PLANNING FRAMEWORK AND PROJECT JUSTIFICATION

SECTION 3

NEWCASTLE COAL INFRASTRUCTURE GROUP COAL EXPORT TERMINAL

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3 PLANNING FRAMEWORK AND PROJECT JUSTIFICATION

This section outlines the statutory requirements relevant to the assessment of the Project and provides a Project justification (i.e. the need for the Project when considered against the principles of Ecologically Sustainable Development).

The Project Application would be assessed in accordance with the framework established by the EP&A Act and the EP&A Regulation.

3.1 MAJOR INFRASTRUCTURE PROJECTS

The EP&A Act and the EP&A Regulation provide a framework for environmental planning and assessment in NSW. Part 3A of the EP&A Act provides an approval process that is particularly adapted for major infrastructure projects.

Section 75B(1) of the EP&A Act defines development to which Part 3A applies:

> *This Part 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.*

Schedule 1 of the State Environmental Planning Policy (SEPP) (Major Projects) 2005 (Major Projects SEPP) identifies development which are major projects. The CET is considered a project to which Part 3A of the EP&A Act applies under Schedule 1, Group 8 (*Transport, energy and water infrastructure)* of the Major Projects SEPP.

For example, clause 22 of Schedule 1 (Group 8) lists “Ports and Wharf Facilities”:

> *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.*

On 19 April 2006, the Director-General of the DoP, under delegation from the Minister for Planning (the Minister), formed the opinion that the Project meets the requirements of Major Projects SEPP (clause 6) and declared the Project to be a major project under Part 3A of the EP&A Act. In accordance with section 75D(1) of the EP&A Act, the Minister is the approval authority for the Project.

3.1.1 Application of other Provisions of the Environmental Planning and Assessment Act, 1979

Section 75R of the EP&A Act outlines the applicability of other provisions of the EP&A Act under Part 3A:

- Parts 4 and 5 of the EP&A Act do not, except as provided by Part 3A, apply to an approved Part 3A project.
- Part 3 of the EP&A Act and SEPPs apply to the declaration and the carrying out of a Part 3A project.
- Non-SEPP Environmental Planning Instruments (e.g. Local Environmental Plans and Regional Environmental Plans) do not apply to an approved Part 3A project. Non-SEPP Environmental Planning Instruments may apply (subject to their wording being relevant and applicable) to the consideration of an application for approval under Part 3A and to the approval of a Part 3A project under section 75J (in particular section 75J(3) provides that a [non-critical infrastructure] Part 3A project must not be such that it would have been wholly prohibited had Part 4 applied).
- Divisions 6 (Contributions) and 6A (Affordable Housing Contributions) of Part 4 apply to a Part 3A project.

3.1.2 Other Approvals

Approvals and Legislation that do not Apply to Approved Part 3A Projects

Section 75U of the EP&A Act outlines the authorisations that do not apply to approved Part 3A projects:

- part 3 of the *Coastal Protection Act, 1979;*
- sections 201, 205 and 219 of the *Fisheries Management Act, 1994;*
- division 8 of Part 6, Part 4 and section 139 of the *Heritage Act, 1977;*
- section 87 and 90 of the *National Parks and Wildlife Act, 1974;*
- section 12 of the *Native Vegetation Act, 2003;*
- part 3A of the *Rivers and Foreshores Improvement Act, 1948;*
- section 100B of the *Rural Fires Act, 1997;* and
- section 89, 90 and 91 of the *Water Management Act, 2000*.

Approvals and Legislation that must be Applied Consistently

Section 75V of the EP&A Act outlines the authorisations that cannot be refused if they are necessary for the carrying out of a project approved under Part 3A and which must be substantially consistent with the Part 3A approval:

- section 144 of the *Fisheries Management Act, 1994;*
- section 15 of the *Mine Subsidence Compensation Act, 1961;*
- mining lease under the *Mining Act, 1992;*
- production lease under the *Petroleum (Onshore) Act, 1991;*
- chapter 3 of the *Protection of the Environment Operations Act, 1997;* and
- section 138 of the *Roads Act, 1993.*

3.2 PERMISSIBLE DEVELOPMENT

The Project Application area is situated wholly within the Newcastle LGA. The Project Application area includes Zone 4(b) (Port and Industry Zone) and Zone 5(a) (Special Uses Zone – Arterial Road) under the Newcastle LEP. Lot 20 DP 262325 (Hunter River) is unzoned under the *Newcastle Local Environmental Plan, 2003* (Newcastle LEP) (Figure 1-4).

Although the Project is subject to assessment under Part 3A of the EP&A Act, the terms of the Newcastle LEP remain relevant considerations. If Part 4 applied, the Project would be permissible on lands zoned Zone 4(b) (Port and Industry Zone) and Zone 5(a) (Special Uses Zone – Arterial Road) with development consent. It is therefore not prohibited or "wholly prohibited" within the meaning of section 75J(3).

If Part 4 applied, the Project would be permissible with consent on unzoned land with consent under clauses 14 and 24 of the Newcastle LEP.

The *Hunter Regional Environmental Plan, 1989* (Hunter REP) does not contain zoning controls. However, policies for development control are included in the Hunter REP and are discussed in Section 3.3.1 as they may be relevant considerations to the Minister's decision-making process under section 75J.

3.3 ENVIRONMENTAL PLANNING INSTRUMENTS

3.3.1 Hunter Regional Environmental Plan, 1989

The Project Application area is situated within the Hunter REP area.

Although Part 4 does not apply and the Hunter REP refers to "consent authority" and "council" throughout (with neither term being relevant for a Part 3A project), the clauses of the Hunter REP may be relevant considerations for the Minister in determining this Project Application under Part 3A. Clause 2(1) of the Hunter REP outlines aims, of which the following are relevant to the Project:

> *(1) The aims of this plan are:*
>
> *(a) to promote the balanced development of the region, the improvement of its urban and rural environments and the orderly and economic development and optimum use of its land and other resources, consistent with conservation of natural and man made features and so as to meet the needs and aspirations of the community,*
>
> *(b) to co-ordinate activities related to development in the region so there is optimum social and economic benefit to the community, and …*

The Project is consistent with these relevant aims. The Project is an employment generating development that would contribute to the economic well being of the community. Further detail on the economic and environmental justification for the Project is provided in Section 3.9. In addition, the Project would make use of land zoned for Port and Industrial Use under Newcastle LEP and is consistent with this zoning (Section 3.3.2).

Parts 2 to 9 of the Hunter REP provide principles and development control policies. The principles and policies that are relevant to the Project are described below.

- **Roads, Railways and Public Transport**

A council:

(a) should not grant consent to the carrying out of any development involving the storage or handling of goods or materials which are likely to be delivered by heavy transport vehicles, unless it has considered whether use could be made of a transport mode other than road which, in the opinion of that council, is economically practicable, and

(b) should not grant consent to the carrying out of development on land having frontage to a main or arterial road unless:

(i) all vehicular access to the land is from a road other than a main or arterial road, where practicable, or

(ii) the council is satisfied that the applicant has demonstrated that there will not be an adverse effect on traffic movement in the area as a result of the development.

All coal would be transported to the Project by rail, via the Kooragang Island mainline (Section 2.2.1). Heavy transport road vehicles would not be used to deliver coal to the Project.

Delivery trucks would be used to deliver equipment and materials to the Project. Other modes of transport (e.g. ship) would be used where practicable and feasible. A Road Transport Assessment is presented in Appendix C. The assessment concluded the Project would not create significant adverse traffic impacts on the surrounding roads either during construction or operation, and the Project is considered acceptable from a road transportation perspective (Appendix C).

The main access to the Project administration and workshop buildings would be via Egret Street. Egret Street is not a main road or arterial road (Appendix C).

Access to the wharf area and shiploaders would be via Cormorant Road. Access via Cormorant Road is the only practicable access to these facilities (Appendix C). The design and operation of this intersection is described in Appendix C. NCIG has consulted with the RTA and the NCC in regard to the design of traffic management works for the Project (Section 3.7.1).

Accordingly, the Minister can be satisfied as to these matters.

- **Ports and Airports**

Consent authorities, when making land use decisions for sites in the land/sea interface, should ensure that the legitimate requirements for the operation of the Port of Newcastle are not compromised.

The Project is consistent with the NSW Maritime Authority Extension of Shipping Channels in the Port of Newcastle (DA 134-3-2003-i) which will provide deep-water access to future berth sites along the south arm of the Hunter River. The Project is also consistent with the existing use and operation of the Port of Newcastle. NCIG has consulted extensively with the Newcastle Port Corporation (NPC) and NSW Maritime Authority in regard to the design of the Project wharf facilities and shiploaders and their operation (Section 3.7.1). This has included consideration of the movement of ships to and from these facilities.

Accordingly, the Minister can be satisfied as to these matters.

- **Soil, Water and Forest Resources**

(1) Councils, in considering proposals for development in the catchment area of an existing or proposed dam, or aquifer recharge area:

(a) should consider the impact the proposed development is likely to have on water quality and availability, and

(b) should apply conditions which are relevant to the appropriate use and will ensure maintenance of adequate water quality and availability.

An assessment of the potential impacts of the Project on surface and groundwater resources is presented in Sections 4.6 and 4.7 respectively (potential groundwater impacts are also considered in Appendix D).

A Site Water Management Plan (SWMP) (including a Surface Water and Groundwater Monitoring Programme [SWGMP]) (Sections 4.6.3 and 4.7.2) would be developed for the Project. The SWMP would detail the design criteria of Project water management structures and their operation, maintenance and monitoring to protect surface and groundwater resources.

During construction activities, an Erosion and Sediment Control Plan (ESCP) would be implemented to control soil erosion and sediment generation proximal to the source and thereby minimise the potential for Project activities to adversely affect downstream water quality.

Accordingly, the Minister can be satisfied as to these matters.

- **Pollution Control**

  (1) A consent authority should not grant consent to the carrying out of development listed in Schedule 3 to the Environmental Planning and Assessment Regulations, 1980 (including development comprising the expansion of an existing facility) unless it is satisfied that:

  (a) topographic and meteorological conditions are such that air pollutants would have no significant adverse effect,

  (b) an appropriate buffer zone can be provided to ensure that noise, dust and vibration are maintained at acceptable levels,

  (c) the best practicable technology for air, water and noise pollution control will be incorporated in the design and operation of the equipment and facilities to be used for the purposes of the industry,

  (d) there will be no significant deterioration of air or water quality as a result of emissions from that equipment or those facilities, and

  (e) the site will not become contaminated within the meaning of Part 5 of the Environmentally Hazardous Chemicals Act, 1985.

  (2) A council should not grant consent to any development unless it is satisfied that:

  (a) there is adequate provision for setbacks between the development and existing watercourses,

  (b) an adequate vegetation cover is maintained or reinstated so as to minimise soil erosion,

  (c) where necessary, adequate retardation basins, grassed floodways, sedimentation pits and trash collection facilities are established and maintained, and

  (d) adequate measures are provided to control soil erosion during construction of the development.

If the Project was being assessed under Part 4, it would be designated development under Schedule 3 of the EP&A Regulation as a "shipping facility".

Section 4 provides an environmental assessment of the potential impacts of the Project including noise, air quality, surface water, groundwater, land resources and land contamination and the discussion in Section 4 addresses each of the above clauses of the Hunter REP concerning pollution control. This EA includes a description of the existing environment, an assessment of potential impacts and a description of environmental mitigation and management measures.

A Noise Monitoring Programme (NMP) (Section 4.3.3) and an Air Quality Monitoring Programme (AQMP) (Section 4.4.3) would be developed to validate the predicted noise and air quality impacts of the Project. These documents would also include procedures for the application of contingency measures, if necessary.

A SWMP would be developed for the Project. The SWMP would include a site water balance, on-site water management measures, and the SWGMP (Sections 4.6.3 and 4.7.2). An ESCP would also be developed for the Project (Section 4.1.3). These documents would also include procedures for the application of contingency measures, if necessary.

This EA includes environmental mitigation measures to be implemented during the design, construction and operation of the Project to minimise potential environmental impacts (Section 4).

Accordingly, the Minister can be satisfied as to these matters.

- **Tall Buildings**

  (1) A council shall not, without the concurrence of the Director, consent to any development application for the erection of a building over 14 metres in height.

  (2) In deciding whether to grant concurrence to a development application in respect of a development referred to in subclause (1), the Director shall take into consideration the likely regional implications of the development as regards its social and economic effect and the effect which it will or is likely to have on the amenity of the area.

No buildings at the Project would be constructed over 14 m in height. As described in Section 2.5.2, coal would be stacked to a maximum height of 25 m above the pads. The stacker/reclaimers and shiploaders would extend above 25 m in height. The buffer bin structures at the wharf would be approximately 28 m in height (Section 2.6.2).

Section 4 provides an assessment of the potential environmental impacts of the Project including socio-economic and visual impacts. A Socio-Economic Assessment and Visual Assessment are provided in Appendices G and H, respectively.

Accordingly, the Minister can be satisfied as to these matters.

- **Recreation**

  A consent authority, in considering proposals for development on land within 100 metres of the ocean or any substantial waterway should consider:

  (a) whether there is sufficient foreshore open space accessible and open to the public in the vicinity of the proposed development,

  (b) the likely impact of the proposed development on the amenity of the waterway,

  (c) the principles of any foreshore management plan applying to the area, and

  (d) any alternative use for which a waterfront site is essential.

The Project is located in Zone 4(b) (Port and Industry), Zone 5(a) (Special Uses Zone – Arterial Road) (Figure 1-4) and an unzoned area under the Newcastle LEP (i.e. Hunter River) (Figure 1-4) and is consistent with the relevant landuse objectives of these zones (Section 3.3.2).

In addition:

- The Project is located on the north bank of the south arm of the Hunter River. Areas of foreshore open space in the vicinity of the Project site to the south of Cormorant Road are generally accessible to the public (e.g. open space near the existing wind turbine).
- The Project is not considered likely to adversely impact on the amenity of the south arm of the Hunter River as the Project is consistent with existing uses on Kooragang Island (port and wharf facilities, including coal loading) and incorporates a range of mitigation measures, including visual mitigation measures.
- The NCC does not have a Foreshore Management Plan that is applicable to the Project site.
- Alternative uses of the waterfront are not known to NCIG and are not within its control. The Agreement for Lease for the Project site has been signed by the RLMC.

A Visual Assessment is presented in Appendix H and Section 4.5. Project alternatives, including Project location, are described in Section 3.9.3.

Accordingly, the Minister can be satisfied as to these matters.

3.3.2 Newcastle Local Environmental Plan, 2003

Although Part 4 does not apply and the Newcastle LEP refers to "consent authority" throughout and this term is not relevant for a Part 3A project, the clauses of the LEP may be relevant considerations for the Minister in assessing this Project under Part 3A.

Objectives of the Newcastle LEP

Clause 5 of the Newcastle LEP outlines six aims and associated objectives, the following of which are relevant to the Project (Aims 1 to 4):

- **Aim 1**

  To respect, protect and complement the natural and cultural heritage, the identity and image, and the sense of place of the City of Newcastle.

  Objectives

  Development should:

  (a) respect and build upon positive aspects of local character and amenity, and

  (b) contribute positively to the public domain, namely its urban streetscapes and open spaces, or its rural and natural landscapes, and

  (c) conserve the environmental heritage of the City of Newcastle, and

  (d) conserve the heritage significance of the existing built fabric, relics, settings and views associated with identified heritage items and heritage conservation areas, and

  (e) ensure that archaeological sites and places of Aboriginal heritage significance are conserved, and

(f) protect places and structures which have the potential to have heritage significance but have not been identified as heritage items, and

(g) ensure that nominated heritage conservation areas retain their heritage significance.

- **Aim 2**

To conserve and manage the natural and built resources of the City of Newcastle for present and future generations, and to apply the principles of ecologically sustainable development (ESD) in the City of Newcastle.

Objectives

Development should:

(a) protect and enhance biodiversity, and

(b) minimise the use of non-renewable resources and optimise the use of renewable resources, and

(c) minimise, and where possible eliminate, waste and pollution, and

(d) rehabilitate soil, water and vegetation, where damaged by past activities, and

(e) address natural hazards and other risks such as flooding, bushfire, mine subsidence, landslip, coastal inundation, soil and groundwater contamination, acid sulphate soils and the like, and

(f) ensure buildings are designed to be capable of being readily adapted for reuse for one or more purposes.

- **Aim 3**

To contribute to the economic well being of the community in a socially and environmentally responsible manner.

Objectives

Development should:

(a) where possible create sustainable employment opportunities, and

(b) contribute to a greater degree of economic and employment self-sufficiency in the City of Newcastle, its urban centres and its neighbourhoods, as well as in the Hunter Region, and

(c) not jeopardise the ongoing operation and potential of the port of Newcastle, the adjacent industrial lands and the associated significant freight transport undertakings, and

(d) reinforce the roles of established urban centres in their present hierarchy, comprising the city centre, the district centres and the local centres, as generally described in the Newcastle Urban Strategy, and

(e) contribute positively to urban centres being focal points for employment, particularly in the service sectors of the economy, and

(f) provide for home based businesses that are compatible with the character and amenity of the neighbourhood in which they are to be located, and

(g) take advantage of and contribute to those locations not in urban centres, which are valuable to the economy of the City of Newcastle and the Hunter Region.

- **Aim 4**

To improve the quality of life and well being of the people of the City of Newcastle.

Objectives

Development should:

(a) maximise positive social impacts and eliminate or minimise potentially detrimental social impacts, and

(b) optimise safety and security, both for the development and for the public realm, and

(c) promote inclusiveness in the provision of access to accommodation, facilities or services, and

(d) contribute positively to the functional efficiency, accessibility and urban quality of the City of Newcastle, and

(e) ensure adequate provision of utility services.

Clause 8(a) of the Newcastle LEP requires the project approval authority to have regard to the relevant aims and general objectives in determining whether to approve a project application. The Project is consistent with these relevant aims and general objectives. The Project is an employment generating development that would contribute to the economic well-being of the community.

Impact mitigation and environmental management and monitoring measures for the Project are presented in Section 4.

Zone Objectives

Clause 8(b) of the Newcastle LEP requires the project approval authority to have regard to:

> *The relevant zone objectives nominated by this plan for the particular zone in which the land concerned is situated, as shown on the zoning map.*

The land comprising the Project Application area is within land zoned Zone 4(b) (Port and Industry Zone), Zone 5(a) (Special Uses Zone – Arterial Road) and unzoned land (Figure 1-4).

The Newcastle LEP establishes the following objectives for land zoned Zone 4(b) (Port and Industry Zone):

(a) *To accommodate port, industrial, maritime industrial, and bulk storage activities which by their nature or the scale of their operations require separation from residential areas and other sensitive land uses.*

(b) *To require that development of land within 750 metres from the high-water mark of the shores of the Port of Newcastle, capable of docking ocean-going vessels, is used for purposes that:*

  (i) *require a waterfront location that provides direct access to deep water, or*

  (ii) *depend upon water-borne transport of raw materials or finished products, or*

  (iii) *have a functional relationship that necessitates proximity to the activities described above.*

(c) *To facilitate sustainable development through the application of industrial ecology.*

(d) *To provide for other development which will not significantly detract from the operation of large scale industries or port-related activities, that is primarily intended to provide services to persons employed in such industries and activities.*

The Project is consistent with objectives (a), (b) and (c). The Project requires direct access to deep water and is being developed with consideration of the principles of ESD (Section 3.9.4). NCIG would incorporate industrial ecology principles (i.e. develop environmentally beneficial interactive relationships with other industries) where practicable.

Objective (d) is not relevant to the Project (a large-scale port-related activity) as it identifies an alternative landuse permitted in the zone (i.e. service industries).

The Newcastle LEP establishes the following objectives for land zoned Zone 5(a) (Special Uses Zone – Arterial Road):

(a) *To accommodate major transport networks and facilities.*

(b) *To accommodate large scale facilities and services, together with ancillary activities.*

(c) *To accommodate large scale community establishments, together with ancillary activities.*

(d) *To require development to be integrated and reasonably consistent in scale and character with surrounding natural, rural or urban environments.*

The Project is consistent with objectives (a), (b) and (d), as the development of a CET is a large-scale transport facility that is consistent with the surrounding environment. As described in Section 4.11 and Appendix C, the Project would not constrain future widening of Cormorant Road to four lanes as planned by the RTA. Consultation with the RTA and the NCC regarding the Project traffic management measures is described in Section 3.7.1.

Objective (c) is not relevant to the Project.

Part 3 Special Provisions

Part 3 of the Newcastle LEP provides a number of miscellaneous provisions of relevance to the Project including the following:

- *Clause 23 Access to Arterial Roads*

  (1) *Unless subclause (2) has been complied with, a person shall not carry out development on land which adjoins an arterial road unless direct vehicular access to the land is made by way of a road that is not an arterial road.*

  (2) *Consent may be granted to development that involves direct vehicular access from a development site to an arterial road if alternative access to that development site is provided by a road in a development control plan or, in the opinion of the consent authority, alternative access is not practicable.*

The main access to the Project administration and workshop buildings would be via Egret Street. Egret Street is not a main road or arterial road (Appendix C).

Access to the wharf area and shiploaders would be via Cormorant Road, which is an arterial road (Appendix C). However, access via Cormorant Road is the only practicable access to these facilities (Appendix C). The design and operation of this intersection is described in Appendix C. Alternative access is not practicable because no existing local roads are available to access the wharf area. NCIG has consulted with the RTA and the NCC in regard to traffic management measures for the Project (Section 3.7.1).

Accordingly, the Minister can be satisfied as to these matters.

- *Clause 25 Acid Sulphate Soils*

  …

  (2) A person shall not, without the consent of the consent authority, carry out works on land to which this plan applies, being Class 1, 2, 3, 4, or 5 land as indicated on the "Potential Acid Sulphate Soils Planning Map" …

  (3) The consent authority shall not grant consent required by subclause (2) unless it has considered:

  (a) the adequacy of an acid sulphate soils management plan prepared for the proposed development in accordance with the Acid Sulphate Soils Manual, and

  (b) the likelihood of the proposed development resulting in the discharge of acid into ground or surface water, and

  (c) any comments from the Department received within 28 days of the consent authority having sent that Department a copy of the development application and the related acid sulphate soils management plan.

The Land Contamination and Groundwater Assessment (Appendix D) includes consideration of acid sulphate soils. The majority of the Project site is considered to be Class 2 on the Potential Acid Sulphate Soils Planning Map (DLWC, 1997). Class 1 land within the Project site is generally restricted to the Hunter River and foreshore.

A Soil and Excavation Management Plan would be developed for the Project if it is approved and would describe the management procedures for acid sulphate soils should they occur on the site (Section 4.7.2). The Soil and Excavation Management Plan would provide measures for the control of acid sulphate soils.

Accordingly, the Minister can be satisfied as to these matters.

- *Clause 26 Bush Fire Prone Land*

  The consent authority shall not grant consent to development on bush fire prone land unless the consent authority is satisfied with the measures proposed to be taken with respect to the development to protect persons, property and the environment from danger that may arise from a bush fire.

The Project site is listed as bush fire prone land under the EP&A Act. NCIG would incorporate suitable access for fire-fighting vehicles, utilise fireproof building materials and incorporate appropriate fire breaks and radiation zones in the design of infrastructure and buildings.

Accordingly, the Minister can be satisfied as to these matters.

Part 4 Environmental Heritage Conservation

Part 4 of the Newcastle LEP includes a provision for environmental heritage conservation:

- *Clause 27 Heritage Assessment*

  (1) In assessing a development application to carry out work on a heritage item or within a heritage conservation area, the consent authority shall have regard to the extent to which the carrying out of the proposed development would affect the heritage significance of the heritage item or the heritage conservation area.

Although the Project is not in a heritage conservation area and there are no known Aboriginal or non-Aboriginal heritage items on the Project site, a Preliminary Aboriginal Heritage Assessment (NCIG, 2006b) was conducted in accordance with the DEC's *Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation* and concluded that an Aboriginal Heritage Assessment is not required.

Accordingly, the Minister can be satisfied as to these matters.

3.3.3 State Environmental Planning Policies

The following SEPPs are relevant to the Project:

State Environmental Planning Policy (Major Projects) 2005

Clause 2 of SEPP (Major Projects) 2005 outlines a number of aims, the following of which are relevant to the Project:

(a) *to identify development to which the development assessment and approval process under Part 3A of the Act applies, …*

(c) *to facilitate the development, redevelopment or protection of important urban, coastal and regional sites of economic, environmental or social significance to the State so as to facilitate the orderly use, development or conservation of those State significant sites for the benefit of the State, …*

(e) *to rationalise and clarify the provisions making the Minister the approval authority for development and sites of State significance, and to keep those provisions under review so that the approval process is devolved to councils when State planning objectives have been achieved.*

As outlined in Section 3.1, in April 2006 the Director-General of the DoP, under delegation from the Minister, declared the Project as "Ports and Wharf Facilities" under clause 22, Schedule 1 of the Major Projects SEPP and is therefore classified as a major project under Section 75B(1) of the EP&A Act.

State Environmental Planning Policy No. 11 (Traffic Generating Developments)

SEPP 11 requires the approval authority to refer a copy of the Project Application and accompanying EA to the RTA for it to make a representation in relation to the development.

State Environmental Planning Policy No. 14 (Coastal Wetlands)

SEPP 14 aims to preserve and protect coastal wetlands in the environmental and economic interests of NSW by identifying coastal wetlands and restricting development in these areas.

The Project is not in an area identified as a wetland by SEPP 14. Flora and Fauna Assessments are provided in Appendices E and F and Sections 4.8 and 4.9, respectively.

State Environmental Planning Policy No. 33 (Hazardous and Offensive Development)

For development of potentially hazardous industry, clause 12 of SEPP 33 requires a preliminary hazard analysis (PHA) to be prepared. Clause 13 of SEPP 33 requires the approval authority, in considering a project approval for a potentially hazardous or a potentially offensive industry, to consider:

(a) *current circulars or guidelines published by the Department of Planning relating to hazardous or offensive development, and*

(b) *whether any public authority should be consulted concerning any environmental and land use safety requirements with which the development should comply, and*

(c) *in the case of development for the purpose of a potentially hazardous industry – a preliminary hazard analysis prepared by or on behalf of the applicant, and*

(d) *any feasible alternatives to the carrying out of the development and the reasons for choosing the development the subject of the application (including any feasible alternatives for the location of the development and the reasons for choosing the location the subject of the application), and*

(e) *any likely future use of the land surrounding the development.*

As part of the preparation of this EA, a PHA has been conducted in accordance with SEPP 33 (Appendix I). The PHA has been prepared in accordance with the general principles of risk evaluation and assessment outlined in the NSW Department of Urban Affairs and Planning (DUAP) *Multi-Level Risk Assessment Guidelines* (1999). In addition, the PHA considers the qualitative criteria provided in *Risk Criteria for Land Use Planning: Hazardous Industry Planning Advisory Paper No. 4* (DUAP, 1992a) and is documented in general accordance with *Guidelines for Hazard Analysis: Hazardous Industry Planning Advisory Paper No. 4* (DUAP, 1992b).

Extensive consultation has been undertaken with public authorities during the preparation of this EA as detailed in Section 3.7.1. Project alternatives (including the Project location) are discussed in Section 3.9.3.

The land surrounding the Project site is primarily zoned as Port and Industrial land (Figure 1-4) and the Project is consistent with this use. Consideration of the potential for the Project to sterilise industrial land is discussed in Section 3.9.3.

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 SEPP 55, planning authorities are required to consider the potential for contamination to adversely affect the suitability of the site for its proposed use.

Clause 7(1) of SEPP 55 requires the approval authority 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.

Further under clause 7(2), before determining an application for project approval to carry out development that would involve a change of use of land, the approval authority must consider a report specifying the findings of a preliminary investigation of the land concerned carried out in accordance with the contaminated land planning guidelines (*Managing Land Contamination - Planning Guidelines SEPP 55 – Remediation of Land* [DUAP and EPA, 1998]).

A Land Contamination and Groundwater Assessment (satisfying the requirements for a preliminary investigation under clause 7[2]) was conducted as part of the preparation of this EA in accordance with *Managing Land Contamination - Planning Guidelines SEPP 55 – Remediation of Land* as required in SEPP 55 and is presented in Appendix D. The assessment concluded that the Project site, once appropriate environmental management measures have been implemented, would be suitable for the purpose of the development of the Project (Appendix D).

State Environmental Planning Policy No. 71 (Coastal Protection)

Clause 2(1) of SEPP 71 outlines a number of aims, the following of which are relevant to the Project:

(a) to protect and manage the natural, cultural, recreational and economic attributes of the New South Wales coast, and …

(d) to protect and preserve Aboriginal cultural heritage, and Aboriginal places, values, customs, beliefs and traditional knowledge, and

(e) to ensure that the visual amenity of the coast is protected, and …

(g) to protect and preserve native coastal vegetation, and

(h) to protect and preserve the marine environment of New South Wales, and …

(j) to manage the coastal zone in accordance with the principles of ecologically sustainable development (within the meaning of section 6 (2) of the Protection of the Environment Administration Act 1991), and

(k) to ensure that the type, bulk, scale and size of development is appropriate for the location and protects and improves the natural scenic quality of the surrounding area, and

(l) to encourage a strategic approach to coastal management.

Clause 7(b) of SEPP 71 requires approval authorities to take into consideration the matters outlined in clause 8, the following of which are relevant to the Project:

(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 water-based 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 Project is located in Zone 4(b) (Port and Industry), Zone 5(a) (Special Uses Zone – Arterial Road) and an unzoned area under the Newcastle LEP (Figure 1-4) and is consistent with the relevant landuse objectives (Section 3.3.2).

The Project is being developed with consideration of the ESD principles (Section 3.9.4). Impact mitigation and environmental management and monitoring measures for the Project are presented in Section 4.

In addition, heritage assessments (Section 4.10) have been conducted to determine the heritage value of the Project site and provide for the management of the potential impacts of the Project.

State Environmental Planning Policy No. 74 (Newcastle Port and Employment Lands)

SEPP 74 applies to land in the south-west of the Project site. Clause 2 provides the aims of the policy as follows:

(a) *to promote and co-ordinate the orderly and economic development of certain land in the local government areas of Port Stephens and Newcastle City, and*

(b) *to promote the economic development of the Port of Newcastle while promoting the conservation of natural and cultural heritage in the lower Hunter, and*

(c) *to facilitate the carrying out of certain types of industrial and infrastructure development of State significance with a strong commitment to sustainable environmental performance, and*

(d) *to enable public involvement and participation in the assessment of applications for consent to carry out this development.*

The Project complies with the aims of SEPP 74, in that it is an industrial and infrastructure development in the Newcastle LGA. This EA incorporates NCIG's commitments to sustainable environmental performance and this EA has been produced in consultation with the community (Section 3.7.2) and will be exhibited publicly in accordance with the requirements of the EP&A Regulation.

In determining a proposal relating to land to which SEPP 74 applies, the approval authority should consider the following matters (where they are of relevance):

(a) *the cumulative air and other environmental impacts of the development or activity and any other development in the vicinity of a development or activity to which this Policy applies,*

(b) *the efficiency of the utilisation of resources, including energy, water and raw materials,*

(c) *the minimisation and management of waste,*

(d) *the minimisation of visual impacts, including the restoration of native vegetation,*

(e) *the likely effects of the development on local and regional societies and economies,*

(f) *the adequacy of consultation undertaken by the applicant or proponent with potentially affected land owners and communities,*

(g) *minimisation of direct or indirect impacts to National Parks and Wildlife Service estate, Ramsar estate and other habitat for wildlife,*

(h) minimisation of direct or indirect impacts to natural and cultural heritage values, including important vegetation communities, threatened species and migratory species and key habitats and corridors,

(i) the impact of the development or activity on the distribution of floodwater within the Hunter River estuary.

The Project is being developed with consideration of the ESD principles (Section 3.9.4). Impact mitigation and environmental management and monitoring measures for the Project are presented in Section 4.

3.3.4 Newcastle Development Control Plan

The Project Application area is wholly within the *Newcastle Development Control Plan* (Newcastle DCP) area.

The Newcastle DCP refers to "consent authority" and "council" throughout. The Project is a major project for which the approval authority is the Minister. References to "consent authority" and "council" (when referring to giving consent) in the Newcastle DCP should therefore be interpreted as references to the Minister for the Project.

The following elements from the Newcastle DCP are relevant to the Project.

Element 4.1 – Carparking

Element 4.1 outlines requirements for the provision of carparking and service delivery facilities. The Project is classified as an "industrial development" in Schedule 1 of Element 4.1. An "industrial development" is required to have 1 car space per 100 square metres (m^2) of gross floor area or 1 space per 2 employees. The Project would employ 100 employees during operations and is therefore required to provide 50 car spaces.

The Project would include a carpark with capacity for up to 80 cars (Section 2.9.2).

Carparking facilities at the Project would be developed in accordance with Element 4.1.

Element 4.2 – Contaminated Land Management

Element 4.2 outlines requirements relating to the use and/or development of land that is or may be contaminated. Clause 4.2.2(f) of Element 4.2 outlines approval requirements:

Following consideration of the findings of the site investigation process, the Council may grant consent or otherwise authorise the matter only if is satisfied that:

- *the land is suitable (or will be suitable after remediation) for the purpose for which the development is proposed to be carried out; and*
- *the land will be remediated before it is subdivided or used for the proposed purpose where remediation is necessary to make the land suitable for that purpose.*

A Land Contamination and Groundwater Assessment is presented in Appendix D. The assessment concluded that the Project site, once appropriate environmental management measures have been implemented, would be suitable for the purpose of the development of the Project (Appendix D).

Element 4.3 – Flood Management

Element 4.3 outlines requirements for flood risk management practices that achieve balanced environmental, social and economic outcomes. The Project wharf facilities are within a flood prone area (EP&A Act section 149 Planning Certificates, 24 January 2006) and are therefore subject to the provisions of Element 4.3.

Element 4.3 defines "floodway" as an area that is required for the conveyance of essential flood flow and a "flood storage area" as an area required to provide storage of floodwaters. If a flood prone area is designated as a "floodway" or "flood storage area" there are a number of provisions in Element 4.3 that must be complied with.

The Lower Hunter River Flood Study (NCC and Port Stephens Council, 1994) indicates that with the exception of south arm of the Hunter River (Lot 20, DP 262325) all land within the Project site is above the 1% annual exceedance probability (AEP) flood level. This study found that as a result of land reclamation and filling undertaken on the southern side of the Kooragang Island mainline, a 1% AEP flood level would not inundate the Project site (i.e. the Project site [excluding the south arm of the Hunter River] is not a "floodway" or "flood storage area").

Element 4.3.2 prohibits the erection of any building or structure in a "floodway" and the filling by way of deposition of any material on a "floodway".

However, Element 4.3.1 exempts some forms of development from the provisions of Element 4.3 (including Element 4.3.2):

> *Some Change of Use Applications*
>
> *Each application for change of use will be assessed as to whether this element should apply according to the extension of risk posed by the new use. Where existing buildings do not comply with the provisions of this element, the new use will generally only be approved if the applicant can demonstrate that there is no increased impact on or as a result of flood risk.*

As described in Section 4.6, there is expected to be no increase in flood risk due to the development of the Project.

Element 4.4 – Landscaping

Element 4.4 outlines requirements and procedures for landscaping planning and design for development sites. Element 4.4 identifies three categories of development requiring varying levels of landscape planning. The Project falls into Category 3 development, as it is industrial development with a capital cost greater than $2 million (M).

Category 3 developments are required to have a landscape architect or similar qualified professional complete a site survey and analysis; landscape concept plan; preliminary landscape design report; and a comprehensive landscape plan.

As described in Section 4.5.3, a Landscape Management Plan would be developed to fulfil the requirements of the Newcastle DCP. NCIG would fulfil the requirements outlined in Element 4.4 should this be required by the approval authority.

Element 4.5 – Water Management

Element 4.5 outlines requirements for sustainable water management for all development. It requires consideration of: erosion and sediment control strategies; stormwater collection; flooding and runoff regimes; pollutants; overflow disposal; existing drainage systems; and efficient use of mains water. Clause 4.5.9 of Element 4.5 requires an ESCP, water management plan and a water cycle management plan to be developed.

As described in Section 2.8, a network of stormwater drains and stormwater settlement ponds, primary and secondary settling ponds and site water pond would be used to manage stormwater flows on and around the site.

As described in Section 2.10, waste hydrocarbons would be collected, stored and removed by licensed waste transporters of a periodic basis. Workshop and truck washdown areas would include purpose built oil/water separator systems which would be inspected and maintained on a regular basis. Concrete sumps would be installed where necessary at the end of the open drains to act as sediment traps.

A SWMP would be developed for the Project. The SWMP would include a site water balance, on-site water management measures, and the SWGMP (Sections 4.6.3 and 4.7.2). An ESCP would also be developed for the Project (Section 4.1.3) and would describe measures to be implemented to control soil erosion and sediment generation proximal to the source and thereby minimise the potential for Project activities to adversely affect downstream water quality. These documents would also include procedures for the application of contingency measures, if necessary.

Element 4.6 – Waste Management

Element 4.6 outlines requirements for the use and or development of land that is likely to result in the generation of waste. Element 4.6 outlines waste minimisation and management measures and general principles for the location and design of waste management facilities. Clause 4.6.4 requires a waste management plan to be prepared, detailing: the volume and type of waste generated; reuse, recycle and disposal methods of residual material; the storage and treatment of waste on-site; and any on-going commitments regarding the waste minimisation and management measures.

Section 2.10 describes the collection, storage and removal of all types of waste from the Project. Waste would be disposed of at a DEC approved waste facility that is licensed under the POEO Act.

NCIG would develop and implement waste minimisation and management measures in general accordance with Element 4.6. A Waste Management Plan (WMP) would be developed in accordance with Clause 4.6.4 of Element 4.6.

Element 4.7 – Outdoor Advertising

Element 4.7 outlines requirements for the design of advertising signs and structures. Clause 4.7.2(c) outlines provisions specifically for industrial zones.

All signage at the Project would comply with requirements and provisions outlined in Element 4.7.

Element 7.1 – Industrial Development

Element 7.1 provides detailed guidelines for industrial land and buildings. Clause 7.1.1 of Element 7.1 requires all new development on vacant sites to generally comply with all aspects of Element 7.1.

A discussion of the relevant provisions of Element 7.1 as they apply to the Project is provided below.

- **Design and Appearance of Developments**

  Objective

  To promote industrial development that is both functional and attractive in the context of its local environment.

Visual impacts that are expected to arise as a result of Project activities are assessed in Appendix H and Section 4.5. Mitigation measures are outlined in the Visual Assessment (Appendix H) including:

- fulfilling the requirements outlined in Element 4.4 – Landscaping of the Newcastle DCP;
- administration and workshop areas would be appropriately landscaped with selective tree planting, formal gardens and grassed areas in keeping with the “shop front” location on the public road consistent with the requirements of Element 7.4.8 of the Newcastle DCP;
- integrate and rationalise signage to minimise visual clutter at formal entry points into the site; and
- lighting would be positioned and directed so as to cause no glare or excessive light spillage to neighbouring land and would comply with AS 4282-1995 *Control of Obtrusive Effects of Outdoor Lighting*.

- **Building Construction**

  Objective

  To ensure a high standard of building construction, provisions for the safety of persons in the event of fire, the suppression of fire and the prevention of spread of fire.

All buildings developed as part of the Project would comply with the Building Code of Australia as required in Clause 7.1.5.

- **Building Setbacks**

  Objectives

  To ensure that adequate area is available at the front of buildings to accommodate satisfactory landscaping, access, parking and manoeuvring of vehicles.

  To reduce the visual impact of industrial development on the streetscape.

All buildings developed as part of the Project would be setback a minimum of 5 m from the street front property boundary to accommodate landscaping, access, parking and to minimise the possible visual impact of the Project in accordance with Clause 7.1.6(b).

- **Neighbourhood Amenity**

  Objective

  To facilitate the development of a wide range of industrial, service and storage activities which do not have a materially detrimental effect on the amenity of adjoining residential areas.

Visual impacts that are expected to arise as a result of Project activities were assessed in Appendix H and Section 4.5. Mitigation measures are outlined above.

In addition, potential noise and air quality impacts of the Project were assessed in Appendices A and B and Section 4.3.2 and 4.4.2, respectively. Mitigation measures are outlined in Appendices A and B and Sections 4.3.3 and 4.4.3.

Element 7.4 – Kooragang Port and Industrial Area

The Project lies within the Kooragang Port and Industrial Area identified in Element 7.4. Element 7.4 aims to promote and maximise the agglomeration advantages for long-term port-related industrial development within the core economic areas around the Port of Newcastle and the Kooragang Port and Industrial Area, balanced with the need to protect, enhance and reinforce the important cultural, heritage and biodiversity values of Kooragang Island.

A discussion of the relevant provisions of Element 7.4 which apply to the Project is provided below:

- **Industrial Ecology**

Clause 7.4.2 looks to foster environmentally beneficial interactive relationships between industry in the Hunter Region to optimise resource use and minimise pollution and waste and encourage consultation with key government agencies. Under Clause 7.4.2 the approval authority can request an Industrial Ecology Statement be prepared.

The Project is being developed with consideration of the ESD principles (Section 3.9.4). Impact mitigation and environmental management and monitoring measures for the Project are presented in Section 4.

A detailed summary of the consultation process (including government agencies) undertaken as part of the preparation of this EA is provided in Section 3.7. NCIG would endeavour to develop environmentally beneficial interactive relationships with other industries in the Hunter Region.

- **Water Quality**

Clause 7.4.3 outlines requirements for sustainable water management for the Kooragang Industry and Port Area. Clause 7.4.3 requires consideration of: erosion and sediment control strategies; surface water management strategies; pollutants control; existing drainage systems; and efficient use of water (including recycling). Clause 7.4.3 requires an ESCP and a SWMP to be developed.

These issues were addressed in Element 4.5 above.

- **Air Quality**

Clause 7.4.4 outlines requirements to minimise the potential air quality impacts of the Kooragang Industry and Port Area. Clause 7.4.4 requires all emissions of air impurities to be licensed and controlled to the satisfaction of the DEC.

An EPL would be obtained from the DEC for the Project under the POEO Act.

An Air Quality Impact Assessment was conducted as part of the preparation of this EA and is presented in Appendix B. This assessment was conducted in accordance with *Approved Methods for Modelling and Assessment of Air Pollutants in NSW* (DEC, 2005a) and demonstrated that the potential air quality impacts of the Project are within acceptable levels.

- **Site Contamination**

Clause 7.4.5 refers to Element 4.2 – Contaminated Land Management (discussed above) in the Newcastle DCP for its provisions.

These issues have been addressed in Element 4.2 above.

- **Buildings, Structures and Site Layout**

Clause 7.4.7 outlines provisions that encourage innovative and sustainable design and material selection that minimises energy use and visual impact and provides sufficient buffers. NCIG would generally comply with all provisions outlined in Clause 7.4.7. Energy use is discussed in Sections 2.9.3 and 4.4.2 and potential visual impacts are also assessed in Section 4.5 and Appendix H.

- **Landscape, Habitat Conservation and Open Space**

Clause 7.4.8 outlines provisions relating to the incorporation of landscaped areas to provide habitat areas, visual relief and recreational uses.

As described in Section 2.9.1, the administration and workshop areas would be appropriately landscaped with selective tree planting, formal gardens and grassed areas in keeping with the "shop front" location on the public road.

Clause 7.4.8(i) empowers the approval authority to require a flora/fauna assessment if they consider an assessment necessary. A Flora Assessment and Fauna Assessment have been undertaken as part of the preparation of the EA and are presented in Appendices E and F and Sections 4.8 and 4.9, respectively.

- **Access and Parking**

Clause 7.4.9 outlines provisions to encourage parking, circulation and vehicular access that is integrated with the form and arrangement of buildings, is suitably designed and landscaped to minimise visual impact and is safe for all users.

NCIG would generally comply with the provisions outlined in Clause 7.4.9.

- **Noise and Vibration**

Clause 7.4.10 outlines specific provisions to ensure that the amenity of adjoining urban areas of Stockton and Mayfield, and the Kooragang Wetlands Rehabilitation Project (KWRP) and Kooragang Nature Reserve is not unreasonably affected by noise. Clause 7.4.10(i) requires that all buildings, equipment and processes should be designed to minimise noise and vibration, and an acoustic assessment must be submitted to the approval authority.

A Construction, Operation and Road Transport Noise Impact Assessment has been undertaken as part of the EA and is presented in Appendix A. The noise assessment concluded that the Project would comply with relevant amenity criteria as established, based on the Industrial Noise Policy (EPA, 2000) at nearby residential and conservation areas. The Project includes the incorporation of noise attenuation measures (Appendix A and Section 4.3.3).

- **Risk Assessment**

Clause 7.4.11 outlines specific provisions to ensure that hazards associated with potentially hazardous industries are identified and comply with relevant criteria. Developments are required to: demonstrate compliance with the relevant risk criteria contained in SEPP 33 (Hazardous and Offensive Development) and the Department of Infrastructure, Planning and Natural Resources (DIPNR) guidelines; should not increase cumulative risk; conduct a hazard and operability (HAZOP) study by persons with qualifications acceptable to the DoP; and the assessment of hazard must have regard to the *Cumulative Risk Management Model for Kooragang Island* (DoP, 1992a).

A PHA has been conducted as part of this EA (Appendix I) to evaluate the hazards associated with the Project in accordance with the general principles of risk evaluation and assessment outlined in the DUAP *Multi-Level Risk Assessment Guidelines* (1999).

The PHA also addresses the requirements of SEPP 33 and assesses risks in comparison to the qualitative risk assessment criteria developed in general accordance with AS/NZS 4360:2004 *Risk Management.* In addition, the PHA considers the qualitative criteria provided in *Risk Criteria for Land Use Planning: Hazardous Industry Planning Advisory Paper No. 4* (DUAP, 1992a) and is documented in general accordance with *Guidelines for Hazard Analysis: Hazardous Industry Planning Advisory Paper No. 4* (DUAP, 1992b).

The PHA concluded that the Project complies with the relevant risk acceptance criteria and that no significant far field effects or effects on the bio-physical environment were noted. On this basis it is considered that the constraints noted in the *Newcastle and Kooragang Island Area Risk Assessment Study* (DoP, 1992b) are not relevant to the CET (Appendix I).

- **Bulk Liquid Storage**

Clause 7.4.12 outlines provisions to ensure the storage of bulk liquid accommodates adequate environmental safeguards to minimise hazards and risk associated with bulk liquid storage. All installations are required to comply with the requirements of the *Dangerous Goods Act, 1975* (DG Act) and the Work Cover Authority.

Project liquid storage facilities would comply with the relevant requirements of the DG Act and the Work Cover Authority.

Hydrocarbons used on-site for the Project would include fuels (i.e. diesel and petrol) and oils/lubricants (Section 2.10). Hydrocarbon storage facilities would be designed, located, constructed and operated in accordance with AS 1940-2004 *The Storage and Handling of Flammable and Combustible Liquids.*

- **Pipelines**

Clause 7.4.13 outlines provisions to ensure the location and design of pipelines comply with appropriate environmental and safety standards, meet relevant development requirements and new development does not affect existing pipelines.

Feasibility studies have not identified any pipelines within the Project site that require relocation or removal for development of the Project. All pipelines required for the Project would be designed and constructed in accordance with the provisions outlined in Clause 7.4.13.

- **Fire-Fighting**

Clause 7.4.14 outlines provisions to ensure all industrial and associated land uses are satisfactorily equipped to undertake emergency fire-fighting and hazard precautions to the relevant current standards and appropriate bushfire risk assessment and management requirements are addressed.

The Project would be equipped with fire-fighting equipment as required by the Building Code of Australia and to the satisfaction of the Fire Brigade of NSW.

NCIG would comply with the DG Act and complete a Fire Safety Study if required by the approval authority in accordance with Clause 7.4.14(iii).

NCIG would incorporate suitable access for fire-fighting vehicles, utilise fireproof building materials and consider fire breaks and radiation zones in the design of infrastructure and buildings.

- **Lighting**

Clause 7.4.15 outlines provisions to provide a functional and co-ordinated site lighting system which contributes to a safe and aesthetically pleasing environment.

Lighting would be positioned and directed so as to cause no glare or excessive light spillage to neighbouring land and would comply with AS 4282-1995 *Control of Obtrusive Effects of Outdoor Lighting*.

Visual impacts that are expected to arise as a result of Project activities are assessed in Appendix H and Section 4.5. Lighting would be positioned and directed so as to reduce the potential for glare or excessive light spillage to neighbouring land and would comply with AS 4282-1995 *Control of Obtrusive Effects of Outdoor Lighting*.

- **Fencing**

Clause 7.4.16 outlines provisions to ensure public safety and security for industrial landuses which retains compatibility with the estuarine environment of Kooragang Island and visual permeability and does not pose a threat to movement of wildlife in the locality.

Fencing at the Project would be installed in accordance with the provisions of Clause 7.4.16.

A Flora Assessment and Fauna Assessment were conducted for the Project and are presented in Appendices E and F and Sections 4.8 and 4.9, respectively.

- **Utility Services**

Clause 7.4.17 outlines provisions to ensure that there are adequate services for the development and the location and appearance of utility services does not visually detract from the locality or disrupt port or industry operations.

NCIG would comply with the provisions outlined in Clause 7.4.17.

3.3.5 Section 94 Contribution Plans

The Project is situated wholly within the City Wide Residual Contributions Catchment (CWRCC) under the *Section 94 Contribution Plan No. 1 2005* (Newcastle Contributions Plan). Contributions in the CWRCC only apply to residential development and therefore the Newcastle Contributions Plan is not relevant to the Project.

Under the combined operation of section 75R(4) and section 94B(2) of the EP&A Act, the Minister must consider the Newcastle Contributions Plan but may impose a condition under section 94 or 94A of the EP&A Act even though it is not authorised by, or is not determined in accordance with, the Newcastle Contributions Plan.

3.4 OTHER APPLICABLE STATUTORY APPROVALS

The following Acts may be applicable to the Project:

- *Contaminated Land Management Act, 1997;*
- *Dangerous Goods Act, 1975;*
- *Maritime Transport and Offshore Facilities Security Act, 2003;*
- *Noxious Weeds Act, 1993;*
- *Rail Safety Act, 2002;*
- *Road and Rail Transport (Dangerous Goods) Act, 1997;*
- *Roads Act, 1993;*
- *Protection of the Environment Operations Act, 1997;*
- *Threatened Species Conservation Act, 1995;*
- *Water Act, 1912;* and
- *Maritime Services Act, 1935*.

Relevant licences or approvals required under these Acts would be obtained as required. For example, the site would require an Environment Protection Licence (EPL) under the POEO Act and water licences under the *Water Act, 1912* would be required if groundwater extractions are required as a groundwater management measure.

The Commonwealth *Environment and Protection and Biodiversity Conservation Act, 1999* (EPBC Act) may also be applicable to the Project as described in Section 3.5.

3.5 ENVIRONMENT PROTECTION AND BIODIVERSITY CONSERVATION ACT, 1999

The EPBC Act commenced operation on 16 July 2000. The EPBC Act defines proposals that are likely to have an impact on a matter of environmental significance as a "controlled action". Proposals that are, or may be, a controlled action are required to be referred to the Commonwealth Minister for the Environment and Heritage for a determination as to whether or not the action is a controlled action.

The Project will be referred to the Commonwealth Minister for the Environment and Heritage for an assessment of whether or not it includes a controlled action under the EPBC Act. If the action is a controlled action, either a separate approval process will be required for those aspects of the proposal that form part of the controlled action or the Commonwealth Minister may declare that the assessment under the NSW EP&A Act is sufficient and a separate assessment will therefore not be required.

Consultation with the Commonwealth Department of Environment and Heritage (DEH) has been undertaken as part of the preparation of this EA and is summarised in Section 3.7.1.

3.6 INTERACTION WITH OTHER ACTIVITIES

Development of the Project would involve interaction with a number of other activities that do not form part of this Project Application. The interaction of the Project with other activities and how the Project would be managed or scheduled to accommodate these activities is described below.

3.6.1 Dredging of the South Arm of the Hunter River

The NSW Maritime Authority holds a development consent (DA-134-3-2003-i) granted to it by the Minister on 9 August 2005 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 Port Consent).

The dredging of the south arm of the Hunter River adjoining to and on the Project site is not assessed in this EA and does not form part of this Project. This dredging is authorised for the purposes of the EP&A Act by the Port Consent, which applies to the following land also forming part of this Project Application:

- Lot 20 DP 262325;
- Lots 6 and 7 DP 1015754; and
- Lot 122 DP 874949.

NCIG would implement the Port Consent where it is relevant to the Project. The Project is consistent with the Port Consent which has been assessed in an Environmental Impact Statement (EIS) (*Proposed Extension of Shipping Channels, Port of Newcastle Environmental Impact Statement* [Waterways Authority, 2003]) (Port Consent EIS), which provides as follows:

> *The South Arm has been identified as the most suitable location for port expansion in Newcastle, mainly because of the South Arm's proximity to transport infrastructure, its lower potential for significant environmental impacts (particularly in the Kooragang Nature Reserve) and its more passive hydraulic characteristics (compared to the North Arm of the Hunter River).*

The dredging of the south arm of the Hunter River for the purposes of providing deep water access to future berth sites at the Project wharf is assessed in the Port Consent EIS and is not assessed further in this EA.

The Port Consent EIS specifically contemplates co-ordination of the dredging authorised under the Port Consent with the development of "associated land-based facilities", and the beneficial re-use of clean dredged spoil. Section 1.5 of the Executive Summary of the Port Consent EIS notes the following:

> *In general terms, the level of contamination in the majority of the South Arm sediments is low – the large quantity of sand in the South Arm is suitable for beneficial reuse in its current state.*

The Project, the subject of this EA, is accordingly consistent with the Port Consent. The initial phase of preloading of the Project site utilising dredged materials from the south arm of the Hunter River would be undertaken in the first 18 months of development (for a 33 Mtpa capacity CET) (Section 2.3). The scheduling of dredging for provision of material for construction of the Project up to a capacity of 66 Mtpa would be determined by market demand. Once each phase of preloading is complete, the same dredged materials would be used for the construction of Project elements such as the coal stockpile hardstands and berms, rail embankments and wharf areas.

NCIG would obtain approvals required under Sections 13TA (work on prescribed land within 10 m on the landward side of waters the bed of which is vested in NSW Maritime) and 13T (erection of a structure on or over the bed of any waters vested in the NSW Maritime Authority) of the *Maritime Services Act, 1935*.

3.6.2 Remediation of Contaminated Sediments in the South Arm of the Hunter River

The Port Consent EIS includes the remediation of known contaminated sediments adjacent to the former Broken Hill Proprietary Company Limited (BHP) steelworks site in the south arm of the Hunter River. In the order of 2% of the estimated 13.6 million cubic metres of material to be dredged under the Port Consent carries elevated concentrations of contaminants (primarily polycyclic aromatic hydrocarbons) that will require treatment before disposal to landfill (DIPNR, 2005).

The Port Consent includes the staging of works. Stage 1 of the Port Consent involves dredging of both clean and contaminated materials and transfer of this material off-site for treatment or disposal. Stage 1 also includes remediation testing of up to 1,000 m^3 of contaminated material.

The remediation of the remainder of the contaminated material is the subject of Stage 2 of the Port Consent and requires further approval from the Minister.

NCIG has consulted with BHP Billiton (BHPB) (the party responsible for the remediation of the contaminated sediments) with respect to the potential interaction of dredging activities. This consultation indicates that subject to the requirements of relevant approvals, the extraction of the contaminated sediments on the southern side of the south arm of the Hunter River can be undertaken by BHPB in parallel with the commencement of dredging activities to facilitate the first phase of Project development. A number of engineering options are being considered to manage these parallel activities, including the use of sheet piling techniques to provide physical separation. Once the contaminated sediments have been removed for remediation by BHPB, the remainder of the dredging activities relevant to the Project would continue. Any delay in the commencement or completion of the BHPB extraction of contaminated sediments from the south arm of the Hunter River would delay completion of the dredging required to provide construction material and the shipping channel for use by the Project.

Sufficient clean (uncontaminated) dredge material is available from the approved dredging of the south arm of the Hunter River to meet the fill requirements for development of the Project. The NSW Maritime Authority has agreed to provide the necessary fill material to the Project. Once removed from the south arm of the Hunter River, remediation of the contaminated sediments would be undertaken as a separate activity by BHPB and would not provide an impediment to the development of the Project. No remediated material produced during Stage 1 or Stage 2 of the implementation of the Port Consent would be utilised as Project pre-loading or construction fill.

Potential cumulative traffic impacts associated with the Port Consent, including the remediation of contaminated sediments, have been considered in the Road Transport Assessment (Appendix C) and Section 4.11.2.

3.6.3 Closure and Capping of Landfill Areas on Kooragang Island

Historical landuse of the Project site includes grazing, land reclamation and the long-term disposal of dredge spoil (Section 1.1.4). In addition, the KIWEF was established in 1972 and is a licensed waste disposal facility that is under the control of the RLMC. The facility has not been utilised significantly for waste disposal since 1999, however, it remains a licensed facility and is managed by the RLMC in accordance with EPL 6437 under the POEO Act.

In NCIG's Agreement for Lease of the Project site (Section 1.1), a component of the NCIG leased area is the corridor across the KIWEF that is required for the Project rail infrastructure, train unloading stations and transfer conveyors (Figure 2-1).

The closure/capping of the KIWEF to the satisfaction of the DEC would be undertaken by the RLMC and the timing of this activity is outside of the control of NCIG. The localised capping of any landfill areas traversed by the Project rail infrastructure would be undertaken by NCIG during Project construction works in such a manner that can be readily integrated with the final capping of the KIWEF and meets the relevant goals of benchmark techniques 28 and 29 in *Environmental Guidelines: Solid Waste Landfills* (EPA, 1996) (Sections 2.4.1 and 4.7.2 and Appendix D). This would be achieved by the inclusion of the following aspects in the rail infrastructure corridor design:

- A seal-bearing surface (i.e. prepared sub-grade).
- A 0.5 m thick sealing layer with an effective permeability of not greater than $1x10^{-8}$ metres per second (m/s) (unless otherwise agreed by the DEC). A geo-synthetic and/or geo-membrane would be incorporated into this layer where necessary to achieve the desired effective permeability and/or to protect the integrity of the sealing layer.
- Incorporation of a drainage system along the rail infrastructure corridor to maximise rainfall runoff and minimise infiltration. The drainage system would include table drains along the length of the corridor to collect and divert runoff to the existing site drainage system via sediment control structures. The rail embankment would include culverts where it traverses low points in the existing topography to allow drainage across its alignment. Existing drainage structures from the centre of the rail loop would be maintained (Figure 2-1).
- An infiltration drainage layer with an effective permeability not less than $1x10^{-5}$ m/s and a revegetation layer would be placed across the capping layer as part of Project closure and rehabilitation works.

The rail infrastructure corridor design and capping layer is further described in Sections 2.4.1 and 4.7.2 and Appendix D.

3.6.4 ARTC Rail Upgrades to Improve Efficiency and Capacity

The ARTC is owned by the Commonwealth of Australia and overseen by the Federal Minister for Transport and Regional Services and Minister for Finance and Administration. On 5 September 2004, the ARTC commenced a 60-year lease of the Hunter Valley rail lines. The ARTC goals include: improving reliability; reducing transit times on key corridors; and to increase the yield in train operations from track infrastructure (ARTC, 2006).

In late 2004 and early 2005, the ARTC reviewed its Hunter Valley network investment program in light of the rapid growth in coal demand. The resultant Hunter Valley Corridor Capacity Improvement Strategy (ARTC, 2005) was first released in February 2005, and was subsequently updated in May 2005 and April 2006. The April 2006 version of the Hunter Valley Coal Network Capacity Improvement Strategy (ARTC, 2006) incorporates significantly revised forecasts of future coal demand.

As described in the Hunter Valley Coal Network Capacity Improvement Strategy (ARTC, 2006), the fundamental approach of the ARTC is to progressively increase rail capacity to meet anticipated demands for export and domestic coal transport. The basis for the 2006 Hunter Valley Coal Network Capacity Improvement Strategy is that export demand would rise from approximately 104 Mtpa in 2006 to 145 Mtpa in 2011, and possibly as high as 157 Mtpa by 2015 (ARTC, 2006). In order to address this predicted increase in the demand for rail capacity, the ARTC has identified a series of improvements which would increase rail capacity ahead of projected export demand, including:

- grade separation projects to reduce rail conflicts at critical nodes;
- additional tracks/loops/duplication of infrastructure/extensions; and
- upgrades (e.g. improvements to signalling) to reduce headways (time required between trains) and hence improve rail use efficiency.

These improvements would be undertaken progressively to maintain rail capacity ahead of coal export demand and the ARTC would be the proponent for these activities (ARTC, 2006). Environmental approvals that are required for the various improvements to the rail system would also be progressively obtained by the ARTC in accordance with the assessment requirements of the NSW Government under the EP&A Act.

It should be noted that the ARTC commenced the environmental assessment and development of aspects of the capacity improvement strategy in 2005 and some components of relevance to future capacity and efficiency are being constructed at present (e.g. the Sandgate Rail Grade Separation). The most recent ARTC Improvement Strategy (ARTC, 2006) indicates that the current theoretical capacity of the rail network for coal transport is 106 Mtpa, which is significantly higher than the current coal export capacity of the Port of Newcastle infrastructure (Appendix G).

The Project would not impede ARTC's ability to implement the planned upgrades to improve efficiency and capacity of the Hunter Valley rail network.

3.6.5 ARTC Rail Noise Performance

Rail noise along the Main Northern Railway that runs through the Hunter Valley is regulated via the ARTC EPL 3142 under the POEO Act. Within this EPL, Pollution Reduction Programs (PRPs) are to be implemented for railways within the ARTC network. The PRPs are to provide strategies for controlling environmental impacts, including noise.

Condition U1.1 of the EPL states the objectives of the PRPs as follows:

> *In developing the PRPs, the licensee must work towards the goals of 65 dB(A)Leq, (day time – 7.00am-10.00pm), 60 dB(A)Leq, (night time – 10.00pm-7.00am) and 85 dB(A) (24hr) max pass-by noise, at one metre from the façade of affected residential properties. If it is not possible for these goals to be reached by feasible and reasonable mitigation measures, the PRP must aim, through feasible and reasonable measures to:*
>
> - *reduce operational rail noise emissions and the associated noise impact on the community where traffic levels are anticipated to remain constant; or*
> - *stabilise operational rail noise emissions and the associated noise impact on the community where traffic levels are anticipated to increase.*

Condition U2.1 of the ARTC EPL also includes noise goals for significant new works:

> *In the planning of significant new works, the licensee must consider feasible and reasonable mitigation measures which could be implemented to achieve, to the extent possible, the planning goals of 60 dB(A)Leq, (day time - 7am-10pm), 55 dB(A)Leq, (night time - 10pm-7am) and 80 dB(A) (24hr) max pass-by noise, at one metre from the facade of affected residential properties.*

As described above, each of the upgrades referred to in the Hunter Valley Coal Network Capacity Improvement Strategy (ARTC, 2006) would be subject to assessment under the EP&A Act (including public consultation requirements) and would be regulated by the DEC under EPL 3142. The environmental assessment for each component of physical upgrade in the rail network would provide the ARTC with the opportunity to develop and consider appropriate mitigation works in accordance with Condition U2.1 of EPL 3142.

Train movements on the ARTC rail network are not part of the Project and are not assessed in this EA. Noise associated with the operation of trains on the Project rail infrastructure corridor is assessed in this EA.

3.7 ENVIRONMENTAL ASSESSMENT CONSULTATION

NCIG is committed to an open and constructive consultation programme, which aims to:

- inform government and public stakeholders of the nature and status of the Project;
- present information to stakeholders to facilitate a clear understanding of the Project;
- identify issues of concern to stakeholders for consideration in this EA; and
- establish dialogue between NCIG and government and community stakeholders that would be on-going, should the Project be approved.

The level of consultation undertaken is considered to be in accordance with the EARs and is appropriate for the preparation of an EA under Part 3A of the EP&A Act. Consultation has been undertaken with members of the public, relevant non-government organisations, Federal, State and Local Government agencies.

The consultation programme has provided an effective avenue to identify issues of concern or interest to stakeholders and to address these issues in this EA document where applicable. The consultation conducted has also provided an opportunity for stakeholders to provide material input to the design of the Project (e.g. rail design input by the ARTC and wharf design input from NPC).

The consultation undertaken to date is summarised in the following sub-sections and includes a synopsis of the relevant issues raised. It is anticipated that consultation would continue to be undertaken with government and non-government stakeholders during the assessment of this EA and construction and operation of the Project.

3.7.1 Government Agencies

State and Local Government

Consultation with relevant NSW Government agencies commenced in 2005 prior to the submission of the Project Application and Preliminary Assessment to the DoP. This consultation was in the form of government briefings in regard to the particulars of the Project for the purpose of commencing the project approval process. Briefings were also undertaken as part of the tender process to obtain the Agreement for Lease for the Project lands (Section 1.1.2).

A Planning Focus Meeting was held in March 2006. The meeting was attended by representatives of the following government stakeholders:

- the Premiers Department;
- the DoP;
- the DEC;
- the NSW Maritime Authority;
- the Department of Primary Industries (DPI);
- the ARTC; and
- the NPC.

The objective of the Planning Focus Meeting was to familiarise government stakeholders with the Project details and to identify key issues that should be addressed in this EA. The meeting included a site inspection and presentation on the Project and environmental assessment studies. Following the Planning Focus Meeting, the DoP issued the EARs for this EA (Attachment 1 and Table 1-3).

A range of State and Local Government agencies were consulted to discuss issues with respect to the environmental assessment of the Project. Presented below is a summary of the consultation undertaken with State and Local Government agencies.

Department of Planning (DoP)

Discussions were held with the DoP in regard to: the interaction of the Project with other activities/approvals; the EA approval process; assessment requirements and planning considerations; and issues that arose during consultation with government and non-government stakeholders.

Department of Environment and Conservation (DEC)

Following the DEC's attendance at the Planning Focus Meeting, a series of meetings were held with the DEC during the preparation of this EA to discuss particular aspects of the assessment. Comments and input were received from the DEC in regard to the following issues:

- assessment of potential impacts on flora and fauna;
- threatened and migratory species evaluation methodology;
- flora and fauna compensatory measures;
- noise assessment methodology and findings;
- air quality assessment methodology and findings;
- Aboriginal heritage assessment methodology and findings; and
- management of potentially contaminated material on the Project site.

The DEC was also provided with final drafts of particular EA specialist studies (e.g. Construction, Operation and Road Transport Noise Impact Assessment; Air Quality Impact Assessment; and Preliminary Aboriginal Heritage Assessment [NCIG, 2006b]). Comments received from the DEC were then considered prior to formal submission of this EA document.

The DEC also attended a Stakeholder Focus Group (SFG) meeting held on 15 May 2006 (Section 3.7.2) to answer questions raised by members of the SFG. Questions raised generally related to the process through which the DEC would assess this EA and the subsequent licensing and regulation of the Project if approved. Issues in relation to the environmental performance of existing developments in Newcastle were also raised.

Department of Natural Resources (DNR)

A meeting was held with the DNR in May 2006 to discuss the Project. The DNR advised that it was very familiar with the site and did not require a site inspection. The DNR explained that its involvement in the approval process would be limited to the issue of any groundwater licences and general review of this EA. The Kooragang Island Wetland Rehabilitation Project and Wetlands Management Policy were also discussed.

The DNR stated that it did not require any further consultation prior to formal submission of the EA.

Hunter Catchment Management Authority (HCMA) and the Kooragang Wetland Rehabilitation Project (KWRP)

The HCMA were consulted regarding the threatened and migratory species evaluation and flora and fauna compensatory measures. The HCMA indicated that they were satisfied with the level of consultation undertaken for the Project, in particular consultation with the KWRP. Consultation was undertaken with the KWRP, which is a subsidiary of the HCMA, during the preparation of this EA. Issues discussed included:

- justification for the Project (Section 3.9);
- interaction with the existing Port Consent (Section 3.6.1);
- design of the layout of the Project rail corridor and concerns over its potential to sterilise the future beneficial use of land zoned as Port and Industry Zone (Section 3.9.3);
- potential air quality impacts (Section 4.4);
- assessment of potential impacts on flora and fauna and the list of threatened and migratory species to be assessed in evaluations (Sections 4.8 and 4.9);
- compensatory measures, including the long-term financial viability of compensatory measures (Sections 4.8 and 4.9); and
- potential alternatives to the proposed compensatory measures, including the purchase of compensatory lands (Appendix F).

Professor David Goldney (co-author of flora and fauna studies undertaken for this EA) and Professor Arthur White (peer reviewer of frog-related studies undertaken for this EA) met with the KWRP to specifically discuss the compensatory measures presented in this EA.

Peggy Svobada (KWRP Project Manager) was also a member of the Project SFG (Section 3.7.2).

Department of Primary Industries (DPI)

A meeting was held with the DPI Minerals Development Group in May 2006 to provide an overview of the Project and EA process, and to identify any areas of interest. The DPI was also represented during whole of government meetings where the Project was discussed (e.g. Planning Focus Meeting). No particular concerns were raised during consultation.

Rail Infrastructure Corporation (RIC)

Discussions were held with the RIC during development of this EA to identify any areas of interest. In addition, the nature of consultation conducted with the ARTC was discussed. No particular concerns were raised by the RIC.

Newcastle City Council (NCC)

Representatives of the NCC were invited to the Planning Focus Meeting held in March 2006 and an overview of the Project was provided to the General Manager of the NCC in April 2006. Project information sessions were also held in April and May 2006 at the NCC council chambers. Interested councillors attended these sessions and were provided with a briefing on the nature of the Project, the EA preparation and the outcomes of stakeholder consultation to date.

Consultation was also undertaken with NCC representatives during the preparation of the Socio-Economic Assessment (Appendix G) to identify any concerns regarding the potential population effects of the development and associated potential impacts on employment, housing and community infrastructure.

During the EA preparation, discussions were also held with the NCC with respect to: existing traffic flows; transport planning; to inform the NCC of the findings of the Road Transport Assessment (Appendix C); and to request feedback on the traffic management measures proposed.

The NCC was provided with a final draft of the Road Transport Assessment (Appendix C) prior to formal submission of the EA.

Port Stephens Council (PSC)

A presentation was made to the PSC General Manager during the preparation of the EA to provide an overview of the Project and the EA process and consultation programme. No particular concerns were raised during consultation and the PSC did not request any further consultation prior to submission of this EA.

Roads and Traffic Authority (RTA)

NCIG consulted with the RTA during the preparation of the feasibility studies and the EA to obtain an understanding of the RTA's requirements. In particular, the consultation focussed on the RTA's requirements in regard to the potential for interruptions to traffic flows on Cormorant Road during Project construction activities and specifications for any intersections to enter/exit the Project site during construction and operation.

The RTA was provided with a final draft of the Road Transport Assessment (Appendix C) prior to formal submission of the EA.

Newcastle Port Corporation (NPC)

NCIG consulted with the NPC during the feasibility studies and preparation of this EA with respect to its requirements for shipping management and interaction with existing approvals associated with the Port of Newcastle. The NPC attended the Planning Focus Meeting for the Project in March 2006. NCIG has consulted with the NPC regarding any applicable navigation requirements associated with the Project. This included joint participation in navigation trials in June 2006 (with the Project berth alignment and approved dredging of the south arm of the Hunter River) using a simulation model of the Port of Newcastle at the Australian Maritime College in Launceston, Tasmania.

NSW Maritime Authority

Consultation has been undertaken with the NSW Maritime Authority with respect to: the provision of dredge spoil as a construction material for the Project and the interaction of the Project activities with the implementation of the Port Consent (Section 3.6.1). This has included the joint development of concept dredging plans for development of the Project to 33 Mtpa and 66 Mtpa capacity and the NSW Maritime Authority has also attended meetings with the DEH in Canberra with respect to other approvals required for the dredging activities.

Regional Land Management Corporation (RLMC)

NCIG consulted extensively with RLMC during the development of the Agreement for Lease (Section 1.1.2). The RLMC were consulted during the preparation of this EA. NCIG submits a detailed monthly report on pre-Project activities. In May 2006, the RLMC (as the owner of the relevant lands on Kooragang Island) indicated its general support for NCIG's proposed flora and fauna compensatory measures (Sections 4.8 and 4.9).

Hunter Water Corporation (HWC)

NCIG consulted with the HWC during the preparation of this EA with respect to provision of Project make-up and Project water supply. The HWC confirmed that Project water demand could be met by the existing water main system on Kooragang Island and has provided NCIG with connection details and costings.

State Members of Parliament

A briefing on the Project was provided to State Members of Parliament (Newcastle and Port Stephens) during the preparation of this EA. The consultation programme and the function and composition of the Project SFG were discussed.

Federal Government Agencies

Australian Rail Track Corporation (ARTC)

Consultation with the ARTC has been undertaken throughout the feasibility studies to ascertain the requirements of the ARTC with respect to the design and layout of the rail components of the Project and interaction with the Kooragang Island mainline. Included in this consultation process were the two rail users, namely, Pacific National and Queensland Rail. Where applicable, the ARTC requirements have been incorporated into the Project description (Section 2.4).

The ARTC attended the Planning Focus Meeting for the Project in March 2006 and further meetings were held with the ARTC during the preparation of this EA. These meetings covered the ARTC plans for capacity improvements on the Hunter Valley rail network and the management of noise associated with rail movements on this network in accordance with the ARTC EPL (Section 3.6.5).

The ARTC and NCIG have formed a Heads of Agreement with respect to the Project. A Project Agreement and Operations Agreement would be formed between these parties prior to the construction and operation of the rail components of the Project.

Consultation with respect to technical specifications and rail access costs would continue as part of the Project feasibility studies.

Department of Environment and Heritage (DEH)

The Project will be referred to the Commonwealth Minister for Environment and Heritage for a determination of whether or not it includes a controlled action under the EPBC Act (Section 3.5). The DEH was contacted to discuss the Project during the preparation of the EA. The DEH advised that it would like to be consulted further when the EPBC Act referral is close to completion. No further consultation requirements were raised by the DEH.

3.7.2 Public Consultation

A Project SFG was formed on 26 April 2006 and comprises:

- Margaret MacDonald-Hill (Chairperson);
- Mayfield Residents Group (Pat Flowers, John Di Gravio and Alison Hutchison);
- Stockton Community Forum (Pat Keating);
- Carrington Residents Group (Steve Allen, Rob Pittman and Alan Lobley);
- Fern Bay Residents Group (Pat Hyde and Geoff Hyde);
- Citizens and Kooragang Alliance (Pat Keating, Pat Hyde, Geoff Hyde and John Nella); and
- KWRP Project Manager (Peggy Svobada).

The members of the SFG were selected based on nominations from community members and other stakeholders. The SFG aims to assist with the transfer of information between the local community and NCIG and to provide a forum for constructive consultation regarding the key environmental issues for the Project.

The SFG met on three occasions (26 April 2006, 15 May 2006 and 29 May 2006) prior to completion of this EA. These meetings have enabled NCIG to inform the community of its plans and assessment findings and for community representatives to raise any concerns identified by the wider community. A fourth meeting is scheduled for late July 2006. Subject to member availability, the SFG will continue to meet every one to two months throughout the DoP assessment of the Project Application and EA.

The issues discussed by the SFG were wide-ranging and included (but were not limited to) the following:

- potential noise impacts including construction and operational noise from the Project, noise assessment requirements and criteria, cumulative noise with other industrial developments and noise monitoring and management (Section 4.3 and Appendix A);
- potential air quality impacts including concerns about coal dust, applicable air quality guidelines and criteria, application of dust mitigation measures, cumulative air quality issues related to industrial development and air quality monitoring and management (Section 4.4 and Appendix B);
- potential interaction of the Project with the longer term planned traffic improvements of the NCC and the RTA, management of Project traffic and existing traffic congestion and access to and from the Project site during construction and operations (Section 4.11 and Appendix C);
- interaction of the Project with the Port Consent and remediation of contaminated sediments in the south arm of the Hunter River (Sections 3.6.1 and 3.6.2);
- arrangement of the Project rail infrastructure and the potential for it to sterilise the beneficial use of land zoned as port and industrial use (Section 3.9.3);
- management of potentially contaminated materials on the Project site and the status of the KIWEF (Section 4.7 and Appendix D);
- water use on-site, water management and the management of potentially contaminated waters (Sections 4.6 and 4.7 and Appendix D);
- potential visual impacts including siting coal stockpiles in close proximity to Cormorant Road (Sections 3.9.3 and 4.5 and Appendix H);
- potential socio-economic impacts, including consideration of the broader global issues of greenhouse gas generation and global warming (Sections 4.12 and 4.13 and Appendix G);

- the Project EA approval process and the roles of government and public stakeholders in the assessment process (Sections 1 and 3);
- interaction of the Project with the Port of Newcastle (Sections 3.6.1 and 3.7.1);
- potential impacts of the Project on Aboriginal heritage (Section 4.10);
- management and monitoring of the Project during construction and operation (Section 4);
- justification of the need for the Project (Section 3.9); and
- technical questions regarding the timing, nature and operation of the Project (Section 2).

These issues were addressed during the conduct of the meetings and/or are addressed in relevant sections of this EA as indicated above.

Other parties that attended the SFG meetings included:

- Glenn Thomas (Heggies Australia) – presentation of draft findings of the Construction, Operation and Road Transport Noise Impact Assessment;
- Nigel Holmes (Holmes Air Sciences) – presentation of draft findings of the Air Quality Impact Assessment;
- Robert Gillespie (Gillespie Economics) – presentation of draft findings of the Socio-Economic Assessment;
- Grahame Clarke (DEC, Manager Hunter Region) – provided a description of the role of the DEC in the EA approval process and discussed other matters relevant to the Project; and
- Peter Gray-Bratton (University student) – observer.

In addition to the SFG meetings, consultation was undertaken with the following non-government agencies.

Hunter Bird Observers Club (HBOC)

Consultation was undertaken with the HBOC with respect to the fauna assessment for the Project and with respect to flora and fauna compensatory measures (Sections 4.8 and 4.9). Comments were received on the species lists utilised for the threatened species evaluations.

Consultation included (but was not limited to) discussion of the following issues:

- The HBOC expressed opposition to any Project elements disturbing Deep Pond, and particularly the development of the high capacity optional inlet rail spur (Figure 2-1) because of the presence of shorebird habitat in Deep Pond.
- The potential to mitigate impacts associated with construction of the high capacity optional inlet rail spur by creating compensatory habitat via rail embankment design.
- The HBOC advised that it would like reflective material installed on any aboveground powerlines associated with the Project to deter birds and minimise the potential for bird strike.
- Light screening along the Project rail infrastructure corridor to minimise train lighting impacts on shorebirds.
- The HBOC requested compensatory habitat be provided for Project impacts on Big Pond.
- Dredging of the south arm of the Hunter River and the potential for increasing tidal ranges and potential effects on saltmarsh communities was discussed.
- The HBOC requested that compensatory habitat enhancement works be conducted on lower Ash Island.
- Mangrove removal undertaken by the HBOC on Ash Island to enhance habitat for Coastal Saltmarsh Endangered Ecological Community and shorebirds.
- Recent records of threatened species within the Project site and surrounds.

Where relevant, these issues and other comments received during the course of consultation with the HBOC are addressed in Sections 4.8 and 4.9 and Appendices E and F.

University of Newcastle

Associate Professor Michael Mahony of the University of Newcastle was consulted during the preparation of this EA and provided some background to previous studies of the Green and Golden Bell Frog in the Newcastle area (including confirmation of the presence of amphibian chytrid fungus on Kooragang Island) and made some suggestions in regard to the management of potential fauna impacts (frogs) and compensatory measures. The potential to undertake further study of the Green and Golden Bell Frog during the Project implementation was discussed.

Aboriginal Groups

Preparation of this EA included consultation with the following local Aboriginal groups:

- Awabakal Local Aboriginal Land Council (Awabakal LALC);
- Worimi LALC; and
- Maaiangal Aboriginal Heritage Co-Operative (MAHC).

The Awabakal LALC was contacted in January 2006 and an overview of the location and nature of the Project was provided. A representative of the Awabakal LALC Management Committee advised that due to the location of the Project site, it was not within the Awabakal LALC area and that queries about Aboriginal heritage on the site should be directed to the Worimi LALC.

Consultation with the Worimi LALC commenced in January 2006 when the Project was initially discussed with a Worimi LALC sites officer and traditional owner, who had participated in the previous survey of the south-eastern portion of the Project site. Subsequent discussions with the Worimi LALC over March and April 2006 indicated that the Worimi LALC recognised the disturbed nature of the Project site and did not require further Aboriginal heritage assessment of the site, given the level of historical disturbance. This was subsequently confirmed by a letter issued by the Worimi LALC in May 2006 (Attachment 2).

As a precaution, the Worimi LALC requested that a Worimi LALC sites officer be present to monitor any Project excavation works below existing fill to facilitate the identification and salvage of any buried artefacts in the unlikely event that any are uncovered.

Consultation conducted with the MAHC in April 2006 indicated that no particular concerns were held with respect to the potential for Aboriginal heritage objects to occur at the Project site. This was based on the known level of historical disturbance of the site and the results of previous survey works. However, the MAHC requested that any Aboriginal objects identified on the Project site be managed in accordance with the requirements of the DEC. The MAHC indicated that its primary concerns with the development of the Project related to potential impacts on water quality, flora, fauna, and on nearby conservation reserves. These issues are addressed in Sections 4.6 to 4.9.

Other Public Consultation

NCIG has a website that provides Project information and contact details. The website can be found at www.ncig.com.au. The website will be maintained by NCIG throughout the Project approval process.

Consultation has also been undertaken in other forms during the feasibility studies and preparation of this EA, including contact with relevant businesses in the Hunter Valley who could provide consultancy and construction/development services to the Project.

In addition, Margaret MacDonald-Hill (SFG Chairperson) and Josh Hunt (Resource Strategies) met with a number of individual residents at Mayfield in April 2006, to discuss: the Project; the EA preparation and process; residents concerns over air quality impacts; and the environmental performance of existing developments in the Newcastle area.

3.8 ENVIRONMENTAL RISK ANALYSIS

In accordance with the Project EARs (Section 1.2), an Environmental Risk Analysis (ERA) was undertaken to identify the key environmental risk groups for the construction and operation of the Project. This was followed by review and risk analysis of scenarios for each risk group and identification of controls addressing each group/area of risk. The ERA was conducted on 28 April 2006 and was facilitated by Safe Production Solutions. The risk analysis team consisted of representatives from:

- NCIG;
- Connell-Hatch;
- Heggies Australia;
- Holmes Air Sciences;
- Western Research Institute, Charles Sturt University;
- RCA Australia;
- Enesar Consultants;
- Resource Strategies; and
- Safe Production Solutions.

The key environmental issues that were identified by the risk analysis team and the sections of this EA that address these issues are presented in Table 3-1.

Table 3-1
Key Potential Environmental Issues Identified in the Environmental Risk Analysis

Key Risk Group	Risk	Environmental Assessment Section
Soil	Loss of habitat in the area to be cleared for construction, most significantly in the area of Big Pond (including an Endangered Ecological Community).	Sections 4.8 and 4.9
Noise	Noise generated (particularly at night) potentially leading to off site annoyance (non-compliance with anticipated Project noise criteria), sleep disturbance and fauna specific impact (although fauna are habituated and unlikely to be affected by normal noises).	Sections 4.3 and 4.9
Air	Coal dust generated from operations potentially leading to off site health and amenity impacts and species-specific effects.	Sections 4.4 and 4.9
Water	Flow of sediment laden or contaminated water entering Deep Pond affecting the ecology of Deep Pond (which includes an endangered species).	Sections 4.2 and 4.6 to 4.9
	Impact on the Hunter River resulting from contaminated sediments and low pH water flowing from the site.	Sections 4.2, 4.6 and 4.7

Source: Appendix J

The soil and the noise group key environmental impacts were assessed in the ERA in the absence of additional controls that have subsequently been adopted as part of the Project. These include ecological compensatory measures (Sections 4.8 and 4.9) and a noise barrier around the rail loop (Section 4.3).

The ERA is documented in full as Appendix J.

3.9 PROJECT JUSTIFICATION

In accordance with the requirements of the EARs (Section 1.2), a justification of the requirement for the Project making reference to the strategic basis for the Project, the principles of ESD and the scale and staging of works at the Project is provided below.

3.9.1 Requirement for the Project

The Project is required to address a projected shortfall in port capacity as export demand for Hunter Valley coal increases. The following discussion outlines the expected increasing demand for Hunter valley coal in the short to medium term and the projected shortfall in port capacity that is anticipated to occur if the Project is not developed.

Export Demand and Supply of Hunter Valley Coal to the Port of Newcastle

As part of an Australian Government initiative, the Federal Department of Industry, Tourism and Resources commissioned the Australian Bureau of Agricultural and Resource Economics (ABARE) to assess:

- the current and future demand for coal from the Hunter Valley;
- the capacity of coal producers to meet current and expected future demand for coal from the Hunter Valley;
- whether current rail and port infrastructure is sufficient to support estimated coal exports from the Hunter Valley over the medium term; and
- the potential economic costs of infrastructure constraints in the Hunter Valley coal supply chain.

The ABARE (2005) study found that demand for Hunter Valley coal is strong and predicted that, as a medium case, potential demand for coal exports from the Hunter Valley will increase at an annual rate of 2.8% per annum from the 2004 level of 78 Mtpa to 122 Mtpa in 2015. Further, ABARE estimates that at a coal price of US$35/t, producers could supply between 130 Mtpa and 140 Mtpa of coal by 2015 if unconstrained by the coal supply chain. If coal prices were US$50/t then the ABARE report indicates coal producers could supply over 200 Mtpa of coal by 2015 if unconstrained by the coal supply chain.

The recent ARTC Hunter Valley Corridor Capacity Improvement Strategy (ARTC, 2006) indicates that the ARTC planning for export demand rises from approximately 104 Mtpa in 2006 to 145 Mtpa in 2011, and possibly as high as 157 Mtpa by 2015. These demand predictions are based on consultation with the coal mining industry.

The ability of individual Hunter Valley coal producers to meet potential market demand for their coal depends on there being sufficient capacity in the coal supply chain (i.e. railway and port infrastructure) to facilitate export.

The estimated coal supply chain capacity in 2005 was 85 Mtpa. This included the capacity of Port Waratah Coal Services' Coal Terminals (Kooragang Island and Carrington) at 89 Mtpa (ABARE, 2005) and the rail system capacity of approximately 85 Mtpa (ARTC, 2005). Export of coal through the Port of Newcastle totalled approximately 81 Mtpa in 2005 (HVCCLT, 2006).

PWCS has an existing approval to expand the combined capacity of its Kooragang Island and Carrington coal terminals to 102 Mtpa. Similarly, the ARTC has a planned programme of rail infrastructure improvements to maintain rail capacity ahead of anticipated coal export demand (as described in Section 3.6.4).

Consideration of the ABARE and the ARTC coal demand and supply scenarios indicates that even with the planned increase in PWCS port capacity to 102 Mtpa, the ability for coal producers to meet potential export demand through the Port of Newcastle is expected to be constrained if the Project were not to be developed (Appendix G).

The Role of the Project

The Socio-Economic Assessment presented in Appendix G indicates that while there is considerable uncertainty around future coal prices and export demand, it is evident that there are potentially very significant economic benefits to the NSW and Australian economies that would be foregone if port capacity limits the ability of Hunter Valley coal producers to meet export demand.

The Project, when constructed to an initial capacity of 33 Mtpa would provide significant additional port capacity to meet the expected increases in coal export demand in the short to medium term. The Project would also provide the ability to expand export capacity up to 66 Mtpa to meet further growth in demand and therefore realise the potential economic benefits.

The Project would also provide competition at the Port of Newcastle for coal export shiploading services and potentially reduce demurrage costs borne by coal producers associated with delays to shipping.

3.9.2 Scale and Development Profile of the Project

The scale of the Project has been determined by NCIG's consideration of the potential medium to long term demand for coal export infrastructure in the Port of Newcastle. This has included consideration of export demand forecasts produced by the ABARE (2005), as well as internal coal production planning by NCIG consortium members and surveys of the coal mining industry that have been undertaken by the ARTC (ARTC, 2005; 2006) (Section 3.9.1) and other industry advisory groups.

The adoption of 66 Mtpa capacity as the maximum scale of the Project has been determined by consideration of the potential demand for coal export capacity over the medium to long term, as well as the need to provide latent capacity in the coal supply chain, to absorb increases in coal export demand that occur over time. In addition, the technical constraints associated operation of the CET within the area of land available and the potential capital and operating costs of the Project at a range of scales have also been considered.

The construction of a large CET such as the Project requires a significant establishment period to obtain the required environmental approvals and develop infrastructure such as the rail infrastructure, coal storage area, conveyors, combined stacker/ reclaimers and shiploaders. The Project would initially be constructed to a capacity of 33 Mtpa, which is expected to provide some latent capacity at establishment.

Following the establishment of the 33 Mtpa capacity CET, expansion of the Project up to 66 Mtpa would be undertaken progressively on the basis of projected export demand. An analysis of a range of published coal export demand scenarios has been undertaken by Gillespie Economics (Appendix G). The analysis indicates that expansion of the CET above 33 Mtpa capacity may be required as early as 2010 or at some time after 2015. The Project has therefore been designed with the ability to progressively expand up to 66 Mtpa capacity in order to meet increases in coal export demand as they occur.

Any further expansion of the Project would need to be co-ordinated with other improvements to the Hunter Valley coal supply chain (e.g. the ARTC rail network improvements) to minimise the possibility of bottlenecks in the supply chain and the consequent loss of potential economic benefits.

This approach to progressive development of the Project also facilitates the ability for cash flow generated by the initial development to assist with the funding of subsequent expansion. This is a significant consideration given the significant scale of capital investment associated with the Project.

3.9.3 Consideration of Project Alternatives

As part of the preparation of the Project feasibility studies and the EA, a number of alternatives to the Project description were considered. Potential alternatives included (but were not limited to): alternative Project sites; the layout of rail infrastructure; the layout of coal stockpiles; the arrangement of construction access; and conveyor crossings of Cormorant Road. Each of the Project alternatives is discussed in more detail below.

Suitability of the Project Site

For the development of the Project, there are a number of primary site requirements that need to be met. These include:

- a large area of undeveloped land that is zoned appropriately (i.e. for port and industrial use);
- access to electricity, water supply, main roads and other general services;
- proximity to suitable rail infrastructure (i.e. the Hunter Valley main line) to facilitate the efficient receival of coal from the Hunter Valley; and
- access to a deep water port for shipping.

The Project site on Kooragang Island meets all of the above primary requirements. Of relevance, Element 7.4 of the Newcastle DCP indicates the Kooragang Port and Industrial Area has been identified to:

> *… promote and maximise the agglomeration advantages for long-term port-related industrial development within the core economic areas centred around the Port of Newcastle and the Kooragang Port and Industrial Area, balanced with the need to protect, enhance and reinforce the important cultural, heritage and biodiversity values of Kooragang*.

Site selection processes undertaken by NCIG indicated that the only other site in Newcastle that meets the primary site requirements described above is the former BHP steelworks site. This area of land is also under the control of the RLMC and is the approved site for a future Multi-Purpose Container Terminal.

The Project site has several significant advantages over the former BHP steelworks site, these include:

- the Project site was tendered by the RLMC for a use such as a coal terminal;
- the Project site is located significantly further from the residential receptors of Mayfield; and
- rail access to the former BHP steelworks site would pass by more residential areas when compared to the Project site.

The Project site has been identified as a preferred location for industrial development and the NSW Government has accepted the NCIG tender for its use as a CET.

The suitability of the Project site with respect to land contamination is discussed in Section 3.3.3, Section 4.7 and Appendix D.

Rail and Train Unloading Station Layout

A number of options were considered for the layout of the Project railway spurs and loops and the train unloading stations. Consideration was given to the following issues:

- the ARTC requirements including geometrical layout of rail components;
- minimising the number of road/rail crossings required, especially avoiding the requirement for any road/rail level crossings;
- locating the train unloading stations so fully loaded wagons could travel and unload on a straight length of track;
- geotechnical considerations (i.e. to manage the potential for excessive differential settlement the rail alignment has been located to travel along existing KIWEF landfill cell embankments as much as practicable);
- minimising the depth of fill along the rail embankment and the need for excavation of potentially contaminated soils from the KIWEF; and
- avoiding sterilisation of potential valuable industrial land.

The proposed design and layout of the Project rail infrastructure (Section 2.4) meets the requirements described above.

During consultation with the KWRP and the SFG, a query was raised regarding the potential for the Project rail spurs and rail loops to sterilise the future use of land zoned for port and industrial use at the KIWEF. In particular, the concern related to the fact that the position of the Project infrastructure would restrict access to the northern portions of the KIWEF. This issue was considered during the design of the Project layout and in forming the Agreement for Lease with the RLMC. The Project design includes a rail overpass of the Delta access road (Figure 2-1) and conveyor overpasses of the Pacific National access road (Sections 2.4 and 2.6). In addition, vehicular access would be available to the inside of the Project rail loops. Each of these elements of the Project design facilitates continued access to the KIWEF. It is also relevant to note that the rail infrastructure established by NCIG may be of beneficial use to future industrial development that requires access to the NSW rail network.

Arrangement of Coal Stockpiles

A number of alternative layouts for the Project coal stockpiles were considered by NCIG including: north-south aligned stockpiles; stockpiles parallel to the south arm of the Hunter River; and stockpiles parallel to the PWCS stockpiles.

The proposed coal stockpile layout (i.e. parallel to the south arm of the Hunter River) (Section 2.5) offers better overall site usage than the other alternatives. North-south aligned stockpiles would result in shorter, but more, stockpiles. This would result in more stacker and reclaimer plant items being required with associated increases in potential noise emissions and significant increases in capital expenditure.

The northern section of the Project site is better suited for the location of settlement ponds and site water pond due to the existing grade (draining to the northwest) and proximity to the existing concrete-lined stormwater channel. The administration and workshop buildings are located in the north of the site for access from Egret Street (i.e. to avoid direct access from Cormorant Road) for Project staff.

During consultation with the SFG, concerns were raised relating to the visual intrusion associated with locating the coal stockpiles adjacent to Cormorant Road.

During the design of the Project, NCIG considered an alternative layout that involved locating the settlement ponds close to the road providing an effective setback between the road and the coal stockpiles. This alternative was discounted due to the fact that the existing drainage and slope of the site is towards the northwest and therefore excessive filling would be required to reverse the overall grade. As described in Section 4.5, NCIG is including a vegetated bund along Cormorant Road as a mitigation measure for visual impacts from Cormorant Road.

Construction Access

During conduct of the Road Transport Assessment (Appendix C) it was identified that the use of the Delta access road as the sole access point to the rail infrastructure area could be problematic due to existing geometrical constraints associated with the intersection with Cormorant Road. Consultation with the traffic consultant, the RTA and the NCC indicated a preference for use of the Pacific National access road for the majority of access to the rail infrastructure area and this was subsequently incorporated into the Project layout (Figure 2-1).

During consultation with the SFG, a concern was raised that the existing high volumes of traffic on Cormorant Road would make access into and out of the Project site difficult. To mitigate this potential issue, the Project access roads would be designed in consultation with the RTA and the NCC to avoid the requirement to cross Cormorant Road (i.e. make right turns across oncoming traffic) into or out of access points (Section 4.11). In order to facilitate this restriction, a turning loop would be installed on the Project site and Project traffic would utilise the existing Teal Street roundabout as a U-turn facility as required (Section 4.11).

Where direct crossing of Cormorant Road from the wharf area to the coal storage area is required for heavy vehicles during construction, temporary traffic lights would be installed and the operation of the lights and traffic crossing would generally be restricted to off-peak traffic times.

Conveyor Crossing of Cormorant Road

In order to transfer coal from the coal storage area to the wharf area, conveyors are required to cross Cormorant Road. During the Project design development, NCIG considered both an underpass and an overpass of Cormorant Road from environmental and engineering perspectives. Consultation was also undertaken with the RTA with respect to its requirements for construction of overpass or underpass structures.

It was considered that the use of an overpass was the most feasible option due to: potential geotechnical issues with the stability of an underpass structure; restrictions in conveyor grade potentially limiting the height of the conveyor end point at the shiploader; and interaction of engineering requirements with the RLMC lease requirements. The design and construction of the conveyor overpass would be undertaken in accordance with relevant RTA requirements and an approved traffic management plan would be developed prior to construction to minimise potential disruption to traffic flow on Cormorant Road (Section 4.11).

3.9.4 Ecologically Sustainable Development Considerations

Background

The concept of sustainable development came to prominence at the World Commission on Environment and Development 1987, in the report entitled *Our Common Future*, which defined sustainable development as:

> *Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.*

In recognition of the importance of sustainable development, the Commonwealth Government developed a National Strategy for Ecologically Sustainable Development (NSESD) (Commonwealth of Australia, 1992) that defines ecologically sustainable development (ESD) as:

> *using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased.*

The NSESD was developed with the following core objectives:

- enhance individual and community well-being and welfare by following a path of economic development that safeguards the welfare of future generations;
- provide for equity within and between generations; and
- protect biological diversity and maintain essential processes and life support systems.

In addition, the NSESD contains the following goal:

> *Development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends.*

In accordance with the core objectives and a view to the achieving this goal, the NSESD presents private enterprise in Australia with the following role:

> *Private enterprise in Australia has a critical role to play in supporting the concept of ESD while taking decisions and actions which are aimed at helping to achieve the goal of this Strategy.*

Australia's commitment to the principles of ESD is considered in the EPBC Act, which defines principles of ecologically sustainable development:

> *(a) decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations;*
>
> *(b) if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation;*
>
> *(c) the principle of inter-generational equity – that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations;*
>
> *(d) the conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making;*
>
> *(e) improved valuation, pricing and incentive mechanisms should be promoted.*

For the purposes of this EA, the relevant definition of ESD is that in section 6(2) of the *Protection of the Environment Administration Act, 1991*, which is the definition adopted by the EP&A Act. This definition provides as follows:

> *Ecologically sustainable development requires the effective integration of economic and environmental considerations in decision-making processes. Ecologically sustainable development can be achieved through the implementation of the following principles and programs:*
>
> *(a) the precautionary principle – namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.*
>
> *In the application of the precautionary principle, public and private decisions should be guided by:*
>
> *(i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and*
>
> *(ii) an assessment of the risk-weighted consequences of various options.*
>
> *(b) inter-generational equity – namely, that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations,*
>
> *(c) conservation of biological diversity and ecological integrity – namely, that conservation of biological diversity and ecological integrity should be a fundamental consideration,*
>
> *(d) improved valuation, pricing and incentive mechanisms – namely, that environmental factors should be included in the valuation of assets and services, such as:*
>
> *(i) polluter pays – that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement,*
>
> *(ii) the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste,*
>
> *(iii) environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms, that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.*

Ecologically Sustainable Development Assessment

Project design, planning and assessment have been carried out applying the principles of ESD, through:

- incorporation of risk assessment and analysis at various stages in the Project design and environmental assessment and within decision-making processes;
- adoption of high standards for environmental and occupational health and safety performance;
- consultation with regulatory and community stakeholders; and
- optimisation of the economic benefits to the community arising from the development of the Project.

Assessment of potential long-term impacts of the Project was carried out during the preparation of this EA on aspects of air quality emissions (including greenhouse emissions), noise emissions, land contamination, ecology (flora and fauna), water management (surface water and groundwater), waste management, heritage, landscape assessment (including visual modification) and socio-economics.

The Project design takes into account biophysical considerations, including the principles of ESD as defined in section 6(2) of the *Protection of the Environment Administration Act, 1991*.

In addition, it can be demonstrated that the Project can be operated in accordance with ESD principles through the application of mitigation and management measures to minimise environmental impacts during the construction and operation of the Project.

The following subsections describe the consideration and application of the principles of ESD to the Project.

Precautionary Principle

Environmental assessment involves predicting what the environmental outcomes of a development are likely to be. The precautionary principle reinforces the need to take risk and uncertainty into account, especially in relation to threats of irreversible environmental damage.

A PHA (Appendix I) and ERA (Appendix J) were conducted to identify risks and develop appropriate mitigation measures and strategies. The PHA considers off-site risks to people, property and the environment (in the presence of controls) arising from atypical and abnormal hazardous events and conditions (i.e. equipment failure, operator error and external events). The PHA does not consider those risks that are not atypical, or abnormal (e.g. long-term effects of dust emissions on adjacent vegetation).

The ERA addressed potential environmental impacts associated with the Project, including long-term effects. In addition, longer-term expected risks are considered by the specialist studies conducted in support of this EA (Section 1.4). For example, in the Socio-Economic Assessment (Appendix G), risk and uncertainty have been taken into account through sensitivity testing. Findings of these specialist assessments are presented in Section 4 and relevant appendices along with measures designed to mitigate potential environmental impacts arising from the Project.

The specialist assessments, PHA and ERA, have evaluated the potential for harm to the environment associated with development of the Project and have identified measures that can be implemented to minimise harm where practicable. An extensive range of measures have been adopted as components of the Project design to minimise the potential for serious and/or irreversible damage to the environment, including the development of environmental management and monitoring and compensatory measures that would be implemented during construction and operation of the Project (Section 4). Where residual risks are identified, contingency controls have been considered.

A number of risk assessments were also undertaken by NCIG and Connell-Hatch as part of the Project feasibility studies. These risk assessments included the potential environmental impacts of the Project and the development of appropriate controls to reduce the risks to tolerable levels.

Social Equity

Social equity is defined by inter-generational and intra-generational equity. Inter-generational equity is the concept that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations, while intra-generational equity is applied within the same generation.

The principles of social equity are addressed through:

- assessment of the social impacts of the proposal, including the distribution of impacts between stakeholders (Appendix G);
- management measures to be implemented in relation to the potential impacts of the Project during construction and operation on land resources (land contamination), water resources, visual amenity, noise, air quality, flora and fauna, transport, hazards and risks and socio-economics (Section 4);
- implementation of environmental management and monitoring initiatives (Section 4) to minimise potential environmental impacts (which include environmental management and monitoring programmes covering the Project life); and
- implementation of a programme of compensatory measures during the life of the Project to compensate for potential ecological impacts that have been identified for the on-site development.

In particular, the Project would benefit current and future generations through the generation and maintenance of employment (direct employment of up to 500 people during construction of the Project and 100 people during Project operations). Flow-on employment effects, particularly during Project operations would also be significant (Appendix G).

Consideration of the economic benefits potentially forgone if the Project and other coal supply chain improvements are not made to allow increasing coal export demand to be met, indicates between approximately $700 M to $6,000 M (Appendix G) would be forgone.

The Project incorporates a range of environmental management and mitigation measures to minimise potential impacts on the environment and the costs of these measures would be met by NCIG. These costs have been included in the economic assessment, the potential benefits to current and future generations have therefore been calculated in the context of the mitigated Project, where environmental impacts have been minimised, where practical.

Conservation of Biological Diversity and Ecological Integrity

Biological diversity or 'biodiversity' is considered to be the number, relative abundance, and genetic diversity of organisms from all habitats (including terrestrial, marine and other aquatic ecosystems, and the ecological complexes of which they are a part) and includes diversity within species and between species as well as diversity of ecosystems (Lindenmayer & Burgman, 2005). For the purposes of this EA, ecological integrity will be considered in terms of ecological health and ecological values.

The Project site has recognised ecological values, which include threatened flora and fauna species as well as Endangered Ecological Communities (EECs). Overall, however, the Project site is considered to be disturbed and dominated by exotic weed species (Appendix E). The terrestrial, saline and freshwater communities within the Project site are currently undergoing successional changes in response to historical land use.

Overall, the ecosystem processes operating within the Project site are considered to be sub-optimal (Appendix F). The production of resources to other organisms is considered to be sub-optimal because the Project site is highly disturbed (D. Goldney, pers. comm., 2006). The existing flora and fauna species richness (i.e. total number of species) present in the Project site is relatively low with the exception of the birds which were recorded at Deep Pond.

The environmental assessments described in Sections 4.8 and 4.9 (and Appendices E and F) describe the potential impacts of the Project on the biological and ecological environment. In accordance with ESD principles, the Project addresses the conservation of biodiversity and ecological integrity by proposing an environmental management framework designed to conserve ecological values where practicable.

Project infrastructure would be designed to minimise impacts on the existing environment where practicable. For example, dust controls would be employed to minimise potential impacts on surrounding vegetation. Further details of how the Project infrastructure would be designed to minimise impacts on the environment, including potential impacts on threatened species, are provided in Sections 4.8 and 4.9.

Proven operating systems and pollution control structures would be applied where practicable. The potential for environmental degradation would be minimised through training of personnel, environmental auditing and the development of contingency plans in case of an emergency which is likely to impact on the environment. Environmental monitoring would be undertaken to determine whether the environmental control measures are operating effectively. Further details of environmental management and monitoring are provided in Section 4.

The Project includes a programme of compensatory measures to address on-site impacts. The existing compensatory habitat proposed by the NSW Government (e.g. Big Pond Habitat Offset Scheme) was taken into consideration during development of these compensatory measures. The Project would contribute towards habitat enhancement/creation for flora and fauna as well as towards research into relevant threatened species. Contributions would also be made to the KWRP and other non-government organisations for relevant environmental management and research. Further discussion of the compensatory measures is provided in Sections 4.8.4 and 4.9.4.

It is recognised that the nominal conservation values existing within the Project site can be enhanced only minimally given the degraded condition of the existing environment. However, greater ecological resilience can be built into the surrounding areas by the application of the Project initiatives, thereby enhancing biodiversity and ecological integrity. Accordingly, the Project would enable inter-generational wealth to be utilised to improve adjacent environments using the compensatory measures detailed above.

Valuation

One of the common broad underlying goals or concepts of sustainability is economic efficiency, including improved valuation of the environment. Resources should be carefully managed to maximise the welfare of society, both now and for future generations.

In the past, some natural resources have been misconstrued as being free or underpriced, leading to their wasteful use and consequent degradation. Consideration of economic efficiency, with improved valuation of the environment, aims to overcome the underpricing of natural resources and has the effect of integrating economic and environment considerations in decision making, as required by ESD.

While historically, environmental costs have been considered to be external to project development costs, improved valuation and pricing methods attempt to internalise environmental costs and include them within project costing.

The Socio-Economic Assessment (Appendix G) undertakes an analysis of the Project and attempts to incorporate environmental values via direct valuation where practicable (e.g. greenhouse gas emissions of the CET) or indirectly via the threshold value method, where the trade-off between net production benefits and environmental impacts is considered. Furthermore, wherever possible, direct environmental effects of the Project are internalised through the adoption and funding of mitigation measures by NCIG to mitigate potential environmental impacts.

Greenhouse gases generated at the Project are estimated at 39,990 tonnes of carbon dioxide equivalent per annum (t $CO_{2\text{-}e}$/year) for operations at 33 Mtpa and 69,760 t $CO_{2\text{-}e}$/year for operations at 66 Mtpa.

The EA does not contain an assessment of the greenhouse gas emissions which may be emitted from mining operations, rail transport or the burning of coal that is exported through the Project.

The greenhouse gas emissions from mining and associated domestic rail transport are matters that have been or will be specifically considered in the assessment process for individual mining operations. The Project does not seek approval for any mining operations. Therefore, it would be inappropriate to include greenhouse gas emissions associated with mining operations when assessing the greenhouse gas emissions from the operation of the Project.

Similarly, it would be inappropriate to incorporate an assessment of the emissions of the burning of coal that is exported through the Project, when assessing the impacts of the Project. The former are impacts created by third party consumers of coal and these impacts are regulated by regimes in the consumers' countries.

The strategic benefit cost analysis in Appendix G indicates very large potential net production benefits (approximately $700 M to $6,000 M) would be forgone if the Project and other coal supply chain improvements to meet export demand are not implemented. Any residual environmental impacts of the improvements after mitigation would need to be valued higher than this, to make the improvements undesirable from an economic efficiency perspective.

3.9.5 Summary Consideration of the Potential Impacts and Benefits of the Proposal

An assessment of the potential impacts and benefits of the proposal has been conducted in this EA and associated supporting studies. The following subsection provides a brief overview of the findings of this EA.

Consideration of Potential Environmental Impacts, Mitigation Measures and Environmental Management

The EARs for the Project outline key environmental issues which the Director-General of the DoP has specified must be addressed by this EA. Table 1-3 provides a summary of the EARs and a reference to the relevant section of this EA where the issues are addressed.

In accordance with the requirements of the EARs, an ERA has been conducted for the Project (Section 3.8 and Appendix J). The key potential environmental issues identified by the ERA and the section of this EA where the issues are addressed are provided in Table 3-1.

A summary of environmental issues raised during consultation with government and non-government stakeholders and the sections of this EA where they are addressed is provided in Section 3.7.

As described in Section 3.9.4, the Project would be developed and operated in accordance with ESD principles. Section 4 of this EA provides comprehensive consideration of the potential environmental impacts of the Project. Section 4 provides environmental mitigation and management measures for the potential impacts of the Project. A summary of the mitigation measures, environmental management and monitoring programmes is provided in Section 5 (Draft Statement of Commitments).

Consideration of Potential Socio-Economic Benefits

The Project would provide an average of 400 and up to 500 direct full time construction jobs for a period of some 33 months during initial construction and would provide 100 direct operational jobs when operating at full capacity (66 Mtpa). The life of Project is likely to extend for a significant term (i.e. until global demand for Hunter Valley coal is reduced, or the ability of mining companies to produce coal is significantly constrained).

Employment and expenditure associated with the Project is also predicted to have significant flow-on effects in the regional economy. The Socio-Economic Assessment (Appendix G) indicates that the construction of the Project is likely to lead to the creation of some 587 direct and indirect jobs in the Newcastle economy. Similarly, the operation of the Project at full capacity (66 Mtpa) is predicted to generate up to 351 direct and indirect jobs in the Newcastle economy.

The Socio-Economic Assessment (Appendix G) has indicated the development of the Project, together with other capacity improvements in the Hunter Valley coal supply chain to meet export demand, would provide net production benefits between approximately $700 M and $6,000 M over an assessment period of 30 years.

These very significant economic benefits to Australia (and the State of NSW) would be foregone if Hunter Valley coal supply chain capacity constraints are not addressed to allow coal producers to meet export demand.