of GGBS as cement replacement (70% replacement rate) in concrete of the whole barrier structure saved 1,246 tonnes of CO2.**