AECOM

NSWPorts

Port Botany Quayline Equalisation Project

Environmental Impact Statement

September | 2025

Summary

Overview

Port Botany, as the primary container port in New South Wales (NSW) and Australia's largest common user bulk liquids facility, connects NSW to the rest of the world. Currently handling 99.6% of NSW's container volume (2.7 million twenty foot equivalent units (TEU)) each year (NSW Ports , 2023), the port is critical to the State and national economies, and for domestic fuel security. It is also NSW's main port for bulk liquid and gas, handling approximately 5.5 billion litres annually.

Port Botany Operations Pty Ltd as Trustee for Port Botany Unit Trust (referred herein as NSW Ports) is seeking approval to undertake works to provide comparable operational quayline length between the three container stevedore companies operating at Port Botany (the Project).

The Project would be located in Port Botany, approximately 6.5 kilometres south of Sydney's Central Business District and around one kilometre south east of Sydney Kingsford Smith Airport. The Project Area lies within Port Botany's existing heavy industrial setting, at Brotherson Dock. The regional context of the Project location is shown in Figure S-1.

NSW Ports has prepared an Environmental Impact Statement (EIS) based on the preliminary concept design of the Project. The EIS describes the Project in detail, discusses the alternatives that were considered, explains why the Project is the preferred option, and assesses how the Project would impact the environment. The EIS also describes how NSW Ports has engaged with stakeholders, including the local community, during the development of the Project.

The Project has been declared to be State Significant Infrastructure (SSI). As a result, the Project requires the approval of the NSW Minister for Planning under the *Environmental Planning and Assessment Act 1979* (NSW) (EP&A Act). The Project would not significantly affect matters of national environmental significance and would therefore not be a controlled action requiring approval under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act).

Project need

Container trade received at Port Botany consists of goods that are used as inputs into domestic business processes (e.g. machinery) and parts or consumption goods for sale in the domestic market (e.g. electronics, furniture). To meet increasing global container trade demand and to reduce transport costs per container unit, vessels are increasingly being used that can exceed 360 metres in length. These longer vessels require longer quaylines to berth. Port Botany needs to adapt to cater for these longer vessels and the NSW Ports Master Plan (NSW Ports , 2023) outlines the need for investment in additional berthing infrastructure at Port Botany.

NSW container port policy has long held that Port Botany is the State's container port due to its significant capacity, strong road and rail connections and close proximity to the main import destination of Greater Sydney. Port Botany will remain the State's principal container port until it reaches capacity. This long held policy position has been reaffirmed as recently as June 2025 by the NSW Freight Policy Reform Independent Advisory Panel's final paper, 'Delivering freight policy reform in New South Wales', which has been endorsed by the NSW Government. The Project would continue to enhance this capacity and would provide broader benefits to the container supply chain in the State.

The three existing stevedores within Port Botany operate with different lengths of quayline. Both the Hutchison and Partick container operations, located on the northern side of Brotherson Dock, have sufficiently long quaylines to accommodate simultaneous berthing of up to three larger vessels simultaneously. In contrast, the DP World container operations on the southern side of Brotherson Dock currently has access to a shorter quayline, and is not presently able to accommodate three of the longer container vessels currently calling at Port Botany (DP World is currently able to berth up to two of the longer vessels and one shorter vessel). The disparity in quayline length available to port stevedores represents a limit to competition, particularly in light of the anticipated increase in container ship lengths into the future.

Figure S-1 Port Botany regional context

The Project aims to create a more competitive environment for container stevedores operating at Port Botany. It also aims to help ensure port infrastructure can continue to meet changes to international shipping fleets and provide cost-effective services. This would ultimately result in more competitive prices for import goods with downstream benefits to the NSW economy and community.

As a result of the quayline extension, the existing Bulk Liquids Berth 1 (BLB1) would need to be demolished, and a replacement bulk liquids berth (BLB3) would be constructed in a more southerly location. Port Botany's bulk liquids trade plays an important role in securing the state's fuel, bitumen and liquid chemical supply critical to the function of the economy. The bulk liquids and gas pipelines at Port Botany have direct access to nearby storage facilities including the Elgas Liquefied Petroleum Gas cavern (referred to as the Elgas Cavern) and surrounding fuel storage facilities (NSW Ports, 2023). The largest volume of bulk liquids handled at Port Botany comprises petroleum comprising diesel, unleaded petrol and jet fuel. This accounts for one third of NSW's fuel supply. Bitumen is imported for pavement and road surface construction, and liquid chemicals are used in domestic manufacturing to make detergents, plastics, soap products and other commercial products (NSW Ports, 2023). Given its proximity to industrial, manufacturing and Sydney Kingsford Smith Airport, the maintenance of bulk liquid trade at Port Botany is important to the ongoing function of the economy.

The Project objectives respond to the Project need outlined above and have been applied as a measure to determine the preferred strategic project and guide the Project design. The Project objectives are to:

- Maintain Port Botany's strategic role as an international trade gateway by accommodating global changes in container vessel length
- Deliver comparable quay lengths at Port Botany to drive competition between the container stevedores to benefit both industry and end-consumers
- Minimise disruptions to existing port operations during construction.

Alternatives considered

A key driver of the Project need relates to the ability to accommodate longer container vessels to support the domestic market in response to global trends in the shipping fleet and to maintain competitiveness between the stevedores operating at the port. At a strategic level, all three major ports in NSW (Port Kembla, Port of Newcastle and Port Botany) could be considered to respond to the need to receive trade from longer vessels.

Port Botany has been selected as upgrades to the infrastructure at Port Botany would be the most efficient and effective option to meet the container trade needs of NSW. Port Botany is the closest to the Sydney consumer and industrial market, has container trade import handling facilities and is suitable from a navigational perspective. Furthermore, the Project would provide comparable quayline lengths to maintain competitiveness between the three stevedores. This would ultimately benefit both industry and end-consumers that rely on this container trade. This option aligns with the Project objectives and therefore is considered the preferred strategic alternative.

The Project design has been developed to avoid and/ or minimise impacts to the community and the environment. Key design options adopted to help avoid and/ or minimise environmental impacts include:

- Structural form of the extended wharf: a bund wall and suspended deck structure would minimise the amount of space needed for staging, storage, and construction activities reducing the footprint of environmental impacts
- Source of reclamation materials: using dredged material to fill the reclamation area would minimise impacts associated with road traffic volumes, routes and noise from vehicular transport of spoil material to the Project Area
- Dredging equipment and techniques: using a trailer suction hopper dredger would minimise impacts associated with vessel traffic, seabed disturbance, and underwater noise and vibration. Dredged material would be hydraulically pumped into the reclamation area to prevent potential acid sulfate soils (PASS) being exposed to air.

A detailed review of the alternatives considered is provided in Chapter 2 (Strategic context and project alternatives) of the EIS.

The Project has been designed to avoid and minimise environmental impacts through careful site selection, design refinement and construction planning. For example, an additional laydown area was considered within the Port Botany Lease Area near to Sirius Road within Patrick container operations. The compound (construction compound 'WSCC02') was removed during design development, to reduce the potential for disturbance to the Penrhyn Estuary environment and the channel between the estuary and Foreshore Beach.

The Project would continue to be refined as part of ongoing design development and where relevant, in response to feedback from the community and other stakeholders.

Project description

The Project would involve two principal components (refer to Figure S-2):

- Construction of an extended quayline (BD12) on the southern side of Brotherson Dock, including dredging of the Brotherson Dock channel and berths to provide material for reclamation of land. This would provide:
  - Extension of the southern side of the Brotherson Dock quayline by around 314 metres to provide a combined quayline length on the southern side of Brotherson Dock of around 1,250 metres to accommodate up to three longer container vessels, commensurate with the quayline length available to stevedore operators in other parts of the port
  - An additional 5.3 hectares of wharf area (wharf hardstand)
- Consequential changes to the bulk liquids berths at the port, including demolition of the existing BLB1, construction and operation of a new Bulk Liquids Berth (BLB3) in a more southerly location, and associated changes to pipework and bulk liquids handling infrastructure within the port. The types and volumes of bulk liquids would remain unchanged.

An overview of the key elements of the Project is provided in Table 3-1. A detailed description of Project including how it would be built, is provided in Chapter 3 (Project description) of the EIS.

Table S-1 Key elements of the Project

Key element	Description
Infrastructure built	The Project would involve: • Construction of an extended quayline (BD12) on the southern side of Brotherson Dock. The Project would extend the existing quayline by around 314 metres to provide a total extended quayline length of around 1,250 metres • Construction of an additional 5.3 hectares of wharf area • Dredging within Brotherson Dock to provide material to construct the extended quayline and wharf area • Demolition and removal of the existing BLB1, construction and operation of a new BLB3 in a more southerly location, and associated changes to pipework and bulk liquids handling infrastructure within the port • Demolition and removal of the tugboat jetty south of BLB3.
The site	The Project would be located: • Extended quayline and wharf area: immediately to the west and contiguous with the southern side of the existing Brotherson Dock • New BLB3: positioned in between the existing BLB2 and Molineux Point • Associated changes to bulk liquids pipelines and related infrastructure, predominately along Fishburn Road • Dredging activities: within Brotherson Dock.

Key element	Description
Operational activities	Once built, the extended quayline and wharf area would comprise an extension of DP World's current container operations on the southern side of Brotherson Dock and would be would be managed in line with existing procedures prior to any additional development. The new BLB3 and associated infrastructure would be operated in a similar manner to existing BLB1 operations.
Construction compounds/ sites	Construction of the Project would require: • A waterside construction compound / laydown area (WSCC01) • Four landside construction compound / laydown areas (LSCC03, LSCC04, LSCC05, LSCC06) • The reclaimed extended quayline and wharf area may also be used for construction support, including materials storage and laydown, once that infrastructure is built.
Construction timing	Construction of the Project is anticipated to occur for around six years commencing in 2027(subject to timing of Project approval) (refer to Figure S-1-3).
Construction hours	Construction of the Project would occur: • Dredging and land reclamation works, including pumping of sediment to the reclamation area: 24 hours a day, seven days a week • All other construction activities: during standard construction hours • In some limited cases, construction activities may be required outside these standard construction hours (e.g. to complete large concrete pours, to take delivery of wide loads to test pipelines).
Operational hours	Operation of the new BLB3 and associated infrastructure would occur 24 hours a day, seven days a week.

The extension of the quayline and associated wharf area would facilitate container operations in the future by the stevedore. Although installation of operational infrastructure, such as the quay cranes, for the purposes of container operations does not form part of the Project, this would be a consequence of the completed Project. Environmental impacts associated with the facilitated development could only arise once construction of the Project is complete. As such, while the Project would not directly cause impacts related to the facilitated development, they are reasonably foreseeable outcomes of the Project's development. As such, broad consideration of the potential impacts of this facilitated development has been included in Chapter 18 (Cumulative and facilitated impacts) of the EIS.

The details of the final scope and extent of the facilitated development would be determined by the stevedore.

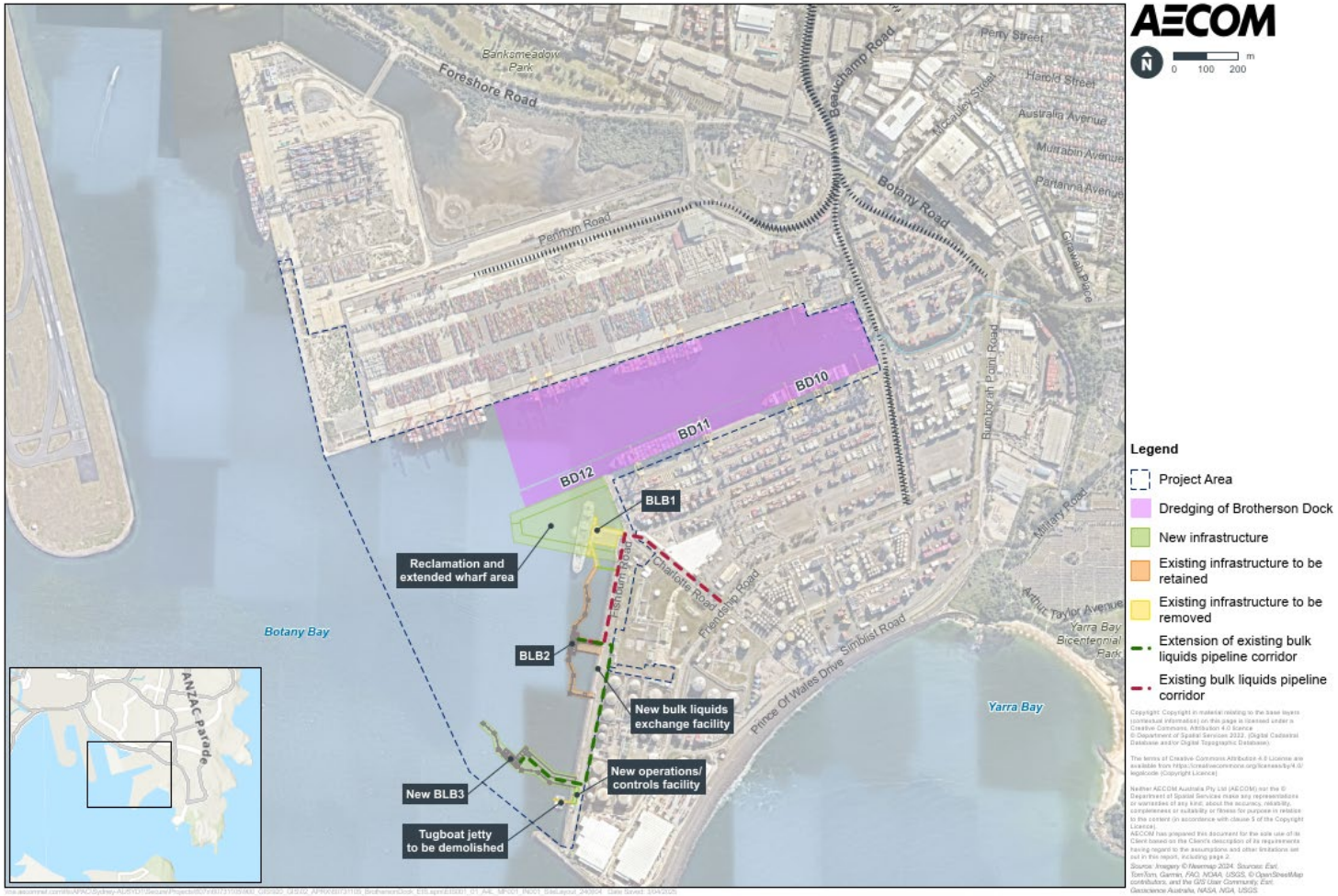

Figure S-2 Project overview

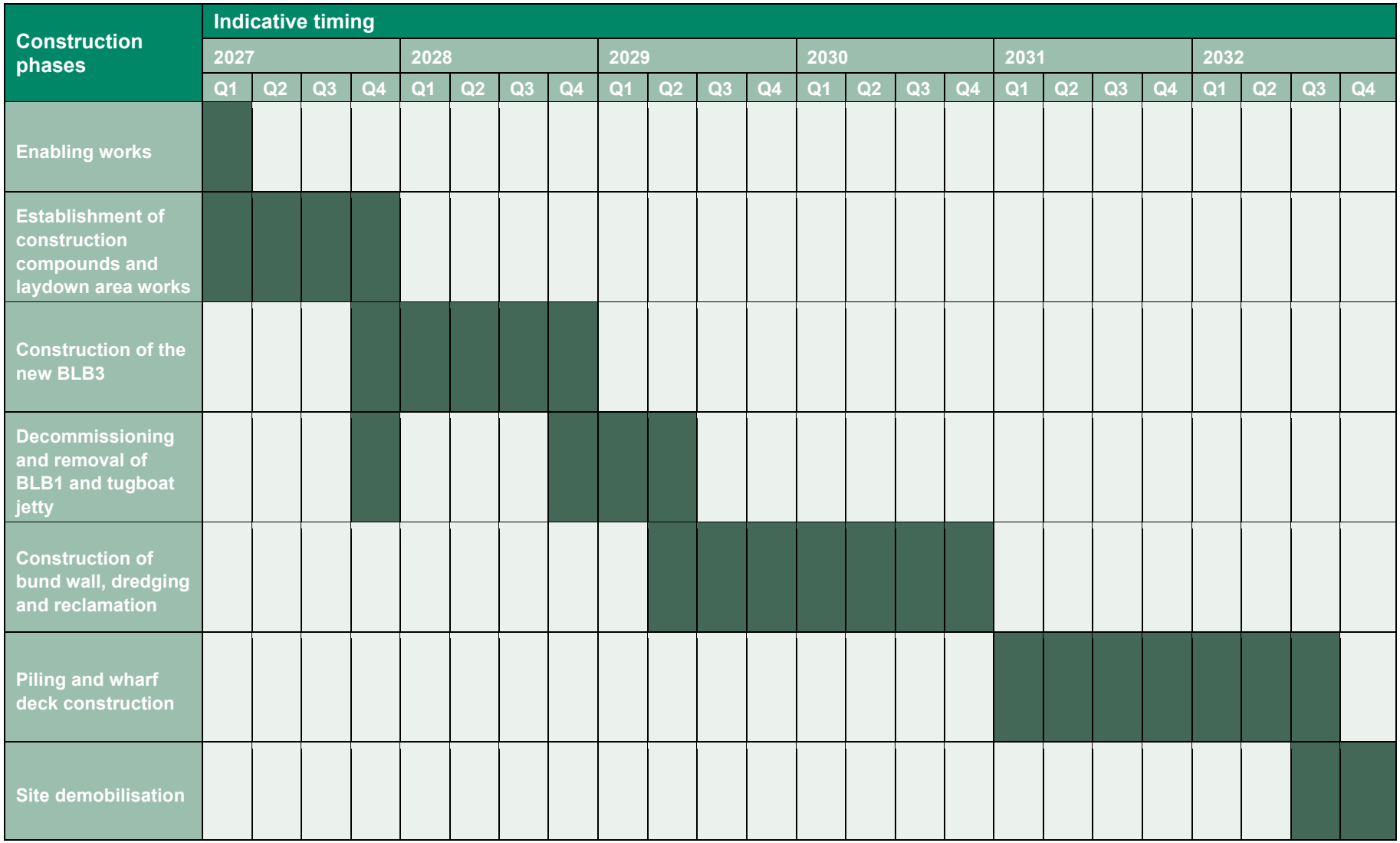

Figure S-3 Indicative construction phases and timing

Project benefits

Development of the Project would deliver significant benefits and opportunities, including:

- Enhanced market competition for container good products. The Project would provide comparable quayline lengths between the three container stevedores operating at Port Botany, creating a more competitive trade environment within Port Botany. This would benefit both industry and end-consumers across NSW and Australia by driving competitive prices for imported goods such as inputs into domestic business processes (e.g. machinery, plastic and rubber) and parts or consumption goods for sale to the local market (e.g. electronics, furniture and textiles)
- Respond to global container vessel technology changes. The Project would allow the stevedore operating on the southern side of Brotherson Dock to berth three longer container vessels simultaneously. This would allow Port Botany to accommodate changes in international container vessel fleet sizes. and supporting the growing global container trade. Over time accommodating longer vessels would lower shipping transport costs by accommodating for more efficient vessel technology
- Optimisation of strategically located land use. The Project Area is zoned as SP1 Special Activities under the *State Environmental Planning Policy (Transport and Infrastructure) 2021,* which identifies the intended use of the land for infrastructure and other essential public purposes. The Project utilises land designated for port related uses and is strategically zoned. Port Botany is also recognised as a key access point to the Sydney Gateway and Port Botany economic corridor, given its proximity to Sydney's CBD, Sydney Kingsford Smith Airport, and industrial facilities located nearby
- Economic growth to support Greater Sydney. The Project would support economic growth over time by accommodating global container vessel technology changes and driving enhanced market competition between the stevedores. This would in turn accommodate the forecast population and economic growth for Greater Sydney recognised in many of the State's strategic policies.

Stakeholder and community engagement

Consultation and engagement activities undertaken during preparation of the EIS have included engagement with State and Commonwealth government, local government, Aboriginal stakeholders, Port Botany operational stakeholders, local businesses, and the local community, including the Port Botany Community Consultative Committee. A full list of stakeholder and community engagement activities undertaken to date, a summary of issues raised and how the Project has responded, and planned activities is presented in Chapter 5 (Stakeholder and community engagement) of the EIS.

The engagement process has ensured that potentially impacted stakeholders have been identified and provided with the opportunity to learn about the Project and provide feedback to inform the development of this EIS.

NSW Ports would continue to provide opportunities for local residents, government agencies, Council and key local stakeholders to make enquiries and provide feedback as the Project progresses. The existing Port Botany Community Consultative Committee would continue to meet and would provide the key point of engagement contact during construction of the Project.

Assessment of environmental impacts

Coastal processes, hydrology and water quality

Hydrodynamic and coastal process

During construction of the Project, particularly dredging and land reclamation activities, disturbed marine sediments would be unavoidably entrained in the water column. The dredge plume within Brotherson Dock is anticipated to increase total suspended solids (TSS) concentration up to 300 milligrams per litre. Outside of Brotherson Dock TSS concentrations would be comparable to typical TSS concentrations recorded in Botany Bay.

The use of a trailer suction hopper dredge has been identified as the preferred approach to dredging and offers an opportunity for a more contained dredging process and relatively lower disturbance of marine sediments. During reclamation, monitoring of dewatering discharge would be carried out to maintain TSS concentrations below 50 milligrams per litre. At this concentration, TSS in dewatering discharge would have a negligible effect on TSS concentrations outside of Brotherson Dock.

Changes in hydrodynamics (waves, water levels, and currents) as a result of deepening of Brotherson Dock through dredging, and the creation of a new obstruction through the land reclamation (the completed wharf area), are expected to be minor and not have a measurable impact on shoreline morphology.

Hydrology and water quality

Elevated TSS levels and disturbed contaminated seabed sediment from dredging and underwater demolition has the potential to impact water quality, generate a visible sediment plume or mobilise contaminants. Based on the maximum modelled extent of the dredge plume, the Project is unlikely to have a significant impact on water quality across most of Botany Bay, including the ecologically sensitive areas along the southern foreshore (i.e. Towra Point Nature Reserve and Towra Point Aquatic Reserve). A Construction Environmental Management Plan (CEMP) and associated sub-plans would be development and would include provisions for handling and management procedures to be implemented during construction activities to minimise impacts on water quality.

Potential impacts to hydrology and water quality during operation could occur through runoff from the extended quayline and wharf area, and the new BLB3, into receiving waters. The surface water management system at the new BLB3 would be integrated with BLB2's existing infrastructure to manage runoff by diverting contaminated water to a spill containment tank for treatment, and uncontaminated water through a gross pollutant trap and oily water separator prior discharge into Botany Bay. Runoff from the wharf would be connected to the existing stormwater system. Stormwater runoff is expected to have a negligible potential impact on to water quality, provided the identified controls are implemented and maintained effectively.

Refer to Technical report: Coastal processes (Appendix D), Technical report: Marine water quality (Appendix E), and the summaries in Chapter 6 (Coastal processes, hydrology and water quality) of the EIS for further information.

Ecology

Marine ecology

Botany Bay supports sensitive habitats including reef communities, KFH areas, and aquatic reserves at Towra Point and Cape Banks. Surveys found no seagrasses in the Project Area, though *Zostera* and *Halophila* beds occur nearby, with no *Posidonia australis* recorded. Water quality was generally consistent with historical data but showed minor exceedances for suspended solids, PFOS, nutrients, and some metals, while sediments near Brotherson Dock contained low-level mercury and arsenic linked to past port use. Acid sulfate soils remain a risk if dredged material is disturbed. Several significance assessments were completed for key fish, invertebrates, seals, sharks, turtles, whales, and 35 listed shorebird species.

Habitat loss during construction of the Project would include the loss of six hectares of soft sediment habitat, which is classified as Type 3 Key Fish Habitat (KFH), during reclamation within the bund wall, and an estimated 0.1225 hectares during piling. Around 240 metres of the existing seawall and 88 piles would also be removed, which currently provide artificial habitat for sessile epibenthic assemblages.

The new artificial structures, including 119 new piles at BLB3, 380 piles and associated infrastructure at BD12, and rock armouring on the outside of the containment wall bund, would provide a net gain in artificial habitat. Recolonisation of marine organisms, such as macroalgae, barnacles, molluscs, and other sessile invertebrates is expected to these areas in time. Residual habitat loss of Type 3 KFH would be subject to offsets.

Potential indirect impacts on marine ecology include those related to underwater noise and vibration during piling and demolition of infrastructure construction activities, which has been assessed within Chapter 11 (Noise and vibration) of the EIS.

The Project would inevitably interact with marine environments, although with appropriate mitigation measures and management plans, potential impacts to threatened species, Key Fish Habitats, and sensitive areas are expected to be negligible.

No impacts to marine species or habitats are anticipated during operation, beyond those already experienced from existing port operations.

Refer to Technical report: Marine ecology (Appendix F) and the summaries in Chapter 7 (Ecology) of the EIS for further information.

Terrestrial ecology

Direct impacts from the Project are limited to the removal of approximately 4.35 hectares of urban native/ exotic vegetation within the project area. This is regrowth vegetation that has colonised the dock after it was constructed around 10 years ago. The vegetation is highly disturbed, dominated by exotic species and urban plantings, and was assessed as lacking habitat suitable for threatened flora or fauna species.

Indirect and prescribed impacts, including potential noise, vibration, dust, light spill, and inadvertent disturbance to adjacent vegetation, has also been assessed. Noise modelling indicates that predicted peak levels at surrounding habitats, including Penrhyn Estuary, would be comparable to or below the current / existing port operational noise, with dust and light spill also expected to be negligible, with the application of standard construction management measures. Field investigations carried out during the assessment recorded an Eastern Osprey nest within the operational Hutchison Ports Sydney site at Hayes Dock. It was identified that sufficient distance exists between the Project Area and Penrhyn Estuary / the Eastern Osprey nest for indirect impacts to these values to be avoided. No indirect impacts to adjacent fauna habitat or vegetation, including Penrhyn Estuary or the Eastern Osprey nest, are anticipated. As such, no biodiversity offsets are required.

Operation of BLB3 would not require additional ground disturbance, vegetation clearing, or other invasive actions likely to result in significant direct impacts to biodiversity. Given the existing port operations, noise, vibration, and light spill would be largely consistent with current conditions and be unlikely to have significant indirect impacts. Maximum operational equipment heights at BLB3 are anticipated to be around 23 metres, as per existing BLB2 arrangements. As such, migratory species are

not anticipated to be deterred from traveling over the study area or modify their flyways around Penrhyn Estuary.

Refer to Technical report: Biodiversity Development Assessment Report (Appendix Q) and the summaries in Chapter 7 (Ecology) of the EIS for further information.

Hazards and risk

Process and materials handling hazards

The risk analysis prepared for the Project found that the overall risk associated with the operation of the Project would be low. The Project would not introduce an excessive additional risk to the surrounding area, considering the applicable land use planning criteria in *Hazardous Industries Planning Advisory Paper No. 4 (HIPAP4): Risk criteria for land use planning* (NSW Department of Planning, 2011)). Key hazards relate to the handling of Class 2.1 (flammable gases) and Class 3 (flammable liquids) dangerous goods through the new BLB3. Quantitative modelling has demonstrated that individual fatality and injury criteria would be satisfied beyond the Project boundary.

Societal risk, which takes into account society's aversion to accidents that can result in multiple fatalities, associated with the Project is very low and well within the negligible zone. The Project would not significantly contribute to the overall societal risk from Port Botany operations. Existing process safety and emergency plans at Port Botany would be updated for bulk liquids operations at BLB3.

Aviation hazards

Intrusions into the Obstacle Limitation Surface (OLS) and Navigational Aid (NAVAID) protected surfaces for Sydney Kingsford Smith Airport would occur during construction of the Project. This would arise from the use of tall construction plant, such as the use of piling rigs, with heights of up to 80 metres Australian Height Datum (AHD). As such, this Project would be referred to Airservices and Sydney Airport Corporation Limited (SACL) for separate approvals.

No aviation risks are anticipated during operation: the height of BLB3 would be similar to the existing BLBs (which are around 24 metres tall), and therefore not intrude into the OLS, Procedure for Air Navigation Services – Aircraft Operations (PANS-OPS), or Navigational Aid (NAVAID) protected surfaces for Sydney Kingsford Smith Airport.

Refer to Technical report: Preliminary hazard analysis (Appendix G), Technical report: Aviation safety (Appendix H), and the summaries in Chapter 8 (Hazards and risk) of the EIS for further information.

Geology, soils and contamination

Potential geology, soils and contamination impacts during construction of the Project would generally be associated with the disturbance of dredged materials at the bottom of the sea floor within Brotherson Dock, as well as potential interaction with previous and existing contaminated land.

During dredging activities, disturbed marine sediments may mobilise sulfide bearing minerals and organic matter. If such sediments are exposed to air, oxidation of sulfide bearing minerals can lead to the generation of latent soil acidity and the release of metals, nutrients, and salts into the surrounding environment. Site- and activity-specific acid sulfate materials management measures would be developed during construction planning to minimise impacts from the disturbance of these type of soils during the dredging of sediments from Brotherson Dock, and subsequent placement in the reclamation area. Additionally, an unexpected finds procedure would be prepared to provide guidance on how to handle unexpected contamination or hazardous materials during construction works. In addition, the CEMP(s) and associated sub-plans would include provisions for erosion and sediment control to minimise impacts on water quality, for reducing and reuse of waste materials, where possible, and the management and disposal of waste to appropriately licensed landfills as required.

Refer to Technical report: Preliminary site investigation – contamination (Appendix I) and the summary in Chapter 9 (Geology, soils and contamination) of the EIS for further information.

Transport and traffic

Construction of the Project would occur within Port Botany, a working port characterised by frequent movement of heavy vehicles. Heavy vehicle routes to/ from the Project Area have been identified with the aim of providing the most direct routes and minimising the impact of heavy vehicles on local roads.

The peak construction stage for road traffic generation would occur in the first year of construction anticipated around November 2027, generating up to 572 vehicle movements per day. The intersection performance modelling demonstrated that the additional construction traffic associated with the Project is expected to have a negligible impact on the surrounding road network, with all key intersections expected to continue to operate in a similar manner to existing conditions. The additional construction traffic associated with the Project would result in a small increase in average delay at nearby intersections, with no change to the intersection level of service. Therefore, even during the peak construction period, impacts to the local road network would be very limited.

During construction of the Project, an additional 26 heavy and 18 marine vessel movements per day would typically be anticipated, increasing to 80 during peak construction for a short duration. The increased volume of marine vessels and corresponding movements is not expected to significantly impact the existing maritime traffic conditions and operations at Brotherson Dock. Furthermore, waterside construction elements would be contained within the existing exclusion zone at Port Botany. As such, impacts to recreation or commercial vessels are not anticipated.

Potential impacts on traffic and transport due to the Project would be avoided, minimised or managed through a Construction Traffic Management Plan (CTMP). A Marine Traffic Management Plan (MTMP) would also be prepared in consultation with the Harbour Master. With the implementation of mitigation and management measures, the anticipated impacts of the Project would be minimal.

Operation of the Project is anticipated to result in minimal to no change in the performance of surrounding road network as traffic numbers are not anticipated to increase as a result of the Project. The effect of operation of the Project on vessel movements is unlikely to be significant, given the extended quayline, wharf area and new BLB3 would operate entirely within the existing shipping exclusion zones and would use the existing Brotherson Dock swing basins.

Refer to Technical report: Transport and traffic (Appendix J) and the summary in Chapter 10 (Transport and traffic) of the EIS for further information.

Noise and vibration

Terrestrial and airborne noise

Noise modelling has been carried out for each construction phase of the Project. For residential receivers, modelling indicates that construction noise management levels (NMLs) are likely to be exceeded at some residential receivers for some construction activities. These exceedances would be temporary and would be less than 10 dB(A) under all scenarios.

The Project would generate temporary and short term exceedances of night-time noise management levels during dredging activities, which would be carried out up to 24 hours per day/ seven days per week. Four residential dwellings are predicted to be affected by exceedances of noise management levels by up to 5 dB(A) during these night-time activities. A Construction Noise and Vibration Management Plan (CNVMP) would be prepared as part of the CEMP and would include arrangements for consultation with potentially affected noise and vibration sensitive receivers, including notifications of planned construction works and complaint handling procedures.

Vibration from vibration intensive construction activities including compaction, hydraulic hammering, and piling activities has been assessed with respect to potential impacts on building and structural integrity, and human comfort. The vibration assessment indicated that residential, education, health, community, commercial, and industrial buildings, and heritage sites, would not experience vibration at levels that would be expected to cause structural or cosmetic damage. Modelling has indicated that vibration would not exceed the one millimetre per second vibration criterion applied for the projection of the nearby Elgas caverns.

Operation of the new BLB3, approximately 750 metres to the south west of BLB1, would generate noise and vibration during operation. However, changes in operational noise at residential receivers are anticipated to be around 0.5 dB(A) (negligible) relative to existing operational noise from BLB1.

Underwater noise

Construction of the Project has the potential to generate both impulsive and continuous noise which can affect sensitive underwater receivers in the study area, including marine mammals, fish, sharks, rays, sea turtles, and humans (divers and swimmers). The most significant potential underwater impacts during construction of the Project would involve impact piling. Vibratory piling and dredging would have comparably lower underwater noise impacts.

Impacts on marine species can include temporary threshold shift (TTS) (i.e. a temporary, reversible reduction in hearing sensitivity following exposure to elevated noise levels) and auditory injury (AUD INJ) (i.e. physical damage to auditory structures or other tissues, potentially leading to injury or mortality, specifically for marine mammals). The greatest modelled effect zones for TTS for have been predicted for low frequency cetacean species (humpback whales and southern right whales). Smaller distances have generally predicted for the otariid pinnipeds (sealions and fur seals) and high frequency pinnipeds (dolphins and whales), fish, sharks, rays, sea turtles, and humans.

Management zones have been developed as a basis for mitigation and management of underwater noise during construction. These would be implemented through an Underwater Noise and Vibration Management Plan (UNVMP). With the implementation of an adaptive management approach based on three defined three management zones, these impacts would be adequately managed.

Refer to Technical report: Terrestrial noise and vibration (Appendix K), Technical report: Marine noise and vibration (Appendix L), and the summaries in Chapter 11 (Noise and vibration) of the EIS for further information.

Landscape character and visual amenity

The Project would be constructed and operated within Port Botany, which is characterised by an established port and industrial setting. The temporary addition of construction compounds, sites and activities would be generally consistent with this established setting. The majority of landscape character zones (LCZs) within and around the Project Area are anticipated to experience a negligible (neutral) decline in landscape character, with one zone having a low (adverse) impact (within Port Botany).

There would be an increase in terrestrial and marine activity during construction of the Project. It is unlikely that visual receivers in residential housing or public open spaces set back from Botany Bay would be able to see enough detail of the Project under construction due to the distance and screening by landform, vegetation, and built form. Some construction activities would be undertaken outside of standard construction hours and may require lighting in work zones. Overall, the impact to views due to construction of the Project would be relatively minor, with a rating of moderate to low (adverse).

During operation, the new infrastructure would be in keeping with the existing port environment, though the new wharf (BD12) and BLB3 would be visible to very distant receivers. Overall, the Project is considered to have a low (neutral) impact on landscape character during operation, and changes in views seen by receivers are anticipated to be moderate to negligible (neutral).

Refer to Technical report: Landscape character and visual (Appendix M) and the summary in Chapter 12 (Landscape character and visual amenity) of the EIS for further information.

Social and economics

The social and economics assessment identified that the Project would generally have a low significance (negative) social impact during construction and operation. This is principally driven by the relatively small scale of the Project relative to the scale of the existing port, and separation distances from potentially affected receivers. However, the Project would result in a positive economic impact to the regional and NSW economy.

The average number of employees and contractors employed during construction would be around 30 people per day, increasing to about 60 people per day during peak construction. Increases in labour demand from the Project could potentially lead to short term increases in construction wages. Economic benefits to the social locality would be experienced, associated with increased expenditure at local businesses and employment opportunities, resulting in benefits to livelihoods for local businesses and their employees.

During operation, the broader economic benefits of the Project would likely result in flow on effects for livelihoods within the social locality and from increased competition between stevedores at Port Botany.

Refer to Technical report: Social and economic (Appendix N) and the summary in Chapter 13 (Social and economic) of the EIS for further information.

Air quality and odour

For human receivers, the risk of dust soiling has been assessed as medium for all construction activities without mitigation. Unmitigated dust health risks to human health have been assessed as low for all activities, largely due to the low existing levels of particulate matter in the area. Mitigation and management measures have been identified to reduce the level of the risks associated with construction dust, such as keeping the reclamation sediment underwater. With implementation the risks associated with dust and human health effects would be low to negligible.

There is the potential for dredging of marine sediments to lead to minor odour generation, primarily due to the disturbance of organic materials buried in the sediments. This has the potential to generate an odour nuisance at nearby receivers, primarily affecting workers at Brotherson Dock. Due to the distance from other sensitive receivers, residential receivers would not be affected

Operation of the new BLB3, approximately 750 metres to the south west of BLB1, would relocate fugitive emissions from the existing BLB1 site further south. However, given the significant distance of the new BLB3 from sensitive receivers, fugitive emissions from operation of BLB3 and associated pipelines and impacts to sensitive receivers would be unlikely.

Refer to Technical report: Air quality and odour (Appendix O) and the summary in Chapter 14 (Air quality and odour) of the EIS for further information.

Climate change and sustainability

The Project's risk and vulnerability to climate change in 2040 (short to medium term) and 2090 (longer term impacts over the lifespan of most design elements) have been considered. Adaptation measures for risks rated as high have been proposed, and evaluated as being able to reduce climate change risks from high to moderate in 2090, with two exceptions, both relating to bushfires. No adaptation measures that could be implemented through Project design or delivery have been identified, and it is noted that these risks already exist and will continue to exist for Port Botany infrastructure. Residual high climate change risks would continue to be considered as part of ongoing management and development across Port Botany, and potential adaptation measures re-evaluated as new information, technologies and approaches become available over time.

An outcomes-first approach to sustainability has been adopted for the Project, whereby overall sustainability aspirations are defined, and then suitable design, construction, operational and governance objectives and targets are identified and incorporated. A sustainability initiatives register would be used to track the implementation status of sustainability initiatives as the Project design progresses.

Refer to the assessment in Chapter 15 (Climate change risk and sustainability) of the EIS for further information.

Heritage

The Project Area consists of a highly modified/ developed landscape resulting from land reclamation. As such, there are no known Aboriginal cultural heritage values, archaeological objects or sites within the Project Area, and a low residual risk of encountering previously unrecorded Aboriginal objects. Impacts to Aboriginal cultural heritage values during construction are not anticipated. Mitigation measures, including implementation of an unexpected Aboriginal heritage finds procedure would be followed.

The distance between built heritage items or places is such that risks of cosmetic or structural integrity impacts from vibration intensive activities are unlikely. Furthermore, views within Botany Bay would remain consistent with similar construction work sites and activities within the industrial setting. As such, changes to views from the nearest non-Aboriginal heritage items and sites are anticipated to be minor.

During operation, the new infrastructure would be in keeping with the existing port environment, though the new wharf (BD12) and BLB3 would be largely indiscernible from most viewpoints around Botany Bay based on consistency with existing port infrastructure, viewing distance and screening. As such, changes to views from the nearest non-Aboriginal heritage items and sites are anticipated to be negligible.

Refer to Technical report: Aboriginal cultural heritage assessment report (Appendix P) and the summaries in Chapter 16 (Heritage) of the EIS for further information.

Resources and waste

Construction material requirements for the Project are typical for a port project of this scale. While the resource requirements of the Project do have the potential to temporarily impact resource availability within the Sydney region over the construction period, the period between the approval of the Project and the start of major construction would be sufficient to allow the market to prepare for the needs of the Project in conjunction with the resource needs of other infrastructure projects that may be constructed in NSW around the same time.

Major waste streams, such as demolition waste and excavated materials, would be reused where possible, or otherwise transported to a waste management facility authorised to receive them. Dredged sediments that are surplus to reclamation needs or unsuitable for use, would be re-distributed within the Brotherson Dock channel.

Operation of the Project is not expected to materially alter the resource consumption or waste generation from Port Botany or NSW Ports' operations more broadly. Waste generated by the Project would be managed in accordance with the existing management frameworks.

Refer to the assessment in Chapter 17 (Resources and waste) of the EIS for further information.

Cumulative impacts

Four projects were identified as having potential for cumulative impacts with the Project. Potential cumulative impacts are only anticipated to arise during construction, and none are expected during operation of the Project. It has also been recognised that all screened developments are entirely terrestrial and would not generate a cumulative impact with the Project in relation to the marine environment.

Potential cumulative impacts related to hazard and risk as well as noise and vibration were scoped out of the cumulative impact assessment. The Project would satisfy all land use safety planning criteria at the Project boundary and would therefore not have potential for cumulative hazards or risk with nearby facilities or materially alter the societal risk profile of Port Botany. Additionally, cumulative noise impacts are expected to be negligible based on the large distances of the selected developments from the Project Area.

Potential cumulative impacts related to traffic and transport were identified during construction between the Project and the Orica Southlands Warehouse Estate Stage 3. Traffic generated during construction of both developments would affect the intersection of Botany Road and Foreshore Road. Modelling undertaken for the Project supports the conclusion that these impacts would not adversely affect the operation of the surrounding road network, and cumulative impacts would be managed in line with measures proposed in the CTMP.

Potential cumulative social impacts were identified between the Project and all four developments, relating to cumulative traffic and access impacts, and construction fatigue, should the projects have overlapping construction periods. Stakeholder engagement activities would be carried out during construction of the Project, which would manage cumulative social impacts by increasing the communities understanding of Project specific timelines and construction activities.

Refer to the technical reports and a consolidated summary in Chapter 18 (Cumulative and facilitated impacts) for further information.

Facilitated impacts

The majority of potential impacts that may arise during construction and operation of the facilitated development would be in line with existing container operations on the southern side of Brotherson Dock. Such impacts would be managed in line with existing procedures and under existing management plans that would be updated to include the facilitated development.

Where relevant, the potential impacts associated with facilitated container operations have been considered in this EIS to support a holistic view of total impacts generated and facilitated by the Project. This high level consideration has demonstrated that the container operations facilitated by the Project could be carried out within acceptable environmental limits. This would be further considered separately by the stevedore.

Refer to the technical reports and a consolidated summary in Chapter 18 (Cumulative and facilitated impacts) for further information.

Environmental management

A CEMP(s) would be prepared for the Project prior to the commencement of construction work. It would provide the overarching framework for construction environmental management and would include:

- A description of the activities to be carried out during construction
- An environmental risk matrix that identifies the environmental mitigation and management measures that would be implemented to address these risks
- Environmental responsibilities
- Environmental induction and training requirements
- Management strategies for reviewing the effectiveness of environmental mitigation and management measures
- Processes and methodologies for surveillance and monitoring, auditing and reviewing and reporting on environmental and sustainability performance including compliance tracking
- Procedures for emergency and incident management, non-compliance management and corrective and preventative action
- Procedures for the control of environmental documents and records.

The CEMP(s) would be updated as required during the construction phase to respond to changes in construction methodologies, environmental risks and the management of these risks, or other changes to the construction of the Project. The CEMP(s) would provide a consolidated environmental management framework, supplemented by more detailed sub-plans and other documentation focused on key environmental issues during construction. Refer to Chapter 19 (Mitigation and management) and Appendix C (Mitigation and management) for further information.

During the Project's operation, BLB3 would operate similarly to BLB2 at a more southerly location. As such, existing operational plans and environmental management systems would be updated to reflect the new BLB3 and would continue to be applied.

Prior to the facilitated container operations, the extended quayline and wharf area would be managed in line with existing procedures at DP World. The facilitated container operations would be subject to environmental controls, in line with exiting container terminal activities.

Justification

This EIS has provided a comprehensive assessment of the environmental, social and economic impacts and addresses the key issues identified in the SEARs issued under Division 5.2 of the EP&A Act and the relevant provisions of Part 8 of the EP&A Regulation (refer to Appendix A (Statutory compliance)).

The Project is consistent with the four principles of ESD outlined in the EP&A Regulation. The precautionary principle has guided the assessment of environmental impacts for this EIS and the development of appropriate precautionary mitigation measures.

The Project would meet inter-generational equity, servicing the needs of both current and future generations, by driving competition between the stevedores ultimately resulting in reduced goods for consumers. The Project responds to future needs by accommodating longer vessels, helping to ensure that the port remains capable of handling evolving global trade demands and provides long-term economic benefit to New South Wales.

The Project would not impact areas of high ecological value in Botany Bay, such as Towra Point Nature Reserve, Towra Point Aquatic Reserve, Cape Banks Aquatic Reserve and Penrhyn Estuary, conserving biological diversity and ecological integrity. Applying the precautionary principle, project design refinements were made to remove an additional waterside construction compound (WSCC02) to minimise the potential for indirect disturbance impacts to the receiving environment near Penrhyn Estuary. With the implementation of identified environmental mitigation measures, the potential residual environmental impacts of the Project are considered manageable and acceptable.

In balancing the strategic need and benefits of the Project with the residual impacts, the Project is considered to be in the public interest.

Next steps

The Department of Planning, Housing and Infrastructure (DPHI) will exhibit this EIS for a minimum of 28 days, during which it will invite the community and stakeholders to make submissions on the Project. The EIS will be available for viewing at the DPHI major project planning portal: www.planningportal.nsw.gov.au/major-projects/projects/on-exhibition. A link to this site will be made available on NSW Ports' project website https://www.nswports.com.au/port-botany-quayline-equalisation.

Written submissions can be made through the DPHI major project planning portal. All submissions received will be placed on the DPHI website. DPHI will provide the submissions to NSW Ports for consideration. NSW Ports will then prepare and submit a Submissions Report, responding to the issues raised in the submissions.

The Minister for Planning and Public Spaces will determine the Project and, if approved, set conditions of approval.

NSW Ports will continue consulting with the community and stakeholders throughout the detailed design and construction phases of the Project as required.