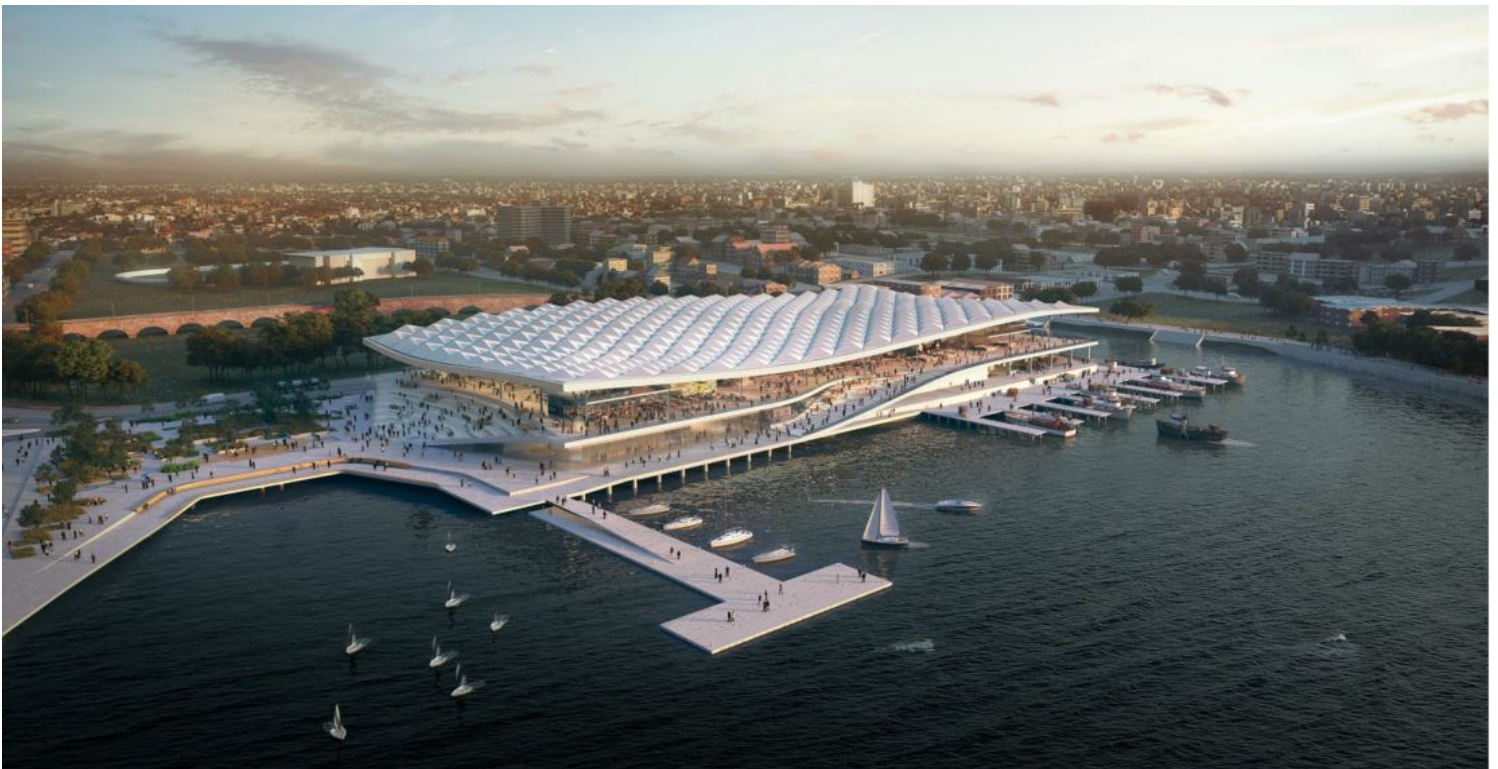


MULTIPLY

CONSTRUCTION VESSEL TRAFFIC MANAGEMENT PLAN

New Sydney Fish Market – Piling Operations for Main Works



Multiplex Constructions Pty Limited

L22, 135 King St
Sydney, NSW 2000
Australia
T: +61 2 9322 2000
F: +61 2 9322 2001

multiplex.global

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1. Introduction

1.1 Purpose and Scope

The purpose of this plan is to manage marine traffic risks associated piling works for the new Sydney Fish Markets construction at Blackwattle Bay, Glebe, Sydney.

The scope of the plan includes the following:

- The work site at Blackwattle Bay, Glebe and Pyrmont.
- Multiplex Constructions: principal contractor to NSW State Government.
- SMC Marine: sub-contractor to Multiplex for the marine piling works.
- Ausbarge Marine Services: tug and barge services
- Key stakeholders: Port Authority of NSW and Roads and Maritime Services.
- Barge SMC 2.
- Various Dumb barges.
- Tug and barge transport between Project Laydown Area at Glebe Island and Blackwattle Bay.
- Aus chart 202.

The plan when approved by Port Authority of NSW becomes the primary document that SMC Marine will use to manage marine transport and mooring for the works.

1.2 Document Control

This Plan will be monitored and necessary changes will be identified in the table over the page and communicated to all relevant personnel. Amendments and updates to this Management Plan will be made if the strategies and actions described in the plan no longer meet desired outcomes, or if improvements to existing measures can be made.

Electronic distribution of this Plan will be made to those detailed on the distribution listing on Aconex.

REVISION	DATE	DESCRIPTION	PREPARED BY	APPROVED BY
1	3/2/2021	Construction Vessel Traffic Management Plan	MF	CH

2. Description of Works

2.1 Development Consent

Approval for the project has been granted by the NSW Minister for Planning & Public Spaces on 12 June 2020 under the Planning System Acceleration Program, application number SSD-8925. The project is classified as State Significant Development.

This Marine Traffic Management Plan is consistent with the following:

- *Clause 67ZN of Ports and Maritime Administration Regulation*
- *New Sydney Fish Market Stage 2 Main Works Navigation Impact Assessment: Royal Haskoning DHV, 03 December 2020.*

SMC Marine has also prepared an environmental management plan for the marine piling works. Refer to *SMC CEMP New Sydney Fish Markets Piling Operations*.

2.2 Silt Curtain Installation

A silt curtain between 1- 6 m depth (as consistent with bathymetry and to keep clear of the bottom) will be installed around the construction area at the east of Blackwattle Bay. The curtain will also serve as an exclusion zone boundary for the construction area, in addition to sediment containment.

The curtain will be anchored to temporary piles and/ or mooring blocks installed around the perimeter with 2NM flashing yellow lights attached to the piles and / or to special marker buoys on the surface. The curtain will feature a gate to allow passage of vessels.

Refer to Appendix 3 for the proposed arrangement of the silt curtain / exclusion zone. Final arrangement of the silt curtain will be confirmed prior to commencement on site.

2.3 Marine Piling

Piles will be delivered to and unloaded at Glebe Island by ship and stored in a temporary pipe yard until required for installation. Multiplex will obtain permits from PANSW for this purpose.

Eight test piles are planned to be installed in March. Piling will then stop and recommence in early to May 2021. Piling is then expected to take up to two years with approximately 460 piles to be installed of varying length and diameter. Refer to Appendix 1 for the site concept plan and pile general arrangement.

The piles will be loaded by either crane barge LC20, Intan barge or a land based crawler crane from Glebe Island on to supply barges and transported by tug to Blackwattle Bay as required.

The crane/ piling barges LC20 and SMC 2 and the barge Intan with a crawler crane lashed to the deck will be used at various times for installation at Blackwattle Bay. Piles will mostly be installed by either hammering or vibrating depending on the site conditions. Pile installation may take place with up to three piling / crane barges working simultaneously.

Pile anchors may be installed inside certain piles as a contingency in instances where tension capacity is not achieved by the driven piles. Refer to *AW Maritime Drawing 3524-S308 Tension Anchor Details*.

Hours of work for marine traffic purposes are 06:00 to 18:00 Monday – Friday and 06:00 - 14:00 Saturday.

Safety aspects of the piling operations are documented in the *SMC WHS Management Plan New Sydney Fish Markets Piling Operations*.

3. Vehicle Particulars

All tugs and barges have current certificates of survey. Tugs and barges will operate under their individual safety management systems (SMS). Crane barges will also operate according to Exemption 41 category 3 and supply barges category 2.

Note: subject to change based on operational requirements at the time, however like for like tugs will be used.

3.1 Tug: Arana

Role: Transport barge to and from site. Barge movements on site as required. Refer to *Ausbarge SMS Tug Arana* for SMS details.



LOA	14.8 m
Depth	3.0 m
Breadth	6.5 m
Tonnage	79 t
Bollard Pull	10.38 t
Fuel capacity	22 m ³
Survey	2C
Vessel ID	31366QC
Propulsion	Twin Screw fixed nozzles design speed 10 knots
Main Engines	2 x Yanmar 6HA2M - WDT
Genset	2 x Yanmar
Communication	VHF, HF, UHF
Navigation	GPS, Compass

3.2 Tug: HT Saipan

Role: Transport barge to and from site. Barge movements on site as required. Refer to *Ausbarge SMS HT Saipan* for SMS system details.



LOA	16.0 m
Depth	2.9 m
Breadth	6.0 m
Tonnage	70 t
Bollard Pull	14 t
Fuel capacity	20 m ³
Survey	2C
Vessel ID	31173QC
Propulsion	Twin Screw fixed nozzles design speed 10 knots
Main Engines	2 x Volvo D12-500
Genset	Perkins 422T
Communication	VHF, HF, UHF
Navigation	GPS, Compass

3.3 Piling and Crane Barge: LC20

Role: lifting operations and pile installation. Refer to *SMC Marine SMS Barge LC 20* for SMS details.

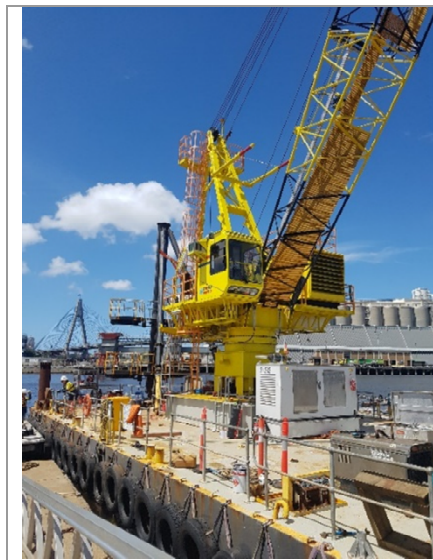
Vessel Name	LC 20
Vessel Type	Barge
Year Built	1981 Steelmains Pty Ltd, Hobart Tasmania
Construction	Steel with water tight bulkheads: 1 x longitudinal / 4 x athwartships.
Flag	Australia
Port of Registry	Sydney
Official no	855826
Classification Society	American Bureau of Shipping (ABS)
Class	A1 (ABS)
Class Number	8123763 (ABS)
Survey	2A
LOA	33.3 m
Max breadth	16.3 m
Moulded depth amidships	2.4 m



Load Line	1040 mm
GRT	342 t
Deadweight	308 t
Displacement	713 t
Deck Capacity	10 t / m ²
Mooring System	Two 762 mm x 24 m spuds port side. 4 point: 12 t hydraulic winches with 1.5 t anchors and 28 mm FSWR
Crane	Favelle/ Favco 50 t SWL with 41. 2 m lattice boom. Vessel mounted on pedestal. 400 kW diesel hydraulic powerpack. Weight 68 t
Generator	78 kW Caterpillar diesel
Fuel Capacity	4700 L (3.9 t at 0.83 SG)
Electrical	240 / 415 V
Fresh Water	4700 L (4.7 t at 1.0 SG)
Ballast	2 x 5690 L tanks aft P & S (56.9 t FW / 58.32 t SW)

3.4 Piling and Crane Barge: SMC 2

Role: lifting operations and pile installation. Refer to *SMC Marine SMS Barges* for SMS details.




LOA	24.2 m
Breadth	12.3
Depth	2.10
Survey	2E
Vessel ID	24282
Deck capacity	10 t m ²
Crane	Favell Favco 5/10 K 20 t with 27.4 m lattice boom
Mooring System	4 x 600 mm x 24 m spuds (deployed by crane) 4 point anchor / winch system

3.5 Crane Barge: Intan


Role: Piling with Crawler Crane on Deck and / or Pile Loading

LOA	54.86 m
Breadth:	18.29 m
Depth:	3.05 m
Survey	2A
Identifying Number:	860954
Deck capacity:	10 t sq/m
Crane	250 t Leibherr crawler crane

	Mooring System	3 x spuds and 4 point anchor system
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3.6 Supply Barge (Example)

Role: Delivery of piles to site

	LOA	27 m
	Breadth	12.0 m
	Depth	2.10 m
	Survey	2D
	Vessel ID	Various
	Deck capacity	10 t sq/m

4. Mobilisation and Demobilisation

Mobilisation will consist of daily transport (work days) of crane barges and supply barges by tug between Glebe Island and the Blackwattle Bay construction site adjacent to Bridge Rd, Glebe. Between one and three barge movements is expected on any given work day. Barge transport will be timed to avoid shipping movements at Glebe Island.

Approximately one week of test piling will be undertaken in March 2021. Piling will then stop until May when installation of the 460 piles will commence and continue for approximately two years.

A schedule of daily departures and arrivals is not possible to determine due to variables such as site conditions for piling, weather conditions, the Glebe Island shipping schedule, and other construction activities on site, however a communication with Sydney Ports VTS on VHF Ch 13 will be maintained for all arrivals and departures between Glebe Island and Blackwattle Bay.

5. Tow Arrangement

The preferred tow arrangement will be at the Master's discretion and will be determined by factors such as sight lines from the wheelhouse, manoeuvring characteristics of a particular barge, wind and tide conditions, and the desired angle of approach to the mooring site. Generally, there are two options as shown below.

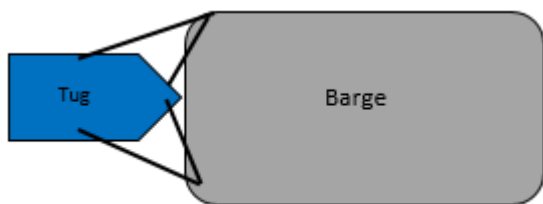


Figure 1 Option 1 - Pushing From Stern

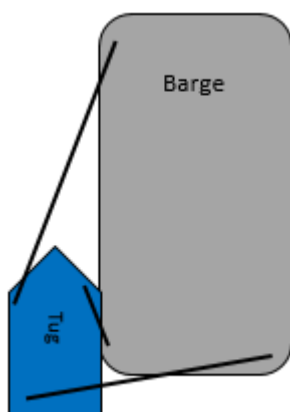


Figure 2 Option 2 – Hipped up on either the port or starboard side

6. Mooring Arrangement

Crane piling barges will be moored with steel spuds. Additional anchors will only be deployed in the unlikely event spuds do not provide sufficient holding capacity during piling. Work will generally take place from the shoreline adjacent to Bridge Rd and progressively work out into the bay.

Mooring procedure

1. Tug manoeuvres barge to the piling position.
2. The crane deploys the spuds while the tug holds the barge steady. The spuds will be locked off when in position.
3. A small silt curtain may also be deployed around the piling area.
4. Dumb barges will berth alongside the crane piling barge, with berthing lines made off in the arrangement shown below.

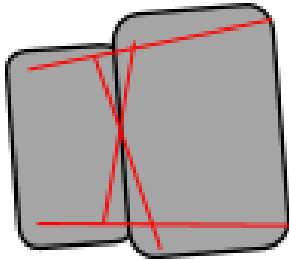


Figure 3 Mooring Procedure

7. Communication

A marine notice for a navigation restriction will be published on the Transport for NSW Roads & Maritime website for the duration of the works.

Communication between the tug and barge on site will be verbal when in vocal range and by UHF radio when out of vocal range. The Barge Supervisor will also have the mobile phone number of the tug Master for communication at other times.

Communication and radio watch between Sydney Ports VTS and the tug will take place on VHF Channel 13, with all switching over to the working channel specified by VTS at the required time.

Distress watch will also take place on VHF Channel 16.

Radio watch will be maintained at all times during towing and tug operations.

The tug Master will report to VTS Channel 13 on departure from Glebe Island and Blackwattle Bay.

7.1 Multiplex Key Personnel Contact List

TITLE	FULL NAME	PHONE NUMBER	EMAIL
Construction Manager	David Maher	0414 345 449	david.maher@multiplex.global
Project Manager (Senior)	Eric Rolls	0416 256 574	eric.rolls@multiplex.global
Project Manager	Paul Couani	0401 719 593	paul.couani@multiplex.global
Site Manager	Ben De Bono	0423 782 139	ben.debono@multiplex.global

7.2 SMC Marine Key Personnel Contact List

TITLE	FULL NAME	PHONE NUMBER	EMAIL
Chris Hickey	SMC Project Manager	0419 552 209	chris.h@smcmarine.com.au
Sam Cowling	SMC Project Engineer	0402 596 100	sam.cowling@smcmarine.com.au
Sam Webb	SMC Project Supervisor	0401 377 267	sam@smcmarine.com.au
Steve Philipsen	SMC Supervisor	0419 552 213	steve.p@smcmarine.com.au
Aidan Cronin	SMC Barge Supervisor	0449 721 454	aidan@smcmarine.com.au
Mal Finnan	SMC HSE Coordinator	0407 942 011	mal@smcmarine.com.au

Greg Hall	Director – Ausbarge Marine Services	0438 091 286	greghall@ausbarge.com
Brendan Wiseman	Manager Planning, Port Authority of NSW	0424 026 509	bwiseman@portauthoritynsw.com.au
Drew Jones	A / Manager Operations Sydney Harbour Transport for NSW	0417 603 458	drew.jones@transport.nsw.gov.au

7.3 Emergency Contacts

AUTHORITY	NUMBER
Emergencies on Harbour	000
Port Authority of NSW	9296 4003
VTs Sydney	VHF Channel 13
NSW Water Police	9320 7499

8. Risk Assessment

Risk assessments for operations on board each tug and barge are included as part of the respective vessel safety management system.

A detailed risk assessment covering all aspects of marine piling will be part of the *SMC WHS Management Plan - New Sydney Fish Markets Piling Operations*.

9. Marine Traffic Controls

9.1 Collision Regulations

All tug and barge operations will comply with all relevant controls in the *International Regulations for the Prevention of Collisions at Sea* and the practice of good seamanship.

Transport will be timed to avoid shipping at Glebe Island.

Barge movements will give way to outbound traffic through Glebe Island Bridge and use the eastern channel (the western channel is closed). The barge will have a spotter on the bow to guide the tug Master through the Glebe Island Bridge and to maintain watch for approaching vessel traffic.

In addition to powered vessel manoeuvring, Tug Masters and Barge Supervisors are to ensure watch is maintained for rowing and dragon boats most likely operating in the early morning and late afternoon and following an anticlockwise course around Blackwattle and Rozelle Bays.

Refer to Appendix 2 for the route plan between Glebe Island and Blackwattle Bay.

9.2 Exclusion Zones

A marine exclusion zone will be marked around the construction site perimeter by way of a silt curtain anchored to temporary piles. 2 NM yellow flashing lights will be attached to the piles.. Refer to Appendix 3 for an indicative position of the silt curtain / exclusion zone. Final design of the silt curtain and pile positions is to be confirmed.

A marine notice for a navigation restriction will be requested for publication on the Transport for NSW Roads & Maritime website for the duration of the works.



Figure 4 Exclusion Zone – silt curtain, buoy, 2NM flashing light

9.3 Speed Limit / No Wash Zone

The works are within an existing 4 knot zone and No Wash zone within Blackwattle Bay and will be contained within a silt curtain perimeter closed to non-construction vessel traffic. The 'RY' No Wash flag combination will also be displayed from the barge during the day time, as shown below.



Figure 5 Signage – 4 knot speed zone, no wash zone, RY No Wash Flag

9.4 Bridge Clearance

Crane booms will be lowered for passage beneath the Anzac Bridge to ensure a minimum of 3 m clearance from the bridge at any given tide. The bridge has a clearance of 29.1 m at LAT.

The Glebe Island Bridge is expected to remain permanently open so clearance will not be a risk.

9.5 Navigation Lights and Day Shapes

If barge movement is required at night or in restricted visibility, the tug will display port and starboard steaming lights, a stern light, a masthead light and an additional towing light for a tow < 50 m, with the barge displaying port and starboard lights, as shown below (head on view).

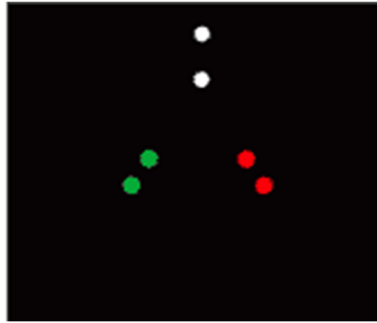


Figure 6 Navigation light arrangement for barge movement at night or in restricted visibility

Restricted in ability to manoeuvre day shapes will be displayed from the barge during the day time with the safe side to pass the barge indicated by two diamonds in vertical alignment.

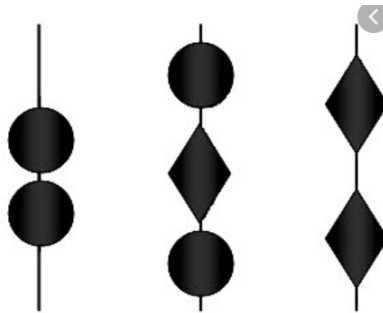


Figure 7 Restricted in ability to manoeuvre day shapes to be displayed

9.6 Masters Certificate of Local Knowledge for Sydney Harbour

The tug Master will have a Certificate of Local Knowledge for Sydney Harbour and will report to VTS Channel 13 when departing Glebe Island and Blackwattle Bay with barges. Local knowledge includes the expectation that a range of vessels use the same passage to and from Blackwattle and Rozelle Bays via the Glebe Island Bridge and that a careful watch must be maintained here.

9.7 Masters Certificate of Local Knowledge for Sydney Harbour

All operational and emergency procedures described in the tug and barge Safety Management System are to be followed.

9.8 Weather Forecasting

BOM weather forecasts will be monitored throughout the works via the internet and VHF Channel 16. Site establishment and barge movements on site will be postponed if severe storms are forecast for the scheduled times. The barge will either be demobilised back to Glebe Island or Additional berthing lines will be attached if severe storms or wind greater than 40 knots are forecast.

All lifting operations will take place within the cranes wind operating limits.

10. Minimum Crew Qualifications

Role	Qualification
Tug Master	Master < 24 m, MED Grade 3, Certificate of Local Knowledge for Port Jackson
Tug Deck Hand	General Purpose Hand
Barge Supervisor	SMC Skills Competency Assessment – Barge Supervisor, C1 HRW Licence, DG HRW Licence.
Crane Operator	C1 HRW Licence
Dogmen	DG HRW Licence
Work Punt Operator	Exemption 38 or Recreational Boat Licence as determined by AMSA on the vessel certificate of operation.

11. Operational and Emergency Procedures

All tugs and the barges have Marine Order 504 compliant Safety Management Systems, featuring procedures for all onboard operations, as well as emergency procedures for the following:

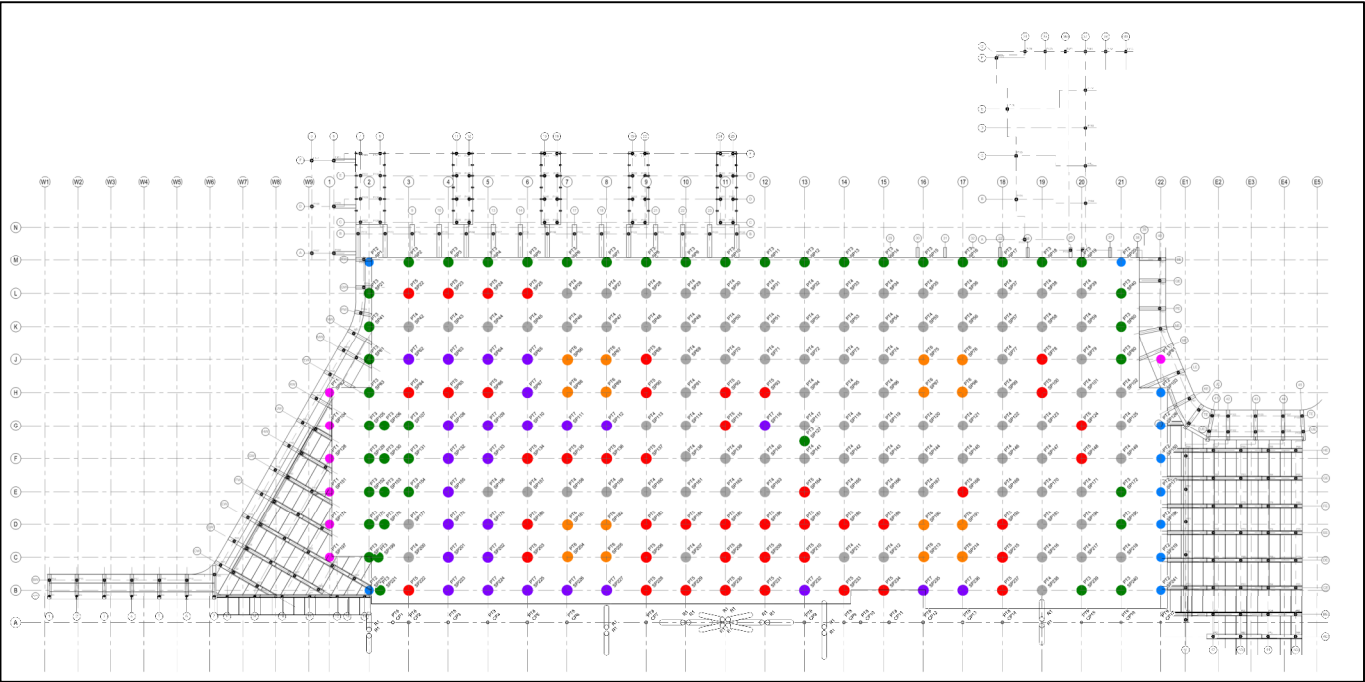
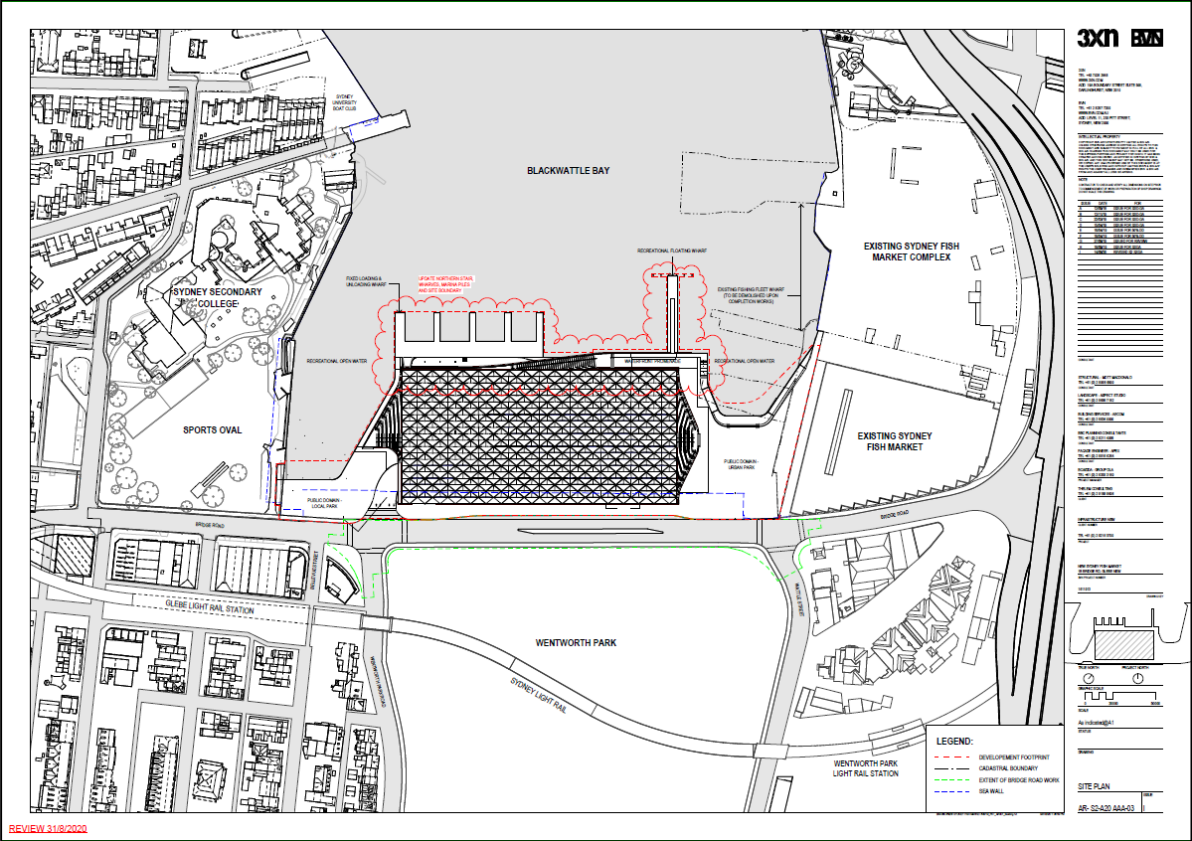
- Man Overboard
- Fire
- Collision / Grounding / Flooding
- Abandon Ship
- Incapacitated Master
- Adverse Weather
- Fuel / Oil Spill
- Personal Injury / Medical Emergency

The barge LC 20 has an International Safety Management (ISM) Code Safety Management System.

All tugs and barges have fire fighting equipment, first aid equipment and emergency spill kits applicable to the relevant survey requirements.

12. Appendices

12.1 Appendix 1 – Site Concept Plan and Pile General Arrangement



12.2 Appendix 2 – Route Plan – Glebe Island to Blackwattle Bay



Construction Vessel Traffic Management Plan | New Sydney Fish Markets

