CASE STUDY

JETTY MONITORING BUILDING REFURBISHMENT

CLIENT: CONFIDENTIAL

LOCATION: UK

HIGHLIGHTS

- **Safety Upgrades**
- **Operational & Welfare Improvements**
- **Marine-Ready Design**

THE CHALLENGE

The client contacted the Arthian team to assist with jetty monitoring refurbishment site at a significant port. However, the existing facility, constructed in 2006, faced significant operational, welfare, and safety issues:

- **Operational Inefficiencies:** Poor internal layout, restricted access, and limited visibility of loading arms and firewater monitors hindered safe and efficient operations.
- **Welfare Shortcomings:** Minimal amenities and inadequate HVAC systems led to uncomfortable conditions and pest problems.
- **Safety Risks at a COMAH Tier 1 Site:** The building lacked a gas-tight envelope, blast-rated doors and windows, and effective pressurisation. Combustible cladding posed a fire hazard, and ATEX compliance was compromised.

info@arthian.com

www.arthian.com

+44 0141 227 2300

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- **Structural Challenges:** Existing envelope and steelwork required strengthening to withstand blast loads.
- **Site Constraints:** Works had to be undertaken on an operational jetty over water, with restricted space for construction access and interaction with live process systems.
- **Documentation Issues:** As-built drawings did not match actual conditions, complicating design and planning.

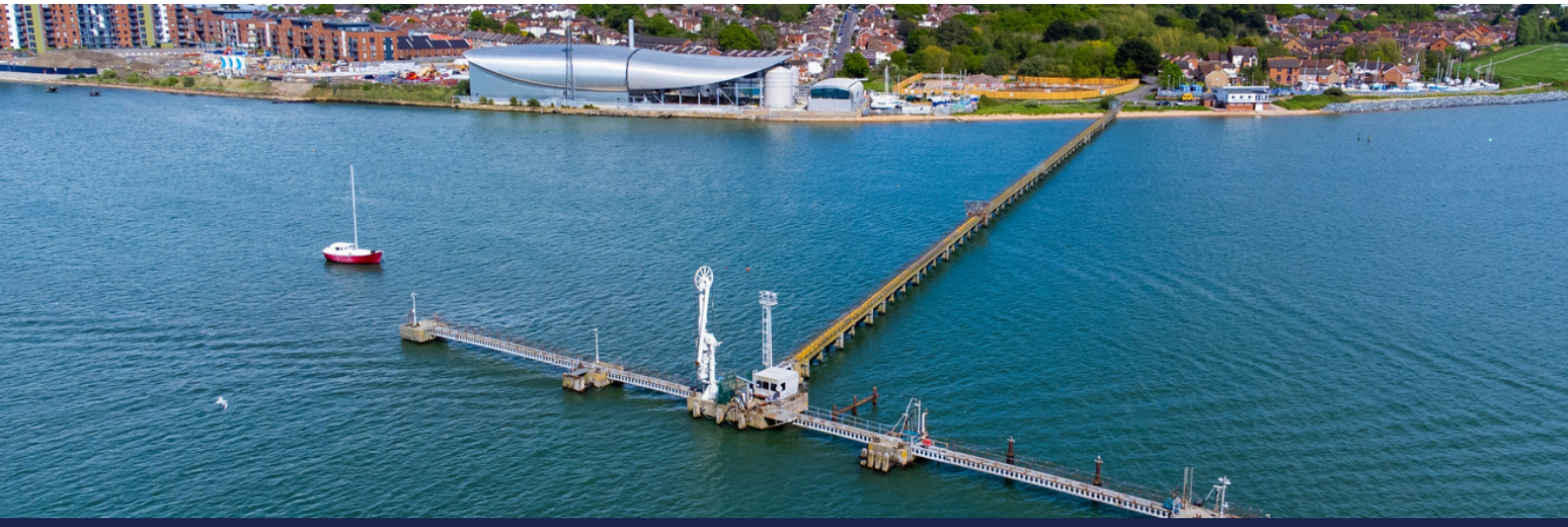
These shortcomings impacted day-to-day functionality and posed serious risks in emergency scenarios.

THE SOLUTION

Arthian delivered a comprehensive, multi-disciplinary refurbishment design to transform the JMB into a safe, efficient, and modern control centre, working alongside trusted partners Wellwood Leslie (Architecture) and Hoare Lea (Building Services).

Key elements of the solution included:

- **Safety and Compliance:**
  - Blast-resistant, fire-resistant, and gas-tight building envelope with non-combustible cladding.
  - Upgraded blast-rated doors and windows, plus a secondary escape route with airlock for shelter-in-place compliance.
  - Structural strengthening of primary and secondary steelwork to resist external blast pressures (up to 70 mbar) and thermal hazards (25 kW/m² for 30 minutes).



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THE SOLUTION, CONTINUED...

- **Mechanical & Electrical Upgrades:**
  - New HVAC system maintaining +50Pa positive pressurisation under normal operation, with safe emergency shutdown.
  - Blast, fire, and gas dampers fitted to all service penetrations.
  - Enhanced electrical systems with ATEX Zone 2-rated external equipment for compliance and durability.
- **Operational & Welfare Improvements:**
  - Reconfigured control room layout for improved ergonomics and visibility of jetty operations.
  - Upgraded welfare facilities, including WC and amenities, plus modern HVAC and lighting for comfort.
- **Structural & Architectural Enhancements:**
  - Specification and coordination of blast-resistant and gas-tight cladding, doors, and windows.
  - Design of new cantilevered steel walkway supported from the jetty structure.
  - Structural assessments to verify jetty suitability for blast loads and construction activities.
- **Design Standards & Longevity:**
  - Delivered to RIBA Stage 4, aligned with Eurocodes, British Standards, and Energy Institute guidelines.
  - Materials and finishes specified for a 30-year design life in harsh marine conditions.

Arthian also provided a costed option study at project inception, supported CDM Principal Designer duties, and continues to provide construction stage supervision.

The Result:
A robust, visually impressive jetty control centre that enhances safety, improves operator experience, and meets stringent regulatory standards.

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