Majors Bay

Design Report for Part 3A Submission

17 December 2010

For

MORTLAKE CONSOLIDATED INVESTMENTS PTY LTD

Suite 4

Level 1, 55 Grandview Street

Pymble NSW

SEPP 65 Design Verification Statement

This SEPP 65 Design Verification Statement has been prepared on behalf of **Mortlake Consolidated Investments Pty Limited**, in support of a Part 3A Application to the NSW Department of Planning seeking the Department's approval of the proposal to redevelop three sites at Majors Bay, Mortlake.

The development involves:

• The demolition of several existing industrial buildings;

• Excavation for up to three levels of basement car parking.

• The construction of approximately 400 residential units over a maximum of 9 levels;

• Associated street upgrades.

• Public domain upgrades including foreshore landscape works and through-site landscaped connections

The following Council Codes and Planning Instruments provided the controls for the proposal:

• State Environmental Planning Policy (Major Projects) 2005

• State Environmental Planning Policy (Infrastructure) 2007

• State Environmental Planning Policy (Building Sustainability Index :BASIX) 2004

• State Environmental Planning Policy 55 Remediation of Land

• State Environmental Planning Policy No. 65 Design Quality of Residential Development

• Sydney Metropolitan Strategy (Inner West Subregional Strategy)

This report is intended to be read in conjunction with the architectural plans prepared by Cox Richardson (the Architect), as well as associated reports:

We confirm that Mr John Richardson of Cox Richardson directed the design of the enclosed Concept Application, which is represented by drawings and that Mr Richardson is registered as an architect in NSW (registration No. 3162) in accordance with the Architects Act 1921.

We confirm that the enclosed documentation achieves the design principles set out in *State Environmental Planning Policy 65 - Design Quality of Residential Flat Development* and has been designed with regard to the publication *Residential Flat Design Code.*

Introduction

This proposal amalgamates three sites totalling 2.75 hectares on Majors Bay, in the Canada Bay Local Government Area.

This proposal has been developed over a period of several years. It consolidates a number of ownership parcels in the precinct providing the opportunity to develop an integrated master plan with new connections and open space that can create a more cohesive public domain for the precinct than has been possible where smaller and more disparate sites have been developed.

Importantly, the built form and public domain framework has been developed together to deliver a precinct that is in scale both with its immediate context, as well as the broader context of Majors Bay and Breakfast Point.

Site 1 has a total site area of 10,483m² and is bounded by roadways on all sides. Hilly Street forms the site's eastern boundary, Northcote Street the northern boundary; Bennett Street the western boundary; and Edwin Street the southern boundary. The site excludes council owned lane crossing the site east to west, and the council owned lot located south eastern corner.

Site 2 has a total site area of 2,911m² and is bounded by roadways, residential developments and Majors Bay foreshore. Bennett Street forms the sites eastern boundary, a neighbouring residential development the northern boundary, Majors Bay foreshore the western boundary and a neighbouring residential development the southern boundary.

Site 3 has a total site area of 14,037m² and is bounded by roadways, residential developments and Majors Bay foreshore. Hilly Street forms the site's eastern boundary, a neighbouring residential development the northern boundary, Majors Bay foreshore the western boundary and Northcote Street the southern boundary.

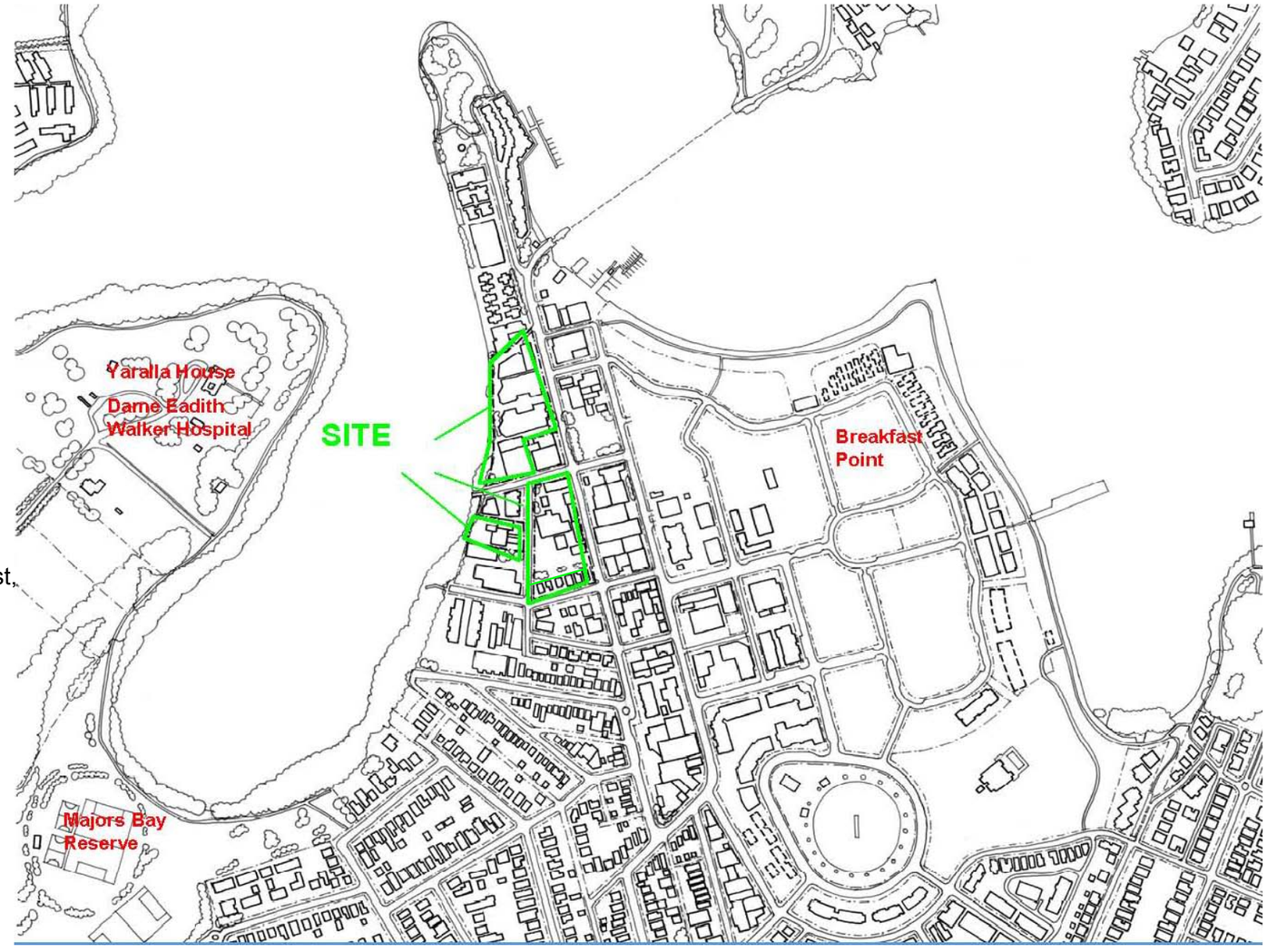


Figure 1 Site in Local Context

Site Analysis

Regional Context

The site is located along the Parramatta River within two kilometres of the Northern Railway line. It is located within an area characterised by older small-scale industrial developments on long blocks and a mix of older detached residential development and some more recent medium–density development.

Majors Bay – Canada Bay LGA

Canada Bay has a current (2006) population of 60,675 people in 24,413 occupied dwellings. Canada Bay has a residential area of 1,178ha so its residential density is 21 dwellings/ ha. The inner West Subregional Strategy proposes a target for Canada Bay of an additional 10,000 dwellings by 2031, giving a total of 34,413 dwellings at a residential density of 29 dwellings/ ha.

The 2008/2009 Metropolitan Development Plan (MDP) shows that Canada Bay has produced 3,747 dwellings in the five years between 2003/04 to 2007/08, i.e. an average of around 740 p.a. The short term forecasts are 3,990 to 2012 and medium term 3,450, to 2017, i.e. almost 7,500 over a 10 year period, i.e. an average of 750 dwellings p.a. At this rate, the 10,000 dwelling target could be reached by 2020, providing sufficient land is available for this relatively ambitious development program.

In the past 10 years 1998-2008 most dwellings came from Rhodes Peninsular (1,845 dwellings) and Breakfast Point (940 dwellings).

Canada Bay's Major Site's potential dwelling provision (from the

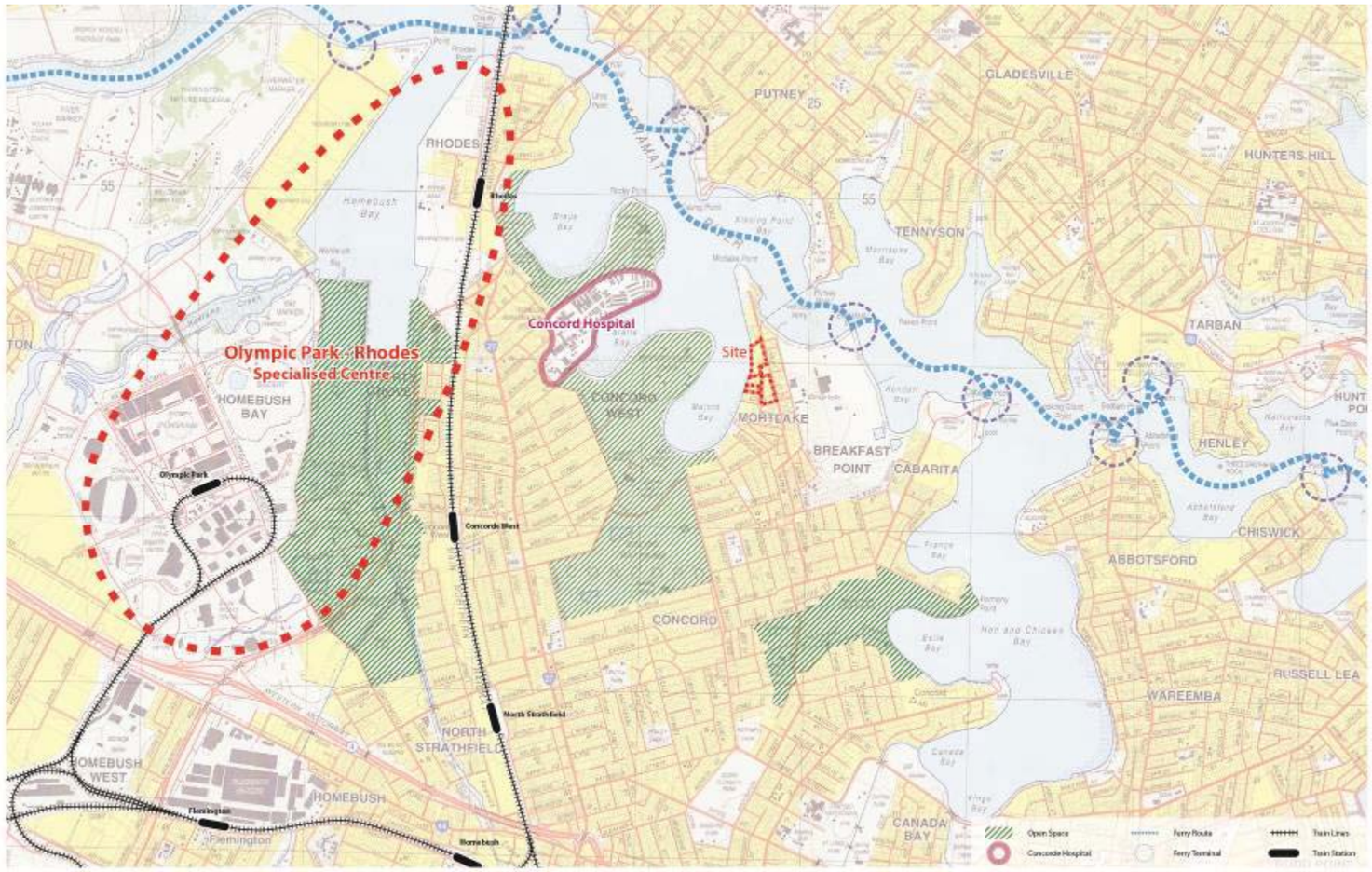


Figure 2

Regional Context

MDP 2008/2009 Atlas) includes:

- Rhodes (Precincts A-D) 3,379
- Breakfast Point 1,130
- Strathfield Triangle 500
- Westinghouse Brakes Site 313

There is obviously a need to provide land beyond Rhodes to Breakfast Point, however these are the last large “brownfield” sites and the program will need to rely on smaller brownfield sites such as Majors Bay.

Majors Bay and Public Transport

Apart from a bus service which could run to one of the northern line stations, the most sensible thing would be to provide a ferry service from Mortlake, say at the Mortlake-Putney Ferry Wharf, only 5 minutes walk from the site. This wharf would be half way, i.e. one kilometre from both Kissing Point and Cabarita Wharves.

Majors Bay lends itself, therefore to being of a higher density than the 0.75 allowed for two reasons:

- To help achieve the highly ambitious target of 10,000 additional dwellings for Canada Bay and;
- The opportunity to be served by a ferry which would link Sydney’s two major CBDs, Sydney and Parramatta.

Parramatta River offers one of the most important opportunities for an “arterial” transport link between Sydney’s two key CBDs, Sydney and Parramatta and the rapidly expanding origin suburbs of Cabarita Point, Breakfast Point, Rhodes Peninsular, Meadowbank, Abbotsford and Ermington (see attached paper

given to the International Waterfront Conference at Darling Harbour in 1995 by Bob Meyer, Director of Planning, Cox Richardson).

There is a 2km gap between Kissing Point and Cabarita Ferry Wharves. A stop between these two at Mortlake-Putney would serve a large residential catchment and should be seriously considered by the State Government. Such a wharf would be within 400m (5 minute walk) of the Majors Bay proposal. This conforms to the Metro Strategy's requirement for higher density housing within a 5 minute walk of major public transport. Consideration of these issues would make the best use of regional public transport opportunities.

Land Use

To date, most recent development has been undertaken on relatively small fragmented sites. Such developments cannot significantly contribute to an improved public domain which is required in a formerly industrial area.

Similar industrial “brownfield” sites have generally been reviewed where there are large amalgamated ownerships allowing for integrated master planning and public domain upgrades.

Because of the generally fragmented ownership at Majors Bay there is little sign of a greater vision for the transformation of the area, as former industrial uses are replaced with predominantly residential uses of increasing density.

Built Form

The recent approvals for successive stages of the Breakfast Point development to the east have also set a precedent of taller built form on the peninsula.

It is proposed that some increase in height for specific locations across the three sites. This will provide benefits in amenity by allowing increased building separation, a more generous public domain, optimisation of highly sought views, at the same time, overshadowing effects will be minimised.

Heritage

Whilst there are no listed heritage items occurring on the site, a number of heritage items exist within the broader context of the site including the Dame Eadith Walker Hospital, Punt Park, shops and residences (refer to the heritage diagram).

Immediate Context

Local Context – Existing Land Uses

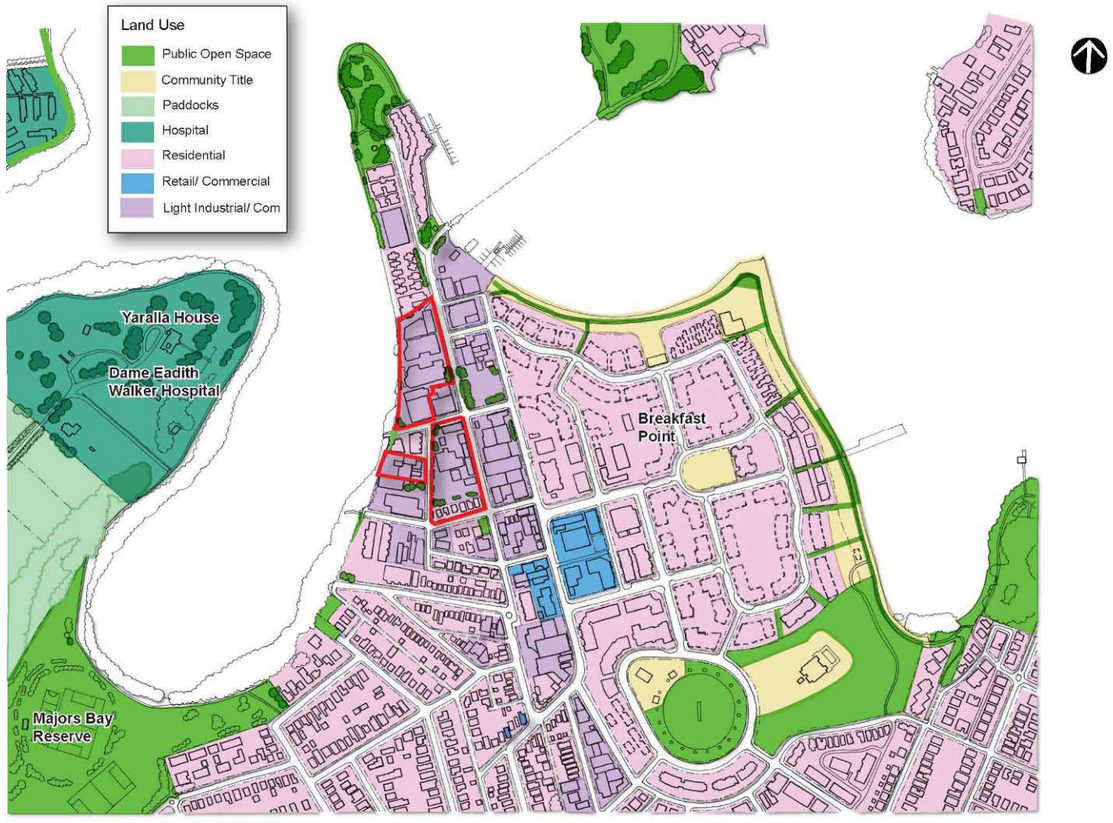


Figure 3

Note that the peninsular is predominantly residential apart from the Majors Bay site

Local Context – Existing Heritage Items

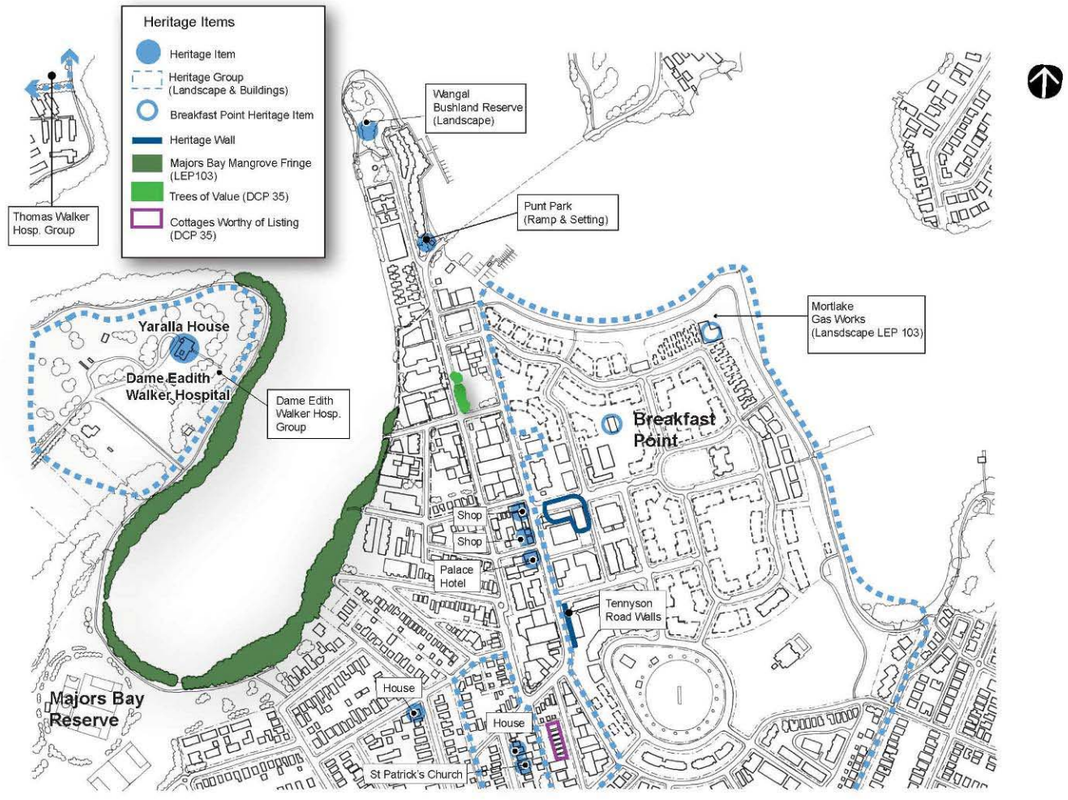


Figure 4

Immediate Context (cont)

View Point Locations

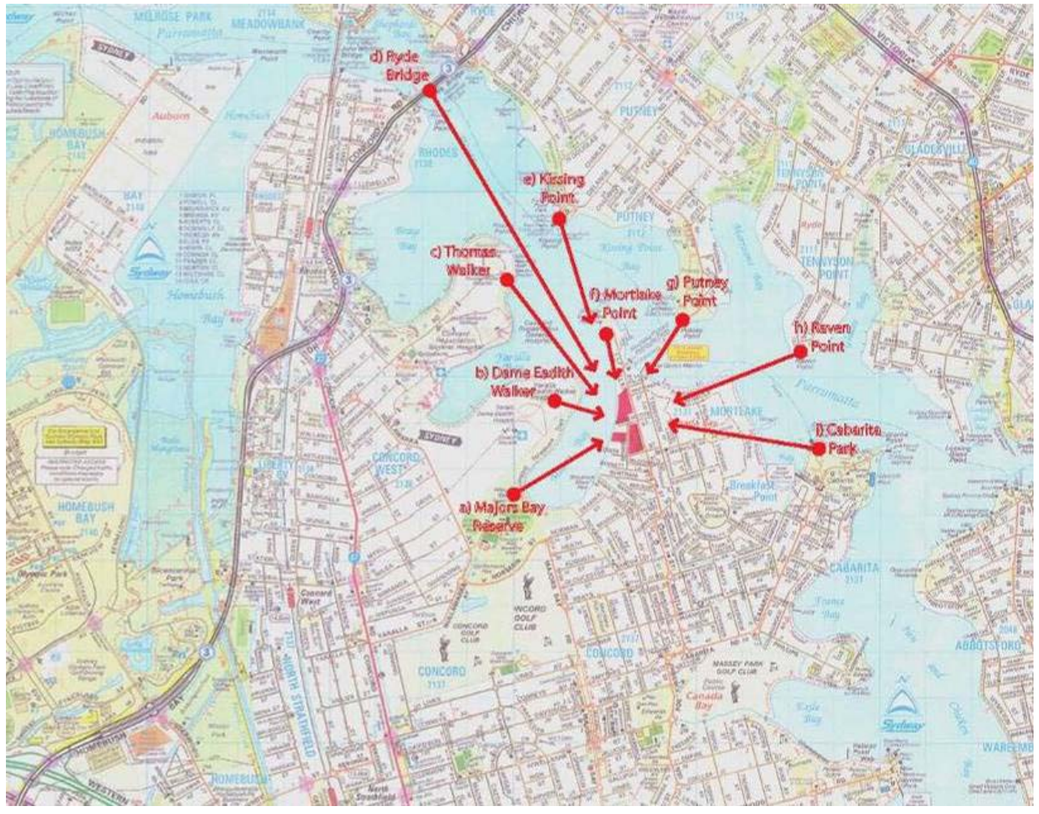


Figure 5

Note that key viewpoints have been studied. These viewpoints are taken from the public domain including heritage sites. The proposed built form at Majors Bay responds positively to these views as demonstrated in the following analysis.

View Analysis

a) Majors Bay Reserve (Figure 6)

Views across Majors Bay from the reserve are almost entirely obscured by mangrove vegetation, except for a couple of narrow viewpoints such as the montage shown below.

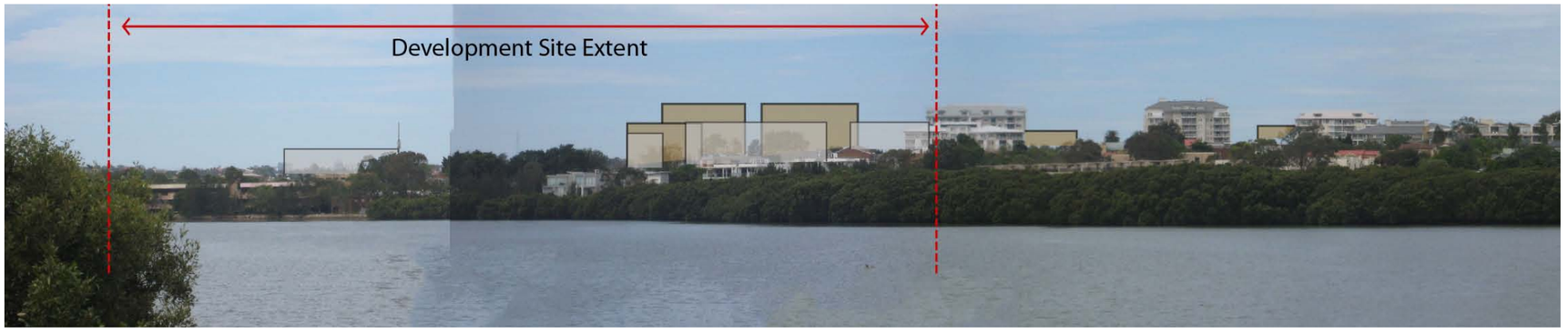


Figure 6

b) Dame Eadith Walker Hospital – from veranda (Figure 7)

This compilation view is taken from the highest point of the hospital grounds. Generally views to Majors Bay and Mortlake from the peninsula are obscured by mangrove vegetation.

Figure 7

View Analysis (cont)

c) Thomas Walker Hospital, Rocky Point (Figure 8)

View from north-west across Yaralla Bay. Generally to Mortlake from the Hospital grounds are obscured by mangrove vegetation.

Figure 8

d) Ryde Bridge (Figure 9)

View from north-west along the Parramatta River. Thomas Walker Hospital.

Figure 9

View Analysis (cont)

e) Kissing Point (Figure 10)

View from north across Parramatta River to Mortlake Point

Figure 10

f) Wangai Bushland Reserve, Mortlake Point (Figure 11)

Taken from the waters angle at the most visible angle, views to the site from this point are obscured by existing foreshore buildings and vegetation.

Figure 11

View Analysis (cont)

g) Putney Point (Figure 12)

View from above the ferry crossing. The site is beyond approved Breakfast Point development. Note that site development will not be visible from Putney Park.

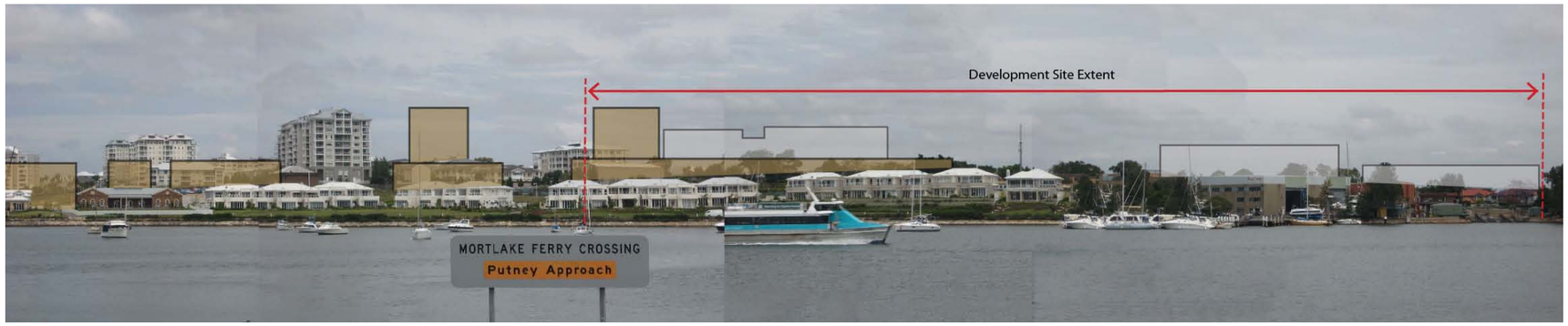


Figure 12

h) Raven Point (Figure 13)

View from north-east across Parramatta River. The site is obscured by the Breakfast Point development.

Figure 13

View Analysis (cont)

i) Cabarita Park Wharf (Figure 14)

From east across Kendall Bay the site is obscured by the Breakfast Point development.

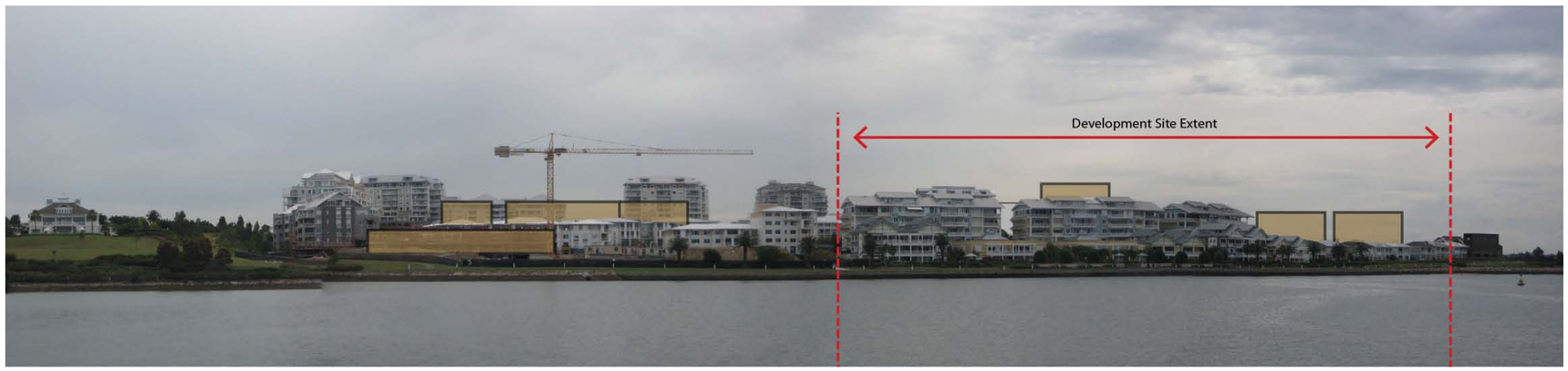


Figure 14

Master Plan Description

Public Domain Framework

The proposed master plan is founded on several key principles guiding the urban design:

- That a consolidated plan, uniting several blocks and providing a coherent basis for the larger development context of the Mortlake peninsular can be achieved;
- That visual and direct pedestrian connections between the ridge roads of the peninsular and the waterfront should be retained where they exist; or otherwise provided with new links through the development sites;
- That a balanced provision of density can achieve good levels of sunlight throughout the year to residential apartments on the site; whilst providing views of the water to a maximum number of residences;
- That an appropriate height limit for the site would vary the permissible height having regard to adjacent approved and built developments; some of which extend up to 10 stories;
- The buildings do not “terminate” views.
- That neighbouring sites not forming part of this project could be redeveloped in the future to provide cohesive, complementary built forms.

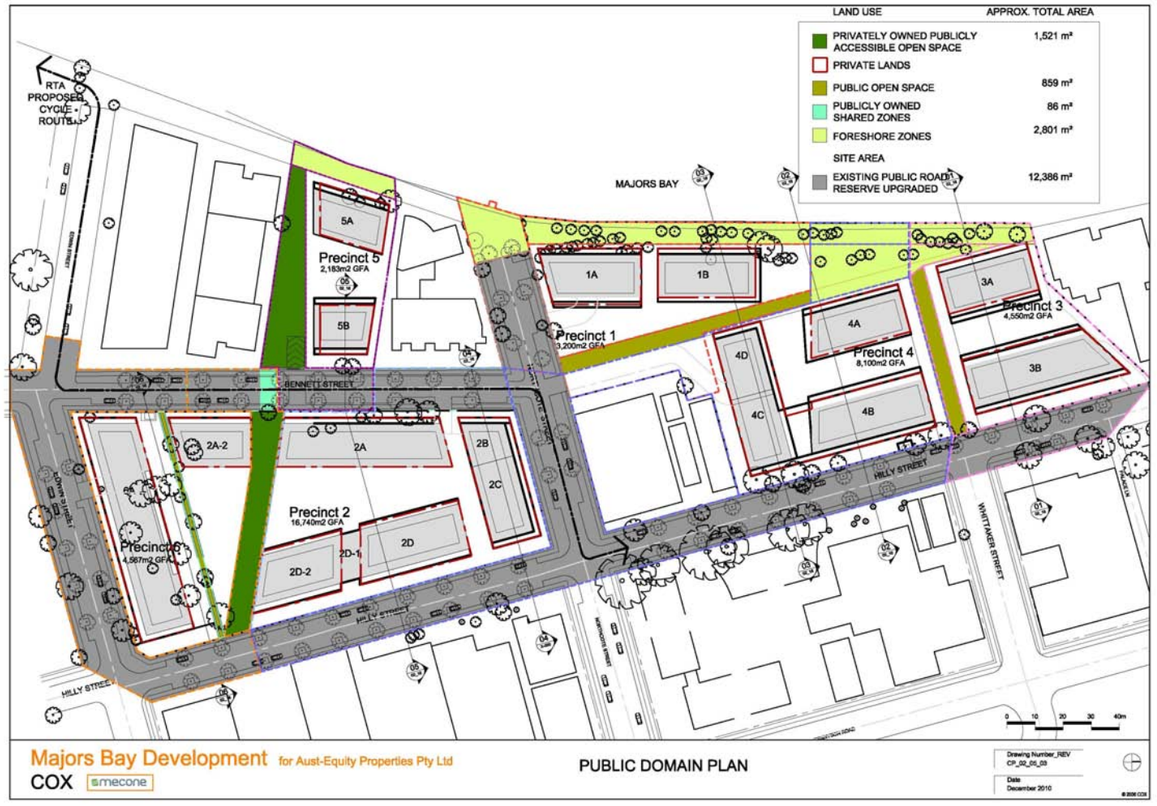


Figure 15

Proposed Structure Diagram

Proposed Building Heights

In general, the massing of the proposed development complies with requirements of the current Canada Bay LEP 2008 and DCP 2009, with proposed exceptions being:

- Building heights to several blocks on Hilly Street where higher forms are proposed;
- Minor projections of lower buildings above the 12m height plane within the site.
- The scheme is developed with three principal development blocks, comprising a total of eighteen individual buildings being created.
- These three blocks are connected via existing areas of public domain which are proposed to be upgraded.
- Within the development blocks, a combination of publicly-accessible open space, private open space and new public domain dedications will improve connectivity and access to the foreshore.
- The public domain in the master plan includes the following aspects:
    - **a) Streets & Linkages**
    - **b) Creations of Landscapes and places**
    - **c) Pedestrian and Cycle connections**
    - **d) Open Space**
    - **e) Landscaping**
    - **f) Foreshore Walk**

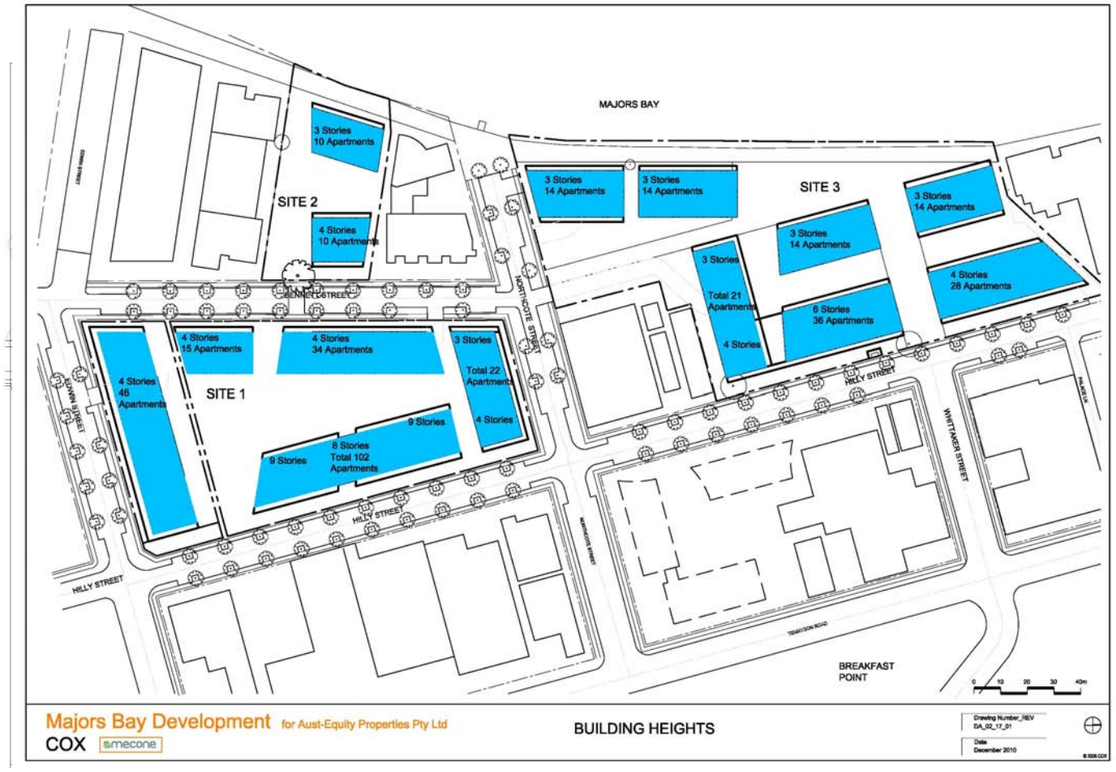


Figure 16

Proposed Development height plan

Streets & Linkages

A number of existing streets are proposed to be improved with street trees, street parking and footpaths including Northcote, Bennett, McDonald and Hilly Street.

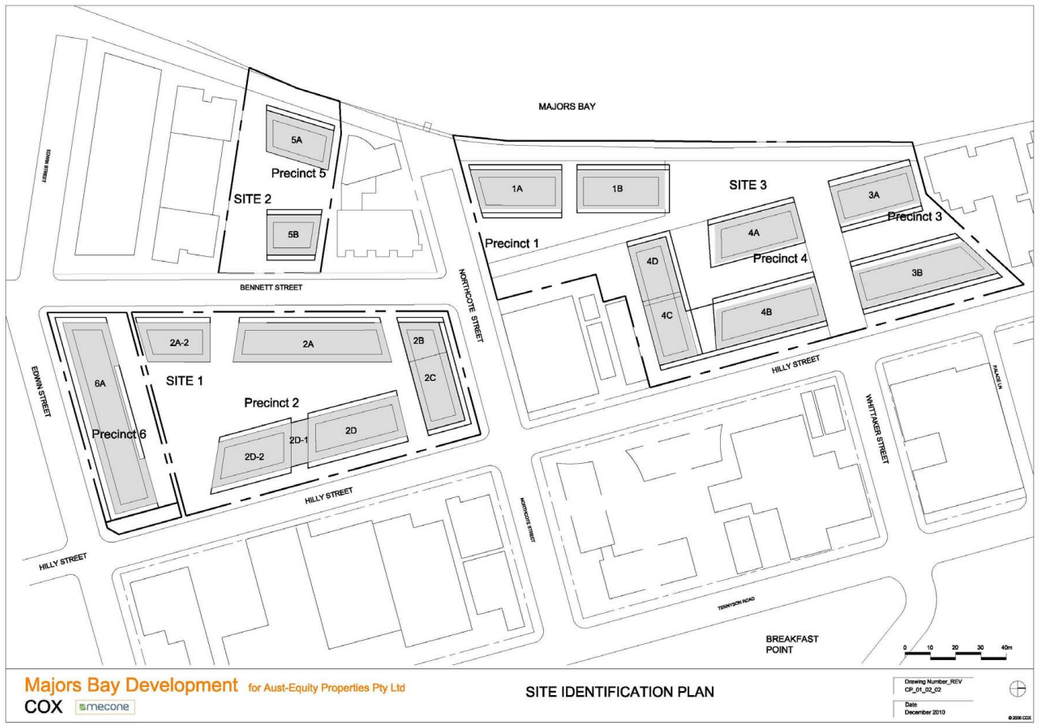


Figure 17

Street Layout Plan

The proposal focuses on providing public open space along the foreshore with a foreshore park. A series of private courtyards are also provided for the future residents of the development.

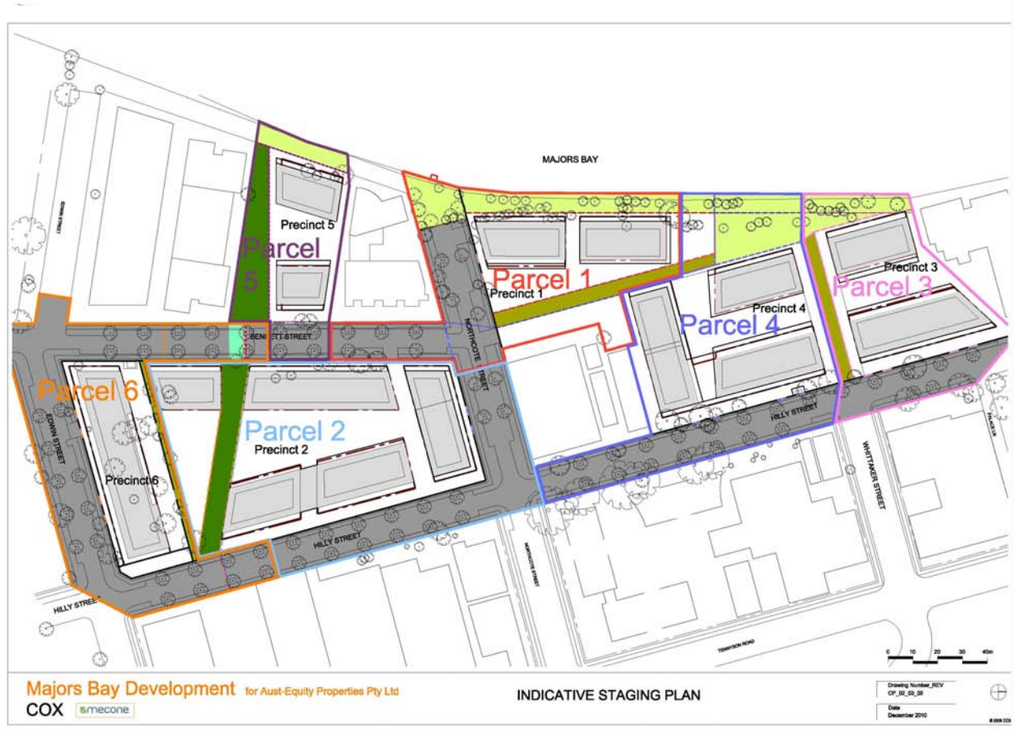


Figure 18

Public Domain Plan

Creation of landscapes and places

A number of landscapes and places are created by the proposal. These include the public foreshore walk and park, the private courtyards spaces between the buildings and the landscaped public connections and linkages that create vistas to the water.

Pedestrian & Cycle Connections

The development aims to reconnect the area with the foreshore by creating a series of pedestrian connections/links that build on the existing street pattern in and around the site. The pedestrian connection that aligns with Whittaker Street is particularly important in connecting the Breakfast Point development to the foreshore park.

Open Space

LANDSCAPE AREA DESCRIPTION

The landscape design for the Majors Bay Development is facilitated by an understanding of the sites' location within the riverine environment of the Parramatta River. The overall site design features a clear hierarchy of external spaces that reflects the local riverine environment and enhances its relationship to the Parramatta River by providing public, semi public and private open space.

Landscaping

Australian native planting combined with cultural planting layers forms a deliberately strong contrast to the contemporary lines of the architectural expression and massing of the proposal. The overall planning of the buildings allows for generous setbacks providing the opportunities for viewing from internal areas and other functional areas and improves the thermal performance of the buildings through the use of substantial vegetation to the peripheral areas. Outdoor seating is also provided across the site. To the periphery of the site, local species endemic to the area have been used to maintain the existing vegetated quality of the surrounding environment.

Specifically, the landscape design provides for the continuation of the characteristic tree canopy and developed landscape across the site. The shrub and groundcover species chosen to be used are predominantly native and endemic species, where appropriate.

Foreshore Walk

The continuation of the Foreshore walk is a primary feature of the improvements to the public domain proposed by the plan. The foreshore park is provided to enhance the recreational area along the walk and the site planning allows for public open spaces to permeate the site linking the foreshore walk to the broader public open spaces through the local Council area.

Figure 19

Site Landscape concept plan

Built Form and Density

Building Heights

The scheme provides a built form in which low-rise forms generally of four storeys are located to the lower, western side of the development. To the eastern boundary fronting Hilly Street, two taller buildings of up to nine storeys are proposed. In this way, a number of common benefits are achieved:

Taller building forms will relate to the new scale of development introduced to the peninsular by the Breakfast Point development;

A majority of buildings and consequently the apartments within each will enjoy views to Majors Bay and direct solar access through the year. Consideration has been given to orientation of buildings on the site and the scheme locates most buildings on an approximate north-south axis so that:

- Relationship to each street alignment is maintained;
- A relationship to the waterfront boundary and public reserve is maintained;
- Tall buildings will have least impact on sunlight access and view opportunities for other buildings on the site or adjacent the development;
- Shadow impacts of the development have consequently been minimised.
- Street setbacks to each block are generally proposed to be compliant with current DCP requirements.

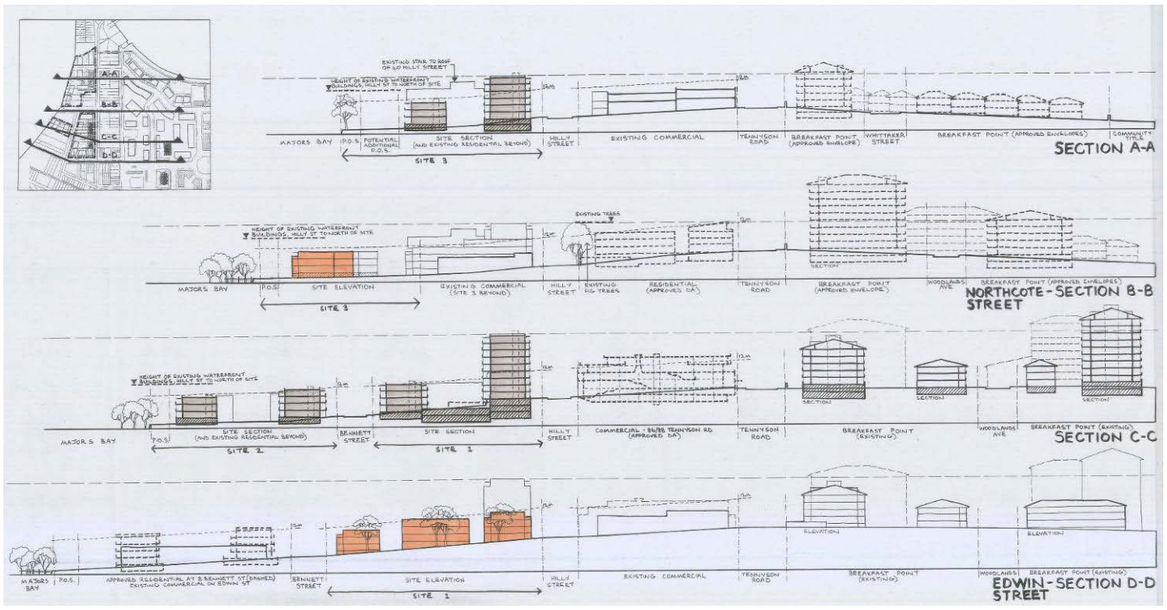


Figure 20

Proposed building heights (coloured) in sectional view with adjacent developments including Breakfast Point

Private Courtyards

The scheme creates new public space within each block between buildings and this space is linked to new and existing public domain.

Street Access

All buildings are proposed to have direct access from either existing public roads or new publicly-accessible open space.

Development Density

The resultant density from the proposed scheme is considered appropriate for the site. In general the scheme achieves compliance with LEP provision for FSR across the site, with the exceptions being:

The taller blocks to Site 1 on Hilly Street, where a taller building benefits from views and solar access over the lower buildings;

Similarly, the taller building to Site 3 on Hilly Street also benefits from views and solar access over the lower foreshore buildings and contributes and appropriate mediation between these buildings and the more recent towers in the adjacent Breakfast Point development.

These buildings are provided in a balanced scheme where height is offset by the provision of new open space, and hence improved building separation.

However, it is viewed that these exceptions are reasonable for the following reasons:

- The Breakfast Point development sets a new precedent of taller buildings for the area.
- There is minimal impact on distant views as demonstrated by the visual analysis undertaken.
- The proposal provides a number of streetscape and public domain improvements important to the improved overall amenity of the area.
- The proposed density of the Master plan recognises the site's proximity to transport and services. The density for each site as defined by City of Canada Bay LEP was identified as a 20,813 m² (GFA) or 0.75:1 (FSR). A visual analysis was undertaken to assess the potential FSR of the sites in the context of Breakfast Point development and with the knowledge that multiple sites were being amalgamated requiring a different approach to be taken. As a result of the local context and visual analysis the proposed development has a total GFA of 39,443m2 and FSR of 1.5:1-2:1 for sites 1 & 3 and 0.75:1 for Site 2.

The overall density of the Breakfast Point development has an FSR of 0.7:1. However, individual sites within this development range up to 2.84:1 FSR.

The density is derived from the development of the built form as considered to be appropriate to the site.

The larger master planned sites within the development have been proposed with an FSR averaging 1.43:1. The smaller site 2 has been planned with a net density of 0.75:1 similar to adjacent small developments. Larger sites are considered capable of accommodating an FSR of up to 2:1.

A SEPP 65 analysis has determined that the proposal is compliant.

A commitment to BASIX has been made by testing that the plan is compliant with the guidelines.

Comparison of density with Breakfast Point

The Breakfast Point development sets the most significant redevelopment precedent for the development of the Mortlake Peninsula. Council have cited an average FSR of 0.7:1 floor space ratio for Breakfast Point.

FSR	Gross FSR including roads & open spaces	Net FSR (lots only)
Breakfast Point	0.7:1 overall	**1.2:1 overall** 2.84:1 maximum
This Proposal	1.09:1 overall	**1.43:1 overall** 2:1 maximum

This gross FSR of 0.7:1 includes "community property" such as roads and open space. The total approved FSA is some 334,740 m² net of open space and road provisions. Mecone have reviewed all recent Project Approvals for the Breakfast Point Concept Plan area and have found that the FSR of approved precincts is 1.2:1. Specific development parcels which would compare to the subject site contain much higher densities with, for example, the Country Club North precinct of 83 dwellings having a FSR of 2.84:1 and buildings of 9 levels.

In comparison the proposal development at Majors Bay has a net site area of 27,431 m², comprising land parcels under control of the applicant. Land embellishments including surrounding streets under the public domain proposal for the site comprise an additional 11,807 m². These give a total area including contiguous roads proposed to be improved under the

proposal of approximately 38,238 m².

The effective FSR based on this total development area approximates 1.0:1. This assumes a total FSA of 39,340 m² for the proposal.

This is comparable with the averaged net density of the Breakfast Point development. The averaged net site density of 1.43:1 remains significantly lower than the highest equivalent densities in Breakfast Point being up to 2.84:1 at the precinct level. The following table provides the actual densities of specific precincts in the Breakfast Point Development:

NB: * All figures sourced from Department of Planning website, Major Project register - http://majorprojects.planning.nsw.gov.au/page

Precinct	Storeys	Dwellings (No.)	Site Area (m2)	GFA (m2)	FSR (:1)
Plantation	up to 5	285	22,235	34,590.00	1.56
Vineyard South	up to 9	118	9,550	16,624.71	1.74
Vineyard North	up to 9 plus attic	110	10332	16, 289.10	1.58
Country Club	9	83	4,190	11,889.00	2.84
Silkstone	**5**	45	2,386	6,194.00	2.60
The Point	5 plus loft	128	14,915	21,596.00	1.45
River Front	2	25	9,748	6,708.00	0.69
Seashore			42,732	42,732.00	1.00

Bulk and Scale in Local Context

It is apparent when analysing the surrounding development context in the Mortlake area that Mortlake can be represented into three distinct precincts. These precincts include the Peninsula Precinct, Middle Precinct and Lower Precinct. Refer to figure opposite.

The Peninsula Precinct is characterised by an open space area the northern most point, which has sweeping views of Parramatta River and Sydney Harbour. The precinct is largely developed and further development is also limited by visual impacts. The precinct generally consists of medium density development.

The Middle Precinct in which this site is located, exhibits qualities similar to the inner sections of Breakfast Point, which are generally up to nine storeys in height and are medium to high density developments. The precinct provides a logical continuum for similar development from

Breakfast Point, which would achieve a balanced height and density on either side of the ridge line that runs along Tennyson Road. The development with increased height would not pose an adverse visual impact due to proximity to the ridge line and relationship to Breakfast Point.

The relationship across the ridge line is also clearly identified in the sections provided on page 20 of this report.

The Lower Precinct is generally characterised by medium density development, small lot residential sites and potential redevelopment sites. Development in this precinct generally provides a gradation of development scale from the middle precinct to the boundary of Cabarita. Development is found to gradually scale down from heights of up to 4 storeys to single storey, detached houses.

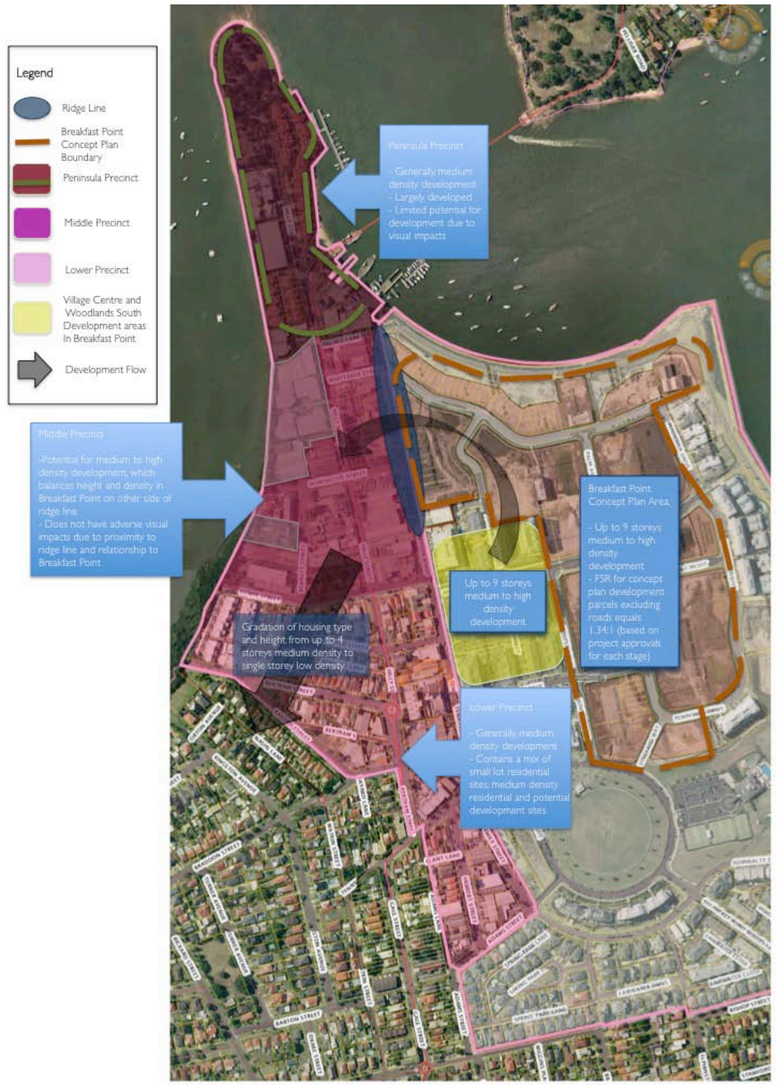


Figure 21

Surrounding Development Pattern Source: Mecone 2010

SEPP 65 Compliance and Analysis

SEPP No. 65 - Design Quality of Residential Flat Development

This policy sets out 10 Design Principles for residential flat development. A preliminary assessment of the proposal against SEPP 65 indicates that the proposal can comply with the provisions under the policy.

1. Context

The Master Plan responds to the context by proposing a sensitive relationship with the existing mix of older detached residential development, the Breakfast Point development and the waterfront area. Through-site links also build on the existing street pattern and that of the proposed Breakfast Point development to provide logical connections to the foreshore.

2. Scale

The proposal seeks to respond to the scale relationships that exist within the context of the site. Appropriate scale relationships to the surrounds, particularly when seen from the water, have been evaluated. The main criterion was to determine a scale that responded sensitively to given transitions between the development and the foreshore and existing development, in particular the Breakfast Point development. In addition, it was viewed that planning at lower levels should promote activity and casual surveillance of courtyard areas and street frontages.

This is to be provided by locating residential lobbies, and access to the basement levels, along these frontages and will be detailed at the DA stage for each building. This achieves as much transparency as possible while maintaining important view corridors through the site to the open space.

3. Built Form

The built form of the proposed master plan addresses the context by providing transitions between the proposed and existing development. Lower buildings are provided to the foreshore area and existing lower scale development to the north and south. Higher built form is proposed where building footprints are located near the Breakfast Point development. This response was determined by evaluating and building upon the existing built form relationships of the site and the existing topography.

4. Density

The proposed density of the Master plan recognises the site's proximity to transport and services. The density for each site as defined by City of Canada Bay LEP was identified as a 20,813 m2 (GFA) or 0.75:1 (FSR). A visual analysis was undertaken to assess the potential FSR of the sites in the context of Breakfast Point development and with the knowledge that multiple sites were being amalgamated requiring a different approach to be taken. As a result of the local context and visual analysis the proposed development has a total GFA of 39,443m². A SEPP 65 analysis determined that the proposal is compliant with Rules of Thumb included in the Residential Flat Design Code .

5. Resource, Energy and Water Efficiency

A commitment to BASIX has been made by testing that the plan is compliant with the guidelines.

6. Landscape

Landscaping is generally set out in the landscape master plan and is focused along existing streets, proposed through-site links and proposed public open space near the foreshore.

A number of courtyard spaces and site through links are proposed. It is viewed that these spaces significantly contribute to the amenity of the development and its surrounds by increasing connectivity to the foreshore area and providing quality public open space.

Landscaping improvements such as street tree planting, street parking and wider footpaths are also proposed for a number of existing including Northcote, Bennett, McDonald and Hilly Street.

7. Amenity

The public amenity of the development at this stage is focuses on providing and improving public open space and connections to the foreshore. Amenity for the private domain has been provided in the form of courtyard spaces between buildings.

In regards to the amenity of the buildings within the development, it is considered that subsequent development applications will need to deal with façade articulation by providing shading devices and glass selection to address low angle afternoon solar heat loads. It is also suggested that all apartments are provided with balconies.

8. Safety and Security

The following areas have been assessed in terms of safety and security: surveillance, access control, territorial enforcement and space management.

CPTED (crime prevention through environmental design) principles were used to guide safety and security principles for the master plan. Surveillance of the public domain is achieved by addressing the space with apartments on a minimum of one side. Extensive continuous vistas through the site at ground level, free of “dead-end spaces, further enhance surveillance. Landscape areas will be effectively lit at night.

Clarity of the demarcation between private communal and publicly accessible open space will be achieved through fences, gates and level changes within the landscape.

Card readers will control access to entry lobbies and basement lobbies.

Management of public areas will be the shared responsibility of all strata owners across the 3 Majors Bay sites. Economies of scale may permit cost effective employment of security personal if necessary, activity co-ordination, general tidiness and graffiti removal. Community ownership will increase the care of public spaces reducing opportunities of crime and increasing risk for criminals.

9. Social Dimensions

The proposal allows for increased connectivity to the foreshore and improved public open space for future and existing residents in the area.

10. Aesthetics

As this application is for the master plan stage aesthetics are not addressed in detail. It is considered that subsequent development applications will need to achieve a balance of contemporary design, use of a variety of materials and sensitivity to any adjacent heritage buildings. However, principles for the visual architectural treatment of buildings are proposed in the following section. The illustrative examples included demonstrate the following principles:

- Modulated facade elements alternating between solid wall and glazed or balcony elements;
- The creation of multiple façade planes through the use of balustrades solid elements and screens;
- The expression of multiple grouped floors within each façade;
- Simple parapet lines without excessive embellishment;
- The integration of landscape within the building design;
- The achievement of privacy from pedestrian level through landscape and level changes.

Particular SEPP 65 issues pertinent to this site include:

Site Orientation and Amenity

A number of the buildings on site are orientated approximately north-south with north-northwestern living area / balcony zones to facilitate the recommended hours of solar access to apartments either in the morning or afternoon.

Sun access at mid winter has been measured between the hours of 9am to 3pm included in the Residential Flat Design Code. This is also consistent with the current Mortlake DCP provisions for solar access.

The proposed building form will not be affected by future development within the proposed hours of measurement, as neighboring sites are either recently developed or are very unlikely to contribute additional overshadowing from the north-west.

Overall, it is predicted that greater than 70% of apartments will receive > 3 hours direct sunlight between 9 am and 3pm in mid winter. This also applies to each stage of the project.

There is no requirement for single aspect apartments in the proposed scheme with a southerly aspect (SW-SE). Apartments located in blocks addressing south-facing street frontages are capable of addressing two frontages so that sun access can be provided to living areas.

Local scale relationships

The built form will reinforce the public domain, creating interesting and well scaled streets, open space and waterfront edges.

Overshadowing and privacy

All buildings will have clearly expressed and identifiable entries, as well as the more active living areas addressing the street as well as private courtyards and gardens.

A simple contemporary architectural language is proposed, with elements such as balconies, terraces being individually expressed to create a domestic scale. Shutters and screens will add texture and detail to the facades.

Buildings such as town houses will include individual entries and a small grade separation, to create a suitable level of privacy as well as surveillance of the street.

The shadow studies above demonstrate overshadowing of the control envelopes on the site and adjacent properties at the prescribed date of June 21, at the hours of 9am, 12pm and 3pm.

The shadow studies demonstrate that:

Shadows created by new buildings are principally contained within the site;

- Some minor affectation occurs to properties to the western side of Precinct 1, however this affectation is of short duration and would not restrict this site from achieving a minimum of two hours' sun access at 21 June. The 2000 Mortlake DCP No. 35 does not specify the required minimum sun access provision, but this result addresses the provisions of the draft DCP should it come in to force.
- At 3pm, some overshadowing to properties to the south of the site is evident, but again this would not restrict this site from achieving the required minimum of two hours' sun access at 21 June.
- Primarily, existing views through the site are obtained along existing streets. The poor quality of the public domain in most existing streets limits the attraction of these vistas and contributes little to the attraction of the neighbourhood.

Wind effects

Future Stage 2 development proposals will be assessed in terms of their wind effects. It is considered to be of little merit to assess preliminary envelopes until detailed building envelopes are developed.

Figure 21 Indicative building elevations under proposed design controls

SEPP65 and the Residential Flat Design Code (RFDC) recommendations

As noted earlier, the configuration of buildings on the site has been designed to achieve:

- High levels of solar access;
- Building separation compliant with the RFDC recommendations for the height of buildings proposed;
- Building depths compliant with the RFDC recommendations for residential flat buildings, generally being 18m or less with an additional balcony / articulation zone.
- The following summarises the proposed design's compliance with key building design rules of thumb outlined in the Residential Flat Design Code.

APARTMENT LAYOUT

The proposed narrow building depths will permit compliance with RFDC recommendations for:

Depth of apartments;

Depth of living areas and kitchens.

All apartments will comply with minimum area sizes, with a range of net floor areas assumed as follows:

1 bedroom Apartments:	(15% of total):	average 60 m² (RFDC minimum 50 m²).
2 bedroom Apartments:	(50% of total):	average 85 m² (RFDC minimum 70 m²).
3 bedroom Apartments:	(35% of total):	average 110m² (RFDC minimum 124 m²).
Average of this mix:		average 90m² net floor area per apartment.
Average Apartment GFA:		95 m² net floor area per apartment.

BALCONIES

All of the apartments will achieve a minimum balcony depth of 2 metres as recommended, due to the inclusion of balcony / articulation zones of 2 m depth. This depth will ensure that sufficient space is available for the articulation of each building form and generous balcony depth.

A number of apartments at podium or street level will have access to larger areas of communal and private open space. These courtyards are directly accessible from main living rooms.

CEILING HEIGHTS

The master plan scheme assumes ceiling heights of at least 2.7m for habitable rooms of apartments, as recommended by the RFDC.

INTERNAL CIRCULATION

All apartment lift lobbies are assumed to provide access to no more than 8 apartments per floor, within the maximum recommended in the RFDC. All common lobbies and corridors in the proposed development have direct access to natural daylight and ventilation, providing a high level of amenity.

STORAGE

Detail planning of the basement levels falls within the scope of the overall master plan, and will be developed with the Stage 2 planning for each precinct. Storage for apartments will be combined internally and at basement level, will generally achieve the recommended minimum areas.

Control	Proposal	Compliance
Unit depth of 10m-18m	Maximum building envelope will not exceed 18m (net of facade articulation zones) and is generally 16m depth.	√
Min. 25% deep soil planting	A minimum of 25% of the overall site will be suited to deep soil planting.	√
Communal open space min 25-30% of site area	A minimum of 25% of communal open space will be provided. This will be developed in the detailed landscape design for each site.	√
Ground floor open space of min. 25sq.m with min. Dimension of 4m	Able to comply	√
Barrier free access to min. 20% units	Able to comply	√
Max. Driveway width 6m	Will comply.	√
Driveways preferably located away from pedestrian entries	Only five driveways are proposed to achieve access to 15 residential flat buildings and have been located where possible away from pedestrian entries.	√
Unit and balcony sizes (various)	Minimum balcony sizes recommended by the Residential Flat Design Code will be achieved. Extensive balcony / facade articulation zones have been provided to ensure this can be achieved.	√
Depth of single aspect units max. 8m	Able to comply, in detailed design phase for each site.	√
Dual aspect units with depth over 15m should have min. Width of 4m	Able to comply, in detailed design phase for each site.	√
Balcony depth min. 2m	Extensive balcony / facade articulation zones of at least 2.5m depth have been provided to ensure this can be achieved.	√

Min. Floor to ceiling heights 2.7m	Will comply	√
Storage (min. Quantum per unit size)	Will comply and can be provided either within apartments or in secure basement areas.	√
Waste Management	Detailed waste management plans are to be developed with detailed proposals for each site at Development Application stage.	√
70% of units must receive at least 3hrs of solar access to living areas and principal open space between 9am and 3pm mid-winter	Analysis of the built form with apartment layout assumptions identified in the Architectural Design Report confirm that the scheme can comply for each precinct and on an overall basis.	√
Limit units to SE-SW aspect to 10%	Will comply.	√
Min. 60% units to be naturally cross ventilated.	Will comply	√

Solar Access to Apartments

An analysis has been undertaken of the potential of the master plan to achieve compliant solar access to apartments, as recommended by the Residential Flat Design Code under SEPP 65.

The analysis assumes compliance with the "Rules of Thumb" included in the Residential Flat Design Code, which is also consistent with the provisions of the Mortlake Point DCP:

- Living rooms and private open spaces for at least 70 percent of apartments in a development should receive a minimum of three hours direct sunlight between 9 am and 3 pm in mid winter.
- In dense urban areas a minimum of two hours may be acceptable.
- Limit the number of single-aspect apartments with a southerly aspect (SW-SE) to a maximum of 10 percent of the total units proposed. Developments which seek to vary from the minimum
- Standards must demonstrate how site constraints and orientation prohibit the achievement of these standards and how energy efficiency is addressed (see Orientation and Energy Efficiency).

On the Mortlake site, it is proposed to achieve three hours sun to 70% of dwellings. Other specific assumptions regarding the site include:

- Apartment Size & Mix: comprising
  - 1 bedroom, averaging 60m² net area, being 15% of all apartments;
  - 2 bedroom, averaging 85m² net area, being 50% of all apartments;
  - 3 bedroom, averaging 110m² net area, being 35% of all apartments.

The solar access performance has been assessed using a technique described in **Appendix A**. In this technique a uniformly distributed spread of apartments across designated facades areas is modelled and assessed for solar access. These are then tabulated for each building and each precinct. Based on this analysis, it is predicted that the scheme can achieve compliance as follows:

SEPP 65 SUN ACCESS TO APARTMENTS TEST

DEVELOPMENT SCHEDULE

			WINTER SOLSTICE JUNE 21 (9:00 - 15:00)			
Site	**Precinct**	**Building Number**	# APTS 3 hrs sun	%APTS 3 hrs sun	Total APTS 3 hrs sun	% APTS 3 hrs sun
1	2	2A	34	100%		
	2	2A-2	15	100%		
	2	2B	5	83%		
	2	2C	14	88%		
	2	2D	52	100%		
	2	2D-1	0	0%		
	2	2D-2	35	80%		
	6	6D	34	71%	**189**	**86%**
2	5	5A	10	100%		
	5	5B	10	91%	**20**	**95%**
3	3	3A	11	73%		
	3	3B	32	100%		
	4	4A	12	75%		
	4	4B	43	100%		
	4	4C	9	64%		
	4	4D	9	100%		
	1	1A	16	100%		
	1	1B	11	65%	**143**	**88%**
	TOTAL				352	**87%**

Views and Vistas

Existing views

Primarily, existing views through the site are obtained along existing streets. The poor quality of the public domain in most existing streets limits the attraction of these vistas and contributes little to the attraction of the neighbourhood.

The introduction of street trees and new street surfaces will provide the most important enhancement of these existing views. It will also provide a consistency to the streetscape, which at present varies widely between old and new development forms.

Introduced views

The creation of new views will provide multiple benefits:

- Extension of Whittaker street , via the link in Precinct 3, to provide virtually the only continuous direct alignment between east and west side of the peninsular, so that views to water in both direction will be possible;
- Creation of the pedestrian link in Precinct 1 and 2 to create an intermediate link from Hilly Street to the waterfront;
- Introduction of the north-south public connection in Precinct 3 to the waterfront park from Northcote Street will also create new distant views to the northwest across the harbour.

Connectivity and security of the public domain

The landscape scheme included in this proposal clearly demarcates between private communal space and public open space. The use of fencing, material elements and level changes will clarify the extent of each realm. At the same time, the communal private landscape will contribute to public amenity with visible connection between the two.

Public domain links introduced through Precincts 1 and 3 will be direct, of adequate width and connect directly to public open space at each end. Pedestrian entries to private courtyards from these walkways will promote regular activity, fostering passive surveillance. Lighting will also assist night-time security and encourage regular use of each link.

Indicative Streetscape montage views

Figure 22 Northcote Street – Existing

Figure 23 Northcote Street - Proposed

Figure 24 Hilly Street - Existing

Figure 25 Hilly Street – Proposed

Figure 26 Bennett Street - Existing

Figure 27 Bennett Street – Proposed

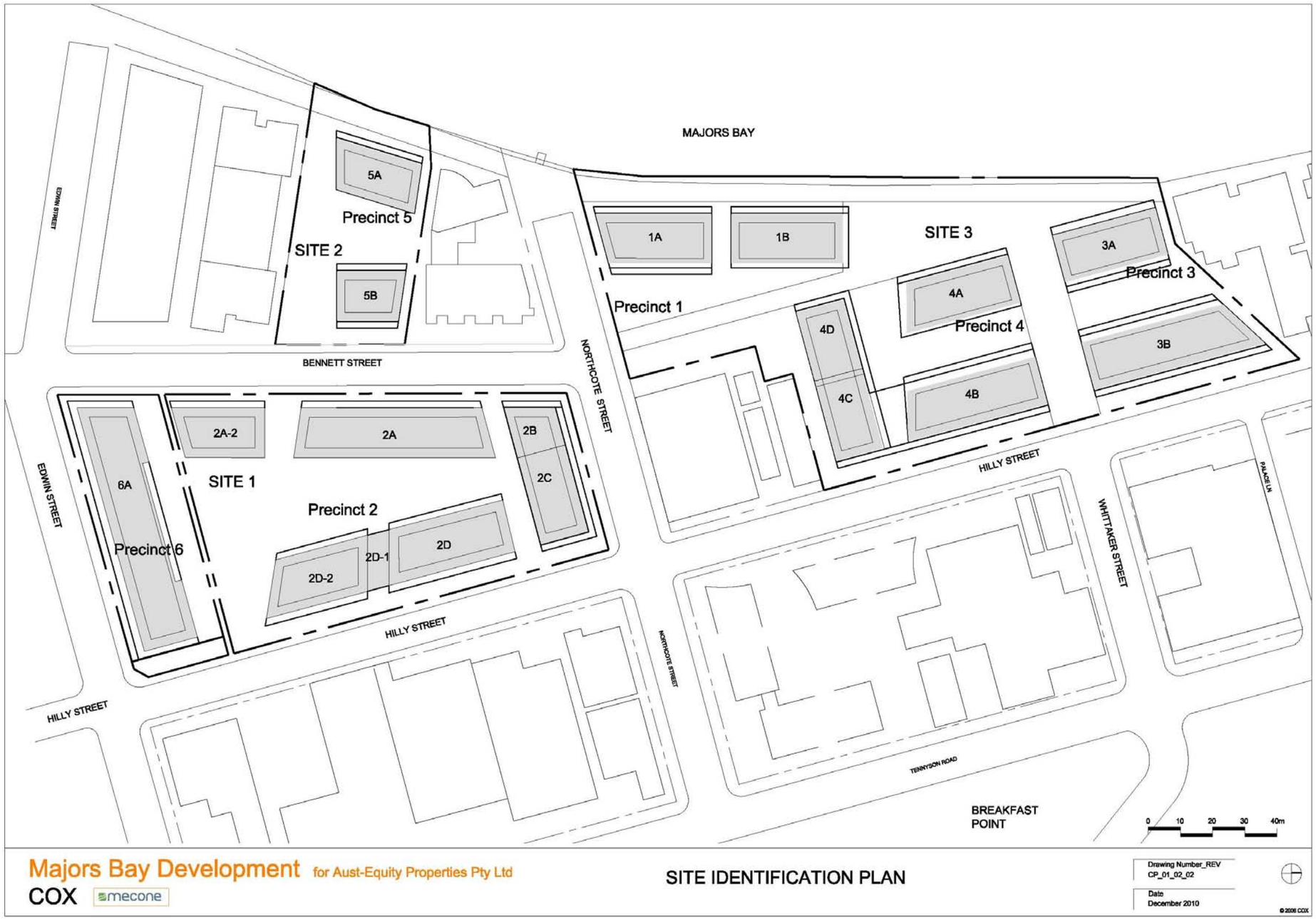
Isolated sites

The subject land creates a unified and coherent built environment across the three sites by achieving consistent streetscape and built form principles.

One site at the corner of Hilly and Northcote streets remain in separate ownership and is not included in this proposal.

The scheme permits this site to be developed in the future, as a single development with a complementary form. This would not require amalgamation of the parcel with Sites 1, 2, and 3.

A principal street address could be provided from Hilly Street. Separate vehicle access could be provided from Northcote Street.


MAJORS BAY
EDWIN STREET
5A
Precinct 5
SITE 2
5B
BENNETT STREET
NORTHCOTE STREET
1A
1B
SITE 3
Precinct 1
3A
Precinct 3
4A
4D
Precinct 4
3B
4C
4B
HILLY STREET
PALACE LN
WHITTAKER STREET
2A-2
2A
2B
2C
6A
SITE 1
Precinct 2
Precinct 6
2D
2D-1
2D-2
HILLY STREET
NORTHCOTE STREET
HILLY STREET
TENNYSON ROAD
BREAKFAST POINT
0 10 20 30 40m
Majors Bay Development for Aust-Equity Properties Pty Ltd
COX
mecone
SITE IDENTIFICATION PLAN
Drawing Number_REV
CP_01_02_02
Date
December 2010
© 2006 COX

Staging

The Staging diagram indicates the intended sequence of development, on a precinct by precinct basis.

This includes the creation of landscaped links between each street, providing new opportunities for foreshore access.

Precinct 1 is intended to be the initial development parcel, so that foreshore development can be commenced at an early stage.

Conclusions

The proposal presented in this submission describes a Stage 1 built form and public domain proposal, which will guide future detailed building design on the site.

It does not predict details of individual building design, but instead provides controlling envelopes for these buildings so that their impact may be understood and assessed.

A developed public domain proposal is included which includes:

- New and improved public domain provision, including foreshore access;
- New publicly-accessible private open space;
- New vistas to the water;
- Improvements to the existing public domain, particularly existing streets.
- Improved landscaping within the existing public domain, with new street trees and parallel parking bays;
- Improvements to stormwater and paving surfaces;
- Reduction in stormwater loadings as a result of water-sensitive practices introduced into the scheme to reduce harbour outflows and provide filtration of outflows to reduce harbour pollution.

In the district sense, the site is located along the Parramatta River within two kilometres of the Northern Railway line. It is located within an area characterised by older small-scale industrial developments on long blocks and a mix of older detached residential development and some more recent medium–density development.

To date, most recent development on the Mortlake peninsular has been undertaken on a site-by-site basis with little sign of a greater vision for the transformation of the area as former industrial uses are replaced with predominantly residential uses of increasing density.

The recent approvals for successive stages of the Breakfast Point development to the east have also set a precedent of taller built form than the historic conditions found in the peninsular. With sensitive modelling of built form, particularly with regard to height and shadowing, potential exists to accommodate a new scale of development which is rich in provision of public domain and residential amenity.

It will provide improved connections and waterfront access for residents, pedestrians and cyclists.

The master plan responds to this changing context by proposing a sensitive relationship with the existing mix of older detached residential development, the Breakfast Point development and the waterfront. Through-site links enhance the existing street pattern and that of the proposed Breakfast Point development, to provide logical connections to the foreshore.

The proposed maximum net FSR of 1.43:1 is considered to be justified and will contribute toward the achievement of NSW Government density objectives in the region.

Appendix A

Solar Access Assessment Method

1. Introduction

This paper describes a method for the analysis of solar access to residential design.

The method has particular application to the assessment of solar access for residential apartment buildings, at preliminary stages of design, to predict the likely distribution of solar access throughout complex and dense development forms where the final design has not been determined. It uses a structured series of assumptions to develop a three-dimensional model, which can then be evaluated to provide a reasonable prediction of solar access.

For this assessment, analysis is made only of direct incident sunlight, not diffuse radiation which also contributes to daylighting levels.

2. Assessment Parameters

The analysis technique requires the following parameters to be established before a scheme can be modelled and evaluated:

- Accurate site plan with precise orientation and control envelope of each building footprint;
- Assumed ground floor levels of each building;
- Built form of adjacent sites, accurately described in 3 dimensions, where this form will effect overshadowing on the site to be assessed. This may include the passing shadows of tall towers where these have considerable effect on the results achieved.
- Topography of the site and surrounding context, where level variations between adjacent buildings are likely to alter the overshadowing effects between adjacent blocks;
- Uses of each floor plate within the scheme assigned (residential or other uses);
- Floor-floor building heights for all levels.

3. Design Assumptions

Where the following parameters are not known in more detail, data is assumed as follows:

- Building modules and configurations, including building depth and separation from adjacent blocks: where detailed building forms are not known, then controlling envelopes (as master plan envelopes or limited by proposed street boundaries) are assumed to define the building form;
- Efficiencies of floor plates: allowance is made for articulation of the final building form, where this is not known, and an efficiency reduction from the master plan or controlling envelope to a final floor plate area. The efficiency level assumed is described in the following detailed assumptions.
- Apartment sizes: these are generally assumed at an averaged size, described in the Appendix, across each floor plate and on each floor level, where not determined.
- Uniformity of apartment sizes and distribution: it is assumed, unless specified otherwise for the project, that:
    - Efficiencies as stated in the Appendix are used to calculate the number of apartments in each building, as a proportion of the total control envelope;
    - Apartments are of a uniform size. This averaged size is intended to allow for a range of apartment types and sizes without predicting their final distribution throughout each building.
- Rounding Factor: Where the calculation indicates a fractional number of apartments per floor of each building, a rounding factor is used to approximate the number of apartments per level. This allows a uniform number of apartments to be assigned to the analysis model, for ease of measurement, which is then converted back to an accurate total result.

- Relationship of balconies and living areas to balcony zones:
    - It is assumed that the two-metre deep balcony / articulation zone, across the full width of each apartment module, provides sufficient flexibility to achieve an adequate depth (at least two metres being required under the RFDC provisions)
- Provision of space for mechanical plant and roof detailing:
    - It is assumed that roof plant and lift overruns will not project beyond the overshadowing extents of the roof parapet, or otherwise as defined and included in the scheme proposal.
    - An allowance of three metres height has been assumed for each plant zone.

4. Assessment Technique

The method adopts the following steps to predict a result in each case:

1. Model construction: the evaluation model is created as a 3D solid form CAD model;
2. Once floor space distribution has been calculated and uniform apartment modules have been determined, these are applied to each building as uniform floor levels and apartment module division on each façade;
3. Standard solar access views are then created for specific time intervals, usually hourly, depending on the compliance test to be applied (in this case for June 22 between 9am and 3pm):
    - These views are created as orthogonal (i.e. non-perspective) views, aligned with the orientation (azimuth and altitude) of the sun on the prescribed date (winter solstice, equinox or other dates as required). Each view shows the model from the relevant solar time, including context, and shows the assumed grid divisions denoting apartment modules for each building.
4. Existing built form and topography of the adjacent context is also included in the model, to fully assess overshadowing effects;
5. Solar access to each nominal apartment unit is then manually assessed by inspection of each view created, within defined criteria for assessment, as follows:
    - Results are established for each apartment module and then compiled into a spreadsheet result to provide results for one building, or an overall average for a larger complex site.
    - Results are counted as both the total number and percentage of apartments receiving the prescribed minimum number of hours on the nominated date.

Time of Exposure to Sunlight Access

Apartments are considered to receive a compliant number of hours of sunlight where:

- For the required period, the initial hourly view projection, and the final view, both show the apartment façade module visible for at least 50% of its width, over the full height of the module. This allowance of 50% deals with the composite effects of balcony overshadowing, final detailing of window setbacks and window heights / locations which are not known at this stage.
- Views in the intervening period do not indicate temporary overshadowing by other building forms.

Effective Sunlight Assessment

Where a continuous period of the minimum requirement cannot be achieved, results are counted where two or more intervals contribute an aggregate of the minimum required. This may require establishing and assessing solar view projections at half hourly or closer intervals.

Example of Effective sunlight angle calculation

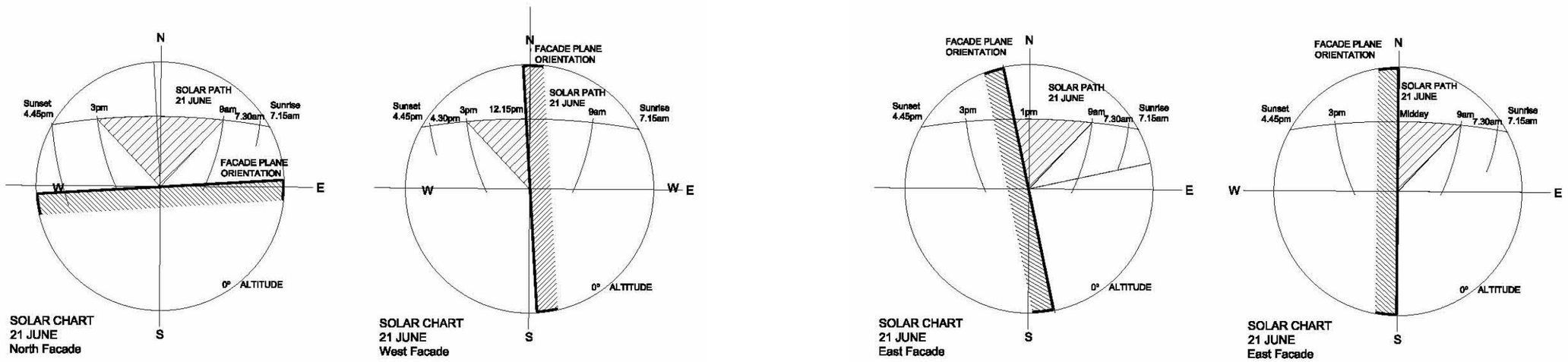


Figure A.1 Sun protractor overlaid with specific façade orientations to determine effective hours of sunlight nominated date (June 21, Sydney, as shown)

Notes

- Hatched areas indicate period of day when solar access is deemed effective;
- Sun views are then considered between these times for each façade only.

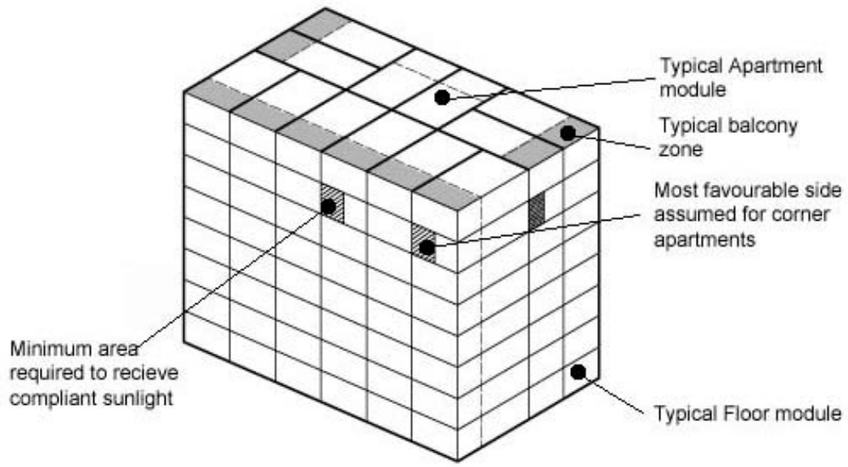


Figure A.2 Typical apartment analysis model

Notes:

- Minimum compliant area for one apartment is: (full height of balcony zone face as shown) x 50% of width;
- Uniformly-sized apartment modules are distributed equally across designated façades (where the master plan drawings indicate balcony / articulation zones) to suit most favourable outlook for views and sun access.

Design Assumptions for Solar Assessment

Area calculation and Apartment Distribution

Gross floor area (GFA) calculations exclude balconies, which are assumed as an additional 15% of GFA.

Average apartment size is assumed as 90m² NSA (net saleable area) based on the assumed mix for this scheme.

Total GFA = total whole building inc. foyers and amenities etc, excluding basements and roof plant.

FSA is assumed as 81% of Total GFA.

NSA (strata area) is assumed as 89% of total GFA.

Apartment layout and orientation:

- The technique assumes some single and some multiple aspect apartments, except to corner modules, where dual adjacent facades are assumed.

Roof plant and roof space

- It is assumed (where detailed design has not been undertaken) that the bulk required for roof plant will be located so as not to increase overshadowing of other buildings.
- An allowance for roof plant height above the highest floor is allowed to the extent shown for each building envelope.

Floor-floor Height

- That the residential floor-floor heights assumed are capable of meeting the recommendations of the Residential Flat Design Code under SEPP65.
- In effect, therefore, residential floors are assumed as 3.0m high in all cases as a uniform standard, unless more detailed information is known.