

3 T4 Project description

3.1 Project objectives

PWCS's objectives for the T4 Project are as follows:

- to meet contractual obligations under the CFAs;
- to take advantage of market opportunities for the benefit of the local, state and national economies;
- to develop and operate a coal terminal in an efficient and responsible manner; and
- to achieve sustained environmental performance and community acceptance.

The following sections describe the proposed T4 Project. Section 3.13 discusses the alternatives considered and the 'do nothing' option.

3.2 Project overview

The T4 Project is proposed to be developed progressively over an estimated 10 years, in response to demand for increased coal export capacity. The maximum coal throughput capacity for the T4 Project will increase from around 70 Mtpa in Stage 1, to around 95 Mtpa in Stage 2 and a nominal 120 Mtpa at full development. All future expansion will be subject to industry demand. All coal will be received by rail, stockpiled and then shipped to market. The proposed T4 Project will include:

- placement of dredged sand and ground treatments, including preloading, to create suitable foundation conditions for development;
- construction and operation of rail tracks and rail receipt infrastructure;
- construction and operation of a coal stockyard, including coal stockpiles and yard machinery for stacking and reclaiming coal, eg stacker/reclaimers, reclaimers and/or stackers;
- construction and operation of wharf and berth facilities, shiploaders and ancillary facilities along the north and south banks of the Hunter River South Arm;
- construction and operation of coal conveyors, feeders and transfer stations that extend throughout the stockyard to deliver coal from the dump stations to the stockpiles, and to the wharves to deliver coal to the shiploaders;
- development of water and wastewater management infrastructure;
- ancillary facilities including electricity supply, fire fighting systems, refuelling, administration, fencing, amenities, landscaping, access roads, car parking areas and washdown facilities;
- use of some existing KCT infrastructure, systems and workforce, including administration, stores and maintenance facilities and environmental management and monitoring systems; and
- relocation of some existing infrastructure and services.

It will also include measures to mitigate or manage potential environmental impacts, including, but not limited to, dust and noise suppression, habitat creation and enhancement, and measures to protect sensitive surrounding receivers, such as the Hunter Wetlands National Park and Hunter Estuary Wetlands Ramsar site. These measures have either been included in the preliminary T4 Project design or will be incorporated into the final design, based on the outcomes of the technical assessments prepared as part of this EA.

A plan of the T4 Project is provided in Figure 3.1. The T4 Project components and the proposed staging strategy are described in more detail in the following sections. A three-dimensional model of the T4 Project preliminary design was used to generate indicative photomontages, which are presented in Figures 3.2 to 3.5.

3.3 Timing and staging strategy

Subject to obtaining relevant approvals, licences and permits, construction of the T4 Project is proposed to start in 2013, with the first coal shipped in late 2015. Construction will take place in nominally three stages over an estimated 10 years, in response to increases in demand for additional coal export capacity. Timing and scale of construction of the second and third stages will be driven by capacity demands nominated by coal producers. It is possible that export demands may also necessitate smaller incremental construction stages.

Construction will be concurrent with operations from around late 2015 onwards. The T4 Project's maximum coal throughput capacity will be progressively increased from around 70 Mtpa in Stage 1, to 95 Mtpa in Stage 2 and 120 Mtpa at full development. These capacity predictions may however vary by around 5 Mtpa for each stage; they are estimates only (based on pre-feasibility engineering), which have been used for modelling in this EA. The nominal timing, capacity and main components of each stage are shown in Figure 3.6. A flow diagram of the proposed T4 Project components by stage is presented as Figure 3.7.

The layout and configuration of each of the T4 Project's stages have been designed to allow ongoing expansion, with minimal disruption to concurrent operations.

3.4 Land reclamation and ground improvements

Land reclamation and ground improvements to provide a stable base for plant, equipment and coal stockpiles will be part of the T4 Project's construction. Ground improvement works will include activities such as:

- preloading and filling;
- deep soil mixing;
- piled earth rafting; and
- geofabric basal reinforcement.

Preloading will include pumping and placing dredged sand on parts of the T4 project area, in particular the proposed stockyard and rail corridor, to consolidate the underlying soft clay and silt material. Most preload and engineering fill material is anticipated to be sand dredged from the Hunter River South Arm. Dredging will mostly take place concurrently with Stage 1 of construction, though some dredging may take place during Stage 2 of construction. Dredged material will be pumped from the Hunter River South Arm to the proposed stockyard area (Figure 3.8). As discussed in Section 2.8, PWCS will dredge in

accordance with a separate development consent (DA-134-3-2003-i) held by NSW Maritime. Accordingly, while land-based dredge material emplacement and reclamation in the T4 project area form part of the T4 Project application under NSW legislation, dredging activities in the Hunter River are not included in the application.

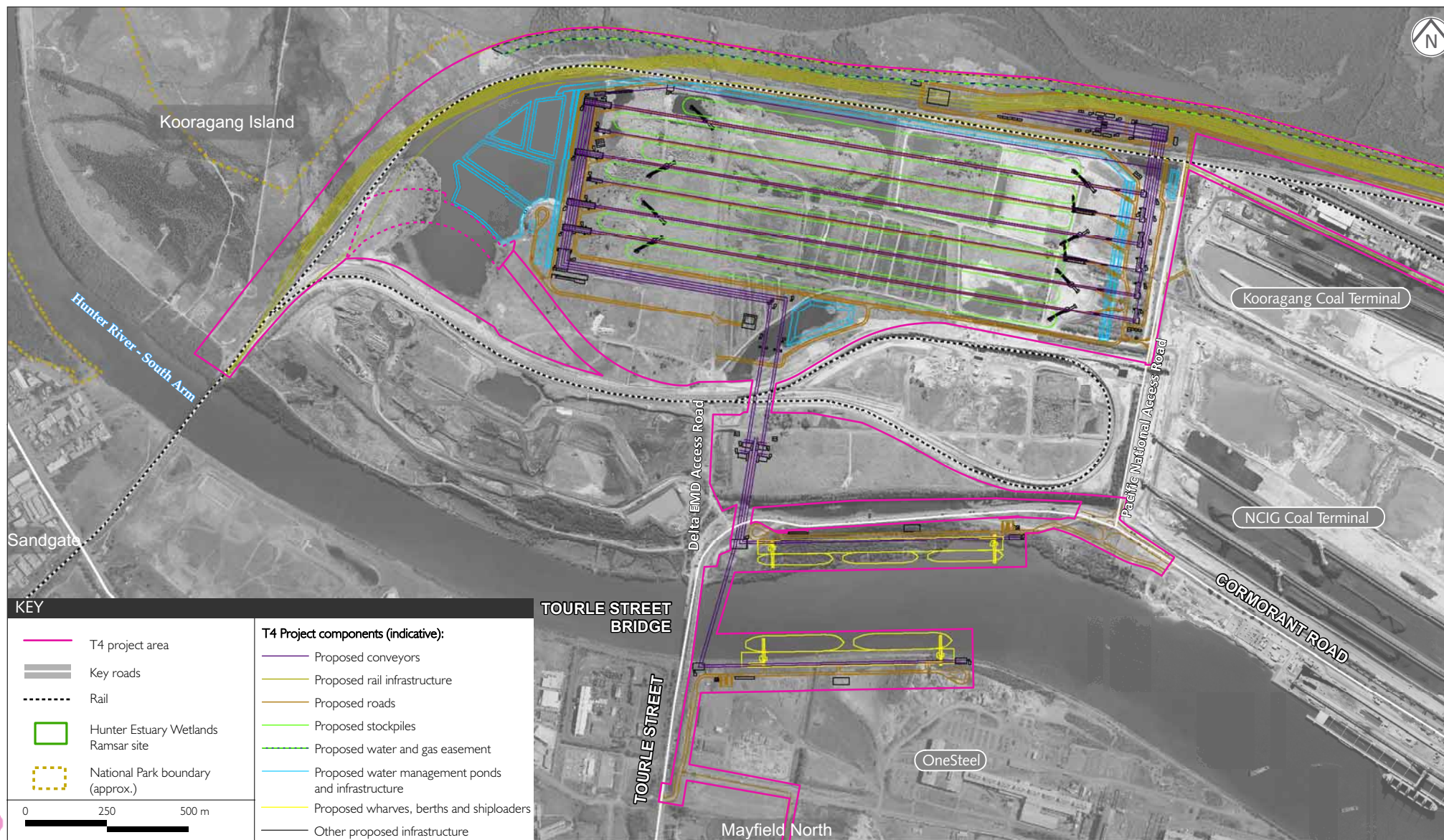
Some additional sand, gravel and rock engineering fill will be imported to the site during construction to supplement fill requirements. Engineering fill may also include suitable recycled materials, such as recycled concrete and rock. Most filling will take place during Stage 1 of construction, though smaller volumes of fill material will be imported during Stages 2 and 3. Based on the preliminary design information used for this EA, it is estimated that 5.5 million cubic metres (Mm^3) of dredged sand will be used as fill, 1 Mm^3 of imported sand and 0.6 Mm^3 of imported gravel and rock. Final fill volumes will be confirmed during detailed design.

While the majority of bulk earthworks will be fill, some excavation will take place, including at existing high points, the south bank wharf area, subsurface dump station and conveyor tunnel area, and to relocate the gas and water pipelines. Deep soil mixing is also proposed in some areas. This involves in situ mixing of cement and/or other reagent materials with the soil to improve geotechnical conditions. The project has however been designed to minimise disturbance of in situ contaminated materials and so excavation will be limited.

Piled earth rafting involves driving precast concrete piles into the ground to support machine berms and coal pads, with geo-synthetic reinforcement as a load transfer platform. Geofabric basal reinforcement involves the placement of geofabric to enhance the stability of embankments.

A combination of the ground improvement works described above will be used, depending on the ground conditions in any given area.

As part of the T4 Project's initial works phase, licensed waste emplacement areas will be closed and capped and other remediation activities will be undertaken in accordance with OEH EPL requirements. The proposed capping and remediation of the T4 project area provides an opportunity to implement a long-term solution to the existing contamination risks and contribute to the responsible development of an area that is contaminated. Contamination management and remediation strategies are described in Chapters 7 and 8 and Appendix F.



Aerial Imagery : 2011 Sinclair Knight Merz Pty Ltd.



T4 Project components (2)
T4 Project - Environmental Assessment
FIGURE 3.1



Source: Aurecon Hatch

3D aerial view of T4 Project (preliminary design)
viewed north from Hunter River South Arm

T4 Project - Environmental Assessment

FIGURE 3.2



Source: Aurecon Hatch

3D aerial view of T4 Project (preliminary design)
viewed north from Mayfield North

T4 Project - Environmental Assessment

FIGURE 3.3





Source: Aurecon Hatch

3D aerial view of T4 Project (preliminary design)
viewed south-east from near proposed water management ponds

T4 Project - Environmental Assessment

FIGURE 3.4



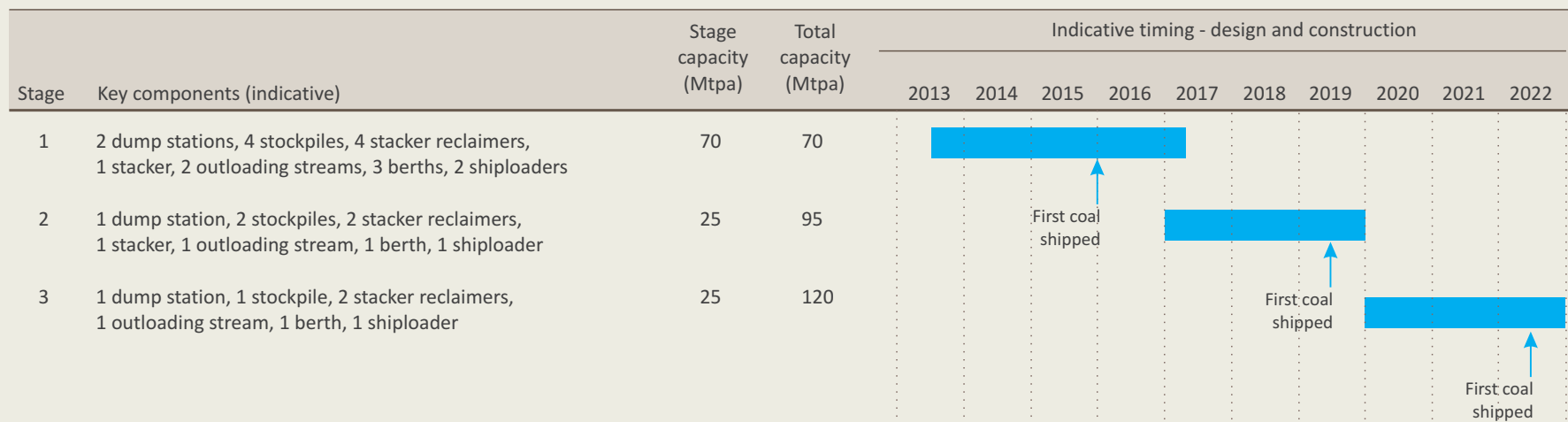
Source: Aurecon Hatch

3D aerial view of T4 Project (preliminary design)
viewed south-west from near proposed transfer stations

T4 Project - Environmental Assessment

FIGURE 3.5





Indicative construction staging
T4 Project - Environmental Assessment

FIGURE 3.6



K41 : Receivals

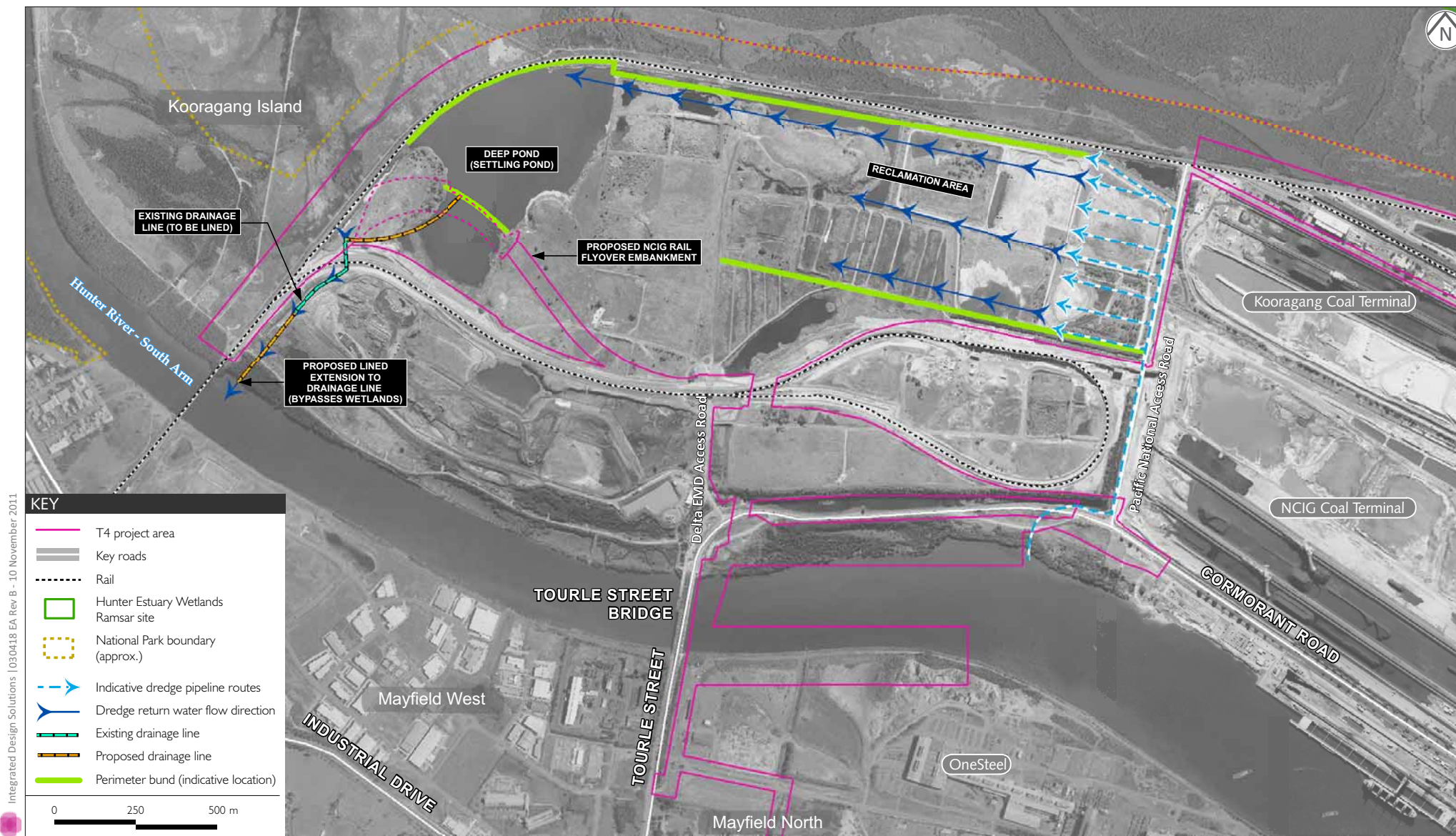
K41 : Receivals
K42 : Inbound sampling
K43 : Stacking
K44 : Reclaiming & stacking
K45 : Outloading
K46 : Outloading sampling
K47 : Shiploading

Stage 01		70 Mtpa
Stage 02		95 Mtpa
Stage 03		120 Mtpa

 Single stage construction
 Staged construction

 Magnet
 Weigher

FIGURE 3.7



Conceptual surface drainage plan – dredge material emplacement phase

T4 Project - Environmental Assessment

FIGURE 3.8

3.5 Rail infrastructure and coal receipt

All coal will be received by rail. The rail infrastructure will be progressively constructed, generally along the same alignment as the existing rail lines servicing Kooragang Island, starting north of the Hunter River rail bridge (Figure 3.1).

Rail infrastructure will ultimately comprise up to eight arrival tracks, converging into up to four dump stations, where coal will be unloaded from trains by bottom dumping. There will be eight departure sidings for the dump stations, that combine into a single track around the outside of the existing KCT rail loop, that will re-join Kooragang Island's single departure track over the Hunter River rail bridge. The proposed rail infrastructure is illustrated in Figure 3.1.

Rail infrastructure will include new signalling, train control and communications. This will require relocating, or decommissioning and replacing existing signalling and communication systems at Kooragang Island, to be determined during detailed design. The majority of work required for signalling, train control and communications will be done during Stage 1 of construction.

All rail tracks for the T4 Project will be independent of the existing Kooragang Island rail tracks, including KCT and NCIG's tracks and the track servicing industries at Walsh Point. The rail design for the T4 Project has considered existing rail users and the proposed rail flyover at the NCIG balloon loop junction with the Kooragang Island main rail line to the north of the Hunter River rail bridge. The proposed flyover is intended to provide NCIG with three arrival tracks that pass over the Kooragang Island main line departure track.

Rail receipt infrastructure will include up to four dump stations and conveyor tunnels. The dump stations will extend a nominal 25 to 30 m below track level, subject to detailed design. The subsurface external walls are proposed to be constructed in situ, using diaphragm walls constructed in an excavated trench supported by a bentonite slurry. For this process, steel reinforcement is placed within the excavated trench and then concrete is placed in the base of the trench, which displaces the bentonite slurry to the surface. Excavation will be carried out inside the box formed by the diaphragm walls. The excavated material will be treated and used on-site or off-site depending on the nature of material encountered. The excavation will be dewatered during construction, with dewatering discharged to the T4 Project's water management system.

During operations, trains will enter the dump stations and release coal into subsurface hopper bins. The coal will then be transported by conveyors to inbound coal quality sampling stations then onto transfer stations that will feed into the coal stockyard (refer Figure 3.1). A schematic cross-section of the proposed dump stations and stockyard area is provided in Figure 3.9.

3.6 Coal stockyard and coal stockpiles

The coal stockyard is proposed to include coal stockpiles, machinery berms and coal stacking and reclaiming machines (Figure 3.9). Progressive development of the coal stockyard will include constructing coal stockyard benches, following ground treatments, and emplacing compacted fill to create a relatively level stockyard area (as described in Section 3.4). Coal containment and machine berms (to support stacking and reclaiming machinery) will be constructed, as illustrated on Figure 3.9. The machine berms will be elevated around 5 m above stockyard level. Ground improvement works and earthworks will be staged throughout construction of Stages 1, 2 and 3.

The T4 Project is still subject to detailed design, which may refine project layouts. However, it is expected that coal stockpiles will be oriented in an east to west direction, and be progressively constructed from the north of the site during Stage 1, towards the south in later construction stages (Figure 3.7). At full

development, there will be up to seven stockpiles, with a total capacity of around 5.3 Mt. Each stockpile will be nominally 1,400 m long, 50 m wide and up to 21 m high (although actual dimensions will be subject to detailed design). The coal stockyard design aims to maximise the coal storage area, while minimising the requirement to excavate into the existing landform.

Yard machinery will be progressively installed and commissioned, likely comprising two stackers and eight combined stacker/reclaimers at full development. The final configuration of stacking and reclaiming machinery will be confirmed during detailed design. Yard machines will include combinations of stacking capability and rotary bucket wheel reclaim systems. These machines will be fully automated and move back and forth along the machine berms.

Stacker/reclaimer, reclaimer and stacker booms will be capable of both vertical movements, known as 'luffing', and rotary movement around a central axis, known as 'slewing'. Luffing will allow the height of the booms to be adjusted relative to the height of the coal stockpiles, while slewing will allow a single machine to operate on coal stockpiles either side of the machine berm. Stacker/reclaimers and stackers will also be capable of through-loading, which will allow coal to bypass the stockyard for direct shiploading. The largest items of yard machinery (reclaimers) would be more than 40 m high when operating.

A system of coal conveyors, feeders and transfer stations will extend throughout the coal stockyard to deliver coal from rail receipt to the coal stockpiles and then to the shiploaders for outloading.

Designated areas for collecting and treating coal spillage (including dewatering bunds) will be established throughout the T4 project area. Treatment will include drying for return to stockpiles and spilt coal may be screened at times.

3.7 Outloading conveyors and shiploaders

The outloading stream, for transferring coal from the coal stockyard to the ships, will include a system of conveyors, leading from the stockpiles to the shiploaders on the wharves. At maximum capacity, two shiploaders are proposed at the north bank wharf and two at the south bank wharf. Shiploaders are proposed to be an A-frame type design with a nominal average loading capacity of 10,500 tonnes per hour (tph) and peak capacity of 12,000 tph (although actual capacities will be subject to detailed design).

After it is reclaimed at the stockpiles, coal will be transported by conveyor to buffer bins. Including buffer bins in the design means reclaiming can occur continuously during hatch change times on the vessels (a hatch is an opening in the deck of a ship that provides access to a hold and through which cargo is loaded). Without buffer bins coal reclamation has to stop while hatch changes occur. At full development the T4 Project will have up to four buffer bins, each with a nominal capacity of 2,000 t (subject to detailed design).

From the buffer bins, coal will be conveyed to a transfer house on the north bank of the Hunter River South Arm. From there coal will be fed east onto shiploading conveyors and the shiploaders. For Stages 2 and 3, coal will also be conveyed to a transfer house on the south bank of the Hunter River South Arm and onto the shiploading conveyors and shiploaders at this location. Outbound coal quality sampling stations will also be provided.

The outbound conveyors are proposed to include elevated conveyor crossings of NCIG's rail loop, Cormorant Road and in later stages, the Hunter River South Arm, adjacent to the Tourle Street Bridge.

3.8 Wharves and berths

Wharf and berth facilities are proposed on both sides of the Hunter River South Arm, near the Tourle Street Bridge, as indicated in Figure 3.1. At maximum capacity, five berths are proposed which accommodate vessels ranging from Handy size, which can carry up to 60,000 deadweight tonnes (dwt) of coal, to Cape size, which can carry up to around 208,000 dwt of coal. The berths will be dredged in accordance with NSW Maritime's consent for this activity (DA-134-3-2003-i), which will be modified as required. Berth depths will be nominally -16.8 m NHTG.

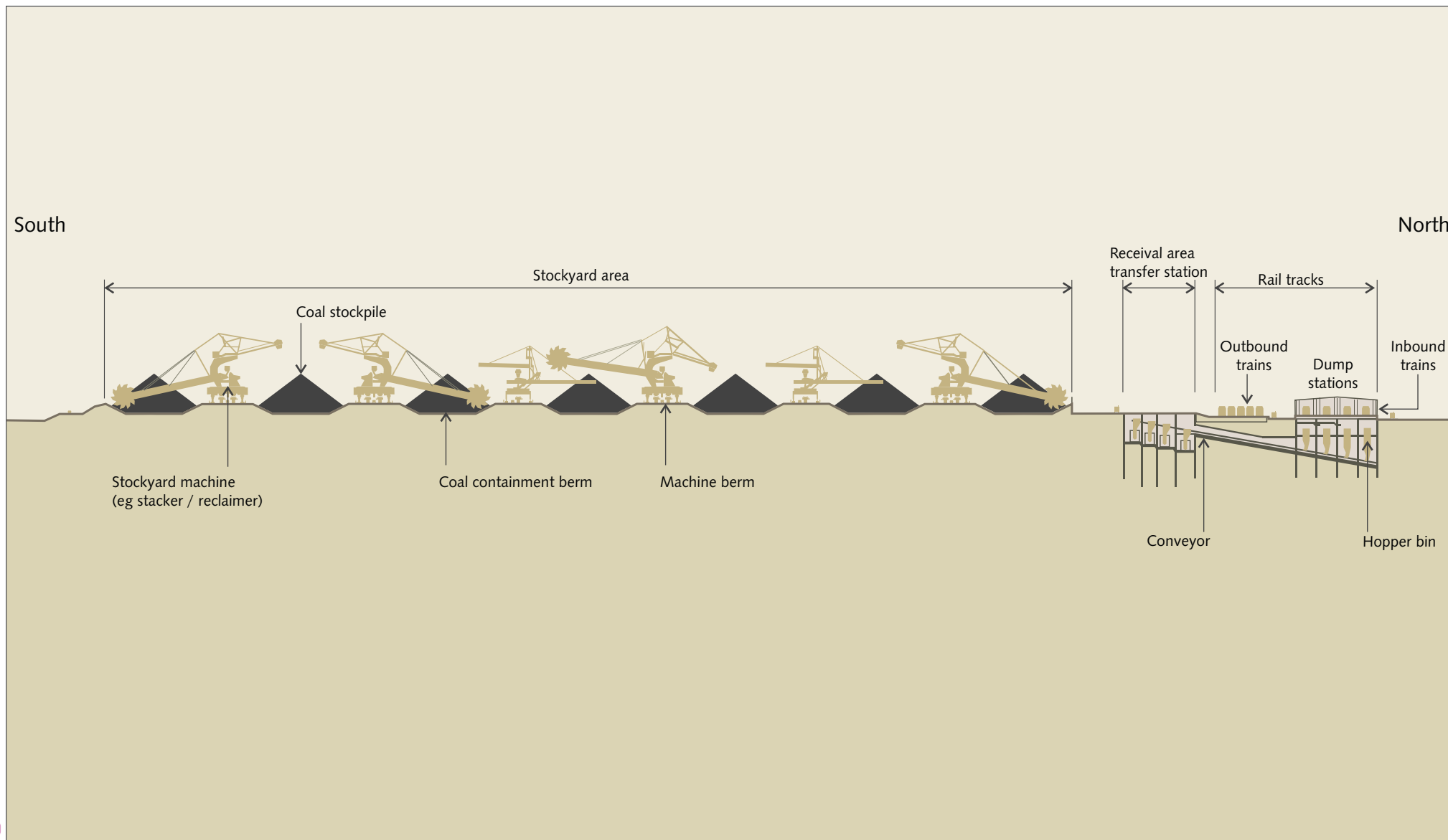
The wharf on the north bank is proposed to be approximately 750 m long and accommodate three berths and two shiploaders. It could accommodate either two larger vessels or three smaller vessels. The wharf on the south bank will be approximately 650 m long and accommodate two berths and two shiploaders. Final wharf and berth design will be refined during detailed design. Wharves are not proposed on the south bank until Stage 2, and so construction is not anticipated to start there until 2017, though this may change based on coal demand.

The construction method for the wharves and berths will generally involve:

- site preparation works, including vegetation clearing, access provision and temporary sheet-piling;
- installation of permanent piles and sheet piles, or sloping armoured rock revetment. This EA has assumed that piles will be used, installed up to around 20 to 25 m deep, subject to detailed design and geotechnical conditions encountered;
- earthworks to create the bench platform for the wharves, with an estimated finished RL of 4.26 m NHTG (subject to detailed design). On the north bank this will include emplacement of compacted fill. On the south bank this will include emplacement of a small amount of compacted fill and removal of material; and
- construction and commissioning of wharf facilities, including access roads, security facilities, walkways, drainage system, electrical system, fire fighting facilities, amenities and car parking areas.

The wharves have been designed to account for a range of hydrodynamic factors, such as scour and sea level rise. A wharf and berth area schematic cross-section is shown in Figure 3.10. Proposed road access to the wharf areas is described in Section 3.9.1.

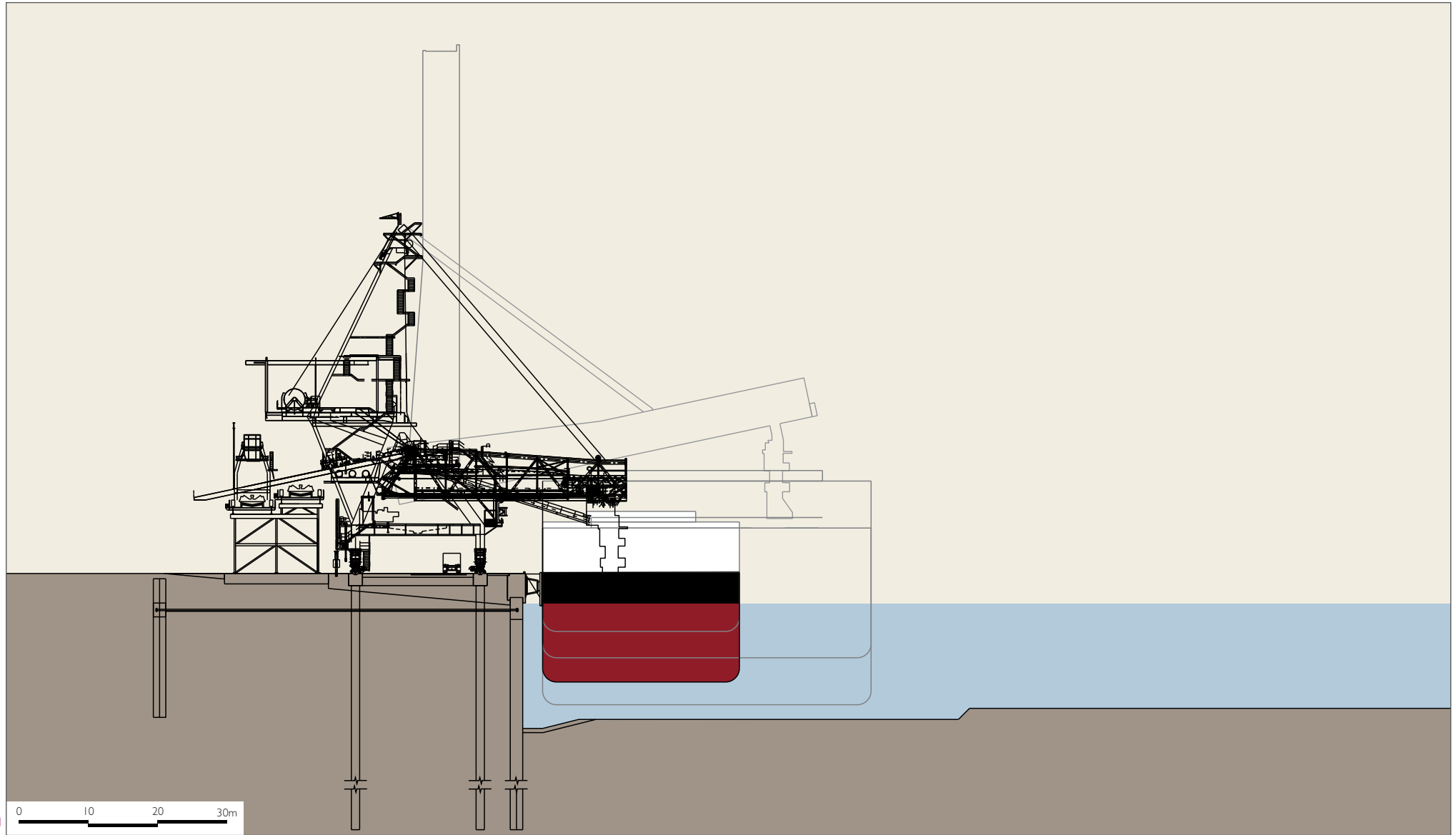
PWCS's existing wharves are subject to the provisions of the *Maritime Transport and Offshore Facilities Security Act 2003*. A range of security measures is therefore in place to control access to the wharves. The wharves proposed for the T4 Project will be subject to the same requirements, including provision of security facilities.



Schematic cross section - proposed dump stations and stockyard area

T4 Project - Environmental Assessment

FIGURE 3.9



Schematic cross section - proposed wharf and berth area

T4 Project - Environmental Assessment

FIGURE 3.10

3.9 Infrastructure and services

3.9.1 Roads and access

i Access

Access to the T4 project area is proposed to be from existing and new access points off Cormorant Road, Tourle Street and Industrial Drive, as well as via connection through KCT, which will be upgraded as necessary to safely accommodate T4 Project traffic. The proposed access arrangements are illustrated in Figure 14.3 and described below.

Access to the T4 project area on Kooragang Island is proposed:

1. Through KCT and to the north of the Kooragang Island main rail line, via existing gated access points to KCT off the northern end of Cormorant Road, and off Curlew Street and the Southern Access Road (private road). This will be the main access for vehicles coming from the east.
2. Potentially into the rail and utility corridor from east of KCT.
3. Potentially into the rail and utility corridor during construction via a private road south of the BHPB emplacement area, that leads from the Delta EMD Access Road to the rail bridge and around the outside of the existing Kooragang Island main rail line.
4. Via Pacific National Access Road and the NCIG Wharf Access Road (or equivalent) by:
 - a new four way roundabout located approximately 1.5 km east of the Tourle Street Bridge, to replace the existing Pacific National Access Road and NCIG Wharf Access Road T-intersections with Cormorant Road. This roundabout would provide access to the north bank wharves and other parts of the T4 project area to the north; or
 - a new wharf access road which would be constructed south of Cormorant Road and service the KCT, NCIG and proposed T4 Project wharves. This new road would be accessed via KCT's existing wharf access point off Cormorant Road. During construction, temporary traffic signals would be installed at the NCIG Wharf Access Road/Cormorant Road intersection.
5. From Cormorant Road, via the Delta EMD Access Road (left in/left out).

Access to the south bank wharf area will be:

1. From Tourle Street, via an existing left in/left out access point to the BHPB and OneSteel sites. The current median on Tourle Street would be extended to restrict right-turn movements.
2. From Industrial Drive, either by a northern extension to Woodstock Street or at an alternate location further to the east. This access requires agreement from a number of different land owners, as well as the road authorities, and has not yet been finalised. The current schedule assumes construction of marine facilities on the south bank will not commence until 2017 or later, subject to demand. The access from Industrial Drive will be assessed and finalised closer to this time, by which time traffic conditions and land ownership may have changed. It is likely that this intersection would be signalised to permit all movements.

Manned gatehouses or security gates, for example automatic sliding gates with card access, will be built at each of the access points. Access during construction and operations will be the same. Further details on access are provided in Chapter 14 and Appendix O.

ii Internal access roads

The proposed internal road network is illustrated in Figure 3.1. It will comprise sealed roads around the wharves and stockyard and along the machine berms. Unsealed roads will be provided around the water management ponds and along the rail embankment. Roads will mostly have two lanes and design speeds of 40 km/hr, and will be designed in accordance with relevant RMS, ARTC and Australian Standards.

For light vehicle access to the rail and utility corridor and dump station area, a two-lane flyover bridge will be constructed leading off the northern end of Pacific National Access Road and over the rail tracks (Figure 3.1). Heavy vehicles and wide loads will access the rail and utility corridor and dump station area by an 'at grade' rail crossing.

A trafficable lane on the conveyor bridge across the Hunter River South Arm is being considered to provide vehicle access between the north and south bank wharves.

iii Parking

During construction, vehicle parking will be provided at designated locations around the T4 project area that are not subject to construction or operational activities at the time. It is anticipated a peak total of 980 on-site car parking spaces will be provided during Stage 1, generally in car parking areas with a gravel surface in the stockyard area (400 parking spaces), northern wharf (200 parking spaces), dredging and land reclamation worksites (200 parking spaces) and rail loop worksites (180 parking spaces).

During Stages 2 and 3, the construction workforce will be smaller and the areas required for on-site car parking will be reduced accordingly.

Parking demand during operations will be low, as the T4 Project will largely be staffed by the existing KCT workforce. Sealed car parks will however be provided at the wharves, dump stations, coal sampling area, buffer bins, substations and gate houses for operational requirements.

3.9.2 Water supply and use

i Construction

Limited amounts of water will be required during construction, for example, for dust suppression. This will be supplied by connection to the Hunter Water Corporation (HWC) main. Water captured in sediment ponds will also be used where practicable.

ii Operation

During operations, water requirements will be met by surface water captured on site, supplemented by potable water bought from HWC. The T4 Project will require water for:

- dust suppression;
- belt cleaning and to washdown vehicles, machinery, wharf areas and conveyors;
- amenities and other potable water uses, including potable water supply to ships;
- fire protection systems; and
- landscaping irrigation.

A water balance model was developed as part of the surface water assessment of the T4 Project and the results are presented in Chapter 9 and Appendix J. The model indicates 76% of site runoff will be captured and re-used to meet 73% of the T4 Project's process water demands. The shortfall will be met by water bought from HWC and access to HWC's proposed recycled water reticulation may be possible in future years. Opportunities to integrate the T4 Project's proposed water management system with the KCT water management system may further reduce off-site water demand.

3.9.3 Water management

i Construction

Water management during construction will mainly involve sediment control and managing water decanted from the dredging and reclamation process material (refer Figure 3.8).

As described in Section 3.4, it is proposed to pump dredged material from the Hunter River South Arm to reclamation and settlement ponds located across the proposed stockyard area to provide preload and engineering fill material. The dredged sand will be a slurry and will generate sediment-laden water. Bunds will be used along the site perimeters to contain all dredge water and other surface water within the stockyard construction area. Dredge return water will flow to the existing water body in the T4 project area known as Deep Pond, the northern portion of which will be used as a settlement pond for fine sediments. Measures will be in place to prevent entry of dredge water to the southern portion of Deep Pond and liners will be used to prevent saline water egress to surrounding wetlands.

The sediment treated water will then be returned to the Hunter River South Arm (under licence) by the route indicated on Figure 3.8. This will incorporate part of an existing drainage line, which will be lined and extended to bypass the wetland area near the river's edge. In its surface water assessment, SMEC concluded that the proposed settlement pond (Deep Pond) would adequately capture sediment (refer Section 9.2.2 i). A surface water quality monitoring program will be in place to monitor water quality upstream and downstream of the discharge location. Monitoring will be required daily whenever there is a discharge to the Hunter River and monthly at all other times. Water bodies external to the T4 Project will also be monitored to confirm the effectiveness of the surface water management controls.

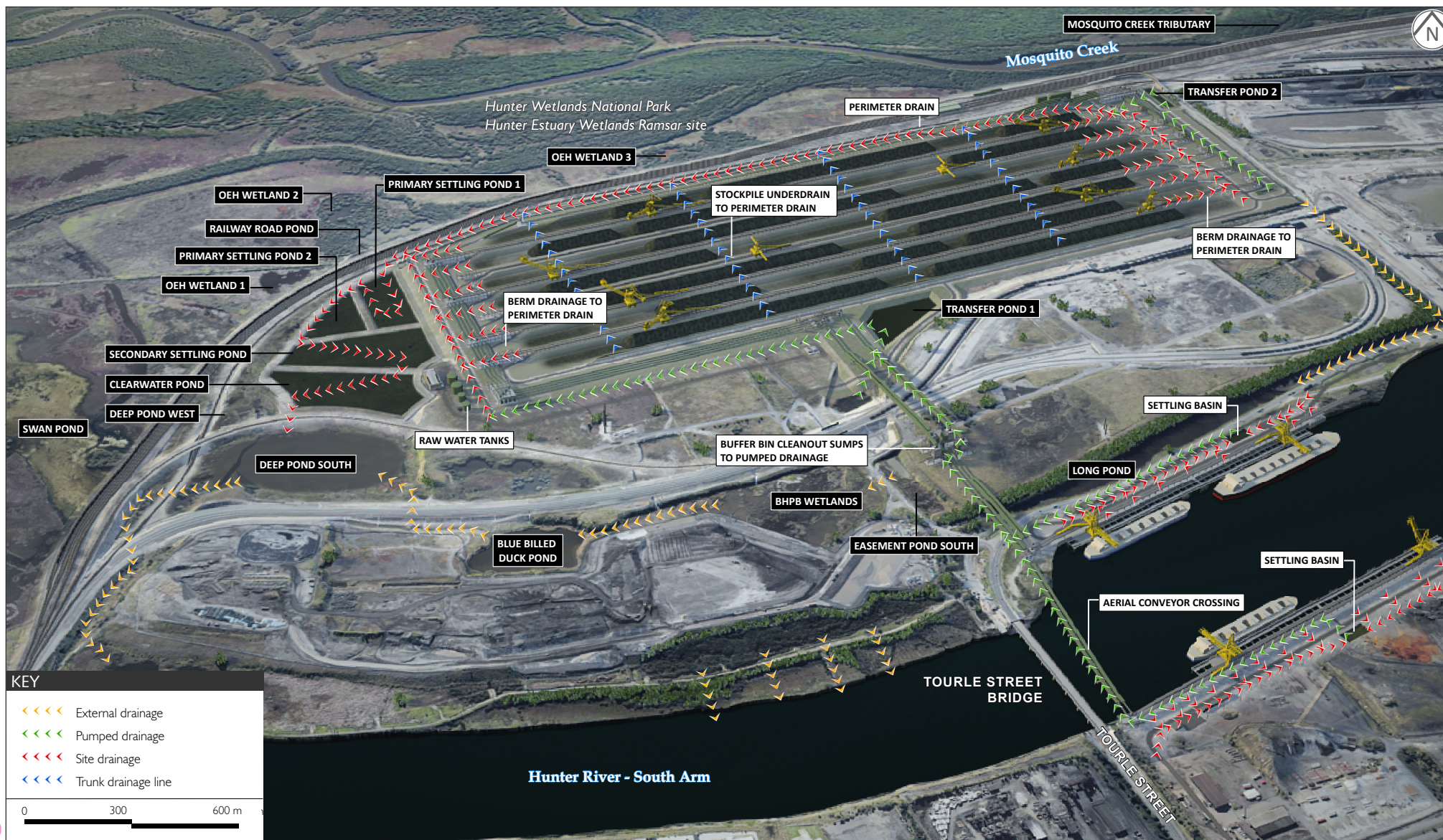
Temporary erosion, sediment, spill and leak controls, such as silt fences, will be installed before construction and maintained as set out in a Construction Environmental Management Plan (CEMP) to be prepared for the T4 Project. This will include installing silt curtains in the Hunter River South Arm while the wharf facilities are being built.

ii Operation

Figure 3.11 shows the conceptual surface water management system for the T4 Project. It has been designed to minimise the potential to contaminate surface water and groundwater and maximise stormwater re-use. Water generated from operational and non-operational areas will generally be managed separately.

Where practical, all surface runoff from external catchments (classified as 'clean') will be directed around the T4 project area by perimeter drains and discharge to nearby watercourses via existing drainage paths.

Surface runoff from operational areas will be gravity fed or pumped to gross pollutant traps, drains and settlement basins and then be re-used on site. Surface water from operational areas will only discharge to the Hunter River (via the southern portion of Deep Pond) during prolonged wet weather conditions. Surface runoff from the northern and western rail embankments will be directed to local sediment swales for treatment before it returns to the existing drainage regime.



Source: WorleyParsons, Aurecon Hatch
Aerial photo source: 2011 Sinclair Knight Merz Pty Ltd.

The four main settling ponds within the proposed surface water management system are shown on Figure 3.11. The series of four ponds will be lined with an impermeable membrane that is covered with imported gravel. The settling ponds, which are still subject to detailed design, will be constructed in the northern portion of Deep Pond and will operate as follows:

- Primary Settling Ponds 1 and 2 (combined storage capacity of approximately 41 ML) – water from operational areas will initially be directed to these ponds to remove coarse and medium-sized sediments by settling.
- Secondary Settling Pond (storage capacity of approximately 71 ML) – after primary treatment, water will enter this pond for capture of finer sediments.
- Clearwater Pond (storage capacity of approximately 71 ML) – after secondary treatment, water will be directed to this pond for storage and re-use or discharge. Overflows to the Hunter River will occur from Clearwater Pond (following treatment) during extreme rain events via the southern portion of Deep Pond.

The pond designs and storage volumes will be confirmed during detailed design.

In addition to the main settling ponds, smaller containment ponds will be located around the T4 project area, including a transfer pond between the wharf area and stockyard (Transfer Pond 1), and a settling pond at the eastern end of the stockyard (Transfer Pond 2) (Figure 3.11).

Surface runoff from the wharf areas will be managed by a pipe and pit reticulation system. At each wharf, flows will be captured in a settling basin next to the wharf access road to settle suspended sediment. Water will then be pumped to the main settling pond system described above.

A pump station next to the Clearwater Pond will transfer water to one of three 4 ML storage tanks that will supply T4 Project process water demands (Figure 3.11). A separate 4 ML storage tank will be reserved for fire fighting. The tanks will be topped up by water bought from HWC if recycled water levels are below a certain trigger level in the Clearwater Pond.

The main components of the surface water management system are described in Table 3.1.

Table 3.1 T4 Project drainage system - operations

Component	Description
Main settling ponds	A series of four settling ponds (Primary Settling Pond 1, Primary Settling Pond 2, Secondary Settling Pond and Clearwater Pond) will be constructed at the location of Deep Pond, north of the proposed NCIG rail flyover, to collect and treat all surface water runoff from operational areas ('dirty' runoff).
Stockyard	The stockyard drainage will comprise main drainage lines, pit and pipe system, clean-out sumps and underdrain system: • Main drainage lines will be located to the east, west and north of the stockyard area and convey surface water to Primary Settling Ponds 1 and 2. • The pit and pipe system will convey surface water from the yard equipment berms and adjoining access roads to the eastern and western main drainage lines. • Clean-out sumps, located in areas of the stockyard where coal could be spilt, will act as gross pollutant traps capturing coarse coal sediments and any accidental oil spills. These areas include the dump stations, conveyor inclines, transfer houses, buffer bins and the sampling area. Surface water will be pumped to the nearest main drainage line or settlement pond.

Table 3.1 T4 Project drainage system - operations

Component	Description
	Should an oil spill occur, the clean-out sump can be pumped to a truck and disposed of to an appropriate waste disposal facility.
	An underdrain network will be located under the stockpiles, and will convey captured surface water through crushed rock before it is discharged to the northern main drainage line.
Rail Infrastructure	Surface water runoff from the northern and western rail embankment will be directed to local sediment swales by drainage channels constructed next to the rail embankment. After settling, surface water will return to the existing drainage regime.
	Where possible the top of the rail embankment will be angled towards the stockyard so runoff will enter the stockyard drainage system.
Transfer yard	Surface water captured in the transfer yard and eastern end of the stockyard will be directed to Transfer Pond 2, for settling of coarse sediment before pumping the water to the stockyard drainage system.
Wharves	The wharf areas will be designed to ensure all surface water drains away from the Hunter River South Arm. The wharves will be serviced by pit and pipe systems draining to settlement basins. The basins will settle out coarse sediments and surface water will be pumped to the main settling ponds.
Transfer ponds	Transfer Pond 1 is a settling basin located south of the stockpile area, which will receive surface water pumped from the buffer bin and wharf area sediment sumps. Collected surface water will be pumped to the western main drainage line.
	Transfer Pond 2 is a settling basin located next to the transfer station to the east of the stockpiles. It will receive surface water from clean-out sumps to the east of the stockpiles and will pump out to the eastern main drainage line.

Sewage from amenities at the wharf facilities will be disposed of by connection to the existing gravity main. A closed sewage system will be required to service amenities at the dump stations.

Further discussion on water and wastewater management is provided in Chapter 9 and Appendix J.

iii Mitigation works

The proposed rail infrastructure will cross the southern ends of watercourses that abut the existing rail embankment (referred to as Mosquito Creek, Mosquito Creek Tributary, Eastern Watercourse and Eastern Freshwater Wetland). Drainage works to mitigate potential impacts will include:

- constructing a realigned estuarine channel to the north of the rail embankment, connecting Mosquito Creek and one of its tributaries (Mosquito Creek Tributary);
- potentially, modifying or removing an existing levee that has been constructed over the Eastern Watercourse; and
- providing drainage within the rail embankment to maintain flows into the Eastern Freshwater Wetland from the rail area.

Further details are provided in Chapter 9 and Appendix J.

3.9.4 Ancillary and shared facilities

In addition to the water and wastewater management systems, access roads and car parking areas described in Sections 3.9.1 to 3.9.3, ancillary facilities proposed to support the T4 Project will include:

- electricity supply, a new 33kV/11kV substation and switch rooms;
- dust suppression and fire fighting systems;
- security fencing;
- IT and data links;
- amenities;
- landscaping;
- administration; and
- potentially, refuelling and washdown facilities and external access road(s).

The T4 Project's proposed location will enable use of the existing infrastructure, systems and workforce at KCT, including administration, stores and maintenance facilities and environmental management and monitoring systems.

3.9.5 Infrastructure and service relocations

Construction of the T4 Project will require relocating some existing infrastructure and services. The following infrastructure will be relocated, generally to within the disturbance area shown on Figure 1.2:

- Sections of the Kooragang Island main rail tracks.
- Ship navigation aides.
- A section of water pipeline and approximately 3.2 km of a high pressure gas pipeline (subject to Licence No. 8 under the NSW *Pipelines Act 1967*) to be relocated to the north as part of the T4 Project. The gas pipeline, which is currently in an easement immediately north of the existing railway line, would be relocated into the northern part of the T4 project area. A new section of pipeline would be constructed and tied into the existing pipeline. The section of pipeline no longer required would be isolated and decommissioned. A temporary construction easement up to 60 m wide and associated construction compounds would be used for these activities. A new pipeline easement would be established over the relocated pipeline and the existing easement modified and extinguished as required. All associated work would occur within the T4 project area. The realigned water and gas easements are shown indicatively in Figures 1.2 and 3.1.
- Ausgrid transmission lines:
 - two 33 kV transmission lines, located north of the Kooragang Island main rail line, to be relocated to accommodate the new rail lines and dump stations. These could be relocated to a new easement just south of the proposed stockyard. Depending on timing of the full relocation, parts of the lines may have to be temporarily relocated to outside of the rail loop to accommodate early stages of the T4 Project;

- a 132 kV transmission line that passes immediately below the proposed location of the southern-most stockpile, to be relocated around 500 m south of its current position; and
 - partial relocation of the dual 132 kV and 33 kV transmission line on the southern side of Cormorant Road, to accommodate the proposed conveyors and north bank wharf.
- Fibre optic cable.
 - Potentially, buried services including a water main, to accommodate a roundabout and tie-ins on Cormorant Road (should a roundabout be included in the final T4 Project design).

Minor modification to local roads may also be required to serve construction and/or operational needs.

It is envisaged that the new gas pipeline will be horizontally directionally drilled whereas the new water pipeline will require open trenching. However, depending on geotechnical conditions, the new gas pipeline may also require partial or full open trenching. For the purposes of this EA it has been conservatively assumed that the entire water and gas easement will be cleared, whereas in practice this is unlikely to occur.

The existing Ausgrid wind turbine located next to Cormorant Road will need to be removed to accommodate the proposed swing basin in the Hunter River South Arm. The swing basin is approved under NSW Maritime's development consent (DA-134-3-2003-i) (as discussed in Section 2.8). The wind turbine, which is reaching the end of its design life, will either be relocated to an alternative location in the immediate area or PWCS will contribute to alternative green energy infrastructure in the local area.

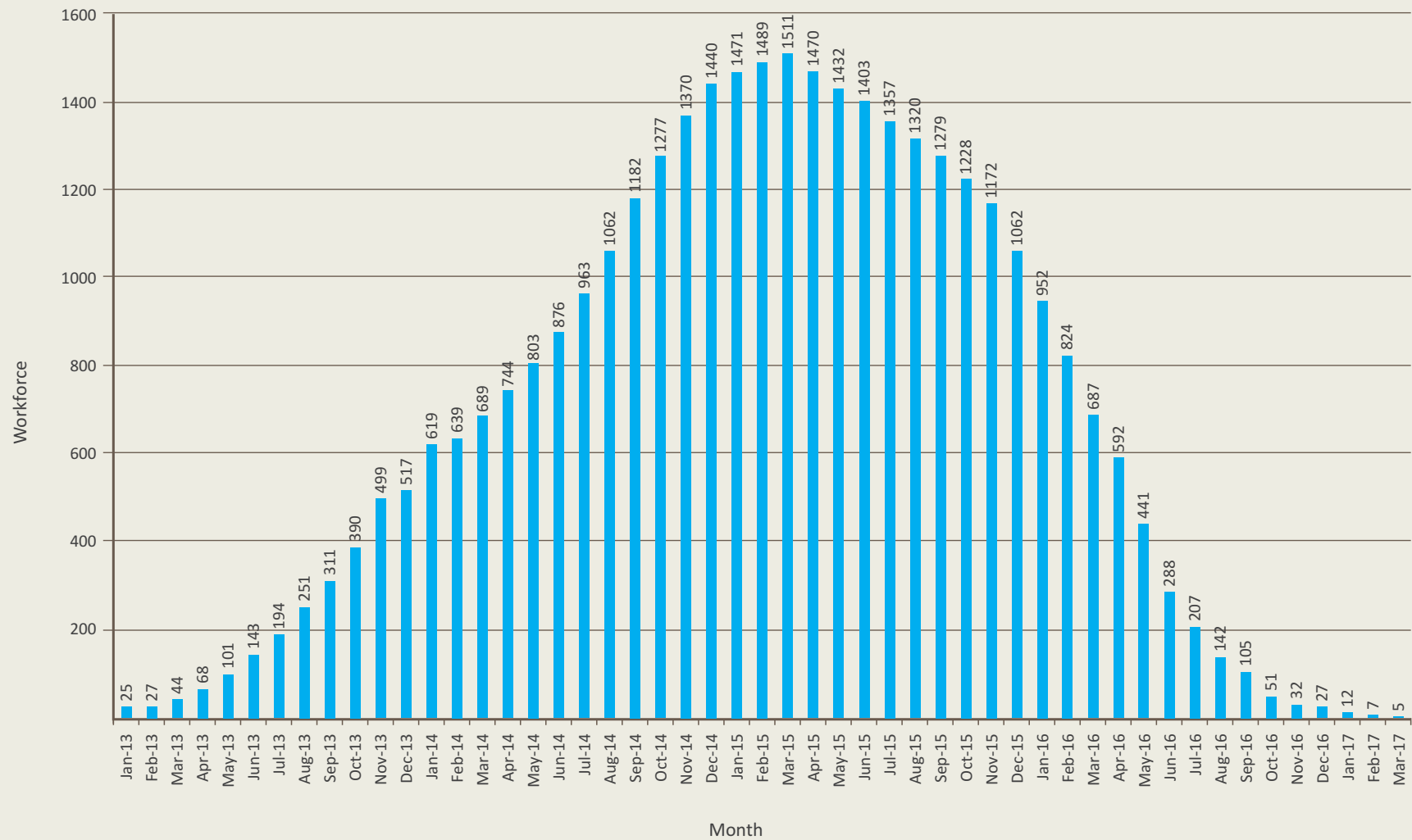
3.10 Workforce

3.10.1 Construction

The construction workforce will vary considerably over time. Staffing levels will be the highest during Stage 1 of construction, ranging from less than 100 workers in the first few months to an estimated 1,511 workers in the peak month of Stage 1 construction (Figure 3.12). For Stages 2 and 3, the construction workforce will be considerably less than for Stage 1, peaking at an estimated 578 workers and averaging around 290 workers in both stages. Actual workforce requirements may vary based on schedule and completion of detailed design.

3.10.2 Operations

The T4 Project will largely be operated by the existing KCT workforce, which includes almost 400 employees, 16 apprentices and numerous contractors (average of more than 750 in 2011). During operations a small number of new roles may be created in PWCS as a result of the T4 Project.



Estimated stage 1 construction workforce

T4 Project - Environmental Assessment

FIGURE 3.12

3.11 Hours of operation

3.11.1 Construction

Dredging and reclamation, including pumping dredged material to the T4 project area may take place 24 hours a day, seven days a week. Construction works will generally occur during daylight hours however, may also take place 24 hours a day, seven days a week as required.

3.11.2 Operations

The facility will operate 24 hours a day, seven days a week, as occurs at KCT.

3.12 Habitat creation and enhancement

Without application of mitigation measures or biodiversity offsetting, the T4 Project has the potential to impact ecological values of the T4 project area. Substantial impact mitigation and offset strategies have been formulated to minimise and mitigate the T4 Project's impact on threatened species, populations and ecological communities, and their habitats.

A corridor will be built that comprises a series of habitat features for the green and golden bell frog, and forms a link across the T4 project area to habitat under construction or retained on public and private lands next to the T4 project area (refer to Chapter 10 and Figure 10.10). The corridor's conceptual plan has been designed with input from green golden bell frog experts at the University of Newcastle School of Environmental Science and Management. Where possible, habitat to be created as part of the green and golden bell frog corridor will also be designed to provide habitat for other native flora and fauna species that occupy the freshwater wetland habitats of the T4 project area, including pondweed (*Zannichellia palustris*), Australasian bittern (*Botaurus poiciloptilus*) and black-necked stork (*Ephippiorhynchus asiaticus*). Native sedges and rushes will be incorporated in the freshwater wetland habitat.

PWCS has committed to a comprehensive strategy to mitigate/offset the unavoidable impacts of the T4 Project, described in Chapter 10. This includes avoidance measures, minimising disturbance to key threatened species habitat and preparing a comprehensive Biodiversity Offset Strategy. The Biodiversity Offset Strategy includes the protection and enhancement of native vegetation and threatened species habitat, to develop a positive long-term outcome for the threatened species and key ecological features affected by the T4 Project, and to maintain or improve the viability of threatened species that could be significantly affected by the T4 Project through the securing and/or restoration of habitat in the Lower Hunter or elsewhere within their range.

The areas proposed for habitat creation and enhancement are described in further detail in Chapter 10.

3.13 T4 Project alternatives

3.13.1 General

This section briefly describes the alternatives that were considered to achieve the project objectives before developing the proposal described in this chapter. The advantages and disadvantages of each alternative are discussed. A justification for the preferred option is provided in Chapter 20.

The alternatives considered included:

- do nothing;
- expand existing coal terminals;
- develop a coal terminal at another port; and
- develop an alternative site in or near the Port of Newcastle.

In addition, a number of alternative designs for the T4 Project were considered.

3.13.2 Do nothing

As described in Chapter 2, under the provisions of the CFAs, new coal export capacity is required and PWCS has a contractual obligation to ensure capacity and build the T4 Project, either at the proposed location or an alternative location within the Port of Newcastle or nearby. To not do so will avoid PWCS spending billions of dollars in capital investment, environmental management and monitoring and avoid the T4 Project's potential environmental impacts. However, this is not considered feasible as:

- PWCS will not meet its contractual obligations under the CFAs, which include that 'construction of a new terminal must be finalised within four years of the capacity shortfall being formally acknowledged';
- PWCS's port facilities will not be able to adequately service future coal exports, with significant negative consequences for coal producers in the Hunter Valley and Gunnedah basin which will be unable to ship product coal to market; to the workforces and communities supported by these coal producers; and to local, state and national government revenues from lost tax and royalties;
- the growing international demand for Hunter Valley and Gunnedah basin coal will not be adequately met, with potential flow-on effects to the economies of consumer countries;
- the benefits of the CFAs will not be realised, including providing a solution to the uncertainty and capacity constraints experienced in the Hunter Valley Coal Chain, reducing offshore vessel queues and associated demurrage costs and environmental and safety risks, and maintaining or improving the international reputation and performance of the NSW coal industry; and
- other benefits of the T4 Project will not be realised, including substantial capital investment into the local area, tax payments, increased employment (direct and indirect) and the remediation and beneficial use of a large flat portside area previously used for waste disposal.

3.13.3 Expansion of existing coal terminals

There are four major ports in NSW: Sydney Harbour, Port Botany, Port Kembla and the Port of Newcastle. Of these, only Port Kembla and the Port of Newcastle have existing coal terminals. Expanding the terminals at both these ports was considered.

i Expand existing terminals in the Port of Newcastle

There are three coal terminals in the Port of Newcastle; CCT, KCT and NCIG with an approved total throughput of 211 Mtpa.

CCT is PWCS's smaller terminal with a maximum throughput capacity of 25 Mtpa. The only feasible opportunity to expand CCT is on the former BHP Steelworks site immediately north of the terminal. However, this is not considered feasible because of, among others, environmental and land use factors. In terms of land use factors, the former BHP Steelworks site is proposed to be developed as a port facility to handle containers, bulk liquids, general cargo and no-coal bulk cargo as part of the NSW government's long-term strategy for developing a diversified Port of Newcastle. This was confirmed in January 2012 when the NSW government refused to consider a proposal to develop a coal terminal on the site.

KCT has an existing capacity of 88 Mtpa, however, the total approved capacity is 120 Mtpa. To meet increasing demand, PWCS has implemented a continuous program of expansion and efficiency improvements at KCT. It has approval for a maximum throughput of 120 Mtpa and construction works are under way for it to achieve this rate. To achieve this throughput will require a number of upgrades to plant and equipment; the theoretical maximum throughput of KCT is 120 Mtpa. KCT is constrained to the north and east by the Hunter Wetlands National Park and Hunter Estuary Wetlands Ramsar site and NCIG and other industrial development to the south. It could only feasibly be expanded to the west onto vacant land forming the T4 project area (which is the T4 Project).

NCIG has approval for a maximum throughput of 66 Mtpa. The existing terminal has a maximum throughput capacity of 30 Mtpa. Construction is under way to increase its capacity to 53 Mtpa. NCIG is constrained to the north and east by KCT and other industrial development and by the Hunter River South Arm to the south. There are no feasible options to expanding NCIG to the extent required to accommodate the demand which is underpinning the T4 Project.

ii Expand terminal at Port Kembla

Port Kembla, through Port Kembla Coal Terminal (PKCT), exports coal from the Southern and Western Coalfields in NSW, from mines in the Illawarra, Wollondilly and Lithgow areas. Port Kembla exports approximately 14 Mtpa, which equates to around 11% of annual coal exports through the Port of Newcastle.

PKCT has also identified that it has to increase its capacity to meet increased forecast demand for coal throughput from the mines it services. It has identified a number of works required to meet this demand, including upgrading berths and shiploading facilities and potential extension to its coal stockpiles and associated infrastructure.

PKCT does not have the capacity to export the predicted coal demand from the Hunter Valley and Gunnedah basins serviced by the Port of Newcastle. Its capacity for expansion is constrained by land availability and rail capacity constraints.

3.13.4 Development at another port in NSW

An alternative is to develop a terminal at another port in NSW. As previously stated, other than Port Kembla, the only other major ports in NSW are Sydney Harbour and Port Botany. No other port or harbour has the capability and/or infrastructure in place to receive and manage large vessels to export coal.

Sydney Harbour and Port Botany do not have facilities to export coal; they also only have small amounts of land available for development. The land, where available, is generally earmarked for expanding general cargo export and imports.

Developing coal export facilities at Port Botany will be inconsistent with Commonwealth and state plans and policies for ports and port development as well as the requirements of the CFAs.

3.13.5 Development at another site in Port of Newcastle

Before undertaking an order of magnitude and pre-feasibility study for the T4 Project, PWCS considered a range of alternative sites in or near to the Port of Newcastle. As previously discussed, expanding CCT at Mayfield on the former BHP Steelworks site is not considered feasible. To find enough vacant land (around 200 ha) to develop a coal terminal, land at Tomago, Hexham and Sandgate was investigated.

Developing a coal terminal at these locations was discounted for a number of reasons, including:

- Suitability of land – the availability of suitable flat land that was not flood liable at these locations was very limited. Conversely, the T4 project area is suitable to develop a coal terminal, being flat and generally above flood levels.
- Land use and zoning – potential sites that were appropriately zoned for industrial facilities at Tomago, Hexham and Sandgate were also very limited. Conversely, the T4 project area is largely vacant land zoned for industry and port-related uses, which is consistent with strategic planning policies and instruments at a Commonwealth, state and local level.
- Distance from portside land – a coal terminal at these either Tomago, Hexham or Sandgate would require the construction of conveyors varying between around 5 and 8 km to transport coal from the terminal to available berth locations in the Hunter River South Arm. The T4 project area location is preferred as it eliminates the need to construct conveyors that long.
- Transport infrastructure (rail and road) – while sites at Hexham and Sandgate are close to existing rail, developing a coal terminal at Tomago would require the construction of a new rail corridor, including a crossing of the Hunter River. The T4 project area is serviced by existing rail lines and road transport facilities.
- Dredging shipping channels – existing dredging approvals to extend shipping channels in the Hunter River South Arm next to the T4 project area are already in place. To develop a terminal at Tomago, Hexham or Sandgate could necessitate extending shipping channels further upstream in the Hunter River, beyond the extent to which they are approved. Additionally, both the Tourle Street Bridge, and rail crossing of the Hunter River upstream of the T4 project area would require substantial engineering works/reconstruction to make the river navigable to ships.
- Proximity to existing terminals and workforce – a coal terminal at any of these locations would be isolated from existing terminals. Conversely the T4 project area is located next to KCT and its workforce, control systems and maintenance facilities, which eliminates the need to duplicate services and workforces.
- Tenure – PWCS had no tenure over land at the alternative locations considered. Conversely, PWCS has tenure over most of the T4 project area either through ownership or via an Agreement For Lease (AFL) PWCS holds with NPC.

3.13.6 MNES comparative analysis

While alternatives to the T4 Project have been considered and are discussed above, including the do nothing option, no alternatives were pursued to the extent that would make it practicable to provide a comparative description of the impacts of each alternative on the matters protected by the controlling provisions of EPBC 2001/6029. To be able to do this, actual alternative sites to the T4 project area would need to have been identified and land access secured so that detailed surveys and assessments could be undertaken.

The controlling provisions for EPBC 2011/6029 are:

- wetlands of international importance;
- listed threatened species and communities; and
- listed migratory species.

These controlling provisions were based on a referral provided to the Commonwealth which detailed the results of extensive flora and fauna surveys of the T4 project area. For a comparative description of any alternative, the same level of survey would be required for any identified alternative site.

The do nothing option would not lead to any impacts on the relevant controlling provisions. But as Section 3.13.2 demonstrates, the do nothing option is not considered to be feasible. Sections 3.13.3 to 3.13.5 demonstrate that there are no feasible alternatives for the development of a coal terminal to service coal mines in the Hunter Valley other than the T4 Project and no feasible alternative sites other than the T4 project area. Accordingly, no alternative sites were considered beyond concept level. Given this, it is considered unreasonable and impractical to undertake a comparative description of the impacts of each alternative on MNES.

3.13.7 Summary

In summary, PWCS has not been able to identify a suitable alternative location for the T4 Project, which ideally has the following characteristics:

- a substantial flat area of portside land, that has been previously disturbed by industrial activities;
- rail infrastructure linked to the Hunter Valley coal fields, or the capacity to provide these at reasonable cost;
- a parcel of appropriately sized land adjoining an existing PWCS owned and operated coal terminal;
- vacant land zoned for port development; and
- land owned by PWCS or over which PWCS could obtain freehold title or lease agreement.

The T4 project area also has the substantial advantage of being mainly highly disturbed land that is located some distance from residential areas. No alternative location, including at the Port of Newcastle, will offer the same benefits from its proximity to the existing KCT facilities, which allows infrastructure, workers and management systems to be shared.

3.13.8 Design options

Numerous design options for the T4 Project's major components have been investigated as part of the concept, order of magnitude and pre-feasibility studies. These have included alternative stockyard, rail, berthing and pond locations and configurations, generally within and adjacent to the T4 project area. However, the proposal subject of this EA is the preferred project when considering a combination of operational, environmental and economic factors. On these grounds, other options have not been developed further.

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4 Approval and regulatory framework

4.1 Introduction

This chapter provides an overview of the Commonwealth and NSW approval and regulatory framework that applies to the T4 Project.

There are two main approvals required for the T4 Project, approval under the EPBC Act and approval under the EP&A Act. While two main approvals are required, only one EA process is required to be undertaken as the Commonwealth has accredited the EA process for the T4 Project under Part 3A of the EP&A Act (under a bilateral agreement between the Commonwealth and the State of NSW). Accordingly, this EA constitutes the document required to assess potential environmental impacts of the T4 Project under both the EPBC Act and EP&A Act. The approval process for the T4 Project under the EPBC Act and EP&A Act is depicted on Figure 4.1.

This chapter also describes the application of other legislation and policies to the T4 Project.

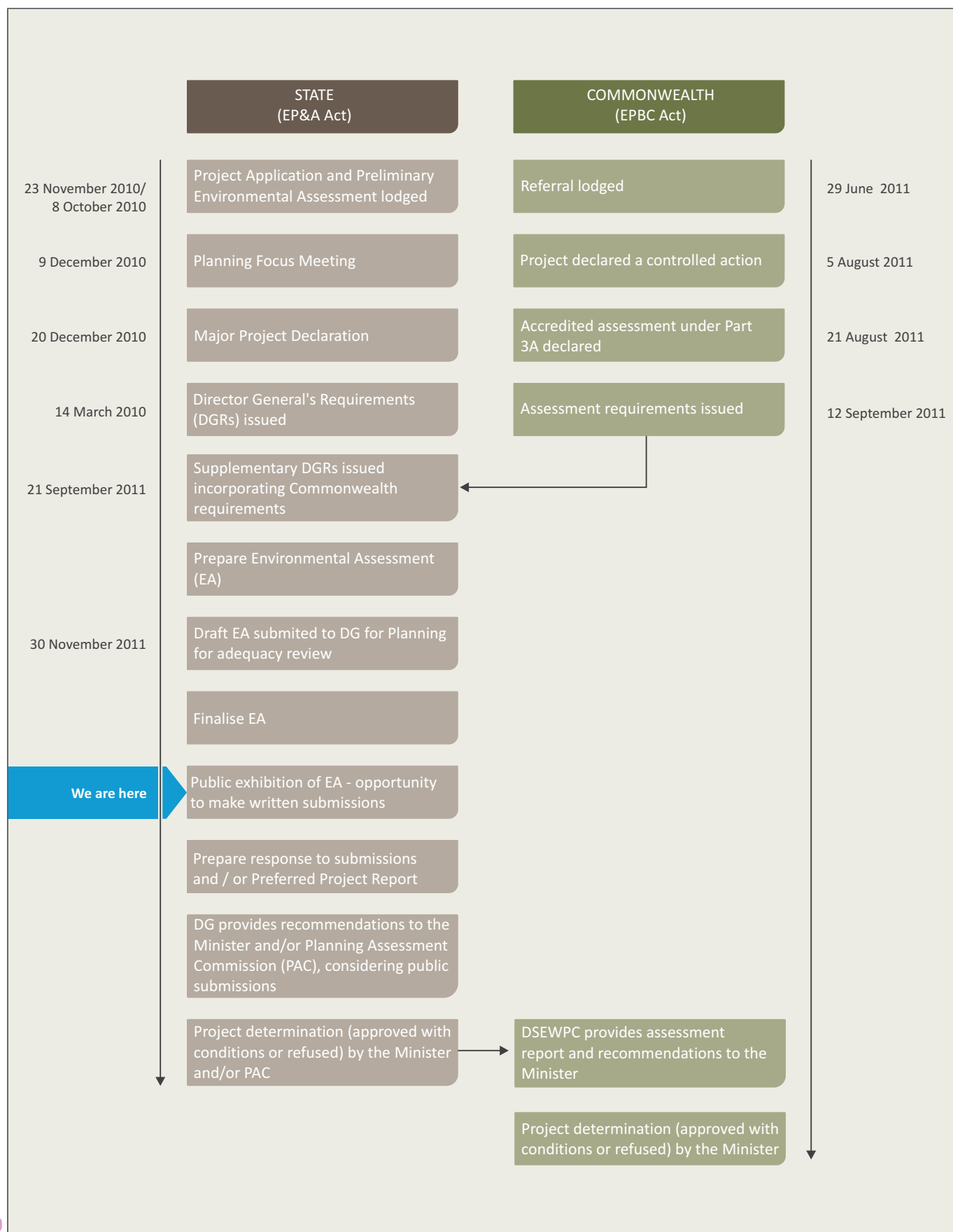
4.2 Commonwealth legislation

4.2.1 Environment Protection and Biodiversity Conservation Act 1999

The EPBC Act commenced on 16 July 2000. It provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places which are defined as MNES. It is administered by the DSEWPC.

The objectives of the EPBC Act are:

- (a) *to provide for the protection of the environment, especially those aspects of the environment that are matters of national environmental significance; and*
- (b) *to promote ecologically sustainable development through the conservation and ecologically sustainable use of natural resources; and*
- (c) *to promote the conservation of biodiversity; and*
- (ca) *to provide for the protection and conservation of heritage; and*
- (d) *to promote a co-operative approach to the protection and management of the environment involving governments, the community, land-holders and indigenous peoples; and*
- (e) *to assist in the co-operative implementation of Australia's international environmental responsibilities; and*
- (f) *to recognise the role of indigenous people in the conservation and ecologically sustainable use of Australia's biodiversity; and*
- (g) *to promote the use of indigenous peoples' knowledge of biodiversity with the involvement of, and in co-operation with, the owners of the knowledge.*



Under the EPBC Act, development that is likely to have an impact on a MNES is considered to be a 'controlled action' and can only proceed with the approval of the Commonwealth Minister for Sustainability, Environment, Water, Population and Communities. MNES defined under the EPBC Act are:

- world heritage properties;
- places listed on the National Heritage Register;
- Ramsar wetlands of international significance;
- threatened flora and fauna species and ecological communities;
- migratory species;
- Commonwealth marine areas; and
- nuclear actions (including uranium mining).

Development, or an action, that may potentially have an impact on a MNES is required to be referred to DSEWPC for determination as to whether or not the action is a controlled action. If an action is declared to be a controlled action DSEWPC may require a separate approval process for the action or may declare that the assessment of the action is to be managed by the relevant state or territory government on behalf of DSEWPC, also known as a bilateral agreement.

The T4 Project was referred to DSEWPC on 29 June 2011 to determine whether or not it is a controlled action under the EPBC Act (reference EPBC 2011/6029). The referral included all aspects of the T4 Project described in Chapter 3, as well as some dredging works.

Dredging will be undertaken in the Hunter River South Arm to create shipping channels and berths required to service the T4 Project. Sediments with suitable properties recovered from the dredging process will be used as engineering fill on the T4 project area, with the remainder disposed offshore at the existing designated disposal site (refer Section 4.2.2). On 9 August 2005, the then NSW Minister for Planning granted development consent to NSW Maritime (Development Consent No. DA-134-3-2003-i) for dredging within the Hunter River South Arm to facilitate the expansion of port facilities in the Port of Newcastle. The consent was specifically for the:

'Extension of shipping channels within the Port of Newcastle, including dredging, excavation, treatment and disposal of sediments from the south arm of the Hunter River'.

The development consent covers most of the dredging footprint for the T4 Project. Dredging will be undertaken in accordance with the existing consent, which will be modified.

While NPC previously prepared a referral under the EPBC Act for dredging within the Hunter River South Arm (reference EPBC 2003/950), most of which was approved, the dredging required for the T4 Project was not approved by the Commonwealth at that time. Accordingly, dredging activities required for the T4 Project upstream of the Commonwealth-approved dredging area formed part of the project referred to the Commonwealth on 29 June 2011.

The decision on the referral of proposed action by DSEWPC stated that the T4 Project was a controlled action as it may potentially impact the following MNES:

- Ramsar wetlands;
- threatened species and communities; and
- migratory species.

On 5 August 2011, the Assistant Secretary of the DSEWPC's Environment Assessment Branch, as Delegate for the Minister for Sustainability, Environment, Water, Population and Communities, declared the T4 Project to be a controlled action.

On 21 August 2011, the Minister's delegate notified PWCS that the assessment approach will be by accredited assessment under Part 3A of the EP&A Act. Under this accredited approach, the assessment of the T4 Project is managed by DP&I. Once the Director-General's assessment report is prepared, it will be forwarded to DSEWPC for its consideration. The Commonwealth Minister for Sustainability, Environment, Water, Population and Communities must then make a decision on whether to approve the taking of the action (with or without conditions) within 30 business days of receiving the assessment report. This timeframe may be extended if additional information is sought by the Commonwealth.

4.2.2 Environment Protection (Sea Dumping) Act 1981

It is proposed to pump suitable dredged sediments (sand) to the T4 project area on Kooragang Island to provide preload and fill material. Dredged material other than sand, including mud, silts, clay and rock is proposed to be disposed offshore at the existing designated disposal site. In order to dispose of dredged material at sea, PWCS will need to obtain a Sea Dumping Permit under the Commonwealth *Environment Protection (Sea Dumping) Act 1981*, which is administered by DSEWPC. A Sea Dumping Permit will be obtained for the T4 Project.

4.3 NSW legislation

4.3.1 Environmental Planning and Assessment Act 1979

The EP&A Act regulates planning and development in the State of NSW and is administered by DP&I.

The objectives of the EP&A Act are:

- (a) *to encourage:*
 - (i) *the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment,*
 - (ii) *the promotion and co-ordination of the orderly and economic use and development of land,*
 - (iii) *the protection, provision and co-ordination of communication and utility services,*
 - (iv) *the provision of land for public purposes,*

- (v) *the provision and co-ordination of community services and facilities, and*
- (vi) *the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats, and*
- (vii) *ecologically sustainable development, and*
- (viii) *the provision and maintenance of affordable housing, and*
- (b) *to promote the sharing of the responsibility for environmental planning between the different levels of government in the State, and*
- (c) *to provide increased opportunity for public involvement and participation in environmental planning and assessment.*

Part 3A of the EP&A Act was repealed on 1 October 2011. However the former provisions of part 3A of the EP&A Act continue to apply to the T4 Project by way of savings and transitional provisions under Schedule 6A of the EP& Act. Under Schedule 6A clause 2 'transitional Part 3A project' is defined as:

- (a) *an approved project (whether approved before or after the repeal of Part 3A),*
- (b) *a project for which environmental assessment requirements for approval to carry out the project, or for approval of a concept plan for the project, were notified or adopted before the relevant Part 3A repeal date.*

Environmental assessment requirements (or DGRs) for the T4 Project were provided on 14 March 2011 (refer to Appendix A) and accordingly the T4 Project is deemed to be a transitional Part 3A project to which Part 3A applies. These provisions are outlined below.

In relation to the application of Part 3A to the T4 Project, prior to the repeal of Part 3A section 75B(1) of the EP&A Act states that Part 3A applies to:

... the carrying out of development that is declared under this section to be a project to which this Part applies:

- (a) *by a State environmental planning policy, or*
- (b) *by order of the Minister published in the Gazette.*

Prior to the repeal of Part 3A, the Major Development SEPP defined certain developments that triggered the operation of Part 3A s. Clause 6 of the Major Projects SEPP stated:

- (1) *Development that, in the opinion of the Minister, is development of a kind:*
 - (a) *that is described in Schedule 1 or 2, or**...is declared to be a project to which Part 3A of the Act applies.*

Ports and wharf facilities are a category of development described in Schedule 1 of the Major Development SEPP. Clause 22 of Schedule 1 defined ports and wharf facilities as:

Development for the purpose of shipping berths or terminals or wharf-side facilities (and related infrastructure) that has capital investment value of more than \$30 million.

The T4 Project met this definition being development for the purpose of shipping berths and wharf-side facilities that has an estimated capital value in excess of \$5,000 million (M), that is, more than \$30 M. Accordingly, on 20 December 2010 the major project application in respect of the T4 Project was lodged and on 14 March 2011, Director-General's environmental assessment requirements for the T4 Project were notified.

In relation to the assessment and determination of 'transitional Part 3A projects', DP&I has advised that non-contentious proposals which attract less than 25 objections and do not have a local council objection will be determined by senior officers of the department. Otherwise the PAC will be the determining authority. The department will publish its assessment report online before the PAC makes its decision. Accordingly the consent authority for the T4 Project will be determined following public exhibition of this EA based on the number of submissions.

A number of legislative approvals either do not apply or cannot be refused for Part 3A projects. Section 75U(1) of the EP&A Act states the following in respect of development under Part 3A:

The following authorisations are not required for an approved project (and accordingly the provisions of any Act that prohibit an activity without such an authority do not apply):

- (a) *the concurrence under Part 3 of the Coastal Protection Act 1979 of the Minister administering that Part of the Act,*
- (b) *a permit under section 201, 205 or 219 of the Fisheries Management Act 1994,*
- (c) *an approval under Part 4, or an excavation permit under section 139, of the Heritage Act 1977,*
- (d) *an Aboriginal heritage impact permit under section 90 of the National Parks and Wildlife Act 1974,*
- (e) *an authorisation referred to in section 12 of the Native Vegetation Act 2003 (or under any Act to be repealed by that Act) to clear native vegetation or State protected land,*
- (f) *a permit under Part 3A of the Rivers and Foreshores Improvement Act 1948,*
- (g) *a bush fire safety authority under section 100B of the Rural Fires Act 1997,*
- (h) *a water use approval under section 89, a water management work approval under section 90 or an activity approval under section 91 of the Water Management Act 2000.*

Section 75V of the EP&A Act identifies a number of authorisations which cannot be refused if they are necessary for carrying out an approved Part 3A project and are to be substantially consistent with the project approval, namely:

- (a) *an aquaculture permit under section 144 of the Fisheries Management Act 1994,*

- (b) *an approval under section 15 of the Mine Subsidence Compensation Act 1961,*
- (c) *a mining lease under the Mining Act 1992,*
- (d) *a production lease under the Petroleum (Onshore) Act 1991,*
- (e) *an environment protection licence under Chapter 3 of the Protection of the Environment Operations Act 1997 (for any of the purposes referred to in section 43 of that Act),*
- (f) *a consent under section 138 of the Roads Act 1993,*
- (g) *a licence under the Pipelines Act 1967.*

The Part 3A approval process for the T4 Project is shown in Figure 4.1.

4.3.2 Protection of the Environment Operations Act 1997

In NSW air, noise, waste and water pollution is regulated under the NSW *Protection of the Environment Operations Act 1997* (POEO Act) which is administered by OEH. Under the POEO Act an owner or operator of land that is engaged in scheduled activities is required to hold an EPL. Scheduled activities are defined in Schedule 1 of the POEO Act and include:

- 10 *Coal works*
 - (1) *This clause applies to coal works, meaning any activity (other than coke production) that involves storing, loading or handling coal (whether at any coal loader, conveyor, washery or reject dump or elsewhere) at an existing coal mine or on a separate coal industry site.*
 - (2) *The activity to which this clause applies is declared to be a scheduled activity if:*
 - (a) *it has a capacity to handle more than 500 tonnes per day of coal, or*
 - (b) *it has a capacity to store more than 5,000 tonnes of coal (not including storage within a closed container or building).*

The T4 Project involves the handling of more than 500 t of coal per day and the storing of more than 5,000 t of coal and is therefore classified as coal works. The T4 Project will therefore require an EPL.

As detailed above, under section 75V(1) of the EP&A Act the issue of an EPL cannot be refused if it is necessary for the carrying out of an approved Part 3A project and must be substantially consistent with the terms of the project approval.

The EPLs that relate to the T4 project area include:

- EPL 6437 held by HDC;
- EPL 7675 held by PWCS since its purchase of the site from Delta EMD Australia Pty Limited in July 2010; and
- EPL 5022 held by PWCS for the FDF.

EPL 6437 was surrendered by HDC in December 2010. Prior to its surrender the EPL permitted waste disposal associated with the KIWEF. EPL 7675 also permits waste disposal associated with the landfill

formerly operated by Delta EMD Australia Pty Limited. EPL 5022 permits waste disposal associated with the FDF including waste disposal, waste storage (including hazardous, restricted solid, liquid, clinical and asbestos waste) as well as the non-thermal treatment of hazardous and other waste.

Should the T4 Project proceed, full or partial surrender, consolidation or transfer of EPLs 7675 and 5022 will be required. These options will be discussed and agreed with OEH and an updated EPL issued prior to any works being undertaken for the T4 Project.

A further licence, EPL 1552 permits coal works and shipping in bulk and is associated with the KCT.

Section 75V of the EP&A Act identifies an EPL as an authorisation which cannot be refused if it is necessary for the carrying out of an approved Part 3A project and is to be substantially consistent with the project approval. Accordingly, an EPL cannot be refused where it is necessary for the carrying out of the T4 Project.

4.3.3 Environmentally Hazardous Chemicals Act 1985

The NSW *Environmentally Hazardous Chemicals Act 1985* (EHC Act) is administered by OEH. It provides a mechanism for regulating chemicals of environmental concern. In addition, the EHC Act contains provisions for OEH to declare and make orders for the investigation and remediation of sites that OEH considers are likely to be contaminated with chemicals and that may pose a significant risk of harm to human health or the environment. These declarations of contaminated sites are now made under the *NSW Contaminated Land Management Act 1997*.

A notice under section 35 of the EHC Act was issued on 23 August 1991 for part of the KIWEF within the T4 project area, referred to in the notice as the 'former BHP Kooragang premises' (the Premises). The notice stated that the Premises were reasonably believed to be contaminated as a result of the dumping thereon of asbestos and asbestos wastes, and the premises are deemed to be contaminated by reason of their being environmentally degraded.

As discussed in Chapters 7 and 8, an asbestos disposal cell is contained in the northern part of the T4 project area. Asbestos was disposed in excavated pits 1 to 2 m below the ground level (at the time of emplacement) in bags.

Among other things, the notice required that the asbestos disposal area:

- be covered with an orange coloured marker mesh prior to covering with any refuse;
- be covered to a height of not less than 3 m with solid, inert refuse containing no putrescible material; and
- at the completion of covering with refuse, vegetation cover be established and maintained for a period of not less than two years.

The notice was revoked on 18 October 1993 at the completion of the above works. On the same date another notice was issued for the Premises. The notice, which is still active, requires approval from OEH for any of the following works undertaken on the affected part of the T4 project area:

- remedial action;
- dispersing or covering the contamination;

- removing or disposing of any soil, sand, rock, water or any solid or liquid material of any kind from the T4 project area;
- vacating, or ceasing to carry on any activity upon the T4 project area or any part thereof; or
- disturbance below a depth of 6.5 m AHD.

Comprehensive contamination and groundwater assessments have been undertaken for the T4 project area (Chapters 7 and 8 and Appendices C to G). Based on the results of these assessments, a number of mitigation and remediation options have been identified to address contamination of the T4 project area, including the area containing asbestos. These reports provide the information required for OEH to assess the above requirements.

4.3.4 Contaminated Land Management Act 1997

The NSW *Contaminated Land Management Act 1997* (CLM Act) is administered by OEH. It establishes a process where the significant contamination of land is investigated and, where appropriate, remediated. It establishes a legal framework that gives OEH powers to require the assessment and remediation of sites where contamination is deemed significant. As such, the general objective of the CLM Act is to establish a process for investigating and, where appropriate, remediating land that OEH has reason to believe is contaminated, where that contamination is considered significant enough to warrant regulation under the CLM Act.

Under section 60 of the CLM Act, a person whose activities have contaminated land or a landowner whose land has been contaminated is required to notify OEH when they become aware of the contamination. Such a person is required to notify OEH of contamination in any of the following circumstances:

- the level of the contaminant in, or on, soil exceeds a level of contamination set out in guidelines with respect to a current or approved use of the land, and people have been, or foreseeably will be, exposed to the contaminant; or
- the contamination meets a criterion prescribed by the regulations; or
- the contaminant has entered, or will foreseeably enter, neighbouring land, the atmosphere, groundwater or surface water, and the contamination exceeds, or will foreseeably exceed, a level of contamination set out in guidelines and will foreseeably continue to remain above that level.

The guidelines referenced above refer to OEH's *Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997* (DECC 2009). The regulations refer to the *NSW Contaminated Land Management Regulation 2008*.

A portion of the T4 project area (OneSteel land where the south bank wharves will be located) has been registered under the CLM Act as a significantly contaminated site and a voluntary management proposal for the site has been approved by OEH. Works for the T4 Project that are to be undertaken on the OneSteel site will also require approval from OEH.

The contamination assessment included the OneSteel site and the results are provided in Chapter 7 and Appendix D.

4.3.5 Threatened Species Conservation Act 1995

The NSW *Threatened Species Conservation Act 1995* (TSC Act), which is administered by OEH, commenced on 1 January 1996. The TSC Act aims to manage terrestrial threatened species, populations and ecological communities. The protection of threatened fish and marine vegetation is the responsibility of the Department of Primary Industries under the NSW *Fisheries Management Act 1994* (FM Act).

The main objectives of the TSC Act are to:

- conserve biological diversity and promote sustainable development;
- prevent the extinction of native plants and animals;
- protect habitat that is critical to the survival of endangered species;
- eliminate or manage threats to biodiversity;
- properly assess the impact of development on threatened species; and
- encourage cooperative management in the conservation of threatened species.

The TSC Act lists terrestrial species, populations and ecological communities that are deemed by the NSW Scientific Committee to be threatened.

The TSC Act, through Part 8A of the NSW *National Parks and Wildlife Act 1974*, prohibits the harming, picking, possessing, buying or selling of individual threatened species. It contains a prohibition against the damage of their habitat and contains provisions to protect endangered populations and threatened ecological communities. Notwithstanding this, the TSC Act provides for a number of exceptions to these prohibitions and this includes developments that are undertaken in accordance with approvals issued under the EP&A Act.

The potential impacts of the T4 Project on threatened species, populations and ecological communities are addressed in Chapter 10 and Appendix K.

4.3.6 Fisheries Management Act 1994

The FM Act aims to conserve, develop and share the fishery resources of NSW for the benefit of present and future generations. It is administered by Fishing and Aquaculture which is part of the Department of Primary Industries.

There are a number of permits under the FM Act that would normally be required for the T4 Project. These include:

- dredging and reclamation works under section 201;
- harming marine vegetation including mangroves under section 205; and
- creating an obstruction across a river so that the free passage of fish will or could be obstructed under section 219.

While the T4 Project will involve dredging, this activity will be undertaken in accordance with an existing development consent that will be modified. Reclamation works will be undertaken and have been addressed in this EA.

The T4 Project will require the removal of mangroves through the construction of wharves on the north bank of the Hunter River South Arm and the construction of rail infrastructure and utilities in the northern part of the T4 project area. The removal of the mangroves in the Hunter River South Arm is a permitted activity under Development Consent No. DA-134-3-2003-i.

The construction of the wharves and the conveyor across the Hunter River South Arm is unlikely to create an obstruction to the free passage of fish within the river.

As stated in Section 4.3.1, permits required under section 201, 205 or 219 of the FM Act are not required for projects which are approved under Part 3A of the EP&A Act. Notwithstanding this, an assessment of potential impacts of the T4 Project on marine vegetation and the passage of fish in the Hunter River South Arm is contained in Chapter 10 and Appendix K.

4.3.7 Water Act 1912

The NSW *Water Act 1912*, which is administered by NOW regulates all water resources in NSW that are not regulated by the NSW *Water Management Act 2000* (WM Act).

Amongst other things, under the *Water Act 1912* a water licence or authority must be obtained to:

- take water from a stream or river via a pump or other work for all purposes other than for basic landholder rights; and
- extract groundwater via any type of bore, well, spearpoint or groundwater interception scheme for all purposes except to take water from an aquifer under a basic landholder right.

The placement of dredged sediments from the Hunter River South Arm as engineering fill within the T4 project area will involve the taking of water from the river. Whilst this water will be decanted and returned to the water river it may require approval from NOW under the provisions of the *Water Act 1912*.

In addition, licences will be required for:

- dewatering during excavation for construction of certain structures (eg dump stations and receiving transfer house); and
- construction of additional groundwater monitoring bores.

4.3.8 Water Management Act 2000

The WM Act applies to all water resources (rivers, lakes and groundwater) declared by proclamation to be a part of the State. It is administered by NOW. Further provisions apply to water resources for which a Water Sharing Plan has been gazetted.

The Water Sharing Plan for the Hunter Unregulated and Alluvial Water Sources (the Water Sharing Plan) commenced on 1 August 2009. The Water Sharing Plan includes the Hunter unregulated rivers and creeks and alluvial groundwater above the tidal limit, and tidal pool areas of the Hunter River. As such, the sections of the Hunter River adjacent to the T4 project area are not included in this Water Sharing Plan.

Under section 91 of the WM Act approval is required for ‘aquifer interference activities’ and for ‘controlled activities’ (which include building, dredging, reclamation and vegetation removal) which are carried out in, on or under waterfront land (ie the bed of and land within 40 m of the Hunter Regulated River Water Source). Additionally the use of water from a water source in NSW requires an approval under section 89 of the WM Act.

However, as detailed in Section 4.3.1, a water use approval under section 89, a water management work approval under section 90 or an activity approval under section 91 of the WM Act are not required for projects approved under Part 3A of the EP&A Act and, therefore, are not required for the T4 Project.

4.3.9 Roads Act 1993

The NSW *Roads Act 1993* is administered by either the Road and Maritime Services (RMS), local government or the Land and Property Management Authority (LPMA). The RMS has jurisdiction over major roads, local government over minor roads and the LPMA over Crown roads. The *Roads Act 1993* sets out the rights of the public in regard to access to public roads.

Under section 138 of the *Roads Act 1993*, an approval is required for the erection of a structure or the carrying out of works in, on or over a public road. As part of the T4 Project it is proposed to construct conveyors over Cormorant Road and alter access to some roads, potentially including the construction of a roundabout on Cormorant Road and traffic signals at the intersection of Industrial Drive and Woodstock Street. Applications under section 138 of the *Roads Act 1993* cannot be refused and must be applied consistently if required for the carrying out of a project approved under Part 3A of the EP&A Act.

4.3.10 Crown Lands Act 1989

It is estimated that nearly half of all land in NSW is Crown land (Crown Lands Division 2011). This includes the submerged land of public waterways (except where under the ownership of RMS) and Crown roads. The NSW *Crown Lands Act 1989* (CL Act), which is administered by the Crown Lands Division, sets out how Crown land is to be managed.

Any development on Crown land requires either landowner’s consent (from Crown Lands Division) and/or an authorisation under the CL Act. Landowner’s consent is required for any application requiring an approval under the EP&A Act (including projects under Part 3A).

When deciding whether to grant landowner consent, Crown Lands Division will consider the proposal against the principles of Crown land management and any environmental or other strategic assessment that has been undertaken. This approach applies, whether any authorisation for the development under the CL Act exists or will be issued, and any other matters specifically relevant to the site or type of development proposed.

Obtaining landowner’s consent for the lodging of an application to carry out development on Crown land is separate to obtaining an authorisation under the CL Act (ie lease, licence or similar) to occupy Crown land.

As such, an authorisation under the CL Act to occupy Crown land must still be obtained once planning approval is obtained under the EP&A Act.

Parts of the T4 project area consist of Crown land and are therefore subject to provisions of the CL Act.

4.3.11 Pipelines Act 1967

The NSW *Pipelines Act 1967* is administered by NSW Trade & Investment.

The *Pipelines Act 1967* aims to:

- implement a timely and efficient approvals system to facilitate the construction of cross-country transmission pipelines in NSW;
- ensure the effect of a pipeline project commenced under the Act on the environment, landowners and native titleholders is properly considered and managed; and
- ensure pipeline licensees protect the environment, pipeline employees and the public from dangers arising from both pipeline construction and the transmission of potentially hazardous substances.

Under the *Pipelines Act 1967*, any person who wishes to construct and operate a pipeline for the purposes of any substance, can do so under an authorisation or licence. Pipelines required to be licensed include, but are not limited to:

- a pipeline constructed or to be constructed under another Act, such as the *Gas Supply Act 1996* or the *Petroleum (Onshore) Act 1991*;
- a pipeline constructed or to be constructed by a public authority;
- a pipeline constructed or to be constructed situated wholly within the boundaries of land and designed for use solely for the residential, business, commercial or industrial purposes carried out on that land;
- a pipeline constructed or to be constructed for the purpose of the supply of water (including for irrigation), the drainage of land or the conveyance of waste water, mine water, aqueous slurries of minerals, mineral concentrates or mineral tailings;
- a pipeline of the prescribed class constructed or to be constructed for the conveyance of dangerous goods within the meaning of the *Road and Rail Transport (Dangerous Goods) Act 1997*;
- a pipeline constructed or to be constructed for returning petroleum to a natural reservoir, conveying petroleum for use for the purposes of petroleum exploration operations or operations for the recovery of petroleum, or for conveying petroleum that is to be flared or vented; and
- any pipeline so determined by the Minister for Energy not to be a pipeline as prescribed under the *Pipelines Act 1967*.

The gas pipeline to be relocated by the T4 Project is licensed under the *Pipelines Act 1967*. The relocation of this pipeline will require a variation to its licence pursuant to the provisions of sections 18 and 19 of the Act. Before a licence can be granted or varied, an approval is required under Part 5 of the EP&A Act.

4.4 Environmental planning instruments

4.4.1 State Environmental Planning Policy (Major Development) 2005

Prior to the repeal of Part 3A, the Major Development SEPP identified development and sites to which Part 3A of the EP&A Act applied.

Ports and wharf facilities are a form of development described in Schedule 1 of the Major Development SEPP. In addition, the land on which the T4 Project is situated is within the 'Three Ports Site' which is a state significant site for the purposes of the EP&A Act under Schedule 3 of the Major Development SEPP. Under the Major Development SEPP the T4 project area is zoned SP1 Special Activities.

The objectives of SP1 Special Activities zone are as follows:

- (a) *to provide for special land uses that are not provided for in other zones,*
- (b) *to provide for sites with special natural characteristics that are not provided for in other zones,*
- (c) *to facilitate development that is in keeping with the special characteristics of the site or its existing or intended special use, and that minimises any adverse impacts on surrounding land,*
- (d) *to maximise the use of waterfront areas to accommodate port facilities and industrial, maritime industrial and bulk storage premises that benefit from being located close to port facilities,*
- (e) *to enable the efficient movement and operation of commercial shipping, and to provide for the efficient handling and distribution of freight from port areas through the provision of transport infrastructure,*
- (f) *to facilitate development that by its nature or scale requires separation from residential areas and other sensitive land uses,*
- (g) *to encourage employment opportunities.*

Within the SP1 Special Activities zone, port facilities are a permissible land use. Port facilities are defined in the Major Development SEPP as:

... any of the following facilities at or in the vicinity of a designated port within the meaning of section 47 of the Ports and Maritime Administration Act 1995:

- (a) *facilities for the embarkation or disembarkation of passengers onto or from any vessels, including public ferry wharves,*
- (b) *facilities for the loading or unloading of freight onto or from vessels and associated receipt, land transport and storage facilities,*
- (c) *wharves for commercial fishing operations,*
- (d) *refuelling, launching, berthing, mooring, storage or maintenance facilities for any vessel,*

- (e) *sea walls or training walls,*
- (f) *administration buildings, communication, security and power supply facilities, roads, rail lines, pipelines, fencing, lighting or car parks.*

Clause 4, Part 20 of Schedule 3 of the Major Development SEPP states that no environmental planning instruments other than State Environmental Planning Policies (SEPPs) apply to the 'Three Ports' site. This includes local environmental plans (LEPs) and regional environmental plans.

4.4.2 State Environmental Planning Policy (Infrastructure) 2007

Clause 55 of the *State Environmental Planning Policy (Infrastructure) 2007* states:

- (1) *Before determining an application (or any application for modification of a consent) for development adjacent to a gas pipeline corridor, the consent authority must:*
 - (a) *be satisfied that the potential safety risks or risks to the integrity of the pipeline that are associated with the development or modification to which the application relates have been identified, and*
 - (b) *take those risks into consideration.*

While the gas pipeline will be relocated to facilitate the T4 Project, consideration is required under clause 55 of the project's potential impacts on safety and integrity of those sections of the pipeline not being relocated. PWCS are working with Jemena, the licence holder of the gas pipeline, to ensure that works being undertaken on and around the pipeline do not cause safety issues or impact on the integrity of the pipeline. All works will be undertaken in accordance with a Safety and Operating Plan to be prepared and approved by NSW Trade & Investment before construction works start.

4.4.3 State Environmental Planning Policy No. 14 – Coastal Wetlands

SEPP 14 aims to protect and preserve coastal wetlands. There are over 1,300 coastal wetlands mapped under SEPP 14, representing approximately 7% of all coastal wetlands in NSW.

The northern and western parts of the T4 project area, between the existing railway lines and the project area boundary are located within SEPP 14 wetlands (Figure 2.9).

Generally, under SEPP 14, a person must not clear land, construct a levee, drain land or fill a SEPP 14 wetland except with the consent of the local council and the concurrence (agreement) of the Director-General of DP&I. Due to the provisions of the Major Development SEPP, the T4 Project is being assessed under Part 3A where the Minister's delegate will be the consent authority. An assessment of the T4 Project will be undertaken by the Director-General and provided to the Minister's delegate for consideration prior to determination.

This EA assesses the likely impact of the T4 Project on SEPP 14 wetlands within and surrounding the T4 project area (Chapter 10 and Appendix K).

4.4.4 State Environmental Planning Policy No. 26 – Littoral Rainforests

State Environmental Planning Policy No. 26 – Littoral Rainforests (SEPP 26) aims to protect and preserve littoral rainforests which are a particular type of forest adapted to withstand coastal conditions. Development consent from the local council and the concurrence (agreement) of the Director-General of

DP&I is required for most works in littoral rainforests. There are no littoral rainforests located on or near the T4 project area.

4.4.5 State Environmental Planning Policy No. 33 – Hazardous and Offensive Development

State Environmental Planning Policy No. 33 – Hazardous and Offensive Development (SEPP 33) applies to development of potentially hazardous industry. It requires the consent authority to consider whether an industrial development is a potentially hazardous industry or a potentially offensive industry. Existing coal terminals in the Port of Newcastle, including CCT, KCT and NCIG are not considered to be hazardous or offensive under SEPP 33. The proposed T4 Project similarly is not considered to be hazardous or offensive industry and therefore a hazard assessment is not considered necessary.

4.4.6 State Environmental Planning Policy No. 55 – Remediation of Land

State Environmental Planning Policy No. 55 – Remediation of Land (SEPP 55) aims to provide a state-wide planning approach to the remediation of contaminated land. Under clause 7(1) of SEPP 55 the approval authority is required to consider whether the land is contaminated, and:

- (b) *if the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out, and*
- (c) *if the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that purpose.*

Contamination is addressed in the contamination, groundwater and remediation assessments in Chapters 7 and 8 and Appendices C to G. Based on the results of these assessments, a number of management and remediation options have been identified to address contamination of the T4 project area.

4.4.7 State Environmental Planning Policy No. 71 – Coastal Protection

Kooragang Island is located within the state's coastal zone and is therefore subject to the provisions of *State Environmental Planning Policy No. 71 – Coastal Protection* (SEPP 71). Clause 7(b) of SEPP 71 requires approval authorities to take into consideration the matters outlined in clause 8 when assessing applications for development within the coastal zone. Those matters in clause 8 which are relevant to the T4 Project are as follows:

- (a) *the aims of this Policy set out in clause 2,*
- ...
- (c) *opportunities to provide new public access to and along the coastal foreshore for pedestrians or persons with a disability,*
- (d) *the suitability of development given its type, location and design and its relationship with the surrounding area,*
- (e) *any detrimental impact that development may have on the amenity of the coastal foreshore, including any significant overshadowing of the coastal foreshore and any significant loss of views from a public place to the coastal foreshore,*

- (f) *the scenic qualities of the New South Wales coast, and means to protect and improve these qualities,*
- (g) *measures to conserve animals (within the meaning of the Threatened Species Conservation Act 1995) and plants (within the meaning of that Act), and their habitats,*
- (h) *measures to conserve fish (within the meaning of Part 7A of the Fisheries Management Act 1994) and marine vegetation (within the meaning of that Part), and their habitats,*
- (i) *existing wildlife corridors and the impact of development on these corridors,*
- (j) *the likely impact of coastal processes and coastal hazards on development and any likely impacts of development on coastal processes and coastal hazards,*
- (k) *measures to reduce the potential for conflict between land-based and waterbased coastal activities,*
- (l) *measures to protect the cultural places, values, customs, beliefs and traditional knowledge of Aboriginals,*
- (m) *likely impacts of development on the water quality of coastal waterbodies,*
- (n) *the conservation and preservation of items of heritage, archaeological or historic significance, ...*
- (p) *only in cases in which a development application in relation to proposed development is determined:*
 - (i) *the cumulative impacts of the proposed development on the environment, and*
 - (ii) *measures to ensure that water and energy usage by the proposed development is efficient.*

The relevant matters have been considered within the EA and in the relevant technical assessments that accompany this EA.

4.5 Strategic policies

4.5.1 National Ports Strategy

The National Ports Strategy was developed by National Transport Commission and Infrastructure Australia for consideration by the Council of Australian Governments in May 2010. The strategy aims to drive the development of efficient, sustainable ports and related freight logistics through improvements to the efficiency of port-related freight movements across infrastructure networks, minimising externalities associated with such freight movements and influencing policy making in areas relevant to freight.

The strategy identifies the Port of Newcastle as the 'world's largest coal export port and forecasts show in excess of 300 million tonnes per annum in the next decade' (National Transport Commission and Infrastructure Australia 2010).

There are a number of actions identified within the strategy to achieve its aims. These include, but are not limited to planning and execution. In terms of planning, the strategy states that the following actions are required:

- three integrated levels of planning around relevant ports; jurisdictions, regions and precincts;
- updates and reviews of the plans; and
- assistance with planning and forecasting.

The actions to ensure plans can be executed include:

- a nationally consistent environmental management regime;
- use of strategic and streamlined assessment processes;
- use of a lead agency or coordinator general framework in each jurisdiction;
- introduction of 'buffer' strategies in policies and plans; and
- assessment of the effectiveness of the above.

All actions are generally actions that relate to government and the relevant port authorities.

4.5.2 NSW 2021

NSW 2021 is a plan released in 2011 by the NSW Government to 'rebuild the economy, provide quality services, renovate infrastructure, restore government accountability, and strengthen our local environment and communities. It replaces the State Plan as the NSW Government's strategic business plan, setting priorities for action and guiding resource allocation' (Department of Premier and Cabinet 2011 p2). The NSW 2021 plan was developed to achieve promised results over the medium to long-term across five strategy areas. These areas include:

- rebuilding the economy;
- returning quality services;
- renovating infrastructure;
- strengthening our local environment and communities; and
- restoring accountability to government.

The plan of rebuilding the NSW economy is the most applicable to the T4 Project. NSW 2021 states that 'achieving growth in the NSW economy will not only generate more jobs but produce more revenue to improve services, reduce taxes, build more infrastructure, and tackle the cost of living'. It also states that 'We will enhance trade and export performance, by targeting and attracting international investors into priority sectors, and growing the capability amongst NSW's exporter base'. The T4 Project will contribute to achieving growth in the NSW economy and enhancing trade and export performance of NSW and Australia.

4.5.3 Three ports state significant site

The DoP released the *Three Ports State Significant Site Proposal for New South Wales Major Ports of Newcastle, Botany and Port Kembla* in May 2008. The proposal established planning regimes for each port to provide for their expansion and to preserve port-related activities and industry.

The Port of Newcastle was subsequently incorporated into the Major Development SEPP, with the Port of Newcastle, Port Botany and Port Kembla collectively known as the state significant site 'Three Ports'. Under the Major Development SEPP, the T4 project area (as well as the majority of the Port of Newcastle) is zoned SP1 Special Activities.

4.5.4 Lower Hunter Regional Strategy

The Lower Hunter Regional Strategy details the NSW Government's strategic planning policies for the Lower Hunter region until 2031. It incorporates specific regional infrastructure requirements that were identified in the DP&I's *State Infrastructure Strategy 2006–07 to 2015–16* to ensure that adequate services and infrastructure are provided to support future population growth. Details are provided in Section 2.2 of this EA.

4.5.5 Hunter Estuary Management Plan

The north and south arms of the Hunter River border Kooragang Island. The Hunter Estuary Management Plan has been prepared under the NSW Government's Estuary Management Program. As part of the program a manual was distributed to relevant Councils to assist in developing management plans for their estuaries. In accordance with the manual the Hunter Estuary Management Committee was established in 1997 and amalgamated with the existing Hunter Coast Management Committee to form the Hunter Coast and Estuary Management Committee.

A *Hunter Estuary Processes Study* (MHL 2003) and *Hunter Estuary Management Study* (BMT WBM 2009) were prepared as part of the program. From the findings of these studies the Hunter Estuary Management Plan was prepared and provides a description of management of the estuary, recommended solutions to identified problems and a schedule of activities of implementation of the recommended solutions.

The Hunter Estuary Management Plan is also known as Hunter Estuary Coastal Zone Management Plan which is a plan to which Part 4A of the *NSW Coastal Protection Act 1979* applies.

4.5.6 Hunter-Central Rivers Catchment Action Plan

The Hunter-Central Rivers Catchment Action Plan (CAP) was developed by the Hunter-Central Rivers Catchment Management Authority (CMA) in 2007 as a guide for the protection of the region's natural resources. The CAP sets 31 management targets through five natural resource management themes to be achieved by 2015. CMA's *Annual Report 2009 – 2010* identified that as of June 2010 nine of these targets had been achieved and 11 were more than 50% complete. The natural resource management themes include biodiversity, aquatic health, soils, estuarine and marine health.

While the CAP does not have any direct relevance to the T4 Project the natural resource management themes have been considered in developing mitigation measures for the T4 Project.

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