

buildoffsite

THE MODULAR

WATER TREATMENT

EXPERTS

Buildoffsite

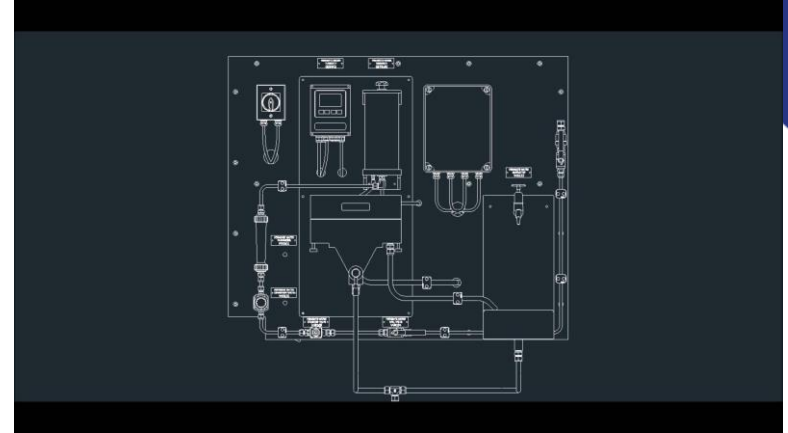
31st January 2019

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Modular Build Integrated Environment

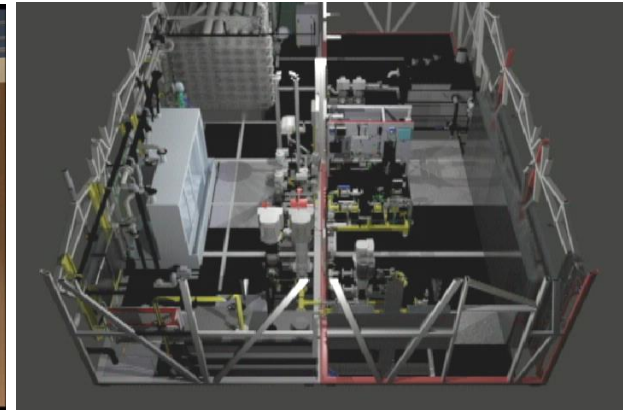
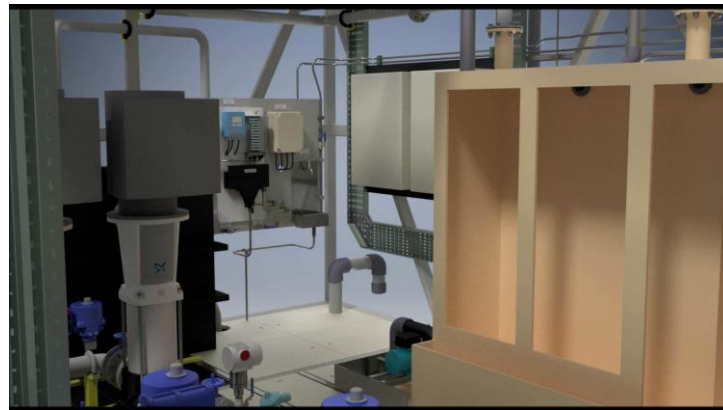
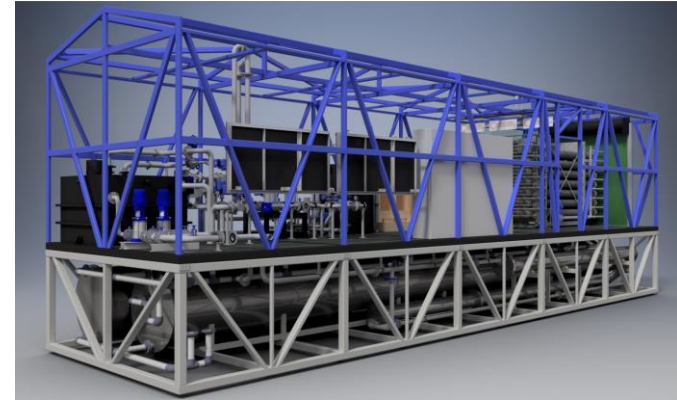
- Consistent factory build quality from continuity and reuse of 'Agile Product' designs
 - reduced environmental impact
 - cost and programme certainty
 - improved safety performance
- Full collaboration and supply chain integration
- Minimise impact on customers
 - minimal interventions to existing network.
- Customer satisfaction by 'right first time approach'



Modular Solution Development

Digital Engineering

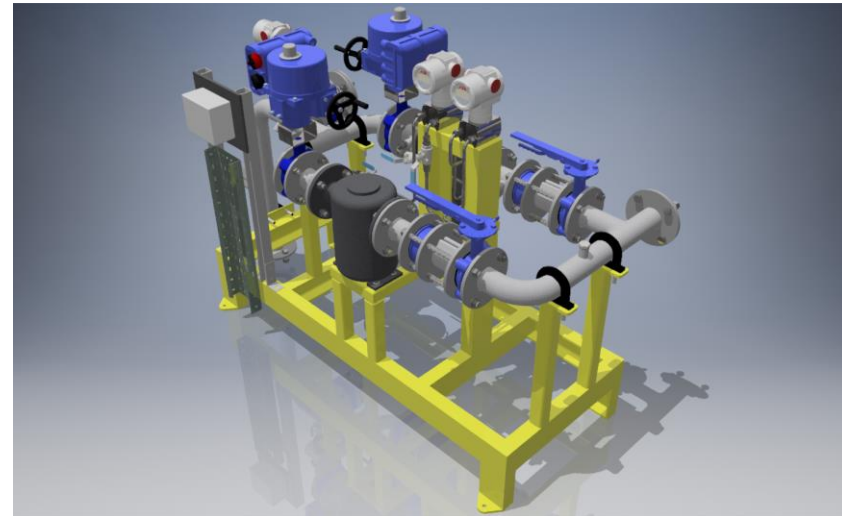
- Pre-engineering design with early client engagement and approval
 - whole building approach
 - DfMA / BIM modelling
 - full fit MEICA / building services
 - integration of traditional below ground structures
 - reusable “Agile Product” designs / assemblies



Modular Solution Development

Supply chain engagement

- Product integration to modular design
 - closer links R&D/innovation academia
 - end client engagement to embrace new technologies
 - working with supply chain in pilot plant development
 - product supplier input to overall solution
 - modularisation of product design for mass market / multiple projects



Manufacture

Offsite Modular Build

- Consistent factory build quality from continuity and reuse of design
 - industrial style manufacturing environment
 - cost and build programme certainty
 - rolling manufacturing parts inventory / procurement
 - centralised QHSE



Manufacture

Supply chain engagement

- Single point of delivery
 - maximised consolidation of deliveries into manufacturing environment
 - multi programme single delivery
 - standard inventory procedures
 - consolidated materials stock
 - JIT pick and deliver from stock
 - programme based call off



Manufacture

Offsite Modular build

- Fabrication facility with integrated engineering disciplines
 - flow through work scheduling
 - immediate access to support engineering disciplines
 - improved safety performance



Manufacture

Supply chain engagement

- Consistency through supply repeatability
 - core stream standard products
 - certified / Framework qualified suppliers
 - committed spares inventory
 - sub-assembly ordering automated to drive supplier call off



Test / Pre-commission

Offsite Modular build

- Client witnessed and collaborative testing
 - continuity of resource - build to test
 - stable testing environment
 - contamination suite sampling pre transport

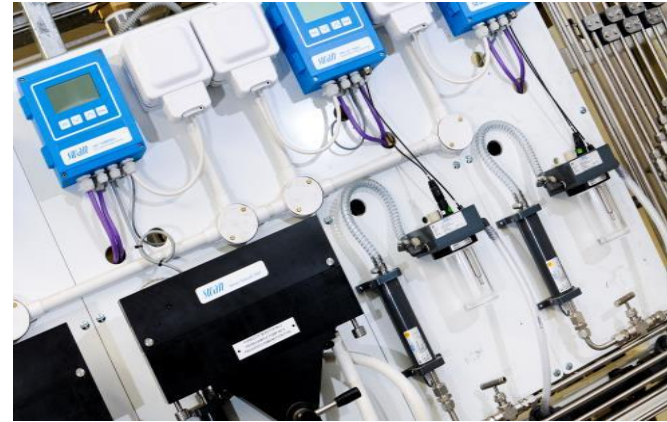


Test / Pre-commission

Supply chain engagement

- Optimised supplier attendance
 - single site for supplier support
 - FAT at manufacturing site
 - reduced need for supplier attendance at site
 - harmonised protocols for client agreed modular solutions

eg. MCC iFAT at supplier / FAT as part of complete modular solution / Removes supplier site specific testing



Delivery and installation

Offsite Modular build

- Complete systems delivered as single and multi modules
 - uncovered pipes capped and bagged
 - delivered as sealed units
 - collaborative relationship with local haulier
 - route tested for pinch points
 - escorted where necessary

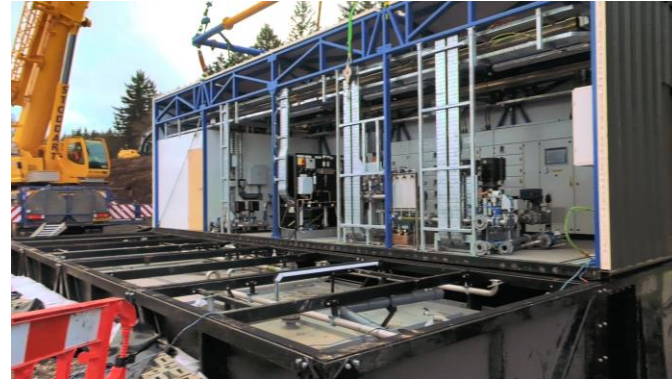
- Minimised civils, site establishment and duration
 - programme certainty / short window
 - reduced waste
 - good local neighbour



Delivery and Installation

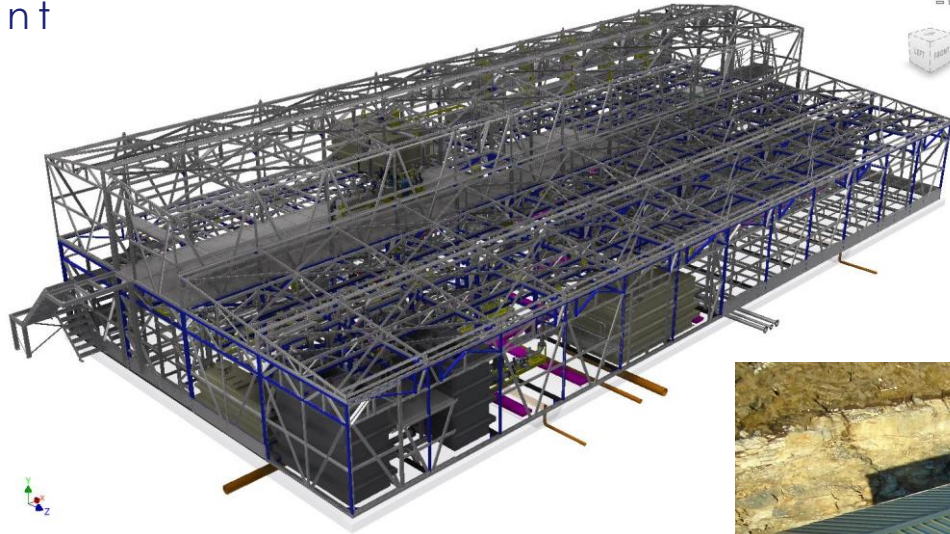
Supply chain engagement

- Dedicated logistics partner
 - logistics supplier engaged in pre planning
 - standardised and agreed lift and load parameters
 - drastically reduced different site deliveries
 - reduced supplier carbon footprint



Lochmaddy Water Treatment Works

1.3MLD Nanofiltration Plant



- ✓ 16no. 18m x 4m modules
- ✓ Full Process fit-out constructed off-site

- ✓ 35% – 45% saving in time and capex



