

Glebe Island Concrete Batching Plant

Landscape and Visual Impact Assessment

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ABN 20 093 846 925

13-Mar-2018

Job No.: 60555976

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Quality Information

Document Glebe Island Concrete Batching Plant, Landscape and Visual Impact Assessment

Ref 60555976

Date 13-Mar-2018

Prepared by Gabi Parke and Michelle Cramsie

Reviewed by Mark Blanche

Revision History

| Rev | Revision Date | Details | Authorised | |
|-----|---------------|-------------|------------------------------------|-----------|
| | | | Name/Position | Signature |
| A | 15-Nov-2017 | For comment | Mark Blanche Associate Director | |
| B | 30-Jan-2018 | For comment | Mark Blanche Associate Director | |
| C | 06-Feb-2018 | For issue | Mark Blanche Associate Director | |
| D | 13-Mar-2018 | For issue | Mark Blanche Associate Director | |
| E | 13-Mar-2018 | For issue | Mark Blanche Associate Director | |

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Executive Summary

AECOM Australia Pty Ltd has been engaged by Hanson Construction Materials Pty Ltd (Hanson) to undertake a number of specialist studies to inform the Environmental Impact Statement (EIS) for a proposed concrete batching facility at Glebe Island (the Project). This Landscape and Visual Impact Assessment (LVIA) report has been prepared to identify and assess the extent of potential landscape and visual impacts that the Project may have on the local environs, including night lighting.

Project Description

The proposed facility at Glebe Island would include a new intermodal aggregate storage facility and concrete plant located adjacent to Glebe Island Berth One (GIB1 - legally described as Lot 10 in DP 1170710, hereafter known as the Project Site). The Project Site fronts Johnstons Bay, opposite Pyrmont. The proposed plant would serve two purposes:

- to act as a shipping facility that would support a number of Hanson (and Hymix) concrete batching plants by improving the delivery of aggregates into the city centre; and
- to operate as a concrete batching plant that can supply concrete for infrastructure and buildings in the CBD and inner suburbs.

The proposed concrete batching plant would be supported by new aggregate shipping terminal facilities at the Project Site with the capacity to manage up to 1 million tonnes of concrete aggregates per annum delivered by ship from the Hanson Bass Point Quarry and other facilities if deemed viable. By facilitating delivery by ship, the proposed development would reduce the number of trucks required to haul aggregates into Sydney on the regional road network by up to 65,000 trips per annum.

Due to the visual similarity of the Project during construction and at operation, this report only assesses the landscape and visual impacts of the Project at operation.

Study Area

The Study Area has been defined as the area approximately within a two kilometre radius of the Project Site, but with the northern boundary following Darling Street, which broadly follows the ridgeline between Peacock Point and Balmain East and Rozelle (refer Figure 5).

Methodology

This LVIA has been undertaken using methodology informed by the *RMS Environmental Impact Assessment Practice Note – Guideline for Landscape Character and Visual Impact Assessment* (Reference number EIA-N04, 2013), which is a method widely accepted by NSW government authorities, and the *Guidelines for Landscape and Visual Impact Assessment, Third Edition (2013)*, developed by the Landscape Institute and Institute for Environmental Management (United Kingdom).

Landscape character assessment determines the overall impact of a project on the area's character. Existing Landscape Character Zones (LCZs) were identified as sharing broadly homogenous characteristics or spatial qualities.

Visual impact assessment defines the day to day visual effects of a project on receptors.

Changes in landscape character and visual impact were assessed using the landscape and visual impact assessment matrix (refer Table 2 and Section 1.5.4), which examined sensitivity against magnitude to give a combined impact rating between Negligible and High. Changes in night lighting were also assessed using the landscape and visual impact assessment matrix. Due to the early design phase of the project, no detailed lighting plan is available. Therefore only a high level assessment has been made.

Assessment of cumulative impacts discusses the project within the future landscape, where approved projects have been built or are under construction. The planned infrastructure and urban transformation proposals, including their location in relation to the Project Site, and proposed timing of construction and operation, were considered to determine the likely cumulative impacts of these projects and the concrete batching facility on the surrounding environment.

Visual Simulations (a type of photomontage) were produced to provide the most accurate representation of relative position and size of the development from a number of given viewpoints.

Existing Environment

Site Context

The Project is located on the southern end of Glebe Island; approximately 2.2 kilometres east of the Sydney CBD. The Project Site lies to the north of, but adjacent to the Glebe Island Bridge, now not in use, which runs parallel to the ANZAC Bridge.

Glebe Island is a flat, roughly triangular concrete site, with two wharf edges fronting onto White Bay to the north, and Johnstons Bay to the east. Uses include industrial, port and maritime such as receiving cargo from ships (e.g. sugar, grain, and cement), with former uses including an abattoir and grain storage. It is surrounded by White Bay to the north, Pyrmont and Jacksons Landing to the east, the Glebe Island and ANZAC Bridges to the south (with Glebe and Blackwattle Bay beyond), and Rozelle to the west. Views to Glebe Island are available from these nearby locations.

Glebe Island can be seen from many surrounding, more distant areas, due to the high rise development associated with Barangaroo and the Sydney CBD. Glimpse views from (and to) Headland Park at Barangaroo are also available, although from a distance of over 1.5 kilometres and framed by the headlands of Pyrmont and Balmain East. The Harbour Bridge can also be seen beyond from the Project Site, at a distance of almost three (3) kilometres.

Distant views to Glebe Island would be seen from high rise buildings to the north and potentially from the centres of Milsons Point, North Sydney, St Leonards, or Chatswood. However, these views would be seen from distances between 3 and 5 kilometres, and be minor within the context of the panoramic views seen from these locations.

Planning Controls

The planning controls for the Bays Precinct are subject to the *Sydney Region Environmental Plan No. 26 – City West* (SREP 26). SREP 26 divides the City West site into four precincts, with the project site located within the Bays Precinct.

The Bays Precinct has been identified by the NSW Government as an urban renewal precinct to provide for a mix of cultural, maritime, recreational, retail and commercial uses over the next 20 to 30 years. More detail about the future plans for this precinct, and the relationship of the subject proposal, is discussed in Section 2.5.2 of this report.

Topography, Hydrology, Flora and Fauna

Glebe Island is a relatively flat, concrete platform lying between Johnstons Bay and White Bay. Stormwater is collected on the platform and directed to local stormwater pits scattered across the hardstand surface. There are no adjoining land surfaces falling to the site. The only stormwater that collects on the site is what falls directly onto it.

Due to the expanse of concrete, it has limited vegetation, fauna and natural soils. Flora on site comprises weeds and grasses living in small pockets of earth between the pavement, and some plants on the embankment of Glebe Island Bridge. Fauna comprises birds, particularly Sea Gulls, which are nesting along the wharf edges. No formal flora and fauna assessment has been undertaken.

Built Form and Land Use

The tallest part of the proposed development is the silos, which would be 34m high, measured to the top-most part of the silo structure, with the next highest element at 24.5m (the concrete batching shed). The silos have been designed to be positioned adjacent to the ANZAC Bridge in order to keep tall, bulky built structures to the edges of Glebe Island in order to maintain the flat, low landform in the centre and to the waterside edges of the platform. The silos are also positioned to reflect the location of the existing Glebe Island Silos, being around 100m from Victoria Road. This would maintain a theme of industry and associated storage structures in this part of Glebe Island. Locating the silos in this area also means that the impact on part of Glebe Island further north, which has been used as a temporary exhibition centre, would be reduced.

The ANZAC Bridge is a significant built structure which traverses Glebe Island very close to the subject site. The White Bay Power Station and the Glebe Island Silos are significant built structures close to the subject site. The Sydney Boathouse, on the southern side of the ANZAC Bridge, is also a large, bulky building.

Building form on opposite shores to the Project Site are varied, including single storey industrial and residential buildings, to residential apartment blocks over 20 storeys.

In summary, built form character around the subject site is a mix of forms but largely industrial and commercial in character closer to the Project Site, transitioning to more residential uses further away from the Project Site.

Landscape Character Zones

Seven Landscape Character Zones (LCZs) have been identified within the Study Area. These LCZs have been grouped primarily using the development pattern and grain as identifying features. Small pockets of alternative land use or character may be contained within these greater LCZs, but have not been separately identified and discussed within the overarching landscape character of each zone.

Visual Receptors and Observer Locations

The Project is directly overlooked by a number of areas, which either receive good views to the location due to steep landform, or high rise buildings which would receive panoramic views to the surrounding landscape. Views to the Project Site from the west are limited by the ANZAC Bridge, which screens views due to the elevated bridge platform and approaching road corridors. Views under the bridge from low-lying areas are still available from the Glebe Foreshore, but only from limited locations.

It is anticipated that some long-distance views to the site would be seen from east and potentially from the north of the Project Site (particularly from Barangaroo and potentially from the CBD high rise towers that have views to Glebe Island), but in general limited views from the west and south would be available to receptors.

The visual catchment of the Project Site comprises the following receptors:

- Residents of homes in the suburbs north of the Project Site;
- Receptors travelling in vehicles (or pedestrians and cyclists) on the ANZAC Bridge;
- Workers in waterfront industries with views to the Project; and
- Recreational receptors in waterfront parks, including those using the Glebe Foreshore Walk or the walk along the Pyrmont foreshore;

Eight representative Observer Locations (OLs) have been identified to represent these receptors in the assessment.

Summary of Landscape Character and Visual Impact Assessment

Summary of Landscape Character Impacts

The impacts of the Project on landscape character and recommended mitigation measures are summarised in Table A.

Table A Landscape character impact summary table

| Landscape Character Zone | Rating | Mitigation Measures |
|--|----------------|--|
| LCZ 1: Infrastructure Corridor | High | Investigation into alternative roof forms (or no covering structure) at top of the silos |
| LCZ 2: Industrial / Commercial Waterfront | Moderate | - |
| LCZ 3: Residential Development (low to medium) | Moderate - Low | Investigation into alternative roof forms (or no covering structure) at top of the silos |
| LCZ 4: Residential Development (medium) | Moderate | Investigation into alternative roof forms (or |

| | | |
|--|------------------|--|
| to high) | | no covering structure) at top of the silos |
| LCZ 5: Mixed Use / Commercial Development (low) | Negligible | - |
| LCZ 6: Mixed Use / Commercial Development (high) | Negligible | - |
| LCZ 7 Public Open Space | High to Moderate | Investigation into alternative roof forms (or no covering structure) at top of the silos |

Summary of Visual Impacts and Night Lighting Impacts

The visual and night lighting impacts of the Project and recommended mitigation measures are summarised in Table B. Refer to Appendix A for photomontages of proposed development from representative OLs.

Table B Visual impact and night lighting impact summary table

| Observer Location | Project Component | Rating | Mitigation Measures |
|---|-------------------|------------------|--|
| OL1: Peacock Point, Balmain East | Visual Impact | High to Moderate | Investigation into alternative roof forms (or no covering structure) at top of the silos Investigation into a public art strategy, which could include a mural on the silos |
| | Night Lighting | Moderate | |
| OL 2: Birrung Park, Balmain | Visual Impact | High to Moderate | Investigation into alternative roof forms (or no covering structure) at top of the silos Investigation into a public art strategy, which could include a mural on the silos |
| | Night Lighting | Moderate | |
| OL 3: Mansfield Street, Rozelle | Visual Impact | High to Moderate | Investigation into alternative roof forms (or no covering structure) at top of the silos Investigation into a public art strategy, which could include a mural on the silos |
| | Night Lighting | Moderate to Low | |
| OL 4: Glebe Foreshore Walk | Visual Impact | High | Investigation into alternative roof forms (or no covering structure) at top of the silos Investigation into a public art strategy, which could include a mural on the silos |
| | Night Lighting | Moderate | |
| OL 5: Glebe Foreshore Walk (The Boathouse on Blackwattle Bay) | Visual Impact | Moderate | Investigation into alternative roof forms (or no covering structure) at top of the silos Investigation into a public art strategy, |

| | | | |
|--------------------------------|----------------|------------------|--|
| | | | which could include a mural on the silos |
| | Night Lighting | Moderate to Low | |
| OL 6: Pirrama Park, Pyrmont | Visual Impact | High to Moderate | Investigation into a public art strategy, which could include a mural on the silos |
| | Night Lighting | Moderate | |
| OL 7: Waterfront Park, Pyrmont | Visual Impacts | High | Consideration of shipping container wall aesthetic |
| | Night Lighting | High | |
| OL 8: ANZAC Bridge | Visual Impact | High to Moderate | Investigation into alternative roof forms (or no covering structure) at top of the silos Investigation into a public art strategy, which could include a mural on the silos Consideration of shipping container wall aesthetic |
| | Night Lighting | High to Moderate | |

Cumulative impacts

The following projects may be under construction / in operation during the construction phase or at operation of the Project:

- WestConnex (including the Iron Cove Link);
- the Western Harbour Tunnel;
- the Sydney Metro West;
- the Glebe Island Multi User Facility (Port Authority of NSW); and
- potential future development in the Bays precinct (including the Hymix Concrete Batching Plant, Pyrmont).

Construction activity for WestConnex is planned to occur from 2018 to 2023, with construction of the Western Harbour Tunnel expected to begin after this time period. The cumulative impact on the subject proposal would largely be construction impacts including additional truck movements and visual construction activity, although most of the construction activity is to be located on the southern side of the ANZAC Bridge. This construction will reflect the infrastructure construction boom in Sydney. The need to support growth identified in both *A Plan for Growing Sydney* and recently released *Draft Greater Sydney Region Plan*.

The subject site is located in an area with a long history of significant infrastructure, industrial and maritime uses. As outlined in *The Bays Transformation Plan*, the White Bay Power Station, which opened in 1913, powered Sydney's vital train and tram network (and was decommissioned in 1983); the grain silos were built at Glebe Island in 1975; and the Rozelle Rail Yards became a marshalling area for trains when the Metropolitan Goods railway line opened in 1922.

The Sydney Fish Market moved to its current site in 1966 and the first NSW container terminal opened at White Bay in 1969. Glebe Island's former role as a terminal for imported cars began in the early 1990s, the eight-lane ANZAC Bridge opened in 1995 and a new super yacht marina opened at Rozelle Bay in 2000.

One of the principles of *The Bays Transformation Plan* is to support the economic activities of maritime industries and celebrate the authenticity of the working harbour, which the subject proposal would do.

At completion, the subject proposal and the Port Authorities Multi-User Facility would be operating simultaneously and adjacent to one another. The character of the two facilities are similar, both in building form (with the exception of the Hanson facility silos, which are considerably taller), materiality, and in the truck and shipping activity on the two sites which would be visible from the surrounding landscape. The size and position of the Multi-User Facilities main bulk material storage building would be seen as a continuation of the lower concrete batching shed of the Hanson Project. These lower buildings would be partially obscured from view from the closest position of viewing (Pymont and Jacksons Landing) when a ship was at berth.

In conclusion, it is considered that the subject proposal, along with the proposed infrastructure and redevelopment in the vicinity of this site, would continue this role and function and therefore maintain the visual character of the area. The visual impact of the proposed facility would be a continuation of the existing industrial character of Glebe Island, with the benefit of the final finishes and material of the facility (which would be informed as part of the consultation process) potentially becoming a new iconic feature of this landscape, like the existing finishes of the Glebe Island Silos.

Mitigation measures

A number of mitigation measures could be considered to reduce the impact on the landscape character and views to the Project Site, including:

- Investigation into alternative roof forms on the silos to reduce the visual impact of the structure against the deck of the ANZAC Bridge. The reduction in built form on the top of the silos, even if the core structure was left open, may be a better result in terms of visual permeability, than a heavier roof structure or something that encloses the top structures.
- Preparation of an urban design and landscape masterplan that addresses all key elements of the site, including issues such as the nature of any screening and finishes to structures.
- Preparation of a public art strategy, which may include:
 - commissioning of a mural on the silos rather than leaving them bare concrete. This could be in consultation with the community and complement the aesthetic of the existing silos. By breaking up the solid grey surface of the silos, this could help to reduce the bulk of the structure within the landscape, and potentially create a landmark element which is enjoyed by the community; and
 - consideration of a different treatment of the shipping container wall, e.g. something that references the existing character of the site and area. This could be achieved by staggering of shipping containers within the wall, with occasional containers jutting out of the wall and planted with grasses, climbers or shrubs. Consideration of the species already growing near the site could help to further integrate the structure into the landscape, potentially referencing the vegetated abutment of the Glebe Island Bridge. It is noted that the finish on the shipping container wall would be designed in response to community consultation and commercial assessment.

Conclusion

Overall, the positioning of the Project is considered to be visually in keeping with the industrial maritime character of Glebe Island and White Bay foreshore. Further, the relocation of concrete batching activity from Blackwattle Bay to Glebe Island is an appropriate relocation considering the development intention of the Bays Precinct in the vicinity of the Sydney Fish Market.

The position of the large storage silos parallel to the Glebe Island Bridge and the ANZAC Bridge result in the greatest impact on landscape character and views to the Project Site from the surrounding area. However, it is noted that the scale and form of these structures are not new within the landscape, with the existing larger silos situated in the adjacent site to the west of the Project. Within this project, the silos have been positioned for ease of operation, but also to reflect the location of the existing Glebe Island Silos, offset from Victoria Road by approximately 100m. This would maintain a theme of maritime industry and associated storage structures in this part of Glebe Island. Locating the silos

adjacent to the ANZAC Bridge assists in reducing the apparent scale of the silos, and avoiding tall development in the northern section of the site (where the site is flat and open).

Although the mitigation measures suggested in Section 5.3 of this report would not change the visual bulk or scale of the Project when viewed from the surrounding landscape, they would assist in softening the visual nature of the Project, and assist in ‘bedding down’ the structures into the surrounding landscape. Further, the consideration of a landscape and public art strategy within the development could potentially create a landmark element which is enjoyed by the community.

The sensitivity of receivers viewing the Project from nearby surrounding areas has been assessed as high. Many of these receivers view the site from places in which they have a proprietary interest, e.g. their places of residence or from public open spaces where their attention would be focussed on the landscape. The sensitivity of these receptors informs many of the high visual impact ratings.

In the coming years, the landscape surrounding and including Glebe Island will be subject to substantial changes, including WestConnex, the Bays Precinct, and the Glebe Island Multi-User Facility. Within the context of this changing setting, the Project is considered to be visually representative given the surrounding working harbour character, and would be viewed in conjunction with construction activity due to local development.

1.0 Introduction

AECOM Australia Pty Ltd has been engaged by Hanson Construction Materials Pty Ltd (Hanson) to undertake a number of specialist studies to inform the Environmental Impact Statement (EIS) for a proposed concrete batching facility at Glebe Island (the Project). This Landscape and Visual Impact Assessment (LVIA) report has been prepared to identify and assess the extent of potential landscape and visual impacts that the Project may have on the local environs, including night lighting.

1.1 Report Scope and Purpose

This LVIA has been undertaken to assess the impact of the Project elements (including night lighting) on the landscape character and views from the surrounding area, as well as review of urban design outcomes. It includes a desktop review of the Project components at operation, including potential cumulative impacts from nearby development projects, and a site inspection of the Project site and surrounding landscape. Due to the visual similarity of the Project during construction and at operation, this report will only assess the landscape and visual impacts of the Project at operation.

Five Visual Simulations have been produced to illustrate the view to the Project from a number of Observer Locations (OLs) surrounding Glebe Island. These locations have been chosen to represent the views seen by the most affected receptors surrounding the site.

A series of specific and general recommendations and mitigation measures have been produced as a result of this desktop and site analysis.

A series of visual simulations have been produced to illustrate the visual impact of the Project on key surrounding locations (Appendix A).

A shadow analysis has been produced and is included as Appendix B within this report.

1.1.1 Secretary's Environmental Assessment Requirements

Table 1 lists the Secretary's Environmental Assessment Requirements (SEARS) considered within this report which relate to landscape and visual impact issues. These have been addressed in this report.

Table 1 SEARS relating to landscape or visual impact issues

| Section | SEARS |
|-----------------------------------|--|
| 2 Strategic Planning and Land Use | Outline how the proposal (and its associated impacts) demonstrates an appropriate use of the land having regard to the Bays Precinct Transformation Plan, other relevant documents and future potential users of the Bays Precinct. |
| 9 Built form | Outline all built form elements of the proposal and provide specific consideration of the Project Site's character, layout, setbacks, design, materials and finishes, views and vistas, open spaces and public domain and connectivity. Address the height, bulk and scale of the proposal development within the context of the locality and its surrounds |
| 10 Visual Impact and Views | A Visual Impact Assessment is to be provided of the proposed development and other significant structures, when viewed from key vantage points. Photomontage images are to be prepared to demonstrate the impact of the proposed works |
| 11 Lighting | Consideration of the lighting impacts of the proposed development on nearby sensitive receivers (particularly at night) |
| 21 Cumulative Impacts | Assessment of the potential cumulative impacts of the proposed development with other developments in the vicinity of the Project Site during construction and on-going |

operation. In particular, this assessment shall have regard to major infrastructure projects such as WestConnex, the Western Harbour Tunnel, the Iron Cove Link and the Sydney Metro West; potential future development in the Bays precinct; and the Hymix Concrete Batching Plant, Pyrmont.

1.2 Project Background

Hanson currently operates a concrete batching facility at Blackwattle Bay, which includes an aggregate shipping terminal. Hymix (a subsidiary of Hanson), operates a concrete batching plant located north of the Sydney Fish Market at Pyrmont. Aggregate required at this facility is delivered via road.

These two sites together supply 35% of Sydney City's concrete requirements and are located within the Bays Market District Area of the Bays Precinct which is identified for immediate redevelopment. With consideration of the likely redevelopment of the area in the immediate future as part of the Bays Precinct Transformation Program, Hanson is planning for the closure of the existing Blackwattle Bay concrete batching plant, resulting in the loss of aggregate shipping capacity. A new facility is proposed for Glebe Island, which would co-locate aggregate shipping facilities with a concrete batching plant.

The proposed facility at Glebe Island would allow Hanson to continue its supply of concrete to a range of concrete intensive projects around Central Sydney, in a way that is efficient, reduces overall environmental impact and that minimises regional road traffic impacts by securing ongoing aggregate shipping terminal capability.

1.3 Project Description

The proposed facility at Glebe Island would include a new intermodal aggregate storage facility and concrete plant located adjacent to Glebe Island Berth One (GIB1 - legally described as Lot 10 in DP 1170710, hereafter known as the Project Site). The Project Site fronts Johnstons Bay, opposite Pyrmont. The proposed plant would serve two purposes:

- to act as a shipping facility that would support a number of Hanson (and Hymix) concrete batching plants by improving the delivery of aggregates into the city centre; and
- to operate as a concrete batching plant that can supply concrete for infrastructure and buildings in the CBD and inner suburbs.

The proposed concrete batching plant would be supported by new aggregate shipping terminal facilities at the Project Site (refer Figure 1) with the capacity to manage up to 1 million tonnes of concrete aggregates per annum delivered by ship from the Hanson Bass Point Quarry and other facilities if deemed viable. By facilitating delivery by ship, the proposed development would reduce the number of trucks required to haul aggregates into Sydney on the regional road network by up to 65,000 trips per annum.



Legend

The Project Site

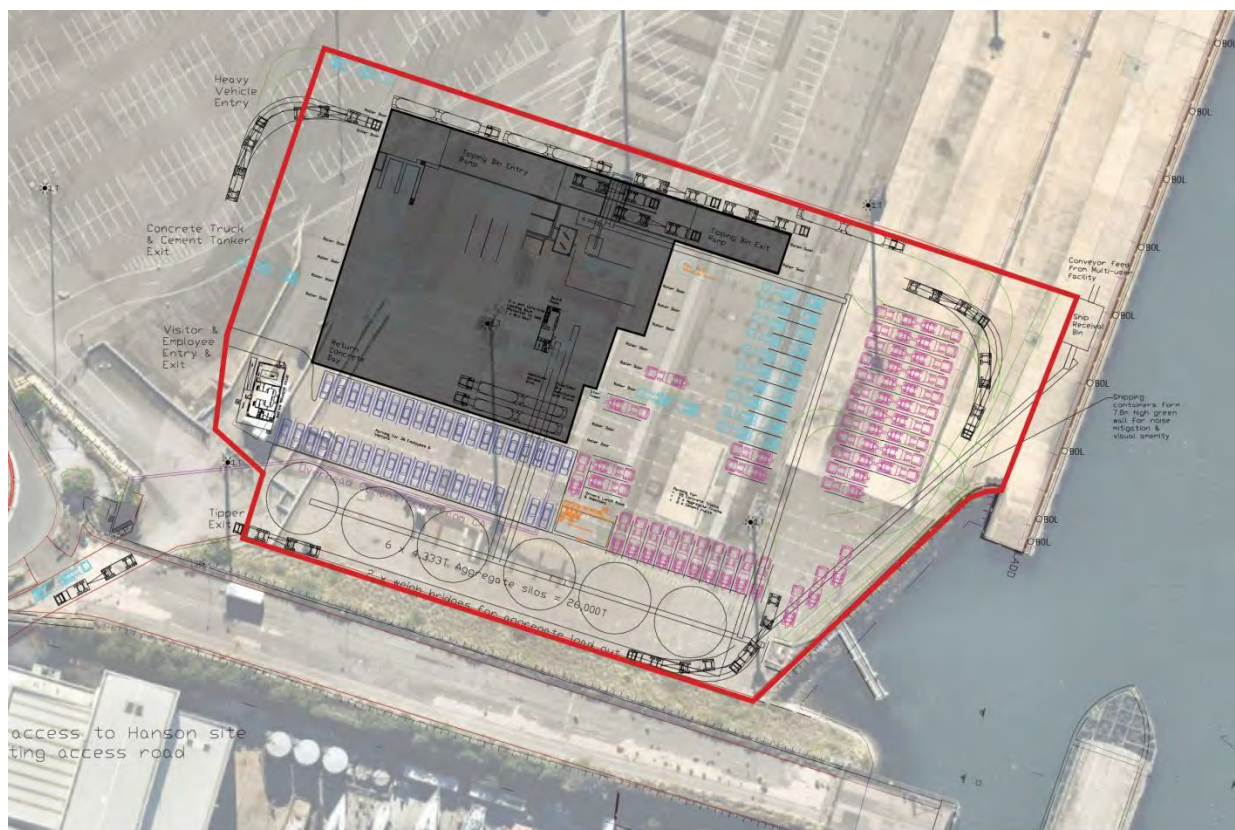
Figure 1 The Project Site located on Glebe Island (aerial source NearMap © 2017)

1.3.1 Concept design

Refer to Figure 2 for a site plan for the Project and Figure 3 for elevations. The proposed concrete batching plant has been designed to adopt a low profile design sympathetic to its surrounding environs (with the exception of the storage silos). The majority of the batching activities would be undertaken in an enclosed area in order to limit the noise and air quality impacts of the proposed plant on the surrounding environment. The highest structures would be the storage silos which would be up to 35m tall.

Physical elements of the plant would include:

- Cement, aggregate and sand silos;
- Water tanks;
- Weigh hoppers;
- Slump stand;
- Conveyors,
- Truck and car parking;
- Weigh bridges;
- A building to house batching activities;
- Ancillary offices / buildings and staff areas; and
- A 'wall' of shipping containers to mitigate noise issues.



Legend

The Project Site

Enclosed building

Figure 2 Detail plan of the Project, showing the extent of the site enclosed by a building (aerial source NearMap © 2017)

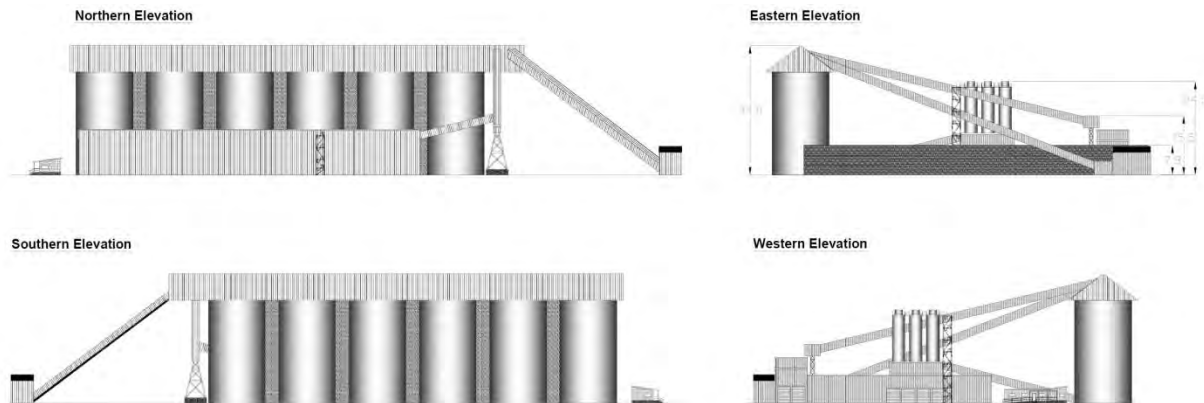


Figure 3 Project elevations (Source: Hanson)

The proposed finish for aggregate storage silos is concrete, with shed and conveyors in powder coated metal cladding. Office buildings would be Scyo Matrix external cladding (refer Figure 4). The shipping container wall has three potential finish options (based on findings of commercial assessment): the blank shipping containers, or the wall being clad in either photovoltaic cells (solar panels) or a green wall. These three options are discussed within the visual impact assessment.

The final colour and finishes would be finalised after the commercial assessment and community consultation process.



Figure 4 Site offices would be clad in Scyo Matrix external cladding (Source: Hanson)

1.3.2 Construction phase

The Project would be constructed over a 12 month period from the date of approval. The tallest equipment located on the Project Site during this time would be mobile cranes, with the taller elements constructed on site requiring scaffolding during this period. Delivery of materials would be via land (i.e. trucks).

The vehicular activity on and accessing the Project Site, and the structures and equipment situated on the Project Site are visually comparable between the construction phase and at operation, with the following exceptions:

- a mobile crane would be erected on site and used during the construction phase; and
- the frequency of ship visitation may be higher at operation.

Due to the visual similarity of the Project during construction and at operation, this report only assesses the landscape and visual impacts of the Project at operation.

1.3.3 Operation

At operation, the concrete batching plant would be in operation 24 hours a day, seven (7) days a week and employ approximately 67 full time employees.

Three main types of commercial vehicles would operate at the plant:

- 55 concrete agitator trucks, delivering concrete mixed at the plant on-site to building sites throughout the city.
- Cement tankers, delivering cement to the Project Site. This cement would most likely come from the Cement Australia Glebe Island facilities and therefore would not have to access the public road network.
- Aggregate trucks: two tipper trucks would be based at the Project Site, but trucks based at other concrete batching plant facilities may also access the plant. Aggregate trucks dispatch aggregates and sand to other concrete batching plant facilities – including the Hymix plant at Pyrmont. These are typically truck and dog trailer combinations.

Other on-site vehicles would include a forklift, a bobcat and two loaders. Cement deliveries are expected to be made by B-Double tankers. Concrete agitator trucks are usually parked on the Project Site overnight. Day shift drivers would arrive to the Project Site in the morning, leaving the Project Site in the evening. It is anticipated that the majority of staff would travel to the Project Site by car. All batching activities would take place within an enclosed building.

Delivery vehicles would access the Project Site from James Craig Road beneath the old Glebe Island Bridge abutment. Cement tankers would enter the building from the east and exit from the west. Aggregate trucks would deliver sand entering the building from the west and exit from the east. Cement and fly ash delivered to the Project Site would be stored in silos. All deliveries would take place within the enclosed building. Ships would deliver aggregate to the Project Site via GLB1. Aggregate and sand would be conveyed to the storage silos by overhead conveyors.

Concrete agitator trucks would move from their holding area to within the enclosed building to receive the concrete for delivery. Concrete agitator trucks would enter the building from the east. Aggregate, sand, cement and fly ash would be transported from their storage silos via an enclosed conveyor system to a weigh hopper. From here, the ingredients would be transferred to an agitator truck within the enclosed building. The concrete agitator trucks would mix the ingredients before moving to the slump stand for final quality checking.

Once the concrete is loaded into the concrete agitator trucks, they would depart from the west of the enclosed building. Concrete agitator trucks would exit the Project Site via James Craig Road and then travel to where their delivery is required. When the plant is operating at peak capacity, up to 120 concrete deliveries would be made from the plant each hour.

Aggregates not used in the batching of concrete on the Project Site would be dispatched from the storage silos by conveyor directly for loading to an aggregate truck for dispatch to another concrete batching plant.

Ships would be due to make 10 deliveries per month to the facility, meaning there would be a ship in dock approximately every three days. Each ship would be in dock for approximately 12 hours to unload the delivery.

1.3.4 Night lighting

External night lighting on the Glebe Island Project Site would be provided to vehicle parking and driveway areas, with all lights directed down, producing no light spill outside the Hanson lease boundary. Lighting would be of sufficient brightness to achieve work safety requirements and security of the Project.

Ships would be in dock for 12 hours to unload deliveries, resulting in the likelihood of night lighting to ship decks when in dock. To minimise lighting issues, controllable / dimmable open deck lighting with multi-zone functionality to provide maximum effectiveness for standby operations as well as discharge operations, the following parameters would be required:

1. Directional flood LED lighting for mooring decks (controllable / variable for mooring operations and discharge to variable level of lighting)
2. Ambient local lighting for main deck areas (controllable / variable to meet local requirements to various Lux levels as required)
3. Ambient local lighting for accommodation open decks (controllable to 2 levels only)
4. Directional flood LED lighting for LSA areas (raft and boat)

All of the above would be overridden by main lighting control in the event of an incident and compliant with class requirements. The four zones listed would be controllable as different “scenes” depending on the vessels operation and numerous pre-set buttons programmed to provide the user with easy to use settings.

1.3.5 Potential cumulative impacts

The following projects may be under construction / in operation during the construction phase or at operation of the Project:

- WestConnex (including the Iron Cove Link);
- the Western Harbour Tunnel;
- the Sydney Metro West;
- the Glebe Island Multi User Facility (Port Authority of NSW); and
- potential future development in the Bays precinct (including the Hymix Concrete Batching Plant, Pyrmont).

An assessment of these potential cumulative impacts is discussed in **Section 4.3**.

1.4 Study Area

The Project Site is situated on Glebe Island. This has a prominent position on the waterfront fronting Johnstons Bay to the south-east, with the Glebe Island Bridge and the ANZAC Bridge to the south. Due to the low-lying nature and prominent waterfront location of Glebe Island, uninterrupted views to the Project Site can be seen from many locations from the north-west (Rozelle) through to the south-east (Pyrmont). South of the ANZAC Bridge the view to the site is limited due to landform and screening by the bridge itself. Some views to the site can be seen through the bridge elements.

The Study Area has been defined as the area approximately within a two kilometre radius of the Project Site, but with the northern boundary following Darling Street, which broadly follows the ridgeline between Peacock Point and Balmain East and Rozelle (refer Figure 5).



Figure 5 The Project Site and Study Area (aerial source NearMap © 2017)

1.5 Methodology

This VIA has been undertaken using methodology informed by the *RMS Environmental Impact Assessment Practice Note – Guideline for Landscape Character and Visual Impact Assessment* (Reference number EIA-N04, 2013), which is a method widely accepted by NSW government authorities, and the *Guidelines for Landscape and Visual Impact Assessment, Third Edition (2013)*, developed by the Landscape Institute and Institute for Environmental Management (United Kingdom).

1.5.1 Landscape character assessment method

Landscape character assessment determines the overall impact of a project on the area's character. Existing Landscape Character Zones (LCZs) were identified as sharing broadly homogenous characteristics or spatial qualities. These may include:

- Planning designations
- Topographical qualities
- Natural drainage qualities

- Ecological characteristics / land cover
- Parks and open space
- Cultural and recreational characteristics
- Architecture
- Spatial qualities
- Infrastructure.

The impact of the Project Site on each LCZ was assessed using the visual impact assessment matrix (refer Table 2 and Section 4.0) by examining sensitivity and magnitude to give an impact rating between Negligible and High.

1.5.2 Visual impact assessment method

Visual impact assessment defines the day to day visual effects of a project on receptors.

The visual impact for each Observer Location (OL) was assessed using the visual impact assessment matrix (refer Table 2 and Section 1.5.4), which examined sensitivity against magnitude to give a combined impact rating between Negligible and High. A higher impact rating indicates an increased likelihood of a visual change being detectable. Importantly, it does not contain a value judgement regarding the nature of the visual change (i.e. if the change is a positive or negative impact on the landscape character or on the views seen by receptors).

The visual impact of the proposed upgrade has been assessed using the following methodology:

1. Describe the project site context
 - Site elements and character
 - Describe the project and the visibility of the project
2. Identify the main OLs to the project site - map and photograph
3. Define a range of criteria against which the relative importance of each OL can be assessed, including: distance to view
4. Observer type (e.g. tourist, other recreational user e.g. boating, Waterfront Park, Birrung Park, resident, local user e.g. pedestrians or cyclists on Glebe Island Bridge)
 - Number of observers
 - Duration of observation
 - Visibility / visual prominence of the development (including skyline view / backdrop / screening / etc.)
 - Land use (public open space / private ownership / road)
 - Change from existing
 - Heritage significance or other specific issues
5. Assess the visual impact at each OL using the visual impact assessment results matrix that assumes criteria of sensitivity and magnitude to determine the extent of the impact (refer Table 2 and Section 1.5.4)
6. Identify mitigation measures where relevant
7. Provide a conclusion.

| | | MAGNITUDE | | | |
|-------------|------------|-----------------|-----------------|----------------|------------|
| | | High | Moderate | Low | Negligible |
| SENSITIVITY | High | High | High - Moderate | Moderate | Negligible |
| | Moderate | High - Moderate | Moderate | Moderate - Low | Negligible |
| | Low | Moderate | Moderate - Low | Low | Negligible |
| | Negligible | Negligible | Negligible | Negligible | Negligible |

Table 2 Landscape and visual impact assessment matrix (Source: RMS)

1.5.3 Assessment of cumulative impacts

The planned infrastructure and urban transformation proposals, including their location in relation to the Project Site, and proposed timing of construction and operation, were considered to determine the likely cumulative impacts of these projects and the concrete batching facility on the surrounding environment.

1.5.4 Sensitivity and magnitude

Sensitivity

The sensitivity of the landscape is assessed based upon the extent to which it can accept change of a particular type and scale without adverse impacts upon its character. Sensitivity varies according to the type of development and nature of the landscape, including:

- inherent landscape value, e.g. its condition, perceptual qualities, and cultural importance; and
- the likely congruency of the proposed change, i.e. the extent to which the proposal may fit or be 'visually absorbed' into the landscape, e.g. in relation to line, colour, texture, scale etc.

The sensitivity of visual receptors and views would also be dependent on:

- the location and context of the viewpoint;
- the expectations and activity of the receptor; and
- the importance of the view.

The most sensitive receptors may include:

- users of outdoor recreational facilities;
- communities where the development results in changes in the landscape setting or valued views enjoyed by the community; and
- occupiers of residences with views affected by the proposal.

The number of viewers is also considered when assessing sensitivity of the landscape.

Magnitude

The magnitude of change affecting landscape character or visual receptors depends on factors such as the nature, scale and duration of the particular change that is expected to occur. In the landscape, the magnitude of change would depend on factors such as the extent of loss, change or addition of a feature, or changes in the backdrop, or outlook from a landscape that affects its character. The impact on a view would depend on factors such as the extent of visibility, degree of obstruction of existing features, degree of contrast with the existing view, angle of view, duration of view and distance from the Project Site.

1.5.5 Observer Locations

Observer Locations (OLs) were chosen to capture visual changes to the area due to the Project. These visual catchments were often bounded by landmarks, including intersections, cross streets and

bends in the road. They were defined using a combination of desktop analysis and on-site survey of the landscape.

Within these OLs, the impact on views seen by receptors was assessed.

1.5.6 Photos and photomontages

Visual Simulations (a type of photomontage) were produced to provide the most accurate representation of relative position and size of the development from a number of given viewpoints.

A panorama of the view to the Project Site was created using spatial panoramic photography equipment that allows the creation of an image that approximates the primary human Field of View (FoV) i.e. 124° horizontal x 55° vertical. This is almost impossible to recreate with an individual camera frame, due to the nature of human binocular vision. Typically, camera lenses will begin to distort the image once they go beyond 90°. It is therefore required that multiple images are taken and stitched together to achieve the required FoV.

Using a 28mm lens with FoV of 66° x 46°, 3 images in portrait orientation were taken and stitched together to get the required FoV. The panoramic equipment allows the rotation of the camera around the lens “nodal point”, resulting in an image with no distortion or parallax.

Professional stitching software was then used to combine them, using multiple control points across the images to ensure accuracy to within less than 1 pixel. The software also ensures that no rectilinear distortion or other artefacts are introduced into the image.

Once the accurate background image has been created, it is aligned into Visualisation software with a virtual camera. Virtual cameras do not suffer the same distortion as real lenses because they are based on the scientific principles of a perfect lens. The virtual camera is set to the required FoV with no need for correction. Once the virtual and real cameras have been aligned, the image is rendered using a 3D model and photo editing software to combine the two into a seamless simulation.

1.5.7 Assessment of night lighting

The impact of night lighting on the surrounding areas was assessed using the visual impact assessment matrix (refer Table 2 and Section 1.5.4), which examined sensitivity against magnitude to give a combined impact rating between Negligible and High. A higher impact rating indicates an increased likelihood of a change to night lighting being detectable.

Due to the early design phase of the project, no detailed lighting plan is available. Therefore only a high level assessment has been made.

2.0 Existing Environment

2.1 Site Context

The Project is located on the southern end of Glebe Island; approximately 2.2 kilometres east of the Sydney CBD (refer Figure 5). The Project Site lies to the north of, but adjacent to the Glebe Island Bridge, now not in use, which runs parallel to the ANZAC Bridge (refer Figure 9).

Glebe Island is a flat, roughly triangular concrete site, with two wharf edges fronting onto White Bay to the north, and Johnstons Bay to the east. Uses include industrial, port and maritime such as receiving cargo from ships (e.g. sugar, grain, and cement), with former uses including an abattoir and grain storage.

The White Bay waterfront areas to the north of Glebe Island are dominated by industrial wharf developments and the White Bay Cruise Terminal on the north-eastern edge. Behind (to the north) of the northern edge of White Bay lie the suburbs of Rozelle, Balmain and Balmain East. Development in these suburbs predominantly comprises medium to low density housing, with pockets of commercial or mixed use development and small parks.

To the east of the Project Site, the eastern wharf edge of Glebe Island fronts Johnstons Bay. The eastern waterfront edge comprises a mix of parklands and high density residential development (Jacksons Landing), which rises with the land to Pyrmont. Tall residential buildings look out onto Glebe Island and the ANZAC Bridge (refer Figure 6).



Figure 6 To the east of Glebe Island lies Jacksons Landing and Pyrmont. A series of high density residential apartments overlooks Glebe Island from behind Waterfront Park (Source: AECOM)

To the south of the Project Site, Glebe Island is bounded by the disused Glebe Island Bridge (refer Figure 7). To the south of this, lies ANZAC Bridge, which is seen suspended beyond and over the Glebe Island Bridge.

South of the ANZAC Bridge lies Blackwattle Bay and Rozelle Bay (Refer to Figure 9), each with a mix of industrial waterfront (maritime) and public open space uses. The suburbs of Annandale and Glebe lie south of this waterfront land. The majority of development within these suburbs is low to medium density residential, predominantly terrace housing clustered along narrow streets. Major roads within these areas are typically fringed with small businesses, including restaurants, offices, and shops.

Glebe Island can be seen from many surrounding, more distant areas, due to the high rise development associated with Barangaroo and the Sydney CBD. Glimpse views from (and to) Headland Park at Barangaroo are also available, although from a distance of over 1.5 kilometres and

framed by the headlands of Pyrmont and Balmain East. The Harbour Bridge can also be seen beyond from the Project Site, at a distance of almost three (3) kilometres (refer Figure 8).



Figure 7 To the south of Glebe Island lies the Glebe Island Bridge and beyond that, the ANZAC Bridge (Source: AECOM)



Figure 8 To the north-east of Glebe Island, views across the water to Headland Park (at the northern end of Barangaroo) and the Sydney Harbour Bridge can be seen (Source: AECOM)

Distant views to Glebe Island would be seen from high rise buildings to the north and potentially from the centres of Milsons Point, North Sydney, St Leonards, or Chatswood. However, these views would be seen from distances between 3 and 5 kilometres, and be minor within the context of the panoramic views seen from these locations.

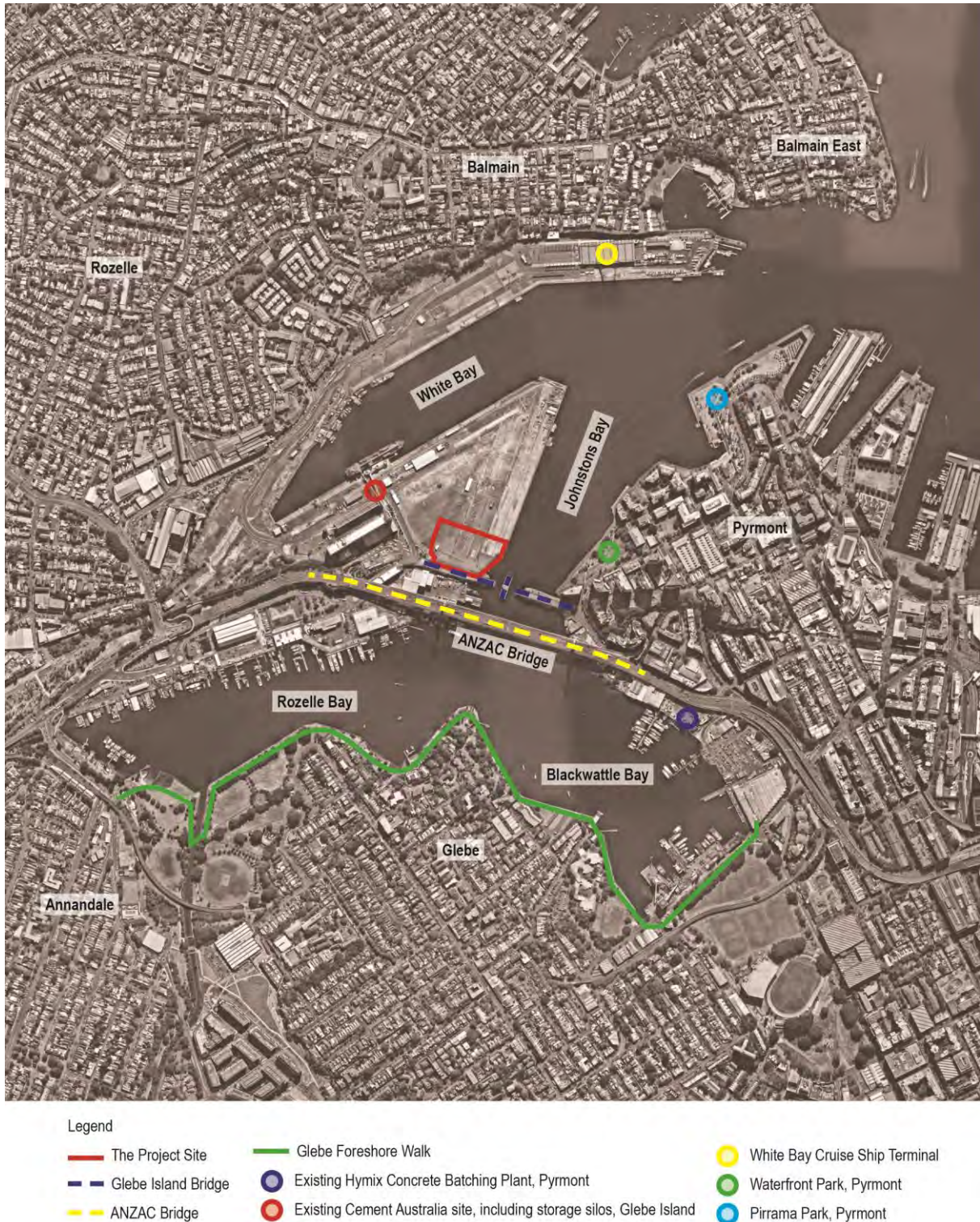


Figure 9 Context map showing surrounding landmarks (aerial source NearMap © 2017)

2.2 Planning Controls

The planning controls for the Bays Precinct are subject to the *Sydney Region Environmental Plan No. 26 – City West* (SREP 26). SREP 26 divides the City West site into four precincts, with the project site located within the Bays Precinct. Under SREP 26, Glebe Island is zoned 'Port and Employment', which has the following objectives:

- to facilitate the continuation of commercial port uses, and
- to allow a range of commercial port facilities (such as buildings, structures, activities or operations and uses ancillary to these, associated with carrying goods from one port to another and associated with storage and handling and access to the port), and
- to encourage development on Glebe Island and land adjoining White Bay which requires close proximity to the port, and
- to encourage a mix of land uses which generate employment opportunities, particularly in relation to port and maritime uses, and
- to allow a mix of uses which generate employment opportunities in the White Bay Power Station site, and
- to provide for ongoing rail access to the port and related activities, and
- to provide pedestrian and cyclist links with surrounding public access networks, and
- to encourage port-related uses which optimise use of existing rail facilities, and
- to provide road and rail access to port activities.

Clause 20C of SREP 16 states that only uses which the consent authority is satisfied are generally consistent with one or more of the zone objectives are permissible in this zone. The proposed development is a type which requires close proximity to the port and generates employment, and therefore satisfies the requirements of Clause 20C.

The Bays Precinct has also been identified by the NSW Government as an urban renewal precinct to provide for a mix of cultural, maritime, recreational, retail and commercial uses over the next 20 to 30 years. More detail about the future plans for this precinct, and the relationship of the subject proposal, is discussed in Section 2.5.2 of this report.

The Draft Greater Sydney Region Plan, released for public comment on 22 October 2017, establishes a 40 year vision (up to 2056) and a 20 year plan to manage growth and change in the Greater Sydney region in the context of economic, social and environmental matters. This plan will inform district and local environmental plans, and the assessment of planning proposals.

The draft region plan provides 10 directions to guide the vision and growth, which includes the direction of creating the conditions for a stronger economy. One of the objectives for this direction is that industrial and urban services land is planned, protected and managed (Objective 23).

The draft district plans for the Greater Sydney region were released for public comment on 26 October 2016, and will guide the implementation of the Greater Sydney Region Plan at a district level and link regional planning to local planning.

The Bays Precinct is subject to the Draft Eastern City District Plan, which includes Planning Priority E12 – Protecting Industrial and Urban Services Land. The objectives of this planning priority is for industrial and urban services land in the Eastern City District to provide cost competitive and well-located land for industries and services (including concrete batching plants) that support businesses in the Harbour CBD, other centres and Greater Sydney's two existing international trade gateways of Port Botany and Sydney Airport. The draft district plan states that good local access to these types of services reduces the need to travel to other areas, minimising congestion on the transport system.

2.3 Topography and Hydrology

Glebe Island is a relatively flat, concrete platform lying between Johnstons Bay and White Bay. Stormwater is collected on the platform and directed to local stormwater pits scattered across the

hardstand surface (refer Figure 10). There are no adjoining land surfaces falling to the site. The only stormwater that collects on the site is what falls directly onto it.



Figure 10 Stormwater on Glebe Island is collected in local stormwater pits scattered across the wharf and hardstand area (Source: AECOM)

2.4 Flora, Fauna and Soils

Glebe Island is a low, flat area of hardstand (concrete), with limited vegetation, fauna and natural soils. Flora on site comprises weeds and grasses living in small pockets of earth between the pavement, and some plants on the embankment of Glebe Island Bridge. Fauna comprises birds, particularly Sea Gulls, which are nesting along the wharf edges. No formal flora and fauna assessment has been undertaken.

2.5 Built Form and Land Use

2.5.1 Built form

Subject Site

The highest part of the proposed development is the silos, which would be 34m, measured to the top-most part of the silo structure. The silos would therefore be the most prominent elements, with the next highest element at 24.5m.

The silos have been designed to be positioned adjacent to the ANZAC Bridge in order to keep tall, bulky built structures to the edges of Glebe Island in order to maintain the flat, low landform in the centre and to the waterside edges of the platform. The silos are also positioned to reflect the location of the existing Glebe Island Silos, being around 100m from Victoria Road. This would maintain a theme of industry and associated storage structures in this part of Glebe Island. Locating the silos in this area also means that the impact on part of Glebe Island further north, which has been used as a temporary exhibition centre, would be reduced.

The site layout, including setbacks has been designed to maximise the efficiency of the plant, but also minimise the impact on the site.

The material for the concrete batching plant, including concrete and powder-coated metal is also consistent with the materials used in existing structures surrounding the subject site. As mentioned earlier in the report, the final colours and finishes would be subject to a community consultation process.

Public access to this part of Glebe Island is currently restricted, especially to the waterfront adjoining the location of the proposed facility. The Glebe Island Bridge forms a barrier for any potential waterfront access further south of the subject site, as does the Sydney City Marina site between the subject site and the ANZAC Bridge. The Maritime NSW site on the southern side of ANZAC Bridge also restricts any potential public access to the foreshore in this location. Therefore any public access to the foreshore in this part of Glebe Island would be unable to be achieved until the long term, and after significant changes to land uses in the vicinity of the Project Site as part of The Bays Precinct Transformation Plan.

Surrounding Development

A large proportion of Glebe Island is essentially flat, having a level, concrete surface for much of the area adjoining the foreshore, increasing in height further east, closer to Victoria Road to the west. Victoria Road and City West Link form a significant visual and physical barrier to other areas further east.

The ANZAC Bridge is a significant built structure which traverses Glebe Island very close to the subject site. The proposed development would transition in height from the bridge deck and pylons down to the foreshore.

Other structures on Glebe Island feature a range of heights and scale, but are all generally industrial and commercial in appearance, many appearing as large shed-like structures. The White Bay Power Station and the Glebe Island Silos are significant built structures close to the subject site. The Sydney Boathouse, on the southern side of the ANZAC Bridge, is also a large, bulky building.

Buildings on land opposite the site, in Pyrmont, are predominantly residential apartment buildings and attached dwellings ranging in height from single storey to over 20 storeys or around 60 metres. Specifically, the residential apartment building on the western foreshore of Pyrmont directly opposite the site is 13 storeys in height, with a building to its east about 23 storeys in height. Other apartment buildings further north of the western Pyrmont foreshore are around 9 storeys. Many of these apartment buildings are therefore significantly higher than the proposed development.

Development on the northern side of White Bay consists of low scale industrial and maritime uses on the foreshore, which is relatively flat. Further north of these uses, and even further away from the Project Site, the existing built form ranges from small lot, attached residential buildings 1 to 2 storeys in height, to apartment buildings generally 3 to 5 storeys in height. This land also slopes up from the foreshore, significantly increasing the height of the apartment buildings above the Project Site.

Therefore it can be concluded that the built form character around the subject site is a mix of forms but largely industrial and commercial in character closer to the Project Site, transitioning to more residential uses further away from the Project Site.

2.5.2 The Bays Precinct Transformation Plan

UrbanGrowth NSW (UGNSW) has been tasked by the NSW Government to lead the transformation of The Bays Precinct. This Precinct comprises 95ha of largely government owned land, as well as 5.5km of harbour front land. The Precinct is being investigated as a State Significant Precinct as it represents a significant urban renewal opportunity in NSW. The land subject to the State Significant Precinct investigation is shown in Figure 11 below.

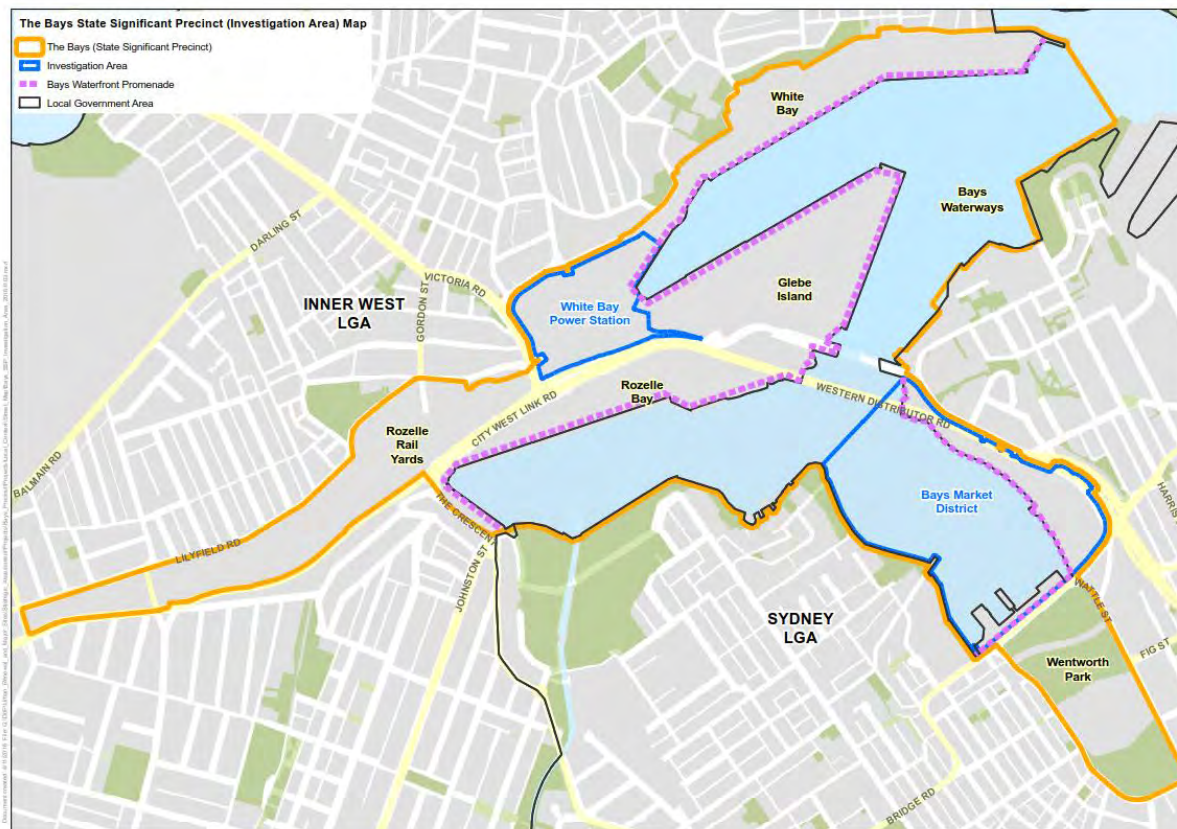


Figure 11 The Bays (State Significant Precinct) (Source: Department of Planning and Environment)

UGNSW has prepared *The Transformation Plan: The Bays Precinct, Sydney* as a blueprint to transform The Bays Precinct over the next 20 to 30 years. The Precinct is being planned to deliver eight 'destinations' in three phases to provide a mix of cultural, maritime, recreational, retail and commercial uses to build on its heritage, support local communities, provide attractive and safe places and space, optimise maritime uses and develop social capital to support the growth of Sydney.

The eight destinations are:

- White Bay Power Station (short term investigation)
- Bays Market District (short term investigation)
- Bays Waterfront Promenade (short term investigation)
- Wentworth Park
- Glebe Island
- White Bay
- Rozelle Rail Yards
- Rozelle Bay and Bays Waterways

The proposed Glebe Island Concrete Batching Plant is located within the Glebe Island destination location, which is currently being used for deep-water wharfage, including bulk cement, sugar and gypsum loading and unloading. Glebe Island and White Bay are significant to maritime activities as these are the only deep-water wharves west of the Sydney Harbour Bridge. The current activities on Glebe Island are seen as an integral part of Sydney's logistics capability for essential construction material and working harbour services. UGNSW is working with other NSW Government agencies to investigate how changes to Glebe Island could occur. This could include supporting the 'blue' economic activities of the port and maritime industries, potentially combining with a technical and innovation campus.

It is anticipated that development in this part of The Bays will occur in the long term, with development anticipated to occur some time after 2022.

The current location of the existing batching plant at Blackwattle Bay is within the location of The Bays Market District, a short term priority destination intended to be a new food and dining attraction for residents, workers and visitors. It will involve the rejuvenation of the wholesale and retail components of the Sydney Fish Market, and allow the planned Bays Waterfront Promenade to provide a vital connection to bring people to the water. Relocating the existing Hanson Concrete Batching Plant to elsewhere within The Bays Precinct would maintain a central location for this facility, whilst providing for a significantly improved urban design and amenity outcome for the planned Market District.

2.6 Landscape Character Zones

Seven Landscape Character Zones (LCZs) have been identified within the Study Area (refer Figure 12):

- LCZ 1: Infrastructure Corridor
- LCZ 2: Industrial / Commercial Waterfront
- LCZ 3: Residential Development (low - medium)
- LCZ 4: Residential Development (medium - high)
- LCZ 5: Mixed Use / Commercial Development (low)
- LCZ 6: Mixed Use / Commercial Development (high)
- LCZ 7: Public Open Space

These LCZs have been grouped primarily using the development pattern and grain as identifying features. Small pockets of alternative land use or character may be contained within these greater LCZs, but have not been separately identified and discussed within the overarching landscape character of each zone.

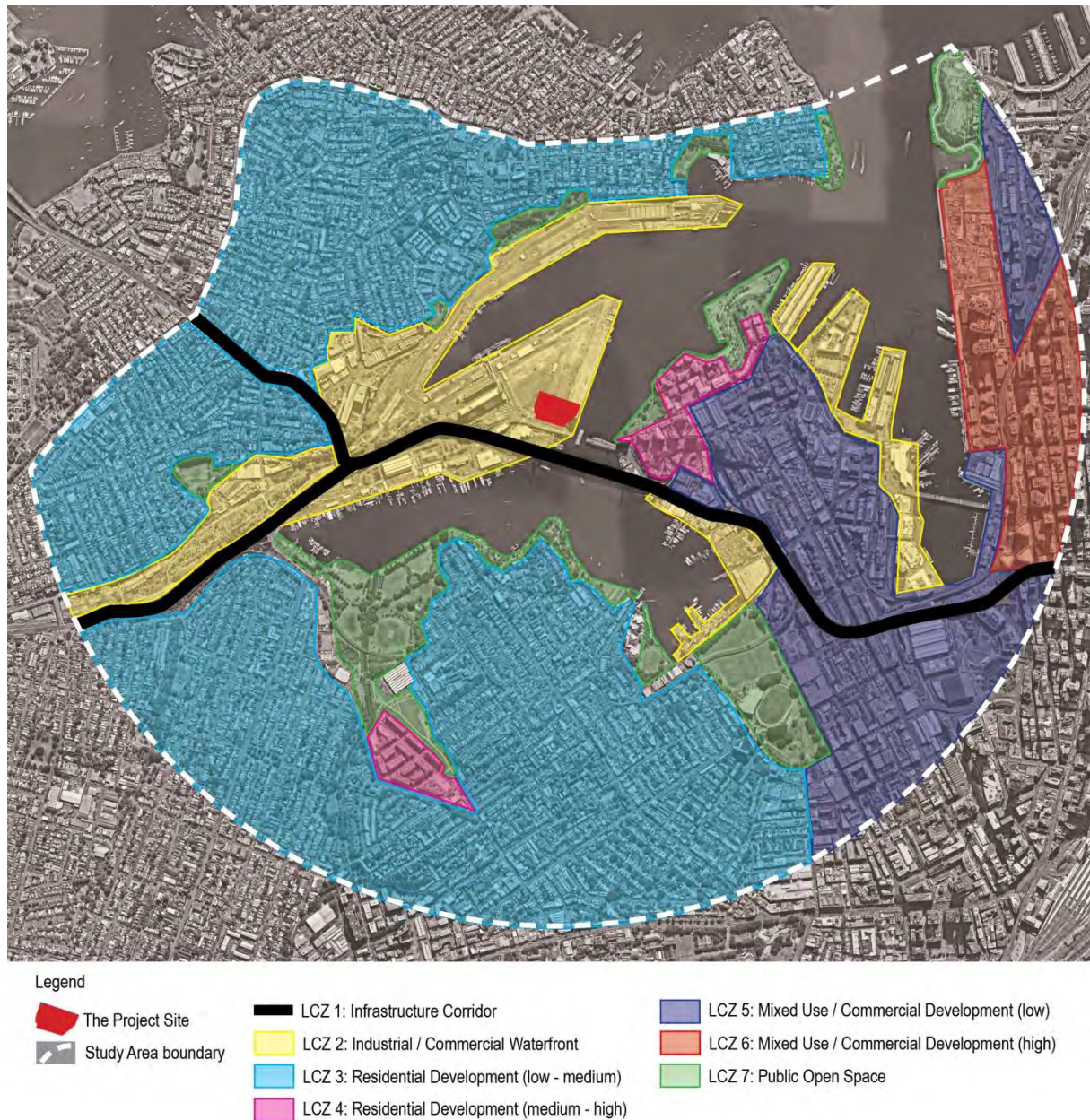


Figure 12 Landscape Character Zones within the Study Area (source: AECOM, aerial source: NearMap © 2017)

2.6.1 LCZ 1: Infrastructure Corridor

The Infrastructure Corridor LCZ comprises linear corridors within which major roads lie. Within the Study Area, this LCZ incorporates the M4 Western Distributor (which passes over the ANZAC Bridge), and Victoria Road, which meets the M4 Western Distributor at a 'T' intersection west of the ANZAC Bridge. The corridor then changes to City West Link west of Victoria Road.

The M4 Western Distributor/City West Link bisects the landscape in an east-west direction, separating north and south of the motorway with a wide, elevated road corridor culminating in the ANZAC Bridge. The road is most often an eight (8) lane road, with four (4) lanes travelling in either direction within the Study Area. More complex lane arrangements exist within the Study Area due to entry / exit options nearing the city (east of the ANZAC Bridge), and at intersections to the west.

The landscape character of the LCZ within the Study Area is of a utilitarian transport route, although views to The Bays, Glebe Island, Glebe and the surrounding landscape are available when on the

bridge due to the elevation. The striking architecture of the ANZAC Bridge also adds to the character of the landscape at this location (refer Figure 13). There is limited landscaping to the road verges within the Study Area, with some stands of casuarina trees around the intersection with Victoria Road and as the road returns to the surrounding grade at the intersections with James Craig Road and The Crescent. At these points, the mature vegetation within the Rozelle Rail Yards (to the north of the City West Link) and past the intersection with The Crescent help to soften the character of the corridor.



Figure 13 View west along the pedestrian path on the northern edge of the ANZAC Bridge, showing the elevation of the road in relation to the surrounding landscape. Note the striking structural elements of the bridge itself add to the character of the motorway at this location (Source: AECOM)

2.6.2 LCZ 2: Industrial / Commercial Waterfront

The Project lies within the Industrial / Commercial Waterfront LCZ. This LCZ is characterised by waterfront land which is used for 'blue' industrial or commercial purposes, including boat building and storage, reception of large ships including: industrial deliveries, such as aggregate; tourism, such as cruise ship berthing; naval uses; and fishing vessel reception, particularly in Blackwattle Bay.

Some areas, such as the wharves in Jones Bay and Pyrmont Bay, were used in the past for industrial purposes, but have been redeveloped into commercial use buildings. However, the retention of much of the wharf architecture has resulted in the preservation of the character of these areas as industrial wharf/working port developments.

Cockle Bay (Darling Harbour) is the exception to this rule, with the precinct being redeveloped as an entertainment district. As such, this area has a different character to other areas within this LCZ, but is somewhat visually contained by the Pyrmont Bridge which crosses it.

Glebe Island lies within this LCZ, and comprising a large, open concrete platform that splits Johnstons Bay with White Bay. It has a hard, utilitarian character, with a history of industrial use relating to the port and maritime industry (refer Figure 14). The island still has operational industrial uses, with occasional use for entertainment purposes (e.g. fireworks or concert destinations).

There is little to no soft landscaped areas within this LCZ (i.e. tree and shrub plantings), with the vegetation comprising predominantly of weeds and unmanaged incidental vegetation living opportunistically in areas where deep soil exists (e.g. on the Glebe Island Bridge abutments to the south of the Project Site, refer Figure 15).

The character of this area is influenced by the hardstand wharf developments and a number of large, monolithic industrial structures, including the White Bay Power Station and the existing concrete storage silos on Glebe Island. Newer structures, such as the White Bay Cruise Terminal and the Sydney Boathouse in Rozelle Bay reinforce the industrial and maritime character with their size and use of utilitarian materials such as exposed steel and corrugated cladding material.



Figure 14 Glebe Island has a hard, utilitarian character relating to its industrial uses associated with port and maritime industry (Source: AECOM)



Figure 15 Vegetation within this LCZ often comprises weeds, grasses and shrubs growing unmanaged in small pockets of deep soil, as with the Glebe Island Bridge abutment (Source: AECOM)

2.6.3 LCZ 3: Residential Development (low to medium)

This LCZ is situated on the on the higher, often sloping hillsides to the north, south and west of the Project, typically 'behind' the LCZs fringing the waterways (i.e. LCZ 2: Industrial / Commercial Waterfront, and LCZ 7: Public Open Space). To the north and west of the Project are the suburbs of Rozelle, Balmain and Balmain East. To the south are the suburbs of Annandale, Forest Lodge and Glebe.

In the suburbs of Rozelle, Balmain and Balmain East, housing typically comprises semi-detached and detached cottages on very small blocks of land, with very narrow and sometimes winding streets crossing the topography. The topography of these suburbs is often steeply sloped, with Darling Street running along the ridgeline to the north, and hillsides sloping to the south towards the waterfront. Commercial development lines most of Darling Street, including restaurants and shops.

In Balmain, some waterfront residential development lies west of Peacock Point (refer Figure 16). These homes typically have small private jetties, with some pockets of private beachfront.

The southern suburbs of Annandale, Forest Lodge and Glebe also lie on land that slopes towards the bays (Blackwattle Bay and Rozelle Bay), but the streets are typically wider and are set out in a more regimented grid, with the main roads (Glebe Point Road in Glebe, and Johnston Street in Annandale) following a ridgelines down to the water. Housing stock in these areas typically comprise attached terrace housing (one and two storey), semi-detached and detached cottages, with some low rise apartment blocks. Commercial development (restaurants and small shops) are positioned in small clusters along main roads.

These suburbs are all quite old, with heritage items scattered throughout. Sandstone blockwork and heritage features on housing give these areas unique character. Mature trees line many of the streets, and gardens, although often small, have mature landscaping including large trees.

Small pocket parks are scattered throughout these suburbs.

Views to the water would be available from these suburbs, but would be predominantly seen from residences rather than typically from public open space, due to the layout of the streets and houses. Glimpse views to the water are sometimes available along road corridors, but are most common in the areas very close to the waterways, as mature trees often screen long distance views along streets.



Figure 16 Residences west of Peacock Point in Balmain East, where a limited number of homes have waterfront access including private jetties (Source: AECOM)

2.6.4 LCZ 4: Residential Development (medium – high)

This LCZ is situated in a couple of places within Pyrmont and Glebe / Forest Lodge, and comprise contemporary, generally high density developments of medium to high-rise apartment blocks, surrounded by blocks of public and semi-private open space.

The largest occurrence of this LCZ within the Study Area is at Pyrmont, where high rise apartments have been built on the steeply sloping land leading down to Johnstons Bay. This development is called 'Jacksons Landing', and is characterised by tall apartment buildings separated by tracts of public / semi-private open space. Level changes in the landscape are mitigated by sandstone cliffs, allowing the developments to 'step' down the hillsides towards the water. Sandstone is a common material

used in landscaping, and planting in parks and apartment gardens is a mix of indigenous and exotic species.

Viewed from a distance, the scale of the buildings combined with the steep topography creates a visually dominant, bulky 'headland' that falls to the waterfront.

Mature fig trees typically line the streets, which are moderately wide and often allow for parallel parking (timed) on either side. Small pockets of commercial development (e.g. restaurants and cafes) are scattered through these areas.

Views to the water are rare from within the public spaces set back from the waterfront (i.e. not waterfront land, but pockets of open space behind and between tall apartment blocks), due to the tall apartments, mature street trees, topography and staggered apartment buildings. However, many residences in these apartments would get clear views to the water and the landscape beyond.

This LCZ gets much of its character from its use as a former industrial site mirrored, by the industrial use of the bays beyond, and its strong relationship to the green space that permeates and surrounds it, particularly on the waterfront. While it has not retained any industrial elements, the materiality, particularly in the landscaping between the buildings (including wharf timbers, sandstone and the giant metal digesters retained as sculptures within the adjacent parkland) all assist in retaining and reflecting this character.

2.6.5 LCZ 5: Mixed Use / Commercial Development (low)

This LCZ is located in the suburbs of Ultimo and Pyrmont. It comprises a mix of commercial and residential development, with numerous pubs and restaurants scattered throughout. Large community facilities are also dotted through this LCZ, e.g. the Powerhouse Museum and the Ian Thorpe Aquatic Centre. The Star Casino is also located within this LCZ.

This area is situated along a ridge line roughly separating Blackwattle Bay and Cockle Bay. The main streets run parallel to the ridge line, with Harris Street as the primary street, and an ordered grid of side streets running perpendicular from it.

Built form within the area comprises a number of styles, including two storey residential terraces built in the late 19th Century, and an assortment of more modern mixed use developments between one and five storeys, with a range of architectural styles.

A number of streets within the area have mature street trees, predominantly London Plane Trees, but with some streets featuring Brush Box or Melaleucas. Due to the density of development, most properties are built up to the pavements, and therefore private gardens are rare within the area. Some small terrace gardens exist, but do little to soften the streetscape. Few parks exist within the LCZ.

Overall, the general character of this area is defined by an eclectic mix of architectural styles, with a general rule of developments lower than 5 storeys. Heritage precincts exist within the LCZ, while other areas feel 'back of house' and include interchange areas with large roads passing overhead (i.e. the M4 Western Distributor passing over Harris Street).

2.6.6 LCZ 6: Mixed Use / Commercial Development (high)

This LCZ comprises Barangaroo and the Sydney CBD. While Barangaroo is still under construction, both areas will be (or are) made up of a grid of tall commercial towers, interspersed with limited amounts of green space. While this LCZ does not lie adjacent to the LCZ containing the Project, the tall commercial towers receive panoramic views out over the landscape, therefore many would obtain clear views to Glebe Island, and LCZ 2 in which it is contained (refer Figure 17).

The character of this LCZ is defined by the ordered grid of streets, with George and Pitt Street running in a north-south direction along the ridge line, and the perpendicular streets running in an east-west direction, with the western streets following the contours down to Barangaroo and the waterfront of Pyrmont Bay, Jones Bay and Cockle Bay.

The topography within this LCZ varies. Within the Sydney CBD, the landform rises from the western bays, culminates in the ridgeline near George and York Street, then falls to the east. Barangaroo, in contrast, is flat; lying on reclaimed land on the waterfront.

Mature street trees soften the hard urban form within the CBD, with the most common mature tree species being London Plane Tree. Few small parks exist within the area, with the largest park being Hyde Park, east of Elizabeth Street, running in a north-south direction within the city grid.

The architectural style of building within this LCZ is varied. Some heritage sandstone buildings and malls exist (e.g. Queen Victoria Building), with smaller examples of heritage architecture dotted throughout the CBD. Barangaroo, by contrast, is an entirely new development, with modern high-rise towers comprising glass and steel construction.

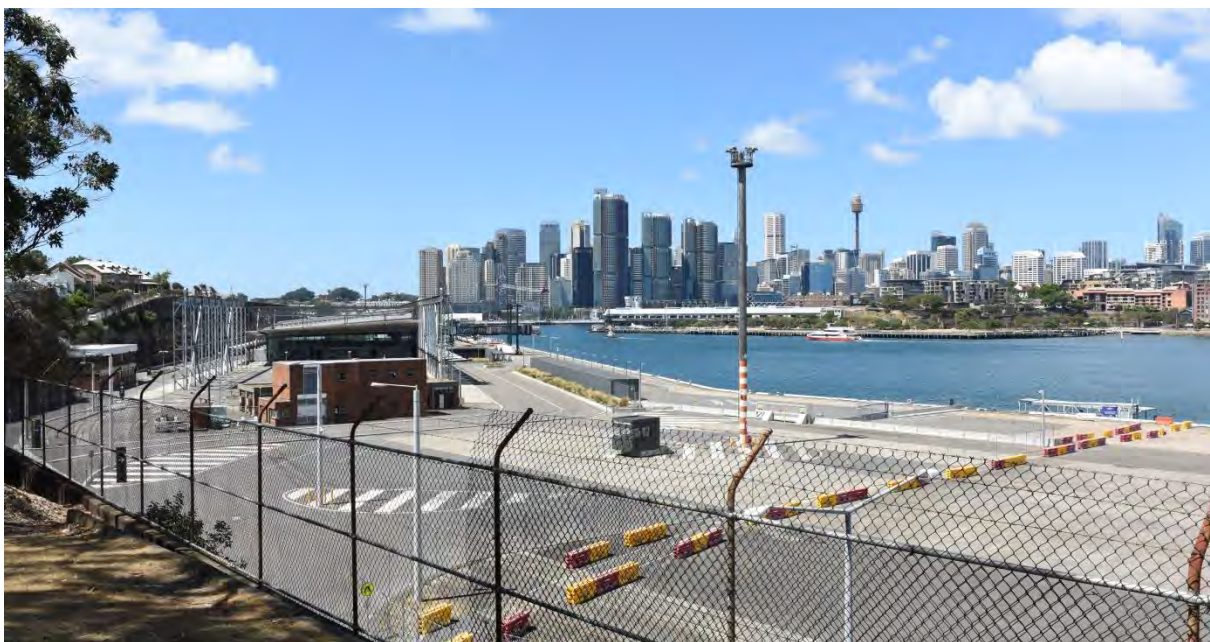


Figure 17 View east to Barangaroo and the Sydney CBD from Birrung Park, Balmain. The White Bay Cruise Terminal is seen in the middle foreground of the view, to the centre left of frame, with parklands in Pyrmont / Jacksons Landing seen in the middle ground to the centre of the photo and to the right of frame (Source: AECOM)

2.6.7 LCZ 7: Public Open Space

The Public Open Space LCZ is predominantly located in waterfront areas, with the largest parks at Glebe and Blackwattle Bay, in areas that would have been the points at which drainage lines met the bays. These larger parks are joined by the Glebe Foreshore Walk, a narrow tract of public land which follows the waterfront. At Pyrmont, two larger parks (Pirrama Park, refer Figure 18, and Waterfront Park) are joined by a walkway, which passes through a number of smaller green spaces and wharves.



Figure 18 View south from within Pirrama Park, showing the relationship between the park and the built form ‘behind’ (back from the water) (Source: AECOM)

On the northern side of White Bay, a number of small waterfront parks are positioned (e.g. Birrung Park, refer Figure 19, Peacock Point, and an unnamed park at the eastern end of Mansfield Street), although there are limited walking tracks to join these spaces, with the waterfront areas instead comprising private berths and waterfront industrial land. Some of these parks lie behind the industrial waterfront land on elevated sandstone rock shelves, with views over to the bays beyond.



Figure 19 Birrung Park in Balmain is an informal turfed space surrounded with indigenous trees and overlooking White Bay and Glebe Island (Source: AECOM)

A number of small parks and squares exist within the other LCZs (particularly within LCZ 3 and LCZ 4, but with some parks occurring within LCZ 5, and LCZ 6), however, these parks ‘belong’ to these LCZs in that they impart character to these areas and in turn are fed by them). The waterfront parks addressed within this LCZ are either large enough to be a LCZ within themselves, or are somewhat separated from the surrounding landscape in character and function. They generally address the waterfront and have a strongly contrasting character to the surrounding landscape.

The topography in parks within this LCZ is generally relatively flat, with some terracing as the landform rises away from the waterfront. Some parks are elevated, situated on sandstone rock shelves (e.g. Birrung Park), while others are at water level. The narrow tracts of land that join larger areas of open space are often sandwiched between the water and private land (e.g. Glebe Foreshore Walk and the walkway joining Waterfront Park and Pirrama Park, Pyrmont), and at a minimum comprise a concrete pathway with various amounts of landscaping (refer Figure 20).



Figure 20 At its narrowest, the Glebe Foreshore Walk comprises a pathway and some landscaping, sandwiched between residential land and the harbour (Source: AECOM)

The materiality of these open spaces varies depending on date of development. Many of them have been developed or redeveloped recently, with sandstone, concrete and wharf timbers used to impart some of the character of the industrial foreshore, while indigenous planting hints at the original vegetation communities which may have lived there. Larger, open turf areas are often punctuated with large shade trees, predominantly comprising native fig trees.

The north-western parks of Birrung Park and the small string of green open space including Vanardi Green are different in character. Birrung Park is a narrow park with turf and mature Eucalypt trees, overlooking White Bay (refer Figure 19). It is an older park and has not been redeveloped as some of the southern parks have. The string of parks associated with Vanardi Green would have been developed into public open space when the adjacent residential apartment blocks were built, but have a semi-private feel to them due to fencing, small entry points, and fringing residential lots which overlook the areas (refer Figure 21).



Figure 21 Vanardi Green is associated with a string of parks which culminate in a piece of green space directly north of the wharf associated with the White Bay Cruise Terminal. It has a semi-private feel due to the direct access to the adjoining apartment blocks (Source: AECOM)

3.0 Landscape Assessment

3.1 LCZ 1: Infrastructure Corridor

Sensitivity

This LCZ has a High sensitivity. Although it is an infrastructure corridor with an overall utilitarian character that is designed to facilitate the smooth flow of traffic, there are portions of this LCZ within the Study Area which elevate the sensitivity of the corridor as a whole due to their location, topography, outlook, and landmark structures, in particular the ANZAC Bridge and elevated areas of the Western Distributor.

The ANZAC Bridge is a substantially elevated, landmark structure, spanning Johnstons Bay. The bridge deck and approaches are well elevated above the surrounding landform so that when viewed from elevated locations, the deck follows the landscape skyline (refer Figure 22), and when viewed from waterfront locations, the landscape framed between the deck, the water and the pylons beyond can be seen under it (refer Figure 23).



Figure 22 The ANZAC Bridge is a landmark within the Study Area, visually splitting the northern bays of Johnstons and White Bay from Blackwattle and Rozelle Bays and the landscape beyond (Source: AECOM)



Figure 23 The ANZAC Bridge as viewed from the Glebe Foreshore parklands waterfront (Source: AECOM)

The height and strong geometric form of the pylons and suspension cabling at either end of the bridge further elevate the bridge as a landmark element within the landscape (refer Figure 23).

Project Effects

Although the Project would not be constructed within this LCZ, it is located very close to the infrastructure corridor where it crosses the Bay (i.e. the ANZAC Bridge). The Project would be situated within 100 metres of the ANZAC Bridge, with the largest structures (the 34 metre tall silos) aligned parallel to the bridge deck near the western pylon (refer Figure 24).

In addition to the large, industrial form of the Project, the frequency of ships berthing at the eastern wharf at Glebe Island (GIB1) would increase, with large ships approximately every three days, which would also be positioned adjacent to the Glebe Island Bridge and the ANZAC Bridge.

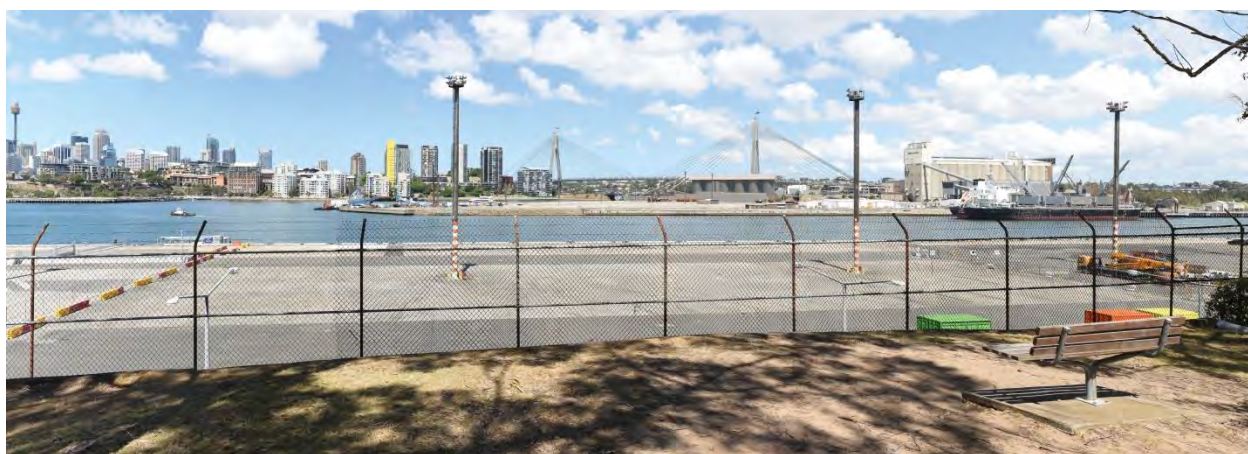


Figure 24 A visual simulation of the Project, centre right of frame, showing its positioning close to the western pylon of the ANZAC Bridge, with the silos aligned parallel to the bridge (Source: AECOM)

Magnitude

The magnitude of the Project would be High. The scale and character of the Project is in keeping with existing development on Glebe Island (i.e. the adjoining LCZ), but the position of the Project, particularly the silos, competes with the dominance of the bridge within the landscape, as the silos are comparable in height to the bridge deck and comprise a horizontal massed form of a significant bulk and scale, contrasting with the architecturally refined character of the slim bridge deck and towering pylons.

The increased frequency of ships berthing at the wharf beside the Infrastructure Corridor LCZ would also be acceptable within the context of the wharf-side location, but would be a change from the existing frequency of berthing ships adjacent to the ANZAC Bridge.

Overall Assessment

The overall landscape character impact rating is High. Although a point source development in relation to the narrow, corridor form of this LCZ, the position of the development adjacent to the landmark ANZAC Bridge competes with the form of the bridge in the landscape, resulting in the high assessment.

3.2 LCZ 2: Industrial / Commercial Waterfront

Sensitivity

This LCZ has a Moderate sensitivity due to the following:

- The hard, utilitarian character for the LCZ, which includes large areas of concrete, monolithic industrial structures (including the existing cement silos on Glebe Island and the White Bay Power Station), and scattered industrial and maritime equipment;

- The LCZ is characterised by a haphazard arrangement of wharf infrastructure, extensive concrete decking, regularly spaced lighting towers, boats, cranes, conveyor belts and various pieces of machinery and debris; and
- It contains little vegetation, comprising weed species living in pockets of deep soil, and some limited indigenous vegetation fringing the industrial sites. There is little vegetation to soften the hard, industrial maritime built form of the LCZ.

However:

- The harbour front location of the Project within the inner suburbs / CBD setting makes this LCZ more sensitive than other industrial areas more commonly located within less habitable areas of the landscape, e.g. in low lying areas less suitable for other forms of urban development; and
- the monolithic industrial structures, while reinforcing the utilitarian nature of this LCZ, are also important cultural landmarks which reflect the history of the area.

Project Effects

The Project would be built within this LCZ. It comprises a large industrial development sited in a low, exposed area within this zone, and featuring a series of tall silos comparable, but smaller in scale, to the existing silos on Glebe Island to the west of the Project Site.

Ships would regularly berth at GIB1 during the operation of the Project. While this is an activity that would be within character for this LCZ, there would be an increased frequency of ships berthing at this berth adjacent to the ANZAC Bridge, which would be a change from the existing situation.

Magnitude

The magnitude of the Project would be Moderate. The Project comprises a moderately scaled new element of significant mass and form, set within an inner city harbour front location.

Overall Assessment

The Project would result in a Moderate change to the landscape character within this LCZ, with the addition of a moderately scaled new element of significant mass and form within the industrial waterfront.

3.3 LCZ 3: Residential Development (low to medium)

Sensitivity

This LCZ has a Moderate sensitivity due to the following:

- The sloping topography of this LCZ, generally towards the water, results in the LCZ within the study area 'addressing' the waterway. This makes these areas sensitive to changes within the lower visual catchments, within which the Project is sited;
- The picturesque quality of this LCZ in relation to the waterway, including a moderate tree cover in the streets due to the age of the developments (i.e. resulting in mature street trees); and
- The LCZ is relatively uniform in the scale of built form, but with periodic larger, civic structures and open space scattered across it.

However:

- This is a relatively large LCZ, which would dilute the effect on any point-source development on its character;
- This LCZ is physically removed from the Project in that it does not lie adjacent or close to Glebe Island.

Project Effects

The Project would be built within LCZ 2: Industrial / Commercial Waterfront, at least 500m from the nearest residential homes within LCZ 3. It would be viewed as an industrial maritime development grouped with developments of similar character, scale and materiality.

Magnitude

The magnitude of the change due to the Project is Low. Although the Project would be visible from within this LCZ, the effect on the overall character of the zone is minimised due to the character of the Project matching the character of the LCZ it is built within. Furthermore, the distance between the Project and this LCZ diminishes the effect of the Project on this LCZ as a whole.

Overall Assessment

The Project would result in a Moderate to Low change to the landscape character within this LCZ. While the scale, materiality and shipping activity of the development is compatible with the industrial, maritime usage of the area, this LCZ addresses the harbour, with lower slopes potentially sensitive to changes along the waterfront. However, LCZ 3 is of large size, not all of which has a strong relationship with the waterway and waterfront areas (including the Project Site) due to topography and distance.

3.4 LCZ 4: Residential Development (medium – high)

Sensitivity

This LCZ has a Moderate sensitivity due to the following:

- The zone comprises relatively small areas, one located at Pyrmont quite close to the Project Site;
- The portion of the zone situated close to the Project Site is also close to the waterway, and as with LCZ 3, the topography falls toward the waterway and the buildings orientated towards it, resulting in the zone 'addressing' the waterway, which comprises a focal point within the landscape;
- The built form within this LCZ comprises large apartment blocks, which combine to create a visually dominant, bulky headland at Pyrmont. The portion of this LCZ at Glebe / Forest Lodge contains similar large apartment blocks, but the topography and aspect create more of a sense of enclosure within this portion of the LCZ;
- The LCZ has a strong relationship with the adjacent parkland (particularly along the waterfront at Pyrmont), with mature street trees and 'internal' landscaping within this LCZ 'spilling out' into the surrounding parkland;
- The LCZ at Pyrmont also has a relationship with the industrial waterfront developments, as this site used to be part of this development, but has since been redeveloped, with an attempt made to retain some of the industrial character with the use of landscape materials, and to some degree the materiality of some apartment blocks; and
- This LCZ at Pyrmont has a moderate picturesque quality due to its headland position in relation to the waterway, its proximity and strong relationship to the green space that lies between it and the water, and the well-considered, contemporary architectural forms of the buildings

Project Effects

The Project would be built within LCZ 2: Industrial / Commercial Waterfront, which lies at its closest point approximately 200 metres west of the Pyrmont occurrence of this LCZ. The bulk and scale of the Project would broadly be reflective of the bulk and scale of the western waterfront apartment blocks within Pyrmont, seen within the context of the ANZAC Bridge pylons and suspension cabling.

There would be an increased frequency of ships berthing at GIB1 berth, which would be a change from the existing frequency of berthing ships adjacent to the ANZAC Bridge.

Magnitude

The magnitude of the change due to the Project is Moderate. As discussed above, the scale, bulk and character of the Project is appropriate for within LCZ 2 (i.e. Industrial / Commercial Waterfront). However, the Project's position on the eastern side of Glebe Island, particularly the silos, affects the character of the waterfront headland that juts into the waterways, although to a lesser degree than LCZ 3 given greater visibility of the setback between the Project and Glebe Island Bridge. This LCZ at Pyrmont has a strong relationship with the landscape surrounding the waterways due to its position, orientation and topography, as well as the history of the site as ex-industrial land.

The LCZ is also present within Glebe / Forest Lodge. This portion of the LCZ is unaffected by the Project, due to distance, topography, and screening elements within the landscape. It is the combination of impact on these two portions of the LCZ that result in a Moderate rather than a High rating.

Overall Assessment

The Project would result in a Moderate change to the landscape character within this LCZ. A key component of this LCZ is located close to the Project addressing the harbour and comprising a collection of well-considered architectural tower forms. However, the Project location within LCZ 2 is keeping with its industrial/waterfront character. The Glebe/Forest Lodge component of LCZ 4 is not impacted by the Project.

3.5 LCZ 5: Mixed Use / Commercial Development (low)

Sensitivity

The Mixed Use / Commercial Development (low) LCZ has a Low sensitivity due to its separation from the Project and its immediate surrounds.

This LCZ is set back from the southern waterways of White Bay, Johnstons Bay and Rozelle Bay. It has a closer relationship to Blackwattle Bay, in parts only separated from the waterfront by tracts of green space, but is separated from the Project by landform, landscape features and structures (such as apartment blocks, major road corridors and the ANZAC Bridge).

Project Effects

The Project would be built within LCZ 2: Industrial / Commercial Waterfront, at least 800m from this LCZ, but separated by landform and landscape features and structures. It would not be viewed or experienced in close relation to neither this LCZ, nor would the berthing of ships alongside the Project be an element that impacts its landscape character.

Magnitude

The magnitude of the change due to the Project is Negligible. There would be no impact on the landscape character of this LCZ from the Project due to its physical separation by landform and structures.

Overall Assessment

The Project would result in a Negligible change to the landscape character within this LCZ due to its physical separation and associated lack of interaction with the Project.

3.6 LCZ 6: Mixed Use / Commercial Development (high)

Sensitivity

This LCZ has a Low sensitivity due to the following:

- The LCZ is physically separated from the Project by distance, landform, and built structures. However, due to the height and scale of buildings within this LCZ, there is a visual relationship between this LCZ and the LCZ in which the Project lies;
- The height, scale, and overall bulk of the buildings within this LCZ create a formidable landscape feature which can be seen from long distances;

- This LCZ is expanding onto the eastern waterfront of Darling Harbour with the construction of Barangaroo. This area has a more direct relationship with the Project given the connective element of the harbour between the two zones.

Project Effects

The Project would be built approximately 1.4 kilometres from the nearest buildings within LCZ 6. The Project Site is separated from this LCZ by distance and landform, as the Pyrmont / Ultimo Peninsula visually separates the two areas. The Project would comprise an additional large, industrial maritime development within an area of similar developments, in character and scale.

Ships would be berthed in an area of the bay which at present does not receive regular movement from vessels of that scale.

Magnitude

The magnitude of the change due to the Project is Negligible. The Project would not affect the character of this LCZ.

Overall Assessment

The Project would result in a Negligible change to the landscape character of this LCZ, due to its physical separation, and associated lack of interaction with the Project.

3.7 LCZ 7: Public Open Space

Sensitivity

This LCZ has a High sensitivity. It comprises tracts of waterfront public land which is:

- visible from long distances due to its extensive harbour side location;
- has highly scenic qualities resulting in attractive, green landscaped areas which address a complex series of bays;
- contain mature trees and landscaping;
- have scenic outlooks;
- are valuable public assets within the greater landscape which include very densely populated residential areas.

Project Effects

The Project would be built within 180m from the closest area within LCZ 7, at Jacksons Landing. It comprises a large industrial development sited in a low, exposed area and featuring a series of tall silos comparable, smaller in stature to the existing silos on Glebe Island west of the Project Site.

There would be an increase in the frequency of ships berthing at GIB1 during operation. This activity would be within character for the LCZ in which the Project is sited, although the frequency of ships coming in to berth (in Johnstons Bay, adjacent to the ANZAC Bridge) would increase within this part of the waterway, which would be a change from the existing situation.

The Project would be clearly visible from many areas within this LCZ, including sites to the north, south and east. The landscape as seen from Birrung Park in Balmain would undergo a moderate level of change in response to the project.

Magnitude

The magnitude of the change due to the Project is Moderate. Parts of the LCZ have a close relationship with the waterways on which it is sited, and therefore any structures that are built or sited close to the waterfront have an impact on the character of the areas. The Project is sited on the eastern side of Glebe Island, which at present has no development on it. In addition, a series of large silos would be positioned parallel to the ANZAC Bridge, north of the western pylon. The ANZAC Bridge is a landmark structure that can be seen in its entirety from many waterfront public open spaces within this LCZ, and views to this structure would be altered by the Project.

Overall Assessment

The Project would result in a High to Moderate change to the landscape character within this LCZ given the importance of views from waterfront parks which affects perceptions of their character.

4.0 Visual Impact Assessment

4.1 Visual Receptors

4.1.1 Overview

The Project is positioned on Glebe Island, which is a flat, low-lying, concrete wharf that protrudes into the water, separating White Bay from Johnstons Bay. It is directly overlooked by a number of areas, which either receive good views to the location due to steep landform, or high rise buildings which would receive panoramic views to the surrounding landscape.

Views to the Project Site from the west are limited by the ANZAC Bridge, which screens views due to the elevated bridge platform and approaching road corridors. Views under the bridge from low-lying areas are still available from the Glebe Foreshore, but only from limited locations.

It is anticipated that some long-distance views to the site would be seen from east and potentially from the north of the Project Site (particularly from Barangaroo and potentially from the CBD high rise towers that have views to Glebe Island), but limited views from the west and south would be available to receptors.

The visual catchment of the Project Site comprises the following receptors:

- Residents of homes in the suburbs north of the Project Site in Balmain and East Balmain (but limited to those homes to the south of Darling Street, or viewing the site from apartments in Pyrmont and Jacksons Landing (limited to those apartments with a westerly view from these buildings);
- Receptors travelling in vehicles (or pedestrians and cyclists) on the ANZAC Bridge;
- Workers in waterfront industries with views to the Project;
- Recreational receptors in waterfront parks, including those using the Glebe Foreshore Walk or the walk along the Pyrmont foreshore;

Changes to views seen by these receptors are assessed using the following representative OLs listed in Section 4.1.2. These locations were selected using a combination of desktop research and site exploration.

Some OLs represent the changes seen from more than the physical location photographed, e.g. an OL from public open space along the waterfront could approximate the views seen by nearby residents, or receptors using nearby public spaces. Some noteworthy instances include:

- Although receptors in the White Bay Cruise Terminal would get views to the site, passengers alighting from cruise ships would not, as their view to the Project Site would be blocked by the ship as they alighted. Therefore views from this location are covered when discussing changes seen by workers in waterfront industries locations.
- Waterfront industry is conducted on private land, therefore changes to views seen by workers in waterfront industries is discussed within the changes seen from OL 3, as this location most closely captures changes that would be seen by this receptor group.
- Public open spaces at OLs 1, 2, 3, and 7 also discuss changes to views as seen by residents in nearby homes, and users of other nearby public spaces (including waterfront walkways that span significant distances, e.g. Glebe Foreshore Park).

4.1.2 Representative Observer Locations

The representative OLs have been identified as follows (refer Figure 25):

1. Observer Location 1: Peacock Point, Balmain East;
2. Observer Location 2: Birrung Park, Balmain;
3. Observer Location 3: Mansfield Street, Rozelle;
4. Observer Location 4: Glebe Foreshore Walk;

5. Observer Location 5: Glebe Foreshore Walk (The Boathouse on Blackwattle Bay);
6. Observer Location 6: Pirrama Park, Pyrmont;
7. Observer Location 7: Waterfront Park, Pyrmont;
8. Observer Location 8: ANZAC Bridge.



Figure 25 Observer Locations surrounding the Project (aerial source NearMap © 2017)

4.2 Assessment of Observer Locations

4.2.1 OL 1: Peacock Point, Balmain East



Figure 26 Keyplan showing OL 1 in relation to the Project Site (NTS, aerial source NearMap 2017)

Receptors

This OL represents views to the Project seen by the following receptors:

- Residents living in homes in Balmain East, overlooking the water to the south;
- Visitors to public open space at Peacock Point, including the walking trail that starts from this location; and
- Recreational boating from the private jetties and moorings off the southern Balmain East waterfront.

A high number of residential receptors would see the view from this location. Houses constructed in the vicinity of this OL with access to the views across the harbour would likely be orientated for the residents to appreciate the view from inside their homes. Therefore residents would be seeing this view for long durations, and with a proprietary sense of interest.

A moderate number of visitors to the public open space at this location are anticipated, due to the 'dead-end' nature of this end of the park (i.e. the area with the southern viewing access). These receptors would have their attention focussed on the view to the landscape for the duration of their visit to the point. A low duration of viewing is anticipated for this receptor group, as they visit the park and potentially join the walkway that heads north east towards the Balmain East Ferry Wharf.

A low number of recreational boats from private jetties are anticipated from this location, and these receptors would have their attention somewhat focussed on the view from their vessels, although their attention would also partly be on the activity of boating. These receptors would be expected to have short viewing durations, with the views changing as they navigate through the harbour.

These receptors would view the project from roughly 1.3 kilometres away.

Existing views

Existing views south from this location include uninterrupted, panoramic views to the waterway itself (with associated boating activity) and the landscape beyond, including (refer Figure 27):

- the Balmain waterfront;
- White Bay Cruise Terminal to the right, seen amongst the visual clutter of the maritime industrial foreshore on the northern edge of White Bay;
- The White Bay Power Station (in Figure 27 seen behind the mast of the sailing boat in the middle ground);
- Glebe Island, the most prominent elements of which are the existing concrete silos and wharf infrastructure for unloading ships;
- The ANZAC Bridge;
- Jacksons Landing, seen as a tall, “wall” of apartment buildings behind Pirrama and Waterfront Parks, jutting out into the bay;
- Renovated buildings at Jones Bay Wharf ;
- Views into Cockle Bay and to the buildings associated with King Street Wharf; and
- The tower buildings and Headland Park of Barangaroo (not shown in Figure 27, but located to left of image).



Figure 27 Existing view from OL 1 looking south-west towards the Project Site (source: AECOM)

The above areas are viewed over an expanse of water within White Bay and Johnstons Bay, with boating activity in the foreground including ferries, occasional cruise ships (passing to berth at White Bay), tankers and other large ships berthing at Glebe Island and White Bay, and smaller recreational craft.

Shorelines seen from this location are predominantly vegetated to the south and south-west, with views to the built up areas of Barangaroo, the wharves and industrial areas devoid of vegetation.

The Glebe Island foreshore (and the Project Site) are not the closest shorelines to this location, and are therefore less prominent within the context of the greater view than the nearer areas of Pyrmont, Jones Bay Wharves and Barangaroo (refer Figure 28). The scale and bulk of the buildings within Barangaroo and the CBD make these areas dominant elements within the overall view.