

Port of Mackay Infrastructure Development

Tug Berth Relocation Design & Construct

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14 March 2022

Project Background



- Relocate tug berth from Mackay Marina to adjacent Wharf 5 eastern approach
- Accommodate 2x tugs
- 35m long pontoon
- Pilot boat platform and mooring pile
- Design & Construct procurement
- Tender called February 2018
- Re-tender called October 2020
- Award: January 2021
- Anticipated completion: Q2 2022



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Jacobs

Technical Advisor



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Civil Works Designer



Pontoon Designer

- [illegible]

General Arrangement Plan
Scale 1:200

Civil Works Design

Design Vessels – Tug Boat



© Smit Lamnalco

Damen ASD3212

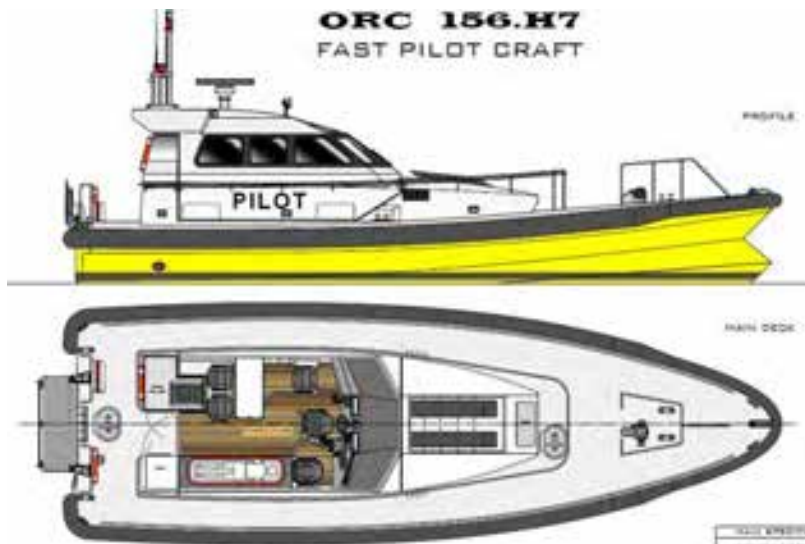


© Damen

Element	Bollard Pull Capacity (tonnes)	Length (LOA) (m)	Beam (m)	Draught (m)	Displacement (tonnes)
SL Botany / SL Hunter	54	29	9.5	3.8	420
ASD 3212	82 (ahead) 75 (astern)	32.70	12.82	5.90	850

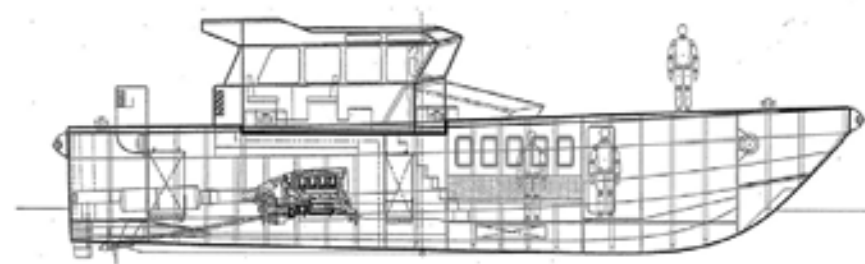
Civil Works Design

Design Vessels – Pilot Boat



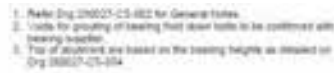
LOA = 16.05m
B = 5.43m
D = 1.5m
Displacement = 24t

Shaula



LOA = 16.1m
B = 5.5m
D = 1.5m
Displacement = 24t

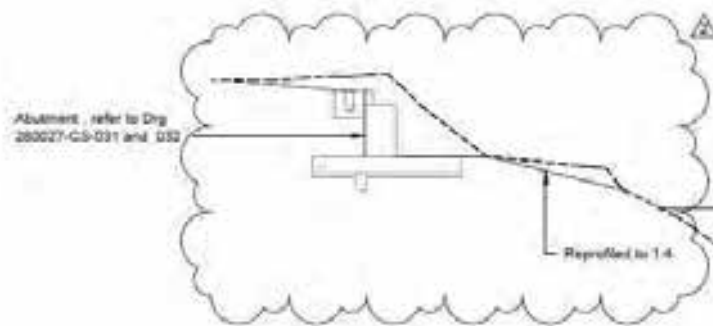
PLATE NUMBER: none 2000
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Abutment – rock armour stability berm



Rock armour grading requirements:

Mminimum (t)	M15 (t)	M50 (t)	M85 (t)	Mmaximum (t)
0.5	1.0	2.0	3.0	4.0



Nominal 3.5m
8.0m LAT

1.5
1.0

2700
9.0m LAT

Existing breakwater
rock face

Proposed stability
berm rock armour

Rock armour, refer Supplementary Specification
and General Notes for grading and details

HAT +6.58m

MHWS +5.25m

MHWN +4.02m

MSL +3.02m

MLWN +1.96m

MLWS 0.74m

LAT 0.00m

Section



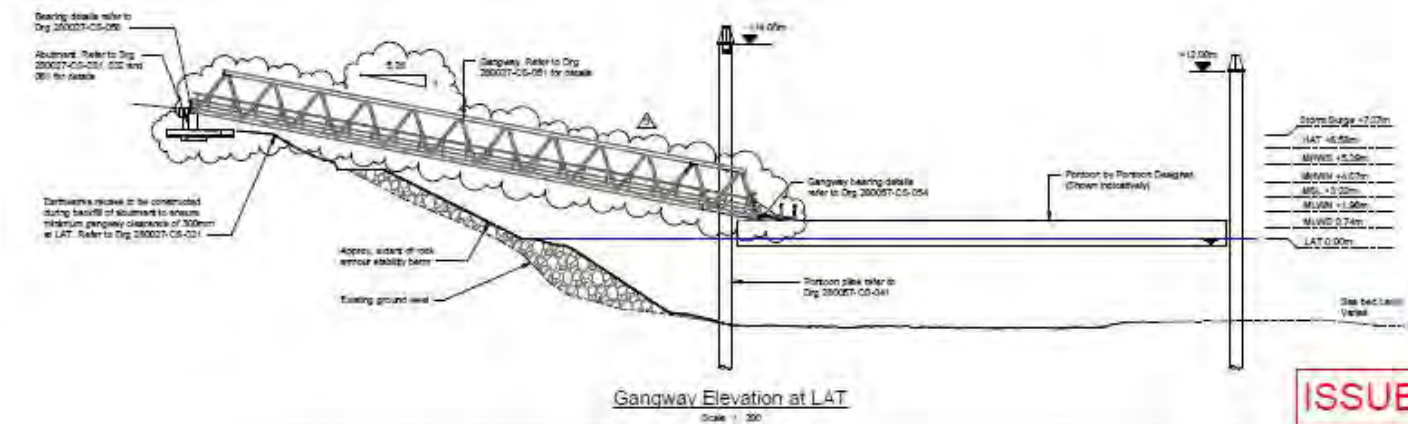
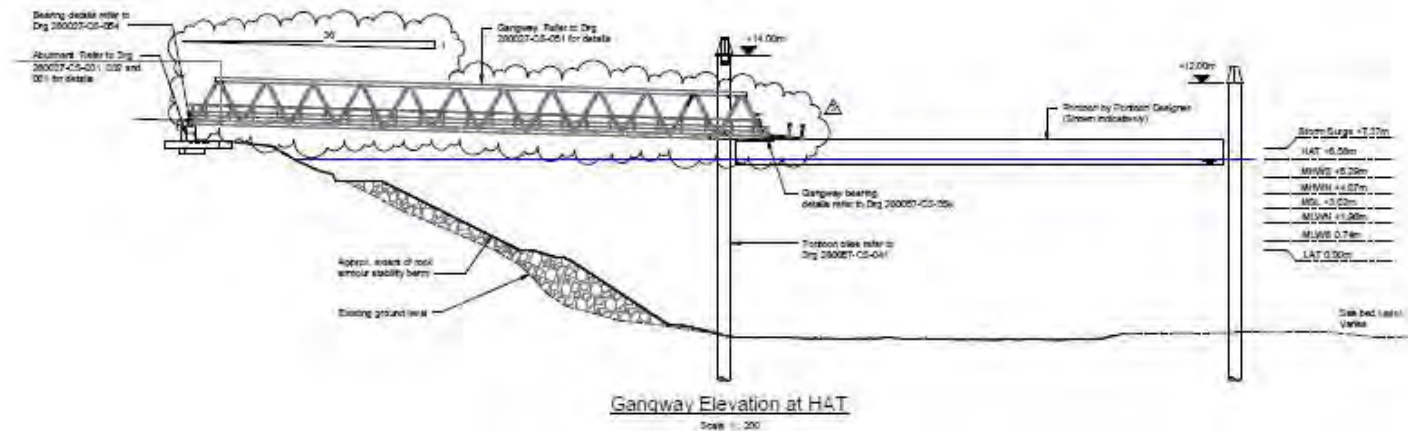
Scale 1:100

CS-021

Stability Berm Typical Section

Civil Works Design

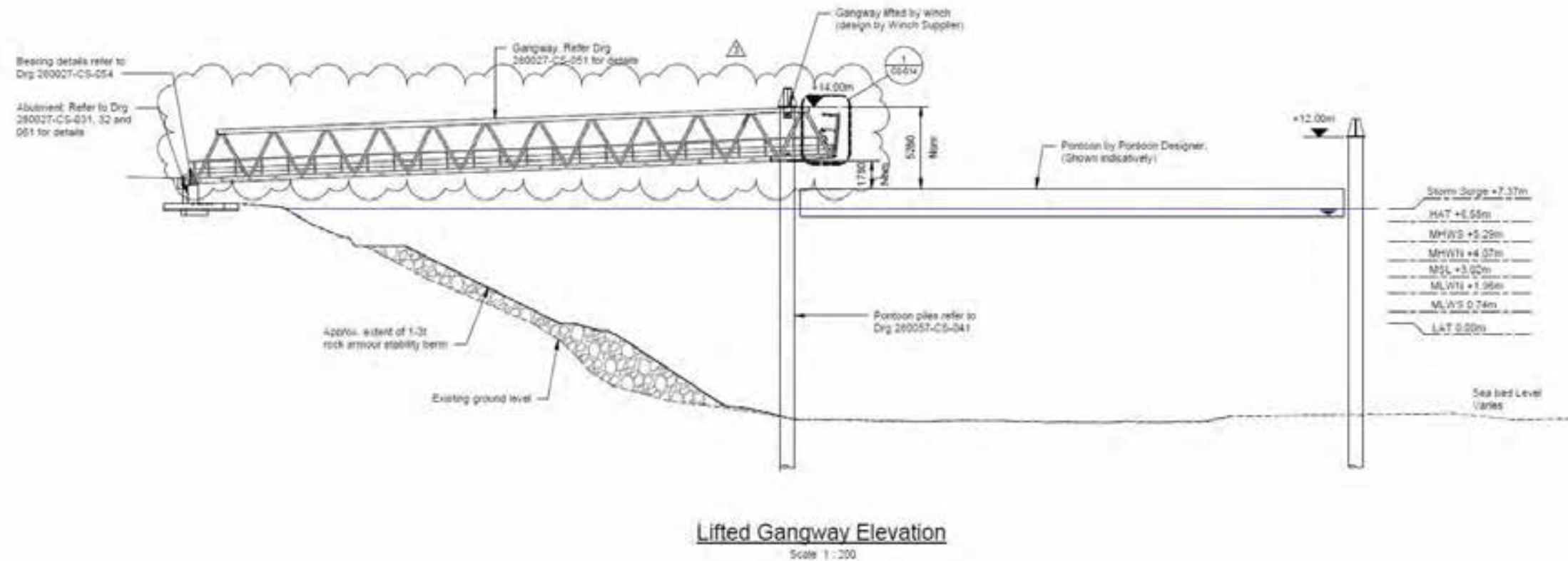
Gangway



ISSUED

Civil Works Design

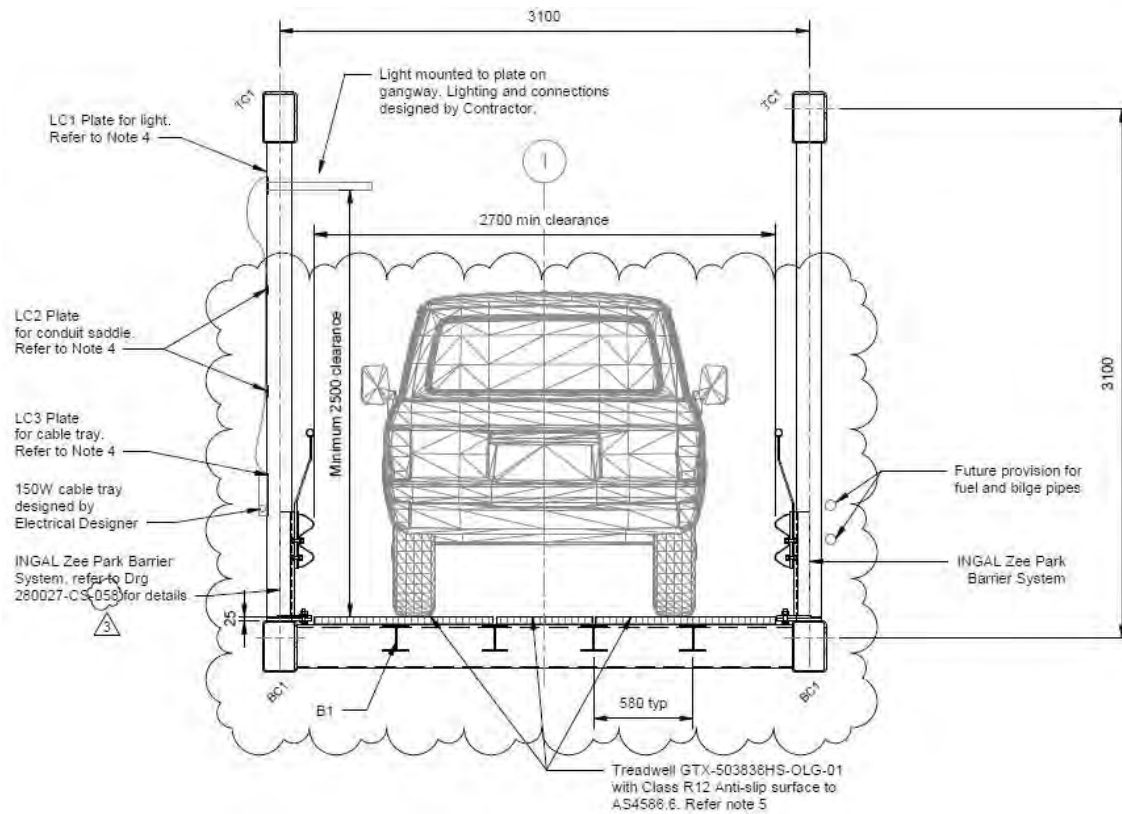
Gangway



Civil Works Design

Gangway

Loading:
3.5t GVM vehicle
3kPA UDL



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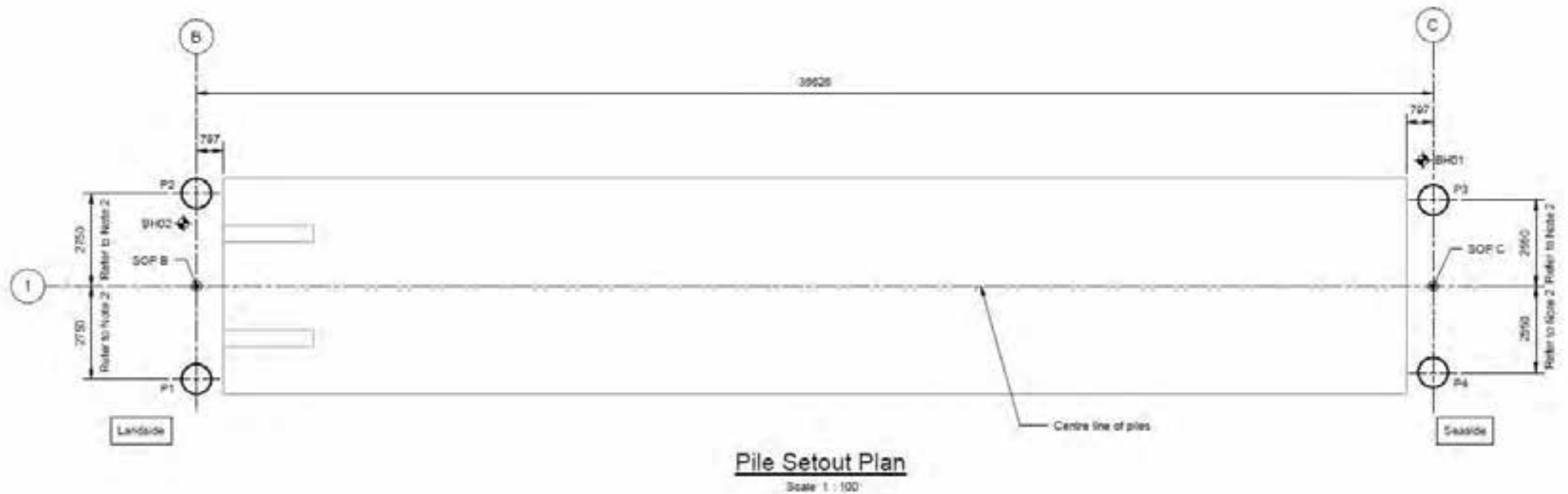
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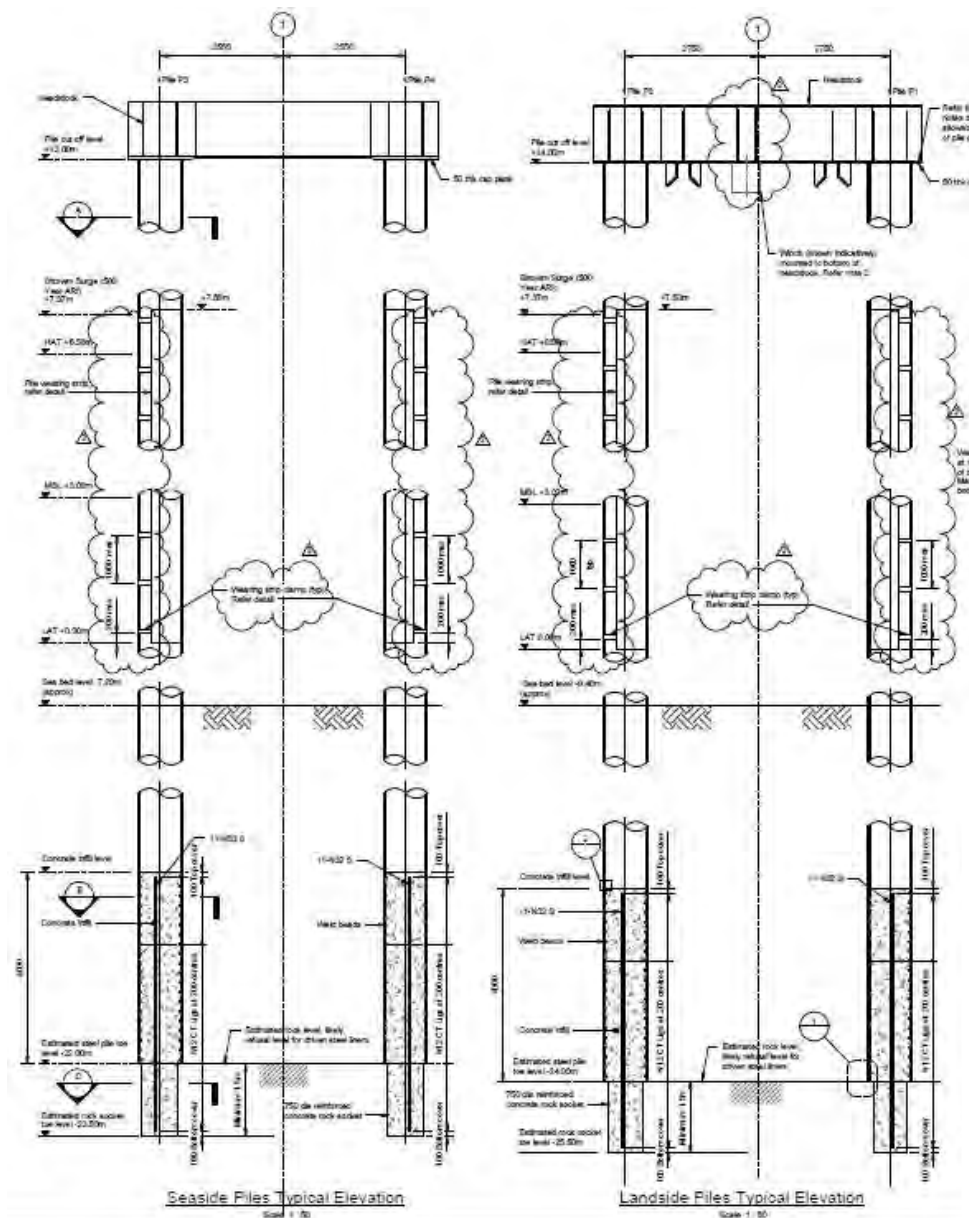




Civil Works Design

Piles - Arrangement



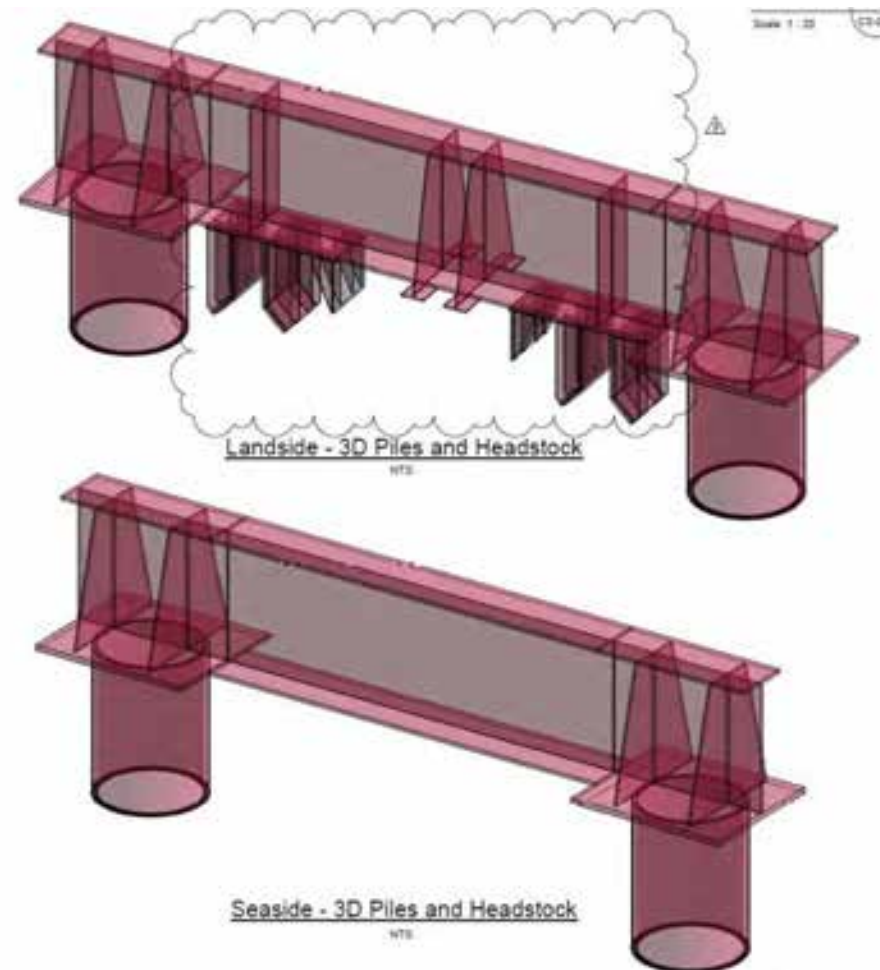


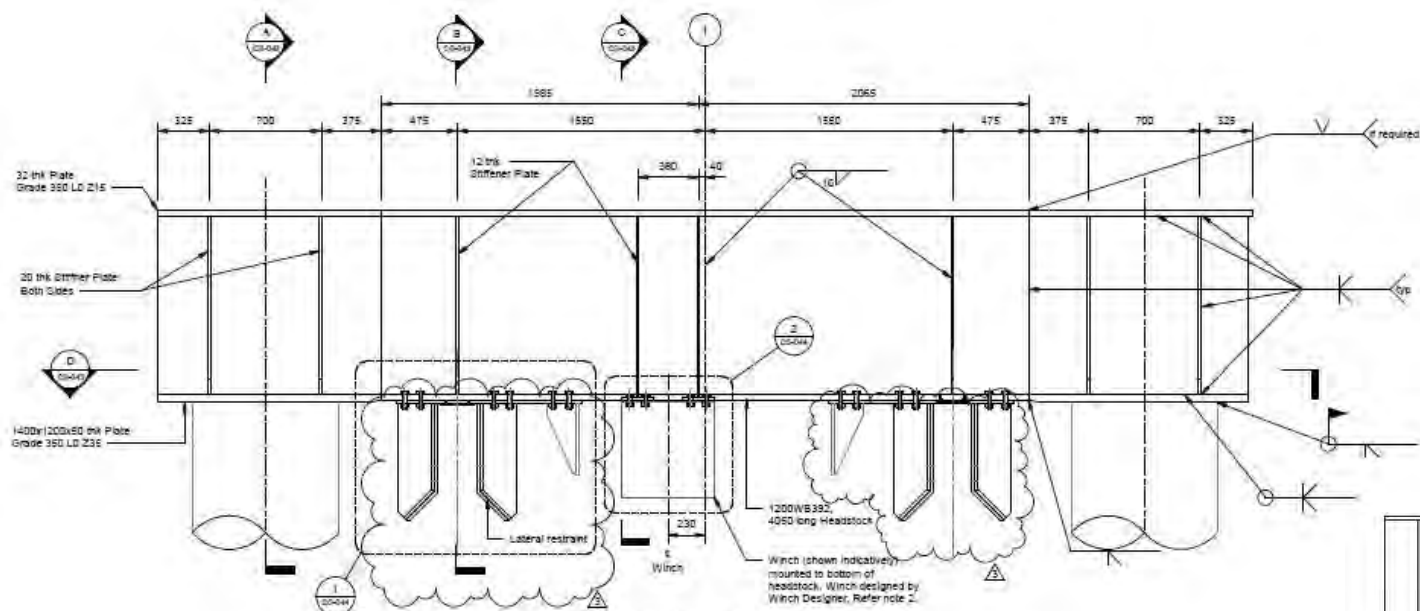




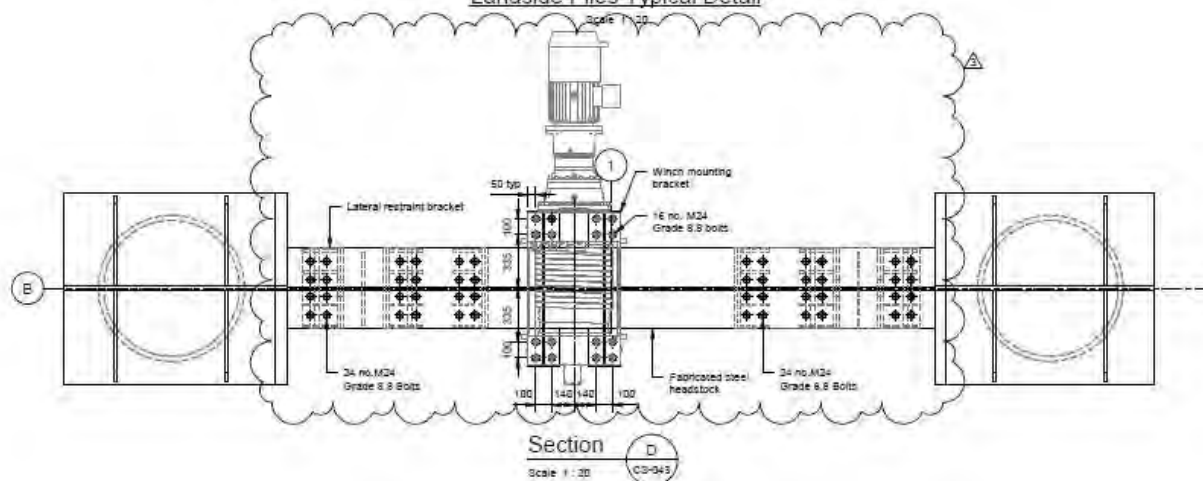
Civil Works Design

Piles - Headstock



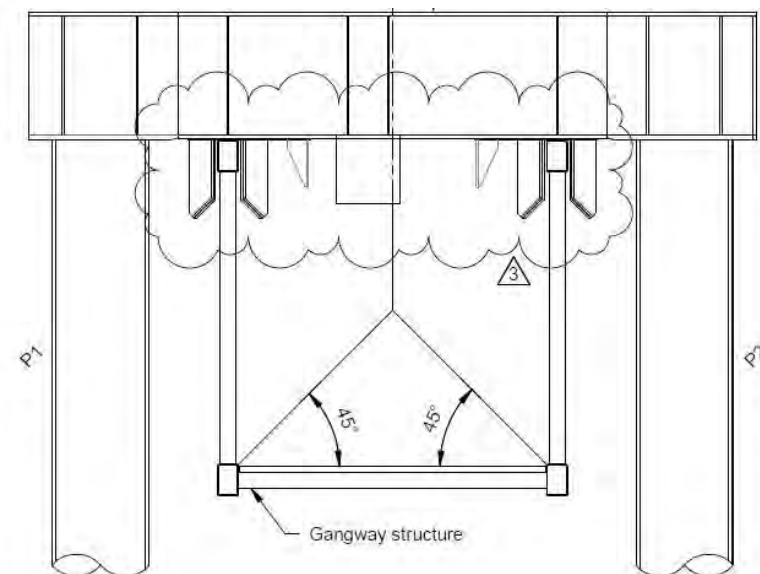


Landside Piles Typical Detail



Section

Scale 1:20



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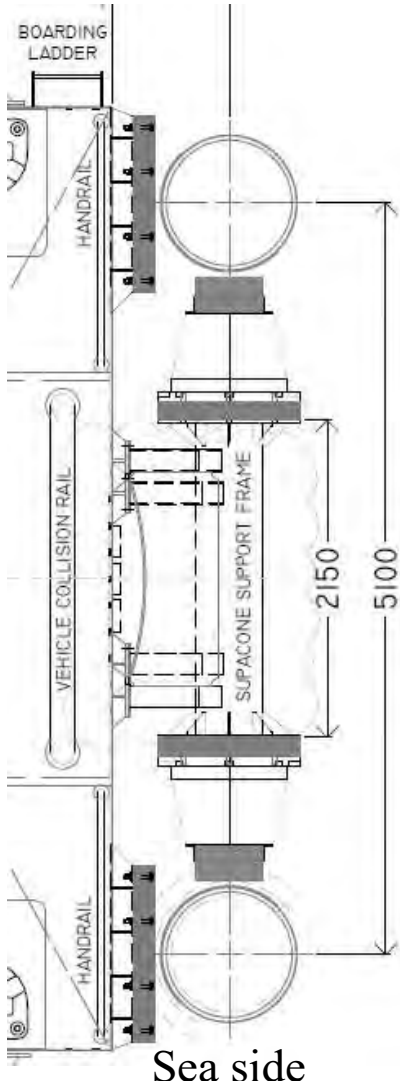
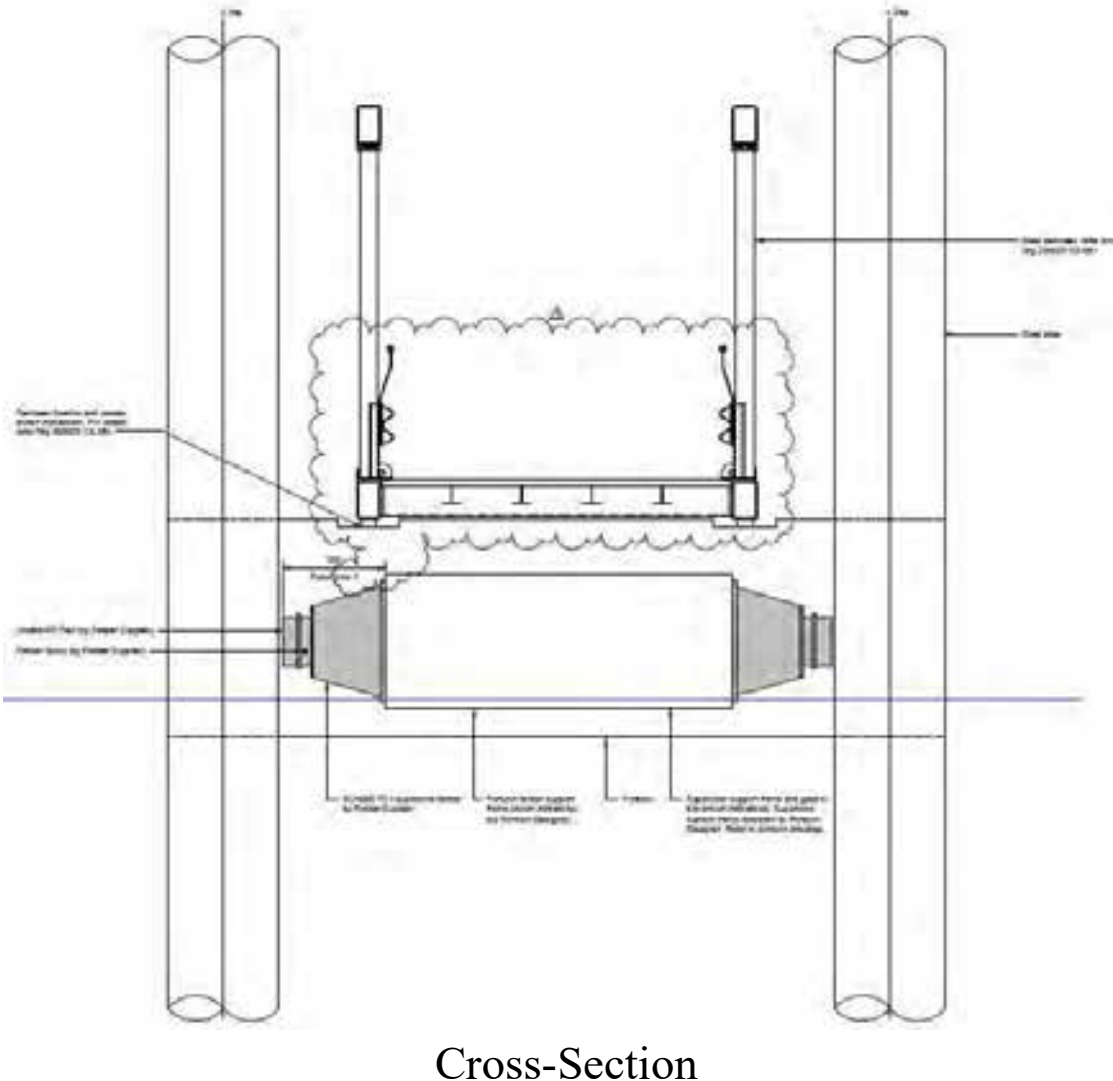
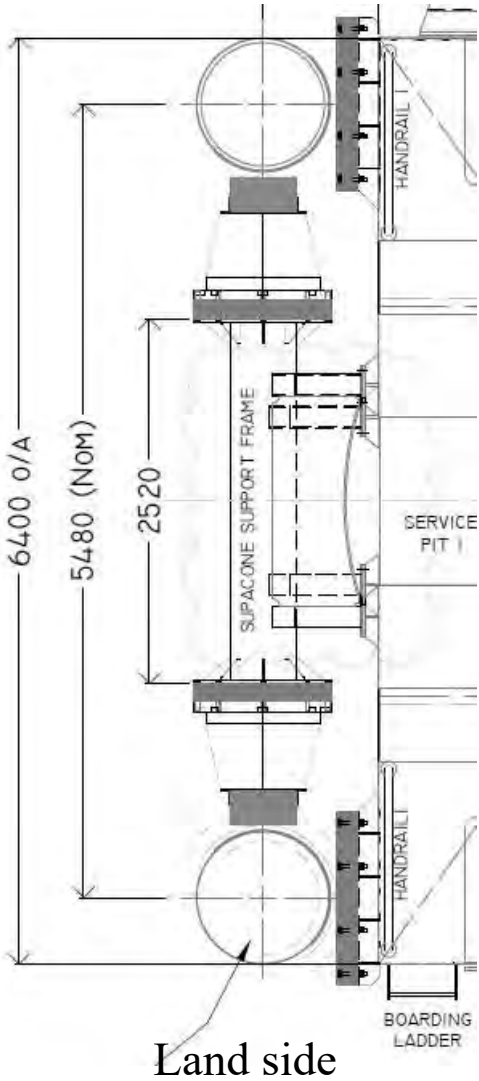
Civil Works Design

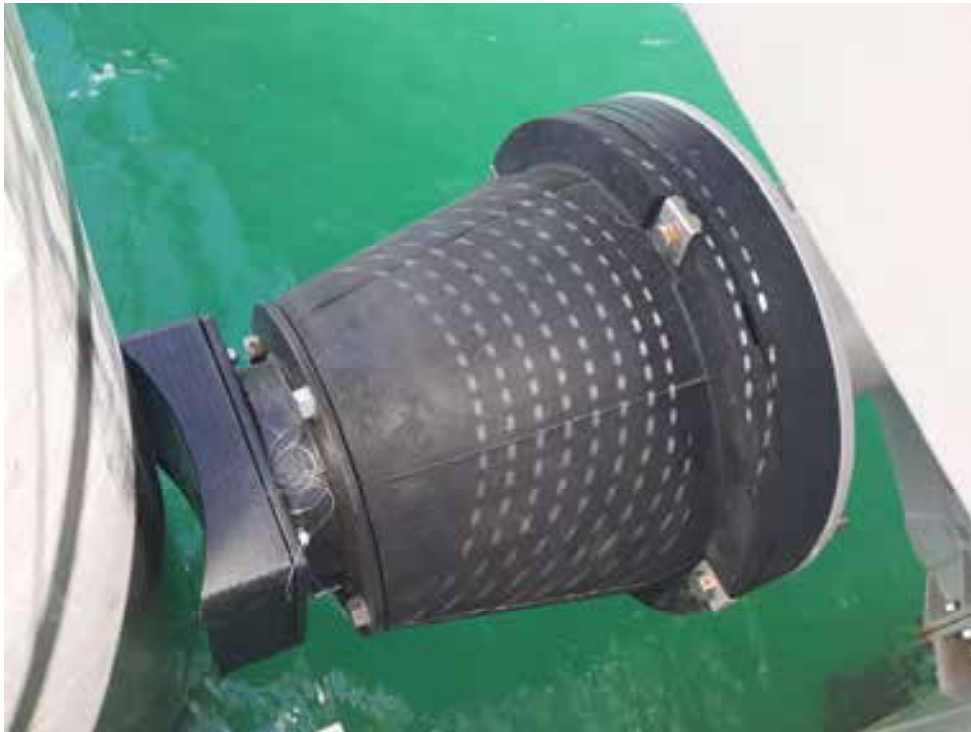
Fenders

- Pile fenders: Supercone SCN600 F2.4
- Pontoon fenders: ANP 250

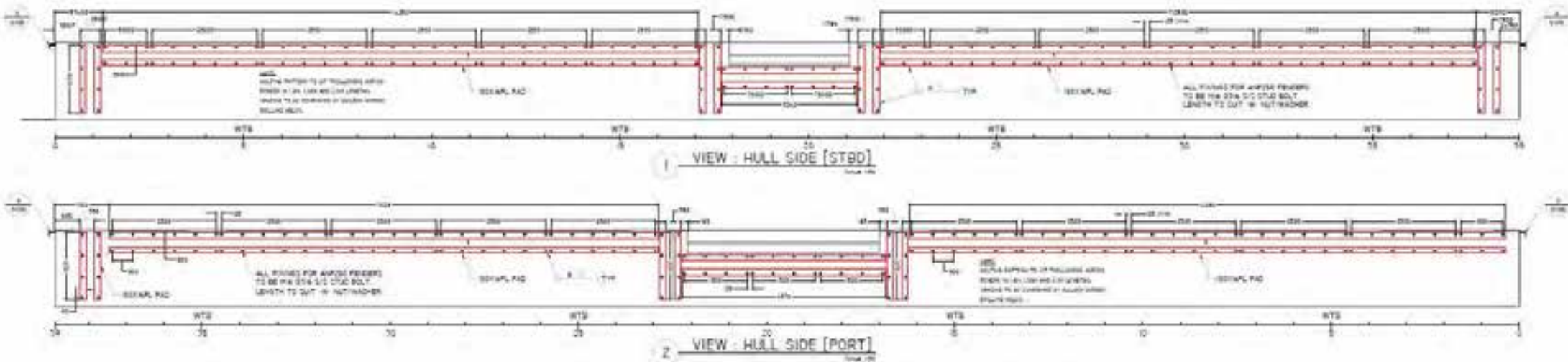
Pile fender arrangement

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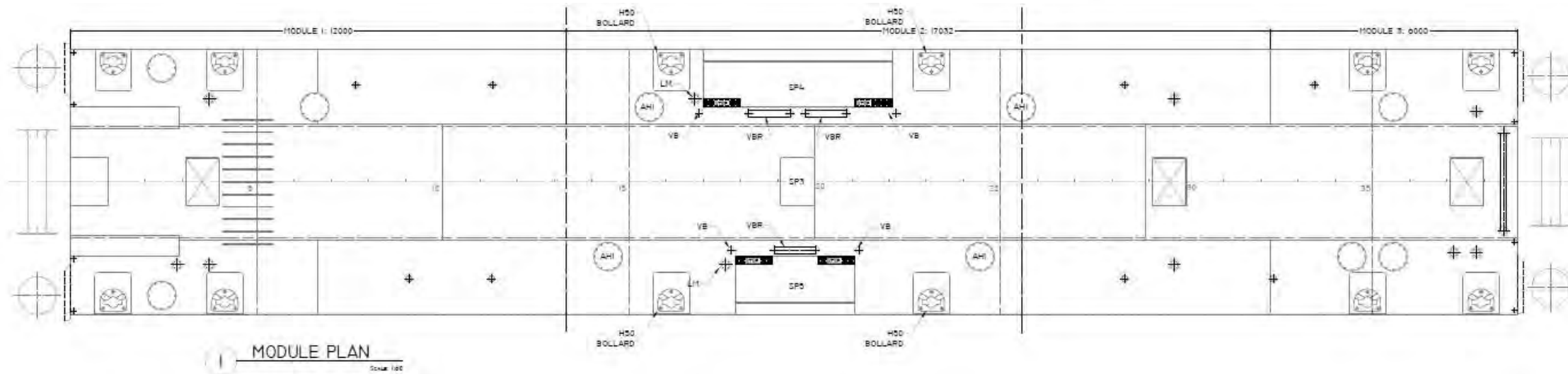
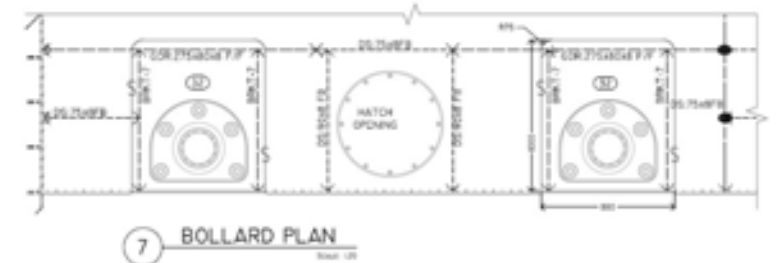
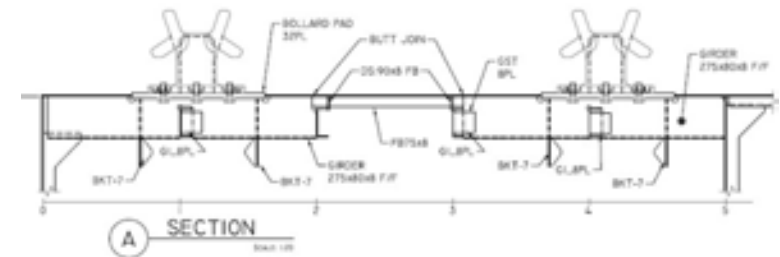
ANP 250 fenders on pontoon hull



Civil Works Design

Bollards

- 50t horn bollards



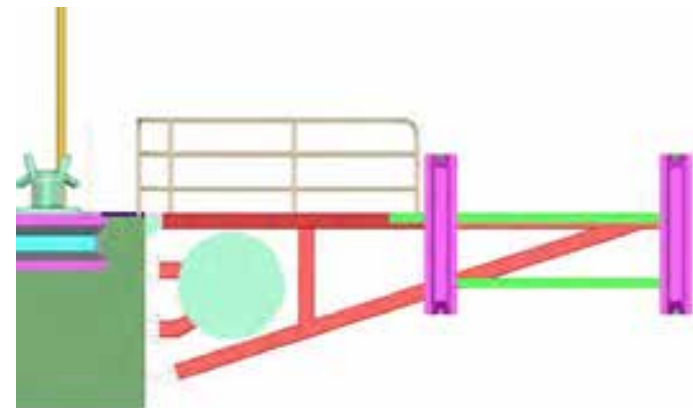
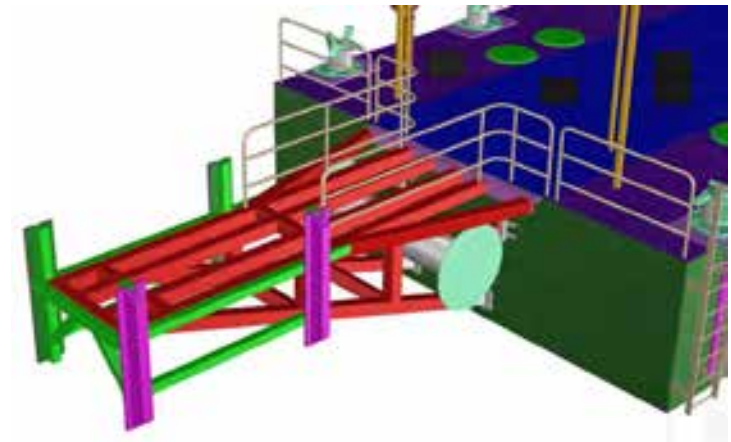
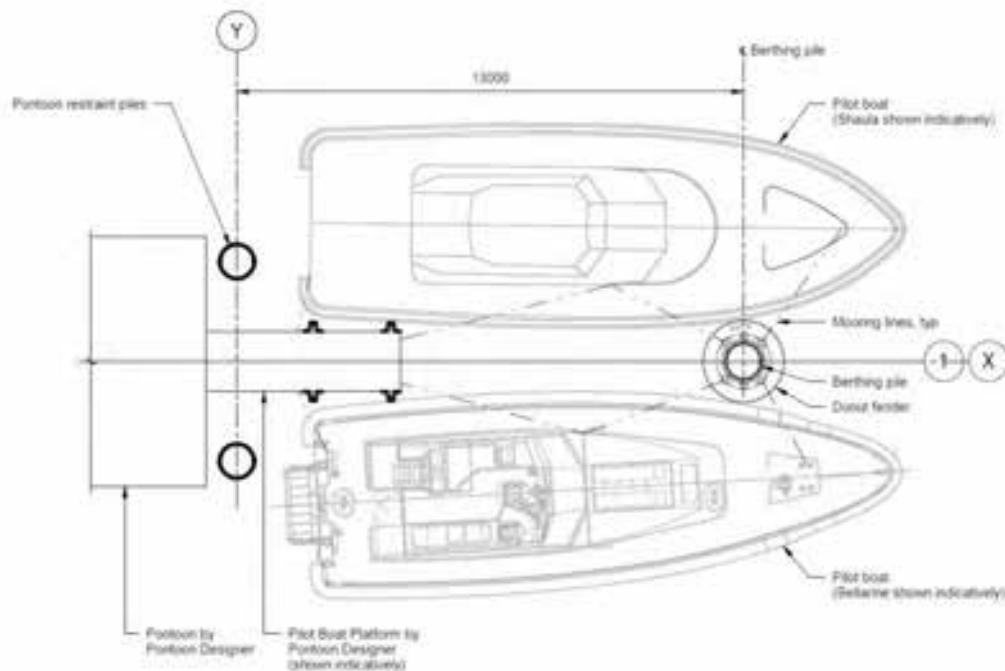
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Pilot Boat Platform

- Platform designed by NAA
- Mooring pile and fenders designed by Arup



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