



Clear Well Subsea

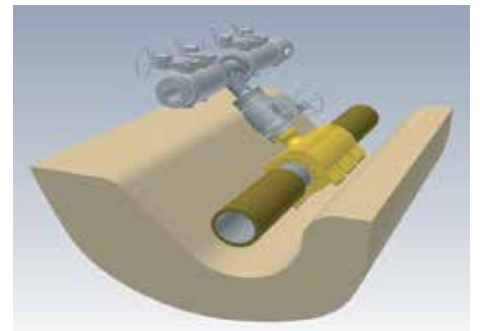
## Informed Subsea Design

## Design

### Clear Well Subsea Delivers Focused Design

Clear Well Subsea offer a comprehensive range of subsea design services from concept screening, through FEED to detailed.

CWS recognises the importance of design efficiency and selection of the appropriate design solutions based on project scale and scope and endeavours to realise efficient cost effective solutions.



### Capability

#### Process Design

- Pipeline sizing
- Steady state and transient flow analysis
- Hydraulic route analysis

#### Pipeline Design

- Route appraisal and selection
- Material selection
- Mechanical design
- Stability design
- Coating selection and CP design
- Installation Analysis

#### Riser Design

- Rigid riser and clamp design
- Flexible riser design / specification
- Flexible riser distributed buoyancy / mid water arch design
- Rigid and flexible riser fatigue assessment

#### Shore Approach and Tie-in Design

- Shore approach assessment and selection
- Shore approach design
- Tie-in system assessment and selection
- Tie-in spool design and analysis

#### Umbilical Design

- Route appraisal and selection
- Material selection
- Umbilical layout
- Stability / trenching design
- Installation Safety Reviews

#### Manifold Design

- Manifold and piping layout
- Foundation assessment
- Tie-in system selection
- Structural and foundation analysis
- Installation Analysis

### Project Experience

- Concept definition and field lay out studies
- Pipeline and umbilical route assessment and definition studies
- Front End Engineering and Design (FEED) of pipelines and umbilicals
- Front End Engineering and Design (FEED) of manifolds and protection structures

