

4. SITE ANALYSIS AND IMPACT ASSESSMENT

4. Site Analysis and Impact Assessment

This Section provides a description of the existing environment, identifies any potential constraints to development, and assesses the impacts that construction and operation of the proposal will have on the environment and community.

The principal areas of concern for this proposal are focussed around whether or not there are contamination concerns (both currently on site and for the future water quality of the Site), the impact of the proposal upon the traffic of the surrounding area, and on the likely noise impacts arising from the proposed use of the Site. Consideration of these topics is supported by comprehensive reports which are summarised in this report and annexed to it.

The Site has little existing flora, and given the current highly disturbed nature of the environment, the proposal is unlikely to have bushfire implications nor any significant impact upon endangered and vulnerable flora and fauna listed in the *NSW Threatened Species Conservation Act 1995* or the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999*. The proposed uses of the Site indicate that there is unlikely to be any significant air quality or hazardous materials issues, and the absence of any heritage items on the Site or nearby leads to these aspects being of minimal concern.

The environmental assessment does review the potential impacts on the neighbouring community, including the visual impact, and the impact of the design of the proposal in meeting the aims and objectives of ecological sustainable design and the challenges arising from climate change.

4.1 Roads and Traffic

4.1.1 Policy/ legal requirements

The Director General's requirements require this assessment to demonstrate the provision of sufficient on-site car parking and secure bicycle storage and amenities having regard to the accessibility of the Site to public transport, local planning controls and RTA guidelines. The DG's requirements also require a traffic and transport assessment to be prepared in accordance with the RTA's Guide to Traffic Generating Developments, considering traffic generation, any required road/intersection upgrades,

access, loading docks, measures to promote public transport usage and pedestrian and bicycle linkages. The requirements also require this assessment to identify proposed public domains, landscaped areas, and linkages with and between other public domain spaces, including the waterfront and to address existing and future opportunities for public access to and along the foreshore. These matters are addressed in this section.

Section 3.2.2. of this report considers the applicability of State Environmental Planning Policy (Infrastructure) 2007, most particularly in relation to the provisions regarding traffic generating developments. Section 3.2.2 concludes that it is arguable that the SEPP does not apply to the proposed development, however, for the purposes of ensuring appropriate transparency to all authorities, it would be appropriate to provide notification of the proposal to the RTA and provide it the opportunity to make representations upon it.

The Leichhardt Development Control Plan (Part A8.0) establishes parking standards and controls relevant to the proposal as a guideline, and these have been considered in the Traffic Report by TTPA set out in Appendix J to this report. Numbers of bike storage facilities is also established by the DCP. In the absence of any such guidance from relevant environmental planning instruments, these controls have been used for assessment.

4.1.2 Method of Assessment

A Traffic, Transport and Parking Assessment was undertaken by Transport and Traffic Planning Associates (TTPA). TTPA undertook traffic counts in May 2010 and the results of those surveys are compared and discussed in relation to a number of previous traffic assessments for the area, including assessments by Masson Wilson Twiney in 2002 and 2004, Colston Budd Hunt & Kafes in 2008, and by Halcrow MWT in 2010 for the proposed White Bay Cruise Passenger Terminal at White Bay.

The TTPA report:

- describes the site and the proposed development scheme
- describes the road network serving the site and the prevailing traffic conditions
- assesses the appropriateness of the proposed parking provision
- assesses the potential traffic implications in the context of the planning for development on Rozelle Bay
- assesses the suitability of the proposed vehicle access, internal circulation and servicing arrangements.

Figures used for assessment of the existing performance of the James Craig Road/The Crescent intersection were modelled using SIDRA, to determine the LOS (Level of Service) and AVD (average vehicle delay). It also projected the anticipated traffic generation resulting from indicative uses of the proposed development.

In section 5 of its report, TTPA calculated the maximum and minimum figures for car parking provision resulting from indicative uses of the site.

4.1.3 Existing Environment

Vehicles

The TTPA report outlines the existing road network in the area. All vehicular access to the Site is via James Craig Road, which has a traffic signalled controlled intersection with The Crescent. Current traffic flows along James Craig Road are relatively low at approximately 151 vehicles per hour on weekday mornings, 180 vehicles per hour weekday afternoons and 101 vehicles per hour on weekends. Traffic flows from earlier reports (eg 2002) indicated flows of up to two times greater, although these were conducted when the Glebe Island car storage was operational.

Current operational performance of the James Craig Road /The Crescent intersection by TTPA and others (including Halcrow MWT in 2010) indicate that the level of service for the intersection is at C (satisfactory) with an average delay of 38 seconds in the weekday mornings and 32 in the evenings, and an LOS of B – good with acceptable delays and spare capacity - for Saturday middle of the day.

Bicycles and Pedestrians

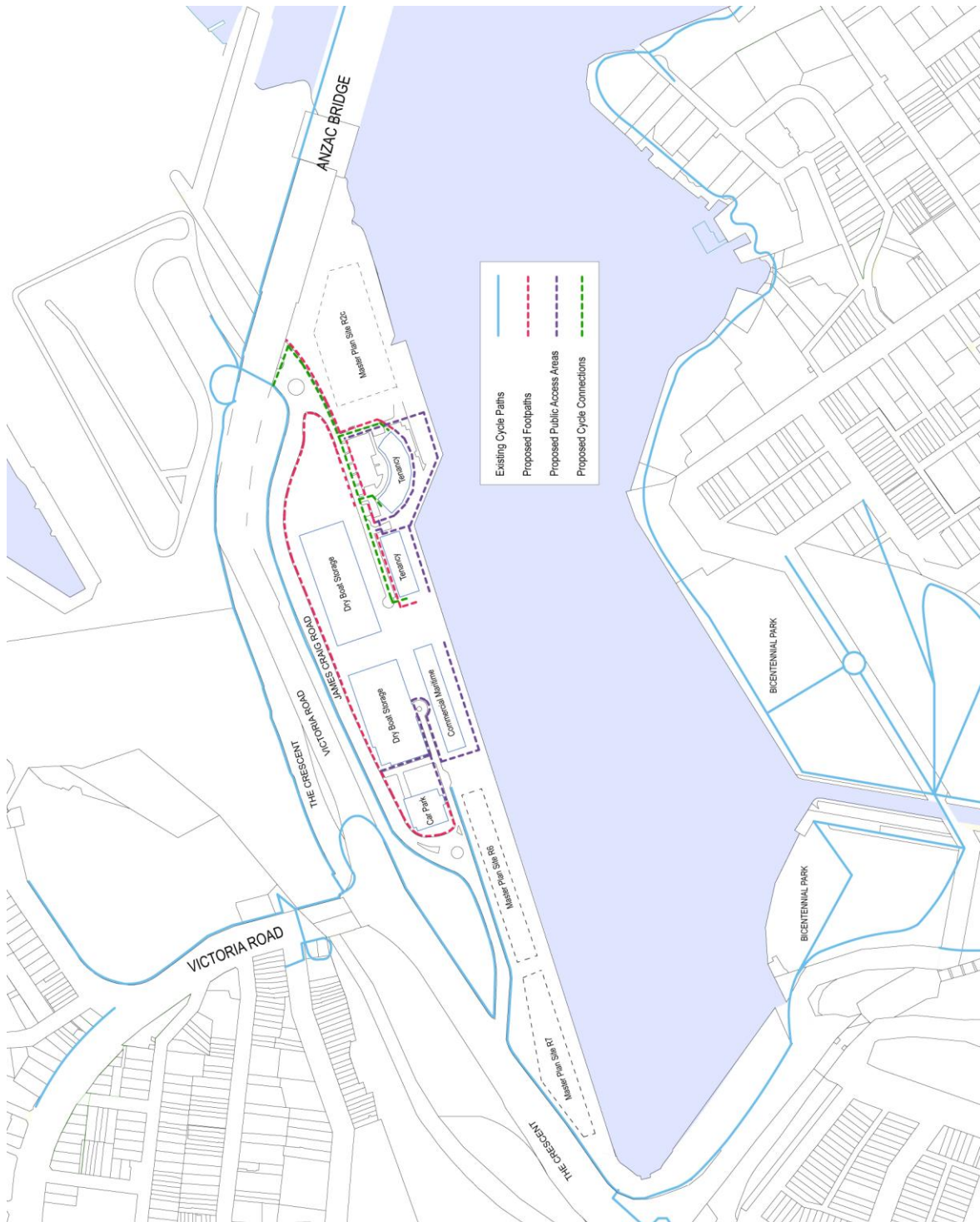
The Leichhardt Bicycle Strategy 2007 has objectives to increase daily weekday cycle trips from 0.5% to 1.0% over a 5 year period and to provide 500 extra bicycle parking spaces. Figure 4.1 shows how the site integrates with the existing and proposed bicycle networks in the LGA.

Council has adopted (in April 2009) an amended concept plan which envisages a route from Balmain-Glebe Island/Anzac Bridge-South which links the Johnstons Bay wharves, under the Anzac Bridge, along the shared path already existing along the newly realigned James Craig Road and around the foreshore of Blackwattle Bay. A shared bicycle and pedestrian footbridge has been constructed over the City West Link/Victoria Road junction allowing access to The Crescent, Chapman Road and ultimately Federal Park. It also enables a link to the Anzac Bridge shared bicycle and pedestrian pathway.

The Harbour Circle Walk incorporates a proposed link along James Craig Road which has now been constructed. This route connects to a pathway at the western end of Rozelle Bay and through Bicentennial Pak and on to Glebe Point.

Whilst the Master Plan envisages pedestrian/bicycle through links along the foreshore of the site, this is not indicated in either the Bicycle Strategy, its amending Concept Plan or in the proposals for the Harbour Circle Walk.

Figure 4.1 Existing and proposed bicycle and pedestrian networks in Leichhardt LGA



Public Transport

A number of bus routes service the area and these are listed in section 3.4 of the TPA assessment. There are ten bus routes including five linking Birchgrove and Balmain with Millers Point and the QVB in the city, and five linking Parramatta, Macquarie University, West Ryde, Ryde, Drummoyne, Chiswick and Hunters Hill with Circular Quay. Services vary from 5-30 minutes in each direction.

A light rail connects Lilyfield with the City with the Rozelle Bay light rail station just to the west of the James Craig Road/The Crescent intersection and operation at 10-15 minute intervals in each direction.

4.1.4 Assessment of Impacts

Traffic Flow and Intersection Operation

NSW Maritime engaged Masson Wilson Twiney in 2004 to analysis the likely impact of development, in accordance with NSW Maritime's Master Plan for Rozelle Bay, on local traffic. The MWT Master Plan traffic study estimated projected numbers for the Master Plan area based on proposed and current usage. It also modelled the level of service for the James Craig Road/The Crescent intersection by both the INTANAL and SCATES method. Using those models, MWT indicated that the level of service would be either A or B – good, or good with acceptable delays and spare capacity.

The MWT report included projections of traffic arising from the proposed dry boat storage (for which Colston Budd Hunt & Kafes Pty Ltd estimated traffic in 2005) and for Sydney Slipways (now built and operating as Sydney City Marine). Since the MWT Master Plan report, usage of the Conaust terminal for car storage has dropped, the dry boat storage and empty container terminal has been approved, Sydney City Marine has been built and begun operating and surveyed usage of James Craig Road has dropped by up to a half.

TPA estimated that traffic likely to be generated during operation of the proposed development as set out in table 4.1.

Table 4.1 Projected traffic generation from the proposed development

	Am (8-9am)		PM (5-6pm)		Weekend (12-1pm)	
	In	Out	In	Out	In	Out
Vehicle movements	34	5	7	33	37	17

Source: TPA Appendix J

A revised analysis found the projected increased traffic numbers on James Craig Road, taking into account the dry boat storage, empty storage container and Sydney Super Yacht Marina, would be less than the traffic numbers originally anticipated in the Rozelle Bay Master Plan 2004 (refer to table 4.2). Consequently, there would be no deterioration of the level of service originally anticipated by Masson Wilson Twiney in their Master Plan traffic study 2004.

Table 4.2 Comparison of Master Plan (2004) and Revised Traffic Projections (2010)

	Master Plan Traffic Projections 2004			Revised Traffic Projections (2010)				
	Traffic Numbers counted in 2004 ¹	Projected traffic numbers	Total projected traffic numbers ¹	Traffic Numbers counted in 2010 ²	Dry Boat ³	SSYM ²	Empty Container Terminal ⁴	Revised total traffic numbers
Weekday 8am – 9am	302	180	482	151	130	39	20	340
Weekend 5pm - 6pm	248	175	423	180	125	40	20	365
Sat/Sun 12 - 1pm	131	80	211	90	65	54	0	209

1 Masson Wilson Twiney 2004

2 TTPA 2010 Sydney Superyacht Marina Proposed Land Side Facilities

3 Colston Budd Hunt & Kafes 2005 Transport Report for Proposed Rozelle Marine Centre.

4 Halcrow MWT 2010 Proposed White Bay Cruise Passenger Terminal Transport Report

However, Sydney Ports Corporation has lodged an application under Part 3A of the EP & A Act to construct a cruise passenger terminal at wharf 4 and 5 on White Bay which is being exhibited between 13 October 2010 and 15 November 2010. The Passenger Cruise Terminal Steering Committee has recommended to Sydney Ports Corporation that traffic must generally enter and exit the cruise terminal via James Craig Road rather than the more direct route of Robert Street. Table 4.3 shows the predicted traffic movements from the Cruise Passenger Terminal on a typical day when a cruise ship is using the facility.

Table 4.3 Projected traffic generation from the White Bay Cruise Passenger Terminal

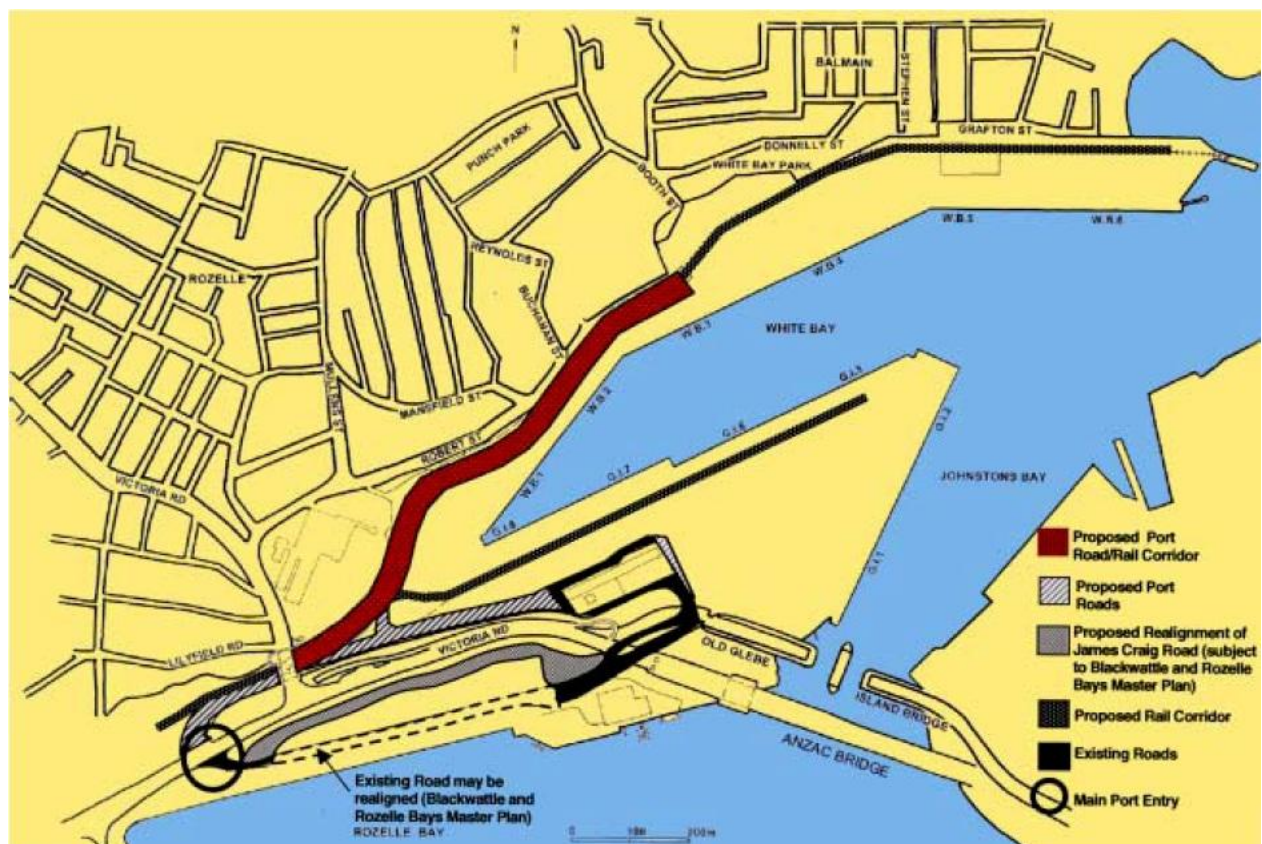
	Am (8-9am)			PM (5-6pm)		
	In	Out	Total	In	Out	Total
Vehicle movements	102	104	206	1	35	36

Source: Halcrow MWT 2010 Proposed White Bay Cruise Passenger Terminal Transport Report p21

It is clear that it is the addition of the traffic from the Cruise Passenger Terminal in the morning peak hour, not the addition of traffic from the superyacht marina which has the potential to create unacceptable traffic flows and levels of service at the James Craig Road/The Crescent intersection.

It is interesting to note that section 2.3 of The Glebe Island and White Bay Master Plan (GIWBMP) seeks to establish a new rail/road transport corridor to provide direct access from the berth areas in the GIWBMP to City West Link Road via a new Port Road to accommodate existing and predicted demand to the year 2020. Figure 6 of the GIWBMP (shown in Figure 4.2 below) illustrates the proposed Port Road and refers to a realigned James Craig Road under the Rozelle and Blackwattle Bays Master Plan.

Figure 4.2 Proposed Rail/Road Corridor – GIWBMP



It is clear from this vision and the port road proposal that traffic congestion in the White Bay/Glebe Island area already existed in 2000. Goals of the GIWBMP include to

improve capacity and performance of the port and to act “as a good neighbour” (no doubt by removing port related traffic from residential areas). The GIWBMP, written by the Sydney Ports Corporation recognises that development in the master plan area will create a significant volume of traffic which will require management by the construction of significant road and rail infrastructure. Other than the realignment of James Craig Road under the Rozelle and Blackwattle Bays Maritime Precincts, no other major road development was envisaged in order to accommodate the anticipated development of the land within the GIWBMP precinct. Therefore, development of the Cruise Passenger terminal at White Bay and the redirection of traffic via James Craig Road will significantly affect the performance of the intersection with The Crescent during morning periods.

The report of TTPA in Appendix J concludes that the proposed redevelopment of the Superyacht Marina will not be the cause of adverse traffic impacts or required road infrastructure upgrades because it will be consistent with the Rozelle and Blackwattle Bays Masterplan.

Parking, Bike Storage, Pedestrians and Access

The Traffic Report in Appendix J establishes that for the indicative floor space use of the development, the Leichhardt DCP denotes a minimum of 168 and a maximum of 308 car parking spaces for the development. The proposed addition of 190 spaces including the existing 24 is within the range identified by the DCP.

Application of the DCP's guidelines for bike storage indicates 48 bike storage spaces should be provided. The development proposes 65 spaces.

Pedestrian and cycling access along James Craig Road would not be adversely affected as a result of the proposed development and would be enhanced by the provision of bike storage facilities on Site and public access to the waterfront, proposed to be provided between 6am and close of business each night (at about 2am). The closure of the foreshore public access during this period for safety and security reasons is one of the exemptions sought to the Master Plan provisions.

The access to Maritime Close via the Sommersville Road roundabout provides excellent sight lines and is able to accommodate all vehicles requiring access to the Site. Loading bays adjacent to the Marine office and the western building, together with four drop off spaces at the western building will assist efficient access to the site. A traffic management plan will be incorporated in the operational environmental management plan.

4.1.5 Mitigation / Contingency Measures

The provision of car parking spaces significantly less than the maximum permissible in the Leichhardt DCP encourages the use of public transport and cycling to access the proposed development. In addition, the varying uses to be applied to the Site spreads the anticipated traffic use over a number of time periods, hence reducing potential impacts. Commercial uses are more likely to add to traffic numbers in the weekday peak periods, however the cafes, restaurants, function facilities and licensed facilities uses are more likely to cause traffic increases on weekends and at night after the peak hours.

Very significant elements of the development will essentially not generate any traffic during the weekday morning and afternoon periods while the peak generation of the development will be of a relatively low level and will occur on weekends or at night.

Analysis of the projected traffic increases arising from the proposed superyacht marina redevelopment does not indicate any adverse traffic implications or required road infrastructure due to that redevelopment. The projections are consistent with anticipated Master Plan outcomes determined by Masson Wilson Twiney in 2004.

4.2 Contamination Investigation

4.2.1 Policy/ legal requirements

The *Contaminated Land Management Act 1997* (CLM Act) establishes a system in New South Wales for the investigation, regulation and remediation of land contamination, which presents a significant risk of harm to human health or any other aspect of the environment. This system aims to ensure that those responsible for land contamination bear the costs of investigation and remediation. The register of contaminated site can be found at <http://www.environment.nsw.gov.au/prclmapp/searchregister.aspx>. A search on 11 August 2010 indicated that the Site has not been declared significantly contaminated, nor is it the subject of any other notice or order under the CLM Act.

SEPP 55 – Remediation of Land requires consent authorities to give due consideration to the potential for land contamination when assessing development applications. Where land contamination does occur, this SEPP contains requirements for adequate consideration of remediation measures in the development process.

The Acid Sulfate Soils Remediation Guidelines for Coastal Floodplains in NSW published by DECC in 2008 (DECC 2008), build on the information and processes presented in Acid Sulfate Soils Manual. The Department of Land and Water Conservation Acid Sulphate Soil Risk Map (Edition 2, 1997) indicates that the site is located in disturbed terrain with an unknown potential occurrence of acid sulphate soils (ASS).

Relevant standards and indicators for terrestrial soil and groundwater contamination are derived from the Australian and New Zealand Environment and Conservation Council (ANZECC) and DECCW guidelines. Further details of guidelines establishing criteria against which contamination is to be assessed are set out in section 8.1 of the Douglas Partners report in Appendix K.

Excess spoil from the Site is to be classified pursuant to the Waste Classification Guidelines 2008 (described in section 10.2 of Appendix K).

4.2.2 Method of Assessment

A baseline contamination assessment has been conducted by Douglas Partners Pty Ltd and a copy of this report is found in Annexure K. That report considers previous investigations on the site being:

- Sinclair Knight Mertz (SKM) May 1998; and

- Parsons Brinckerhoff February 2009 (a letter report prepared for NSW Maritime)

Relevantly, the SKM report found exceedances of the ANZECC B 1992 criteria for copper and zinc in one bore hole and cadmium in another bore hole, however all of those concentrations were within the criteria for the Health-based Investigation Levels for Parkland and Open Spaces, and for Commercial/Industrial land uses.

The Parsons Brinckerhoff report focussed on potential solid and groundwater contamination associated with underground fuel storage tanks. That report found the concentration of total petroleum hydrocarbons (TPH) C₁₀-C₃₆ and benzo(a)pyrene in one near-surface soil sample exceeded the adopted assessment criteria in the bore hole located in the vicinity of the underground storage tanks on site. Groundwater samples also indicated elevated lead levels and exceedances for benzo(a)pyrene and polycyclic aromatic hydrocarbons (PAH). It concluded that there were no widespread contamination on site and there was a possibility of some localised contamination around the tanks.

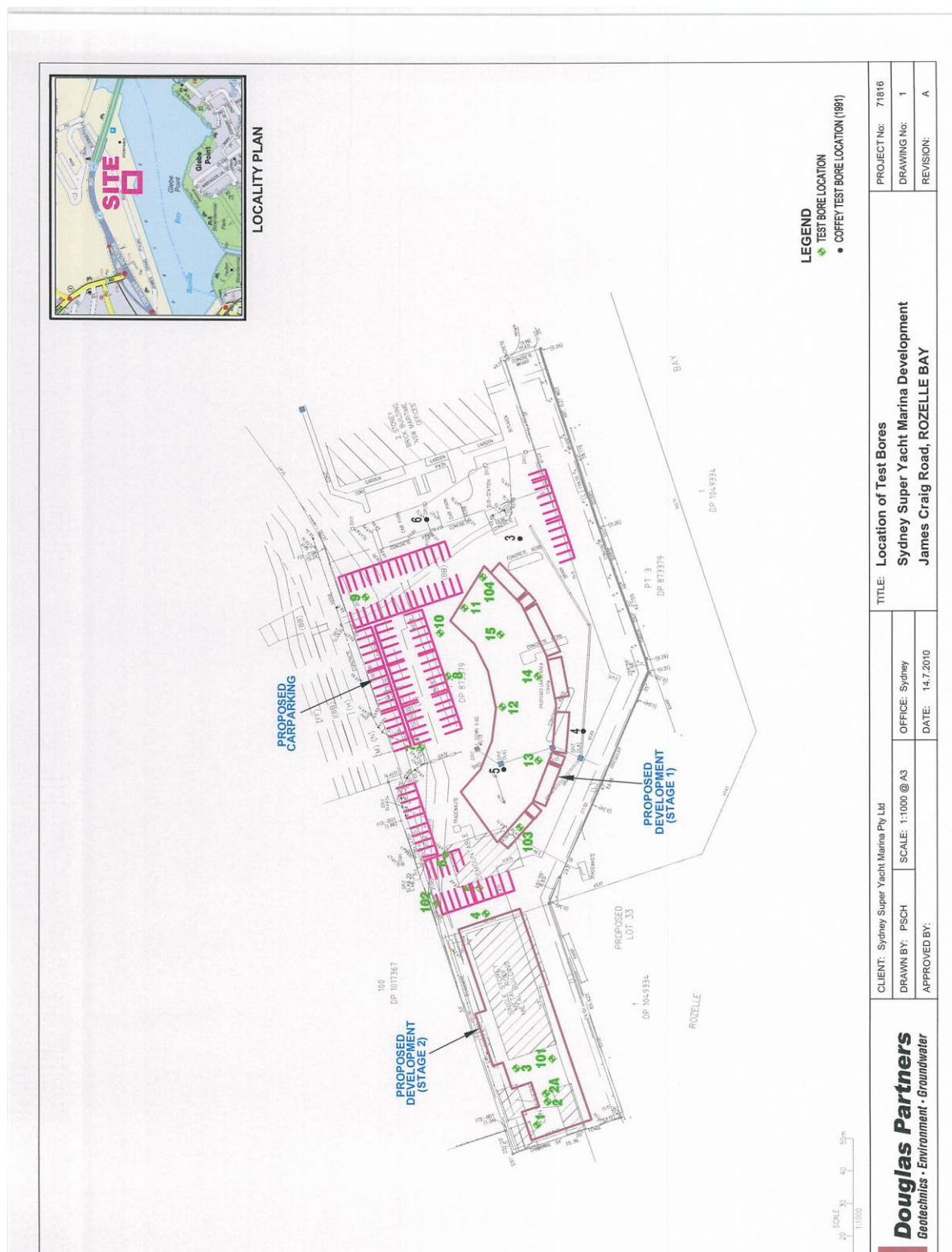
Douglas Partners took samples from 20 test bores over the site, four of which were converted to groundwater monitoring wells. The location of test bores is shown in figure 4.3. The soil samples were tested in a NATA accredited laboratory and analysed for the following potential contaminants:

- Heavy metals
- Tributyl tin (TBT suite);
- Total Petroleum Hydrocarbons (TPH);
- Monocyclic Aromatic Hydrocarbons (Benzene, Toluene, Ethylbenzene and Xylene);
- BTEX);
- Polycyclic Aromatic Hydrocarbons (PAH);
- Polychlorinated Biphenyls (PCB);
- Organochlorine and organophosphate pesticides (OCP & OPP); and
- Asbestos.

The four groundwater samples were analysed for the following potential contaminants:

- Heavy metals;
- Polycyclic Aromatic Hydrocarbons (PAH);
- Phenols;
- Total Petroleum Hydrocarbons (TPH);
- Monocyclic Aromatic Hydrocarbons (Benzene, Toluene, Ethylbenzene and Xylene);
- BTEX); and
- Hardness.

Figure 4.3 Location of Contamination test bores



4.2.3 Existing Environment

The eastern section of the site is a bitumen paved carpark with demountable offices, with the majority of the western section comprising the existing "Liquidity" restaurant. There are underground storage tanks (USTs) and three bowzers for refuelling in the centre of the Site and a sewage holding tank. There is a concrete apron over the Bay adjoining the marina pontoons.

The Soil Landscape Sheets from Department of Soil Conservation indicates that the Site is in 'disturbed terrain' with an unknown potential occurrence of acid sulphate soils (ASS).

The site has been reclaimed and has previously been used for timber yards, ship building, container storage and transportation issues before becoming the home of the superyacht marina in 1999. The USTs are not currently used but have been used in the near past for refuelling purposes. Hence the most potential for contamination arises from the content of the fill placed on the land and contamination arising from the refuelling facility and USTs on Site.

4.2.4 Assessment of Impacts

Soil

Douglas Partners' assessment of the soil indicates that with the exception of a faint hydrocarbon odour detected at BH103 and a slight green discolouration noted at BH3 (at depths of 1.5-1.8m) and some anthropogenic inclusions such as bricks, timber concrete slabs etc, generally there is discernable signs of chemical contamination on Site. Further testing of material from those samples and elsewhere on Site indicated that:

- heavy metals levels were low and within the site acceptance criteria for health based levels for a commercial/industrial land use
- polycyclic aromatic hydrocarbons (PAH) levels were below the adopted site acceptance criteria and the elevated levels noted in the Parsons Brinckerhoff report were unable to be replicated (suggesting a highly localised contamination in that report)
- total petroleum hydrocarbons (TPH) and BTEX (benzene, toluene, ethyle benzene and xylenes) were below the adopted site acceptance criteria. The elevated levels of TPH C₁₀-C₃₆ noted in the Parsons Brinckerhoff report and

associated with the now disused underground storage tanks were unable to be replicated (suggesting a highly localised contamination in that report)

- the Site is not impacted by organotin contamination
- no asbestos fragments were detected
- Acid sulphate soils were not detected on Site
- organochlorine pesticides (OCP), organophosphate pesticides (OPP) and polychlorinated biphenyl (PCB) were below laboratory detection limits – hence it is unlikely that the Site is impacted by these.

Douglas Partners concludes that the preliminary waste classification for fill on the site would be as General Solid Waste (non-putrescible) with TCLP (toxicity characteristic leaching procedure). Further, with the planned removal of the USTs the main source of potential petroleum hydrocarbon contamination would be removed from the Site resulting in a reduction in the potential for contamination impacts associated with the Site.

Groundwater

Groundwater tests showed the following:

- pH is generally neutral
- the groundwater is saline and tidally influenced
- the TPH/BTEX are within the adopted groundwater investigation levels, and in BH103 and BH9 where there were slightly elevated levels of TPH C₁₅-C₂₈, these were possibly attributable to offsite sources due to their up-gradient location
- no evidence of PAH contamination. Napthalene and benzo(a)pyrene were below the laboratory's limit of recording.
- Some minor exceedances of heavy metal readings were discerned for chromium, copper, nickel and zinc although Douglas Partners surmises that this is probably representative of the regional background levels and that those levels do not represent significant health or environmental impacts
- The Site does not show any discernable evidence of unacceptable groundwater impacts due to potential leaks from the underground storage tanks.

The report concludes that the site is considered suitable for the proposed development with a low potential for contamination impacts given its intended continued commercial/industrial use. The report does not recommend remediation.

4.2.5 Mitigation / Contingency Measures

The excess spoil from the Site which may be generated due to site preparation works and minor excavations may require offsite disposal. Assessment under the Waste Classification Guidelines 2008 has provisionally classified the filling material on site as General Solid Waste (Non-Putrescible) and should be disposed off site to a landfill licensed to receive such waste (see section 10.2 of Appendix K).

Although no asbestos contamination was found on the site, the presence of the anthropogenic material in the fill indicates that it will be necessary to include procedures within the construction environmental management plan to manage and remove any asbestos found during construction.

The proposal has been planned to avoid as far as possible any potential contamination of the groundwater. Driven piles and not concrete displacement piles are to be used in the construction method and trenching for piping will not reach the water table. This minimises any potential for contamination of the groundwater.

Silt fencing would be erected around the perimeter of the land construction area during construction. Further procedures in accordance with the guidelines identified in Douglas Partners' assessment would be implemented in the construction environmental management plan.

4.3 Noise

4.3.1 Policy/ legal requirements

The Director General's requirements require this assessment to address potential noise impacts during construction and operation together with appropriate mitigation measures. As discussed in section 3.6 of this environmental assessment the proposed development is not a scheduled premises pursuant to Schedule 1 of the Protection of the Environment Operations Act 1997 and therefore does not require a licence.

A relevant ecologically sustainable development principle of the Master Plan in section 2.4 states that all development should “minimize impacts of maritime operations on the urban environments whilst recognizing the operational requirements of the waterfront use precincts (i.e. noise, water quality)”.

The Master Plan further states that all development needs to take into account the guidelines of the EPA's Industrial Noise Policy and develop a noise management plan. Marina and boat repair facilities are identified as developments that should address excessive noise problems.

The Industrial Noise Policy is specifically aimed at assessing noise from industrial noise sources scheduled under the *POEO Act*. Whilst the site is not scheduled under the *POEO Act* the policy can be used to assist in the assessment of potential noise issues.

The industrial noise source criteria set down in the policy are best regarded as planning tools. They are not mandatory, and an application for a noise producing development is not determined purely on the basis of compliance or otherwise with the noise criteria. Numerous other factors need to be taken into account in the determination. These factors include economic consequences, other environmental effects and the social worth of the development.

The policy sets two separate noise criteria to meet environmental noise objectives: one to account for intrusive noise and the other to protect the amenity of particular land uses. In assessing the noise impact of industrial sources, both components must be taken into account for residential receivers, but, in most cases, only one would become the limiting criterion and form the project-specific noise levels for the industrial source.

The intrusiveness of an industrial noise source may generally be considered acceptable if the equivalent continuous (energy-average) A-weighted level of noise from the source (represented by the *L_{aeq}* descriptor), measured over a 15-minute period, does not exceed the background noise level measured in the absence of the source by

more than 5 dB. The amenity criterion for existing industrial land that interfaces with urban areas is described in following Table 4.4.

Table 4.4 Acceptable noise limits during Operation

		Noise Amenity: Recommended LAeq. Noise Level, dB(A)	
		Acceptable	Recommended Maximum
Residential	Day	60	65
	Evening	50	55
	Night	45	50
Commercial	All Day	65	70
Industrial	All Day	70	75

The relevant guideline for construction noise is DECCW's Interim Construction Noise Guideline. The criteria adopted construction is 10 dBA above the recorded background level of the nearest affected property during standard working hours (ie Monday to Friday 7am to 6pm, Saturday 8am to 1pm and no work on Sundays or public holidays).

4.3.2 Method of Assessment

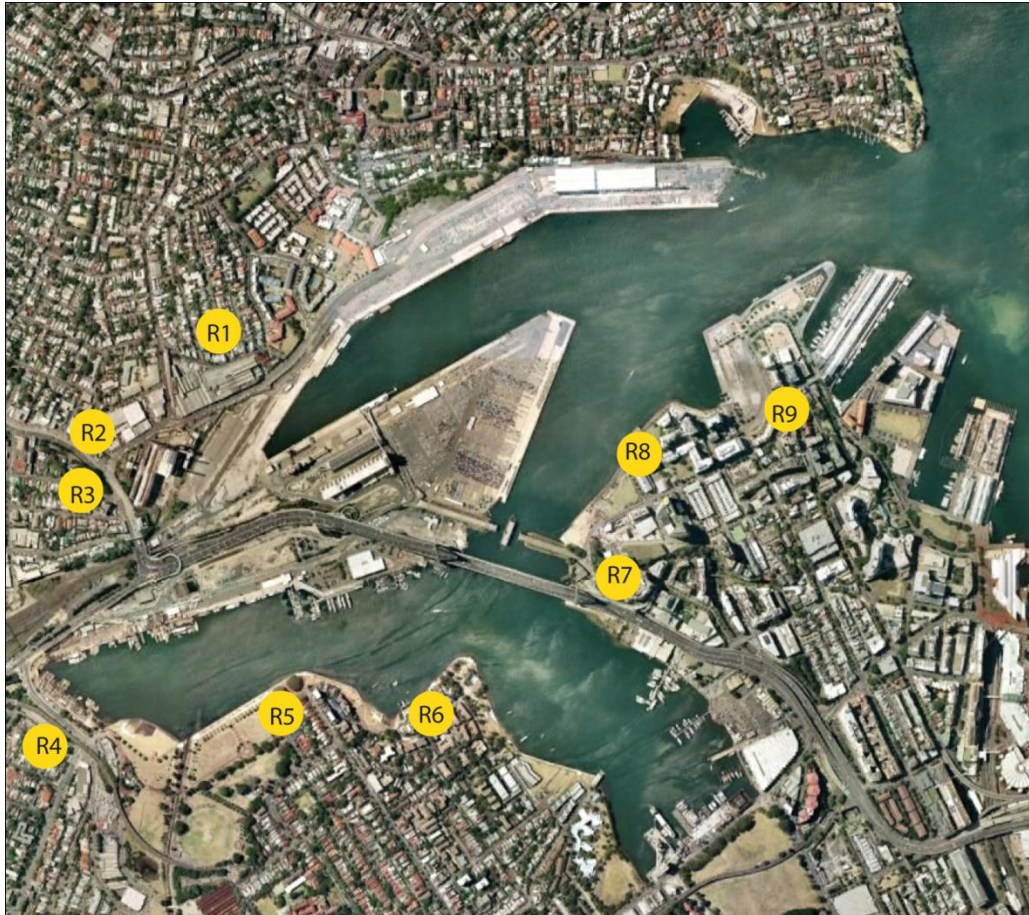
Benbow Environmental was engaged to undertake a noise assessment of the proposed development.

Background levels for the assessment were based on measurements taken previously of the study area by Renzo Tonin & Associates (Glebe Island / White Bay Port Area Noise Monitoring Study, Report TB 278-01F02, Revision 2, 2003). Renzo Tonin & Associates measured the background noise level at nine receptors located in Rozelle, Glebe and Pyrmont. The locations of the receptors are shown in Figure 4.4.

Assumptions were made about the type of machinery and activities that would occur on site during operation and construction. Sound power levels sourced from Benbow's in-house noise source database of previous measurements were applied to each machinery and activity. To quantify the potential noise levels from the proposed works,

the anticipated noise sources were modelled in the DECCW recognised SoundPLAN software to predict $L_{Aeq(15min)}$ noise levels at the nine receptors. The predicted noise levels were compared to criteria acceptable for each receptor.

Figure 4.4: Location of Noise Receptors



4.3.3 Existing Environment

The existing noise environment of the site is characterized by its industrial / urban setting. Residential areas in the surrounding suburbs of Glebe, Rozelle and Pyrmont have the potential to be affected by elevated noise. Traffic on Victoria Road and Anzac Bridge heavily influences background noise levels. Table 4.5 shows the background noise levels measured at the receptors by Renzo Tonin & Associates in 2003.

Table 4.5 Background Noise levels at each receptor.

	R1	R2	R3	R4	R5	R6	R7	R8	R9
Daytime	42	52	49	51	-	53	-	50	48
Evening	41	50	47	50	-	52	-	48	46
Night	36	41	40	43	-	45	-	46	47

1. Data from R5 and R7 deemed not suitable for use.

4.3.4 Assessment of Impacts

Noise associated with construction and operation was assessed under various scenarios.

Benbaws Environmental modelled the noisiest component of construction which is typically site clearing and bulk earth works. The modelling results show that compliance is expected at all identified receiver locations during the 'worst case' construction phase of the proposed development.

Benbaws Environmental modelled operation activities under the following scenarios:

- The operation of nine outdoor bands playing, 100 people conversing, three plant room ventilation fans operating and nine vehicles moving per hour during normal metrological conditions and when winds of 3m/sec occur.
- The operation of two outdoor bands playing, 100 people conversing and nine vehicles moving per hour during normal metrological conditions and when winds of 3m/sec occur.
- The operation with 100 people conversing and nine vehicles moving per hour no outdoor bands playing during normal metrological conditions and when winds of 3m/sec occur.

The modelling results show that compliance is expected at all identified receiver locations during daytime and evening periods when only two or less bands are playing (Table 4.6). No outdoor bands would be permitted after 10pm to ensure compliance with the night-time noise criteria although with only two bands, the exceedance at R5 is marginal at 1dBA and 3dBA during a 3m/sec wind – levels not generally noticeable to the human auditory system.

Table 4.6 Compliance with DECCW Noise Criteria for project specific noise levels during Construction and Operation

			R1	R2	R3	R4	R5	R6	R7	R8	R9
Daytime	Background		42	52	49	51	-	53	-	50	48
	Project specific Criteria - Construction		52	62	59	61	63	63	58	60	58
	Predicted level - Construction	Normal	37	29	41	46	58	53	45	49	46
		Wind 3m/sec	43	34	46	50	62	57	50	53	51
	Project specific Criteria - Operational		47	57	54	56	58	58	53	55	53
	Predicted level - Operation (9 bands)	Normal	35	29	37	44	56	49	40	44	41
		Wind 3m/sec	41	33	41	47	57	51	44	48	45
	Predicted level - Operation (2 bands)	Normal	25	20	28	34	46	39	31	36	31
		Wind 3m/sec	29	24	32	39	48	42	36	40	36
	Predicted level - Operation (no bands)	Normal	23	16	24	25	34	31	22	26	22
		Wind 3m/sec	24	17	25	26	36	32	24	27	22
Evening	Background		41	50	47	50	-	52	-	48	46
	Project specific Criteria - Operational		46	50	50	50	50	50	50	50	50
	Predicted level - Operation (9 bands)	Normal	35	29	37	44	56	49	40	44	41
		Wind 3m/sec	41	33	41	47	57	51	44	48	45
	Predicted level - Operation (2 bands)	Normal	25	20	28	34	46	39	31	36	31
		Wind 3m/sec	29	24	32	39	48	42	36	40	36
	Predicted level - Operation (no bands)	Normal	23	16	24	25	34	31	22	26	22
		Wind 3m/sec	24	17	25	26	36	32	24	27	22
Night	Background		36	41	40	43	-	45	-	46	47
	Project specific Criteria - Operational	Night time	41	45	45	45	45	45	45	45	45

			R1	R2	R3	R4	R5	R6	R7	R8	R9
		Sleep Disturbance	51	56	55	58	60	60	62	61	62
	Predicted level	Normal	35	29	37	44	56	49	40	44	41
	- Operation (9 bands)	Sleep disturbance (during wind 3m/sec)	38	29	39	41	51	46	39	44	40
		Wind 3m/sec	41	33	41	47	57	51	44	48	45
	Predicted level	Normal	25	20	28	34	46	39	31	36	31
	- Operation (2 bands)	Sleep disturbance (during wind 3m/sec)	25	20	29	38	49	43	34	39	35
		Wind 3m/sec	29	24	32	39	48	42	36	40	36
	Predicted level	Normal	23	16	24	25	34	31	22	26	22
	- Operation (no bands)	Wind 3m/sec	24	17	25	26	36	32	24	27	22

1. Criteria for R5 and R7 were adopted from measured levels R6 and R9 respectively, as they share the local ambient noise environment and therefore are representative of the relevant areas.
2. The rows highlighted in grey are the proposed operation scenarios for the development.
3. The numbers in **bold** are exceedances of the project specific noise level criteria

4.3.5 Mitigation / Contingency Measures

Modelling shows restricting the number of outdoor bands to two bands during the day and evening will ensure the proposed development will have minimal impact upon the local ambient noise environment. In addition, the following mitigation measures will be implemented:

- Prepare a noise management subplan as part of the site Environmental Management Plan for construction and operation phases.
- All construction activities to be restricted to 7am to 6pm Monday to Friday and 8am to 1pm Saturdays, with no work on Sunday and Public Holidays.
- No outdoor bands to occur after 10pm
- Completion of a noise compliance assessment during the site clearing and earth moving phase of construction

- Completion of a 3 month post commissioning noise compliance study and then a compliance study 12 months later. The study will enable comparison to the background noise levels reported as part of this assessment, thereby ensuring noise related creep effects from the site are not apparent.
- Establish a Community Complaints numbers and Register. Any complaints received in relation to noise impacts will need to be recorded, verified and followed up. Suitable noise minimisation measures and noise management techniques would be implemented where necessary.

4.4 Water Quality

4.4.1 Policy/ legal requirements

The Director General's requirements require this assessment to address potential water quality impacts during construction and operation together with appropriate mitigation measures. As discussed in section 3.6 above, the Site is not a scheduled premises, nor are there scheduled activities occurring on the Site. It is therefore not required to obtain a licence from DECCW pursuant to the *POEO Act 1997*.

SREP (Sydney Harbour Catchment) 2005

Clause 13 of *SREP (Sydney Harbour Catchment) 2005* includes a number of guidelines and manuals relating to water management which must be considered. These include:

- To achieve the targets in Water Quality and River Flow Interim Environmental Objectives: Guidelines for Water Management: Sydney Harbour and Parramatta River Catchment (published Oct 1999 by EPA)
- To be consistent with Australian Water Quality Guidelines for Fresh and Marine Waters (published Nov 2000 by A & NZ Environment and Conservation Council)
- Comply with Floodplain Development Manual 2005 (published April 2005 by the Department)
 - Essentially this provides a framework for the NSW government to assist councils to apply the NSW government's Flood Prone Land Policy, including development and implementation by councils of a floodplain risk management plan. Its' direct impact in relation to this development is made through council's flooding guidelines – now set out in their DCP.
- Achieve the objects and targets in Sydney Harbour Catchment Blueprint (Published Feb 2003 by DLWC)

Master Plan

Section 2.4 of the Master Plan requires consideration of the following guidelines and manuals relating to water quality controls:

- Port Jackson South Catchment Management Plan
 - This stormwater management plan from 1999 results from a section 12 directive under the *Protection of the Environment Administration Act 1991* requiring councils to produce a stormwater management plan.
 - It has the primary goal of the coordinated management of stormwater within Port Jackson south and to maximise ecologically sustainable development and the social and economic benefits of sound

environmental stormwater management practices. It established short and long term objectives aimed at addressing the quality of runoff from the catchment resulting from rainfall.

- The plan principally adopts source control as its management tool eg promotion of recycling, reducing pollution into the system, encouraging locals to clean gutters and drains in front of their properties and promoting bush regeneration along creek lines.
- It further promotes the use of gross pollutant traps, oil/grit separators, sediment traps and wetlands.
- It aims to promote uniform council policies for stormwater management and raising of awareness and formulating partnerships with Sydney Water and the RTA
- It must be assumed that the provisions of this plan have been incorporated into Leichhardt Council's stormwater plan
- Leichhardt Council's stormwater management plan
 - These have recently been adopted into a chapter in the DCP and are discussed below
- EPA's Environmental Guidelines for Best Management Practice for Marinas & Boat Repair Facilities (1999) – to which the Environmental Action for Marinas, Boatsheds and Slipways (2007) is now relevant
 - Liquid wastes may be treated and discharged to the sewer under agreement with sewerage authority (as proposed)
 - Solid wastes to be discharged at an appropriate facility (to be done)
 - Stormwater should be:
 - minimised and recycled (the proposal will capture rainwater from roofs for reuse)
 - have litter retention devices and be treated before discharge (gross pollutant traps to be used)
 - pump out facilities where marinas have more than 9 berths for sewage and greywater (to be provided)
 - bilge water not to be discharged to the environment
 - encourage recycling (special receptacles to be provided)
 - control of stormwater during construction (to be dealt with in the CEMP)
 - First flush systems
 - Prevent pollutants from discharging into the water when cleaning boats and motors
 - Establish trade waste agreement with the water authority (to be arranged with Sydney Water)
- Sydney Water's guidelines on total water cycle management
- Managing Stormwater, Soils and Construction Manual 1998 (Dept of Housing)

- preparation of a sediment and erosion control plan

Leichhardt Council

Leichhardt Council's recently (2009) adopted DCP part A3.a0 outlines directions for sustainable water and risk management. It includes maps which indicate Flood Control Lots, of which the site straddles both "pipe in or near property" and "other flowpaths". Annexure C of that chapter of the DCP also has a Foreshore Flood Control Lot Map which includes the Site within such lots. The controls of the DCP seek to ensure water sensitive urban design that:

- Integrates water management appropriate to the site and its surroundings
- Provides more sustainable management and use of water
- Allows for the management and conservation of natural and built assets in the catchments
- Responds to the heritage character of the area.

The DCP requires for a development such as that which is proposed:

- a water management statement be provided for each development application to outline proposed water management measures for the development, including:
 - Water conservation measures
 - Stormwater management and treatment
 - Stormwater disposal method
 - Any additional wastewater measures, if proposed
 - On site stormwater detention facilities design, if applicable
 - Flood or foreshore risk management, if applicable
- an integrated water cycle plan, details of which are set out in Annexure A to that chapter
- A stormwater drainage concept plan
- A flood risk management report
- A foreshore risk management report (requiring a foreshore planning level and on site response and evacuation plan).

4.4.2 Method of Assessment

Warren Smith and Partners were engaged to design a stormwater drainage system for the proposed facility. This system would intercept all stormwater collected on the site, would pass through a gross pollutant trap and then to discharge into Rozelle Bay. No

stormwater will discharge through the Sydney Water pipes. Impacts on water quality can be assessed from an examination of the efficacy of the system and a system which has the pollutant captures rates of the Ecosol RSF 4000 was considered for the purposes of assessing and planning the appropriate stormwater management system.

Rainwater tanks to assist in meeting water efficiency objectives of Sydney Water were considered and tanks totalling 160,000 litres were considered to provide irrigation and toilet flushing water.

4.4.3 Existing Environment

Survey points of levels at the Site can be seen in the StrataSurv plan contained in Annexure A. These indicate the shorefront and northern boundary levels are approximately 2.0m to 2.25m rising to a level of 2.87m in the middle of the site where the proposed eastern building is to be constructed. The site is essentially flat with the adjoining mean high water mark at RL0.70.

Much of the Site is reclaimed and a tarmac and concrete apron cover those parts of the Site on which the permanent Liquidity restaurant building is sited. There are no permanent water bodies or drainage lines on the site. Informal easements which are being formalised by the draft plan of subdivision currently at the Land and Property Information includes easements for sewerage purposes and sewer services and water supply to the north of the site, along Maritime Close.

Existing stormwater and water management services are also outlined on the StrataSurv plan and indicate a series of drainage pits in the middle of the site and a grate and drain running near the waterfront edge of the eastern part of the Site. Stormwater drains via the grate to the diagonal sea wall in the middle of the Site.

The condition of Rozelle Bay which receives these waters is difficult to ascertain from publicly available documents. The closest monitoring sample site for the Beachwatch and Harbourwatch State of the Beaches 2008-09 (DECCW 2009) report is the Dawn Fraser pool on the northern side of the Balmain peninsula. It had 100% compliance for testing for faecal coliform and Enterococci density during that period. The State of the Environment Report 2008-2009 issued by Leichhardt Council indicates generally poor, but not worsening, water quality in Johnstons Creek and Whites Creek which both empty into Rozelle Bay with the highest levels of nitrogens and phosphorus in Johnstons Creek and of zinc and copper in Whites Creek. Sampling of Rozelle Bay itself is not included in that report. Sampling of sediment for the nearby Sydney City Marine development in 2005 indicated that sediments at that site indicate typical pollution

loads for silty sand sediments in the inner Harbour and Parramatta River (Director General's report 2006 p13).

4.4.4 Assessment of Impacts

Warren Smith and Partners have devised a number of systems to deal with rainwater and stormwater on site.

Rainwater harvesting

A 100,000 litre rainwater tank for the eastern building and a 60,000 litre rainwater tank for the western building, are proposed for the development. Each of these will collect water from the roof. A first flush system will consist of approximately 3000 litre first flush tanks installed on each rainwater tank to collect the first rainwater flows, including any sediment. This may empty directly onto the area to be later caught in the stormwater on Site, or alternatively a pit may be constructed with a pump directing the first flush to the stormwater and from there into the gross pollutant traps on site.

The rainwater is anticipated to be used to irrigate the landscaping on Site and for toilet flushing, constituting approximately 58% replacement of potable water in the eastern building and approximately 45% in the western building.

Stormwater drainage

Site drainage generally of stormwater will be by gravity with pits to ultimately discharge through the sea wall. Stormwater will be directed through the gross pollutant traps in three sectors across the site. Figure 4.5 illustrates the stormwater concept plan for the Site.

Gross Pollutant Traps

Three gross pollutant traps are planned for the Site, each on the waterfront apron. All stormwater from on Site other than that collected in the rainwater tanks will pass through these traps before entering the harbour. The traps include the ability to collect sediment and also free oils (hydrocarbons) and grease in outer channels.

Stormwater treatment will utilise a gross pollutant trap with a separation performance equal to the Ecosol RSF 4200. These are illustrated in Table 4.7 below.

Table 4.7 Typical capture rates of pollutants in the Ecosol RSF 4000

Pollutants	Pollutant Removal Efficiency	Description
Gross pollutants	98.0%	Anthropogenic materials such as cans, bottles, plastic bags and packing materials (generally > 1.2mm in diameter)
Vegetation	98.0%	Organic material, such as leaves and grass clippings (generally >211µm)
Sediment	98.0%	Solid materials >211µm, both mineral and organic
	90.0%	Solid materials >152µm, both mineral and organic
	51.0%	Solid materials >90µm, both mineral and organic
Total suspended solids (TSS)	91.0%	Fine inorganic solids suspended in water
Total Phosphorous (TP)	30.0%	Total phosphorous in suspended solids and organic materials
Total Nitrogen (TN)	13.0%	Total nitrogen in organic and inorganic forms
Hydrocarbons	Up to 97.0%	Free floating oils that do not emulsify in aqueous solutions

Source: http://www.ecosol.com.au/docs/RSF4000/RSF4000_flyer.pdf

4.4.5 Mitigation / Contingency Measures

During the construction phase the management of erosion and sedimentation will be set out in the Construction Environmental Management Plan and would follow the guidelines set out in Managing Stormwater, soils and construction manual 1998 by the Department of Housing ("the Blue Book").

Likewise the CEMP and OEMP will have provisions to ensure compliance with:

- Water Quality and River Flow Interim Environmental Objectives: Guidelines for Water Management: Sydney Harbour and Parramatta River Catchment, published Oct 1999 by EPA)
- ANZECC Australian Water Quality Guidelines for Fresh and Marine Waters
- The objectives and targets in the Sydney Harbour Catchment Blueprint (published February 2003 by DLWC)

Monitoring of the gross pollutant traps to ensure timely pump out and effective control of pollutants would be contained within the Operational Environmental Management Plan.

The gross pollutant traps, provision of rainwater tanks and reuse of that water on Site, first flush systems, use of native plants on Site, provision of the stormwater concept plan,

anticipated trade waste agreement with Sydney Water, and consideration of flood and foreshore risk management in section 4.12 of this environmental assessment, together with the anticipated controls in the OEMP and CEMP ensure that the provisions outlined in section 4.4.1 above are adequately covered by the proposal.



4.5 Air Quality

4.5.1 Policy/ legal requirements

The Director General's requirements require this assessment to address potential air quality impacts during construction and operation together with appropriate mitigation measures.

The *Protection of the Environment Operations Act, 1997 (POEO Act)* is the principal piece of legislation controlling the emission of air pollution in NSW – identifying the EPA as the appropriate regulatory authority for scheduled activities and activities involving the state government or a public authority. Section 3.6 of this environmental assessment establishes that the Site is not one requiring a licence.

Within the definitions of this Act “air pollution” means the emission into the air of any air impurity, while “air impurity” includes smoke, dust (including fly ash), cinders, solid particles of any kind, gases, fumes, mists, odours and radioactive substances.

The DECCW Local government air quality toolkit provides guidance for local government officers to assist in regulatory control. It builds upon the Action for Air management plan adopted by the EPA in 1998 (most recently updated in 2009).

The air quality standards produced by the EPA are designed to reduce potential risks to human health, prevent environmental degradation and have regard to the principles of ecologically sustainable development. The following sections assess the potential for air pollution as a result of the proposed development with regard to these standards.

4.5.2 Method of Assessment

The Rozelle air quality monitoring site the closest DECCW monitoring site and is located in the grounds of Rozelle Hospital, off Balmain Road, Rozelle. It is situated in a residential area in the Parramatta River valley and is at an elevation of 22 metres and approximately 2km from the Site. It is situated within the DECCW's East Sydney region. The following air pollutants and meteorological variables are monitored at the Rozelle station:

- O₃
- NO, NO₂ & NO_x
- CO
- Fine particles (by nephelometry)
- Fine particles (PM₁₀ using a tapered element oscillating microbalance)

- Wind speed, wind direction and sigma theta
- Ambient temperature
- Relative humidity
- Solar Radiation

The air quality data search tool was applied for the Rozelle Hospital monitoring site on 22 June 2010 to establish the annual averages range for air pollutants for the period 1 January 2009 to 1 January 2010. Sulphur and lead pollutants were not collated for Rozelle in the search tool. The results are shown in Tables 4.8 and 4.9 below.

Table 4.8 Annual averages of air quality at Rozelle Hospital monitoring site 2009

Annual Averages Time Range: 01/01/2009 00:00 to 01/01/2010 00:00						
	Sulphur dioxide 1h average	Nitrogen dioxide 1h average	Carbon monoxide 1h average	Ozone 4h rolling average	Particulate Matter (<10 micrometres) 1h average	Nephelometer 1h average
Station Long Name	Sulphur dioxide annual average [pphm]	Nitrogen dioxide annual average [pphm]	Carbon monoxide annual average [ppm]	Ozone annual average [pphm]	Particulate Matter (<10 micrometres) annual average [$\mu\text{g}/\text{m}^3$]	Nephelometer annual average [bsp]
ROZELLE		1.1	0.4	1.6	24.7	0.27

Table 4.9 Annual exceedances of air quality at Rozelle Hospital monitoring site 2009

Annual Exceedances Time Range: 01/01/2009 00:00 to 01/01/2010 00:00						
	Nitrogen dioxide 1h average	CO 8 hour rolling average	Ozone 4h rolling average	Particulate Matter (<10 micrometres) 24h average	Sulphur dioxide 1h average	Nephelometer 1h average
Station Long Name	Nitrogen dioxide annual exceedance (limit value = 12) [count]	Carbon monoxide annual exceedance (limit value = 9) [count]	Ozone annual exceedance (limit value = 10) [count]	Particulate Matter (<10 micrometres) annual exceedance (limit value = 50) [count]	Sulphur dioxide annual exceedance (limit value = 20) [count]	NEPH annual number of exceedances (limit value = 2.1) [count]
ROZELLE	0	0	0	8		30

Source: <http://www.environment.nsw.gov.au/AQMS/search.htm>

A review of the Air Quality Tool Kit identified food outlets and car parks as two of the activities or business types likely to produce air pollution.

4.5.3 Existing Environment

Present operations at the site do not constitute any major source of air pollution. Boat movements, cafe and vehicles generate some diffuse source pollution. The existing pump out facility is a closed system.

The site is characterized by annual average wind speeds of 3 m/s and a primary wind direction from the west. Gradient wind flows from the north-east and south-east are predominant during summer, with westerly and southerly winds predominate in

autumn. Winter wind flows regimes were noted primarily from the west. During spring westerly and north-easterly wind flows prevail.

Table 4.10 below indicates the National Environment Protection Measure standards (NEMP) for ambient air quality established by the National Environment Protection Council (NEPC) in 1998 together with the levels for the Rozelle monitoring station between 1 January 2009 and 1 January 2010. Together these indicate that there is not currently any significant background levels of pollutants in the area.

Table 4.10 NEMP standards and Rozelle Hospital measurements 2009 for air quality

Pollutant	Averaging Period	Maximum (Ambient) Concentration NEMP	Rozelle annual average 2009	NEMP Goal (maximum allowable exceedances)	Rozelle annual exceedances 2009
Carbon monoxide	8 hours	9.0 ppm	0.4 ppm (on 1 hour average)	1 day per year	0
Nitrogen dioxide	1 hour	0.12 ppm	0.01 ppm	1 day per year	0
	1 year	0.03 ppm	Not measured	none	
Photochemical oxidants (ozone)	1 hour	0.10 ppm		1 day per year	
	4 hours	0.08 ppm	0.016 ppm	1 day per year	0
Particles PM ₁₀	1 day	50µg/m ³	24.7µg/m ³ (1 hour average)	5 days per year	8 (over 1 day)
Nephelometer (visibility)	1 hour	2.1 10 ⁻⁴ m ⁻¹ (DECC)	0.27 bsp		30

4.5.4 Assessment of Impacts

Proposed operations associated with air quality impacts comprise:

- Preparation and cooking from the food outlets
- Limited dust emissions associated with earthworks during the construction phase of the proposal
- Emissions from car parking and travel to and from the Site by vehicles.

Types of discharge associated with food production include odour, fall-out (principally particulate matter but including aerosols and liquid droplets), fumes (visible and possibly odourous), toxics and VOC (volatile organic compounds – hydrocarbons leading to ozone).

Car parks are also a source of pollution, principally polluting soot, VOCs, NO_x (nitrous oxides) and CO (carbon monoxide).

Due to the separation of the Site from any residential housing, and the anticipated use of the Site being one including office and commercial/retail space, cafes, restaurants, function facilities and licensed facilities, it was not considered that an air quality study was required for the Site. The proposed development will not have any significant effect upon the levels of pollutants identified above.

4.5.5 Mitigation / Contingency Measures

Dispersion is the most effective treatment for odour. On a local scale dispersion is also most effective for toxics, VOCs, Nox and CO, although it does not treat the cumulative regional effects. Fabric filters are also effective controls for particulates, fall-out, soot, fumes and toxics.

To deal with the air pollutants from the food outlets on Site, the OEMP will consider the most appropriate methods by which to control and manage the pollutants.

During construction dust emissions would be restricted through watering of roads and stockpiles as well as limiting the speed limit of truck movements on site. Construction vehicles using public roads would be maintained to prevent any loss of load, whether dust, liquid or soils. In the event of any spillage, the Proponent would remove the spilled material as soon as practicable within the working day of the spillage.

During operation a variety of controls and safeguards will be incorporated into the OEMP such as:

- ensure that all plant and equipment at the site, or used in connection with the development, are maintained in a proper and efficient condition and operated in a proper and efficient manner.
- promote the reduction of greenhouse gases by adopting energy efficient work practices including developing and implementing procedures to minimise energy use and conducting awareness programs for all site personnel regarding energy conservation methods.

Overall, it is expected that the facility design – including proposed mitigation measures – would be compliant with the POEO Act in relation to 'air pollution'.

4.6 Waste

4.6.1 Policy/ legal requirements

The Director General's requirements require this assessment to identify all potential sources of liquid waste and non-liquid wastes as defined in the *Environmental Guideline Waste Classification Guideline* (DECC, 2008) including any waste that will be stored, separated or processed on the site and the procedures to be adopted to manage these wastes.

The *Waste Avoidance and Resource Recovery Act 2001* (WARR Act) reinforces the importance of waste avoidance as the State Government's goal. The development of a NSW Strategy to avoid waste and recover resources is a requirement under section 12 the WARR Act. The strategy identifies the government's target is to increase recovery and utilisation of materials from the commercial and industrial sector from the current 28% to 63% and to increase waste recovery of construction and demolition waste from 65% to 76% by 2014.

4.6.2 Waste Management

As part of the Construction and Operational EMPs the Proponent would prepare Waste Management and Reuse Sub Plan(s). The Sub Plans would address the management of wastes during the Construction and Operation stages respectively in accordance with the NSW Government's Waste Reduction and Purchasing Policy.

During construction separate storage receptacles would be provided for general waste, recyclables (paper, cardboard, glass, plastics) and vegetation. The proposed pier design of the east and west buildings would result in little excavation and generation of spoil. Nevertheless, the little spoil generated on site would be stockpiled and material from known contaminated spots (ie location of the Underground Storage tanks) would be tested before offsite disposal. The remaining spoil material has been classified as VENM (Douglas Partners, August 2010 – Appendix K) and therefore would be reused either on or off site after it has been visually inspected for any obvious signs of contamination (such as asbestos).

Using the guidelines to assess sources of waste, investigations on Site (see section 4.2 of this assessment) have not identified any asbestos, contamination (as defined in the guidelines) nor are they any other special wastes identified.

The potential sources of liquid waste during operations include:

- sewage pumpout from the superyachts which would be the subject of a trade waste agreement with Sydney Water.
- It is not anticipated that bilge water would be dealt with by the marina.
- Liquid waste from cafes, restaurants, function areas and licensed facilities which would pass through the grease arrestors proposed on Site.

A 4000 litre grease arrestor is proposed at each end of the eastern building and a 5000 litre grease arrestor is proposed for the western building.

Of the pre-classified wastes the following have been identified:

- Hazardous waste – it is possible that these are on Site and the CEMP and OEMP will provide guidelines for dealing with such waste (eg PAH during construction, during operation disposal of cleaning agents, grease and oils).
- General solid waste putrescible and non-putrescible – will be dealt with as detailed in this section and in the CEMP and OEMP. It is also envisaged that some demolition waste will be recycled (as set out in section 4.13)

During operation waste management measures would include:

- Working with contractors and workers to reduce waste by ensuring, wherever possible, that materials required for boat repairs are cut to size;
- Identifying unnecessary packaging and requiring suppliers to reduce or remove packaging from the site;
- Pumping sullage from the super yachts to an onsite holding tank before discharging to the sewer in accordance with a Sydney Water Trade Waste Agreement;
- Separate storage receptacles to be provided for general waste, recyclables (paper, cardboard, glass, plastics); and
- Requiring all waste storage receptacles to be enclosed or protected from the wind.

4.6.3 Conclusion

All material excavated during construction would be re-used or recycled unless otherwise stated in the Waste Management and Reuse Sub Plan. Sydney Superyacht Facility' policy is to ensure that the re-use of material generated is maximised in preference to importing fill. During operation the policy is to reduce its costs by maximising the reuse of material and reducing the potential waste generated.

4.7 Hazardous Materials

4.7.1 Policy/ legal requirements

The NSW *Occupational Health and Safety Regulation 2001* contains provisions in respect of the following matters:

- the identification of hazards by employers and the elimination or control of risks at employers' places of work (including provisions regarding lighting, noise, atmosphere, electricity, confined spaces and manual handling);
- the design, manufacture, registration and use of plant (including amusement devices) for use by people at work;
- the regulation of hazardous processes at places of work;
- the regulation of construction work (including excavation work, demolition work and working with asbestos); and
- the prescribing of work for which certificates of competency are required (including such work as scaffolding, rigging and the operation and use of certain plant and tools).

Organisations are required under section 167 of the Regulation to make available to authorities details of hazardous materials stored on site and to provide an inventory by item, volume and location of each hazardous material. The National Occupational Health and Safety Commission's (NOHSC) Code of Practice for the Control of Workplace Hazardous Materials provides guidance on identifying risks, procedures for consultation in the workplace, requirements for maintaining Material Safety Data Sheets, ensuring all hazardous substances are labelled, maintaining a register of dangerous goods stored and their location, procedures for employee training and maintaining competency levels, implementing a hierarchy of controls for dangerous goods, monitoring and health surveillance.

Australian Standard AS 1940 - The storage and handling of flammable and combustible liquids provides requirements for the planning, design, construction, and safe operation of all installations in which flammable or combustible liquids are stored or handled in locations that are generally industrial, commercial or rural in nature. It includes matters relating to operations and management of emergencies. In the event of contradictory requirements existing between the Standard, the Code or any other Standard the more onerous requirements applies.

4.7.2 Hazardous Materials to be Stored

The restaurants and function centres would require storage and use of hazardous materials such as oils, cleaners and possibly LPG for cooking. If LPG was stored on site it would be kept in a number of cylinders delivered to site. Notification to NSW WorkCover of the amount of LPG stored on the premises would not be required because it would not exceed the manifest quantity of 5,000L (NSW Occupational Health and Safety Regulation 2001, Schedule 5 Quantities of dangerous goods).

Chemical products stored on site would be registered, labelled and a copy of the Material Safety Data Sheets kept on site. Potential contamination of soil would be avoided by constructing a hard stand beneath all the work areas. Spill kits would be located in high risk areas of the site to ensure rapid response to any spillage. Signage would be placed around the facility warning workers of potential hazards and emergency procedures.

Contractors and staff would be trained in the use of spill kits and spill kits would be regularly checked. Contractors and staff would also be advised of the contact details for rescue and emergency services and their obligations under the *Dangerous Goods Act 1975*.

4.7.3 Conclusion

Hazardous Materials would be managed in accordance with relevant National Codes of Practices and Australian Standards. The Operation Environmental Management Plan for the site would include procedures for the storage of hazardous materials, spill control and awareness training of staff and contractors.

4.8 Flora and Fauna

4.8.1 Policy/ legal requirements

4.8.1.1 Commonwealth

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) requires Commonwealth approval for actions that are likely to have a significant impact on matters of national environmental significance including listed threatened species and ecological communities, listed migratory species and listed marine species.

4.8.1.2 NSW Legislation and policies

Within NSW, the *EP&A Act* section 75F relating to Part 3A projects requires the Director General to publish requirements as to environmental assessment. The Director General's requirements for this project include a requirement for "Assessment of potential impacts on any flora and fauna, including mitigation measures." Section 5A of the *EP&A Act* requires specific consideration of whether a development or activity is likely to have a significant effect upon any threatened species, population or endangered ecological community listed pursuant to the *Threatened Species Conservation Act 1995 (TSC Act)*. A significant effect upon any threatened species, population or endangered ecological community would automatically trigger a requirement to prepare a Species Impact Statement.

The *NSW Fisheries Management Act 1994* establishes provisions for the identification, conservation and recovery of threatened fish, aquatic invertebrates and marine vegetation. The Act also covers the identification and management of key threatening processes, which affect threatened species or could cause other species to become threatened.

Environmental Planning Instruments or Orders prepared in accordance with the *Environmental Planning & Assessment Act 1979* can also include provisions that protect or enhance biodiversity. Development Control Plans, policies and master plans can provide direction or guidance for the conservation of flora and fauna. However, environmental planning instruments such as SEPP 14 – Wetlands, SEPP 19 – Urban Bushland or SEPP 26 - Littoral Rainforests are not applicable to the subject site.

The SREP (Sydney Harbour Catchment) 2005 clause 21(b) requires that development should protect and enhance terrestrial and aquatic species populations and ecological communities. Whilst clearly some populations visit the Site and there is

existing vegetation, no endangered or vulnerable populations have been identified on the Site.

SREP 26 includes in the planning principles in clause 11 that development in the City West is to promote biological diversity by measures that include (where practicable) increasing habitat through appropriate retention, planting and maintenance of native flora considered representative of the locality.

Chapter 2 of the DCP identifies ecological communities for consideration when an application is being prepared, however no such community is mapped for the Site or its vicinity.

The following section considers the likelihood of any threatened flora or fauna species listed by the above legislation occurring on the site and the significance of potential impacts of the proposed development on those threatened species that could occur on site.

4.8.2 Method of Assessment

A site inspection was conducted by SCAPE on 17 August 2010 to provide an overview of the natural environment on the site and determine whether flora and fauna field investigations were required. It was considered that a desktop assessment of the significance of the site to flora and fauna species would be sufficient given the highly disturbed nature and existing commercial activity on the site.

The suitability of the site for threatened species (as listed under the TSC Act and the EPBC Act) was considered. The NPWS Atlas of NSW Wildlife <http://wildlifeatlas.nationalparks.nsw.gov.au/wildlifeatlas/watlasSpecies.jsp> was utilised to make a listing of threatened flora and fauna species recorded within a 10km radius of the site. The NPWS Atlas of NSW wildlife identified 32 vulnerable and/or endangered fauna species within approximately 10 kilometres of the subject site and 17 recorded flora species. Tables were derived from the search and these are shown in Appendix M.

The protected matters search tool from Commonwealth Department of Environment, Water, Heritage and the Arts <http://www.environment.gov.au/erin/ert/index.html> was utilised to locate protected species under the EPBC Act within 5 km from the site. The list is extensive, indicating 42 endangered, vulnerable and critically endangered species within the area. There are 74 listed marine species or species habitat which may occur within the area and 53 migratory species. Data base reports were derived from the search and these are shown in Appendix M.

A review of the Department of Primary Industries website (www.dpi.nsw.gov.au) identified four threatened fish species recorded in the locality.

4.8.3 Existing Environment

The landscape of the site is highly disturbed by human activity. The site has been levelled for maritime activity and land reclamation has occurred. All original vegetation has been cleared. However predominantly native vegetation has been planted on site including both tree and shrub species. A line of *eucalyptus* planted approximately 15 years ago extends along the eastern boundary with NSW Maritime which will be retained. Other identified vegetation includes *Banksia* sp., *Angophora* sp., *Cupaniopsis* sp. and *Eucalyptus* sp. with an understorey consisting of *Westringia fruticosa* and *Callistemon* sp. plus other low shrub varieties. This vegetation is not considered to be of any regional significance, nor include any vulnerable or endangered species. Some exotic species are in planter boxes on site.

The site may provide potential habitat for fauna species that have commonly adapted to highly disturbed environments. A variety of invertebrate species (including Geckos or Skinks) could bask on the concrete handstand area). Avifauna species, commonly recorded on the harbour shores could occasionally occur upon the site.

4.8.4 Assessment of Impacts

The proposed development would involve modification of an already highly modified environment. This modification is unlikely to have any significant impact upon the fauna species likely to occur on the subject site given their resilience and highly adaptive nature to urban environments. Because of the diminished habitat value the proposal is not perceived as a constraint to development of the site. Stop work procedures would be implemented if any threatened species or communities were discovered during construction.

4.8.4.1 Flora

Twenty-four threatened plant species are listed on the *EPBC Act 1999* or *TSC Act 1995* and recorded in the locality (refer to Tables 4.5.1 and 4.5.2). However, none of these threatened plant species have been recorded on the subject site.

Table 4.11 Threatened flora species listed on the NPWS Atlas of NSW Wildlife within 10 km of the site

Threatened Flora Species	
<i>Allocasuarina poruensis</i> (Nielsen Park She-oak)	<i>Hygrocybe lanecovens</i>
<i>Epacris purpurascens</i> var. <i>purpurascens</i>	<i>Hygrocybe reesia</i>
<i>Acacia terminalis</i> subsp. <i>terminalis</i> (Sunshine wattle)	<i>Hygrocybe rubronivea</i>
<i>Camaraphyllopsis kearneyi</i>	<i>Callistemon linearifolius</i> (Netted bottle brush)
<i>Hygrocybe anomala</i> var. <i>ianthinomarginata</i>	<i>Eucalyptus nicholii</i> (Narrow-leaved black peppermint)
<i>Hygrocybe aurantipes</i>	<i>Eucalyptus scoparia</i> (Wallangarra white gum)
<i>Hygrocybe austropratensis</i>	<i>Syzygium paniculatum</i> (Magenta lilly pilly)
<i>Hygrocybe collucera</i>	<i>Diuris areanaria</i> (Sand doubletail)
<i>Hygrocybe griseoramosa</i>	

Table 4.12 Threatened flora species listed on the Department of the Environment and Water Resources (EPBC Act 1999) within 5 km of the site

Threatened Flora Species		
<u><i>Caladenia tessellata</i></u> Thick-lipped Spider-orchid, Daddy Long-legs	<u><i>Eucalyptus camfieldii</i></u> Camfield's Stringybark	<u><i>Tetradlea glandulosa</i></u> Glandular Pink-bell
<u><i>Cryptostylis hunteriana</i></u> Leafless Tongue-orchid	<u><i>Melaleuca biconvexa</i></u> Biconvex Paperbark	<u><i>Thesium australe</i></u> Austral Toadflax, Toadflax
<u><i>Pimelea curviflora</i> var. <i>curviflora</i></u>		

Construction of the development will remove some of the existing planted native and exotic vegetation, whilst retaining some of the planted native species, including the row of *eucalyptus* on the eastern border with NSW Maritime. The proposal will involve planting approximately 15 trees in the proposed car parking areas and other trees and shrubs in raised planters. Proposed species include indicative species listed in the Master Plan.

4.8.4.2 Fauna

No threatened or vulnerable fauna have been recorded on the site. However, many species listed by the EPBC Act 1999, TSC Act 1995 and FMA Act 1994 are known to occur in the locality (Appendix M). The following considers whether:

- potential habitat for those threatened fauna species recorded in the locality exists on the subject site; and
- if so, whether the proposed development would adversely affect those threatened species.

4.8.4.3 Birds

There are 64 bird species listed on the *EPBC Act 1999* or *TSC Act 1995* and recorded in the locality. However, it found that many of these species are unlikely to be dependent on the site and therefore remain affected by the proposed development.

The Wandering Albatross preys on fish and cephalopods and breed in the Southern Ocean islands. Whilst they can feed in inshore areas the proposed development and related activities do not involve disturbance to any potential habitat or food source for this species.

The Bush Stone-curlew and Regent Honeyeater inhabit forests and woodlands. The Bush Stone-curlew forages on insects and small vertebrates such as frogs, lizards and snakes. Whilst the subject site might provide potential for foraging it is unlikely to be dependent upon this site for foraging and has not been recorded on the site. The Regent Honeyeater forages mainly on the nectar of eucalypts and mistletoes and requires a shrubby understorey for a source of insects and nesting material. The subject site possesses neither the usual eucalyptus species preferred nor an understorey and hence is unlikely to provide a foraging or nesting site for the honeyeater.

The Little Eagle and Scarlet Robin inhabit open eucalypt forest or woodland. The Little Eagle requires tall living trees for nesting and eats birds, reptiles, rabbits and small mammals. Whilst birds and reptiles may be present on the site it is unlikely to be sufficient for the Little Eagle to be dependent upon the site for its source of food. The Varied Sittella also inhabits eucalypt forests and woodlands but, it shares with the Scarlet Robin a foraging habitat almost exclusively gleaned from dead and decaying trees, branches woody debris. There are no suitable foraging areas on the subject site.

The Superb Fruit-dove is found primarily in rainforest and closed forested areas. There is no suitable habitat on the subject site and negligible foraging resources.

The Black Bittern and the Magpie Goose are wetland species. Given the lack of wetland habitat on the site or in the surrounding area, these species are of no relevance to the proposed development.

Gould's Petrels prefer habitat with cabbage tree palms and steeply sloping rock, neither of which are present on site hence making it an unsuitable habitat for the bird.

Of the parrot species, the Swift Parrot and Little Lorikeet occur in areas with profusely flowering eucalypts or abundant sap sucking bug infestations, however none of the preferred species exist on site. The Turquoise Parrot lives on the edge of woodland, on timbered ridges and farmland, foraging on the ground searching for seeds or grasses. The site has none of these habitats.

The Powerful, Masked and Barking Owls typically make their nests in trees with a large hollow. They consume a broad range of animals including small mammals, birds, reptiles and insects. The subject site contains no trees with hollows and hosts no suitable fauna for foraging – except possibly, insects and small lizards. Hence, the proposed development would have no significant effect on any owl species located in the vicinity of the subject site.

An additional five bird species (the Lesser Sand-Plover, Sooty and Pied Oystercatchers, Sooty Tern and Little Tern), which inhabit shorelines including sandy and rocky beaches, tidal areas and mudflats have also been recorded in the vicinity of the subject site. These species are not likely to utilize the subject site in its present form, other than on a transitory basis (if at all). There are no special or relevant resources for these species in the study area and they would therefore be unaffected by the development.

There are historical reports of Orange-bellied Parrots in the Sydney area, between 1890 and 1912. However, these reports are regarded by some as dubious, as Orange-bellied Parrots are not found anywhere else in NSW (Department of the Environment and Water Resources database 2010, McGill 1960).

The Australian Painted Snipe generally inhabits shallow terrestrial freshwater (occasionally brackish) wetlands, including temporary and permanent lakes, swamps and claypans. The subject site does not provide habitat suitable to the Australian Painted Snipe.

The White-capped Albatross, White-bellied Sea Eagle, Kermadec Petrel are a marine, coastal and inland river species that forage mainly on variety of fish, birds, reptiles, mammals and crustaceans. While it is theoretically possible for individuals of these species to occur on the site none of the species would be dependent on the site for their survival.

The Australian Painted Snipe generally inhabits shallow terrestrial freshwater (occasionally brackish) wetlands, including temporary and permanent lakes, swamps and claypans. There are therefore no suitable foraging resources or habitat areas on the subject site.

The Rainbow Bee-eater is a migratory bird species that occurs mainly in open forests and woodlands, shrublands, and in various cleared or semi-cleared habitats, including farmland and areas of human habitation. It feeds on mainly insects but will

occasionally take other animal items including earthworms, spiders and tadpoles. It is possible that individuals of these species may occur on the site however, the species is unlikely to be affected by the proposed development.

The Black-faced Monarch and Rufous Fantail are unlikely to occur on the site given that they typically inhabit rainforests. White Throated Needletail is an aerial species that roosts and breeds in woodlands but forages on insects in most types of environments, but less likely to feed in open area. The subject site is unlikely to provide habitat suitable to the White Throated Needletail.

Satin Flycatchers inhabit heavily vegetated gullies in eucalypt-dominated forests and taller woodlands, and on migration, occur in coastal forests, woodlands, mangroves and drier woodlands and open forests. There are therefore no suitable foraging resources or habitat areas on the subject site.

The *EPBC Act* also lists 19 migratory bird species that are dependent on wetlands and a further 13 Migratory marine bird species (Appendix M). However, none of these species would be dependent on the site given there is no suitable habitat on the subject site and negligible foraging resources.

4.8.4.4 Mammals

Four species of marine mammals (the New Zealand Fur Seal³, Australian Fur Seal³, Southern Right Whale³, Humpback Whale³) have been recorded within 10km of the subject site. While it is theoretically possible for individuals of these species to enter Rozelle Bay none of the nearby foreshore area has ever been used as a haul-out site for seals and whales would be unaffected by the facility.

Four threatened microchiropteran bat species (Southern Myotis ¹, Large Pied Bat² and Eastern and Little bent-wing bats¹) have been recorded in the locality. These species can roost in caves, underground mines, trees, road culverts and occasionally in buildings. No bats have been identified on the site although it is possible that the site could provide a very low grade foraging or roosting area – highly unlikely given the proximity to more desirable parkland sites in Glebe and Balmain. Even if individual bats do visit the site on occasion, there is no likelihood that they would be affected by the proposal to any relevant or significant extent.

¹Listed on Threatened Species Conservation Act 1995 database within 10km of the site

²Listed on Environment and Protection Biodiversity Act 1999 database within 5 km of the site

³Listed on both Threatened Species Conservation Act 1995 and Environment and Protection Biodiversity Act 1999 databases in proximity to the site

⁴Listed on the Fisheries Management Act 1994, Environment and Protection Biodiversity Act 1999 and / or Threatened Species Conservation Act 1995 databases in proximity to the site.

Grey-headed Flying Foxes³ can fly up to 50km from their colony each night to feed on fruit and blossoms of more than 80 different plant species, but forage primarily on eucalypt blossom and native figs – neither of which are found on the subject site. In Sydney, the main colonies are located in Gordon, Royal Botanical Gardens and Cabramatta. Given the distance of the subject site from these colonies, the absence of suitable vegetation and the wide-ranging habits of this species it is considered very unlikely that the proposal would have any affect on the Grey Headed Flying Fox.

The subject site would be unsuitable for use by the long nosed bandicoot¹ as it forages for invertebrates in the soil surface. Other than small areas with planted trees, no open soil exists on site. The inner western Sydney population has been recorded in primarily in the Dulwich Hill and Canada Bay areas and there are no recorded sightings in the immediate vicinity of the site. Given the site's partial separation by the water and the adjacent busy roads it is highly unlikely that individuals of these species would ever visit the site from elsewhere.

Spotted tailed quoll² is carnivorous marsupial which is known approximately 44 locations of NSW. It is not known to exist in the inner west area of Sydney. With regard to the Brush-tailed Wallaby² there is no suitable habitat on the site given it prefers rocky habitats, including loose boulder-piles, rocky outcrops, steep rocky slopes, cliffs, gorges and isolated rock stacks. Nor is there suitable habitat on site for the Long-nose Potoroo² given that it forages in dense vegetation mainly on fungi.

4.8.4.5 Amphibians

The Green and Golden Bell Frog³ is found predominantly in marshes, dams and stream-sides, including in highly disturbed sites. With no water or grassy sheltering areas on site the subject site would provide no suitable habitat for the Green and Golden Bell Frog.

The Red-crowned Toadlet¹ can occur in a variety of damp gully and drainage line habitats on Hawkesbury sandstone, usually favouring seepage on hillsides, associated wet rock crevices and under nearby rocks. They can also be found in artificial habitats created by man-made drains. The subject site is flat with little variation in gradient and no permanent drainage lines – either natural or man-made. Hence, the site would be unsuitable for this species as a habitat.

4.8.4.6 Fish

Seven threatened fish species have been recorded proximity to the site (Australian Grayling², Grey Nurse Shark⁴, Great White Shark⁴, Black Cod⁴, School Shark², Whale Shark² and Green Sawfish⁴). While it is theoretically possible for individuals of these species to enter Rozelle Bay they would be unaffected by the facility.

4.8.4.7 Reptiles

Four threatened turtle species have been recorded in proximity to the site (Loggerhead Turtle², Green Turtle², Leatherback Turtle² and Flatback Turtle²). While it is possible for individuals of these species to enter Rozelle Bay they would be unaffected by the facility.

The Broad-headed Snake² has also been recorded in the locality. However, no suitable habitat occurs on site given that the Broad-headed Snake is often found in rocky outcrops and adjacent sclerophyll forest and woodland.

4.8.5 Mitigation / Contingency Measures

A Flora and Fauna Management Sub Plan would be prepared as part of the CEMP. If during the course of construction, the Superyacht Marina or any sub-contractors become aware of the presence of threatened species that are likely to be affected by the proposed activity all work likely to affect the threatened species would cease immediately and the Superyacht Marina shall inform the Director-General of the Department of Environment, Climate Change and Water (DECCW). Work would not continue until receiving advice from the DECCW to do so.

4.9 European and Aboriginal Heritage

4.9.1 Policy/ legal requirements

The Director General's requirements require the potential impacts on heritage items in the vicinity of the site including Glebe Island Bridge to be considered.

4.9.1.1 Commonwealth

Under the *Australian Heritage Council Act 2003* (Cwlth) the Australian Heritage Council is established with duties which include being directed to make assessment under parts 1A, 3A and 15 of the *Environment Protection Biodiversity and Conservation Act 1999* (EPBC Act) and to advise on conservation and nomination for inclusion in the National Heritage List and Commonwealth Heritage List within Australia. The Council must keep a Register of the National Estate under s21 of the Act which lists places which meet the registration criteria of having significant heritage value because of one or more of various criteria set out in section 22(2). As from 2006 the National Register, which was initially established under the *Australian Heritage Commission Act 1975* (Cwlth) was effectively frozen, with no additions or deletions allowed by section 24A of the Act. The National Register will continue as a statutory register until February 2012.

Under the *EPBC Act* places are now listed on the National Heritage List or Commonwealth Heritage List following assessment and gazettal by the Minister.

The data base indicates that there are a number of indicative and registered places in the vicinity listed on the National Register but none listed on the National Heritage List or Commonwealth Heritage List.

4.9.1.2 NSW Legislation and policies

The New South Wales *Heritage Act 1977* provides for the conservation of environmental heritage in New South Wales. Environmental heritage is defined as places, buildings, works, relics moveable objects, and precincts, of State or local significance (s4 (1)). The Heritage Council maintains a list of heritage items on the *State Heritage Register*. There are three State Significant items listed on the Register within the vicinity.

Direction G21, made under section 117 of the *EP&A Act* provides that, unless a special case can be made, conservation provisions must be included in draft LEPs covering buildings, works, relic, places of heritage significance; or areas of ecological significance. Many LEPs contain a list of specific heritage items and some identify

whole heritage precincts. However, the provisions of clause 5 of SREP 26-City West repeals the effect of Leichhardt LEP in relation to the Bays Precinct defined in that SREP.

The *National Parks and Wildlife Act 1974* includes provisions that protect “places, objects or features of significance to Aboriginal people”. Part 6 makes it an offence to disturb Aboriginal objects without a permit and consent must be obtained from the Director-General before any destruction, damage or defacement occurs.

SREP (Sydney Harbour Catchment) 2005 lists heritage items in Schedule 4. One objective of the plan is to conserve the heritage significance of the existing significant fabric, relics, settings and views associated with the heritage significance of the heritage items (cl 53(1)(b)). Clause 59 requires the consent authority to assess the impact of the proposed development in the vicinity of a heritage item on the heritage significance of that heritage item. This includes affecting a significant view to or from the item (cl 59(2)(a)). The only site in the vicinity is the Glebe Island Bridge, including abutments, which is of state significance.

Heritage items of regional or local significance are also afforded protection by the Sydney Regional Environmental Plan 26 – City West and these are listed in Schedule 4. Clause 29 of SREP 26 requires that development of or including a heritage item, in the vicinity of a heritage item, or within a conservation area, must be compatible with the conservation of the heritage significance of the item or the character of the conservation area. Before granting consent to any such development, under clause 31, the consent authority must consider:

- the heritage significance of the heritage item or conservation area, and
- the impact that the proposed development would have on the heritage significance of the heritage item and its setting or the conservation area, and
- the measures proposed to conserve the heritage significance of the heritage item and its setting or the conservation area, and
- whether any archaeological site or potential archaeological site would be adversely affected.

Of the 16 items listed in Schedule 4, five are in the vicinity of the site.

The Rozelle and Blackwattle Bays Master Plan also includes principles for Heritage Conservation:

- In accordance with the City West SREP, development is to encourage the conservation of and adaptation for re-use of existing structures of heritage significance.

- The former Jones Brothers Coal Bins and associated structures at Blackwattle Bay must be conserved and may be adapted for re-use as a maritime related retail and/or commercial facility
- Development between the bridges should be sympathetic to the heritage values of the Glebe Island Bridge.

The western abutment of the Old Glebe Island Bridge is within the Precinct.

4.9.2 Method of Assessment

Investigations to determine items of European and Aboriginal heritage were undertaken by:

- Literature Review – i.e. Rozelle and Blackwattle Bay Master Plan, Sydney Regional Environmental Plan no. 26 – City West, Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005
- Searching databases – i.e. State Heritage Inventory, State Heritage Register and the Australian Heritage Council's Australian Heritage Database

4.9.3 Existing Environment

The Rozelle Bay wharves have been intensively used for over 180 years and have been substantially upgraded, modified and extended over that time. No known European heritage items occur directly on the site where development is proposed, however a number of items have been identified in the locality (Figure 4.6). A discussion of the items and on which register or planning control document they appear follows. There is no known Aboriginal heritage site on the site.

4.9.3.1 Register of National Estate

Glebe Island Dyke Exposures (Victoria Road Glebe Island), Rozelle Railway Goodline Viaduct (Annandale), White Bay Power Station, the slipway and wharf at Oxley Street Glebe (near Blackwattle Bay Park) and Sydney Harbour Landscape Area (covering the scenic area of 5000 hectares of Sydney Harbour) have been listed as 'indicative places' on the Register of National Estates, indicating that no decision will be made on whether the place should be entered in the Register.

Glebe Conservation Area (in the area of Blackwattle Bay), the railway viaduct Wattle Street (in Wentworth Park) in Glebe and the Glebe Island Bridge are listed as registered

items, which means the place is in the Register of the National Estate. These three sites have views to the site or are within view corridors including the site and therefore further consideration of possible impacts is provided in Section 4.10. The Conservation Area covers a wide area around Glebe. The Old Glebe Island Bridge whilst close cannot be seen from the Site, although it is included in the three bridges view discussed in the Master Plan. The railway viaduct (including that in Jubilee Park) illustrates arched engineering brickwork crossing the parkland.

4.9.3.2 National Heritage List and Commonwealth Heritage List

There is nothing in the vicinity of the site which is listed on either of these lists.

4.9.3.3 State Heritage Register

State heritage items in the locality and listed by the Heritage Council on the State Heritage Register are the Glebe Railway Viaduct in Wentworth and Jubilee Parks, and the White Bay Power Station.

Additionally various items are noted in Bicentennial Park Rozelle Bay under the Leichhardt LEP.

State agencies have also listed the White Bay Power Station, the Glebe Island monument and plaque and Glebe Island silos. The wharf and crane at berths 4 to 10 depot at Rozelle Bay is also listed but with little detail.

4.9.3.4 Sydney Regional Environment Plans

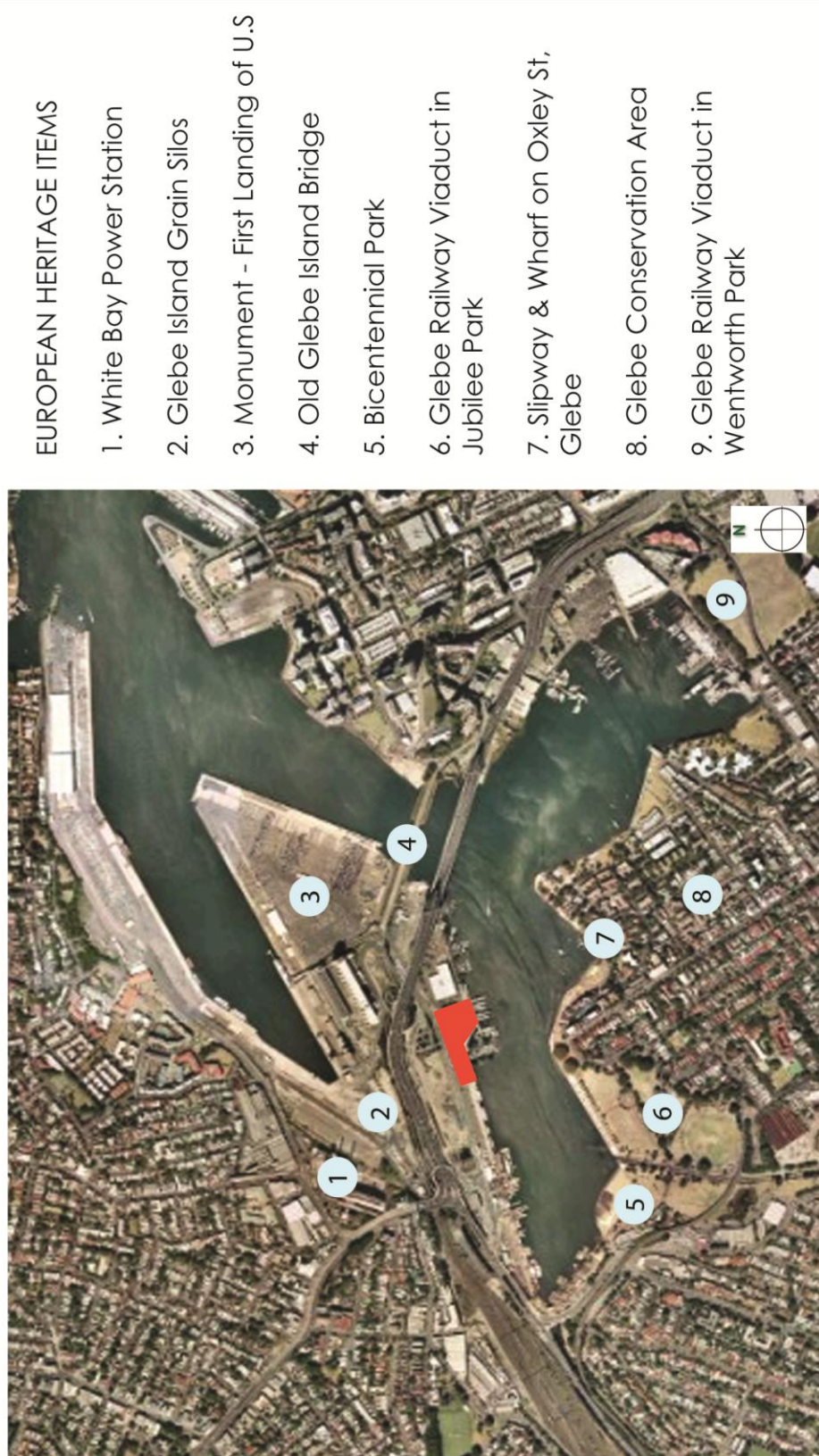
Schedule 4 of SREP 26 – City West lists Glebe Island Grain Silos (A, B & C), sewerage pumping station in Roberts Street, White Bay Power Station, the railway viaduct in Wentworth Park, and Monument on Glebe Island

SREP (Sydney Harbour Catchment) 2005 lists the Glebe Island Bridge and abutments in Blackwattle Bay.

The Rozelle and Blackwattle Bays Maritime Precincts Master Plan established pursuant to the SREP 26 – City West refers to the western abutment of the Old Glebe Island Bridge as an item of heritage significance.

Figure 4.6 identifies the location of the above mentioned listed heritage items in the vicinity of the Site.

Figure 4.6 European Heritage Items in the locality



4.9.4 Assessment of Impacts

The heritage items identified in Section 4.9.3 are outside the construction and operational footprints of the development. Items such as the viaducts are not within the vicinity or the visual landscape of the proposal and are therefore not considered relevant. The monument for the first landing of the US is not physically or visually affected by the proposed development.

The perspectives and photo montages forming part of the proposal indicated that sight lines to the grain silos, and Old Glebe Island Bridge are not affected by the proposal at all and views to the White Bay Power Station would be very minimally affected if at all. However, the approved plans for the dry boat storage behind the proposed development are of a height that any very minor impact on the White Bay Power Station which this proposal may have would be overtaken by the significantly taller buildings of the dry boat storage. The visual impact on any heritage item is not considered to be significant and would not adversely affect the interpretive context of these items.

Due to the extensive history of disturbance at this site and the absence of any known Aboriginal sites or potential Aboriginal sites in the various heritage registers and planning controls, it is considered highly unlikely that this development would have an impact on Aboriginal archaeological sites or artifacts, especially taking into account the fact that much of the land is reclaimed.

4.9.5 Mitigation / Contingency Measures

To avoid any adverse impacts, the following mitigative measures are proposed: within the CEMP:

- Staff and contractors would be advised of their legal obligations relating to Aboriginal materials.
- Should any materials thought to be of Aboriginal origin be discovered in the course of construction, work would immediately cease in the location. A qualified archaeologist and the local Aboriginal Land Council would be contacted for management advice. Clearance would have to be given prior to recommencement of work.

4.9.6 Conclusion

There are no heritage items on the subject site. Views between the Site and the identified local heritage sites are either not impacted, or are very minimally impacted given the low scale of the development. The approved dry boat storage buildings behind the proposed development are significantly taller than this proposal and would, when built, become the buildings impacting on any views, rather than the buildings forming this proposed development. Therefore, it is considered that construction and operation of the facility would merely represent a continuation of existing maritime land use in the area and it is highly unlikely that this proposal would directly or indirectly impact nearby heritage items or detract from the heritage significance of these items.

4.10 Social and Community Impact

4.10.1 Policy/ legal requirements

The Director General's requirements require consideration of the social impacts including but not limited to potential impacts on existing community facilities and services, employment opportunities, transport infrastructure and public safety. They also require an appropriate and justified level of consultation in accordance with the Department's *Major Project Community Consultation Guidelines October 2007*.

Public Access to the foreshore

Considerable importance is attached to the provision of public access along the Sydney Harbour foreshore in relevant planning documents. Clauses 13 and 14 of Sydney REP (Sydney Harbour Catchment) 2005 outline planning principles which include

- that the number of publicly accessible vantage points for viewing Sydney Harbour should be increased
- that public access to and along the foreshore should be increased, maintained and improved, and
- that public access along foreshore land should be provided on land used for industrial or commercial maritime purposes where such access does not interfere with the use of the land for those purposes.

Clause 22 of SREP (Sydney Harbour Catchment) 2005 stipulates the following matters to be taken into consideration in relation to public access to the foreshore:

- (a) the need for development to maintain and improve public access to and along the foreshore,
- (b) the need for development to maintain and improve public access to and from the waterways for recreational purposes (such as swimming, fishing and boating),
- (c) if foreshore land made available for public access is not in public ownership, the need for development to provide appropriate tenure mechanisms to safeguard public access to, and public use of, that land,
- (d) the undesirability of boardwalks as the means of access across or along land below the mean high water mark.

Clause 20B of SREP 26 – City West includes as the objectives of the waterfront use zone (in which the site is placed) the provision of public access within and across the zone

and to facilitate the extension of the Ultimo-Pyrmont foreshore promenade from Blackwattle Bay to Rozelle Bay and link with public access networks surrounding the precinct. Foreshore access is also encouraged in the Sydney Harbour Foreshores and Waterways Area DCP in clause 4.3 and 5.2.

The Rozelle and Blackwattle Bays Maritime Precincts Master Plan also considers public access. Key principles related to Access and Circulation in section 2.5 include

- to provide a level of public access to the waterside that balances the working nature of a maritime precinct with the principle of increasing public access to the Harbour foreshores
- to provide continuous pedestrian and cycle routes through development sites and along the foreshore wherever practicable
- to provide pedestrian and cycle linkages to parks, nodes of public transport and local residential areas.
- To provide 24 hour unrestricted public access easements around the east, south and west boundaries of site R2d and a restricted public access easement be provided on the waterfrontage of site R4.

Overall, the planning framework emphasises the importance of achieving a suitable compromise between providing increased safe public access to the foreshore and providing a functioning working harbour environment.

Transport infrastructure

SREP 26 – City West includes in clause 11 as its planning principles, that accessibility including by walking, cycling and the use of public transport are to be encouraged, facilitating a comprehensive regional public transport network This is emphasized in the Bays precinct planning principles in clause 15 where development should take full advantage of the infrastructure, particularly rail or light rail facilities, for the port and other employment generating activities.

The Rozelle and Blackwattle Bays Maritime Precincts Master Plan in section 2.5 encourages employment related activities to take full advantage of existing and proposed public transport and arterial road systems, including access to the light rail station at Rozelle Bay

Employment opportunities

SREP 26 – City West includes in clause 11 as its planning principles, development to provide an increased quantity and range of employment opportunities which are compatible with a high-quality mixed living and working environment, seeking opportunities for people to live and work at places in close proximity.

The Inner West Subregion Draft Subregional Strategy indicates the Bays precinct as being the subject of further review regarding possible future wider uses for employment uses area

Existing community facilities and services

SREP 26 – City West includes as a planning principle in clause 11, that the needs of existing and future communities, including needs for social facilities and services are to be accommodated.

Public Safety

Although SREP 26 – City West recognizes in clause 15 in the Bays precinct principles for the public domain that integration of the precinct with adjoining areas by pedestrian and cycle links is important, it also recognizes that those links, including public access to the foreshores should recognize the safety and security issues associated with commercial port and maritime activities.

The Rozelle and Blackwattle Bays Maritime Precincts Master Plan requires that pedestrian links recognize the safety and security issues associated with commercial working waterfront and maritime activities (section 2.5). The public access easements proposed are required to facilitate and encourage safe movement at all times of the day and night, including lighting, planting, seating and specified widths (see section 2.6). They are wide enough to provide, in due course, separated cycle and pedestrian zones if and when cycle linkages extend along the foreshore of the Bay.

4.10.2 Method of Assessment

Assessment guidelines from the publication “International Principles for Social Impact Assessment” (International Association for Impact Assessment 2003) form the basis of this section. A summary of principles specific to social impact assessment arising from a planned intervention includes:

- Equity considerations are fundamental.
- Many of the social impacts can be predicted.
- Planned interventions can be modified to reduce their negative social impacts and enhance their positive impacts.
- There should be a focus on socially sustainable development.
- Avenues should be developed to build the social and human capital of local communities and to strengthen democratic processes.
- Ways to turn impacted peoples into beneficiaries should be investigated.

- Give due consideration to the alternatives of any planned intervention, especially when there are likely to be unavoidable impacts.
- Potential mitigation measures of social and environmental impacts
- Local knowledge and experience and different local cultural values should be incorporated.
- Human rights should not be infringed during the developmental processes.

Further guidance on social impact assessment was gleaned from the Leichhardt Council 2009 *Proposed Social Impact Guidelines for Development Applicants*. These guidelines, although still in draft format give the following guiding principles as distilled from the Planning Institute of Australia, *Social Impact Assessment Principles*, 2006 (PIA 2006):

- Support socially sustainable development and decision making.
- Be informed by relevant policy and legislation, integrating policy priorities in the assessment.
- Acknowledge the values of local communities.
- Identify impacts that are directly related to the proposed development.
- Demonstrate rigour and a social science base in presenting evidence.
- Address how net social benefit can be enhanced through the development and how negative social outcomes can be ameliorated and managed through mitigation and monitoring.

Table 1 of the Leichhardt proposed guidelines identifies charter and boating tourism facilities, water based commercial and recreational facilities and restaurants and food and drink premises (excluding licensed premises being hotels, taverns and bottle shops) as being developments to which a social impact comment ought be made, rather than a Statement. It indicates that activities involving function centres, licensed premises (if deemed necessary), marinas, registered clubs require a more demanding assessment by a social impact statement.

Given the above, the social impact assessment reviewed the proposed design and operation of the facility with regard to the following areas:

- Socioeconomic impacts.
- Quality of life impacts upon current users of the area and residents.
- Policy and legislative regime
 - Public access to foreshores areas
 - Transport infrastructure
 - Public safety and crime.
- The social and equity justice impacts of the development.

- Local knowledge and experience and comments from the community consultation.
- Other community impacts.

The assessment then looks at whether any modifications need be made to the proposal to decrease any negative social impacts and increase the positive social aspects of the development.

The public consultation process and areas of community concern are overviewed in Section 4.10.4.5.

Assessment included considering data from the Australian Bureau of Statistics and the Office of Liquor, Gaming & Racing Social Profile Report for Leichhardt LGA (OLGR Report).

4.10.3 Existing Community

4.10.3.1 Population Characteristics

The study site is located within the Leichhardt Statistical Local Area as defined by the Australian Bureau of Statistics (ABS 2008), being an area of 10.5 km². The area is characterized by an expanding population – from 51,224 in 2005 to 53,217 in 2008 with a population density of 5,068 persons/km in 2008. The OLGR report indicates the population in 2006 was 48,771.

The unemployment rate was 1.8% in 2008 down from 2.8% in 2005 and the region's average individual taxable income was \$71,219 in 2007 (ABS 2008). The OLGR report indicates in 2006 the unemployment rate was 3.2% - nearly half the statewide average of 5.9% and indicates the population has the highest (best) level of socio economic indexes for areas relative to other areas in Australia.

A substantial amount of development and investment occurs in the region - the total value of residential and non-residential building was \$165.3 million in 2008 up from \$58.9 million in 2005. While much of the surrounding area is residential and commercial in character, Rozelle Bay has been characterized by industrial maritime activities since the 1830's.

Approximately 16% of trips are made on public transport in the Leichhardt LGA (4% by train and 12% by bus) with 65 % of trips being made in a passenger vehicle. 4% of trips made are by walking (NSW Transport and Infrastructure 2009).

4.10.3.2 Crime rates

Due to the nature of the industries located along Rozelle Bay and the fact that most of the site is isolated from the surrounding roads and residential areas crime rates in the area are very low. The incidences of crimes are stable or decreasing in the Leichhardt Local Government Area over a five year period from 2004-2008. The crimes of most concern in hotspot analysis carried out by the NSW Bureau of Crime Statistics and Research (2009) indicates that for the subject site the crimes of assault – non domestic violence related, assault – alcohol related and malicious damage to property are of the most concern.

The OLGR report (2009) indicates that alcohol related assaults are concentrated locally on Darling Street in Balmain and indicates no alcohol related assaults in the vicinity of the subject site.

4.10.3.3 Licensed Premises

The OGLR report (2009) indicates that the number of liquor licences per population is nearly twice that of the statewide average. This reflects the inner city location of the LGA.

4.10.3.4 Public access

James Craig Road and the Glebe Island Bridge are accessible via a walkway from the Anzac Bridge, however anecdotal and informal evidence suggests that pedestrian utilization of these facilities is currently very low. As the Rozelle Bay precinct is relatively isolated and cut off from nearby residential areas and roadways, the overwhelming majority of people accessing the area are visiting for work related purposes. Because the bikeways and pedestrian links do not extend currently along the foreshore at the site, there is little recreational public access.

The OGLR report (2009) indicates that the site is within the 400m catchment of late night bus services.

4.10.3.5 Proximity to residents

The study site sits directly opposite Glebe and Bicentennial Park. There are residents within 200-250 metres to the south of the study site at Glebe Point.

4.10.4 Assessment of Impacts

The proposed development is entirely consistent with the land uses – past and present – that have characterized Rozelle Bay since the 1830's. Hence, the facility and related operations would not alter the local social landscape to any significant extent. Most particularly, the superyacht marina has been operating from the site for over ten years. On a Sydney-wide scale, the development would have a range of direct and indirect positive impacts through the generation of jobs and tourism and helping establish Sydney as a viable destination for superyacht visitation and storage.

4.10.4.1 Socio-economic impacts

Construction of the facility would have a variety of beneficial economic impacts, both directly and indirectly. Sydney Superyacht Marina is expected to have approximately five full-time staff. The mixed contractors and commercial staff servicing the marina would add approximately 20 visiting full-time workers at the site. Estimates by the proponents indicate that the development could employ up to 50 persons when fully completed.

While the facility would provide employment opportunities for some local residents the specialised nature of some of the activities conducted on the site would require skilled individuals from other parts of Sydney. The development would generate linkages to a range of other industries including: servicing and provisioning, communications, and food and beverage. This would have numerous flow-on effects to the Sydney economy and generate additional jobs.

By redeveloping the superyacht marina facilities, Sydney Superyacht Marina would have the capacity to cater for the projected demand from growth of boats on Sydney Harbour and super yachts attracted to Sydney.

Significantly, the facility would also generate widespread intangible benefits to the Sydney-wide economy through the enhancement of Sydney as a viable destination for superyachts. This aspect is further discussed in section 4.14.1 below. By providing sufficient capacity for superyachts and improving the facilities available to them whilst at berth, the proposed facility would support the ongoing development of this industry,

helping establish Sydney as the premier superyachts service centre of the increasingly popular South Pacific.

4.10.4.2 Quality of life impacts

Maritime commercial developments generate a number of impacts with the potential to affect the quality of life of nearby residents. Noise and air pollution are dealt with elsewhere in the environmental assessment with regard to relevant standards and guidelines. These assessments generally show that the proposal complies with relevant standards/ guidelines and that resident quality of life would be unaffected by the development.

With regard to other potential impacts on resident quality of life:

- The facility would generate no odour impacts;
- No adverse noise impacts;
- Light spill from the site can be managed to avoid impact on resident use and enjoyment of their properties;
- Shadow diagrams set out in Appendix A indicate that no adverse impact on residents would be experienced; and
- Residents would not suffer adversely during construction of the facility, although a construction management plan detailing hours of construction will be in place to contain any disturbance which may arise during construction.

The potential for conflict between the development and recreational boat users in Rozelle Bay was an area of community concern, however this proposal does not affect the waterbased activities of the marina and the approved alterations to the marina actually reduce the number of berths available.

Presently Rozelle Bay is shared by commercial craft, trawlers, charter boats, work boats and tugs. Recreational rowers (also use the Bay in the early mornings and evenings. The area of the Bay where the marina operates is subject to a 4 knot speed limit (no wash zone) limiting the effect of boat movements on other recreational users. The number of superyachts using the marina is not expected to dramatically increase as a result of the proposed development and hence the superyacht movements are unlikely to have a detrimental impact on current users of the Bay.

4.10.4.3 Policy and Legislative regime

Public access to foreshores areas

Public access to the foreshore would be increased under the plan in sought by the Master Plan and other legislative regimes promoting greater access. However access to the marina berths and immediate foreshore access in the night would be limited for security reasons. The buildings on site would be open to members of the public in accordance with their proposed uses as restaurants, function areas, bars and retail, although the commercial and workshop sections of the development will remain private.

Transport infrastructure

The retail and commercial uses, cafes, restaurants, function areas and licensed facilities will be well served by the proximity of the light rail station at Rozelle and the bus routes which operate between the city and along Victoria Road which adjoins the site. Additionally, established bicycle routes are available along The Crescent linking the northern and southern sections of the Leichhardt LGA and the proposed development would provide a most welcome stopping off spot for recreational bicyclists and walkers using the bicycle networks and undertaking the Harbour Circle walk in the area. The transport infrastructure enables workers at the site to take advantage of good access from the city and surrounding suburbs, thereby meeting the aims of the Master Plan and SREP26 – City West in encouraging the use of transport infrastructure in the employment generating activities.

The site's proximity to the CityWest Link and Victoria Road ensures that provisioning and service to the activities on site can be met by use of the good arterial road system in the area.

Clearly an enhanced superyacht marina facility will take full advantage of the marina facilities already existing on site.

Public safety and crime

The incidence of crime in the surrounding area could improve slightly following development. The anticipated increase in pedestrian and increased utilization of the site coupled with the greater number of workers on the site would promote passive surveillance of nearby roads and waterways. In accordance with responsibilities under the *Occupational Health and Safety Act 2000* safety measures and procedures would be implemented, which would include restricting access to proposed work areas. The access to the marina berths would be restricted for improved security for the superyachts.

Any premises serving liquor would have to implement Responsible Drinking Policies to ensure anti-social behaviour is not tolerated. The development's target clientele to whom marketing would be directed are not those in the at risk group likely to contribute to alcohol related incidents.

The pedestrian linkages (and capacity for cycle linkages in future) are of the width stipulated in the Master Plan. The linkages will be well lit and include seating, bollards and planting to comply with the Master Plan requirements and to enhance the linkages in the Bays precinct.

4.10.4.4 Impact equity and social justice

There are no minorities or vulnerable segments of the population likely to suffer disproportionate impacts as a result of the development.

4.10.4.5 Local knowledge/experience and community consultation

The community response to the proposal during consultation was overwhelmingly positive with the major concern being raised by the Sydney Ports Corporation regarding traffic issues.

A community consultation period was conducted between 19 May and 6 June 2010. The plans were on display at the Liquidity building on Site until the end of July 2010 and notice of the display was made in the local paper, the *Inner West Courier* on 20 May 2010 and 1 June 2010. That notice also identified a community information day to be held on 5 June 2010 at the site, together with a website where the plans could be viewed <http://www.superyachtmarinada.com.au/>. A number of neighbours and key stakeholders were personally invited to the display period and a list of these, together with copies of the advertisements and a summary of individual responses received both during and after the consultation period, are included in Appendix N.



The White Bay Joint Steering Committee viewed the development as positively providing a catalyst for future development and sought consideration of road and rail links and care for rowers using the Bay. Of the 87 comments, 81 of them (93%) were positive, and the proposed development was viewed as an enhancement to the area.

59% (51 of 87) of the submissions came from those living or working in the inner west suburbs with 65% of those coming from Birchgrove, Balmain and Rozelle. Nine of the submissions were clearly made from those with local business interests and three submissions came from those with clear marina/boating industry links.

The majority of the comments (more specifically collated in Appendix N) indicated approval of the proposal generally as an “exciting opportunity” or “great idea”, as providing benefits to the local community, as being of good design and improving marina facilities for the area and Sydney as a whole. A number of comments related specifically to the advantages of having more local restaurants and greater recreational opportunities.

The main suggestions made by the public included:

- A ferry stop at the superyacht marina would reduce road congestion.
- A subsidised ferry circuit between the marina, Glebe Point/Bicentennial Park, and the Fish Markets.
- A heliport on a pontoon.
- Public access from Jubilee Park and along the foreshore of the whole of the Bay.

- Wheelchair friendly.
- Water access to allow boat visitation (presumably casual and not by superyachts).
- 2 bedroom apartments with a terrace on site.
- A petting zoo be added.

The first three of these suggestions are beyond the scope of this development application, being in relation to operations on the water not on land. The public access issue has been addressed to the best of the proponent's ability given the constraints it has by not having an interest in other lands surrounding Rozelle Bay. There are ramps on both sides of each building for wheelchair access, lifts in each building and a disabled car park in the ground level of the multi-level car park. To allow casual water access would require either a modification to the approved marina redevelopment under DA 088-05-08 dated 29 August 2008 or a new development application. It is not proposed to extend this proposal to incorporate amendments to marine operations.

Regarding the apartments, it is noted that the land will remain in the ownership of NSW Maritime. The area is not identified in the Master Plan for residential purposes, and although some dormitory style accommodation is proposed to provide services for the visiting superyachts, residential use is not contemplated on the Site by any relevant policy or legislative document. It is not proposed to include a petting zoo.

The five individual responses which did not clearly support the proposal were the submission seeking apartments, one response which described the design as bland, full of concrete and lacking charm, and another which indicated concern for the superyachts as CO₂ emitters and that further development of the marina would impact upon the already confined "positive and healthy green activities such as rowing and dragon boat racing". There was also one submission suggesting that traffic and parking be considered for the long term and another expressing concern about conservation of the Glebe Island Bridge.

The Sydney Ports Corporation provided a submission which included concerns arising for navigational issues if traffic to the marina increased. Given that the proposal does not impact on the water based activities, it is not considered that this is of particular relevance to this application. However the Ports Corporation was concerned about traffic issues to the site particularly arising from the Sydney Ports Corporation's anticipated application for a Cruise Passenger Terminal at White Bay. Discussions were held with Sydney Ports Authority on 12th July 2010 during which it was indicated that Sydney Ports was under instruction that traffic from the proposed passenger terminal was to be routed via James Craig Road and that the RTA had anticipated traffic congestion issues and the requirement to upgrade the James Craig Road/The Crescent

intersection arising from that development. This matter is discussed further in section 4.1 of this report.

4.10.4.6 Other community impacts

The proposal would have no impact on housing opportunity or the provision of community services. Transport and traffic impacts are assessed in Section 4.1. There would be no impacts on any other culturally or community valued place or institution, nor on any culturally significant heritage items.

4.10.4.7 Conclusion

The proposal would generate a range of direct and indirect social economic benefits. The facility would provide a baseline of 5 direct jobs at the marina, approximately 20 visiting services personnel daily and approximately 50 commercial jobs in the remainder of the development. The proposed development will help establish NSW as a premier superyacht destination in the south Pacific. The proposed facility would not generate any impacts likely to affect resident quality of life or disrupt any community services and institutions. Although small sections of the site would be restricted to ensure security for the superyachts, public access would be permitted and encouraged on the majority of the site promoting public surveillance.

4.10.5 Mitigation / Contingency Measures

Applicants for liquor licences for the conduct of restaurant, function and café facilities in the proposed development will need to satisfy the relevant consent authorities that impacts from their proposal will not adversely affect nearby residents to the Site.

The marina berth pontoons will have restricted access for the purposes of asset security and it is for this reason also that it is proposed that the foreshore public access be restricted during the night when cafes, restaurants, function facilities and licensed facilities have closed for the evening. This takes account of the lack of public surveillance due to the distance between the Site and any other residential or publicly accessible areas.

Sydney Superyacht Marina has taken steps to mitigate the effects of Sydney Ports Corporation's concern by undertaking a traffic report as detailed in section 4.1. That analysis has shown that the proposal will not of itself contribute in any significant manner to traffic congestion in the area to levels which would result in negative impacts on the surrounding road network.

4.11 Visual

4.11.1 Policy/ legal requirements

The Director General's requirements require consideration of visual impacts including views.

SREP (Sydney Harbour Catchment) 2005

Clause 14 of the SREP includes as a principle for land in the Foreshores and Waterways Area that "development along the foreshore and waterways should maintain, protect and enhance the unique visual qualities of Sydney Harbour and its islands and foreshores". The matters to be taken into consideration are set out in clause 25 as:

- (a) The scale, form, design and siting of any building should be based on an analysis of:
 - (i) The land on which it is to be erected; and
 - (ii) The adjoining land, and
 - (iii) The likely future character of the locality
- (b) Development should maintain, protect and enhance the unique visual qualities of Sydney Harbour and its islands, foreshores and tributaries,
- (c) The cumulative impact of water-based development should not detract from the character of the waterways and adjoining foreshores.

Clause 26 identifies the matters to be taken into consideration in relation to the maintenance, protection and enhancement of views as follows:

- (a) Development should maintain, protect and enhance views (including night views) to and from Sydney Harbour,
- (b) Development should minimise any adverse impacts on views and vistas to and from public places, landmarks and heritage items,
- (c) The cumulative impact of development on views should be minimised.

SREP 26 – City West

The relevant Bays Precinct planning principles set out in clause 15 indicates that in relation to urban design, the siting and form of development in all areas must consider impacts on views from within the Precinct and to and across the Precinct from surrounding areas.

Rozelle and Blackwattle Bay Master Plan

Principles identified within the Master Plan for visual amenity include:

- Provide for a range of opportunities for those working and visiting the precincts that reflect the maritime traditions of the working harbour.
- Built form must not present a wall of development to the public domain.
- Step down building heights to respect landforms and view sharing.
- Maintain existing views to landmarks to reinforce the diverse visual quality of the area.
- Ensure that development within the site achieves a high standard of urban design and contributes to a high quality public domain.

The Master Plan specifically restricts building heights to RL11 (8 metres) on the subject sites. It also establishes setbacks and site coverage of 50% for both sites and requires the alignment of buildings along the waterfront boundary.

Illumination of port activities also has associated visual impact in the form of light spill on neighbouring residential areas. This is an issue for some residents because of the 24-hour port operations. Therefore, a principle adopted in the master plan is to ensure light spill mitigation measures are adopted. The provision requirements of the plan in relation to light spill are:

- redirect light fittings and fit glare shields to avoid light spill where needed,
- use fittings that enable the light to be thrown forward, while keeping the glass of the fitting horizontal to the ground, for the sections of the terminal furthest from the water,
- install new poles on the residential side of the terminal with lights facing away from the residences and remove the lights facing the residences from the existing poles.

Sydney Harbour Foreshores and Waterways Area DCP

Section 3.2 of the DCP sets out the general aims regarding landscape assessment which include

- to minimise any significant impact on views and vistas from and to public places, identified landmarks and heritage items;
- ensure it complements the scenic character of the area, and
- provide a high quality of built and landscape design

Section 4.4 of the DCP which includes design guidelines for water-based and land/water interface developments, requires the following criteria to be observed when siting buildings and structures:

- buildings should address the waterway;
- buildings should not obstruct views and vistas from public places to the waterway;

- buildings should not obstruct views of landmarks and features identified on the maps accompanying the DCP.

Similar guidelines are set out in section 5.3 for land-based developments.

Sections 4.5 and 5.4 of the DCP set out guidelines for the built form of buildings and structures. Relevant guidelines include:

- if buildings would be of a contrasting scale or design to existing buildings, care will be needed to ensure the contrast would enhance the setting,
- while no shapes are intrinsically unacceptable, rectangular boxy shapes with flat or skillion roofs usually do not harmonise with their surroundings. It is preferable to break up facades and roof lines into smaller elements and to use pitched roofs,
- bright lighting and reflective materials should be minimised,
- colours should be sympathetic with their surrounds,
- the cumulative visual impact along the shoreline is considered having regard to preserving views of special natural features, landmarks or heritage items.

4.11.2 Method of Assessment

The architects have provided a number of perspectives and photomontages (set out in Appendix A) indicating the likely appearance of the development once constructed.

A critical assessment of the impact of views as required under the various planning documents has been made, specifically from the public places of Bicentennial Park, Blackwattle Bay from Glebe Point.

4.11.3 Existing Environment

Rozelle Bay is defined by ridges at Johnston Street, Glebe Point Road and Victoria Road with the wide flat valleys of Bicentennial Park and the valley traversed by the City West Link Road. The development site is highly visible from the Anzac Bridge to the north east; Glebe Point, Bicentennial Park, Blackwattle Bay Park, Federal Park and Jubilee Parks from the south; residential properties from the south; and from Chapman Road and The Crescent on the western side of Rozelle Bay.

Key landmarks in the area include the Anzac Bridge, Old Glebe Island Bridge, Glebe Island Silos, and the White Bay Power Station.

The site currently presents with an existing building on the western site housing the Liquidity restaurant which is slightly lower than the adjoining NSW Maritime building to the east of the site. Additionally there are some containers, ancillary sheds, a number of demountable buildings, ancillary sheds, some sewerage and waste disposal infrastructure, a fuel pump and open car parking.

To the east of the site is the NSW Maritime Authority head office with a height of RL12.5. This comprises administration and harbor operations, small ancillary sheds, car parking, fencing, containers and utility installations.

The presence of moored superyachts at the marina presents a significant visual interruption to the view of the site particularly from the south as the superyachts are often as high or higher than the current buildings on site, which, when combined with their bulk, limits the view of the buildings on site from the south.

To the west of the site and immediately north of the western section of the site is vacant land, the subject of an approved dry boat storage and marine facility. Construction has not as yet commenced on this area.

The land at the western end of Rozelle Bay is characterized by working harbour uses, generally for the repair and storage of marine vessels.

Blackwattle Bay forms part of the Bays Precinct in the Master Plan which incorporates the site. Blackwattle Bay includes the Sydney Fish Markets and Wentworth Park.

4.11.4 Assessment of Impacts

The perspectives and photomontages shown in Appendix A were used for the assessment of visual impact and the photomontages are shown in figures 4.7-4.9.

The two proposed buildings will present to the waterfront as a coordinated pair of buildings, both exhibiting a series of boxed balconied glazed openings on the upper level highlighted in rust colour. The articulated nature of both buildings overcomes any capacity for the buildings to appear bulky by breaking up the façade and roof lines into smaller elements (as required by the DCP sections 4.5 and 5.4). The articulated building form moderates the appearance of size of each building, bringing a more human scale to both these buildings and the surrounding marine environment. The lower levels both open to the pedestrian zone along the foreshore, with anticipated cafes, restaurants, function areas and licensed facilities integrating the public access pedestrian zone to the buildings themselves in a welcoming and inclusive manner. The glazed western end of the western building provides a visual punctuation mark to indicate the end of the coordinated building façade.

Figure 4.7 Photomontage from Master Plan viewpoint of Bicentennial Park

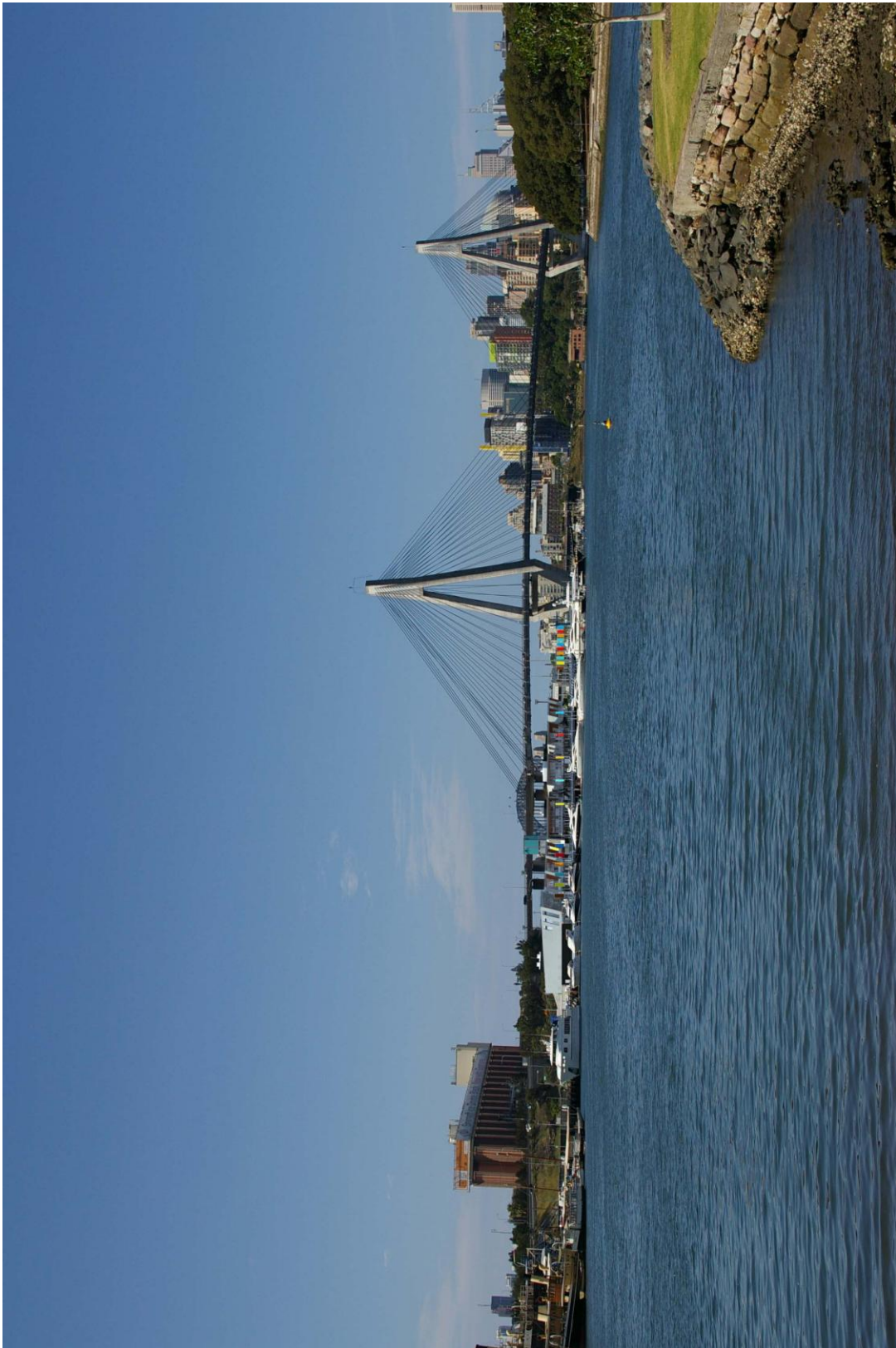


Figure 4.8 Photomontage from Master Plan viewpoint of Blackwattle Bay Park



Figure 4.9 Photomontage from Master Plan viewpoint of Glebe Point



The elevated semi public decking on which the outdoor tables for the cafes, restaurants, possible function areas and licensed facilities will be placed and over which some access will be made, will separate the semi public areas from the fully public pedestrian zone on the forecourt.

Focal Point

The Master Plan indicates a building structure focal point should be included on the south eastern corner of the building on the eastern site R2d. Acknowledging design guidelines for such a focal point in section 2.3.1 of the Master Plan, the proposal relocates the focal point to a part of the site visible from both the water and the road access from James Craig Road. A focal point is included in the north western corner of the multileveled car park which is located directly to the north of the eastern building. Viewed from the waterfront, the car park will be blocked by the semicircular building, save for the focal point (which has the additional benefit of including the car lift for use in the car park).

Landscaping

The existing trees on the boundary with the NSW Maritime Building will be retained with landscaping being included in the car parking area adjoining Maritime Close to the north of the site. Additional landscaping will be provided at the sides of the eastern building as indicated in the landscape plan in Appendix B.

Car Parking

There will be some car parking on the forecourt in the most eastern section of the site adjacent to the waterline. These car parks will be strictly for use by marina users and those people working on the superyachts moored at the marina and will not be available for general public use. The presence of bollards will restrict access to these car parks. Notwithstanding the provisions of section 2.5 of the Master Plan which suggests that parking where possible be developed away from the immediate foreshore and incorporate plant screening, the proposal seeks to meld the requirements of nearby parking for the servicing and provisioning of the superyachts with the requirements of the Master Plan. Were landscaping in planter boxes to be included on the waterfront side of the car parks, the pedestrian zone would be reduced in size accordingly. As indicated above, the presence of moored superyachts will interrupt the view from the water of any vehicles using this carparking area because of their bulk and scale.

From the pedestrian zone along the foreshore, the concrete will be matched with the existing concrete with feature radial banding along the forecourt and pedestrian area. The waterfront pedestrian zone will include toe rails, lighting bollards and pedestrian seating (as illustrated in section 2.6 and in figure 40 of the Master Plan).

Views from Public Open Space

The views from the public open spaces and residences to the south will be of a coordinated, articulated, modern and vibrant, low level pair of buildings which complement the maritime character of the precinct. The buildings will not interrupt the skyline to the north which is dominated by the White Bay Power Station, the Glebe Island silos and Anzac Bridge to the east, nor will they impact upon the vegetated skyline on the Victoria Road /City West Link embankment. With the presence of the moored superyachts, the view of the buildings will be somewhat interrupted so that the full extent of the buildings will not be readily apparent. The car park at the rear will not be easily viewed, although the focal point on the car park will be visible as an identifying mark for the development.

The pennant crane will be visible from the water and possibly from Glebe Point, although the presence of the superyachts will prevent its visibility at times. It does however maintain the maritime landscaping of the site in keeping with the history and maintaining the working waterfront principles of the Master Plan.

Viewed from the western end of Rozelle Bay the coordinated buildings may be more apparent without the obscuring by the superyachts. The buildings will not obscure the view of Anzac Bridge from the foreshore and will blend easily into the maritime character of the area.

When viewed from Anzac Bridge and the eastern approach near the Fish Markets, the buildings will appear as a similar scale and height to the existing NSW Maritime building in the foreground, but the welcoming vista of the balconies and outdoor public areas will present vibrancy to the area which is currently lacking. The focal point will be visible from the Anzac Bridge when travelling west, inviting travellers to come to the development.

The key visual landmarks and view corridors set out in the Master Plan are not adversely impacted by the proposed development nor does the development obstruct the 3 bridges view between the Anzac Bridge towers from Bicentennial Park. The photomontages shown in figures 4.7-4.9 indicate the views likely to be seen from the Master Plan view corridors and viewpoints.

The current character of the site is one which indicates lack of vision, little aesthetic design and exudes a temporary and deteriorated feel. The proposal will achieve the building articulation characteristics desired by the Master Plan by the separation of the upper level balconies, the openings and access stairways, and the pedestrian walkways to effectively create the desired distinctive contemporary character which responds to and complements the marine environment. The integration of the buildings with the pedestrian links incorporates many aspects of the Master Plan to provide

greater access to the foreshore in a visually unimposing but inviting way. The desired character of maintaining the marine character and working harbour are achieved by integrating services for the superyacht marina with facilities which can also be used by the general public and particularly local residents.

4.11.5 Mitigation / Contingency Measures

The multilevel car park will have “hanging garden” landscaping on its frontages to screen the cars from view by the community. Although largely screened from view from the water, it will present as a green open pleasant construction and not as a heavy car park. Landscaping in the open car parking area will present a welcoming vista from the vehicular entrance from Maritime Close.

To assist in signifying an end to the development the most western portion of the development will have a glazed top level which, aside from providing a greater flexibility for tenant use, and avoiding any appearance of a block development, it provides a suitable end point to the development.

4.12 Climate Change

4.12.1 Policy/ legal requirements

The Director General's requirement's require the assessment of any flood risk to be assessed in accordance with the guideline contained in the *NSW Floodplain Development Manual (2005)*, including potential effects of climate change, sea level rise and an increase in rainfall density.

The NSW Coastal Policy 1997 requires that climate change be considered as part of development assessments. The coastal policy advocates adopting the precautionary principle for climate change and sea level rise, and take a risk-averse approach to decision-making because of the uncertainty of the level of impact from climate change in the future.

The NSW Department of Planning has released the NSW Coastal Planning Guidelines: Adapting to Sea Level Rise (2010) to provide guidance on how sea level rise is to be considered in land use planning and development assessments (DAs) in coastal NSW. It states DAs should outline how the proposal minimises the exposure to coastal risks, and implement appropriate management responses and adaptation strategies.

4.12.2 Method of Assessment

Leichardt Council is part of the Sydney Coastal Councils Group (SCCG) which participated in a research project on regional approaches to managing climate vulnerability in the Sydney region which produced the report *System Approach to Regional Climate Change Adaptation Strategies in Metropolises* (CSIRO 2008).

The study found that the sea-level rise that is projected to occur over the next century in response to climate change will have inherent consequences for the SCCG's coastlines, particularly in combination with natural tidal variability and storm events. Extreme rain events, runoff, and flooding are likely to increase the need for stormwater management and flood protection in vulnerable areas exposed to increases in such events. The study undertook climate change vulnerability assessments for each council, with the report finding that Leichardt Council had a high vulnerability to both sea level rise and extreme rainfall events. Refer to Section 4.4 on Water Quality which outlines the stormwater management plans for the development.

4.12.3 Existing Environment

The climate of the City of Sydney can be described as a temperate climate with warm summers and cool winters, with rainfall spread throughout the year. The weather is moderated by the proximity to the ocean. Rainfall is fairly evenly divided between summer and winter, but is slightly higher during the first half of the year when easterly winds dominate. The mean monthly rainfall for Sydney is 101mm. The city is also prone to severe hail storms and wind storms, and flash flooding from heavy rain brought by east coast low pressure systems which can bring significant damage with cyclonic winds and huge swells, which occur largely in summer. The warmest month is January with an average range of 18.6 to 25.8°C. The coldest month is July, with an average range of 8.0–16.2 °C. The prevailing wind direction is from the west with annual average wind speeds of 3 metres per second. The following are climatic averages from the Bureau of Meteorology weather station at Observatory Hill Sydney which is approximately 2.6km north east of the development site.

Table 4.13 Climate data from Observatory Hill Sydney

	Jan	Feb	Mar	April	May	June	July	Aug	Sep	Oct	Nov	Dec	Annual
Mean Max. Temp (°C)	25.9	25.8	24.7	22.4	19.4	16.9	16.3	17.8	20.0	22.1	23.6	25.2	21.7
Mean Min. Temp (°C)	18.7	18.8	17.5	14.7	11.5	9.3	8.0	8.9	11.1	13.5	15.6	17.5	13.8
Mean Rainfall (mm)	101.5	118.7	128.9	125.8	121.1	130.6	97.3	81.2	69.1	77.6	83.1	77.8	1212.5
Mean Wind Speed (morning 9am km/hr)	8.6	8.2	7.9	8.8	10.5	11.9	13.1	13.3	12.4	12.2	11.0	9.8	10.6
Mean Wind Speed (afternoon 3pm km/hr)	17.9	16.8	15.2	13.8	12.7	13.6	15.3	17.6	18.3	19.1	19.4	19.5	16.6

4.12.4 Assessment of Impacts

Section 3.6 of the Floodplain Development Manual suggests that a survey showing levels be provided to assist in setting development conditions. A survey undertaken by

StrataSurv and contained in Annexure A identifies the AHD data for the Site. It indicates AHD of between approximately 1.82 to 2.86 metres, but generally above 2.0m.

Sea Level Rise

The NSW government has developed a Sea Level Rise Policy Statement to support adaptation to possible sea level rise impacts. It includes sea level rise planning benchmarks which forecast an increase above 1990 mean sea levels of 40cm by 2050 and 90cm by 2100 (DECCW 2009).

The current Mean High Water Mark (MHW) is Reduced Level (RL) 0.70, and the proposed East and West Block ground floors are going to have an RL of 2.60 metres. For the worst case scenario where there is a sea level rise of 90cm by 2100 the development would be safe from potential flooding, with a buffer of approximately one metre. Refer to figures 4.10 and 4.11 below.

Figure 4.10 West Block Relative Level (RL) above Mean High Water Mark (MHW) (Refer to App B for full drawing)



Figure 4.11 East Block Relative Level (RL) above Mean High Water Mark (MHWM)
(Refer to App A for full drawing)



Increased flooding and extreme weather events

The stormwater design that includes three stormwater drainage lines (increased from the current two) and 160,000 Litre storm water collection tanks that capture water from the roofs have been designed to not increase peak stormwater flows for rainfall events of up to a one-in-two year storms. This will reduce the impacts of potential increased stormwater loads entering the harbour as a result of climate change in the future.

4.13 Ecological Sustainable Development

The Director General's requirements require this assessment to identify how the development will incorporate ESD principles in the design, construction and ongoing operation phases of the development.

Ecologically Sustainable Development (ESD) is defined as development that meets the needs of the present without compromising the ability of future generations to meet their needs. Since its conception and popularisation in 1992 by the World Commission on Environment and Development, ESD has been enshrined in Australian legislation as the key guiding force of future development. This section aims to demonstrate how the proposed development would comply with the various principles and objectives of ESD.

4.13.1 Policy/ legal requirements

Section 6(1) of the *Protection of the Environment Administration Act 1991* outlines the objectives of the Environment Protection Authority, being:

- a. to protect, restore and enhance the quality of the environment in New South Wales, having regard to the need to maintain ecologically sustainable development, and
- b. to reduce the risks to human health and prevent the degradation of the environment, by means such as the following:
 - promoting pollution prevention,
 - adopting the principle of reducing to harmless levels the discharge into the air, water or land of substances likely to cause harm to the environment,
 - minimising the creation of waste by the use of appropriate technology,
 - regulating the transportation, collection, treatment, storage and disposal of waste,
 - encouraging the reduction of the use of materials, encouraging the re-use and recycling of materials and encouraging material recovery,
 - adopting minimum environmental standards prescribed by complementary Commonwealth and State legislation and advising the Government to prescribe more stringent standards where appropriate,
 - setting mandatory targets for environmental improvement,
 - promoting community involvement in decisions about environmental matters,

- ensuring the community has access to relevant information about hazardous substances arising from, or stored, used or sold by, any industry or public authority,
- conducting public education and awareness programs about environmental matters.

Subsection 6(2) identifies for the purposes of subsection (1) (a), ecologically sustainable development requires the effective integration of economic and environmental considerations in decision-making processes. Ecologically sustainable development can be achieved through the implementation of the following principles and programs:

- a. the precautionary principle—namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In the application of the precautionary principle, public and private decisions should be guided by:
 - (i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and
 - (ii) an assessment of the risk-weighted consequences of various options,
- b. inter-generational equity—namely, that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations,
- c. conservation of biological diversity and ecological integrity—namely, that conservation of biological diversity and ecological integrity should be a fundamental consideration,
- d. improved valuation, pricing and incentive mechanisms—namely, that environmental factors should be included in the valuation of assets and services, such as:
 - (i) polluter pays—that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement,
 - (ii) the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste,
 - (iii) environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms, that enable those best

placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.

Rozelle and Blackwattle Bays Master Plan

The Rozelle and Blackwattle Bays Master Plan states that all developments and activities should be in accordance with ESD principles. The Master Plan identifies four key principles for the design of sustainable developments and buildings:

1. To minimise external environmental impacts during their construction operation and disposal.
2. To minimise resource consumption during their construction, operation and disposal.
3. To provide comfortable and healthy indoor environments.
4. To optimise their functionality and utilisation.

The Master Plan discusses a range of ESD issues that should be considered in order to achieve these objectives. In addition, the Master Plan requires that any development comply with the NSW Code of Practice for the Construction Industry for ESD.

4.13.2 Method of Assessment

An assessment of compliance of the proposed development with each of the ESD principles has been undertaken. Given the absence of any significant long-term flow-on effect from the development, the proposal is regarded as being consistent with the principles of ESD.

4.13.2.1 Pre-cautionary Principles

The precautionary principles have been adopted consistently during the design of the development, and have been a part of the impact assessment process. Comprehensive standards have been applied during the assessment of climate change, air quality, soil contamination, water quality, flora and fauna, noise, traffic impacts, visual impacts, and waste management (Refer to Sections 4.1-4.12).

Section 4.12 assessed the potential impact of sea level rise as a result of climate change. The design has been based on a precautionary approach, where if the worst case scenario of climate change resulting in sea level rise of 90cm by 2100 (DECCW

2009) the development would be safe from flooding, with a buffer of approximately one metre.

Potential increased stormwater loads and flooding from extreme weather events due to climate change (Section 4.12) have also been considered during the design phase of the development. Storm water collection tanks have been incorporated into the development in order for peak stormwater flows not to increase as a result of the development, and to reduce flows to the stormwater system entering the bay.

For the construction stage of the project a Construction Environmental Management Plan (CEMP) will be followed to pro-actively address the precautionary principle, addressing - water quality, noise management, contamination, and waste management.

For the operational stage of the project an Operational Environmental Management Plan (OEMP) will be prepared to enable ongoing monitoring and management of the developments environmental performance. This will include energy performance benchmarks and targets to minimise energy consumption, and minimise the developments carbon footprint. The Building Users' Guide will include instruction on how to minimise the footprint of ongoing use of the facilities, and a tenancy fit out guide which will provide practical suggestions on selecting ESD materials.

4.13.2.2 Inter-Generational Equity

The buildings' design incorporates passive and low energy design principles, including orienting the buildings to effectively utilise the warmth and light provided through the designs north facing windows.

Construction and operation of the project would not generate any long-term negative environmental and social impacts and would therefore not compromise the ability of ensuing generations to meet their needs. The range of benefits identified would actually enhance the social environment for future generations.

Socio-Economic benefits

The project aims to improve social sustainability by implementing design and operation flexibility which will allow for future changes in community needs and requirements over the term of the lease period. This will assist in 'future proofing' the development to cater for the changing demands and requirements of the environment, the market and the local community.

Section 4.10 assesses the social and economic impacts of the project, and identified beneficial economic impacts including creating both direct and indirect employment opportunities and flow on benefits to the Sydney economy. The economy would also

benefit from the proposal's improved and expanded facilities through the increase of visiting superyachts that the development would bring to Sydney. The expansion of the marina will also be beneficial through providing additional boat berths for a harbour that has a shortage of berths for recreational vessels, with this demand projected to increase over coming years.

Surrounding resident quality of life would be unaffected by the development, as the development would not increase noise, air, light, and odour impacts. Refer to sections 4.3, 4.5 and 4.10 for assessments.

Public access to the foreshore for future generations would be increased under the proposed development in accordance with the Master Plan and other legislative regimes promoting greater access.

Environmental benefits

The proposal's design considered inter-generational equity by aiming to reduce demand on resources, and reduce impacts on climate change. Measures to achieve these environmental benefits include:

- Solar photovoltaic panels will be installed on the buildings' roofs and feedback into the electrical grid. The power generated will contribute the equivalent of approximately 20% of the buildings' electricity demands back to the grid. This meets the Master Plan's requirement of 20% (or better) of onsite power requirements to be provided by alternative power sources such as solar and wind.
- Storm water collection tanks totalling collection 160,000 Litres capturing water from the roofs for toilet flushing and reuse for landscape irrigation; and to reduce flow to the stormwater system.
- 80% by mass of all demolition and construction waste will be reused or recycled. Waste to be managed and recorded in accordance with the CEMP.
- Selection of environmental responsible construction materials.
- Compliance with Building Codes of Australia Section J Energy Efficiency.

Construction Material Selection

Where possible, environmentally responsible materials have been selected during the design phase of the project and they are set out in table 4.14. The aims sought to be met are:

- Use materials with the least embodied energy and environmental impact
- Use products that originate and/or are made from with local materials and are manufactured locally, to reduce transport emissions
- Use structural steel with a high level of recycled content

- Use concrete with portland cement substitute
- Use materials with low levels of volatile organic compound off-gassing.

Table 4.14 Environmentally responsible properties of selected building materials

Building Materials	Environmentally Responsible Properties
Concrete	30% of concrete being a Portland cement substitute (cement with aggregate)
Steel	60% of steel has a recycled content of > 50%
Timber	95% by cost of timber products used will be sourced from either reused timber, post-consumer recycled timber or Forest Stewardship Council certified timber
Cladding Systems	50% of structural framing, roofing and façade cladding systems are designed for disassembly.
Glass Facades	The glass selected meet the reflectivity limits of no greater than 20% outlined in the Rozelle and Blackwattle Bays Master Plan.

Building Codes of Australia (BCA) 2010 Section J: Energy Efficiency

The development will achieve full compliance with Building Codes of Australia Energy Efficiency requirements as set out in Table 4.15.

Table 4.15 BCA Section J energy efficiency compliance

Section J: Energy Efficiency Performance Requirements	Compliance with Performance Requirements
JP1 A building, including its services, must have, to the degree necessary, features that facilitate the efficient use of energy appropriate to- (a) the function and use of the building and services; and (b) the internal environment; and (c) the geographic location of the building; and (d) the effects of nearby permanent features such as topography, structures and buildings; and (e) solar radiation being- (i) utilised for heating; and (ii) controlled to minimise energy for cooling; and (f) the sealing of the building envelope against air leakage; and (g) the utilisation of air movement to assist heating and cooling; and (h) the energy source of the services.	• Use of bio-phillic and closed loop systems within the operation to maximize sustainable outcomes and improve occupant comfort and internal environmental • Use of micro climate analysis to maximise on-site design outcomes for occupant comfort improvement, daylighting and energy and water reductions. • 30% of the lettable area will have a Daylight Factor of at least 2.5% as measured at the floor level under a uniform design sky.

Section J: Energy Efficiency Performance Requirements	Compliance with Performance Requirements
JP2 A building, including its services, must have, to the degree necessary, features that facilitate the maintenance of systems and components appropriate to the function and use of the building.	The building has been designed to include features that facilitate access for maintenance of plant, equipment and components.
JP3 Heating such as for a conditioned space must, to the degree necessary, obtain energy from- (a) a source that has a greenhouse gas intensity that does not exceed 100 g CO ₂ -e/MJ of the thermal energy load; or (b) a source that is renewable on-site such as solar, geothermal or wind; or (c) another process as reclaimed energy.	Solar photovoltaic panels will be installed on the buildings roofs to contribute the equivalent of 20% of the buildings' electricity demands back to the electricity grid.
J1 Building Fabric - roof and ceiling construction, roof lights, walls, floors.	All Insulation that is part of the envelope will be installed in accordance with Clause J1.2 , the Manufacturer's Specifications and AS/NZS 4859.1 .
J2 Glazing - shading, glazing.	All external glazing has been designed and will be installed in accordance with J2.4 - Method 2 .
J3 Building Sealing - chimneys & flues, roof lights, external windows & doors, exhaust fans, construction of roof, walls, floor.	- All chimneys, flues and exhaust fans are fitted with dampers in accordance with J3.2 and J3.5 - All windows and doors are fitted with air infiltration seals in accordance with J3.4 - The main entrance to the building opens into a conditioned space and will be fitted with a self-closing door or will be provided with an airlock in accordance with J3.4(d)(i). - all entrances will be fitted with self-closing doors in accordance with J3.4(d)(ii). - All roofs, walls and floors will be constructed to minimise air leakage in accordance with J3.6
J4 Air Movement	All air-conditioning and ventilating systems and components will be designed in accordance with the Deemed To Satisfy (DTS) requirements of Part J5 and a declaration check sheet or a report will be submitted by the mechanical services designer verifying compliance.

Section J: Energy Efficiency Performance Requirements	Compliance with Performance Requirements
J5 Air-Conditioning & Ventilation Systems - air-conditioning, mechanical ventilation, ductwork, time switches, heating & cooling systems.	All air-conditioning and ventilating systems and components will be designed in accordance with the DTS requirements of Part J5 and a declaration check sheet or a report will be submitted by the mechanical services designer verifying compliance.
J6 Artificial Lighting & Power - interior artificial lighting & power control, decorative lighting, external lighting, boiling water & chilled water storage units.	Artificial lighting and power will be designed and installed in accordance with the DTS requirements of Part J6 and a compliance check sheet or report will be submitted by the electrical services designer verifying compliance.
J7 Hot Water Supply	The hot water supply system will be designed in accordance with Section 8 of AS/NZS 3500.4 . Specifications of the system will be submitted prior to installation.
J8 Facilities for maintenance & monitoring.	The building has been designed to include adequate access for maintenance of plant, equipment and components in accordance with the provision of Part I2 .

4.13.2.3 Conservation of Biological Diversity & Ecological Integrity

An impact assessment on this highly modified environment was undertaken in Section 4.8: Flora and Fauna. The habitat assessments found there were no threatened or vulnerable flora or fauna species recorded on the site, and concluded that the development would have negligible effect on threatened species or the ecological integrity of the area.

Stop work procedures would be included in the CEMP, and implemented if any threatened species or communities were discovered during construction. The development proposal includes planting of trees and shrubs that are common to the area to increase biological diversity.

4.13.2.4 Improved Valuation, Pricing and Incentive Mechanisms

In summary the impact assessments undertaken in Sections 4.1 to 4.12 found that the proposal would have a low environmental impact due to the nature of the project; the nature of the existing environment; and the mitigation and management measures that have been proposed for the project.

A number of commitments to ongoing environmental management have been proposed to avoid or reduce environmental impacts and take up environmental enhancement opportunities. These include the controls proposed in the OEMP to contain and minimise the impacts of the proposed development, including environmental performance monitoring and auditing. In addition to this, and in line with the principle, the concepts outlined throughout this assessment are aimed at maximising benefits and minimising costs, as well as providing protection of environmental and social values.

The project has a number of benefits that can be summarised as:

- Increased employment opportunities;
- Increased economic growth for the Leichardt LGA and Sydney;
- Improved infrastructure;
- Improved local ecology through native plantings

In conclusion the valuation and pricing of the environment has been inherent to all aspects of the project's life cycle from design, through this environmental assessment, and will continue to value the environment through the construction and operational phases of the development through the implementation of the CEMP and OEMP.

4.13.3 Operational Environmental Management Plan

An OEMP in accordance with s4 of the NSW Environmental Management System guidelines 1998 will be developed to guide environmental management and monitoring during operation of the facility. The OEMP would further restrict the environmental impacts and provide oversight to ensure that the post-development environmental performance of the facility complies with ESD principles.

The OEMP will include the following sections:

- Waste and Recycling Management
- Stormwater Management
- Energy Consumption Monitoring and Management
- Dangerous Goods Storage
- Noise Management
- Light Spill Management
- Traffic Management
- Complaints Management

4.14 Alternative Options

4.14.1 Do nothing option

Competition from interstate

The current superyacht marina site is undercapitalized and figures from NSW Maritime indicate that the marina itself is underutilized. The approved marina reconfiguration allows for 24 superyachts between 20m to 70m in length, however during 2008 approximately 21 superyachts visited the Rozelle Bay Superyacht Marina with 18 visiting in each of 2006 and 2007. Clearly the marina has capacity for further visitation. By comparison, visitations to Sydney Harbour by superyachts during those periods were 47, 48 and 45 in 2006, 2007 and 2008 respectively (NSW Maritime 2008).

By comparison, Queensland's international visitations have grown by 42% per annum since 1999 when 4 international boats berthed, up to 60 in 2006. Superyacht numbers worldwide have doubled between 2002-2008 from 3,500 to 7,000 and whilst there has been growth in superyacht numbers visiting Sydney, Queensland represents a real threat to Sydney as competition. The Queensland Government estimates Queensland's superyacht industry directly employs approximately 350 people and had a turnover of \$125 million in 2007, numbers that are expected to increase to 1,000 employees and \$500 million within five years (Department of Tourism, Regional Development and Industry Queensland 2008).

There are superyacht centres in Queensland at Cairns, Mackay and the Whitsundays, and the Gold Coast which are able to provide marina services. In addition there are servicing and repair facilities of superyachts at Brisbane. There is planned extension of the current 38 superyacht berths in the Cairns region (which also boasts 5 star superyacht services at the Cairns Marlin Marina); proposed developments to expand the already 200 berths in the Mackay / Whitsunday region at Airlie Beach, Shute Harbour and Bowen State Boat Harbour; and expansion plans at the Gold Coast to increase the current 88 berths (Department of Tourism, Regional Development and Industry Queensland 2008).

Economic Imperatives

The principal importance of superyachts to the economy lies in the servicing and provisioning of visiting vessels. This includes fuel, provisioning, pilotage, mooring and berthage, boat supplies and refit services. The presence of Sydney City Marine in Rozelle and the approved dry boat storage adjacent in close proximity to the Marina opens up tremendous opportunities for enticing superyachts to a hub for repairs and

visitations alike. Failure to capitalize on the cluster of maritime services within the Rozelle maritime precinct by updating and improving the facilities to superyachts will dampen the commercial viability of adjoining commercial enterprises, and miss economic opportunities which will likely result from a multiplier effect by encouraging the presence of the superyachts.

Economic profiling undertaken in Cairns Queensland, indicates spending (other than on maintenance and refit services) to be approximately \$10,000 per day per vessel, representing a significant contribution to local economies. This includes everything from chandlery and supplies to entertainment, restaurants, land accommodation, tours and charters, translators and all other manner of tourism expenditure by owners, guests and crew (Department of Tourism, Regional Development and Industry Queensland 2008).

The NSW Waterways Authority estimated that during the Sydney Olympics in 2000 the 13 superyachts berthed at the Rozelle Superyacht Marina spent approximately \$7 million on food and entertainment with a further approximate \$7 million spent on maintenance, stores provisioning, berthing, fuel and utility services (State Chamber of Commerce 2003).

Policy and legislative objectives

The SREP (Sydney Harbour Catchment) 2005, SREP 26 – City West and the Rozelle and Blackwattle Bay Precinct Master Plan all emphasise the importance of development improving the public access to the foreshore and waterways. If no development is proposed for the site, there is nothing requiring improvement of the limited public access which currently exists along the northern foreshore of Rozelle Bay.

4.14.2 Alternative Site Option

Sydney's other main superyacht berthing position is at Campbells Cove on the western side of Circular Quay and adjacent to the Park Hyatt Hotel and at Walsh Bay. Both sites are on the eastern side of the Harbour Bridge and are hence accessible by large sailing vessels unable to use the Rozelle Bay site due to the Anzac Bridge 28.5 metre air draft clearance (NSW Maritime 2008 p 14). The Rozelle superyacht site utilizes the area for the lower height vessels, keeping available other sites east of the Bridge to higher vessels. There is pressure on other sites east of the Sydney Harbour Bridge such as Garden Island, due to the expanding cruise ship market with an increasing number of cruise vessels unable to fit under the 49 metre air draft of the Sydney Harbour Bridge. It is estimated that by 2020 only 15% of such cruise vessels will fit under the Bridge – imposing serious constraints on expansion of that market (Access Economics 2009). The proposal to

expand facilities in Rozelle helps alleviate further pressure on those sites east of the Bridge.

Current marina berthing already exists at the Rozelle site, and this proposed development enhances an existing facility. It is also well sited being close to the refit and repairing facility at nearby Sydney City Marine and the facilities of the approved adjacent dry boat storage may further enhance the maritime precinct with associated services at close hand. The approved Bailey's refuelling and supply facility at Wharf 6 White Bay (Keneally 2009) also provides further maintenance and refuelling facilities in close proximity to the proposed development site – further integrating commercial and recreational facilities in this area (Keneally 2009).

A superyacht marina requires a deep waterfront, available good foreshore land, close to other facilities, and good structural piers. All of these criteria are met in the Rozelle Bay site – with water depth from 4.6m to 7.6m. The land area to be developed is already highly disturbed, has been subject to filling and further development will not have any significant impact upon any endangered or vulnerable flora and fauna observed in the vicinity. The development does not propose any change to the current water facilities.

The proposal is in line with the envisaged objectives of the relevant planning instruments by retaining the maritime and waterfront uses, taking full advantage of the waterfront and central location to the Sydney CBD.

4.14.3 Alternative land use option

The Master Plan identifies the following preferred land uses for site R2d on the eastern portion of the site:

- Charter vessels
- Commercial marine offices
- General mixed marine
- Layover berths
- Waterways operations
- Food & retail outlet ancillary to main use.

The proposed use of this site includes commercial marine offices, general mixed marine (the workshop). Dormitory accommodation is also provided to facilitate the use of the berths at the marina. Food, package licence premises and retail outlets which can assist with the provisioning of the superyachts, provide on-site restaurants and bars for the marina users and also service the neighbouring residential areas, are also on site.

Waterways operations are managed by the NSW Maritime Authority whose offices are in the adjacent building to the east and who own the land on which the proposal is situate. The site also provides for commercial office space on level 1 which may be applied to enable charter vessels to operate from the marina. The proposal therefore already covers or is ancillary to 4 or 5 of the 6 preferred uses for the site.

The Master Plan identifies the following preferred land uses for site R4 on the western portion:

- Charter vessels
- Dry boat storage
- General mixed marine
- Heavy marine repairs
- Heritage fleet
- Layover berths
- Marine repairs

This building is designed to be used for commercial tenancies and for functions. Again, charter vessel operators and general mixed marine offices may elect to use the office space proposed for the building. The marina adjacent to the site provides for layover berths for vessels.

An approved dry boat storage proposal is intended to be constructed on the land adjoining this site to the west and north. This is a substantial facility and includes some of the land identified as R4. To add dry boat storage to this site would be unnecessary given the adjacent approval. The ability to conduct marine repairs is limited due to the presence of the marina immediately waterside of the site. Marine repairs are adequately catered for by the Sydney City Marine business operating under Anzac Bridge in close proximity to the site, which is well suited to undertaking repairs of the boats the size of which will utilize the superyacht marina berths. The final preferred use for the area is for the heritage fleet. The NSW Maritime Museum in Darling Harbour does host a number of heritage vessels, and, given the presence of the modern and substantial superyachts at the marina, it is suggested that managing part of the heritage fleet from the site has little interplay with the current use of the area.

Given the development approvals in the area (Sydney City Marine and the dry boat storage) granted since the drafting of the Master Plan, it is submitted that some of the preferred uses for this site have become somewhat obsolete and are better provided for elsewhere in the immediate area. The proposed uses for the site allow for commercial offices of marine and ancillary operations, but also provide an opportunity for attracting vibrancy to the area by the provision of function rooms. This type of facility is lacking in the area and it would be a positive addition to available function space.

Moreover, as argued in section 3.3.3 above, it is submitted that the approval of the dry boat storage Facility acknowledges that that part of R4 which is not included in that approval should take the preferred land uses of the adjoining site of R2d. The proposed land uses for the western building adequately fulfil the land uses identified for site R2d.

4.14.4 Alternative Design Option

The Master Plan imposes considerable constraints on the placement of buildings on the sites. The waterfront setbacks specifically arise because of the pedestrian apron over the water demonstrated in figure 40 in relation to site R3. This prevents any substantive construction forward of the setback line. Additionally services set out in Figure 1.2 limit the placement of building particularly on the eastern section of the Site.

Eastern building

The Master Plan requires the eastern building to have a 20 metre setback along the waterfront and approximately a 10m setback to the boundary of the land on which the NSW Maritime building is built to the east. The Master Plan further seeks to constrain development on the western portion of the eastern site with a considerable setback from the western boundary of approximately 38 metres. That setback whilst not achieved, still retains a distance of 22.33 metres between the eastern and western buildings on site, easily allowing access to the foreshore as required by the Master Plan.

The proposed eastern building exceeds the front setback in the eastern portion and fails to achieve the front setback in the western portion. This arises from the semi circular design which follows the foreshore line rather than presenting as a block building in keeping with the building envelope identified in the Master Plan. The eastern side setback of 10 metres has been achieved with a setback of 11.71 metres. The proposed articulated design avoids the heavy square design which may have resulted from strict adherence to the Master Plan building envelope and its fanned aspect allows for maximum utilisation of the views from the building and suitably addresses the waterfront.

An alternative design adhering to the building envelope identified in the Master Plan would have likely encouraged open car parking to the waterfront in the wide western setback, something which is discouraged by the section 2.5 of the Master Plan. By adopting a flattened semi circular building shape wrapping around the foreshore, the building addresses the waterway as required by the DCP. It takes advantage of increased north and south facing elevations aiding solar and ventilation control in accordance with the design principles outlined in section 2.4 of the Master Plan, the achievement of which would be limited by adhering to the square building envelope

outlined in the Master Plan. The proposed services easements would in any event have prevented the building envelope established under the Master Plan.

Western building

The Master Plan identifies fewer constraints on the western building, requiring a rectangular building with a 10metre setback to the western, eastern and southern boundaries. That setback is generally achieved on the southern and eastern side. The western setback is limited to 4.38 metres. The building therefore slightly exceeds but is generally the same shape as the Master Plan building envelope. Alternative designs could have been made to the waterfront façade of the building, however the proposed design complements the design of the eastern building, presenting a unified and cohesive appearance from both the water and the promenade. Because of the draft plan of subdivision and approved dry boat storage on adjoining land, the proposed building does not encompass the whole of the site R4 which has effectively been divided.

5. ENVIRONMENTAL MANAGEMENT PLANS

5. Environmental Management Plans

As discussed in previous sections a Construction Environmental Management Plan (CEMP) and Operational Environmental Management Plan (OEMP) would be prepared and implemented in accordance with any conditions of consent, relevant Acts and Regulations and accepted best practice management procedures. The Environmental Management Plans would be prepared in consultation with relevant Government Departments and Leichhardt Council. The EMPs would incorporate mitigation measures identified in this environmental assessment and any relevant conditions of consent. The plans would contain clear commitments, framed in a way that enables assessment of the extent to which the commitment has been met and would be auditable. The likely elements of the Environmental Management Plans include:

- description of the construction activities associated with the proposed works;
- establishment of agreed performance criteria and objectives in relation to environmental and social impacts;
- on-going community consultation provisions, including mechanisms for receiving complaints;
- structure and responsibilities within the organisation;
- required training, awareness and competency levels;
- communication procedures internally and externally within the organisation;
- document requirements and their control;
- detailed prevention, minimisation and mitigation strategies or action programs (including design standards and maintenance programmes) for controlling environmental impacts;
- details of the proposed monitoring of the effectiveness of remedial measures against the agreed performance criteria;
- details of implementation responsibilities for environmental management;
- timing (milestones) of environmental management initiatives;
- reporting requirements and auditing responsibilities for meeting environmental performance objectives;
- corrective actions (as options) to rectify any deviation from performance standards;
- record requirements and their maintenance.

Sydney Superyacht Marina is committed to ongoing consultation with the community during operational phases of the development. The Environmental Management Plan would include an activity internet site that provides updates of work progress, construction activities, planned work schedules, contact names and phone numbers of

relevant communications staff. Sydney Superyacht Marina would also implement a Complaints Management System that records information on all complaints received, including the means by which they were addressed and whether resolution was reached during the construction and operation phases of the marina redevelopment.

Management would regularly review the Environmental Management Plans and is committed to the implementation of a system that helps achieve its environmental and economic goals. Construction and operation of the proposed development would be consistent with the principles of Ecologically Sustainable Development. Appropriate safeguards and mitigation measures have been built into every part of the assessment process to ensure that environmental impacts are minimized and will not jeopardize future generations.

Appendix O includes a draft statement of commitments in relation to the proposal.

6. CONCLUSION

6. Conclusion

The proposal seeks to revitalise a highly disturbed area of the Sydney Harbour Foreshore which is within the maritime precinct but which does not currently make the best use of its foreshore position. The proposal will help to cement Sydney as a pre-eminent destination for superyachts within Australia and the economic and social flow-on effects from the enhancement of the services provided by the facility are likely to be significant. Consultation has shown that there is a keen interest in opening the Site to greater public access, to enable more of the local and more distant community to benefit from the position on the Harbour Foreshore. The provision of cafes, restaurants, function facilities and licensed facilities, in conjunction with retail and commercial offices, will help to open up the area for public access in the manner envisaged by the Master Plan.

Environmental assessment has indicated that there are no existing conditions (such as endangered flora and fauna, heritage or contamination), nor anticipated conditions (such as possible sea level rise or pollution) on the Site which would preclude approval for the proposed development on the Site. Neither are there any anticipated conditions which cannot be sufficiently managed through construction and operational environmental management plans.

The proposal generally complies with all the planning requirements, save minor aspects where the objectives of the planning document are not compromised by minor non-compliances of planning provisions. Visually, the proposal has a low impact from the surrounding viewpoints and is in keeping with the Master Plan and maritime history of the area.

The Site is ideally positioned for the expansion of the superyacht marina facilities as they build upon the existing superyacht marina, they utilise the harbour foreshore enabling greater access by the public, and they help to provide a social focus for the surrounding residents. With the economic benefits anticipated from the construction and operation of the facilities, and the increased public access, the proposal is in the public interest.

It is considered that there are no environmental or planning issues that preclude approval of the proposed redevelopment of Sydney Superyacht Marina at James Craig Road, Rozelle Bay.

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