



## ROAM MARINE

Z Marine Pty Ltd  
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# Curriculum Vitae

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## Mark Robert HANNAFORD

## BE Civil (1<sup>st</sup> Class Honours)

Position

Director, Z Marine

Experience

29 years

### EXPERTISE

Management of a structural design team for a major project  
Design of jetties, piling, offshore structures and pipelines  
Design of steel and concrete structures for oil and gas plants  
Engineering of loadouts, heavy lifts and temporary works  
Design for constructability

### BORN

1960

### CITIZENSHIP

Australian

### LANGUAGES

English, Indonesian (basic)

### TERTIARY EDUCATION

University of Western Australia (1978-1981)  
Bachelor of Civil Engineering  
First Class Honours

### SECONDARY EDUC.

Scotch College (1973-1977)  
Dux and Physics Exhibition

## WORK EXPERIENCE

### Z Marine Pty Ltd

#### Director

*July 10 – present*

Design of temporary works for Cape Lambert B wharf (John Holland)  
Design of tug pens for Rio at Dampier (Austral)

### Roam Pty Ltd (12years)

#### Manager Roam Marine

*Mar 10 – June 10*

Design Manager for the Wheatstone wharf tender (John Holland)

Project Manager for Watercorp piling and structural erection in Dampier.

*Nov 09 – Feb 10*

Design constructability and schedule review for DPA land backed wharf (Evans Peck)

*Dec 07 – April 09*

Seconded to Mermaid Marine as Project Managers for \$25million of marine works. Responsible for all project management, engineering, procurement and construction of the extension of the wharf and

- widening the landing barge ramp. Responsible for design and procurement of barge berth replacement
- Nov 05 – Feb 07***      Seconded to FMG to manage marine works. Responsible for design development, approvals, consultants plus award of wharf and dredging contracts. Post award Roam managed the design and construct marine contract (\$200million) and all interfaces with other contracts and FMG operations
- March 04 – Oct 05***      Design and project management of a concrete jetty with steel piles and a landing barge ramp for Mermaid Marine in Dampier
- Design and procurement of replacement fender piles for the Pilbara Iron tug pens in Dampier
- Design and install floating tug pen for Port Hedland Port Authority.
- Design and fabrication of a 320t pile test frame for Leighton Kumagai.
- Design of a T shaped piling barge with 200t crane for the Mt Henry Bridge.
- Engineering manager for the Port Hedland wharf extension.
- Preparation of assembly, loadout and lift procedures for a 350t shiploader for the Tiebaghi Jetty in New Caledonia.
- Oct 03 – March 04***      Engineering manager for the Dampier Port Authority Bulk Liquids Berth including design of temporary works and construction methods.
- Design of temporary jetty, pile welding access structures and piling frames for the Tiebaghi Jetty in New Caledonia.
- Jan 03 – Sept 03***      Engineering for numerous heavy lifts for a refinery construction in PNG
- Design and fabrication of various antenna mounts for NSW Tafe colleges
- Jan 02 – Dec 02***      Engineering for lift of a 1300t Shiploader fabricated in Brisbane lifted onto heavy lift ship, transported to site and lifted into position on the wharf. Work includes design of seafastening, lifting lugs, installation aids, bogey removal, liaison with lift contractor, fabricator, port authorities and insurers.
- Temporary works design for major wharf in Queensland including two travelling gantries for 200t tower cranes, dolphin piling gates suspended beneath the wharf, and various access platforms.
- Oct 01 – Jan 02***      Design of a subsea buoy and concrete gravity anchor for the Bayu Undan field. Buoy is lifted complete with base – total lift weight is 380t. Work included management of consultants for the geotechnical and pressure vessel design.
- Aug 01 – Sept 01***      Certification of a 400t lift of the top of a water intake tower for the Harvey Dam using stress bars and jacks at the top of the shaft.
- Oct 00 – Jul 01***      Temporary works design for Cape Lambert wharf extensions  
Feasibility study for a wharf in Port Hedland including concept

development, design basis and review of different Shiploader and wharf options.

Tendering assistance for major jetties in Darwin and Perth.

Design of temporary works and construction method statements for a major coal import wharf in Malaysia. Work included significant time at site managing interfaces with designers, construction staff, client, mechanical contractor and suppliers. Major items designed included temporary jetty, barge and crane selection and mats for a 300t crawler crane on the wharf for installation of 60t precast concrete sections.

Design of formwork & temporary works for concrete pit construction. Design of 30m span temporary bridge for 90t vehicles at Harvey dam. Review of the design of a spreadmooring for LPG vessels in Darwin including upgrade proposals.

*Sept 98 – Oct 00*

Project manager with ROAM working on marine projects jetties in Australia, Bangladesh and India, including complete design documentation, tender and construction management of LPG import jetty for Kleenheat.

Design of temporary works for Narrows Bridge duplication. Work includes lift engineering, complex access structures and fendering to protect bridge from vessel impact.

Review of pile load tests and geotechnical data for wharf extensions at Port Hedland

Project Manager for various tower, pole and guyed mast projects.

**Clough (17years)**

**Structural Engineer**

*May 98 – Aug 98*

Principal structural engineer for the Woodside Liquids Expansion project at Karratha WA

*Jan 98 – Apr 98*

Principal structural engineer on various jetty project estimates including West Coast Coal Terminal in New Zealand, LPG import jetties in Pakistan and Bangladesh, and Import/export jetties for steel mill in southern Java.

*Nov 96 – Dec 97*

Engineering manager for the Dalrymple Bay Coal Terminal, Qld. Responsible for all design of temporary works and shop drawings for the construction of coal wharf piling, conveyor structures and shiploader. The project has several challenges including a 3.7km approach trestle conveyor which has to be installed without restricting access on the existing jetty, pile driving from a small jackup in exposed conditions, and installation of the 1300t shiploader as one lift.

*Oct 96*

Design of modifications and refurbishment of a disused multiple buoy mooring in Indonesia for smaller vessels in a new orientation and loading new products. Work included catenary analysis, assessment of environmental loads, anchor capacity, pipeline stability and PLEM.

*Mar 96 - Sept 96*

Client's senior civil and structural engineer in Jakarta, Indonesia working on the concept design and budget pricing of onshore oil and gas facilities on remote coral islands for both the Mobil Madura BD project on Kambing Island and the ARCO Terang Sirasun field on Kemirian Island.

*Jul 95 - Feb 96*

Chief structural engineer with Clough Sandwell developing and pricing of wharf and stockyard options for an upgrade of Hamersley

- Iron port facilities at Dampier WA.
- Nov 94 - Jun 95** Senior structural engineer involved in support of construction and estimating activities within the Clough group, including tender coordinator for the Pagerungan C subsea pipeline for ARCO Indonesia.
- 1993 - Oct 94** Lead civil structural engineer for design and construction of the \$100 million Dhodak oil and gas plant in Pakistan. Managed a team of 6 engineers and 10 draftsmen designing civil and structural works for process plant, tankage, buildings and overland pipelines. Included 12 months on site as engineering manager.
- 1991 - 1992** Lead civil structural engineer for \$200 million design and construct oil and gas plant on Pagerungan island in Indonesia for ARCO. Managed a team of 8 engineers and 12 draftsmen designing civil and structural works for process plant, tankage, buildings harbour, airport, SPM and subsea pipeline.
- 1990** Engineering manager for Clough and author of the design procedure.  
Tender coordinator for major coal import/export jetty at Pulau Laut Indonesia  
Design of temporary works, lay stress analysis of subsea pipelines and flowlines  
Alternative design and budget costing for jetties in Sri Lanka and Indonesia  
Tender coordinator for design and construct fuels wharf for Mobil Hong Kong  
Concrete gravity platform study for WA government  
Attended oil and gas platform topside design course at Monash University  
Construction method development for large tank farm at Alcoa, WA
- 1989** Alternative design for 44 and 66 storey steel high rise buildings in Singapore  
Laystress calculations for subsea umbilical installation with reel vessel  
Chief civil engineer for PICL petrochemical plant at Kwinana WA, prior to cancellation of the project early in construction phase  
Estimate and feasibility study of alternative oil import facilities and service jetty at Dampier WA for Hamersley Iron  
Design of 600t remedial jacking system for installation of Challis floating oil producing vessel for BHP petroleum  
Estimate of 250,000 DWT berthing dolphin replacement cost for Robe, WA
- 1988** Design of roll on roll off facility for MOF wharf Dampier WA  
Piled raft foundation design for 42 storey QV1 building, Perth WA  
Tender preparation for conductor installation at Woodside offshore platform  
Design of steel and concrete coal export wharf structures for KPC Indonesia

- Preparation of design control procedure for Clough
- Tender preparation for 30" subsea pipeline design for Woodside WA
- Design of reinforced concrete and limestone residence on steep site, Perth
- Concept design and budget pricing of jetties in Dampier and Kwinana, WA
- Laystress calculations for 6" and 20" subsea pipelines for Bond Oil, WA and Iagifu New Guinea
- Tender preparation for Wapet Saladin offshore platforms, WA
- Suspended formwork design for Esperance wharf construction
- 1987** Design of building structures for Rhone Poulenc rare earth plant, Pinjarra, WA
- Structural engineer for Woodside LNG jetty at Dampier WA, on site designing temporary works and redesign permanent works.
- 1986** Design of transport system for insulated pipe including testing dynamic vibrations
- Jetty design and construction for Ocean Shipyards, WA
- Design and tender proposals for various marina projects, WA
- Tender preparation for Harriet B + C offshore platforms for Bond Oil, WA
- 1985** Design and construction of Harriet A offshore platform for Bond Oil, WA
- Clough representative in Bechtel San Francisco design office
  - Responsible for temporary works and crane lift engineering at fab yard
  - Seafastening, offshore lifting and installation aid design
  - Structural analysis of the 1560t offshore deck lift
  - Engineering of the loadout of structures with platform trailers
- 1984** Design of jack lifting system for 600t Perth airport control tower and 2000t Yokine water tower, WA
- Preliminary design of concrete gravity platform for Bond Oil
- Incremental launch bridge design
- Design of concrete and steel school and hotel structures
- Design and pricing options to upgrade dolphins for 250,000 DWT iron ore berth
- Laystress calculations for subsea pipelines for ARCO, Indonesia
- Critical path network programmer for industrial building project
- Prestressed concrete design of spun power poles
- Catenary cable sag calculations allowing for temperature & elasticity
- 1983** Project manager for overland water pipeline construction, Shay Gap, WA
- Assisted in design and tendering of various concrete and prestressed projects

**1982**

Design of shallow water offshore structures for Wesminco, WA

Structural design engineer for Stony Point oil terminal for Santos, SA

- Site engineer for temporary works design
  - Design of concrete and steel jetty and building structures
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