

**Summary of key outcomes:**

The proposed site for the Port Botany Expansion is located on the northeastern side of Botany Bay, approximately 12 km south of Sydney's CBD, in the suburb of Banksmeadow, NSW. The site is situated between the existing port facilities at Brotherson Dock and the Parallel Runway at Sydney Airport and encompasses approximately 63 ha, of which about 57 ha would be reclaimed.

The creation of additional port facilities at Port Botany is consistent with the NSW Government's long term vision to cater for forecast increases in trade and economic growth in NSW. The area associated with the current proposal, including the reclamation works, has been identified as an appropriate location for port facilities for more than 30 years.

Land uses surrounding the site comprise primarily open space, industrial, residential and transport-related uses with associated support services.

The Port Botany area is serviced by several major road links, including the recently opened M5 East Motorway. A dedicated freight rail line connects Port Botany to the metropolitan and regional NSW freight rail network. About 25% of Port Botany's container throughput in 2001/02 was carried by rail.

Most of Port Botany's container traffic has an origin/destination within the Sydney metropolitan region, with over 90% of truck and 40% of rail container traffic originating from or destined for locations within the region.

Developments related to the Port Botany Expansion include the proposed upgrade of facilities at the Patrick Stevedores container terminal and the upgrade of the dedicated freight rail line to Port Botany by RIC.



## 2.1 Description of the Site

### 2.1.1 Location

The site for the proposed Port Botany Expansion is located on the northeastern side of Botany Bay, approximately 12 km south of Sydney's CBD, in the suburb of Banksmeadow, NSW (**Figure 1.1**). The site is situated between the existing port facilities at Brotherson Dock and the Parallel Runway at Sydney Airport.

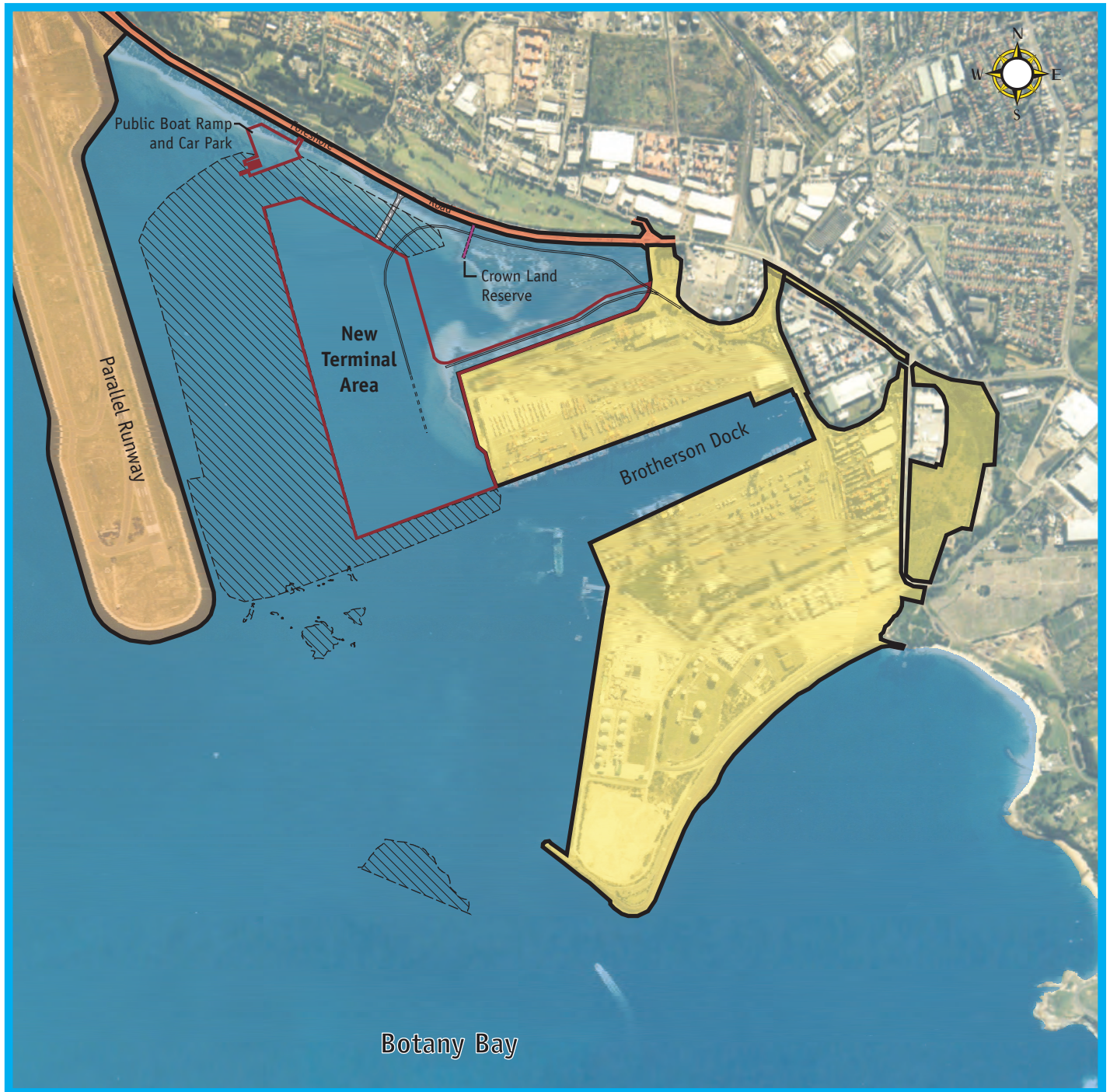
### 2.1.2 Ownership

The proposed Port Botany Expansion would be developed over a portion of the bed of Botany Bay which is vested in the NSW Waterways Authority (**Figure 2.1**). Land for the new terminal, tug berths and boat ramp would be reclaimed from the portion of the Bay described as Lot 2 in Deposited Plan (DP) 1009870. There are existing easements for access dredging and other rights over wide portions of the site, and proposed easements for services and rising mains off the northeast portion of Brotherson Dock.

The land north of Penrhyn Road where the existing boat ramp and car parking area are located is included in Lot 2. This area would be used for access to the proposed main work area at the western end of Brotherson Dock and permanently used for the Inter-Terminal Access Road and rail sidings.


Other properties to be affected by the proposed development include the following:

- land described as Lot 20 DP 1045324 owned by Sydney Ports Corporation and currently leased in part by Patrick Stevedores where the following would be required:
  - installation of rail turnouts to connect the existing Botany Freight Rail Line to the proposed rail line extension to the new terminal and to the rail sidings south of Penrhyn Estuary;
  - construction of a road bridge over the rail line on Penrhyn Road; and
  - use of Penrhyn Road to access the proposed main work area at the western end of Brotherson Dock. Penrhyn Road is a private road located on Sydney Ports Corporation land;
- Foreshore Road which is an arterial road owned and managed by the RTA. Works to be undertaken within the Foreshore Road reserve include the construction of the main intersection to the new terminal including installation of traffic lights, turning lanes for access to the new public boat ramp, the construction of a pedestrian overpass connecting the foreshore with Sir Joseph Banks Park, vehicular access points to allow access to the proposed rail line extension and landscape plantings within the median strip;
- land owned by the Commonwealth of Australia described as part of Lot 401 DP 816961 which is located near the western end of Foreshore Beach and forms part of Sydney Airport. The components of the proposal which would be situated on this land include a portion of the proposed pedestrian/cycle path, various foreshore landscaping treatments, and seagrass transplanting; and
- Crown Land, described as R91888 for Public Reserve gazetted 5/11/1982, occupied by the Government Pier (or its remains). An easement would be required where the proposed rail line extension to the new terminal would cross the property.



Site Ownership

**Figure 2.1**

-  Area to be Dredged
-  Sydney Ports Corporation
-  Waterways Authority
-  Commonwealth of Australia
-  Roads and Traffic Authority



Landowners consent was obtained from Waterways Authority in respect of the proposed works over portions of Lot 2 DP 1009870. The NSW Department of Lands and City of Botany Bay Council were notified in writing of the proposed works in respect of the Crown Land as was the RTA in respect of the works on Foreshore Road, prior to the lodgement of the development application, in accordance with clause 49(2) of the EP&A Regulation 2000.

Prior to construction commencing, Waterways Authority would transfer ownership of the land to be reclaimed to Sydney Ports Corporation.

### 2.1.3 Existing Port Facilities

The existing port facilities at Port Botany are shown in **Figure 1.4** and include:

- two container terminals, one on the northern (operated by Patrick Stevedores) and one on the southern (operated by P&O Ports) side of Brotherson Dock;
- container parks (operated by Smith Bros, Patrick Port Services and P&O Trans Australia); and
- a Bulk Liquids Berth, from which bulk liquids (LPG, petroleum products, organic chemicals and caustic soda) are transferred to liquid storage facilities operated by VOPAK, Origin Energy, Orica Australia, Mobil, Elgas and Terminals Pty Ltd.

In addition to the above, a number of container parks and cargo consolidation facilities supporting port activities are located within the City of Botany Bay Local Government Area (LGA).

### 2.1.4 Site Context

The main physical feature of the area is Botany Bay, a large and relatively shallow embayment approximately 4,163 ha in area. Two river systems enter the Bay – the Georges River which enters in the southwestern corner of the Bay, and the smaller Cooks River which enters the Bay in the northwestern corner.

To the east of the proposed development site is Penrhyn Estuary which is a small tidal inlet formed by the reconfiguration of the northern shores of the Bay in the late 1970's during the construction of Port Botany. Penrhyn Estuary provides ecological habitat for fish and a variety of shorebirds and waders. On the southern side of Penrhyn Estuary is a boat ramp used for recreational activities such as fishing.

Immediately to the north of the site is Foreshore Beach, which is a beach comprised of estuarine sands dredged from Botany Bay during previous Port Botany and Sydney Airport construction activities. Coastal dune heath has been planted and has subsequently colonised the dunes behind Foreshore Beach. The area is commonly used by dog walkers, pedestrians and other recreational groups.

Several stormwater channels drain into the northern side of Botany Bay between Port Botany and the Parallel Runway including the Mill Stream, which flows out at the northwestern end of Foreshore Beach adjacent to the Parallel Runway, and Floodvale and Springvale Drains, which flow into Penrhyn Estuary.

The Botany Freight Rail Line lies approximately 1 km to the north and northeast of the proposed development site. The railway is used for the transportation of freight to and from the facilities at Port Botany.

Access to the port area is provided by several major arterial roads including Foreshore Road, Botany Road, Southern Cross Drive, General Holmes Drive and the M5 East.

The major land uses of the Botany Bay region include:

- industrial developments principally in the east and northeast;
- special purpose land uses such as Port Botany and Sydney Airport;
- Caltex oil refinery on the southern side of the Bay;
- residential areas;
- commercial uses mainly along the western shores of the Bay;
- nature reserves on southwestern side of the Bay at Towra Point; and
- recreational uses such as fishing, boating, swimming, golf, walking, cycling, bird watching and sight-seeing.

## 2.2 Port History

### 2.2.1 Sydney

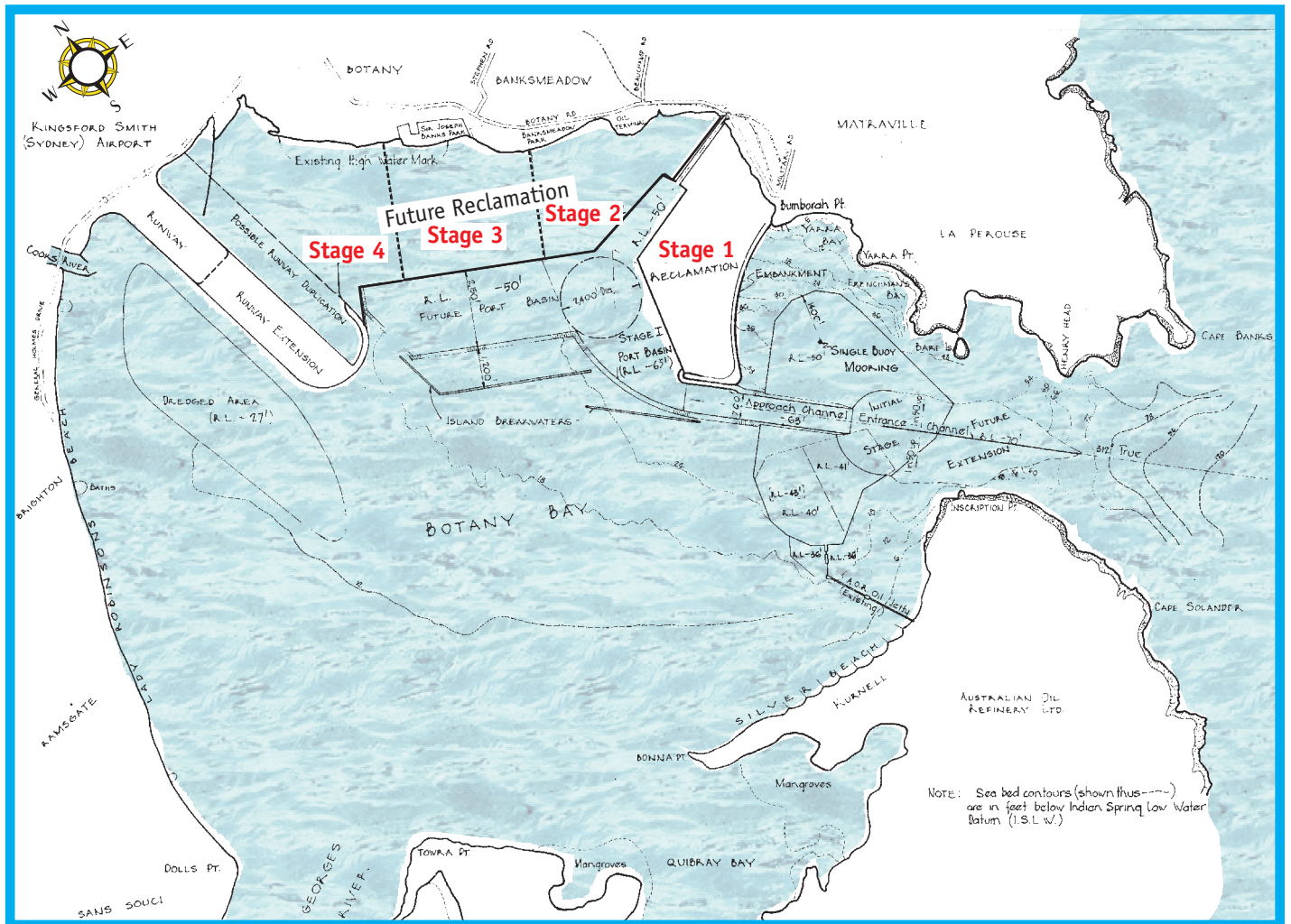
Maritime trade has defined much of Sydney's growth and development since European settlement. The economic development of Sydney and NSW has been largely dependent on the ability of Sydney's ports to cater for trade and provide for the efficient distribution of goods. In the 1800's most of the port development in Sydney was confined to Sydney Cove, Walsh Bay, Woolloomooloo Bay, Darling Harbour, Glebe Island and Pyrmont. At the beginning of the 20<sup>th</sup> Century port operations were rationalised and the Sydney Harbour Trust was formed to provide a coordinating role for port development and management of port operations. The Trust continued the management of port development until 1936 when it was merged with the State Navigation Department to form the Maritime Services Board of NSW (MSB).

The role of the MSB was to match the requirements imposed by increases in trade through the ports, combined with the rapid changes in shipping and methods of handling cargo, with the capacity and technology of the existing port facilities in Sydney Harbour and the competition for land caused by the needs of a growing city.

### 2.2.2 Port Botany

Following World War II, port planning analysis and research undertaken by the MSB made it apparent that Sydney Harbour did not have the capacity to handle the growing trade and another port had to be developed. In the late 1960's, the MSB made a recommendation to the NSW Government to develop port facilities in Botany Bay. The Port Botany concept plan showed that development was to be accommodated in the northern part of the Bay with reclamation from Bumborah Point in the east to General Holmes Drive in the west, adjoining Sydney Airport.

The reclamation was to take place in four stages with the need to construct each stage being dictated by the forecast trade requirements and subsequent economic analysis. The NSW Government endorsed the Port Botany concept plan in 1969 and reclamation work commenced on Stage 1 of the plan in 1971. **Figure 2.2** shows the location of the four stages of the Port Botany concept plan as it was in 1973.



Port Botany Development Concept Plan  
(Circa 1973)

Figure 2.2

In addition to the development of Stage 1, the MSB planned to commence development of two container terminals as part of Stage 2 of the plan. Development of the areas earmarked for future port development (Stages 3 and 4) were to be deferred until the growth in the volume of trade dictated that additional capacity was required.

In 1976, the Simblist inquiry into the continued development of port facilities at Botany Bay was held. The inquiry recommended that construction of the Bulk Liquids Berth (Stage 1) should continue and that work on the container terminals (Stage 2) should commence without delay. The inquiry found that there was strong justification for the establishment of the container terminals in Botany Bay and agreed with the MSB that no feasible alternatives existed to cater for the growth of seaborne trade in NSW.

The inquiry acknowledged the potential environmental impacts from uncontrolled port development within Botany Bay and recommended that further reclamation for port purposes in the Bay should be subject to careful consideration with a view to minimising environmental impacts.

The development of Stages 1 and 2 of the port reclamation was completed with the construction of the Bulk Liquids Berth in 1978 and the container terminals at Brotherson Dock in 1979. The container terminals were operated by ANL (now operated by Patrick Stevedores) from 1979 and Container Terminals Australia Limited (CTAL) (now operated by P&O Ports) from 1982. The Parallel Runway for Sydney Airport now occupies the area originally described as Stage 4 in the plan, which precludes any further development in this area. The proposed Port Botany Expansion is located within the area set aside for Stage 3 in the plan.

The progressive approach adopted for the implementation of the original plan for development of port facilities in Botany Bay has allowed Sydney Ports Corporation (and its predecessors) to carefully evaluate the need for the construction of subsequent stages. This approach has also provided the opportunity to properly consider potential environmental and social impacts associated with the current proposal which represents the final increment of the original vision for port facilities within Botany Bay.

The historical development of Port Botany area is further described chronologically in **Table 2.1** below.

**Table 2.1 Chronology of Port Development in Botany Bay**

YEAR	EVENT
1930	HC Sleight established oil terminal on Alexandra Canal.
1948	Bitumen & Oil Refineries Australia Limited (BORAL) established refinery at Matraville, single-buoy tanker mooring off Yarra Bay and connecting pipeline.
1955	Australian Oil Refining Pty. Ltd. (AOR) refinery established at Kurnell.
1960	Construction of AOR wharf and multi-buoy tanker mooring off Kurnell.
1969	NSW Government approved the Port Botany concept plan which described the development of the northern shore of Botany Bay for port and industrial purposes.
1971-73	Port approach channel dredged and revetment wall constructed.
1976	Botany Bay Port and Environment Inquiry by Commissioner Simblist supported the development of port facilities at Botany Bay.
1978	Bulk Liquids Berth opened.
1979	ANL (now Patrick Stevedores) terminal opened.
1982	CTAL (now P&O Ports) terminal opened.

YEAR	EVENT
1982-83	Construction of ethylene tank by ICI.
1984	Construction of three liquefied petroleum gas (LPG) terminals – ICI, BORAL and JORTL. Bulk Liquids Berth upgraded to enable LPG vessels to be handled.
1990	Approval given for construction of bulk liquids terminal to Australian Chemical Refiners Pty. Ltd (ACR) – approval lapsed and the development was not undertaken.
1992	Completion of seawall between Bulk Liquids Berth and the end of revetment wall Construction of Parallel Runway commenced, which reduced the available area for future port development.
1994	Elgas caverns for LPG storage approved.
1995	Approval granted for refined fuel storage terminal development by Powell Duffryn – Van Ommen joint venture (now Vopak) at Friendship Road, Port Botany.
2001	NSW Government approval given to Sydney Ports Corporation to commence EIS for Port expansion.
2003	EIS for proposed upgrade of Patrick terminal facilities at Brotherson Dock lodged with PlanningNSW.

## 2.3 Regional Land Use

The Botany Bay region comprises the City of Botany Bay, Randwick, Rockdale, Marrickville and Sutherland LGAs. The site itself is primarily located within the City of Botany Bay, although minor areas of dredging may be undertaken to the south of the City of Botany Bay LGA boundary (**Figure 2.3**).

The port facilities are also included within the Botany Industrial Area which forms part of the City South area. The Botany Industrial Area, includes the suburbs of Port Botany, Banksmeadow, Hillsdale, East Botany and parts of Pagewood and Matraville. The City South area stretches from the southern edge of the Sydney CBD to the northern shores of Botany Bay. It covers five local government areas: South Sydney, City of Botany Bay, Rockdale, Marrickville and Randwick (**Figure 2.4**). These areas are primarily used for a variety of industrial, port related, commercial, residential and recreational uses.

There has been a considerable change in the Botany Industrial Area and the City South area over the past decade. Sites previously used for traditional manufacturing activities are being developed into modern commercial/warehousing and/or residential buildings. A considerable number of residential developments in the region have resulted in an increase in housing density and property values.

The increase in medium density housing within the region is being driven by lifestyle considerations associated with the proximity of services, the improvement of infrastructure (Airport Rail Link and Eastern Distributor) and the availability of large development sites. Commercial and warehousing developments are mainly attracted by accessibility to Sydney Airport and Port Botany.

There are a number of known major developments either being planned or already underway in the immediate region of the project site. These developments include the following:


- *Patrick Stevedores Port Botany Container Terminal Upgrade.* A DA and EIS were lodged with PlanningNSW in February 2003 for the upgrade of this facility. This will involve modification of the layout of the existing terminal to improve access between container storage and loading areas, installing additional gantries and cranes and increasing the terminal area used for truck queuing.





Local Government Area Boundaries

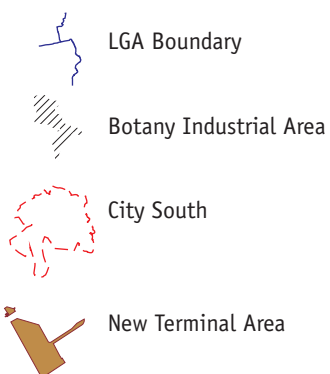
Figure 2.3

- LGA Boundary
-  Area to be Dredged





0 1 5km



City South

Figure 2.4

- *Botany Freight Rail Line Upgrade.* This project involves full duplication of the Botany Freight Rail Line (managed by RIC) and is part of a long term strategy to upgrade rail facilities to Port Botany. The project includes construction of approximately 5 km of duplicated track, in conjunction with associated signalling, civil and structural works. The first three stages of the upgrade were completed in 2002. The environmental assessment process has commenced for stage four of the project which involves completing the total duplication of the freight line by duplicating the section between the Botany Yard and the Cooks River Yard.
- *Sydney Airport.* The airport currently accepts approximately 24 million domestic and international passengers per annum. This is expected to grow substantially (up to 63 million passengers per annum by 2020) and a master plan process has been commenced to determine land and infrastructure requirements to meet this growth. A draft of the master plan is to be released for public comment in July/August 2003.
- *Green Square.* Proposed 14 ha redevelopment of Green Square in Alexandria incorporating a mix of commercial, retail and residential land uses. It is predicted that by 2020, the redevelopment would provide for an estimated 20,000 new residents and 20,000 new workers.
- *Cooks Cove Development.* Proposed redevelopment of Cooks Cove, located west of the airport, at Arncliffe. The site currently includes a diverse range of recreational facilities, including a golf course, golf range, soccer fields, baseball diamonds and a temporary cycleway. The proposed redevelopment includes a "gateway commerce and advanced technology" centre, comprising 20% of the 100 ha site. Passive and recreational open space is proposed for the remaining land area, with a redesigned golf course and extended cycleway.
- *Molineux Point Trade and Transport Terminal.* Expansion of the container storage area at Molineux Point, which includes additional land for cold storage facilities, bulk storage capacity and empty container storage. Approval has been given for this development by Randwick Council.
- *Orica HCB Waste Destruction Facility.* A proposal has been submitted by Orica Australia for approval to establish a hexachlorine benzene waste destruction plant within the Botany Industrial Park. A Commission of Inquiry has been undertaken and the outcome of the ministerial review is pending.
- *Randwick City Council Recycling Depot - Lot 103* (the former Bunnerong Power Station site, Matraville). This site is currently vacant, but Randwick Council will construct a Recycling Depot on part of this land.

Regional land uses are discussed in more detail in **Chapter 14 Land Use**.

## 2.4 Surrounding Land Use

Land uses surrounding the site comprise primarily open space, industrial, residential and transport-related land uses with associated support services.

Open space areas surrounding the site include Penrhyn Estuary, Botany Wetlands and Sir Joseph Banks Park. Other open space areas surrounding the site consist of parks, sporting grounds, golf courses and a number of smaller open space land parcels.

Industrial uses comprise a large portion of the land use surrounding the site as the area is one of Sydney's main industrial regions. Industrial land uses in the vicinity of the site include the Botany Industrial Park, which

includes the Orica (formerly ICI) operations, located approximately 1.5 km to the north, the Mobil oil terminal to the north, and the Caltex oil terminal to the northeast. Other important industries in this area include: Air Liquide; BOC Gases; Maritime Container Services; Metal Recyclers; Nuplex Industries Australia Pty Ltd; Johnson & Johnson Pacific; Kelloggs; Solvay Interlox; Amcor; and Nalco.

Residential areas in the vicinity of the site are located to the north, northwest and northeast of the site. The industrial/residential suburb of Banksmeadow lies to the north of the site. Botany residential area is located approximately 0.5 – 1 km to the northwest and the East Botany residential area is located some 2.5 km to the north of the site. A relatively large residential area consisting of Hillsdale, Matraville and Maroubra is located to the north and east of the site.

Sydney Airport, the major aviation gateway to Australia and a major focus of economic activity, is located approximately 1.5 km west of the site.

The Botany Freight Rail Line, which is used for rail transport of freight to and from Port Botany, occupies a corridor north and northeast of the site. At the port end of the freight line is Botany Yard which facilitates shunting activities and the breaking up of trains prior to entering the port terminals.

Land uses surrounding the site are discussed in more detail in **Chapter 14 Land Use**.

## 2.5 Road and Rail Links

### 2.5.1 Road Access to Port Botany

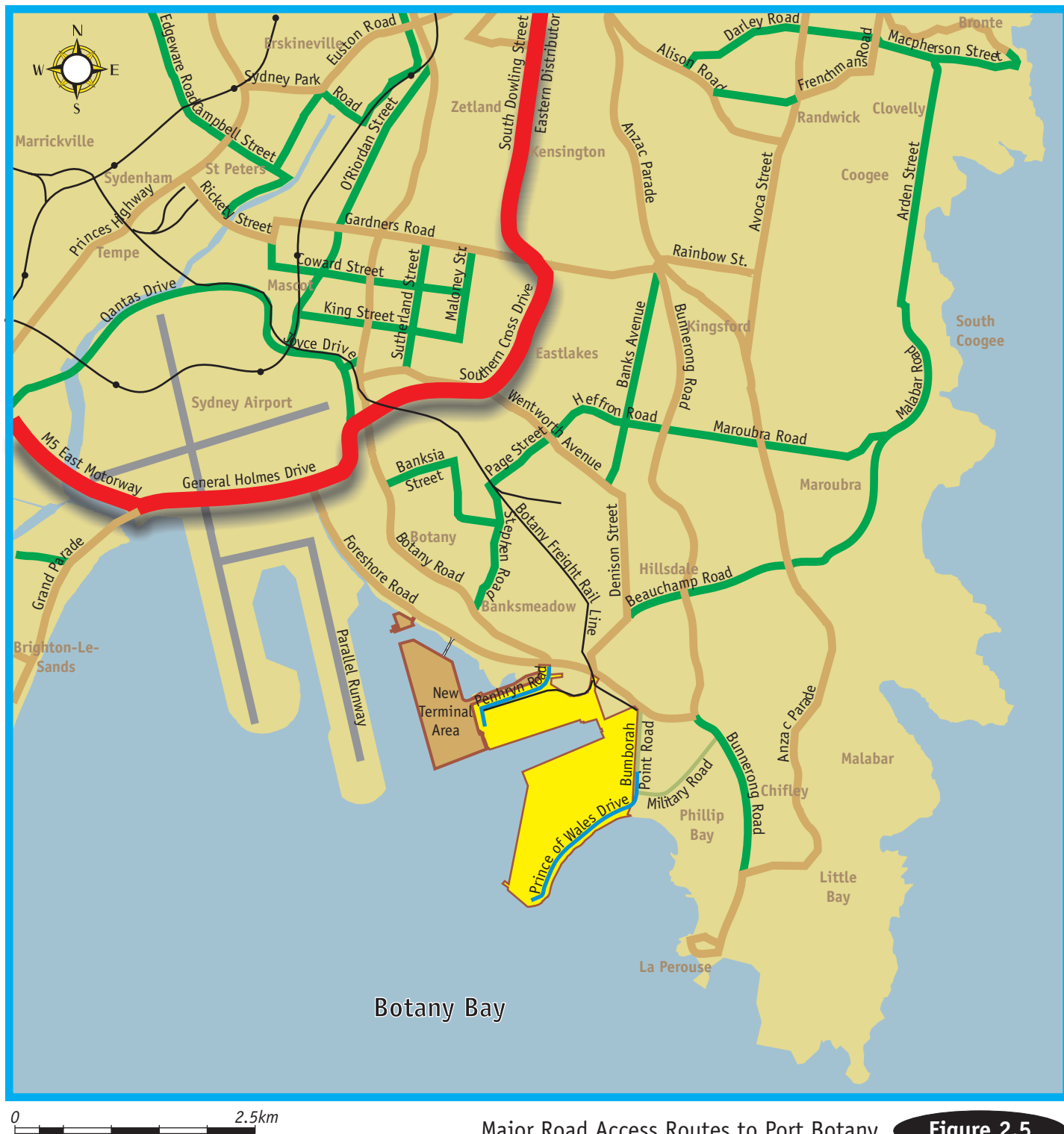
The major road access routes to Port Botany are shown in **Figure 2.5** and include:

- Wentworth Avenue, Denison Street, Beauchamp Road and Bunnerong Road from the north;
- Botany Road, O’Riordan Street, Qantas Drive, Joyce Drive, General Holmes Drive and Foreshore Road from the northwest; and
- Princes Highway, General Holmes Drive, M5 and M5 East, The Grand Parade, Forest Road, Rocky Point Road and Stoney Creek Road from the south and southwest.

In December 2001, the M5 East motorway was opened. This freeway provides a high capacity link between the existing M5 Motorway and the Eastern Distributor. It has substantially reduced traffic congestion on Stoney Creek Road and Forest Road.

Locally, Port Botany is serviced by Foreshore Road, Botany Road and Beauchamp Road. Foreshore Road provides an east-west link connecting Botany Road to General Holmes Drive. General Holmes Drive provides access to Southern Cross Drive, Qantas Drive, Grand Parade and the M5 East.

Further details on the road transport network are provided in **Chapter 21 Traffic and Transportation** and **Appendix P**.



Major Road Access Routes to Port Botany

Figure 2.5

- Freeway
- Arterial
- Sub - Arterial
- Collector
- Local

### 2.5.2 Rail Access to Port Botany

The metropolitan rail network supports both passenger and freight services (**Figure 2.6**) with the freight services operating on both dedicated freight lines and passenger lines. Dedicated freight lines are provided between Port Botany, Glebe Island/White Bay and the Enfield Marshalling Yards.

The Botany Freight Rail Line is a dedicated freight line which connects Port Botany to the NSW rail network. The line is currently a single track between Cooks River and Port Botany. It is serviced by rail yards at Cooks River and Port Botany. The freight line is owned by RIC which has been progressively upgrading the freight rail line between Marrickville and Port Botany as described in Section 2.8.2.

Currently rail freight accounts for approximately 25% of land-based container transport to and from Port Botany which has risen from 12% over the last five years. Sydney Ports Corporation has an existing strategy to increase the rail mode share to at least 40%. This strategy will be supported by the proposed Port Botany Expansion.

Further details on the rail transport network are provided in **Chapter 21 Traffic and Transportation** and **Appendix P**.

## 2.6 Transportation of Cargo

Containers are moved to and from Port Botany by road and rail, with the majority of longer distance movements by rail and the majority of short haul movements (i.e. within the Sydney metropolitan area) by road. Around 80% of all containers using Port Botany have origins/destinations within the greater Sydney area, with 20% generated from rural NSW (almost all exports).

### 2.6.1 Road Transport

The *Metropolitan Sydney International Container Origin/Destination Analysis* commissioned by Sydney Ports Corporation in August 2000 (Sydney Ports Corporation 2000c) had the following key findings with regard to container movements by road within metropolitan Sydney:


- 85% of movements were to/from Port Botany and 15% to/from Port Jackson (Sydney Harbour);
- of the volume moved to/from Port Botany, 72% were imports and 28% exports, while there was a more even split with the volume moved to/from Port Jackson;
- City of Botany Bay LGA generated nearly 40% of export full TEUs, but received only 14% of import full TEUs; and
- the western (Inner West, Central West, Industrial West, Blacktown, Penrith) and southwestern (Liverpool, Camden and Campbelltown) suburbs generated nearly 50% of export full TEUs and received over 72% of import full TEUs.

With respect to container movements to and from Port Botany, more than 90% of containers transported by road have an origin or destination within metropolitan Sydney, with over 23% of full TEUs to/from the Botany area, and over 67% to/from the western and southwestern suburbs of Sydney.



Metropolitan Freight Rail Network

Figure 2.6

- Dedicated Freight Rail Line
- - - Shared Passenger - Freight Rail Line
- ▲ Intermodal Terminals
-  Port Botany Expansion



**Figure 2.7** illustrates the distribution within metropolitan Sydney of the combined export and import container truck movements to and from Port Botany.

An earlier related study (*Port Botany Origin-Destination Study* by Connell Wagner and Booz Allen & Hamilton 1998) found that the vast majority of truck movements comprise relatively short trips to and from container terminals, container parks, warehouses or factories. Around 83% of all truck trips to and from Port Botany occur within a 30 km radius. Only about 5.2% of containers were transported by truck outside Sydney or interstate.

### 2.6.2 Rail Transport

Some 25% of containers are transported by rail to and from Port Botany (approximately 224,000 TEUs in 2001/02) – 77% exports and 23% imports. Sydney is an import dominant port as the metropolitan area does not have a large manufacturing base. Traditionally most export products are based in NSW rural areas (largely agricultural produce and processed metals) and transported by rail to the port.

About 40% of rail container traffic has an origin or destination within metropolitan Sydney, with the volume split fairly evenly between imports and exports (55% and 45% respectively). The remaining 60% of rail container traffic is transported from rural NSW areas, handling mostly exports.

## 2.7 Intermodal Terminals

Over the last decade the rail freight industry has recognised the need to rationalise operations to improve its competitive position. Essential to improvements in productivity has been the containerisation of freight and the movement of train wagons in large blocks or unit trains. The success of this strategy has been partially dependent on the modification of existing transfer operations. The small transfer operations are becoming less important with new larger intermodal terminals being favoured at key locations in the transport network. Intermodal terminals can have containers delivered to them by road in order that trains can be rapidly assembled for dispatch to a single destination.

The advantages that intermodal facilities provide include:

- improving the efficiency of distribution networks for imports and exports;
- facilitating a shift in transport mode share from road to rail;
- managing the growth of truck movements on road networks;
- enhancing the capacity of existing ports; and
- achieving a substantial reduction in air pollution and greenhouse gas emissions.



Source: Thompson Clarke Shipping Pty Ltd June 2000

0 2 10km

Botany	23.2%
City & East	0.2%
South Sydney	2.7%
Southern Suburbs	1.2%
North Shore	3.7%
NW Sydney	1.4%
Inner West	11.3%
Central West	16.8%
Industrial West	11.2%
Blacktown	9.4%
Penrith	2.3%
Liverpool	7.3%
South West	9.3%

Distribution of Container Truck Movements to and from Port Botany within Metropolitan Sydney

Figure 2.7

Note: % Share Based on TEUs

### 2.7.1 Existing

There are five intermodal terminals servicing Port Botany which are located throughout the Sydney metropolitan area as shown on **Figure 2.6**. These are:

- Cooks River;
- Camellia;
- Leightonfield;
- Minto; and
- Yennora.

Cooks River serves Port Botany via a dedicated freight rail network. The remaining intermodal terminals are linked to the port by a mixture of dedicated freight rail lines and the Sydney metropolitan network which is shared with passenger services.

Clyde and Chullora are also metropolitan intermodal terminals but do not currently service Port Botany.

Further details on the metropolitan intermodal terminals are provided in **Chapter 21 Traffic and Transportation** and **Appendix P**.

### 2.7.2 Future

Sydney Ports Corporation's longer term vision for operations at Port Botany is to complement the increased wharf space and container handling capacity to be provided by the new terminal with improved transport access to the ports, particularly rail access. To this end, Sydney Ports Corporation encourages the increased use and expansion of existing intermodal terminals and the creation of new intermodal terminals in Sydney.

Sydney Ports Corporation is specifically promoting the creation of a new intermodal terminal at Enfield which would be linked to Port Botany by the existing dedicated freight rail line. This new intermodal terminal would complement the existing intermodal terminals in the Sydney metropolitan area and would assist in the whole-of-government approach to increasing the volume of freight transported by rail. The development of intermodal terminals is independent of the proposed Port Botany Expansion.

## 2.8 Related Developments

### 2.8.1 Upgrade of Patrick Stevedores Terminal

The Patrick Stevedores terminal is the larger of the two container terminals at Port Botany, occupying approximately 44 ha with a quay length of 1,006 m. The Patrick Stevedores terminal has a current design capacity of 600,000 TEUs per annum.

Patrick Stevedores has lodged a development application with PlanningNSW to modify its container terminal. The modifications are designed to improve its efficiency and container handling capacity, by upgrading infrastructure and machinery, changing the physical layout of the site and leasing an additional

2.5 ha of land. The proposal is based on the need to cater for increasing volumes of container trade in order to sustain future trade growth. The objectives of the proposal are:

- increasing the percentage of containers moved by trains;
- ensuring the operation of the terminal does not conflict with traffic movements on adjacent public roads;
- improving operational safety of the terminal;
- improving environmental management;
- satisfying the expected demand for use of the terminal; and
- assisting Sydney Ports Corporation in meeting the objectives of the *Port Land Use Strategy*.

The major components of the proposal are:

- modification to the layout of the terminal to improve access between container storage areas and rail facilities and the installation of new rail mounted gantries to improve the efficiency of container transfer to and from trucks and trains;
- an increase in the area of land leased by Patrick Stevedores from Sydney Ports Corporation from 44 ha to 46.5 ha to create more space for trucks so that no queuing occurs on adjacent public roads;
- phased installation of new operational equipment including:
  - 11 new straddle carriers;
  - seven rail mounted gantries; and
  - three new (quayside) container cranes.
- construction of a new public access road to the boat ramp on Penrhyn Road to reduce the potential conflicts between cars accessing the boat ramp and trucks accessing the terminal; and
- realignment of the Inter-Terminal Access Road.

An analysis of the terminal area capacity of the upgraded terminal facilities is presented in the EIS for the Patrick Stevedores proposal. That analysis estimates that with the upgraded container handling facilities, the terminal would be able to gradually increase land-based handling capacity to 1.3 million TEUs by 2016 and would facilitate an increase in the proportion of containers moved by rail, from 25% to 40% (PPK 2002).

The additional container handling capacity to be realised from the Patrick Stevedores terminal upgrade has been considered in planning for the Port Botany Expansion. This would contribute to meeting the projected growth in container trade and an increase in rail mode share.

### 2.8.2 Botany Freight Rail Line Duplication

RIC owns the dedicated Botany Freight Rail Line between Chullora and Port Botany and is currently working on upgrading the freight line. The ongoing freight line infrastructure upgrade is intended to increase its capacity to handle container traffic from Port Botany and is part of the NSW Government's Action for

Transport 2010, Integrated Transport Plan for Sydney, which aims to make freight more competitive and to increase the amount of freight that travels by rail to Port Botany.

The project involves four stages and is part of a long term strategy to upgrade rail facilities servicing Port Botany, including track duplication, in conjunction with associated signalling, civil and structural works.

**Table 2.2** provides an overview of the four stages of the project.

**Table 2.2 Botany Freight Rail Line Upgrade**

STAGE	WORKS	STATUS
1	Stage 1 involved improving facilities within the Botany Yard including separate access to Patrick Stevedores Terminal.	Completed in April 2000.
2	Stage 2 involved duplication of the track between Marrickville and Cooks River, and associated civil works at the Cooks River Yard.	Completed in April 2002.
3	Stage 3 generally involved implementing bi-directional signalling from Marrickville to Cooks River to enable full bi-directional train working.	Completed in June 2002.
4	<p>Stage 4 involves the total duplication of the freight line between the Botany Yard and the Cooks River Yard. Works would proceed in progressive steps and include:</p> <ul style="list-style-type: none"> <li>- a second track from Mascot to Botany, which includes work on five bridges and a new pedestrian crossing;</li> <li>- reconstruction of the existing main line;</li> <li>- improvements to the Cooks River Yard;</li> <li>- a new 1,500 m holding rail line at Botany;</li> <li>- improvements to the layout at Botany Yard; and</li> <li>- extension of the signal system.</li> </ul>	<p>Environmental assessment process commenced. Noise assessment completed.</p> <p>Design work commenced in July 2001.</p>

The NSW Government has committed to the future upgrade and duplication of the Botany Freight Rail Line between Cooks River and Botany Yard (i.e. Stage 4). Funding of \$70 million was confirmed in November 2001 for the project. A total of \$34 million has already been spent on the first three stages. The Government sees the rail duplication as one of the means to increase the use of rail to 40% and beyond in line with the Government's recently released five-point Port Botany truck traffic plan which targets a rail share of 50% by 2010.

Stages 2 and 4 are the key stages in the project as they involve line duplication. When line duplication is undertaken, RIC is required to undertake a noise impact assessment. All the relevant environmental and noise assessments have been undertaken for Stage 2, in the form of a Review of Environmental Factors and a Noise Mitigation Assessment. RIC has also obtained the appropriate variation to its Environment Protection Authority (EPA) licence in association with the Stage 2 upgrades and amplifications of rail traffic (EPA Environment Protection Licence number 3142).

Environmental assessment is currently underway for Stage 4 of the project and RIC has undertaken a noise assessment in relation to the Stage 4 works. A copy of the noise assessment is contained in **Appendix Q** of this EIS.

Once Stage 4 is completed, the rail line would provide increased capacity estimated at 1.3 million TEUs per year based on 90 to 100 train movements per day, which would be sufficient to meet the forecast rail freight traffic along the Botany Freight Rail Line, as described in **Chapter 21** *Traffic and Transportation* and **Appendix P**.