



Lessons Learnt from Sustainable Port Development

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**Fostering Long Term Initiatives in Ports workshop on
INNOVATIVE PORT FINANCING – REGENERATION AND DIVERSIFICATION OF
HISTORIC INFRASTRUCTURES IN SMALL AND MEDIUM SIZED PORTS**

– Tuesday 10th December, 2013



**Royal
HaskoningDHV**
Enhancing Society Together

Lessons Learnt from Sustainable Port Development

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Sustainability in Construction

- Limits impact to environment
- Uses low impact materials;
- Final construction is energy efficient
- Reduces consumption of materials in its use
- Limits energy usage
- Provides local sustainable employment
- Is future-proofed
- Reuses materials wherever possible

The ultimate aim:

- To have the **Capacity to Endure**

Sustainable Port Construction

- **Reduced emissions**
 - Electrification, alternative fuels, renewable energy, noise reduction, dust suppression, reduced material transport
- **Reduced energy**
 - Hybrid motors, regeneration, balancing electrical phases, efficient yard planning
- **Reduced waste**
 - Dredged material for beneficial use, recycling
- **Water conservation**
 - Fire systems, rainwater collection,
 - Grey water use
- **Reduced materials**



Case Study 1: Port of Mostyn

Adapting to changing demands



Case Study 1: Port of Mostyn

- Long History of a coal, iron and timber export and import
- Modernization over the past 20 years
- Ferry terminal
- Airbus A380 wings export facility
- Offshore wind farm construction– 2003 till today
- Now an offshore wind O&M
- Infrastructure is designed for multiuse and is future proof
- Port has been rebuilt to suit new market demands



Case Study 2: Newhaven Port

Make best use of assets



Case Study 2: Newhaven Port

- Port Masterplan focussed on optimization of infrastructure
- Aspirations for a green energy centre based on historic port use
- Listed buildings planned for new uses
- Protection of beach habitat and flora
- Re-use of on site materials for future developments
- Major consultation processes carried out
- Successful transition to new use with existing infrastructure



Case Study 3: Felixstowe South Reconfiguration Sustainable New Construction



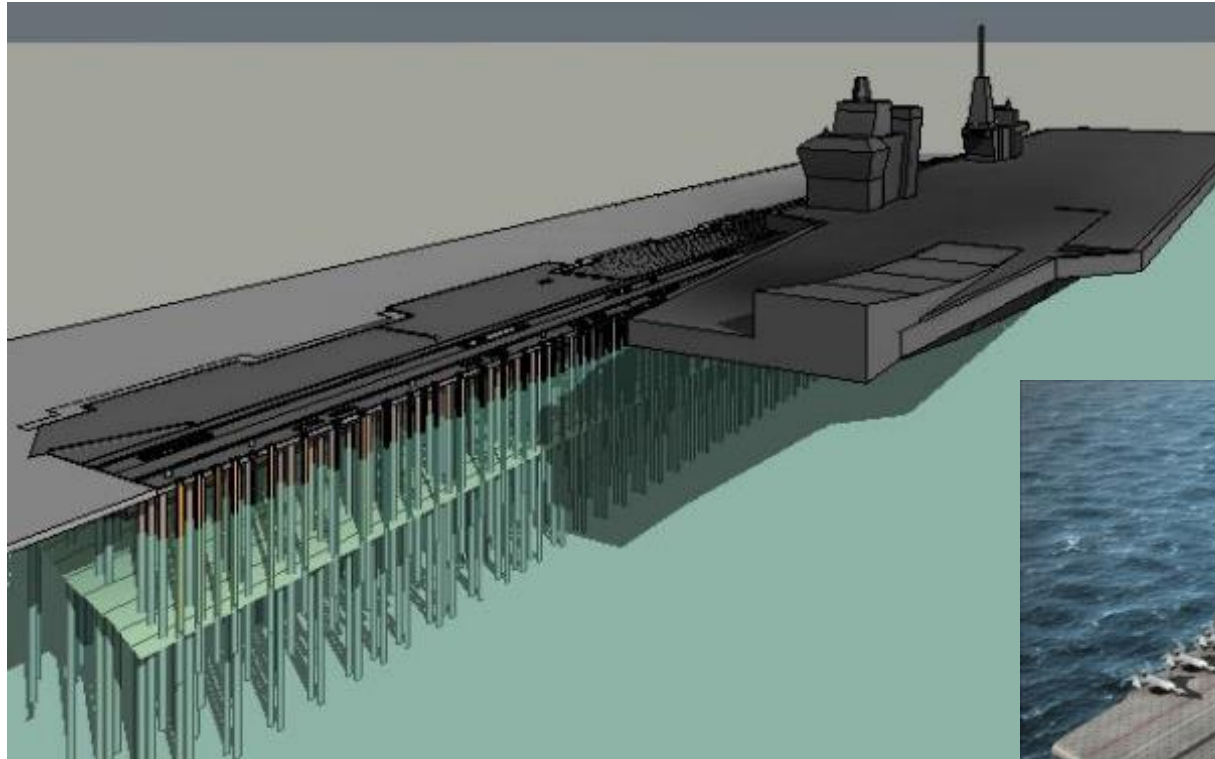
Case Study 3: Felixstowe South Reconfiguration

- Brownfield site reused and compact terminal to save fill
- Access to heritage Fort improved
- Sea water fire system investigated but fresh water tank used
- Client purchases renewable energy
- Recycled crushed concrete used in capping to fill
- Lighting designed to minimise light pollution
- Noise barriers during construction



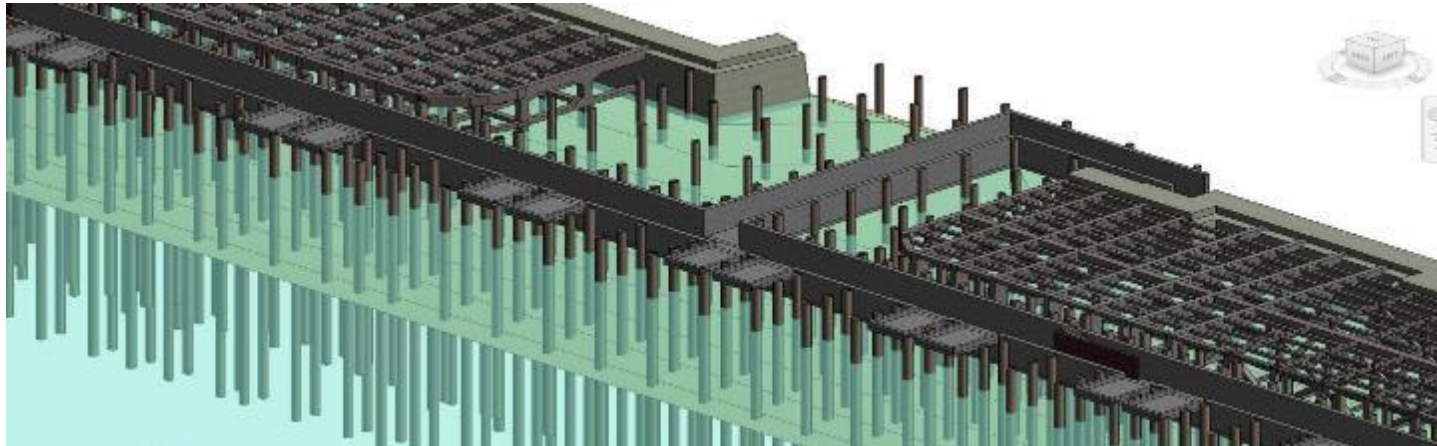
Case Study 4: Portsmouth QEC Berth

Maintain and Reuse



Case Study 4: Portsmouth QEC Berth

- Original structure built in 1920's, 1950's and 1970's
- Now required to support the 75,000t QEC
- Principal aim is to maximise capacity at an affordable price
- Proposed re-use of all 70's structure and possibly 1950's
- Use BIM to optimize construction
- Studies to determine feasibility, then use bidding process to optimize useage



Conclusion

- Sustainability in existing ports is an integral part of any regeneration or development
- The lifetime considerations at the forefront of design
- The options for re-use can be considerable
- Decisions on how to re-use or maintain needs careful investigation
- The 'rebuild' option should be the last choice
- Optimization of construction with BIM



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