

Redevelopment of Sydney Fish Market
56-60 Pyrmont Bridge Road, Pyrmont NSW
Environmental Assessment
Volume 1 of 3

Prepared for Sydney Fish Market Authority

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EXECUTIVE SUMMARY

Project Application

This Environmental Assessment report has been prepared by Conybeare Morrison (CM+) to address the Director-Generals Requirements (D-GRs) under Part 75H (Environmental Assessment and Consultation) of the EP&A Act. The project received Project Application approval (MP 10-0060) on 20 May 2010.

The report assesses the key issues of the site, the environmental impacts of the proposed development and outlines management and mitigation measures to be implemented to minimise any potential impacts of the project.

Project Description

The Development Proposal is for the redevelopment of the Sydney Fish Market (SFM) site located within the Ultimo-Pyrmont area, approximately 2km from the Sydney CBD and close to the densely populated inner city suburbs of Pyrmont and Glebe. The SFM is sited at the intersection of Bank Street and Pyrmont Bridge Road, on the eastern foreshore of Blackwattle Bay.

The SFM is a working fish market that incorporates a working fishing port, wholesale and retail fish market, food and beverage outlets, and a seafood cooking school. The SFM is a Sydney tourist destination of regional importance as a tourist attraction and a harbourside entertainment precinct.

The site is bordered by the Hymix concrete batching plant to the north and Pyrmont Bridge Road to the south. The site has a total area of approximately 43,000m².

The area of redevelopment subject to Part 3A Project Assessment comprises the:

- SFM site north of the Main Fish Market Building including open parking area;
- Foreshore area fronting Blackwattle Bay; and
- Open car parking area on Jones Street and west of Bank Street.

The application **excludes** the extension to the western portion of the Ground Floor Level of Building B, located at the northern portion of the SFM site. This building has been assessed and approved under Part 4 of the EP&A Act by the City of Sydney Council.

The development proposes the demolition of existing single storey buildings sited at the northern, eastern and foreshore portions of the SFM site, the open car parking area and toll booths. The existing Main Fish Market Building located at the southern portion of the site which remain and will be refurbished at a later date.

The development provides 28,386m² of additional retail, dining (internal and external), amenities, service, plant and parking areas to the existing Fish Market facilities.

The development proposes 2 new buildings and associated parking and service areas for the site comprising:

- Building A – a 3 storey building for retail dining a wholesale uses at Ground and First Floor level, with upper level and roof top parking, located at the central portion of the site;

- Building B – a 2 storey building for retail uses at ground floor level and tavern with outdoor dining at first floor level, located at the northern portion of the site; and
- Car parking for 622 vehicles comprising 510 car spaces and 112 service vehicles, in Building A, external areas and along the western side of Bank Street.

The development additionally proposes public domain improvements within the site and the foreshore of Blackwattle Bay:

- Foreshore Urban Plaza, with fast food kiosks and kiosks and external dining facilities located on the western side of the building. 2 external stairs link the Plaza to the upper level external dining facilities of the building.
- Waterfront Park with a grove of eucalyptus and a central lawn for picnicking and passive recreation, located between the Foreshore Urban Plaza and Blackwattle Bay.
- Waterfront Promenade – a paved promenade and a boardwalk along Blackwattle Bay, providing continuous waterfront public access along the eastern foreshore of the Bay, linking to Pyrmont Bridge Road. Native species of figs and casuarinas are proposed along the foreshore.
- Outdoor dining area – a refurbished dining area with a new weather protection structure located on the western side of the Main Fish Market building, stepping down to the Waterfront Promenade.
- Pyrmont Bridge Road Entrance – upgraded to provide a new arrival point for pedestrian and cyclists entering the site from Pyrmont Bridge Road and Wentworth Park, connecting to the Waterfront Promenade.
- Pedestrian Arrival Forecourt – the main arrival point for pedestrian, coaches and taxis to the SFM facilities. This is a hard paved public precinct with lighting, signage and interpretive art works. From this Forecourt, a broad set of stairs lead patrons to the retail facilities at Ground Floor level or ramp to the dining facilities at First Floor level (L1).

Vehicular and pedestrian movement and circulation

The existing signalised SFM entrance at the junction of Bank Street and Miller Street will be reconfigured to reduce pedestrian/ vehicle conflict, improve vehicular access into and exit from the SFM site, and provide a safer pedestrian access from Miller Street and the Fish Market light rail stop by relocating the pedestrian crossing to the northern side of the intersection.

From the signalised SFM entrance at the intersection of Bank Street and Miller Street, vehicles will travel via a new internal roadway (the Jones Street alignment) located along the eastern boundary of the site and diverge into the parking areas located at the upper levels of Building A.

Service vehicles will also utilise the signalised entrance, travel via the new internal roadway to the loading areas located at the northern side of the Main Fish Market Building and service area with the Ground Floor level of Building A. The existing service road at the northern boundary of the site will be retained for service access to the loading area north of Building B and to the northern foreshore area and wharf.

Taxis and coaches will be provided with dedicated drop-off and parking bays adjacent to the Pedestrian Arrival Forecourt.

New cycle routes will be via:

- A proposed shared path to be provided by the City of Sydney Council, along Bank Street from Pyrmont Bridge Road to Miller Street; and
- A new shared path along the foreshore proposed with this development to connect to Pyrmont, Darling Harbour and Glebe.

622 vehicles (510 car spaces and 112 service vehicle spaces) and 121 bicycle spaces will be provided within the site.

The proposed development will provide universal access with accessible paths of travel from the Fish Market light rail station to facilities with the site and its foreshore.

The new development will improve pedestrian safety and amenity by providing:

- A safer accessible pedestrian access to the SFM site at the Bank Street/ Miller Street intersection;
- Direct access to the Pedestrian Arrival Foreshore between Building A and B to the external foreshore public domain precinct;
- A new 3.6m wide accessible landscaped footpath along the northern perimeter of the site to the foreshore of Blackwattle Bay; and
- A new foreshore promenade along the foreshore from Pyrmont Bridge Road.

Disabled parking will be provided within the First Floor (L1) parking level close to lifts and restaurant entrances. Accessible lifts linking the various levels of the buildings and disabled sanitary facilities.

Potential environmental impacts, management and mitigation measures

The site has been evaluated on the potential impacts of the proposed development on its site infrastructure and environmental and heritage concerns, with environmental management, monitoring measures and mitigation to minimise any potential impacts of the project. These include:

Traffic impacts

The proposed development will not have significant impact on the operations of the surrounding road network. Changes to intersections are proposed to potentially provide signalised operational benefits for the site. To maintain traffic efficiency and minimise queuing and impact on the surrounding road network, changes are proposed to the operations of traffic signals in the area, to:

- the layout and signal operations at the intersection of Bank and Miller Streets; and
- the lane markings and signal operations at the intersection of Pyrmont Bridge Road, Bank Street and the Western Distributor ramps.

Noise impacts

The proposed development was assessed on the impact of mechanical service plant, vehicular and truck delivery movements, noise from restaurant and tavern.

All of the predicted noise levels will comply with the noise assessment criteria except for mechanical noise at night, determined to be the significant contributor. The plant is

recommended to be attenuated in order to achieve compliance with either insulation lining or the installation of units with less sound power level output.

Site infrastructure and services

Mechanical

New mechanical plant will be provided with water-cooled systems, as it provides the best long term benefits for the SFM, will reduce issues associated with salt laden air, plant space, water usage and provide energy savings.

A central air cooled refrigeration plant is proposed. Whilst having a very high initial cost, this will be paid back over time, based on tenant usage has the main benefit of requiring significantly less power to operate when compared with tenant supplied equipment.

Toilets, car parking areas, kitchens and the wholesale area will be mechanically ventilated.

Electrical and gas

Existing electrical supply and distribution within the redevelopment area will be upgraded and renewed, with all major electrical loads and distribution boards sub-metered and connected to a remote metering system.

A natural gas supply will be provided to tenancies with isolation valves and subsidiary meters.

Lighting

Lighting will incorporate energy efficient light fittings with automatic lighting controls and sensors adopted wherever practicable. Automatic switching in conjunction with daylight sensors will be employed wherever practicable to minimise energy consumption.

External lighting will be category P2 lighting level, controlled by photoelectric cells and timed feature lighting will be installed at main pedestrian entrances with security and access lighting installed.

Hydraulic services

Water supply service will feed from the existing water supply with new piping to the new development. Water supply to each tenancy will be separately monitored and metered.

Cogeneration will be implemented with hot water supply generated by a geothermal system for hot water preheat, using geothermal heat rejection with a refrigerant gas used for the ground loop. Hot water will be metered for each floor tenancy.

Fire services with hydrant, hose reels, fire extinguishers, sprinkle systems, automatic fire alarm system and a sound system and intercom systems for emergency purposes will be provided.

The existing authority's sewer main located in Jones Street will be utilised for sanitary drainage.

Stormwater drainage

Stormwater drainage will be fitted with gross pollutant traps and first flush device prior to discharge to Blackwattle Bay.

The development will implement Water Sensitive Urban Design (WSUD) measures to minimise the use of water impacts on discharge, with:

- Collection of rainwater from roofs;
- Stormwater from outdoor paved areas in 2 separate storage systems;
- Recycling of rainwater for site irrigation, toilet flushing and hosing of paved areas;
- Use of stored stormwater for irrigation of soft landscaping, hose down, trade waste wash down and mechanical plant cooling water;
- Use of 2 bioretention systems to treat stormwater from paved surfaces prior to entry into Blackwattle Bay and to treat flows into the stormwater reuse tank for reuse;
- Use of gross pollutant traps at discharge outlets into the Bay; and
- Use of silt arrestors to treat runoff within car parks and trade waste systems.

ESD measures

Active environmental/ management ESD strategies for the development include:

- Natural ventilation – with integrated use of an adaptive AC system;
- Use of intercooled geothermal heat exchange system for mechanical services, with the system contributing to the hot water supply system;
- Photoelectric daylight sensors in conjunction with time clock and/or occupancy sensors, use of energy efficient light fittings, occupancy detection controls in car parking areas, corridors and toilets; and
- Use of water efficient fixture and fittings throughout the development and metering of water to monitor and improve rates of consumption.

Waste generation

Fresh fish waste will be refrigerated on site to contain odours and collected by a private contractor on a daily basis. General garbage will be compacted and removed. Grease arrestors will be installed for liquid waste and removed for suitable disposal. Cooking oils and recyclable material will be removed by private contractors for recycling.

Ecology

The site is a highly modified urban environment on reclaimed land containing very little native vegetation. There are no remnant ecological communities on the site, very few native trees and no endangered flora species.

The waterfront is characterised by a steeply constructed built environment. The depth of the water is too deep to support intertidal or estuarine fauna habitats such as mangroves, seagrasses or salt marshes. Therefore, potential impacts on habitats and species that rely on these habitats are unlikely to be an issue.

Ecologically, the site has been evaluated as being unlikely to have any ecological issues associated with direct impacts on terrestrial flora and fauna, including any threatened species populations or communities listed under the Threatened Species Communities Act, the Environmental Protection and Biodiversity Conservation Act or the Fisheries Management Act.

Whilst there is unlikely to be any ecological issues associated with direct impacts on terrestrial flora and fauna, potential indirect ecological impacts could include:

- Introduction or spread of weeds from vehicles and personnel; and
- Pollution or sedimentation of waterways associated with construction waste and runoff lay down area.

Mitigation measures to reduce the potential for impact to flora and fauna within the site include the adoption of weed and sediment control measures, construction of gross pollution traps, removal of construction debris, and retention of trees and minimising of shading of waterfront on marine species.

Indigenous and European heritage and archaeology

There are no heritage listings for any structure, feature or relic within the site. The only significant features are the sandstone seawalls along the foreshore which were constructed in the 1870 reclamation of Blackwattle Bay. None of the existing buildings have heritage value. Whilst the existing seawall is in very poor condition, it is the only significant visible feature that relates to the historical uses of the site.

In terms of assessment of heritage items and archaeological significance that are present within the site, the potential for evidence of Aboriginal occupation is assessed to be low. Evidence of alterations made to the site for waterfront development and the processes of reclamation of the site are likely to be intact, however the ability to investigate and document the processes by which this landforming was undertaken is not common.

Mitigation strategies include maintenance of seawall for their ongoing stability, with a schedule of works established for the conservation of seawall elements to ensure that their composition, appearance and materials are maintained. There is likely to be relics of former jetties and wharves adjacent to the seawalls and revetments along the western edge of the site.

Prior to commencement of works on the western boundary, a surface maritime archaeological survey should be undertaken to identify the scope of relics and assemblages, which would inform decisions regarding the protection or documentation of the relics.

Artefacts retrieved during site excavation should be permanently stored preferably within the development site. A post excavation programme of documentation and integration should be implemented to ensure that the information retrieved is made available in secure formats in permanent repositories. There should also be provision for interpretation of the heritage themes of the site.

Geotechnical

Geotechnical investigations yielded information on the subsurface conditions of the site.

Geotechnical design recommendations include sub-grade preparation, use of engineered fill, and footings of new buildings to be taken down to the underlying bedrock, the use of piles as the preferred foundation system, and seawall rectification and stabilisation. Geotechnical testing should also be undertaken at various stages of foundation construction.

Environmental assessment for contamination

A Phase 1 Environmental site assessment indicated elevated concentrations of contaminants in the fill soil and groundwater samples in both the SFM site and foreshore precinct. Elevated levels of heavy metals were encountered in harbour samples, which are consistent with regional levels, particularly in areas with high densities of recreational boats. Asbestos was not detected in samples investigated.

Potential acid sulfate soils were identified on the site with an Acid Sulfate Soil Management Plan prepared for implementation.

Based on the results of the Phase 1 and additional investigations, remediation of the site will be required, with strategies as outlined in the Remediation Action Plan.

The Remediation Action Plan recommends:

- Removal of the suspected underground storage tanks (USTs) identified during the EIS investigations;
- Excavation and off-site disposal of the worst of the contaminated soil where practical (based on contaminant concentrations and the potential for the contaminants to impact on the groundwater system);
- Cap and contain the remainder of the contaminated soil;
- On-going monitoring of the groundwater conditions; and
- Management of the site via the implementation of an environmental management plan (EMP).

Views

The SFM site is visually prominent from the Blackwattle Bay waterway, the western foreshore of the Bay and the Western Distributor. The proposed development provides an attractive development that enhances the foreshore precinct.

The proposed development, whilst impacting on the north-eastern views to the water from upper level apartments located east of the Western Distributor, is sited at the level of the Western Distributor.

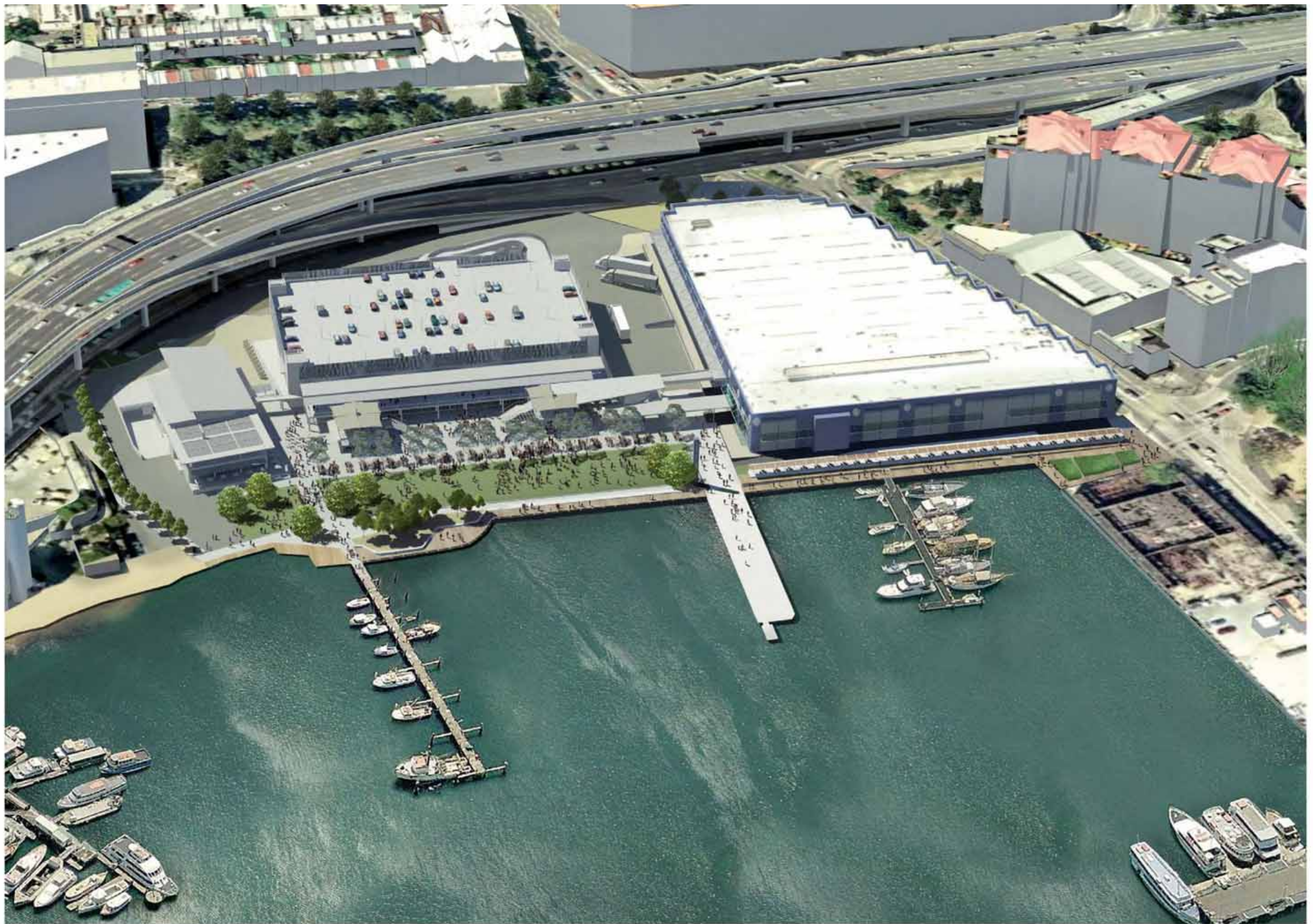
Overshadowing

The proposed development, sited on the western side of Building B and below the Western Distributor, will not overshadow surrounding buildings and private spaces.

Visual privacy

The proposed development, orientated towards Blackwattle Bay and buffered to the south by the Main Fish Market building, will have no visual impact on the privacy of surrounding residential developments.

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Sydney Fish Market Redevelopment

3D Aerial View from North West

CM⁺ Conybeare Morrison

Railly

Client: Sydney Fish Market Authority
September 2010 | 10034 - SK27



Sydney Fish Market Redevelopment

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Pedley

Client: Sydney Fish Market Authority
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3D View From Existing Wharf Looking East



Sydney Fish Market Redevelopment

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Reilly

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3D View to North East



Sydney Fish Market Redevelopment

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Kelly

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View from forshore looking North West towards Anzac Bridge

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1.0 THE SITE – EXISTING CONDITIONS

1.1 Site Location

The Sydney Fish Market (SFM) is a significant Sydney harbour foreshore site located on the eastern foreshores of Blackwattle Bay, between the areas of Pyrmont, Wentworth Park and Glebe. Blackwattle Bay is a busy maritime precinct with a character that is unique to Sydney.

The site is bounded by:

- the Hymix concrete batching plant to the north;
- Pyrmont Bridge Road to the south;
- Bank Street to the east; and
- Blackwattle Bay to the west.

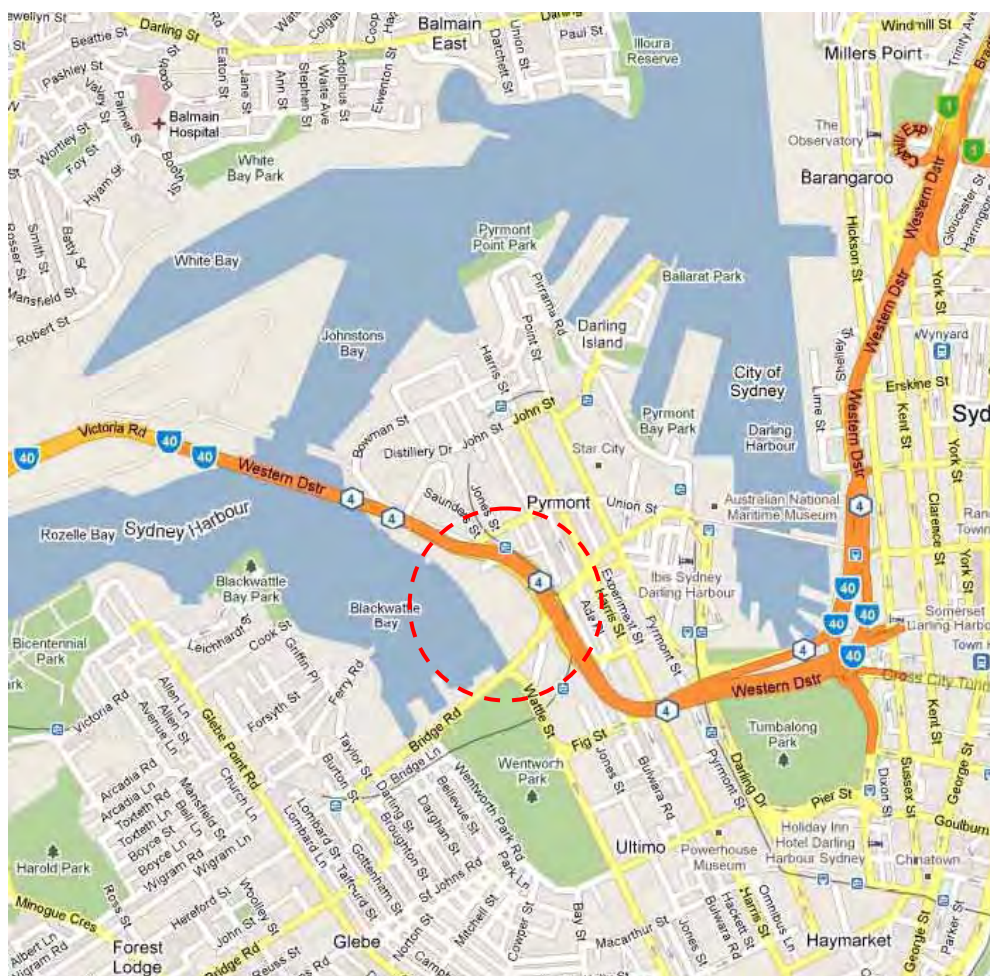


Figure 1: Location map

Overhead, along eastern boundary is the eastern approach of the Western Distributor to the Anzac Bridge. The Western Distributor and its viaducts to the east provide a physical and visual barrier to the SFM site and the eastern foreshore areas of Blackwattle Bay from the City.

The site is located approximately 2kms from the Sydney CBD and close to the densely populated inner city suburbs of Pyrmont and Glebe. The site is in close proximity to

key transportation networks of the light rail and bus, and tourist and entertainment facilities at Darling Harbour.

1.2 Legal Title, Land Use and Site Ownership

The site address is 56-60 Pyrmont Bridge Road, Pyrmont and is located within the Parish of St Andrew, County of Cumberland.

The site is identified as:

- Lots 1 and 2 of DP 125720;
- Lot 1 of DP734622;
- Lot 1 of DP836351;
- Part of Lot 1 of DP 74155;
- Lot 2 in DP827434;
- Lots 15, 16, 17, 18, 19 of DP 1027254; and
- Part of the land comprised in CT Vol. 5018 Fol 1.

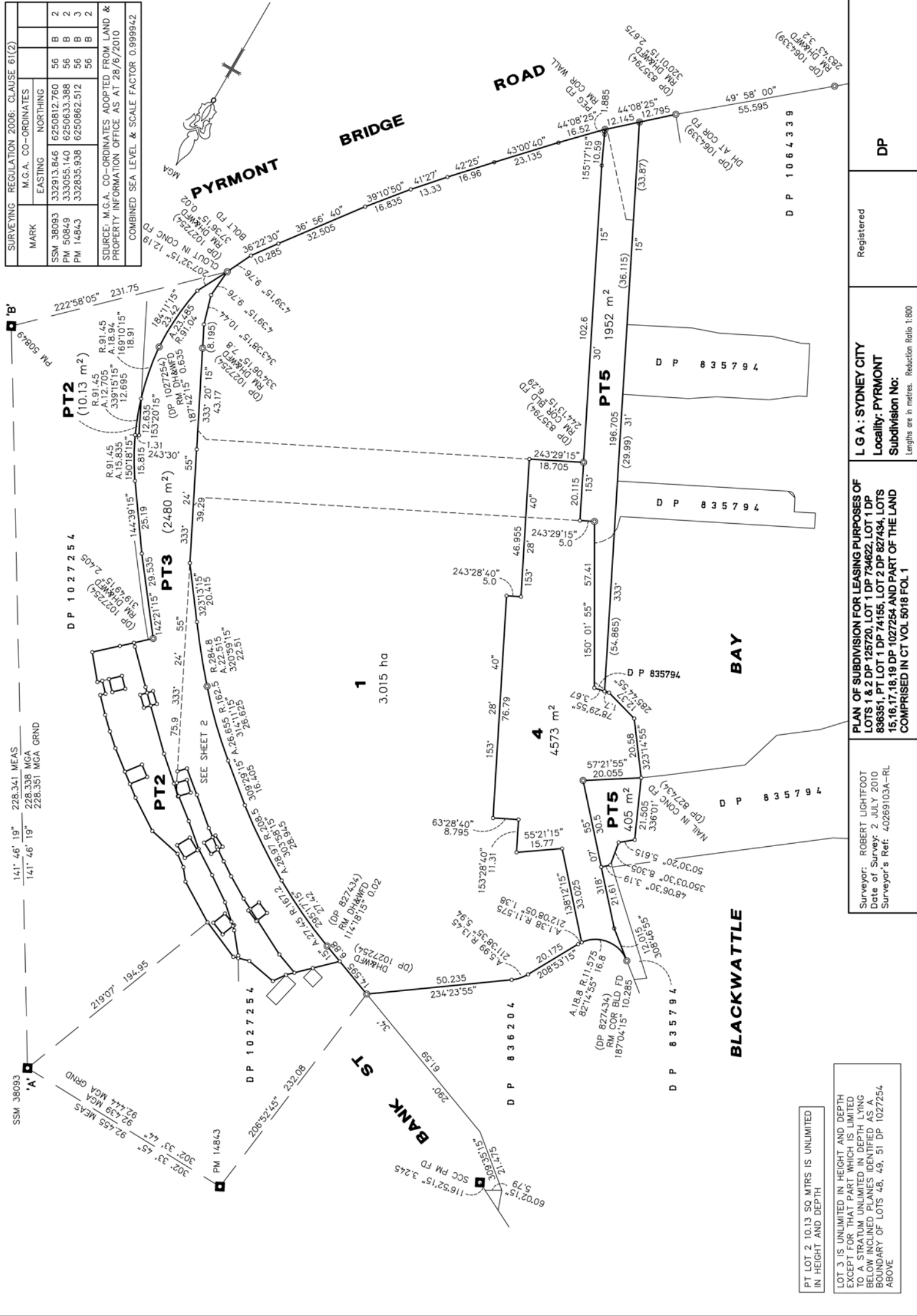
Site ownership is identified as follows:

- | | |
|------|--|
| PT 1 | SPA owned land proposed to be leased to SFM Pty Ltd (currently subject to an intention to lease until 2044) |
| PT 2 | RTA owned land (currently subject to an intention to lease agreement with SFM Pty Ltd) |
| PT 3 | City of Sydney owned land proposed to be leased to SPA and then subleased to SFM Pty Ltd (currently subject to an intention to lease agreement until 2044) |
| PT 4 | SPA owned land to be excluded from the current SFM Pty Ltd lease (compensation amount agreed as part of Ministerial Corporation Deed) |
| PT 5 | Maritime NSW space (principally over the water) and currently subject of a lease with SFM Pty Ltd |
| PT 6 | (Wharfs and Jetties) Maritime NSW space (wharves) and currently subject of a lease with SFM Pty Ltd |

The SFM site is leased from the State Government under a 50 year lease to Sydney Fish Market Pty Ltd (SF MPL). The shareholders of the premises include fishermen, merchants and tenants who operate from the market.

The car parking areas located on Jones Street underneath the Western Distributor ramp form part of the SFM site. This land is owned by the RTA and the City of Sydney Council and leased to SF MPL.

SURVEYING REGULATION 2006: CLAUSE 61(2)			
MARK	M.G.A. CO-ORDINATES		
	EASTING	NORTHING	
SSM 38093	332913.846	6250812.760	B 2
PM 50849	333055.140	6250633.388	B 2
PM 14843	332835.938	6250862.512	B 3
			B 2
SOURCE: M.G.A. CO-ORDINATES ADOPTED FROM LAND & PROPERTY INFORMATION OFFICE AS AT 28/6/2010			
COMBINED SEA LEVEL & SCALE FACTOR 0.999942			



PLAN OF SUBDIVISION FOR LEASING PURPOSES OF LOTS 1 & 2 DP 125720, LOT 1 DP 734622, LOT 1 DP 836351, PT LOT 1 DP 74155, LOT 2 DP 827434, LOTS 15, 16, 17, 18, 19 DP 1027254 AND PART OF THE LAND COMPRISED IN CT VOL 5018 FOL 1

Surveyor: ROBERT LIGHTFOOT
Date of Survey: 2 JULY 2010
Surveyor's Ref: 40269103A-RL

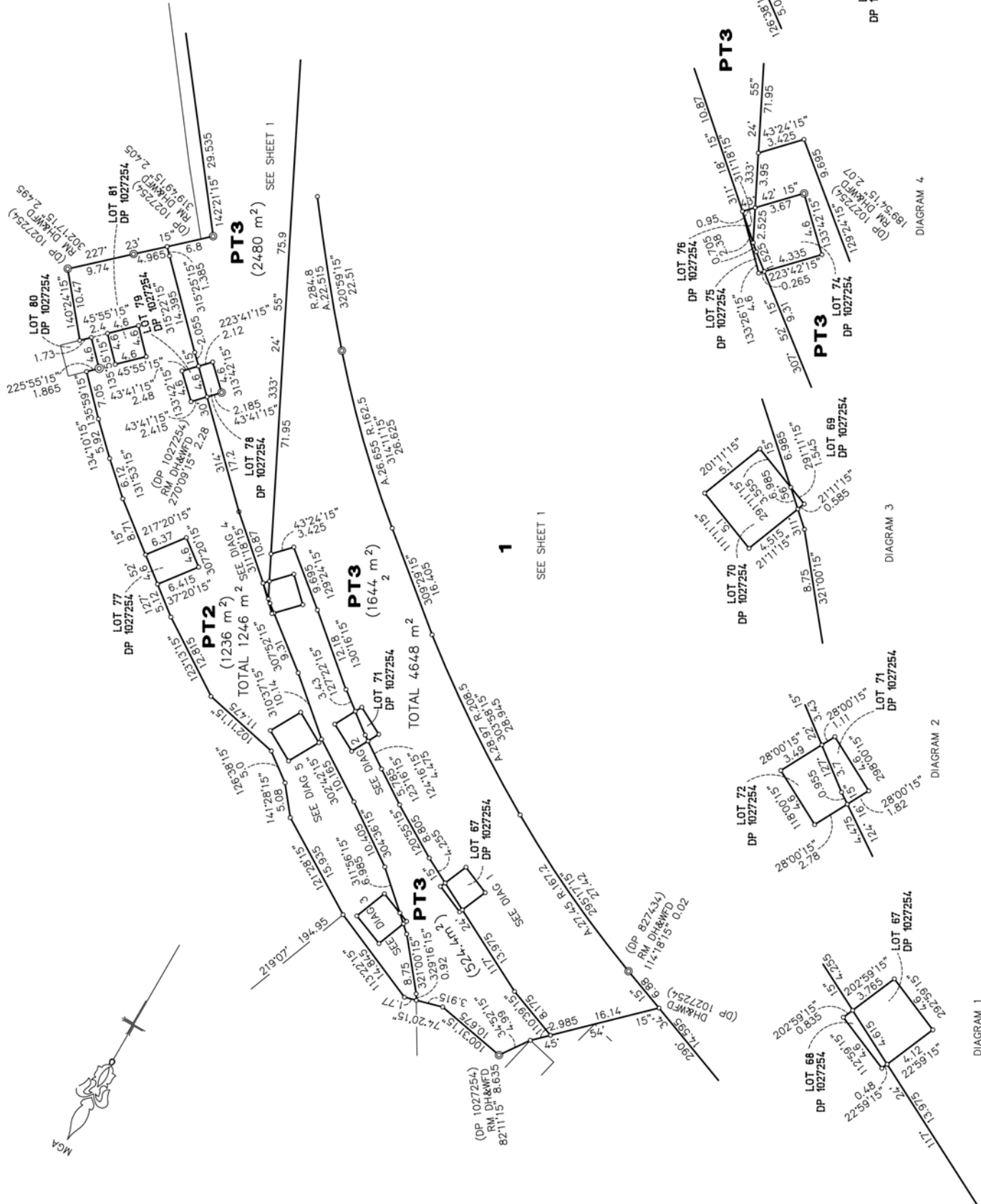
L G A : SYDNEY CITY
Locality: PYRMONT
Subdivision No:
Lengths are in metres. Reduction Ratio 1:800

Registered

DP

PT LOT 2 10.13 SQ MTRS IS UNLIMITED IN HEIGHT AND DEPTH

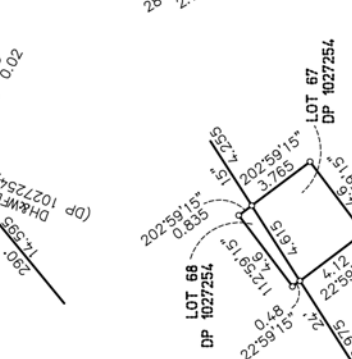
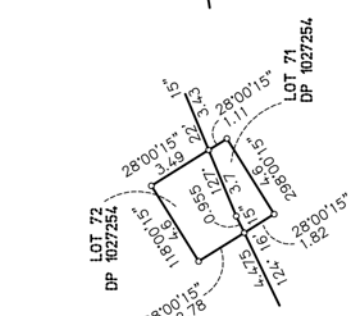
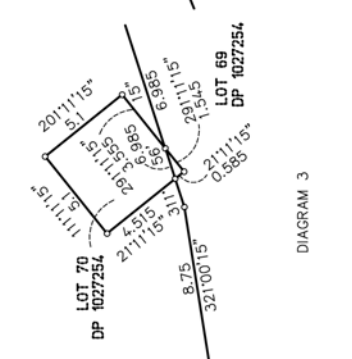
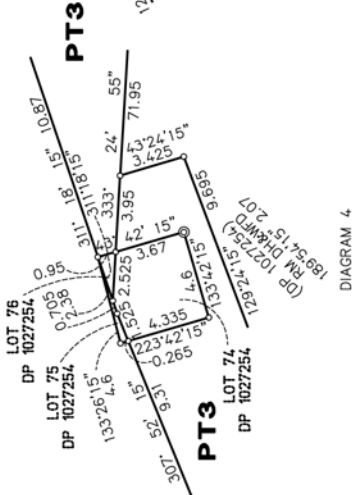
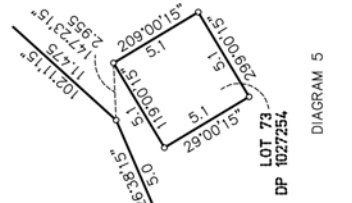
LOT 3 IS UNLIMITED IN HEIGHT AND DEPTH EXCEPT FOR THAT PART WHICH IS LIMITED TO A STRATUM UNLIMITED IN DEPTH LYING BELOW INCLINED PLANES IDENTIFIED AS A BOUNDARY OF LOTS 48, 49, 51 DP 1027254 ABOVE



LOTS 67-81 INCLUSIVE HAVE BEEN ACQUIRED AS FREEWAY AND HAVE BEEN EXCLUDED FROM THE LEASE AREAS

LOT 2 IS A STRATUM UNLIMITED IN DEPTH LYING BELOW INCLINED PLANES IDENTIFIED AS A BOUNDARY OF LOTS 50, 51 DP 1027254 ABOVE

LOT 3 IS UNLIMITED IN HEIGHT AND DEPTH EXCEPT FOR THAT PART WHICH IS LIMITED TO A STRATUM UNLIMITED IN DEPTH LYING BELOW INCLINED PLANES IDENTIFIED AS A BOUNDARY OF LOTS 48, 49, 51 DP 1027254 ABOVE



Surveyor: ROBERT LIGHTFOOT Date of Survey: 2 JULY 2010 Surveyor's Ref: 40269103A-RL	PLAN OF SUBDIVISION FOR LEASING PURPOSES OF LOTS 1 & 2 DP 125720, LOT 1 DP 734622, LOT 1 DP 836351, PT LOT 1 DP 74156, LOT 2 DP 827434, LOTS 15, 16, 17, 18, 19 DP 1027254 AND PART OF THE LAND COMPRISED IN CT VOL 5018 FOL 1	L G A : SYDNEY Locality: PYRMONT Subdivision No:	Registered	DP
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1.3 Site Description and Area

The SFM site is irregular in shape and has a total area of approximately 43,000m². It has an approximate 224m harbour frontage and approximate 275m frontage to Bank Street. The western part of the site is underlain by fill to an approximate depth of 2.4m, which is tidally influenced.

The SFM site is occupied by a 2 storey sales auction and administration hall (the Main Fish Market Building) to the south (not within this proposal). The site has several single storey retail buildings and stores along its eastern and northern boundaries and along the waterfront. The majority of the site is an open car park that is accessed by an internal road located along the northern perimeter of the site and accessed off Bank Street.

A concrete service road connecting to Pyrmont Bridge Road is located west of the Main Fish Market Building. Between the concrete service road and Blackwattle Bay is a boardwalk with covered outdoor dining facilities.

Adjacent to Blackwattle Bay the foreshore is supported by a dilapidated sea wall constructed of sandstone masonry, concrete and timber. The wall ranges in height from 0.9m to 1.5m and is in poor condition in some sections.

Protruding into Blackwattle Bay are:

- a floating pontoon opposite the Main Fish Market Building;
- a concrete wharf which is the main wharf for Fish Market operations; and
- a timber jetty towards the northern end of the site.



Figure 4: Site aerial

1.4 Function and Operation

SFM is the largest market of its kind in the southern hemisphere and consists of a diverse range of retail and wholesale operations and a large number of tenants.

SFM is an authentic fisherman's market, incorporating a working fishing port, wholesale fish market and fresh food market. The various uses of the site include an auction hall, wholesaling, processing and distribution, restaurants, take away food outlets, seafood and ancillary retail. Associated activities include ice manufacturing, refrigeration, office activities and a seafood school.

SFM employs approximately 67 staff to organise the weekday wholesale auction and to promote SFM.

1.4.1 Retail and dining facilities

Within the SFM site are 6 seafood retailers, restaurants, a bottle shop, fruit and vegetable market, bakery, sushi bar, pizzerias, gift shop and deli. The retail market receives approximately 2 million customer visits annually. The retail facilities are additionally a retail node for the local community.

Dining facilities within the site include restaurants and internal cafes within the Main Fish Market Building and ancillary buildings on the eastern portion of the site. Outdoor dining is located along the foreshore area on the western side of the Main Fish Market Building.

1.4.2 Wholesale

Seafood wholesale activities are associated with the SFM's auction facilities and include seafood processing. These activities currently occur within the Main Fish Market Building.

1.4.3 Wharf activity and marina

There are active wharves that link to the SFM site which are integral to SFM operations. Two of the wharves are used by the fishing fleet:

- the central wharf for loading and unloading with direct access to the selling floor; and
- the northern timber wharf is used by the fleet for mooring.

The SFM site also is a working site for the maintenance of fishing vessels and equipment, and for the repair of nets, lines and gear. The boats unload at the central main wharf and product is transported to the SFM facilities.

The southern pontoon provides marina berths for commercial cruise boats as well as casual berths for boats accessing the site.

1.4.4 Auction facility

The SFM has an auction hall auctioning over 100 species of fish a day and trades over 13,000 tonnes of seafood annually. Approximately 2,800 crates or around 50 tonnes of seafood is auctioned daily through the computerised Dutch auction system to on average 157 buyers. The auction itself starts at 5.30am each day and continues until the entire product is sold. Mondays and Fridays are its busiest days. The volume of product varies each day and it may finish as early as 7.30am. The auction facility is located in the Main Fish Market building.

1.4.5 Seafood school

The Sydney Seafood School is located at the first floor level of the Main Fish Market Building near the waterfront. The school has been in operation since 1989 with over 12,000 people attending classes each year. The school operate mainly on Tuesday evenings.

1.4.6 Commercial offices

The Main Fish Market Building has offices on the first floor level for the SFM Pty Ltd and sub-lets areas for commercial tenants.

1.4.7 Tours

Tours are conducted by trained SFM tour guides that go behind-the-scenes to explore all facets of the market and its operations, including the auction floor, sashimi pavilion and crab and lobster pen. The tours take up to 10 people per booking. Duration of a tour is usually 1-1.5 hours. Tours begin at 6.55am and end around 8:30am. School and group tours are held on Tuesdays and Wednesdays and are subject to availability.

1.5 Site Topography

The site slopes in a south westerly direction towards Blackwattle Bay with an average fall of 3.2m. The site has falls of about 5m east-west at the northern end and 2m east-west along the northern side of the Main Fish Market building.

The site is generally uneven and gently undulating, with surface slopes within the site ranging from 0° to 5° and predominantly falling towards the west, south and south-west.

1.6 Existing Built Form

Within the SFM site, the Main Fish Market building is located in the southern portion and occupies approximately one third of the site. The Main Fish Market building has a prominent position at the end of Wattle Street and at the intersection of Pyrmont Bridge Road and Bank Street. Originally designed as a paper storage warehouse in the early 1970s, the 2 storey building contains the auction hall, the seafood school, product processing and storage areas, refrigeration units, crate and bin cleaning facilities, refrigerated waste storage and retail outlets. The upper level contains offices for the SFMPL and other commercial tenants. On its harbour side is a grassed embankment with a lower level boardwalk immediately adjacent to the water.

Single storey retail and wholesale buildings are located around the eastern and northern sections of the car park. These buildings are generally of steel frame, concrete block or brick construction. An additional brick and steel frame building (Claudio's Seafood) is located in the south-west section of the site. The north-west section of the site is occupied by a pay booth and boom gates associated with the car park entrance/exit.

Items of plant and refrigerator units are located along the foreshore, which prevent direct view or access to the bay.

The majority of the remainder of the site is occupied by an open car park associated vehicular circulation space and loading areas.

Two fixed wharfs and one pontoon extend from the site into Blackwattle Bay, used by both recreational vessels and commercial fishing boats.



Figure 5: Sydney Fish Market – Existing built form

1.7 Landscape Features and Site Vegetation

The site is predominantly an asphalt-surfaced car park with single storey buildings, with utilitarian landscape comprising simple lines of trees which define the perimeter of the site. The only landscaped open space area within the site is the artificial grass embankment, under a row of palms, and lower level boardwalk promenade on the western side of the Main Fish Market Building. There is no perimeter or screen planting to the north, leaving the adjacent concrete batching plant in full view.

The site is predominantly devoid of trees and natural vegetation. Trees are located:

- along the perimeter of the SFM site:
 - along Pyrmont Bridge Road;
 - at the eastern boundary of the site at the Bank Street car parking area; and
 - along the western side of the main Fish Market building;
- as a small cluster, near the single storey retail buildings at the northern portion of the site.

1.7.1 Pyrmont Bridge Road

Six hybrid eucalypts (*Eucalyptus botryoides* x *saligna*) located along the Pyrmont Bridge Road frontage, which are in poor and declining condition (Tree Nos. 1-5 and 7). These trees do not form part of the current proposed development.

1.7.2 South-eastern portion of the site at junction of Pyrmont Bridge Road and Bank Street

Located adjacent to Pyrmont Bridge Road and Bank Street are small Hill's Weeping Figs (*Ficus macrocarpa* var. *hillii*), (Tree Nos. 6 and 8-13) planted at various periods from the mid 1960s to 1990s. Most of these trees exhibit good vigour, some have defects and some have significant structural defects.

1.7.3 Eastern portion of the site

Small Hill's Weeping Figs (*Ficus macrocarpa* var. *hillii*) are located along the south-eastern portion of the site at the Bank Street car park (Trees Nos. 6 and 8-18). Most of these trees are in good condition and exhibit good vigour. Most have defects and some have significant structural defects.

Hill's Weeping Figs at the north-eastern portion of the site (Tree Nos. 19-25) are also in similar condition.

1.7.4 Western side of the Main Fish Market Building

Six Canary Island Date Palms (*Phoenix canariensis*) are located along the western edge of the site adjacent to the boardwalk, planted on an artificial grass embankment (Tree Nos. 28-33).

1.7.5 Within the SFM site

Two Sydney Blue Gums (*Eucalyptus saligna*) are located within the car parking area of the SFM site, adjacent to the Stage 1 redevelopment work (Tree Nos. 26 and 27). These are held in place by a low timber sleeper retaining wall. These trees exhibit good health and vigour.

Refer to Figure 6: Existing site landscape and Figure 7: Existing tree location plan (G. Clubley).

(Refer additionally to **Appendix 20: Sydney Fish Market Master Plan – Revised Arboricultural Assessment** (August 2010) prepared by Garry Clubley, Arborist and Landscape Consultant).

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Sydney Fish Market Redevelopment

CM⁺ Conybeare Morrison

Railly

Client: Sydney Fish Market Authority
August 2010 | 10034 - SK03

⊗ Existing Landscape



Figure 1 – Tree Location Plan

1.8 Views and Visual Character

The SFM site is a prominent and visually distinctive landmark on the eastern foreshore of Blackwattle Bay.

There are prominent views of the SFM from public vantage points on the western foreshore of Blackwattle Bay from:

- the Historic Walter Burley Griffin Incinerator;
- the wharf at Sydney University Women's Rowing Club;
- the eastern end of Cook Street; and
- Blackwattle Bay Park and Bellevue Villa.

The SFM is also seen from the Western Distributor as well from along the upper storeys of residential buildings and the eastern side of Bank Street.

The site is severed from the east by the open car parking area along the western side of Bank Street and the grove of Hill's Weeping Figs (*Ficus macrocarpa* var *hillii*).

There are existing glimpses of the SFM site from Gipps Street, at the junction of Pyrmont Bridge/ Bridge Road. The view is however obstructed by the pylons and road structure of the Western Distributor. There is no view to the SFM from the SFM light rail stop at the junction of Miller Street and Bank Street. There are also glimpses into the site from the northern end of Wattle Street and from Wentworth Park, between the Main Fish Market Building and the Coal Loader at the southern end of Blackwattle Bay.



View from Blackwattle Bay Park on western side of the Bay



View from Cook Street on western side of the Bay



View from Pyrmont Bridge Road/ Wattle Street intersection



View from southern wharf



View south-west from the Western Distributor



View west at Pyrmont Bridge Road/ Bank Street intersection

Figure 8: Existing views to Sydney Fish Market

1.9 Site Connection and Linkages

The SFM is a self-contained site, enclosed by the harbour and the adjoining site to the north. There is a distinct lack of coherent design or direct connection to the foreshore, public transport stops or other public spaces in the area such as Wentworth Park.

There is currently only limited public foreshore access around the perimeter of Blackwattle Bay, with private ownership of a number of key sites precluding the creation of a unified foreshore. The site is also currently restricted in its connection to the bay by the existing buildings located on the waterfront.

Refer to Figure 9: Foreshore access.



Sydney Fish Market Redevelopment

CM⁺ Conybeare Morrison

Ridley

Client: Sydney Fish Market Authority
August 2010 | 10034 - SK06

1.10 Site Access

1.10.1 Vehicular access and circulation

The environment along the southern (Pyrmont Bridge Road) and the eastern edge of the site (Bank Street and the Western Distributor) is dominated by motor vehicles. Access to SFM is via a dedicated access road that adjoins Bank Street at the northern end of the site. This is the only access point for vehicles and is used by both commercial and private traffic.

The internal access road is supported by a concrete retaining wall approximately 1.3m high at the western end and 3.5m high at the eastern end towards Bank Street. The concrete wall abuts a sandstone outcrop which runs in a north-west to south-east direction, and supports the overflow car park (located beyond the site boundary to the north-east) which is at a similar level to Bank Street.

There is a service road along the western side of the Main Fish Market building that leads to the Pyrmont Bridge Road/ Wattle Street intersection. Access to the service road is via the SFM car park. There is no access from Pyrmont Bridge Road/ Wattle Street due to a lack of turning/ deceleration facilities, but vehicles are able to exit onto Pyrmont Bridge Road. The service road is adjacent to the outdoor dining area, and patrons are required to cross the service road in order to access the dining area.

There is a high proportion of vehicle traffic to the site on weekdays and Sundays. This is reasonable due to the nature of the seafood purchases and the desire to maintain a low temperature for seafood for transportation for off-site consumption.

Refer to Figure 10: Existing vehicular movement.

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LEGEND

- Vehicular Movement
- Parking
- Service Parking
- Water Access

X Existing Vehicular Movement

Sydney Fish Market Redevelopment

CM⁺ Conybeare Morrison

Railly

Client: Sydney Fish Market Authority
August 2010 | 10034 - SK08

1.10.2 Pedestrian access

Although the SFM is located within a 10 minute walk from Darling Harbour and an additional 10 minute walk from the Sydney CBD, only a small number of patrons arrive from the city on foot. The majority of pedestrian movements are generated from the local Pyrmont area where the high quality of the pedestrian environment of Pyrmont encourages walking as a mode of transport.

The site is currently used by some pedestrians as a short cut between Glebe and Pyrmont. However, in general, the conditions immediately surrounding SFM are not conducive for walking given that the environment to both the south and east of the site is dominated by roads and motor vehicles and that pedestrian entries to the site at Pyrmont Bridge Road and Bank Street are not well defined.

The SFM site is currently accessed via:

- a signalised pedestrian crossing at the junction of Bank Street and Miller Street. This intersection provides direct access to the Fish Market light rail stop;
- a signalised pedestrian crossing at the junction of Pyrmont Bridge Road and Bank/ Gipps Street. This intersection provides access from the eastern and western sides of Pyrmont Bridge Road and provides the main pedestrian access route from Pyrmont; and
- a signalised pedestrian crossing at Pyrmont Bridge Road, at the end of Wattle Street. This intersection provides access from the southern sides of Pyrmont Bridge Road, i.e. from Ultimo and Wentworth Park.

From the Miller Street/ Bank Street intersection is a footpath that traverses along the eastern boundary of the site to the site's pedestrian entrance located between the two single storey complexes of buildings at the eastern portion of the site.

From the Pyrmont Bridge Road/ Bank Street intersection is a footpath that traverses along the eastern boundary of the site to the site's pedestrian entrance.

The footpaths along the eastern site boundary of the SFM are not safe due to unseen surfaces created by the tree roots of the mature figs growing along the boundary.

From the existing pedestrian entrance, pedestrian pathways are delineated by marked pedestrian lines. These traverse the car parking area to the Main Fish Market Building.

The Sydney Harbour Foreshore Authority and the NSW Department of Planning have a long term plan for a foreshore walk along Sydney Harbour.

1.10.3 Cycle access

The Sydney Fish Market is located close to one of the primary bicycle routes in the Sydney City area. This route connects Rozelle to the City via the Anzac Bridge, Saunders Street, Miller Street, Union Street and Pyrmont Bridge. This route is currently undergoing a significant upgrade with the Union Street Cycleway, which is a segregated two-way facility on the northern side of Union Street between Harris Street and Pyrmont Bridge.

The Sydney Fish Market is also identified as a designated shared pedestrian bicycle link by the City of Sydney. This includes a shared path link along the waterfront, as well as a link around the perimeter of the site, along Pyrmont Bridge Road and Jones Street. The aim of these links is to connect Pyrmont Bridge Road with Bank and Miller Street.

The site has limited formal bicycle racks adjacent to Bank Street. Being too remote from public areas for cyclists to feel secure that their bicycle will be safe, these are rarely used.

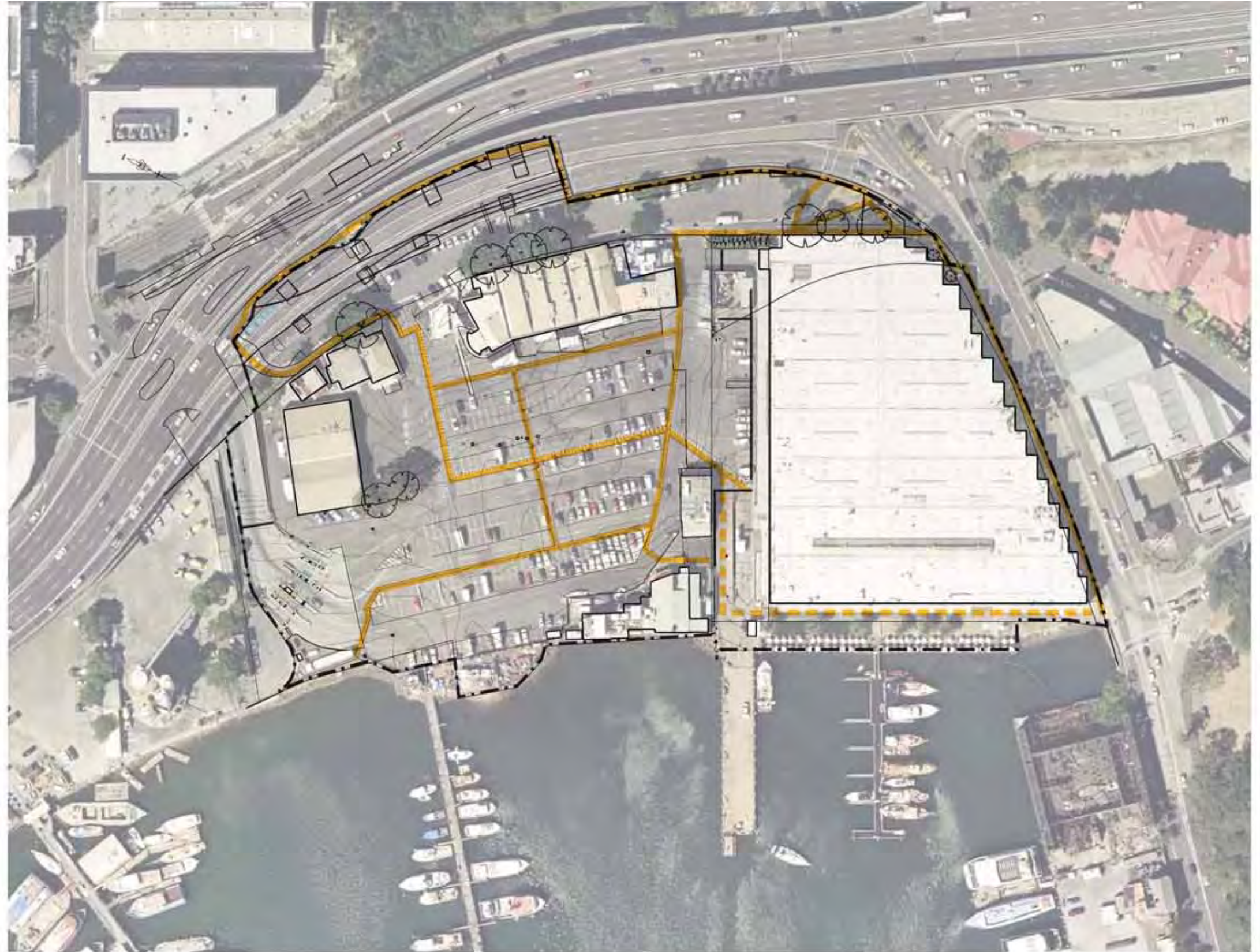
1.10.4 Water access

The southern pontoon provides berthing for commercial cruise boats. This pontoon is publicly accessible with berthing available for visitors arriving by boat and water taxi. There are approximately 20 berths on the pontoon, some of which are permanently occupied. During peak periods limited mooring space restricts the number of vessels able to moor.

The fishing fleet is an integral part of the authenticity of SFM. The fleet uses the central wharf for unloading and loading with direct access to the selling floor. There are approximately 6 berths on this wharf. The most northerly wharf is used for permanent berthing for the fishing fleet. There are approximately 21 berths on this wharf. The fishing fleet currently operating from the SFM site consists of 7 vessels which operate in Sydney Harbour and 14 larger vessels which operate along the coast of NSW.

Refer to Figure 11: Existing pedestrian movement.

(Refer additionally to **Appendix 6: Sydney Fish Market Redevelopment – Transport and Accessibility Impact Assessment** (2010) prepared by Halcrow).



LEGEND

 Pedestrian Movement

 Existing Pedestrian Movement

Sydney Fish Market Redevelopment

CM⁺ Conybeare Morrison

Ridley

Client: Sydney Fish Market Authority
August 2010 | 10034 - SK09

1.11 Parking and Loading Facilities

1.11.1 Car parking

The site includes a car park with approximately 417 spaces, which operate at or near capacity most days, but particularly on Fridays, Saturdays and Sundays. The car park is located on the central portion of the site but also occupies land adjacent to Jones Street and underneath the existing Western Distributor upload ramp. During the Christmas peak, the Hymix site is also used for parking, which provides an additional 200 spaces.

1.11.2 Loading facilities

A loading dock containing 21 docks is situated on the northern side of the Main Fish Market building. Trucks are required to negotiate the car park in order to access the loading dock. The layout of the site is such that all arrivals, including commercial vehicles and public transport users, are required to travel through the car park to access the Main Building.

19m semi-trailers are used for delivery of produce for auction. For other operations and deliveries, small rigid trucks or vans and large rigid trucks are used.

1.12 Existing Public Transport

The site is well located with good access to public transport, of light rail and bus services. The conditions immediately around Sydney Fish Market are not conducive for walking, in particular the undercroft created by the Western Distributor creates a poor pedestrian experience.

Heavy rail services are too remote from the site to provide a realistic travel opportunity.

1.12.1 Light rail

The Metro Light Rail (MLR) alignment runs close to the site with two stops within an easy walking distance: Fish Market and Wentworth Park. The Fish Market stop is approximately 100m from the Bank Street entrance to SFM, with a pedestrian crossing at the existing traffic signal. Wentworth Park stop is located east of Wattle Street. Both stops provide a direct connection to Central Station and the City Rail network.

Access from Sydney Fish Market to these stops is:

- **Fish Market stop** – via main site access to Bank Street, with pedestrian crossing at existing traffic signals. The stop entrance is directly adjacent to the pedestrian crossing on the east side of Bank Street, near the corner of Miller Street. The walk distance to the stop is 100m from the access and 300m from the entrance to the retail arcade.
- **Wentworth Park stop** – via site access at Pyrmont Bridge Road/Wattle Street intersection, with pedestrian crossing at this intersection. Access is then via Wattle Street. The walk distance is 170m from the access and 140m from the entrance to the retail arcade.

Light rail services to SFM operate every 10-15 mins. The service operates seven days a week and is available during the opening hours of the SFM. The current adult fare from the city is \$3.40 one-way and \$4.80 return, within one zone. The service travels between Central and Lilyfield via Darling Harbour, Pyrmont and Glebe.

The hours of coverage currently offered by the service are:

- First service – 6.00am from Central Station and from Lilyfield, with the first service at Fishmarket Stop at 6.08am eastbound and 6.15am westbound;
- Last service – 12.10am from Central Station and 12.33am from Lilyfield, with the last service at the Fishmarket Stop at 12.41am eastbound and 12.25am westbound.

The service frequency at the Fishmarket Stop is 6 per hour between 7.30am and 9.20pm and 5 per hour at other times.

Metro Light Rail has intermodel connections at:

- Lilyfield with Sydney Buses service 445;
- Heavy rail network at Central Station;
- Monorail at Convention and Haymarket;
- Ferry at Pyrmont Bay.

1.12.2 Bus

Bus services from the SFM site provide good connections to the CBD and the Balmain peninsula and Ryde via the Anzac Bridge.

The following bus services provide access to the Sydney Fish Markets on a regular basis.

- Route 501 – West Ryde to CBD – travels along Bank and Miller Streets, with the nearest stop located on Miller Street approximately 90m walk from the Fish Markets pedestrian entry at Miller Street.
- Route 443 – Darling Harbour to CBD – travels along Harris Street, with the nearest stop located on Harris Street, approximately 220m walk from the Fish Markets pedestrian entry at the intersection of Pyrmont Bridge Road and Bank Street.

Combined, the buses services occur from 4mins to 9mins intervals during the week and 12min intervals at weekends.

Service frequencies are 7-10 mins in the morning and afternoon peaks, 15-20 mins during the day and 20-25 mins at night. On Saturdays, services operate at 15-20 mins intervals. Services are less frequent (20-30 mins) on Sundays, which are the busier days for SFM.

1.12.3 Monorail

Monorail services are peripheral to the site, with the closest stop located at Harbour side shopping centre at Darling Harbour, approximately 565m walk from SFM.

The monorail operates between 7.00am and 10.00pm Monday to Thursday, 7.00am to midnight Friday and Saturday, and 8.00am to 10.00pm on Sunday. The service headway is 3-15 mins.

The service is a one-way, anti-clockwise loop that connects the CBD with Darling Harbour.

1.12.4 Ferry

The closest actively used ferry is in Pyrmont Bay, approximately 715m walk from SFM. The ferry service calls at the following wharves:

- Circular Quay;
- Milson's Point;
- Balmain East (not all services);
- Balmain (not all services);
- Darling Harbour (Aquarium on eastside of Darling Harbour);
- Pyrmont Bay.

Hours of coverage of this service are:

- From Circular Quay – weekdays 7.00am to 10.00pm; Saturdays, Public Holidays, Sundays 8.00am to 7.15pm.
- To Circular Quay – weekdays 7.28am to 10.25pm; Saturdays, Public Holidays, Sundays 8.23am to 7.40pm.

Service headways are 50-55 mins during commuter peaks, 30 mins during the day and hourly in the evening. On Saturdays, Public Holidays and Sundays services have headways of 45-50mins to 11.15am and then 30 mins for the rest of the day.

The timetabled travel time from Circular Quay to Pyrmont Bay is between 27-33 mins depending on calling patterns at Balmain and East Balmain. Between Darling Harbour and Pyrmont Bay, the travel time is 2 mins.

The current adult single fare from Circular Quay to Pyrmont Bay is \$4.90.

The *Ultimo-Pyrmont Urban Development Plan* identifies SFM as a possible future ferry stop. SFM has a publicly accessible wharf for people who want to visit the site by water taxi. A taxi rank for 2 motor vehicles is provided within the site.

There is good public transport coverage during the business hours of the site's peak trading days. However, there is a lower level of public transport access available in the early hours.

1.12.5 Taxis

A taxi rank for two vehicles is provided on-site immediately at the access to the main retail arcade. A courtesy telephone is provided for intending passengers.

1.12.6 Other transport services

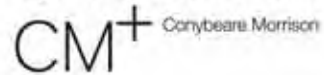
There is a private bus service network that serves Star City Casino. Buses run to different parts of Sydney and there is a cost for non-members of the Casino of \$11.00 of which \$10.00 is refunded for return tickets.

The Sydney Explorer (Route 111) bus stops at the intersection of Harris Street and Pyrmont Bridge Road. The tourist bus service operates at a 20 minute frequency from 9.03am to 6.43pm.

Refer to Figure 12: Public transport network.

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Sydney Fish Market Redevelopment



Reilly

Client: Sydney Fish Market Authority
August 2010 | 10034 - SK07

1.13 Existing Site Operations

The Sydney Fish Market is a major inner city tourist attraction and active market. It currently operates as a seafood distribution and retail premises. It has loading bays for delivery trucks, a jetty for trawlers with associated loading facilities, processing and storage facilities for seafood.

Deliveries and trawlers operate on a 24 hour basis. Market activity peaks before 9:30am in the early morning with external traders and wholesalers attending the market. Wholesale activity is not expected to change with the redevelopment. The retail premises operate normal working hours between 9:00am and 5:00pm. Tourist bus trade arrives on site throughout the day in addition to non wholesale customers. A peak in non wholesale customers occurs during the middle of the day on Sunday between approximately 12:00pm and 2:00pm.

1.14 Existing Site Infrastructure and Services

Existing services are generally located within the adjoining road network of Bank Street, Jones Street and Pyrmont Bridge Road. A number of stormwater drainage pipes which traverse the site carrying stormwater runoff from Bank Street and the overheard Anzac Bridge approaches to Blackwattle Bay.

The capacity and location of existing on site services has been assessed to be generally inadequate, with replacement, upgrading and/or augmentation to meet the required future redevelopment needs of the site. The following infrastructure has been identified as requiring augmentation:

1.14.1 Stormwater drainage

An 1800mm stormwater main is located approximately 7m parallel from the existing loading dock to the Fish Market building. This main is connected to a manhole located at the edge of the existing seawall then outlets to the Bay. It is proposed to connect the redevelopments stormwater to this existing manhole.

The existing in-ground drainage within the public domain at the Jones Street car park and Bank Street intersection are owned by a combination of Sydney Water Corporation (SWC), Sydney City Council (SCC) and the Roads and Traffic Authority (RTA). The Jones Street car park drainage connects into a trunk drainage line, believed to be 600mm diameter, which runs parallel to the loading docks along the northern face of the main warehouse building before draining directly into the bay. The Bank Street intersection connects into a separate truck drainage line, located north of the Hymix site which also drains directly into the bay.

There are existing drainage lines scattered around the internal car park and draining each building. The internal drainage system is inadequate and poorly maintained with some pits being completely blocked by debris and sediment. Due to the uneven pavement surface, local ponding is common and most runoff tends to drain untreated directly into Blackwattle Bay.

1.14.2 Water supply and sewerage

The main water supply system is located in Bank Street, Jones Street and Pyrmont Bridge Road. The site appears to be adequately serviced by existing Authority sewer and water service mains.

Currently the water usage at the Sydney Fish Market is 230 KL/day and the expected requirement for the proposed development is an additional 388 KL/day. This will give the site at total daily water requirement of 618 KL/day. An informative Section 73 – Notice of Requirements which will confirm whether a new connection to the existing sites water supply is possible or whether the Sydney Water main will require amplification.

1.14.3 Electrical services

Substation

The area to be redeveloped is presently supplied by Energy Australia chamber substation No. 2179, located at the south-east corner of the retail building on Bank Street. The existing substation is rated to 1270A and has had a maximum demand reading of 1024A. It has insufficient capacity to support Stages 2-4 of the development.

Main Switchboard

The existing main switchboard is located in a switchroom adjacent to the existing substation No. 2179. CT chambers and protection devices for submains to tenancies are generally mounted directly on the wall.

The existing electrical distribution is generally beyond its economic life and will generally be removed.

1.14.4 Telecommunications

Telstra pits and conduits are located in the footpath that runs adjacent to the east side of the proposed Stage 2 and 3 building. Each existing tenant has its own Telstra service connected directly to Telstra's network via underground conduit.

1.14.5 Gas

There is currently 2 x 50mm gas meters located at the existing site. One is located in the plant room on Level 1 of the existing Fish Market Building and the other located near the edge of existing sea wall at the Pier Head. The gas supply to the meters is high pressure.

1.14.6 Sanitary drainage

The Authority's 300mm sewer main is located underneath the existing car park driveway in Jones Street.

1.14.7 Trade waste

Currently there are four existing grease arrestors serving the Fish Market. The Total capacity of the four grease arrestors is roughly 14,000L. However two of these existing grease arrestors will be removed as they are serving tenants located next to Jones Street which will be demolished as part of the redevelopment. The redevelopment will require an additional 4 x 5000L grease arrestors which is a total of 20,000L in grease arrestor storage volume.

A Trade Waste Agreement between the Owner and the controlling Authority shall be entered into at the Design Stage. The Agreement shall include any arrangement for removal of prohibited materials such as grease generated by a kitchen or takeaway food shop where cooking takes place.

(Refer additionally to **Appendix 8: Sydney Fish Market Redevelopment: Building Services Concept Report** (July 2010) prepared by Umow Lai).

1.15 Noise

The Noise Report prepared by Wilkinson Murray has identified the following locations as the nearest representative noise sensitive receivers most likely to be affected by noise from the Sydney Fish Market, being:

- Apartments at 17 Jones Road;
- Apartment building on Wattle Crescent;
- Residential developments in the vicinity of Ferry Road and Griffin Place across Black Wattle Bay;
- Residential buildings on Bulwarra Road.

Attended measurements were carried out on 16 June and 25 June 2010 at the following locations:

- Position 1 – in front of the residential buildings at 17 Jones Road;
- Position 2 – in front of the terraced house on Bulwarra Road;
- Position 3 – beside the apartment building on Wattle Crescent at the height of Level 1 apartments; and
- Position 4 – on the quay side in front of house on Ferry Road, equivalent to the measurement position at Griffin Place.

Traffic noise dominated the noise measurements. For the majority of the time the most significant contributor is noise from traffic on the Anzac Bridge.

At Jones Street, during the daytime and evening periods, the noise environment is dominated by road traffic noise from the Anzac Bridge. During the night time when traffic volumes decrease, the mechanical plant from the Sydney Fish Market is audible but this plant will be replaced by new plant. Delivery trucks are also audible from this receiver position, entering and leaving the premises.

At Bulwarra Road, there is insignificant industrial noise existing in the area and the existing noise levels are dominated by road traffic noise.

Wattle Crescent, the Anzac Bridge and Pyrmont Bridge Road dominate the noise environment during the daytime and evening periods. During intermittent traffic at night time, mechanical noise from the Sydney Fish Market is just audible.

At Ferry Road, the Anzac Bridge dominates the noise environment during all assessment periods and industrial noise from the Sydney Fish Market does not significantly contribute to the overall noise at this location. During the measurements, trawlers were measured but these movements were inaudible.

Fishing trawlers operating in Blackwattle Bay serving the fish market currently operate on a 24 hour basis returning when they have filled their stores. Attended monitoring revealed that they are inaudible at all receivers.

(Refer additionally to **Appendix 11: Sydney Fish Market Redevelopment – Noise Assessment** (August 2010) prepared by Wilkinson Murray).

1.16 Odour

The main air emission problem at the site is odour. Activities in the car park such as processing and transport of fish, hosing out retail premises and trucks, and oil spills result in pools of wastewater which accumulate in depressions in the uneven surface of the car park. As the water evaporates fish waste gets baked in the asphalt. This results in offensive odour, and the untreated stormwater runoff is directed into Blackwattle Bay by the slope of the site. This has the potential to contaminate the Bay.

Odour associated with offal and putrescible waste is controlled by refrigeration of the waste until it is removed from the site.

1.17 Geological Description

1.17.1 Subsurface conditions

The SFM site is underlain by silty to peaty quartz sand, silt and clay overlying the Hawkesbury Sandstone. The boreholes undertaken on the site encountered pavements, overlying fill which in most places overlies a sandy soil layer of varying thickness, which in turn overlie sandstone bedrock.

Along the northern side of the site is a buried cliff line that is exposed in the north-west corner. To the west of this mostly buried cliff line, the rock level/shelf drops off, in an area that has been reclaimed from the bay by filling out to the sea wall; this reclaimed land forms the majority of the Fish Market and waterfront park site. The seawall on either side of the northern wharf is generally believed to loosely follow the shape of the original shoreline of Blackwattle Bay.

1.17.2 Pavements and concrete

The site predominantly comprises asphalt pavements (AC) between 20-100mm thick. In some areas concrete is up to 230mm thick. Below the AC and concrete pavements, base course layers comprising mainly silty gravelly sand and sandy gravel, are present in the majority of the boreholes being up to about 500mm thick.

1.17.3 Existing sea walls and revetments

At the south-western portion of the site, near Pyrmont Bridge Road, the fill embankment runs into the Bay, of approximately 2m in height with slopes ranging from approximately 30° to 60°. Directly below the existing boardwalk is an embankment protected with rip-rap with moderate batter slopes.

North of the concrete main jetty (directly north of the Main Fish Market Building), is an embankment with rip-rap extending about 6m to the north of the jetty and sloping about 30° towards the Bay. Directly north of this embankment is a sandstone block seawall, in poor condition, between 1.2m and 1.8m in height.

Directly south and north of the timber jetty at the northern portion of the site, the seawall is of timber piles and lagging, with the section just north of the jetty in a poor state of repair.

The timber seawall near the northern boundary comprises a fill embankment with a batter slope of about 100 and steeper towards the crest. Towards the crest of the embankment is an old block wall of about 0.4m in height.

1.17.4 Fill

On the SFM site, fill was encountered below the pavements to depths ranging from 0.4m to 4.2m.

Within the foreshore area, fill below pavements extended to depths ranging from 1.1m to 6m.

Over water, fill was encountered where it extended to a depth of 2.4m.

Generally the fill comprise silty sand, sandy gravel and silty gravelly clay. The fill contain inclusions such as igneous and sandstone gravel as well as fragments of ash, slag and wood fragments. The fill was generally assessed as moderately or well compacted, with poor compaction noted in at the southern portion of the site beneath the level of observed groundwater.

1.17.5 Estuarine soils

On the SFM site, natural soils were encountered beneath the fill in the majority of the boreholes to depths of between 2.2m and 8.5m. The soils were thicker where rock was deeper, ranging up to a maximum of about 5m.

Within the foreshore area, natural soils were encountered beneath the fill in the majority of the boreholes to depths of between 2.2m and 12.8m. Where rock was deeper, the soils ranged up to a maximum of about 6.8m in thickness.

Over water, estuarine soils were encountered beneath the fill and from the bay floor to depths of between 2.26m and 11.1m.

The soils generally comprised silty and clayey sands with occasional clay and silt bands.

1.17.6 Sandstone bedrock

On the SFM site, sandstone bedrock was encountered directly below the fill in the northern portion of the site and beneath sandy soils in the central portion of the site at depths from 0.4m to 8.5m.

Within the foreshore area, sandstone bedrock was encountered directly below the fill and beneath natural soils at depths between 1.1m to 12.8m.

Over water, sandstone bedrock was variable in quality, ranging from extremely low to medium strength.

1.17.7 Groundwater

On the SFM site, groundwater was encountered at approximate RLs ranging from 0.0m to 2.3m AHD.

Within the foreshore area, groundwater was encountered at depths from 1.6m to 3.4m.

(Refer additionally to **Appendix 14** and **Appendix 15**:

- *Geotechnical Investigation for Proposed Redevelopment, Stages 2 to 4 including New Access Roads and Parking at Sydney Fish Market, Blackwattle Bay, Pyrmont NSW* (June 2010); and
- *Geotechnical Assessment and Design Advice for Proposed Foreshore Works at Sydney Fish Markets, Blackwattle Bay, Pyrmont, NSW* (August 2010) prepared by Jeffery and Katauskas Pty Ltd).

1.18 Site Contamination

The north section of the site is predominantly occupied by the Fish Market's car park. The car park area is paved with asphaltic concrete which was in relatively poor condition. Cracks, slumped areas, reinstated areas and large potholes are evident throughout the car park.

The site areas immediately adjacent to Blackwattle Bay in the north of the site are used as a storage area and as a helipad. Various materials including ropes, chains, disused fridges, waste oil storage drums (labelled as containing engine oil) and a shipping container are located in this area. A waste engine oil storage area is located to the south-east of the helipad. The waste oil storage appears to be in an above ground tank; however, this could not be confirmed. The seawall in this section of the site is constructed of timber and sandstone block, and is in relatively poor condition.

Two circular metal plates that appeared consistent with the presence of UST dip/ fill points are located at the ground surface in the car park, approximately 30m to the north-east of the waste engine oil storage area. No other fuel infrastructure such as vent pipes or bowsers are evident. The dip/ fill points are likely to be associated with two disused USTs located in this section of the site.

The central section of the site is occupied by a seafood wholesaler/ retailer and processing facility, together with several fridges. No obvious indicators of chemical or petroleum storage have been observed within the buildings.

Potential contaminants at the site and the foreshore precinct are anticipated to be from:

- Potentially contaminated, imported fill material;
- Potential asbestos contamination associated with demolition of the former site buildings/ sheds;
- Potential use of the site (particularly the south and south-west sections) for petroleum storage and refining processes;
- Unidentified underground storage tanks;
- Historical use of the site for unknown commercial/industrial purposes;
- Historical activities such as use of pesticides; and
- The suspected underground storage tanks located off-site but adjacent to the western boundary.

1.18.1 Soil contaminants

The compounds identified as soil contaminants of concern at the site include:

- Heavy metals: arsenic, cadmium, copper, lead, mercury, nickel and zinc;
- Total petroleum hydrocarbon;
- Benzene, toluene, ethyl benzene, xylene;
- Polycyclic aromatic hydrocarbons including benzo(a)pyrene;
- Organochlorine pesticides (OCPs) including Aldrin, dieldrin, chlordane, DDT, DDD, DDE and heptachlor;
- Organophosphorus pesticides (OPPs);
- Polychlorinated Biphenyls; and
- Asbestos.

1.18.2 Groundwater contaminants

The compounds identified as groundwater contaminants of concern at the site include:

- Heavy metals: arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc;
- Total petroleum hydrocarbons;
- Volatile organic compounds (VOCs) and
- Polycyclic aromatic hydrocarbons.

1.18.3 Contaminant movements

Mobile contaminants are expected to move down to the rock surface or groundwater table and migrate laterally down-slope from the source. The movement of contaminants is generally expected to be associated with groundwater flow and seepage at the top of the bedrock. In the vicinity of the west site boundary, the transport of contaminants may also be associated with tidal movement.

(Refer additionally to **Appendix 16** and **Appendix 17**:

- *Environmental Site Assessment and Acid Sulfate Soil Assessment for Proposed Redevelopment at Sydney Fish Markets, 56-60 Pyrmont Bridge Road, Pyrmont NSW* (June 2010); and
- *Preliminary Environmental Site Assessment for Proposed Redevelopment of Waterfront at Sydney Fish Markets, 56-60 Pyrmont Bridge Road, Pyrmont, NSW* (August 2010),

prepared by EIS (Environmental Investigation Services)

1.19 Heritage Considerations

1.19.1 Historical context

The pre-settlement environment of the SFM site was of a deeply indented cove enclosed by small headlands north and south. It is likely to have water worn sandstone platforms to the north and sandy beach at the deepest point around to the south. The cove had exposed mudflats at low tide and was surrounded by rising sandstone. It is likely to have had stands of trees on the slopes and possibly mangrove communities at high water.

High water mark was at a point several metres west of the present line of Bank Street. Low tide would have exposed mud flats beyond the western edge of the car park.

A significant portion of the SFM site comprises reclaimed swamp land of Blackwattle Bay. Analysis of the historical evolution of the Pyrmont precinct has identified five principal periods of change and development:

Phase 1: 1806-1860 – the Ultimo Estate

The SFM site was part of the Ultimo Estate, a massive combined land grant accumulated by surgeon John Harris between 1803 and 1818. This vast private estate remained relatively unchanged and intact until the later part of the 19th century.

The area was essentially swampy foreshore land and cove. The cove was likely developed as the water-front access for the estate with at least one jetty and boat landing place, retaining wall, culverts and drains located around high water mark at the southern end of the site. The earliest improvements appear to have been added to and upgraded, and the jetty is likely to have survived until the mid-nineteenth century.

The northern end of the site is likely to have been encompassed within one of the earliest sandstone quarries opened on the peninsula, working by 1845. By the mid-nineteenth century a long jetty had been built from the northern arm of the cove probably to support this activity. This survived to the 1860s. The quarry is likely to have been shut down about then or a little earlier.

Blackwattle Creek, because of its reliable water supply, accommodated many noxious developments such as tanneries, slaughter yards and soap factories.

There is no evidence to indicate that the site was actively developed during this period.

Phase 2: 1860-1880 – subdivision and reclamation

The Ultimo Estate was subdivided in 1859 and the cove was encompassed within two blocks of the subdivision owned by John Harris (northern half) and Mathew Harris (southern half). About this time a causeway was built across the Blackwattle Swamp and its eastern landfall was in the southern half of the cove, approximately the site of Pyrmont Bridge Road.

Throughout the 1860s and 1870s the cove is still likely to have been used as a landing place serving the estate and its increasing number of tenants.

The period from 1856-1880 saw the foreshore land on the western side of the peninsula reclaimed for the purpose of creating a road (Abattoir Road, later renamed Bank Street) leading to the Glebe Island Abattoir and to remedy the “open sewer” condition along Blackwattle Creek in Glebe due to slaughterhouse industries formerly sited in this area. The cove was enclosed in two programmes of reclamation work in 1882 and 1883:

- The northern half was reclaimed by John Harris apparently using stone sea walls and timber piling, the latter around the extended arm of the northern headland, which is still preserved in the waterfront; and
- The southern half was initially all timber piled.

Phase 3: 1880-1903 – timber, iron and ore

During the period 1880-1903, a number of industries were established on the newly formed land in the former cove, between Miller Street and Pyrmont Bridge Road.

From 1885 the northern part of the site, from Miller Street to the extended Gipps Street was leased to a large number of industrial sites. These included timber mills and yards, a ship and iron works, a cooperage, ore treating works and others. Wharves were added along the waterfront with gantries and other improvements and buildings were added and removed from the land-side, not always with much documentation. From the early years of the 20th century much of the site was devoted to storage and processing associated with the oil industry. The northern part continued to be used by the timber industry.

The southern part of the site, south from the Gipps Street extension, appears not to have been actively used until the last years of the 19th century. It was leased to the large timber firm of Saxton and Binns. It became part of their large holding around the bay that encompassed storage, industrial buildings and wharfage. The timber merchants, Allen Taylor and Co. Ltd also occupied the site. Both Allen Taylor and Saxton and Binns continued to reclaim land along the foreshore to accommodate their works. The ironworks still occupied part of the site.

By 1900, Thomas Buckle, acquired premises at this location, became the principal occupant of the site and built a wharf on the bay.

The first fish-market on this site (part of a long history of markets) was established in 1963 using some of the old Shell Oil buildings. The site was redeveloped in 1983 to the present configuration.

Phase 4: 1903-1966 – Oil

Between 1903 and 1966, the site continued to be used for industrial purposes with oil storage being the dominant use of the site.

By 1909 The British Imperial Oil Company and Vacuum Oil Company's bulk store was located on the site. The British Imperial Oil Company had a wharf near Gipps Street and created an extensive depot and a siding to the nearby goods line. Buckle was still using the site as well as the Telegraph Construction Branch and the Australian Road Metal and Gravel Company had established a depot here. The area south of Gipps Street was occupied by Saxton and Binns.

By 1911 Vacuum Oil Company had vacated the site but the British Imperial Oil Company continued in occupation throughout the 1920s. By the 1940s the Shell Oil Company had taken over their depot. The other occupants of the site were generally timber merchants. A 1923 survey shows the area closest to Miller Street to be generally the site of timber merchants, the centre of the site to be the oil depot and south of Gipps Street was utilised by Saxton and Binns for their timber mills, warehouses and the like. A number of wharves belonging to these businesses were built out into the bay. Throughout the 1940s and 1950s the occupants of this site remained much the same.

Phase 5: 1966-1993 – Fish Markets

In 1964, a central marketing authority was established by the NSW fishing industry. In 1966, SFM was acquired by this authority as a permanent site for the fish market. Some buildings of the former oil depot were reused, which have subsequently been demolished. During the 1980s, the area south of Gipps Street was developed again for a new market and quay side shops.

1.19.2 Heritage listings

There are no current heritage listings for any structure, feature or relic within the site. The only significant visible feature identified within the site is sandstone seawalls along the foreshore which were constructed as part of the 1870s reclamation project of Blackwattle Bay, with part of this wall following the original shore line prior to reclamation.

The site is adjacent to the Blackwattle Bay Stormwater Channel No. 17 (SWC No. 17) which enters Blackwattle Bay at the south-western corner of the site. SWC No. 17 is listed on the State Heritage Register (Database No. 4570535, gazetted 1 January 2000) and noted as having a high level of historical and technical significance as one of the five original combined sewers built in Sydney c.1857.

1.19.3 Indigenous heritage

The site is identified in the *Ultimo-Pyrmont Urban Development Plan* as a potential archaeological site. The most likely form of archaeological deposit would be shell midden comprising mature species dominated by oyster and cockle with possible small chips of flaked stone. The shell would be embedded within rich topsoil on a relatively flat area of ground or rock platform. Detection of midden deposit indicates areas where Aboriginal people camped regularly. However, given the history of disturbance and development on the site, it is unlikely that any aboriginal relics or possible midden deposit will exist.

An assessment of the SFM site for indigenous heritage was undertaken in 2002 by Environmental Resources Management Australia for the preparation of the Masterplan for the Sydney Fish Market site.

Aboriginal activity along the foreshores of Sydney harbour was recorded at the time of arrival of Europeans. Archaeological evidence of such activity remains in some parts of the harbour foreshores, although many areas have been so heavily affected by development since 1788 that little remains.

There have been no sites of Aboriginal occupation found within Blackwattle Bay to date.

The National Parks and Wildlife Service database of recorded Aboriginal sites lists three sites within a 2km radius of the Sydney Fish Market. In his history of Pyrmont and Ultimo Matthews records a spring site, "Tinkers Well", with evidence of Aboriginal modification of the sandstone to form a water container and associated shell midden. The spring site was located in a now-destroyed sandstone "cave high up in crags and boulders on the north west of the Mount Street hill" (Mathews 1982:25).

A redrawn 1880s map of the eastern Blackwattle Bay foreshore area in Mathews 1982 shows a muddy shore and swamp. While this muddy condition may have resulted from post-settlement saltation of the Bay, a mangrove swamp environment may have been likely. This would have provided estuarine shellfish resources for Aboriginal people camped repeatedly.

Prior to European development on the site, the small prominences either side of the original pre-reclamation cove would have offered the best access to the mangrove flats on the bay's edge or the deeper water for fishing if the muddy shores are an artefact of post-European saltation. These prominences are thus the most sensitive for archaeological deposit. The sensitivity would be considered low in comparison with other vantage point closer to the deeper waters of Harbour such as the northern edge of Pyrmont near the Tinkers Well site mentioned above.

Only the northern of the two prominences which border the pre-reclamation cove is located within the study area. Its precise location cannot be discerned in the present site but the 1856 proposed subdivision map suggests that its alignment corresponds to a line directly between Miller and Gipps Street (which ran down to water's edge). This would match it with the small "bulge" along the sea wall behind the long wooden jetty towards the north end of the site.

1.19.4 Potential archaeological profile

The archaeological profile of the SFM site has been assessed by Cultural Resources Management as likely to encompass some or all of the following:

- A high probability for environmental evidence that includes original land forms, soils and plant material capable of documenting the pre-settlement environment, its diversity and the impacts of European settlement.
- A low probability for evidence of Aboriginal occupation, most likely in the form of midden material, in the northern part of the site in the area of the former headland and below the reclamation fills.
- A high probability for locating some evidence of the Ultimo Estate development around the northern and eastern boundaries of the site such as drains and culverts and paths and walls. Outside the development area, under the main SFM building, is likely to be evidence of jetties and piers constructed for the estate in the first half of the nineteenth century. This evidence will be found under the reclamation fill.
- A high probability for evidence of early sandstone quarrying and possible features such as drains and culverts. This evidence would be found under and within the reclamation material. There is the potential for some evidence of a c. 1850s jetty to be contained within the reclamation "bump" on the western edge of the site as well as within the bay.
- A certainty of finding reclamation material introduced in the 1880s. It is likely to encompass deposits of silts and other soils and, possibly, various domestic and industrial wastes and reveal evidence of the processes of reclamation.
- The sea walls that enclose the site on the western boundary encompass elements from 1882 through to the early years of the twentieth century. Apart from these visible elements the site is also likely to encompass rubble and stone-built walls and timber piling from the original reclamation line that extended into the site before Gipps Street was extended to the waterline. This portion of the site will also

encompass the fill added to extend the line of the street in c. 1910. This is located on the southern boundary of the site adjoining the present market hall.

- There is a medium probability of evidence surviving within the site of the buildings first constructed on the site after its reclamation for the timber industry. It is likely that traces, both structural and of deposits, of this first phase of occupation will survive within the site but it will be fragmentary.
- There is likely to be evidence of a jetty and wharf built by the Ellis Company both within the structure of the retaining wall on the bay and within the bay itself. Less certain is the potential for archaeological evidence (structural, deposits and services) of the land buildings because it has been relatively lightly used since the removal of the company it must be considered a possibility that some components of the archaeological profile (structural, deposits and services) will have accrued due to this occupation.
- By the 1920s Allen Taylor had constructed a very substantial building on the waterfront with two jetties. The site of the building, adjoining the entrance to the car park and the waterfront is likely to contain extensive evidence of the early twentieth century building including structural elements, deposits and services including industrial components of a smithy and shipwright's workshop. There is also likely to be evidence of two jetties built by this company evidenced by changes in the retaining walls and as relics within the bay.
- The Blackwattle Iron Works was one of the first companies to occupy the reclaimed cove in 1885. Other heavy industrial firms including an ore treatment works and a cooperage succeeded this company. A timber company finally occupied it before being taken over by the Shell Company. Due to the possible longevity of the nineteenth century structures and the relatively small impacts of subsequent works there is a medium – high probability that intact components of these structures will be found within the site as well as features and deposits associated with them and relics of the industrial processes.
- From 1899 until 1928 the site was the business premises of the Buckle family; it was largely used for warehousing and stores. Several of these buildings were demolished in the 1960s. There is a high probability that the south-eastern corner of the site will contain intact foundations of some of the warehouses, stables and other buildings. As well, there is likely to be evidence both within the retaining walls and within the bay of the jetties constructed by this company.
- From the early years of the twentieth century the site has progressively been given over to the buildings and storage and other works required by the several oil companies using the site. Apart from intact floor and foundations there are likely to be in ground tanks and services as well as deposits and relics associated with this occupation. The car park is likely to encompass extensive evidence of this phase of occupation.
- There is a high probability for the archaeological profile to encompass elements associated with the development of infrastructure for the waterfront. The earliest jetties were those associated with the Ultimo Estate; archival references suggest that these were located on the southern side of the cove and would be under the site of the present Main Fish Market building. Evidence of jetties constructed for the timber companies during the last years of the nineteenth century and early years of the twentieth century is likely to be found within the bay adjacent to the retaining walls. This evidence is likely to encompass piles and demolition material

from the wharves and jetties. There is also likely to be an accumulation of relics and artefacts in association with these former wharves.

- Within the site, the principal thoroughfare was the extension of Gipps Street made in the 1890s. This street is certain to have left a recognizable profile of surfaces, kerbing and guttering. There is likely to be a cement outfall running beneath it to the waterfront. The western end will be constructed over the fill laid down in c. 1910 to extend this street to the bay.

1.19.5 Geotechnical and archaeological evidence

There has been no archaeological investigation of this site or any in its near environs. There is good archaeological evidence of similar conditions, for the earlier 19th century profile from work in Darling Harbour.

There is up to 4m of reclamation fill at the western end of the site, above what had been the deeper water of the cove. The "fill" shallows to approximately 1.5-2m at the eastern end above what is likely to be the original sandstone platforms at the edge of the bay. The constituents of the fill are not generally specified but indicate that the site is a product of the combined processes of reclamation fill and additions from the several occupants (for example, bores report ash, slag and timber components).

(Refer additionally to **Appendix 13**:

- *Sydney Fish Market, Pyrmont: Archaeological Assessment, European Archaeology*, (June 2010) prepared by Cultural Resources Management (CRM);
- *Sydney Fish Market: Assessment of Ecological and Aboriginal Heritage Issues*, (2002) prepared by ERM);
- *City West Development Project Master Plan Area Pyrmont Fish Market: Heritage Assessment and Strategy Report* (1994) prepared by CRM; and
- the State Heritage Register.)

1.20 Flora and Fauna

The SFM is a highly altered environment with relatively little terrestrial flora. No threatened terrestrial flora species occur on the site.

A number of trees exist on and adjacent to the site including hybrid eucalyptus (Bangalay) trees along the Pyrmont Bridge Road frontage, small and mature Hill's Weeping Figs located along the eastern edge of the site. These Fig trees have been identified in the Arboricultural Assessment as unsuitable for relocation. Sydney Blue Gums (*Eucalyptus Saligna*) located at the northern edge of the car park and Canary Island Date Palms (*Phoenix canariensis*) located along the western edge of the site adjacent to the boardwalk.

The SFM is unlikely to provide habitat for many native terrestrial fauna species. However, the fig trees provide potential foraging habitat for the Grey Headed Flying Fox which is listed as vulnerable under the Threatened Species Conservation Act 1995. The opportunity exists to plant new fig trees on the site to provide potential foraging habitat for the Grey Headed Flying Fox. The SFM site supports a number of native waterbirds including darters, terns, seagulls and pelicans, and the waters of Blackwattle Bay are likely to support marine fish species.

(Refer additionally to **Appendix 12: Sydney Fish Market – Ecological Impact Assessment** (July 2010) prepared by ERM).

1.21 Marine and Seawall Structures

There are four existing land water interface structures along the foreshore of the site;

- The boardwalk on the western side of the existing Main Fish Market Building;
- The concrete wharf used for the unloading of trawlers;
- A timber wharf at the northern end of the site used for mooring vessels; and
- The seawalls, revetments and exposed embankments along the foreshore.

The seawalls extend from the northern side of the concrete wharf northwards to the timber wharf. These seawalls have been constructed from sandstone and are in a poor state of repair. In some areas, the original top stones have been replaced by concrete blocks. In the section immediately north of the concrete wharf the wall has subsided, water overtops these walls. These walls require significant remedial works and should be raised to accommodate the wave climate at the site in extreme conditions as well as the effects of global warming. It may be more cost effective to construct new seawalls inside the line of the existing walls.

North of the timber wharf, the embankment is unprotected and exposed directly to the effects of waves. The embankment is eroding into Blackwattle Bay and requires protection to prevent further erosion and silting up of the waterway.

The boardwalk was constructed in 1989. It consists of timber decking supported on timber beams, timber headstocks and timber piles. Recent inspections have identified that the timber decking and beams have suffered significant deterioration and that remedial works are required to the whole structure. It is likely to be more cost effective to replace the boardwalk with a more durable structure. Beneath the boardwalk is a rip rap stone revetment constructed in 1989. The revetment is in a stable and sound condition.

South of the existing boardwalk, the revetment does not exist, with the result that the embankment is exposed to the effects of water discharging from the various stormwater pipes and channels at the southern end of Blackwattle Bay. As a consequence, the embankment is being eroded, exposing the piles supporting the pavement along the western side of the Main Fish Market Building. This embankment requires protection.

The concrete wharf is supported on steel piles. Around the perimeter of the wharf is a timber fender structure against which the vessels moor. The concrete structures appears to be in a sound condition, however there have been no detailed condition assessments undertaken since its construction. Having regard for the age of the structure (more than 20 years old), it is likely that for the long term maintenance of the structure some remedial works will be required.

The timber wharf at the northern end of the foreshore is supported on steel piles. It appears that little or no maintenance has been undertaken to this wharf and that the steel piles above the low tide water level have suffered significant corrosion. Remedial works are required to this structure if it is to be maintained in the medium term (5 to 10 years).



Wooden deck wharf servicing the Harbour Fleet



Concrete Fisherman's Wharf used by the ocean fleet



Low recreational and commercial charter fleet wharf



Concrete seawall in disrepair with relic timber structures behind



Sandstone seawall demarcating the original shoreline with seawall partially collapsed and subsided



Rock edge seawall eroded from stormwater outlet with eroded rock bank stabilization required

Figure 13: Marine and seawall structures

Refer to Figure 14: Marine and seawall structures plan.

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LEGEND

- | | | | |
|---|--|---|-------------------|
|  | Wooden Wharf-Fishing fleet and commercial vessels. |  | Concrete Seawall |
|  | Concrete Wharf - Fishing fleet |  | Sandstone Seawall |
|  | Low Recreational Fleet Wharf |  | Rock Edge Seawall |

 Marine & Seawall Structures

Sydney Fish Market Redevelopment

CM⁺ Conybeare Morrison

Ridley

Client: Sydney Fish Market Authority
August 2010 | 10034 - SK15

2.0 LOCAL CONTEXT

2.1 Surrounding Land Use

SFM is surrounded by a variety of land uses, and buildings, being:

- A concrete batching plant to the north;
- The Main Sydney Fish Market Building to the south with Pyrmont Bridge Road and Wentworth Park beyond;
- The SFM overflow car park, Bank Street and the elevated Western Distributor to the east. East of Bank Street are a mix of multi-storey residential buildings; and
- Blackwattle Bay to the west with miscellaneous plant along the foreshore.

Land uses and key facilities beyond the site include:

2.1.1 Entertainment, hotels and recreational facilities

- To the west – Star City casino and hotel complex, Darling Harbour entertainment precinct, Darling Harbour Convention Centre and Australian Maritime Museum, Ibis and the Darling Harbour Hotel.

2.1.2 Parks and open space areas

- To the north-east and north of Darling Harbour are a number of parks, including Ballarat Park, Community Park and Pyrmont Bay Park;
- South of the site and south of Pyrmont Bridge Road/ Bridge Road are Wentworth Park, residential and commercial areas;
- South-west of the site, along the foreshore are waterfront uses with local cruise boats at the southern end of Blackwattle Bay;
- A foreshore park is located along the Glebe foreshore area, which include Blackwattle Bay Park to its north and the Sydney University Women's Rowing Club directly opposite the SFM; and
- A continuous public foreshore walk is being incrementally implemented between Glebe and the Royal Botanic Gardens. Together with Barangaroo (East Darling Harbour) and Blackwattle Bay, the SFM is a key site in completing this walk.

2.1.3 Retail facilities

Local supermarkets in Pyrmont comprise:

- IGA on Miller Street approximately 100m from the site; and
- Coles at the corner of Union and Edward Street.

2.1.4 Residential areas

- To the south and east of the site are residential apartments and terraces.
- On the western side of the Bay is the residential suburb of Glebe.

2.1.5 Commercial and light industrial areas

Commercial and light industrial facilities are to the north, east and south of the site, which include media networks.

2.1.6 Educational facilities

To the west of the site is Blackwattle Bay. Across the Bay is the Sydney Secondary College Blackwattle Bay Campus.

Refer to Figure 15: Surrounding land use and road network.



Sydney Fish Market Redevelopment

CM⁺ Conybeare Morrison

Railly

Client: Sydney Fish Market Authority
August 2010 | 10034 - SK10

2.2 Surrounding Urban Form

Urban form surrounding the SFM site comprises:

To the south:

- To the south, on the southern side of Pyrmont Bridge Road, east of Wattle Street are 2-3 storey light industrial/ warehouse buildings; and
- Directly to the south of these industrial buildings, flanking the south of Wattle Crescent, are multi-unit residential flat buildings, of contemporary design approximately 10 storeys in height. The upper 5 storeys of these residential buildings have a view of Blackwattle Bay and the SFM.

To the south-east:

- To the south-east of the site, east of the Western Distributor at the southern junction of Pyrmont Bridge and Bulwara Road, are residential flat buildings of contemporary design – 8 storeys at this intersection and 10-11 storeys to its south. The upper 6-7 storeys of these buildings have views to the SFM site and Blackwattle Bay.

To the east:

- Directly to the east of the site are 2 storey commercial/ warehouse buildings located at the northern intersection of Pyrmont Bridge Road with Bulwara Road; and
- Directly to the north of this cluster of buildings, 2 storey terraces flank the eastern side of Bulwara Road. These buildings have views to Blackwattle Bay.

To the north-east:

- To the north-east of the site, at the southern junction of Miller Street and Bulwara Road, east of the Fish Market light rail stop is a 7 storey contemporary commercial building. The upper levels of this building have views to Blackwattle Bay and the SFM.

To the north:

- Directly to the north of the site, north of the Western Distributor are 7, 5 and 8 storey commercial buildings. The upper storeys of the buildings have views of Blackwattle Bay.

Along Blackwattle Bay:

- Buildings directly flanking the Bay comprise 2-3 storeys industrial buildings to the north of the Hymix concrete building;
- 2 storey apartments flank the western foreshore (Glebe Precinct) of Blackwattle Bay from Bridge Road to Blackwattle Bay Park as this precinct's north perimeter. These buildings are setback from the foreshore; and
- A maritime development, incorporating retail/ commercial elements is proposed for the former Coal Loader site along the southern edge of Blackwattle Bay.

Refer to Figure 15: Surrounding land use and road network.

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Sydney Fish Market Redevelopment

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Reilly

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⊗ Surrounding Built Form

2.3 Surrounding Road Network

The SFM site is situated adjacent to 3 major arterial roads – the Western Distributor, Pyrmont Bridge Road and Wattle Street.

The site is accessed from the local road network at the Bank Street and Miller Street intersection.

2.3.1 Pyrmont Bridge Road

Pyrmont Bridge Road is a declared State Road under the jurisdiction of the Roads and Traffic Authority and is two-way with two lanes in each direction with additional turning bays at intersections.

2.3.2 Bank Street

Bank Street is generally a two-way road with two lanes in each direction, with no parking allowed between Pyrmont Bridge Road and Miller Street. To the north of Miller Street, timed parking is allowed on both sides of the road.

2.3.3 Miller Street

Miller Street runs in an east-westerly direction north of the SFM site. Vehicular and service access to the site is at the signalised intersection of Miller and Bank Street. To the north of Miller Street, timed parking is allowed on both sides of the street.

2.3.4 Harris Street and Pyrmont Street

Harris Street and Pyrmont Street, located east of the site are high order local roads within the Pyrmont area parking restrictions vary along each of these roads. Miller Street and Pyrmont Bridge Road directly access the site in an east-west direction from Darling Harbour.

2.4 Traffic Flow and Performance

Pyrmont Bridge Road and Wattle Street has had a decline in traffic following the opening of the Cross City Tunnel with traffic redistributing around the network. Traffic volumes on the Western Distributor have increased 22% in the years between 1996 and 2008, with an average increase of 1.9% per annum.

Traffic flows in and out of the SFM are seasonally dependant, with volumes peaking in December at Christmas/ New Year and Easter.

Generally, traffic volumes into and out of the SFM on Sundays have grown by 10%. This increase in volume is representative of the increased activity in the SFM and population in the Sydney Region.

The road network surrounding the SFM is dominated by surrounding signalised intersections. The performance of surrounding intersections has been assessed as:

- The intersection of Pyrmont Bridge Road and Bank Street is constrained by congestion on the Anzac Bridge during the PM peak period. The level of service of this intersection has been evaluated as:
 - requiring extra capacity during the PM peak period (F); and
 - at capacity during the Sunday midday peak period (E).

- The intersections of Pyrmont Bridge Road with Wattle and Bank Streets are operating with level of service as:
 - requiring extra capacity during the PM peak period (F); and
 - operating at capacity during the Sunday midday peak period (E).
- The intersection of Bank Street and Miller Street operates at near capacity with its operation occasionally effected by southbound queuing on Bank Street approaching Pyrmont Bridge Road. The level of service of this intersection has been evaluated as operating at:
 - a satisfactory capacity during the PM peak period (C); and
 - near capacity during the Sunday midday peak period (D).
- The intersection of Pyrmont Bridge Road and Harris Street has been evaluated to operate at:
 - a satisfactory capacity during the PM peak period (C); and
 - at a good capacity with acceptable delays and spare capacity during the Sunday midday period (B).

Refer to Figure 16: Surrounding land use and road network.