



INNOVATION EDGE™: 360° ENGINEERING

Main Image: The award-winning Deephams Sewage Treatment Inlet Works

Murphy provides 360° engineering through early involvement of integrated project teams, feeding lessons learned into new and existing projects resulting in safer methods of working and driving down carbon emissions and costs.

Description

Murphy encourages its design, planning and construction teams to question contract specifications and challenge each project requirement in order to provide a lean value-engineered solution.

Integrated project teams are brought together at an early stage to assist with the design and procurement process. Particular emphasis is placed on sustainable construction techniques, innovation, utilisation of new technologies, pre-fabrication and pre-formed solutions.

At all stages of civil and structural design, the end user is placed at the centre of the decision-making process to encourage 360° feedback. There is a particular focus on the use of greener and safer construction methods that push the boundaries and provide value engineering.

Regular engagement with the client and employees encourages the elimination of hazards and risks, and establishes safer methods of working through innovative techniques.

A lessons learned process ensures innovative solutions are constantly being fed into new and existing projects.

The Benefits

- Leaner designs.
- Reduced consumption of natural raw materials including aggregates and water.
- Re-use of materials, avoiding waste to landfill and reducing vehicle movements.
- Reduction in carbon emissions and cost.
- Promotion of safer working methods and a safer working environment.

Application

The £40m Deephams Sewage Treatment Inlet Works project for Thames Water completed in 2013, involved the design and construction of a new inlet works, installation of a new underground station, as well as significant enhancement of the existing ageing plant.

The project re-used 2,000t of recycled materials as a part of a foam-based road foundation. This proved to be both sustainable and cost-effective, eliminating 180t of CO₂e and saving approximately £180,000.

The design team focused on reducing the volume of concrete by changing the design and using void formers, resulting in 13% less concrete which equated to 2,000m³ and 864t of CO₂e. This led to a reduction of 200t of steel reinforcement.

A new plastic fibre concrete mix eliminated a further 50t of steel and saved eight weeks on the programme while using sustainable mix designs as standard with CEMIII blends realised further carbon reductions saving 8,000 tonnes of CO₂e.

Through sustainable dewatering proposals only 20 litres per second was abstracted, rather than the 150 litres per second initially envisaged. This equated to an 87% reduction and saved 2.4bn litres of water.

Excellent health and safety performance was achieved with 700,000 accident and incident free hours.

In total, the team delivered time savings, total carbon savings of 10,000t and cost savings of c.£2.2m.

End User Feedback

“Throughout the scheme, its design, construction and delivery would not have been possible without the co-operation and planning by the Thames Water and Murphy project team. This enabled the project team to challenge the initial construction method and purpose alternative innovative solutions which have saved time and cost as a result.” – **Nick Fawcett, Thames Water Head of Programme Delivery (Tideway Projects)**

The Sewage Treatment Plant now meets the future requirements of the local population. This ensures that the River Lee is cleaner and healthier for aquatic life and the riverside environment is also improved for the local community.

The project received a number of industry recognitions including the 2012 Concrete Society ‘Civil Engineering Award’.



Deephams Sewage Treatment Inlet Works

Murphy’s lessons learned on the Deephams Sewage Treatment Inlet Works have subsequently been fed into the design of AECOM Murphy Kier (AMK) joint venture’s Deephams Sewage Treatment Works Rebuild project.

Learn More

For more information, please contact Murphy Marketing & Communications Department at communications@murphygroup.co.uk

This is a brief description of the solution as we have applied it and should not be taken as exact. Its application must take into account the local environment and specific project requirements.



Rev: IE-36NG-14-005