ESD Statement

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Appendix L

DPT Operator Pty Ltd & DPPT Operator Pty Ltd

Cockle Bay Wharf Redevelopment

ESD Development Application Design Report

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1 Introduction

This report supports a State Significant Development Application (SSDA) submitted to the Minister for Planning and Infrastructure pursuant to Part 4 of the Environmental Planning and Assessment Act 1979 (EP&A Act).

DPT Operator Pty Ltd and DPPT Operator Pty Ltd (the Proponent) is seeking to secure approval to establish concept proposal details for the redevelopment of the Cockle Bay Wharf Building and surrounding area (Cockle Bay Wharf). The concept proposal will include:

- up to 12,000m2 of publicly accessible open space;
- new retail outlets, including new food and beverage destinations;
- new cultural and entertainment destinations; and
- a new commercial office tower.

The project supports the realisation of the NSW State Government's vision for an expanded 'cultural ribbon' spanning from Barangaroo, around to Darling Harbour and Pyrmont. The project importantly will add further renewed diversity in tourism and entertainment facilities to reinforce Sydney's CBD being Australia's pre-eminent tourist destination.

1.1 Background

The Proponent controls the lease of the site, and also of the adjacent Darling Park site. The Darling Park site is a successful premium grade office precinct located on the west of the Sydney CBD, the associated Crescent Garden, located to the west of the three existing Darling Park towers, is a key area of open space in this part of the city.

The Proponent has recognised a number key issues with the existing layout of the Darling Park and Cockle Bay precinct, these being:

- The existing Cockle Bay Wharf building is not well integrated with the city, the Western Distributor freeway currently acts as a barrier to separate this area from the CBD;
- Despite being publicly accessible, the existing Darling Park Crescent Garden is not well utilised; and
- The existing Cockle Bay Wharf building is outdated and is not in keeping with the future of Darling Harbour area as a vibrant entertainment and tourist destination.

The Cockle Bay precinct is at risk of being left behind and undermining the significant investment being made in Darling Harbour that will see it return to the world stage as a destination for events and entertainment.

Accordingly, the Proponent is taking a carefully considered and staged approach to the complete revitalisation of the site and its surrounds. The envisaged development, which will be facilitated by the proposed building envelopes will:

- Reconnect the city with the Darling Harbour waterfront and the Darling Park Crescent Garden;
- Provide new access routes between the city and the ICC Sydney / Darling Harbour Live precinct;
- Support the Sydney economy by providing a new premium commercial building; and
- Refresh and renew an existing entertainment and tourist destination.

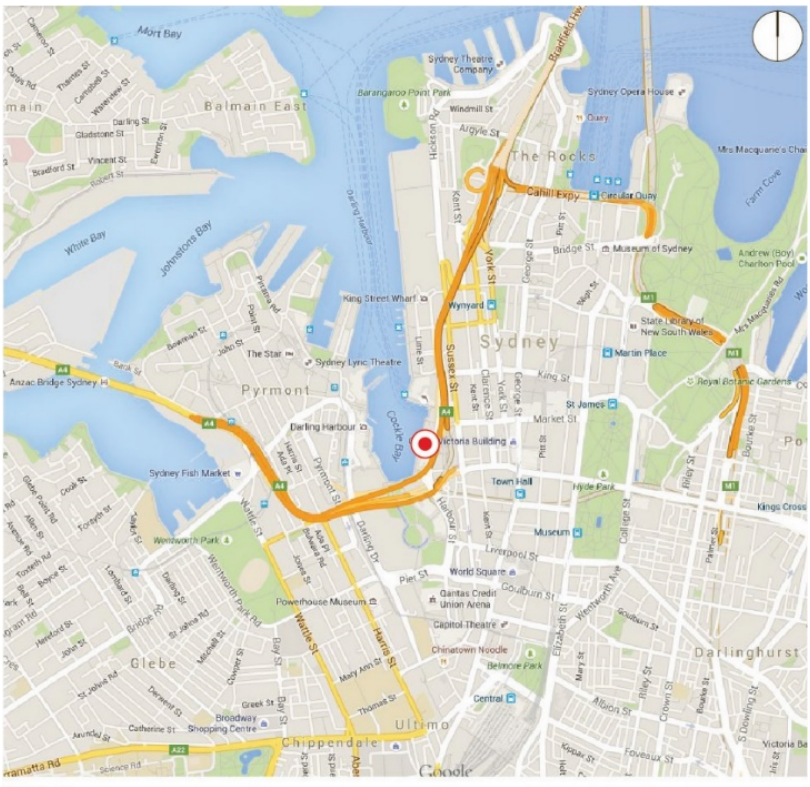
1.2 Site Description

The Site is located within Darling Harbour. Darling Harbour is a 60 hectare waterfront precinct on the south-western edge of the Sydney Central Business District that provides a mix of functions including recreational, tourist, entertainment and business.

The Site is located to the immediate south of Pyrmont Bridge, within the Sydney CBD on the eastern side of the Darling Harbour precinct. The Site is located within the City of Sydney local government area (LGA). A locational context area plan and location plan are provided at Figure 1 below.

A locational context area plan and location plan are provided at Figures 1 and 2 below.

The Darling Harbour precinct is undergoing significant redevelopment as part of the SICEEP, Darling Square, and IMAX renewal projects. The urban, built form and public transport / pedestrian context for Harbourside will fundamentally change as these developments are progressively completed.



The Site

Indicative Site Area

1.3 Overview of Proposed Development

The proposal relates to a staged development application and seeks to establish concept proposal details for the renewal and re-imagining of Cockle Bay Wharf.

The concept proposal establishes the vision and planning and development framework which will be the basis for the consent authority to assess future detailed development proposals.

The Cockle Bay Wharf site is to be developed for a mix Retail, Cultural and Commercial (Office) uses, including retail and restaurants, commercial offices, and open space.

The Concept Proposal seeks approval for the following key components and development parameters:

- Demolition of existing site improvements, including the existing Cockle Bay Wharf, pedestrian bridge links across the Western Distributor, and obsolete monorail infrastructure;
- Building envelopes;
- Land uses across the site;
- A maximum total Gross Floor Area (GFA) across the Cockle Bay Wharf of 85,000m^2 for commercial development and 25,000m^2 for retail (including food and beverage) development;

- Car parking rates to be utilised in subsequent detailed (Stage 2) Development Applications);
- Urban Design and Public Realm Guidelines to guide future development and the public domain; and
- Strategies for utilities and services provision, drainage and flooding, and ecological sustainable development.

A more detailed and comprehensive description of the proposal is contained in the Environmental Impact Statement (EIS) prepared by JBA.

2 Secretary's Environmental Assessment Requirements

The overall ESD design strategy for the site and its buildings has been developed to respond to Section 5 of the Secretary's Environmental Assessment (SEAR) Requirements named "Ecologically Sustainable Development (ESD)".

The design ESD strategy responds to the following elements within SEAR:

- ESD principles (as defined in clause 7(4) of Schedule 2 of the Environmental Planning and Assessment Regulation 2000) have been and will be incorporated in the design, construction and ongoing operation phases of the development.
- Sustainable technologies and/or renewable energy are being considered in order to achieve best practice sustainability initiatives; and
- Water Management Plan including alternative water supply, proposed end use of potable and non-potable water, water sensitive urban design and water conservation measures will be developed and incorporated into the design where applicable.

3 Overall ESD strategy

The buildings' design will integrate sustainable initiatives to ensure superior environmental performance of the buildings.

The design will provide a superior indoor environment for the occupants. A combination of energy efficient and cost effective air conditioning systems will be designed aiming to provide improved thermal comfort for the occupants of the buildings.

All essential features to ensure water efficiency will be integrated in the design of the hydraulic systems. Water efficiency is considered to be an essential feature of the building, and this issue was agreed to be clearly reflected in design and technological strategies that are proposed for the buildings.

The purpose of this document is to discuss the services strategies and ESD opportunities that will be incorporated within the buildings' design.

The following areas will be the main focus of the design team:

- Energy –reduce energy use and greenhouse gas emissions. The buildings' envelope and services will be integrated to ensure the building is controlled to maintain the desired conditions whilst optimising the energy efficiency of the complex.
- Indoor Environmental Quality – design the buildings to maximize occupant comfort addressing issues of thermal and visual comfort and indoor air quality.
- Water –minimize potable water consumption and optimise the water efficiency of the development.
- Materials – minimize waste, encourage reuse and recycling of materials and use low environmental impact materials.
- Transport – encourage more energy efficient and less polluting forms of transport to and from the site.
- Benchmarking – The buildings are to be designed to achieve a minimum NABERS Energy and Green Star Design and As-Built v1.1 rating.

Benchmarking the buildings against Australian excellence has been carried out from the beginning of the design process. For that reason, the following minimum rating benchmarks were set for each building:

Min Green Star Design and As-Built v1.1 rating	Min NABERS Energy	Min NABERS Water
5 stars	5 stars	3.5 stars

It is noted that the new Green Star v1.1 tool is considered to be significantly more stringent when compared to the old Green Star Office v3 tool, and therefore ensures the development will be world leading in terms of sustainability. The proposed ESD initiatives will be developed during the next design stages by the design team to achieve a Green Star and NABERS targets.

As buildings are responsible for 40% of CO2 emissions there is need to further reduce their environmental impact in the coming years. This involves incorporating the flexibility required to accommodate mechanical systems and fit-outs that feature energy efficient technologies and the ability to adapt to multiple uses.

In addition, the building needs to be flexible to respond to future work practises. It must be noted that for a building within a suburban commercial market, these buildings are seen to be industry leading as they surpass the quality and sustainable performance of those within the Sydney CBD.

4 ESD Initiatives

Aiming at leading practice in energy and environmental targets, the design team focused on the following strategies for the proposed buildings:

- Energy efficiency
- Improved Indoor Environmental Quality for building occupants

- Water strategies to minimize potable water consumption and address stormwater management
- Use of reused or recycled materials to reduce embodied energy
- Effective transport strategies to reduce vehicular emissions
- Environmental benchmarking – aiming at Green Star and NABERS targets as described above.

These issues will be addressed by the design team through the consideration of the following initiatives:

Initiatives	**Cockle Bay Wharf Redevelopment**
Building Envelope	High performance building envelope with added fabric insulation to improve energy efficiency and address indoor environmental quality.
HVAC system	Highly efficient mechanical system.
Lighting	Efficient lighting design with use of highly efficient LED, smart control and daylight sensors at the perimeter of the building to reduce artificial lighting energy use.
Renewables	Photovoltaic panels or certified Green power purchase will be considered in the roof areas to offset some electricity use and reduce energy use and carbon emissions associated with the buildings operation.
Water	High efficiency water fixtures and rainwater harvesting and reuse.
Stormwater	Management of stormwater on site before discharging into the public infrastructure through the implementation of appropriate stormwater treatment devices such as an onsite detention tank.
Materials	Selection of reused /recycled materials where possible.
Waste	Construction and demolition waste will be reused/recycled as appropriate to avoid waste material going into landfill.

The design concepts incorporated in the report are discussed in detail in the following sections.

4.1 Building Envelope

The building envelope is essential in the design to guarantee the delivery of an appropriate environment. A key requirement of the brief is to maximize views and minimize blind use increasing building transparency. The role of the envelope is to block solar gains from penetrating the building fabric in summer while optimising daylight and minimizing glare. The glazing performance and shading configuration for each orientation will be optimised during the next stages to ensure that thermal comfort is achieved and solar gains are adequate for the efficient operation of the mechanical system.

The façade will be developed and designed with a very high energy performance requirement to achieve the NABERS energy rating and Green Star Design and As-Built targets for each building.

The facade design will also be developed to reduce peak load and annual energy use imposed on the mechanical system beyond Section J requirements and in line with the NABERS target for each building. In addition, these will contribute to the achievement of the Green Star rating by providing access to views, good daylight penetration, optimum thermal comfort and glare control in accordance with the Design and As-Built tool requirements.

4.2 Mechanical System

In design, emphasis will be placed on providing an appropriate level of system resilience and quality to ensure efficient operation of the buildings. The integration between the selected mechanical system and the façade performance play a fundamental role on delivering high levels of thermal comfort to occupants whilst optimizing energy consumption through building operation.

4.3 Water

Water recycling is a key component of the total water cycle management and integrated water resource management. Water recycling is fundamental to manage and balance all of the components of hydrological cycle (rainwater, stormwater, wastewater, groundwater, surface water and recycled water) to secure a range of social, economic and environmental benefits. The effective and safe implementation of water recycling strategies can help to reduce inputs of nutrients and other contaminants to surface water, conserve potable water and provide economic and social benefits to local communities.

Water related strategies have been considered as key environmental ones for the proposed buildings.

4.3.1 Building Water Strategy

To ensure water resources are maximized, rainwater will be harvested through the roof and tanks sized to supplement water for HVAC cooling tower demands. The HVAC water demand will exceed the rainfall and thus WC flushing is unlikely to offer tangible water saving benefits. Notwithstanding consideration will be given to harvested rainwater being delivered to irrigations and WC flushing.

The following initiatives will be incorporated into all buildings:

- Water efficient fixtures – 5 Star rated taps and 3 Star rated shower heads based on WELS rating scheme.
- Waterless or Low flow urinals with a minimum 6 star WELS rating.
- 3 / 4.5 Litre dual flush toilets with a minimum 4 star WELS rating.
- Roof catchment area and rainwater tanks to provide water for reuse.
- Treatment: Filtration and disinfection of harvested water as appropriate to the uses.
- Public domain stormwater harvesting for reuse and potable water demand reduction

4.3.2 Stormwater Treatment

All new stormwater drainage for the entire development is proposed to comply with the following:

- City of Sydney A4 Drainage Design Guidelines
- City of Sydney – Interim Floodplain Management Policy

It is proposed to obtain green start credits based on Credit 26 Stormwater under the Green Building Council of Australia document.

To obtain these credits the proposed stormwater drainage design will be developed to meet the following criteria:

- Reduced Peak Discharge.
- Reduced Pollution Targets in line with Column C of Green Star design and As-Built v1.1 credit.

4.3.3 Water Sensitive Urban Design (WSUD)

Water Sensitive Urban Design encompasses all aspects of urban water cycle management, including water supply, wastewater and stormwater management. WSUD is intended to minimise the impacts of development upon the water cycle and achieve more sustainable forms of urban development.

As discussed in Section 2.3.2, it is proposed to meet the required stormwater pollution reduction targets to achieve maximum green start points. In order to achieve hese reduction targets it is proposed to utilise WSUD systems within the stormwater drainage network. The details of the system to be used will be considered in the next stage of design.

This will involve the consideration and potentially a combination one or more elements such as:

- Bio-swales
- Rain gardens
- Rainwater harvesting tanks
- Proprietary treatment tanks
- Gross Pollutant Traps

4.4 Energy

It is essential to ensure the buildings are designed and built to minimize energy consumption and reduce greenhouse gas emission to the atmosphere. Energy performance is considered by the design team as a crucial issue and the following ratings will be targeted as a minimum:

Min NABERS Energy
5 stars – base building

- A minimum base building NABERS energy as per the table above.

The contemporary typical Sydney office building achieves between 2 and 4 star NABERS energy performance. Typical buildings have high tenant lighting use and out of hours equipment use. Peak loads associated with façade loads and low efficiency equipment is significant. A typical Sydney office building would generally produce around 290 kg/CO_2/ m²/ annum.

A 5 star NABERS energy rated building will perform approximately 40% better when compared to a conventional office building and 4.5 star NABERS Energy rated building will perform 10-15% better when compared to a conventional office building.

4.5 Daylight

One of the main considerations given to the design in the next stage when the façade is developed in detail will be the importance of treating daylight in particular ways as to respond to needs of different areas in the buildings. Natural light offers benefits such as improving indoor environmental quality, having impact on the health, wellbeing and productivity of occupants, and reduction in energy consumption and greenhouse gas emissions by reducing dependency on artificial lighting systems when integrated with lighting controls.

Lighting is one of the main factors contributing to energy consumption in commercial buildings, thus making daylight availability is one of the key elements of addressing sustainability in a building in the current and future market contexts.

The following elements in the building will be considered to optimise daylight performance:

- Selection of appropriate new glass capable of reducing solar loads while allowing generous amount of daylight to penetrate the building envelope.
- Use of appropriate glazing and shading if deemed appropriate for specific building areas. This will ensure daylight is maximized and glare mitigated as far as possible.

4.6 Transport

The use of transport (both private and commercial) has been a major contribution to environmental pollution and the excessive consumption of natural resources.

The development has the opportunity to create an environment where pedestrian access is crucial and the use of fuel efficient private car is stimulated by:

- Encouraging walking and cycling by ensuring provision of bicycle facilities for building users;
- Provision of limited parking spaces on site encouraging the use of alternative modes of transport such as public transport, cycling and walking, with parking provided at a number lower than allowed under the SEPP.
- Selection of a site within close proximity to public transport networks including trains, buses and major transport focal points.