



Department of  
**Infrastructure, Planning and Natural Resources**

**Report on the Assessment of  
Development Application DA- 134-3-2003-i  
Pursuant to Section 80 of the Environmental Planning  
and Assessment Act, 1979**

**Proposal by NSW Maritime to Extend Shipping  
Channels within the Port of Newcastle, including  
Dredging, Excavation, Treatment and Disposal of  
Sediments from the South Arm of the Hunter River**

**July 2005**

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## 1. INTRODUCTION

On 31 March 2003, the NSW Waterways Authority (now NSW Maritime) (the Applicant) lodged a development application (DA-134-3-2003-i) and supporting Environmental Impact Statement with the Department of Infrastructure, Planning and Natural Resources seeking the Minister's approval to extend the shipping channels within the Port of Newcastle, including dredging, excavation, treatment and disposal of sediments from the South Arm of the Hunter River.

The development application and Environmental Impact Statement were originally publicly exhibited from November 2003 to January 2004. The Department's review of the application during this time identified a number of deficiencies with the Environmental Impact Statement, particularly in relation to the consideration of ecological impacts, placement of materials, floodplain management and hydrodynamics, acid sulfate soils, hydrology and water quality and the principles of ecologically sustainable development. As a consequence, the Applicant chose to formally amend the development application with an Environmental Impact Statement Supplement to address the Department's concerns and all other matters raised in submissions. The amended application was re-exhibited during December 2004 and January 2005.

This report represents the Department's assessment of the amended development application, in accordance with the *Environmental Planning and Assessment Act 1979*. Unless otherwise specified, assessment focuses on the amended application to the exclusion of the original application.

On balance, the Department considers that the proposed development is strategically significant and underpins the Government's preferred direction for port growth in New South Wales. Subject to the imposition of a suite of stringent conditions, particular in relation to the protection of water quality and the significant ecological values of the Hunter River Estuary, the Department is satisfied that the proposal could be undertaken within acceptable environmental limits. Further, the Department considers it important to provide flexibility in any development consent that may be granted by the Minister to permit the Applicant to demonstrate the robustness of the proposed remediation approach before progressing to full scale remediation works, and to facilitate disposal of clean dredged consistent with demand for fill material on development sites in the region over time. In light of the assessment, the Department is satisfied that the merits of the development warrant the granting of development consent.

### 1.1 Scope of Proposed Development

**The Applicant proposes to dredge part of the South Arm of the Hunter River in order to facilitate expansion of the Port of Newcastle, and to remove contaminated materials from the bed of the River and adjacent banks identified by the DEC as posing a significant risk of harm to the environment. It is estimated that the total quantity of material dredged will be in the order of 13.6 million cubic metres. Of this material, the Applicant estimates that approximately 7.6 million cubic metres of this material is clean and can be utilised to fill potential development sites in the region, or for beneficial reuse, such as nourishment of beaches. The rest of the material, in the order of 6 million cubic metres is proposed to be disposed off-shore in area previously used for disposal of dredge materials. The Applicant estimates that approximately 2% of the dredged material carries elevated concentrations of contaminants, primarily metals and polycyclic aromatic hydrocarbons, and will require treatment before disposal to landfill.**

indicates the general configuration of the proposed development.

The proposal would be undertaken within the South Arm of the Hunter River and adjacent banks. The locality is characterised to the site by the former Newcastle steelworks, part of which is earmarked for a multi-purposed terminal (the Closure Area), with the remainder currently in use by OneSteel as on-going industrial development. Kooragang Island lies immediately to the north of the proposal, with a mix of industrial development, cleared potential development sites and an existing waste emplacement. The north of Kooragang is a conservation area connecting with Fullerton Cove, a Ramsar wetland of international significance. These conservation areas are well-known for populations of threatened species

and migratory birds, also of international significance. Newcastle lies to the south east of the proposed development. The regional context for the proposal is depicted in

#### Figure 1 – Configuration of Proposed Development

The proposed dredging works will extend along the South Arm from the existing port area, to Tourle Street Bridge at the western end of Kooragang Island. Dredging will remove materials from the bed of the River, and extend into adjacent banks to permit future construction of shipping berths (not part of the subject development application) and contaminated materials particularly along the southern bank. Dredged areas of the River will be subject to stabilisation of banks to prevent erosion of the excavation areas. A new swing basin is also proposed to be constructed at the western end of the dredge area.

The original development proposed that clean dredged material would be provided for fill on the Austeel and Protech sites. Since that time, Austeel has determined not to proceed with its proposal to establish an integrate steel mill and Tomago, and the development consent for the Protech cold roll steel mill on Kooragang Island has lapsed. The Applicant therefore proposes to phase dredging works consistent with need and demand for fill material and the timing of demand for new shipping berths in the Port of Newcastle.

Disposal of contaminated material is proposed to be disposed off-shore in the first instance, subject to compliance with quality criteria protective of the environment and human health. Failing compliance with these criteria, contaminated materials will be remediated through a

cement stabilisation process to be undertaken on the former Newcastle steelworks site. Stabilised materials would be disposed of to licensed landfills or potentially as fill on the former steelworks site, subject to physico-chemical quality criteria. The original development application proposed dredging of all contaminated materials for cement stabilisation, or thermal desorption in the event that stabilisation was unsuccessful. Both the Department and the DEC expressed concern over the certainty of cement stabilisation outcomes, and the lack of information in relation to proposed thermal treatment options. Following detailed discussions between the parties, the Applicant has amended its development application to reflect two distinct stages. The first stage involves all dredging works and includes a cement stabilisation trial (no more than 1,000 m<sup>3</sup> of contaminated material). The results of the trial will be used to inform the decision-making process for the second stage of the proposed development, which will include remediation of the remaining quantities of contaminated materials unsuitable for reuse or off-shore disposal.

**Figure 1 – Configuration of Proposed Development**

**Figure 2 - Proposed Development Site and Local Context**

## **2. STATUTORY PLANNING FRAMEWORK**

### **2.1 Permissibility**

As designated development, the proposal constitutes a category 1 remediation work under *State Environmental Planning Policy No. 55 – Remediation of Land* (SEPP 55). SEPP 55 specifies that category 1 remediation works are permissible with development consent.

### **2.2 Minister's Role**

The proposed development, being designated development, is a category 1 remediation work under SEPP 55 and will affect land declared to be a remediation site under the *Contaminated Land Management Act 1997*. At the time of lodgement, clause 11 of SEPP 55 made the proposal State significant development. That clause has since been repealed and replaced by an identical provision in *State Environmental Planning Policy (State Significant Development) 2005*, which also makes the proposal State significant development. By virtue of section 76A(9) of the *Environmental Planning and Assessment Act 1979*, the Minister is the consent authority for State significant development.

### **2.3 Legislative Context**

In accordance with the provisions of the *Environmental Planning and Assessment Act 1979* and the *Environmental Planning and Assessment Regulation 2000*, the proposed development is designated development and State Significant development.

#### **Designated Development**

The proposal is designated development under clause 19, Schedule 3 of the *Environmental Planning and Assessment Regulation 2000*, because it is an extractive industry (including dredging) that in a natural waterbody. The development application was therefore accompanied by an Environmental Impact Statement, and subsequently an Environmental Impact Statement Supplement, which the Department considers have been prepared in accordance with the Director-General's requirements for the proposal.

#### **Integrated Development**

The proposed development constitutes Crown development with the meaning of Part 5A of the *Environmental Planning and Assessment Act 1979*. It is therefore not integrated development, as provided under section 90(2).

#### **State Significant Development**

As noted above, the proposed development is State significant development by virtue of SEPP 55 and more recently *State Environmental Planning Policy (State Significant Development) 2005*.

### **2.4 Relevant Environmental Planning Instruments**

The following environmental planning instruments include provisions that are relevant to the assessment of the proposed development:

- *State Environmental Planning Policy No. 55 – Remediation of Land*;
- *Coastal Protection Act 1979* and *Coastal Protection Regulation 2004*;
- *Hunter Regional Environmental Plan 1989*; and
- *Newcastle Local Environmental Plan 2003*.

Consideration of the proposed development in the context of the objectives and provisions of these environmental planning instruments is provided below.

#### **State Environmental Planning Policy No. 55**

*State Environmental Planning Policy No. 55 – Remediation of Land* (SEPP 55) makes the Minister the consent authority for the proposed development because it constitutes a "category 1 remediation work" (being designated development) and is to be undertaken on a declared remediation. The proposed development is therefore permissible with development consent from the Minister.

SEPP 55 also requires the Minister to consent whether the land is contaminated, and whether the land will be suitably remediated. It is clear that the sediments to be treated are currently contaminated.

The Department has considered the proposed dredging works and the validation criteria to be applied to the works and considers that the dredging works would remediate the Hunter River to an acceptable level, protective of both the environment and human health. The recommended instrument of consent provides for a trial remediation process, to demonstrate the robustness of the proposed cement stabilisation process. The Department is satisfied that if for whatever reason, cement stabilisation is ineffective, alternative treatment options are available to the Applicant (for example, thermal desorption), although at additional cost and resource intensity.

#### **Coastal Protection Act 1979 and Coastal Protection Regulation 2004**

Under the *Coastal Protection Act 1979* and accompanying Regulations, a person must not, without the concurrence of the Minister for Natural Resources, carry out development on land below the mean high water mark within the coastal zone. As the proposed development involves such works, concurrence from the Minister is required. In determining whether to grant concurrence, the Minister must have regard to whether the works in that zone would be inconsistent with the principles of ecologically sustainable development, adversely affect the behaviour, or be adversely affected by the behaviour of the sea etc. or adversely affect any beach or dune or bed, bank, shoreline etc. of the sea. The Department is satisfied that the proposed works within the coastal zone would not be inconsistent with the matters described above and accordingly, recommend that concurrence be granted by the Minister subject to the recommended instrument of consent.

#### **Hunter Regional Environmental Plan 1989**

The *Hunter Regional Environmental Plan 1989* (HREP) provides that development consent must not be granted unless the Minister 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;*
- e) *the site will not become contaminated within the meaning of Part 5 of the Environmentally Hazardous Chemicals Act 1985;*
- f) *there is adequate provision for setbacks between the development and existing watercourses;*
- g) *an adequate vegetation cover is maintained or reinstated so as to minimise soil erosion;*
- h) *where necessary, adequate retardation basins, grassed floodways, sedimentation pits and trash collection facilities are established and maintained;*
- i) *adequate measures are provided to control soil erosion during construction of the development.*

The Department has assessed the proposed development against these heads of consideration (refer to section 4 of this report), and is satisfied that the proposal is consistent with the objectives and requirements of the HREP.

#### **Newcastle Local Environmental Plan 2003**

Newcastle Local Environmental Plan 2003 (NLEP) requires that the Minister have regard to the aims and objectives of the Plan, the aims and objectives of the zone, and any other relevant provisions of the Plan. Under the NLEP, the dry land components of the development lie within the 4(b) Port and Industry zone. The Hunter River is unzoned.

The general aims and objectives of NLEP are reproduced below. The Department considers that the proposed development will indirectly contribute to attaining each of these aims, but none of the aims are directly applicable to the proposal. The proposal will be of limited duration, after which it will cease, and will therefore not contribute directly to the aims of the NLEP in an on-going manner. However, the removal of contaminated sediments, identified by the DEC as posing a significant risk of harm to the surrounding environment, will benefit the local area and permit future development aimed at directly attaining the aims and objectives of the NLEP. Without the proposed development, the Department considers that these aims and objectives would be hindered, if not precluded, from realisation given the blight represented by the untreated soil stockpile. The proposal will also significantly contribute the potential future growth of the Port of Newcastle, with associated flow on socio-economic positives.

*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. 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. 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. 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. 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.*

**Aim 5**

*To facilitate a diverse and compatible mix of land uses in and adjacent to the urban centres of the City of Newcastle, to support increased patronage of public transport and help reduce travel demand and private motor-vehicle dependency. Development should:*

- a) *contribute to the diversity of and synergies between activities in and around urban centres, including housing, employment, service delivery and community activity, and*
- b) *contribute positively to urban centres being places that are and will become more highly desirable places in which to reside as well as work, and*
- c) *optimise the shared use of streets and parking facilities, while improving or creating a safe, attractive, friendly and efficient pedestrian and cycling environment.*

**Aim 6**

*To encourage a diversity of housing types in locations that improve access to employment opportunities, public transport, community facilities and services, retail and commercial services, and the like. Development should:*

- a) *facilitate improved housing choice for the people of the City of Newcastle, and*
- b) *add to the stock of urban housing in and within a reasonable walking distance of local centres, district centres, the city centre, and other public transport nodes, and*
- c) *ensure that urban housing is constructed in a manner that can accommodate or be adapted to the needs of a variety of household types.*

The dry land components of the development will be located on land zoned 4(b) Port and Industry under the NLEP. The objectives of the zone, reproduced below are not particularly relevant to the proposed development. The Department considers that the proposal is not inconsistent with these objectives, and would indirectly contribute to the attainment of the objectives through removal of contamination and expansion of the potential for future growth of the Port of Newcastle.

- 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.*

## **2.5 Approvals under Commonwealth Legislation**

The proposed development is a Controlled Action under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth). The Commonwealth Minister for the Environment and Heritage has specified that the controlling actions relate to Ramsar wetlands, listed

threatened species and communities, and listed migratory species. For the purpose of assessment of the proposal, the Minister has accredited the NSW assessment process for this proposal, and will rely on this report when determining whether to grant approval to the development (in addition to development consent in NSW).

As part of the Department's assessment of the proposal, the matters of National Environmental Significance under the EPBC Act and those matters identified by letter from the Department of the Environment and Heritage dated 4 April 2005 were considered (refer to Section 4.3 of the Assessment Report for more detail). The Department was satisfied with the level of assessment undertaken by the Applicant and concurred with the Applicant's position that the proposed development would not significantly affect the ecology of the Hunter Estuary. In particular, the Department agreed with the Applicant's findings that water quality related impacts would be confined to the South Arm of the Hunter River around the proposed dredging area and therefore will not adversely impact on the Ramsar wetland area due to its separation distance and behaviour of estuarine currents within the system.

Possible disturbance of migratory birds as a result of the scale and nature of a development is recognised as being of importance, particularly with respect to alteration of feeding, roosting and breeding behaviour. On this issue, the Department considered that the works and associated equipment would be similar and in many cases smaller than existing development influences in the area and would also have an adequate separation distance from important conservation areas, including Fullerton Cove, would ensure that noise, dust and odour impacts would be managed.

However, to ensure that potential impacts from the proposal on ecological related issues are adequately managed, a number of stringent consent conditions have been recommended by the Department. This includes:

- a framework for the development and funding for a **compensatory habitat package** to offset the proposed removal of some marine vegetation. The package is required to be established prior to the commencement of any dredging or excavation works that will result in the removal of mangroves, wetland vegetation or saltmarsh communities. The package is required to be established in consultation with and to the satisfaction of the Department of Environment and Conservation (former NPWS) and the Department of Primary Industries (former NSW Fisheries). The package is to include one or more of the following compensatory measures:
  - a) provision of no less than 15 hectares of compensatory habitat, whether new or restored, comprising Saltmarsh Endangered Ecological Community; or
  - b) equivalent financial contribution to a wetland rehabilitation project in the Lower Hunter Region; or
  - c) equivalent provision of new or maintained intertidal feeding areas and roosting habitats for waters in the Hunter River Estuary; or
  - d) any other form of compensatory habitat agreed by the DEC and DPI.
- An **Ecosystem Monitoring Program** to monitor and respond to any changes in the ecological health of the Hunter Estuary as a result of the proposed development. The Program is to be developed in consultation with and to the satisfaction of the DEC and the DPI, and shall include, but not necessarily be limited to:
  - a) sampling and data collection on at least two occasions prior to the commencement of dredging and excavation works to establish baseline ecological health upstream and downstream of the development, and within the Hunter River estuary;
  - b) a sampling, data collection and assessment regime to monitor ecological health during the dredging and excavation works, with specific reference to threatened species, migratory bird populations and overall habitat and biodiversity outcomes;
  - c) identification and establishment of an ecological monitoring network with specific provision for monitoring in the north and south arms of the Hunter River, deep and shallow monitoring and taking into account spatial variability in species types and distribution;
  - d) criteria against which the health and viability of the Hunter River and estuary ecological health will be assessed, including distribution of mangrove and saltmarsh communities upstream of the development and with the overall Hunter River estuary;

- e) water quality monitoring in the context of potential ecological impacts, particularly in relation to salinity, turbidity, temperature and dissolved oxygen;
  - f) mitigation measures to be implemented in the event that reduced ecological health is identified with reference to established assessment criteria; and
  - g) monitoring for ecological health and biodiversity outcomes following dredging and excavation activities, and for the recovery of biodiversity within the areas directly and indirectly affected by the development.
- A **Water Quality Monitoring Program** to ensure appropriate management measures are implemented to minimise or prevent the pollution of water and the inclusion of turbidity limits to be monitored.
  - a **Groundwater Monitoring Program** to manage potential contaminated of groundwater from the swing basin to the Hunter River.
  - The need to prepare a number of **Environmental Management Plans** to the satisfaction of the Department to address certain issues associated with construction and operational activities such dredging, odour, water, acid sulfate soils, remediation, and noise.

The Department considers that the recommended consent conditions provide adequate provisions to ensure that ecological related impacts, including potential impacts in matters of National Environmental Significance, will be adequately managed.

A permit under the *Environment Protection (Sea Dumping) Act 1981* will also be required. The Applicant is progressing this matter with the Commonwealth in parallel to this assessment process.

### 3. ISSUES RAISED IN SUBMISSIONS

In response to the initial exhibition of the development application and accompanying Environmental Impact Statement, the Department received 16 submissions from the public, local government and State Government bodies. These submissions are summarised in brief in the following table.

**Table 1 - Summary of Submissions from Initial Exhibition**

Submitter	Position	Key Issues
Department of Environment and Conservation	No Position Stated	<ul style="list-style-type: none"> <li>• the EIS provides insufficient information for the Department of Environment and Conservation to finalise its assessment of the proposal</li> <li>• further information is required in relation to the proposed cement stabilisation process, including how the process will be managed and the quality of stabilised materials</li> <li>• a full environmental impact assessment would be required to accompany any proposal to use thermal desorption technology as the preferred remediation approach</li> <li>• there are discrepancies with the area of mangroves and saltmarsh to be removed, which must be clarified in order to formulate appropriate compensatory measures</li> <li>• understands that the proposed materials transfer pipeline will be the subject of a separate application and assessment process</li> <li>• the proposal to use an Aboriginal Sites officer to monitor operations should be further justified</li> </ul>
Department of Primary Industries (NSW Fisheries)	No Position Stated	<ul style="list-style-type: none"> <li>• concerned about the mobilisation of contaminants during dredging, particularly contaminants that may be made soluble and increase toxicity levels in the water column for aquatic organisms and ecosystems</li> <li>• provides recommended conditions of consent, consistent with a proposed permit under the <i>Fisheries Management</i></li> </ul>

		<i>Act 1994</i>
Roads and Traffic Authority	Objects	<ul style="list-style-type: none"> <li>the EIS is inadequate because it does not include a comprehensive traffic study in accordance with the RTA's <i>Guide to Traffic Generating Developments</i></li> <li>the Applicant must consult with the RTA and Council with respect to any new or upgrade road connections</li> <li>RTA and Council approval for B-double routes to and from fill sites should be required</li> <li>further consideration of material transfer options should be provided, including pumping through pipelines</li> <li>a traffic/ construction management plan should be prepared and implemented in accordance with RTA and Council requirements</li> <li>the RTA will provide comments on the impacts of the proposal on the Tourle Street Bridge</li> <li>concern over traffic noise impacts at night</li> <li>the EIS does not include a defined transport option</li> </ul>
Hunter Regional Development Committee	Objects	<ul style="list-style-type: none"> <li>the EIS is inadequate because it does not include a comprehensive traffic study in accordance with the RTA's <i>Guide to Traffic Generating Developments</i></li> <li>RTA and Council approval for B-double routes to and from fill sites should be required</li> <li>further consideration of material transfer options should be provided, including pumping through pipelines</li> <li>the RTA should be consulted in relation to the proximity of the development to Tourle Street Bridge</li> <li>concern over traffic noise impacts at night</li> <li>the EIS does not include a defined transport option</li> <li>carparking should be provided on the site for employees and other vehicles</li> <li>provision should be made for lighting on Cormorant Road and provision made for cyclists at all new intersections</li> <li>further consideration should be given to public transport</li> </ul>
Regional Land Management Corporation	Supports	<ul style="list-style-type: none"> <li>environmental risks associated with contaminants leaching out of emplacement materials on the former steelworks site and on Kooragang Island, necessitating future groundwater treatment</li> <li>physical properties of emplacement materials and the effect on future development potential and marketability of the emplacement sites further details of stormwater infrastructure are required</li> </ul>
Hunter Catchment Management Trust	Supports	<ul style="list-style-type: none"> <li>mobilisation of contaminants during dredging and potential impacts on Hexham Swamp and Kooragang Wetlands rehabilitation site</li> <li>insufficient information to support statements about the lack and demand for land in the region for port development</li> <li>strategic planning for the region in the context of the formulation of the Newcastle Port Environs Concept Proposal</li> <li>cumulative impacts of associated developments, particularly in relation to the Hexham Swamp and Kooragang Wetlands rehabilitation site</li> <li>errors in relation to historical information provided on the Kooragang Wetland Rehabilitation Project</li> <li>absence of information on land uses on the southern side of the Hunter River, opposite the Kooragang Wetland Rehabilitation Project</li> <li>the maximum change in water levels in the Hunter River is most important, not the average change</li> <li>there is no assessment of impacts on the western end of</li> </ul>

		<p>Kooragang Island (Kooragang Wetland Rehabilitation Project Ash Island site)</p> <ul style="list-style-type: none"> <li>• concern over the impacts of suspended sediments on the Kooragang Wetland Rehabilitation Project, including the spread of contaminated materials</li> <li>• insufficient assessment of ecological impacts outside the immediate development area</li> <li>• insufficient details are provided in relation to the proposed ecological monitoring strategy</li> <li>• surveys that did not locate the Green and Golden Bell Frog in the development area should not be taken to mean that this species is not present</li> <li>• listing of Coastal Saltmarsh by the NSW Scientific Committee may have implications for the proposal</li> <li>• further assessment is required in relation to the proposal for compensatory habitat, its basis and how it will fit into broader conservation and rehabilitation in the region</li> </ul>
<p>Newcastle City Council</p>	<p>No Position Stated</p>	<ul style="list-style-type: none"> <li>• the EIS does not adequately assess the proposal against the full suite of development control plans</li> <li>• significant infrastructure issues associated with the proposal are not resolved, in particular, road and/or rail access to the area and associated services on Kooragang Island</li> <li>• proposed changes to Tourle Street Bridge and affected land are not clear</li> <li>• a new swing basin appears unnecessary given that one already exists</li> <li>• only general statements are provided in support of the assertions about future growth in port activities</li> <li>• there is no assessment of the water treatment process to be utilised to treat contaminated water within the sheet pile wall</li> <li>• the issue of sediment management is complex and requires further time to assess</li> <li>• the cumulative and historical effects of habitat loss should be considered and canvassed in the context of developing compensatory measures</li> <li>• further consideration of cumulative impacts in the context of the Newcastle Port Environs Concept Plan is required</li> <li>• further consideration of flooding impacts, including underlying assumptions and the effect of the proposed pipeline is required</li> <li>• there is no risk assessment in relation to potential impacts on Tourle Street Bridge</li> <li>• listing of Coastal Saltmarsh by the NSW Scientific Committee may have implications for the proposal</li> <li>• consideration of noise impacts on sensitive commercial or industrial receivers should be undertaken</li> <li>• drilling and blasting should be constrained to occur within normal construction hours or within ANZECC guidelines. Further consideration of piling activities and associated noise impacts is required. A monitoring program for these impacts needs to be established</li> <li>• further consideration of salinity and flood velocity impacts on upstream ecosystems is required</li> <li>• the extent of dewatering should be restricted to mitigate potential odour impacts</li> <li>• there is conflict between the existing wind turbine on Kooragang Island and the proposed access road for the development</li> <li>• concern over the proposed haul road locations to and from the development and the nature of traffic</li> </ul>

		<p>management measures on the OneSteel site</p> <ul style="list-style-type: none"> <li>• it is recommended that the Applicant investigate the provision of a bus stop on both the east and west bound carriageways of Cormorant Road</li> <li>• alternatives need to be considered in relation to the reuse of treated materials</li> <li>• the effects of the proposed development on Cormorant Road need to be addressed, inclusive of the intersection of Industrial Drive and Tourle Street. There may be a need to upgrade Cormorant Road or to restrict the hours of operation to mitigate traffic impacts</li> <li>• further details of proposed works to Cormorant Road and the proposed new Tourle Street Bridge is required. This is an important area in the context of planning for future berths and road/ rail connections</li> <li>• further information on access to the development along the northern embankment is required</li> </ul>
Protech Steel	Supports	<ul style="list-style-type: none"> <li>• willing to accept significant quantities of clean dredged materials as fill</li> <li>• dredging of the Hunter River is consistent with Protech's plans to establish a shipping berth on the northern bank of the River</li> </ul>
BHP Billiton Limited	Supports	<ul style="list-style-type: none"> <li>• supports preferred remediation approach of cement stabilisation</li> <li>• inappropriate to refer to treated sediments as waste, or to refer to their reuse as disposal</li> <li>• there are inconsistencies in the quantity of contaminated material to be treated. This quantity should be capped at 250,000 m<sup>3</sup> in the conditions of consent</li> <li>• supports a staged approach, allowing remediation of contaminated sediments ahead of full dredging works</li> <li>• there are other ways to manage contaminated sediments, rather than removing them from the Hunter River</li> <li>• strongly supports commitments to stakeholder engagement</li> </ul>
Port Waratah Coal Services Ltd	Supports	<ul style="list-style-type: none"> <li>• agrees that further development of the Port is best achieved by developing the South Arm of the Hunter River</li> <li>• the Carrington Coal Terminal is currently restricted while ships are passing in the channel. This must be considered given that the proposal will lead to an increase in the frequency of ship movements</li> <li>• the proposal is likely to lead to hydraulic interaction with ships moored at the Kooragang Coal Terminal, and necessitate restrictions similar to the current situation at the Carrington Coal Terminal</li> <li>• dredging should be scheduled to avoid conflicts with the existing and on-going operation of the Port</li> <li>• the scope of the proposal should be expanded to include disposal of materials previously dredged by Port Waratah Coal Services as part of the expansion of the Kooragang Coal Terminal</li> </ul>
Steel River	Supports	<ul style="list-style-type: none"> <li>• the proposal is of major importance to the future of Newcastle</li> <li>• there is a need to address traffic infrastructure to and from the expanded port and new industrial facilities</li> <li>• it is imperative that the proposal includes duplication of the Tourle Street Bridge</li> </ul>
OneSteel Market Mills	No Position Stated	<ul style="list-style-type: none"> <li>• has not formed a position on whether it will make land available for the proposed swing basin</li> <li>• in relation to internal traffic movements and laydown</li> </ul>

		<p>areas, it is assumed that further information will be provided as the proposal advances</p> <ul style="list-style-type: none"> <li>• there is a need to integrate consideration of contaminated materials on adjacent sites</li> </ul>
Nature Conservation Council	Objects	<ul style="list-style-type: none"> <li>• the EIS fails to address environmental and planning concerns in any detail</li> <li>• no consideration is given to the NSW Ports Inquiry, the Healthy Rivers Commission for the Hunter River or Kooragang Island Conservation Strategies</li> <li>• the cumulative impacts of the proposal are not considered, nor is proposal justified in the context of strategic regional and state planning directions</li> <li>• the ecological impacts of the proposal should not be constrained to the immediate area affected by the proposal</li> <li>• concerned over the increased levels of suspended solids, particularly contaminated materials</li> <li>• the EIS fails to address the impacts on marine life</li> <li>• suspended contaminants may be absorbed by fish and prawn larvae, and consequently generate human health impacts through consumption of those organisms</li> </ul>
Mayfield Residents Group	No Position Stated	<ul style="list-style-type: none"> <li>• it is essential that local schools are protected from environmental hazards</li> <li>• concern over the possible careless handling and location of contaminated materials</li> <li>• all trucks carrying materials, whether contaminated or not, should be covered to avoid potential health and traffic impacts</li> <li>• concern over how the public and workers will be protected from contaminants during the development</li> <li>• monitoring of environmental impacts should be undertaken to provide the community with an accurate record of any environmental problems</li> <li>• noise is an important concern in the area, and uninterrupted sleep is a priority</li> <li>• concern over traffic impacts, including the potential for accidents and the ability of the Tourle Street Bridge to cope with additional heavy vehicle loads</li> </ul>
Stockton Community Forum	No Position Stated	<ul style="list-style-type: none"> <li>• further information is required in relation to the potential erosion of the bank/ rock wall caused by the increase in depth of the channel</li> <li>• further information is required in relation to on-going maintenance of affected areas to ensure there is no degradation of banks over time</li> <li>• concern over the removal of established mangroves and the need to provide bank stabilisation and species habitat</li> <li>• further information is required in relation to the use sheet piling and the control of sediments</li> <li>• concern over the safe disposal of contaminants generated by disturbance and dredging of the channel</li> </ul>
Hunter Bird Observers Club	No Position Stated	<ul style="list-style-type: none"> <li>• the EIS is inadequate because it fails to address cumulative ecological impacts in the region</li> <li>• raises concerns over the voracity of the ecological impact assessment, highlighting inadequacies with fauna species lists, impacts of dredged sediment disposal, bird surveys, loss of habitat, impacts on fauna, impacts on egrets, 8 Part tests for avian species, threatened species excluded from 8 Part tests, the lack of detail over compensatory measures, threatening processes, and Commonwealth legislation</li> </ul>

The Applicant was provided with copies of all submissions received during the initial exhibition, to inform the process of supplementing the Environmental Impact Statement prior to re-exhibition. The re-exhibition of the proposal, accompanied by the original Environmental Impact Statement and a new Environmental Impact Statement Supplement, saw an additional nine submissions made in relation to the proposal. A summary of these issues is provided below.

**Table 2 - Summary of Submissions from Re-Exhibition**

Submitter	Position	Key Issues
Department of Environment and Conservation	No position stated	<ul style="list-style-type: none"> <li>● satisfied that the Environmental Impact Statement Supplement provides sufficient information to complete an adequate level of assessment of the proposal</li> <li>● provides recommended conditions to be reflected in an Environment Protection Licence for the proposal, including conditions relating to the trial remediation, swing basin, in-stream works, odours and water quality issues</li> </ul>
Department of Primary Industries (NSW Fisheries)	No position stated	<ul style="list-style-type: none"> <li>● reiterates position from original submission and confirms that recommended conditions still stand</li> </ul>
Roads and Traffic Authority	No position stated	<ul style="list-style-type: none"> <li>● concerned that comments provided in early submissions from the RTA and the Hunter Regional Development Committee have not been adequately addressed</li> <li>● considers it would be imprudent to approve the proposal without a more definitive indication of sediment disposal and transport options</li> <li>● considers that transport activities should be assessed as a whole and not as separate stages of the consent</li> <li>● suggests it may be preferable to consider the trial remediation as a separate development application</li> </ul>
Newcastle City Council	No position stated	<ul style="list-style-type: none"> <li>● no detailed plans or elevations for the proposal have been provided</li> <li>● the Environmental Impact Statement Supplement does not appear to have addressed cumulative and strategic planning concerns, with the proposal still considered in isolation</li> <li>● the issues of economic impact of the proposal remain outstanding as there is no clear indication of the need or timing of the proposal relative to future land-based development</li> <li>● limited information has been provided in relation to areas for truck loading, access, turning areas, internal roadways, storage facilities and ship loading facilities</li> <li>● it is considered inappropriate that strategic aspects are assessed under separate applications</li> <li>● there remains no defined transport option for the proposal</li> <li>● the trial remediation should be assessed as a separate proposal so that mitigation measures can be clearly determined</li> <li>● concerned that no assessment has been undertaken of impacts on the Coastal Saltmarsh Endangered Ecological Community</li> <li>● concern over the ecological impacts of turbidity, noise and vibration, and odour generation</li> <li>● recognises the significant potential for positive impacts on the estuary through removal of contaminated sediments</li> <li>● minimal tidal plane changes upstream relieve concern over impacts on ecological communities in those areas</li> <li>● sediment deposition may lead to extension of mangrove colonisation in undesired areas</li> <li>● compensation measures for the expected loss or alteration of habitats should be canvassed</li> </ul>

		<ul style="list-style-type: none"> <li>it will be important to monitor tidal hydrodynamic impacts in the estuary</li> <li>considers it unacceptable that the issue of bank stability is addressed in a later environmental management plan</li> <li>Council's concerns over flood velocities and impacts on the Steel River Industrial Estate have not been addressed</li> <li>it is untenable to separate dredging and treatment of contaminated materials without further details of oxidation and leaching of contaminants during handling and treatment on the former steelworks site</li> </ul>
Port Waratah Coal Services Limited	Supports	<ul style="list-style-type: none"> <li>reiterates concern over hydraulic interaction</li> <li>does not understand why disposal of its previously dredged materials cannot be included in the proposed development</li> </ul>
Mountain Industries Pty Ltd	No position stated	<ul style="list-style-type: none"> <li>interested in tendering for any transport requirements for the proposal</li> </ul>
Citizens and Kooragang Alliance (CAKA)	No position stated	<ul style="list-style-type: none"> <li>concern over the incremental staging of the proposal, including effects on the multi-purpose terminal and Steel River project, possible loss of port activities to Brisbane or Port Botany, increases in costs of the development, and efficiencies in proceeding with the entire development at once</li> <li>major concern over the disposal of dredged material, including segregation of materials of different qualities and lack of details of the remediation trial</li> <li>concern over the lack of design details for the proposed sheet pile wall to stabilise banks</li> <li>concern over impacts on groundwater from the sheet pile wall</li> <li>questions whether the former steelworks site will be remediated before it is used for emplacement of treated materials, and the effects of treated materials emplacement on soil and groundwater quality</li> <li>no toxic sediments should be transported by truck, and no materials should leave the treatment area until they are properly cleaned</li> <li>objects to the continued use of the Kooragang emplacement site</li> <li>concerned over the ability of cement stabilisation to achieve remediation outcomes, and prefers a thermal desorption approach</li> <li>continued concerns over increased disturbance to the rock-walled northern bank of the Hunter River by greater tidal flow and changed plans for the Tourle Street Bridge and Cormorant Road</li> </ul>
Stockton Community Forum	No position stated	<ul style="list-style-type: none"> <li>supports comments made in the CAKA submission</li> </ul>
Dr Max Maddock	No position stated	<ul style="list-style-type: none"> <li>applauds Council's identification of deficiencies with the Environmental Impact Statement and referral of the application back for further work</li> <li>the proposal fails to satisfy the ecological sustainable development principles and the precautionary principle</li> <li>it is misleading to suggest that the estuary is a natural deep water port; it is a natural shallow water delta</li> <li>community representatives with expertise in Ramsar matters should have been consulted, and the omission of this consultation is a violation of the Ramsar Regulations</li> <li>concerned that the development application is being considered before a decision on Council's Hunter Estuary Management Study and Management Plan has been finalised</li> <li>SEPP 74 was made without consultation with the</li> </ul>

		<p>community or Council to facilitate industrial and infrastructure development</p> <ul style="list-style-type: none"><li>• a moratorium should be placed on all developments in the estuary until the Hunter River Estuary Management Study is finalised</li></ul>
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Issues raised in submissions from both exhibition periods are considered in detail in the relevant following sections of this assessment report.

#### 4. CONSIDERATION OF ENVIRONMENTAL ISSUES

The Department has undertaken a detailed review of information supplied by the Applicant in the Environmental Impact Statement and Environmental Impact Statement Supplement, and issues raised in submissions received in response to the public exhibition of the development application. In light of these considerations, the Department has been able to complete a preliminary screening of environmental planning and assessment issues associated with the proposed development. Issues have generally been considered in the context of the assessed environmental planning significance of matters outlined in the Amended Environmental Impact Statement, and the level of interest, concern or complexity of matters raised in submissions. A combination of these considerations has been used to develop the preliminary screening table reproduced as Table 3 (over). The primary purpose of the preliminary screening is to ensure focused consideration of key issues associated with the proposed development, with an appropriate level of detail applied depending on the relative importance of the issue under consideration.

From review of the Environmental Impact Statement and Environmental Impact Statement Supplement, the Department has nominated environmental planning issues as either key, major, moderate or low significance in the context of environmental planning and assessment. In all cases, a conservative approach has been applied and in the case of any doubt, a precautionary approach has been taken to ensure that at worst, issues have been overestimated rather than assigned a lower significance. As a general indication, levels of environmental planning and assessment significance have been applied as follows:

- **Key significance** – those issues of fundamental importance to the proposal. Resolution of these matters is considered fundamental to achieving acceptable environmental and public health and amenity outcomes, and in some cases may include tests or requirements that must be met by the proposal before it could be determined.
- **Major significance** – those issues representing the most significant environmental impacts associated with the proposal. Assessment has either indicated that relevant criteria or outcomes cannot be met, or compliance is predicted to be marginal. These issues also include matters for which there remains some doubt as to the assessment approach or outcomes.
- **Moderate significance** – those issues assessed as meeting relevant criteria or outcomes, but with a significant residual impact that needs to be mitigated and managed.
- **Low significance** – those issues that are either not associated with the proposal, clearly within acceptable environmental criteria, and/ or are the subject of well-established and applied environmental management measures. These issues also include those matters that could be easily and effectively addressed through conditions of consent, should the Minister determine to approve the proposed development.

All issues identified as having moderate, major or key significance as a result of the Department's consideration of the Environmental Impact Statement and Environmental Impact Statement Supplement have been carried forward for further assessment. In addition, issues raised in submissions have been considered both in the context of the frequency of occurrence and the level of concern expressed. Similar definitions have been used to characterise the significance of issues raised in submissions:

- **Key significance** – issues raised in the majority of submissions, issues representing primary public concern or the subject of detailed public comment or criticism.
- **Major significance** – issues raised in most submissions or subject to specific comment on a fundamental component of the proposal.
- **Moderate significance** – issues raised in detail in some submissions or as a general statement across the majority of submissions.
- **Low significance** – not raised in submissions, or only noted in a cursory manner.

Regardless of the assessed significance of issues from the Environmental Impact Statement and Environmental Impact Statement Supplement, any matter identified as being of major or key significance from public submissions has been carried forward for further detailed assessment. Preliminary screening, including comments on the screening and identification of matters for further assessment, is outlined in Table 3.

**Table 3 - Screening of Environmental Impacts for Detailed Consideration**

Issue	Assessed Environmental Significance	Assessed Public Interest/ Concern	Comment
Scope of Development and Strategic Planning	Major significance	Moderate significance	<p>The proposal is strategically important as it underpins the NSW Ports Growth Plan and would permit the expansion of the economically significant Port of Newcastle. Public submissions and comments from Newcastle City Council raise concern over the assessment of the strategic context of the proposal, and the Applicant's decision to stage the development to permit a trial of cement stabilisation to proceed ahead of full remediation works. The Department considers that the proposal is strategically justified, and that the Applicant's proposal to undertake a trial remediation is an effective and robust means to demonstrate the proposed remediation approach can achieve the necessary outcomes in reality. The Department recommends granting staged development consent on this basis, with the second stage of the proposal informed by the outcomes of a small-scale and controlled remediation trial.</p> <p><b>Carried forward for further assessment – section 4.1</b></p>
Hydrology and Water Quality Impacts	Major significance	Major significant	<p>The Applicant has undertake modelling that demonstrates that the proposed development will not have a significant impact on water quality, salinity, flushing, tidal movements or flooding effects in the Hunter Estuary. However, if the proposal is not managed effectively, it has the potential to generate elevate sediment and general water quality impacts. Given the level of concern raised in public submissions and the proximity of the proposal to sensitive ecological areas, the impacts on the proposal on hydrology and water quality warrants further detailed assessment. The Department considers that the proposal will not have a significant impact on ecological values, and recommends compensatory habitat works to off-set the small loss of habitat associated with the proposal.</p> <p><b>Carried forward for further assessment – section 4.2</b></p>
Ecological Impacts	Major significance	Key significance	<p>The proposed development is to be undertaken in a region characterised with a number of threatened species, migratory birds of international significance and near a Ramsar wetland. The proposal has been nominated by the Commonwealth as being of national significance and a controlled action under Commonwealth legislation. Given the sensitive ecological context of the proposal and the need to assess issues of national and international significance in detail, this issue has been carried forward for further detailed assessment.</p> <p><b>Carried forward for further assessment – section 4.3</b></p>
Traffic Generation and Transport Impacts	Moderate significance	Major significance	<p>As the exact location of dry-land disposal sites for clean dredged materials is not known at this time, the Applicant has been unable to assess the traffic implications in detail. The RTA, Newcastle City Council and the Hunter Regional Development Committee have all expressed concern in this regard, suggesting that assessment of traffic impacts is required up-front, with detailed consideration of strategic and cumulative traffic implications. The Department considers that traffic generation and impacts are matters that can be effectively managed through conditions of consent that reflect proactive and reactive management of these issues during each phase of the development, and when the full details of disposal sites are known with certainty.</p>

			<b>Carried forward for further assessment – section 4.4</b>
Air Quality Impacts	Low significance	Low significance	<p>The Department considers that dust generation from the proposed development is unlikely to be a significant issue, primarily as a result of the high moisture content of the materials to be handled. Where potential exists for materials to dry and generate dust, the Department considers that effective means are available and proposed (water sprays, covering loads etc) to manage these issues. This has been reflected in the recommended instrument of consent.</p> <p>The most significant air quality issue associated with the proposed development is the generation of odours from contaminated materials. The Applicant has undertaken assessment work that demonstrates that acceptable odour outcomes can be met, subject to restrict the total exposed quantity of contaminated materials. The DEC has recommended that this approach be imposed through any consent that may be granted, and identified that no more than 2,500 m<sup>2</sup> of material surface should be exposed at any one time. This requirement has been reflected in the recommended instrument of consent, in addition to a prohibition on the emission of offensive odours and a requirement to prepare and implement an Odour Management Plan.</p>
Noise and Vibration Impacts	Low significance	Low significance	<p>The Applicant has undertaken an assessment of the acoustic implications of the proposed development in accordance with and against the criteria provided in the <i>Industrial Noise Policy</i>. As a general comment, noise criteria for the proposal are dominated by intrusive noise criteria, reflecting the established industrial nature of the locality. The Applicant has modelled noise impacts from the proposed development for comparison against the project-specific noise criteria, taking into account local receptors and the scheduling and coordination of activities forming components of the proposed development. In all cases, noise modelling demonstrates that relevant noise criteria during the daytime, evening and night time periods can be met, and in most cases, noise impacts lie well below established acceptable criteria. This is also the case for sleep disturbance criteria. There will be need to undertake blasting on occasion, and the assessment presented by the Applicant suggests that acceptable vibration and overpressure standards can be met in all but one scenario. This scenario involves blasting near the adjacent OneSteel site, in which an exceedance of approximately 5dB (linear peak) is predicted. The Department considers that this exceedance is minor and manageable given the conservative nature of the modelling and the ability to tailor explosive loads and circumstances to avoid exceedance on the OneSteel site. It is further noted that blasting is considered as only a possibility in the event that rock outcrops and solid underlying materials are encountered. In reality this may not be the case, and extensive blasting operations may not be required. The Department of Environment and Conservation has indicated its satisfaction with the noise modelling and assessment undertaken by the Applicant, and has recommended imposition of conditions reflective of acceptable noise and blast overpressure criteria. These recommended conditions have been incorporated into the recommended instrument of consent.</p>
Hazards/ Risk Impacts	Low significance	Low significance	<p>The proposal will involve the transport and storage of combustible liquids (diesel, fuel oil etc) and of explosives for use in blasting. These hazardous materials and dangerous goods do not trigger the need for a Preliminary Hazard Analysis. The Department is satisfied that the transport and handling of explosive materials can be adequately managed through the application of standards and</p>

			regulatory requirements for explosive materials, as has been committed to by the Applicant in relation to these materials.
Impacts on Heritage	Low significance	Low significance	<p>An indigenous heritage item, a shell midden, has previously been recorded in the area to be impacted by the proposed development. However, this item is also recorded as having been “extensively bulldozed” approximately 30 years ago. The Applicant has been unable to locate any evidence of this former heritage item and suggests that given the highly modified nature of the locality, there is unlikely to be any remaining and yet undiscovered indigenous heritage items. The Applicant has consulted with the Worimi Local Aboriginal Land Council, who concurs with this conclusion.</p> <p>The Applicant also suggests that there is unlikely to be any non-indigenous heritage items within the bounds of the proposed development. It further highlights that there are no listed heritage items in the vicinity of the proposal. The Department concurs that it is unlikely that any heritage items would be uncovered during the proposed development. In the unlikely event that such items are in fact discovered, their preservation and management would be dictated at the time by the provisions of the <i>Heritage Act 1977</i>. The Department considers that the overriding benefits of the proposal in relation to the removal of contaminated material would prevail in most cases over the potential heritage value of any items that may be discovered. There would, however, be potential for removal, preservation and recording of heritage items if they are uncovered. The Department does not recommend any additional mitigation, monitoring or management requirements with respect to potential heritage impacts associated with the proposed development.</p>
Visual Amenity Impacts	Low significance	Low significance	<p>The proposed development would be undertaken in an area characterised by industrial and port related development. In this context, the Department considers that the proposal would not adversely impact on local visual amenity. Further, the Department highlights that the proposal will have a finite duration and any residual visual amenity issues that may arise will be transient in nature.</p>

## 4.1 Scope of Development and Strategic Planning

### Applicant's Position

#### *Scope of Proposed Development*

The Applicant has developed criteria in consultation with the DEC and the Commonwealth based on acceptable ecological and human health outcomes for dredging of contaminated materials and disposal of some contaminated materials off-shore. These criteria are proposed to be applied to the development and dictate the extent of dredging and the quantities of materials for off-shore disposal.

#### *Scope and Staging of Proposed Remediation*

In response to concerns raised by the Department and the DEC, the Applicant amended its development application to reflect two distinct development stages. The first stage includes all dredging works and proposes a 1,000 m<sup>3</sup> trial remediation using cement stabilisation. The trial remediation will permit the Applicant to demonstrate the effectiveness of contaminated materials handling and remediation using contaminated dredged material, and will inform the remediation process for bulk treatment of contaminated sediments. Full remediation works would be the subject of the second stage of the development.

The Applicant has indicated that it intends to phase dredging works consistent with the identification from time to time of suitable sites in the region available for beneficial reuse of clean dredged materials (filling of sites prior to development or beach nourishment, for example).

### Issues Raised in Submissions

A number of submissions raised concern over the Applicant's proposal to stage the development, suggesting that all components of the development should be fully assessed up-front, with a focus on strategic and cumulative outcomes.

### Department's Position

The Department considers that the proposed development is strategically important in the context of the future growth of the Port of Newcastle, consistent with the NSW Ports Growth Plan. While the Department recognises concerns raised in submissions about the identification of sites for disposal of clean dredged materials, the definition of haulage routes and impacts from traffic along those routes, and the need to assess the proposal in a strategic and cumulative setting, it considers that these matters can be adequately managed through the recommended conditions of consent. In particular, it is not possible at this time to identify all sites that may receive materials from the proposed development for filling ahead of development. To do so would require a suite of development proposals to justify the filling of sites, and in turn justify the proposed dredging activities. In reality, such sites will be identified and assessed over time, but the Department does not consider it appropriate that the proposed development be put on hold until such time as a full complement of potential sites are identified and associated environmental impact assessments are undertaken for each. The Department suggests that the proposed development, having been established as capable of meeting acceptable environmental outcomes, be approved at this time, with the issue of disposal sites managed through conditions of consent consistent with the location and requirements of each site over time. The impacts that may be associated with each site would be subject to individual environmental impact assessment, in accordance with the *Environmental Planning and Assessment Act 1979* to assess the suitability of the site for development, with the intervening traffic implications managed both through that assessment process and management measures imposed through the development consent for the subject proposal. In this regard, the Department recommends that the Applicant be required to prepare and implement a Strategic Dredging Program to manage the strategic direction of the proposal, reflecting phasing of the dredging works, planning for implementation of the development and management of consent and approvals process for destination sites. This Program would link with Transport Management Strategies for each phase of the development, to reflect proactive and reactive traffic management in the context of actual identified disposal sites.

The Department is satisfied that the validation and disposal criteria developed by the Applicant are adequately protective of human health and the environment. During the assessment process, there was much debate over whether the extent of the dredging works for contaminated materials should be defined, or any development consent simply reflect remediation outcomes. The Department and the DEC support the latter approach as an effective means of ensuring acceptable outcomes for removal of contaminated materials from the Hunter River. This position is based on potential uncertainties with the spatial extent of contamination in tested sediments. While it is possible to specify known contaminated areas, and regions of likely contamination, there is the potential that additional contaminated materials are uncovered during the dredging works. Rather than define the depth and lateral extent of dredging at this time, the Department and the DEC consider appropriate to specify the remediation outcomes, by way of validation criteria. The extent of dredging will therefore be dictated by achievement of these outcomes and avoid the potential to leave unacceptably contaminated materials in-situ. The DEC has provided recommended conditions to implement this approach, which have been reflected in the recommended instrument of consent. These conditions specify validation criteria and identify a Principal Contaminated Area (known contaminated) and a Secondary Contaminated Area (strong evidence of potential contamination). Notwithstanding the definition of these two areas, the Department recommends that any development consent that may be granted reflect the requirement to remove any materials that exceed the validation criteria, whether or not they lie within these areas.

The Department is supportive of the Applicant's proposal to stage the development to permit a trial remediation to inform the full remediation process. As with many complex remediation proposals, it is not possible to demonstrate the ability to manage and remediate contaminated materials without actually undertaking the remediation works. The Applicant's proposal to undertake a trial remediation is supported as a means of demonstrating the robustness of the remediation approach in a limited and controlled manner, without exposing significant quantities of contaminated materials that are later established to be unresponsive to the remediation approach. The recommended instrument of consent reflects this approach and imposes constraints on the proposal to ensure the bulk remediation is not undertaken until the Applicant proves that the approach would be successful. The instrument therefore separates the proposal into stage 1A (all dredging works), stage 1B (trial remediation) and stage 2 (full remediation). Stages 1A and 1B are permitted to commence immediately upon operation of the consent, subject to compliance with the conditions of the consent. Stage 2 cannot commence until the Applicant has successfully completed the trial and sought the Minister's approval to proceed to Stage 2. The recommended instrument highlights three possible outcomes from the trial remediation:

1. the trial is completely successful and the Applicant seeks the Minister's approval to continue the trial works for remediation of all contaminated materials;
2. the trial is mostly successful, subject to minor modifications to the remediation approach to reflect improved practices developed through the trial. The Applicant may therefore seek the Minister's approval to continue the works with a modification application to amend minor aspects of the remediation approach; or
3. the trial is unsuccessful and the Applicant lodges a new development application for an alternative remediation approach, for example, by thermal desorption.

The Department considers the proposed staging of the development in this manner provides the Applicant with sufficient flexibility to demonstrate the robustness of the cement stabilisation approach, while imposing safeguards to protect against exposure of bulk contaminated materials that cannot be remediated as proposed.

## **4.2 Hydrology and Water Quality Impacts**

### **Applicant's Position**

#### *Tidal Hydrodynamics*

The Applicant undertook modelling of tidal hydrodynamic in the Hunter River Estuary to assess the impacts of the proposed development. This modelling demonstrates that:

- predicted water level changes, on average, are not expected to change across the Estuary, with a slight average decrease in water levels of 6 millimetres at the Tourle Street Bridge, 4 millimetres at the Railway Bridge and 2 millimetres at Ironbark Creek;

- maximum water level changes would be less than 1 centimetre at most locations, although the range of water level changes would be more pronounced at the Tourle Street Bridge (+8 to -13 centimetres), at the Railway Bridge (+6 to -8 centimetres) and at Ironbark creek (+5 to -5 centimetres);
- the predicted changes in tidal planes would be less than 2 centimetres across the Estuary with changes under most scenarios likely to be less than 0.5 centimetres;
- total water velocity through the Estuary would change less than  $0.02\text{ms}^{-1}$  from the existing situation, except at Fullerton Cove ( $+0.05$  to  $-0.03\text{ms}^{-1}$ ), Tourle Street Bridge ( $+0.12$  to  $-0.1$   $\text{ms}^{-1}$ ) and Railway Bridge ( $+0.08$  to  $-0.09\text{ms}^{-1}$ );
- average volumetric flowrates through the Estuary would generally not change by more than  $5\text{m}^3\text{s}^{-1}$  under tidal conditions, with the most significant change occurring at the downstream entrance of the South Arm ( $12\text{m}^3\text{s}^{-1}$ ) and at the ocean entrance ( $10\text{m}^3\text{s}^{-1}$ );
- maximum volumetric flowrate changes under tidal conditions would peak in the South Arm ( $86\text{m}^3\text{s}^{-1}$ ) and at the ocean entrance ( $69\text{m}^3\text{s}^{-1}$ ), with these changes being magnified under flood tide conditions (up to  $90\text{m}^3\text{s}^{-1}$  in the South Arm); and
- overall, flowrates through the Estuary are predicted to increase slightly through the South Arm, and decrease slightly through the North Arm.

The Applicant suggests that based on these modelling results, the proposed development would not significantly affect hydrology in the Hunter River Estuary, with hydrodynamics remaining largely unchanged after implementation of the proposal.

#### *Flooding*

The Applicant modelled the flood behaviour of the Estuary for a series of scenarios (1%, 2%, 5% and 10% annual exceedance probability (AEP)), in the presence of the proposed sheet pile wall (restricting the breath of the channel). The maximum increase in peak flood levels under the most significant flood event (1% AEP), was predicted to be five centimetres. This reduces to two centimetres under 2% AEP and 0.7 centimetres for a 10% AEP event. The Applicant highlights that the sheet pile wall is proposed to be in place for a short period of time, and in any case, the minimal increase in peak flood levels under worst case conditions would not significantly affect land within and surrounding the Estuary.

#### *Salinity and Flushing*

The Applicant undertook additional modelling to assess the potential impacts of the proposed development on the salinity structure of the Hunter Estuary and impacts on flushing characteristics. To assess impacts on salinity structure, the Applicant modelled salinity intrusion as a result of tidal influences, assuming a freshwater estuary over the course of a 29 day cycle. This modelling demonstrated that the major effects of the proposal on salinity structure are likely to be restricted to the footprint of the proposed dredge area. In the development area, changes in the average salinity concentrations were predicted to be in the order of one to three parts per thousand following the proposed dredging works. In all other areas, the effects on salinity were less than one part per thousand less than if no dredging is undertaken. These results compare favourably with the expected background salinity concentrations of 25 to 35 parts per thousand. This reduction in salinity intrusion is not expected to adversely impact on mangroves or other local flora and fauna communities.

A similar 29 day cycle simulation was undertaken by the Applicant to assess the effects of the proposal on the flushing characteristics of the estuary. To model these effects, an assumed arbitrary concentration of a hypothetical pollutant was modelled in the estuary under post-dredge flushing dynamics. This modelling provided results that suggest reduced flushing in the dredge area in the order of 1% (1.6% at Tourle Street Bridge and 0.5% near the existing berths on Kooragang Island). Elsewhere in the estuary, flushing characteristics were predicted not to change to any significant degree (ie less than  $\pm 0.5\%$ ).

#### *Sediment Loading*

Dredging of sediments will generate suspended solids that have the potential to adversely impact on water quality and ecological values. The Applicant modelled the likely effects of dredging on suspended solids concentrations through a 29 day tidal cycle to assess the potential for these types of negative impacts. The modelling indicates that the majority of suspended solids generated by the proposed development will settle in the port area of the

South Arm, in the order of 20 to 90 millimetres in depth. There will be minimal sediment deposition upstream, to a depth of 20 to 30 millimetres. Overall, the Estuary as a whole outside the port area will not be affected by sediment deposition.

#### *Water Quality*

Testing of contaminated materials removed from the bed of the Hunter River suggests that the toxicity of sediments is linked to a total polycyclic aromatic hydrocarbon (PAH) concentration of  $15\text{mgkg}^{-1}$  (normalised to 1% total organic carbon). The Applicant intends to install a sheet pile wall around contaminated materials to be removed with a 95% percentile PAH concentration of  $75\text{mgkg}^{-1}$  (normalised to 1% total organic carbon). Outside the sheet pile wall, average PAH concentrations are  $12.9\text{mgkg}^{-1}$ , which compares favourably with the upper bound for ecological toxicity. The Applicant suggests that the sheet pile wall in itself would be sufficient to manage water quality by containing materials and waters that exceed the toxicity criterion, but has also suggested that it will install a silt curtain if necessary.

#### **Issues Raised in Submissions**

Newcastle City Council expressed on-going concerns over flood velocities and impacts on the Steel River Industrial Estate, and highlighted the importance of monitoring hydrodynamic impacts on the estuary. Tidal flows and velocities were also raised as issues of concern in public submissions.

#### **Department's Position**

The Department is generally satisfied with the Applicant's assessment of hydrological impacts associated with the proposal, and concurs with the Applicant's conclusion that the proposal would not adversely impact on flooding, tidal flows, water quality, salinity or flushing.

The key associated with the implementation of the proposed development will be management of water quality. To this end, the recommended instrument of consent requires that the temporary sheet pile wall around dredging areas prevents the escape of water containing elevated concentrations of suspended solids and requires the installation and maintenance of a silt curtain and boom to further mitigate sediment impacts. Based on advice from the DEC, the recommended conditions also impose a turbidity limit in waters surrounding the dredging works and expressly prohibit the pollution of waters, consistent with the *Protection of the Environment Operations Act 1997*. The Department recommends that these measures be implemented through a Water Quality Monitoring Program and Management Plan, to be prepared in consultation with the DEC.

In relation to the swing basin, this component of the proposed development has the greatest potential for the generation of water with elevated concentrations of pollutants. The Department therefore recommends that the barrier around the swing basin construction area not be breached until the Applicant has demonstrated to the satisfaction of the DEC that waters within the construction area meet acceptable water quality standards. As an on-going requirement, the Department recommends monitoring of groundwater quality in that area to identify and address any potential migration of contaminated groundwater towards the Hunter River.

### **4.3 Ecological Impacts**

#### **Applicant's Position**

##### *Vegetation and Habitat*

As part of the proposed development, 5.7 hectares of mangroves and 0.9 hectares of saltmarsh will be removed. This represents 0.35% and 0.2% of the total area of these communities in the Hunter River estuary, respectively. Surveys of this vegetation by the Applicant suggest that approximately 20% of the existing mangrove areas shows signs of damage. In addition to mangrove and saltmarsh communities, the proposed development would involve the removal of highly disturbed vegetation, comprising landscaping and grasses, along Cormorant Road.

### Survey Results

The Applicant undertook fauna surveys within and immediately around the area to be disturbed as part of the proposed development. Key findings from these surveys can be summarised as follows:

- 12 avian species were identified in the area to be disturbed as part of the proposed development, none of which are threatened or regionally significant. Species identified included the masked lapwing (*Vanellus miles*), the brown honeyeater (*Lichmera indistincta*), the black-shouldered kite (*Elanus axillaris*), the Australian pelican (*Pelecanus conspicillatus*), the silver gull (*Larus novaehollandiae*), the barn owl (*Tyto alba*), the chestnut teal (*Anas castanea*) and the great cormorant (*Phalacrocorax*);
- 2 mammal species, include several of the threatened grey-headed flying fox (*Pteropus poliocephalus*) flying over the site, and the common little forest bat (*Vespadelus vulturnus*);
- no reptile species;
- 2 amphibian species, the ornate burrowing frog (*Limnodynastes ornatus*) and the spotted marsh frog (*Limnodynastes tasmaniensis*), neither of which are threatened or regionally significant. In particular, surveys did not locate the green and golden bell frog within the proposed development area; and
- 26 species of fish and aquatic invertebrates, none of which were threatened species. Species identified included the yellowfin bream (*Acanthopagrus australis*), the luminous bay squid (*Lolious noctiluca*), the school prawn (*Metapenaeus macleayi*), the mulloway (*Argyrosomus japonicus*), the tarwhine (*Rhabdosargus sarba*), the sandy sprat (*Hyperlophus vittatus*) and the silver biddy (*Gerres subfasciatus*).

### Tests of Significance

The Applicant identified records of 43 terrestrial species previously located within a ten kilometre radius of the proposed development site, and three aquatic species. These species include the threatened grey-headed flying fox identified during surveys. The Applicant applied the 8 Part Test under section 5A of the *Environmental Planning and Assessment Act 1979*, with each test conclude that the proposed development would not have a significant impact on these species, populations or habitat. As part of the Environmental Impact Statement Supplement, the Applicant applied the 8 Part Test to the painted snipe (*Rostratula benghalensis*), the masked owl (*Tyto novaehollandiae*), the beach stone curlew (*Esacus neglectus*) and the green turtle (*Chelonia mydas*), with similar results.

In relation to species listed under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth), the Applicant also, as part of the Environmental Impact Statement Supplement, examined the impacts of the proposal on migratory bird species. In this context, the Applicant applied the heads of consideration in that Act in relation to the assessment of significance, and concluded that the proposed development would not significantly affect threatened or migratory species of national significance.

### Issues Raised in Submissions

Newcastle City Council raises concern that no assessment has been undertaken on the impacts of the proposal on the Coastal Saltmarsh Endangered Ecological Community, and considers that compensatory measures for ecological losses should be fully canvassed. Council also raises general concern in relation to the impacts of turbidity, noise and odours on local and regional ecology.

A public submission suggests that the proposal is inconsistent the principles of ecologically sustainable development, and considers that community experts on Ramsar matters should be involved in the consultation and assessment process for development in the area. In this light, the submitter considers that a moratorium should be imposed preventing all developments in the Hunter Estuary until the Hunter River Estuary Management Study is finalised.

### Department's Position

The Department is satisfied that the Applicant has given adequate consideration to impacts from the proposed development on ecological systems. In particular, the Department is satisfied with the Applicant's survey work, consideration of impacts and the voracity of the 8

Part Tests applied. The Department concurs with the Applicant's position that the proposed development would not significantly affect the ecology of the Hunter Estuary.

The area to be directly affected by the proposed development does not represent significant ecological value. Parts of the area directly affected are highly disturbed and modified, representing ecological values of little significance. The more valuable areas within the proposed development area are associated with the approximately 6.5 hectares of mangrove and saltmarsh communities on the northern bank of the South Arm of the Hunter River. These communities are, however, fragmented from the rest of the vegetation and habitat areas in the Estuary by development, particularly Cormorant Road, which provides a significant barrier and impediment to the connectivity of this stand of vegetation with other parts of the Estuary. The Applicant's survey work has not identified the presence of any significant species in this area. Overall, the Department considers that the vegetation to be removed as part of the proposed development represents little direct ecological value. Notwithstanding, the Department considers that this proposal is a good opportunity to effect positive ecological outcomes through development of a compensatory habitat package. The Applicant's commitment to implement a compensatory habitat package has been reflected in the recommended instrument of consent. In formulating this requirement, the Department did not consider it appropriate to link the package to replacement of habitat to the existing nature and quality of the habitat to be removed. Rather, the Department recognised that superior outcomes could be achieved through tailoring the package to address regional ecological concerns by providing a suite of compensatory habitat options that may include:

- provision of new or restored Saltmarsh Endangered Ecological Community;
- funding or financial contribution to a relevant wetland rehabilitation project in the lower Hunter Region;
- provision of new or maintained intertidal feeding areas and roosting habitat for waters in the Hunter River Estuary; or
- an equivalent outcome established in consultation with the DEC and DPI.

The extent of the compensatory habitat package is linked to 15 hectares of Saltmarsh Community, or equivalent, which is in the order of 2.5 times the total area of Saltmarsh and mangrove vegetation to be removed as part of the proposal. Noting that Saltmarsh removal is in the order of 0.9 hectares, the compensatory package is 11 times the area of the most significant components of the vegetation to be removed. The Department considers that this approach provides the opportunity to effect a positive ecological outcome by addressing region-specific habitat requirements, with a focus on Saltmarsh, wetland and intertidal feeding and roosting and habitats for waders and migratory birds. Formulation of the package in consultation with the DEC and DPI will allow improved connectivity and locational outcomes linked to the broader conservation strategy for the Estuary.

On the issue of Saltmarsh Endangered Ecological Community, the Department notes that this Community has only recently been listed and was not the subject of an 8 Part Test undertaken by the Applicant. The Department has, however, consider the impacts of the proposed development on this Community in the context of the provisions of the 8 Part Test, and considers that the proposal will not have an adverse impact on the Community. In particular, it is highlighted that 0.9 hectares of the Community will be removed as part of the proposal, and that the vegetation to be removed is fragment and isolated from other habitat in the region. In this context, and with the focus of the imposed compensatory habitat package on improved outcomes for this Community, the Department considers that impacts on the Community are acceptable and do not represent a significant deterioration of the Community in general. In fact, the implementation of the compensatory package provides an opportunity to positively affect the Community in the Hunter Estuary.

The area to be disturbed as part of the proposal is not characterised as having significant direct value for threatened species or migratory birds. Survey work undertaken by the Applicant has not identified any significant species within the area to be affected by the proposal. Considering direct impacts, the Department is satisfied that the proposal will not significantly affect threatened and migratory species.

As noted by Council, the proposal may, however indirectly impact on ecological values through water quality, noise and odours. There is also the potential for the development to

disturb migratory species as a result of dredging structure discouraging roosting, feeding and breeding around the proposed works. The environmental impact assessment for the proposal demonstrates that water quality impacts from the proposal can be managed within acceptable limits, particularly in relation to suspended solids concentrations, toxicity of dissolved and suspended contaminants, and salinity and flushing changes in the Estuary. It is highlighted that modelling undertaken in relation to water quality and hydrodynamics demonstrates that water-related impacts are confined to the South Arm of the Hunter River, around the proposed dredging area. These impacts do not extend into the North Arm of the River or into Fullerton Cover (Ramsar wetland area), where salinity, flushing and water quality characteristics remain essentially the same as the Estuary in its current state. There is likely to be a slight decrease in flows in the North Arm (1% change to the South Arm) and minimal sediment deposition towards wetland areas upstream of the dredging area (in the order of 20 millimetres). The Department considers that these impacts are minimal and would not adversely affect ecological systems in those areas.

The most significant noise and odour impacts from the proposal are constrained to the southern side of the Hunter River and the surrounding industrial areas. On this point, odour modelling for the proposal suggests that at worst, conservation areas, including Fullerton Cove would experience odour impacts well below 0.5 odour units (OU). Noise generated by the proposal is also predicted to be consistent with the existing noise characteristics of the area, and the existing industrial noise surrounding the port. In particular, background noise monitoring has indicated that total noise in the most affected areas is in the order of 55 to 70 dB(A), with an industrial contribution of 40 to 45 dB(A). In comparison, the proposed development is expected to contribute 30 to 45 dB(A) at the most affect areas on the southern side of the South Arm. In context, the distance from the proposal to conservation areas, including Fullerton Cove, would significantly less by virtue of distance-related noise attenuation.

Possible disturbance of migratory birds as a result of the scale and nature of a development is recognised as being of importance, particularly with respect to alteration of feeding, roosting and breeding behaviour. However, the scale of the equipment associated with the proposal is similar and in many cases smaller than existing development influences in the area. The Department highlights that dredging equipment is of similar scale and nature to current shipping activities in the port, and other than minor lateral displacement of vertical development elements, is essentially unchanged. On-shore activities on the northern bank of the South Arm, although an additional source of potential disturbance, are considered to be similar in nature to existing construction, development and traffic sources of noise and general disturbance.

To ensure that the predicted minimal impacts on local and regional ecology are achieved in reality, the Department recommends that the Applicant prepare and implement an Ecosystem Monitoring Program. The recommended instrument of consent requires that the Program be developed in consultation with the DEC and the DPI, to monitor the effects of the proposed development on ecosystem health. The Program requires background monitoring prior to the commencement of works and a regime for monitoring potential changes in ecological health, with specific focus on threatened species and migratory birds. The monitoring network must be spatially variable in terms of species types and distribution, and be referenced against clear criteria for the assessment on ecological health and water quality.

#### **4.4 Traffic and Transport Impacts**

##### **Applicant's Position**

The Applicant predicts that approximately 135 heavy vehicle trips (two way) per day would be required to supply rock (approximately 90 per day over a 12 month period), sheet piles (three per day during sheet piling), dredge pipes (20 per day), cementitious material (16 per day) and other construction equipment (10 per day). In addition, up to 20 two-way truck movements per hour would be required to remove dredged and treated materials from the site. This, however, assumes full-scale remediation would be undertaken concurrently with dredging activities. Passenger vehicle movements would also be generated by up to 50 employees.

The Applicant suggests that given the occasional nature of heavy vehicle movements, the proposal is unlikely to significantly impact on the local and road systems. It is further suggested that heavy vehicle movements would constitute approximately 1% of current traffic volumes on Industrial Drive, and that Cormorant Road would not be adversely impacted, particularly with the installation of traffic signals to control ingress and egress from the site. The level of service on the surrounding road network is not expected to change, and potential existing capacity issues with Tourle Street Bridge would be resolved through the planned duplication of that infrastructure.

### **Issues Raised in Submissions**

Newcastle City Council, the Hunter Regional Development Committee and the Roads and Traffic Authority have expressed concern over the lack of a detail traffic impact study for the proposed development. Key criticisms include the absence of defined routes for deliveries to and removal of materials from the proposed development site. Further, all three submissions suggest that transport activities must be considered as a whole and on a strategic basis, rather than through separation of development components.

### **Department's Position**

The Department concurs with Council, the Hunter Regional Development Committee and the Roads and Traffic Authority that the traffic impact assessment undertaken and presented in the original Environmental Impact Statement is inadequate. In particular, the assessment presented was based on vague and unjustified assumptions about impacts with little attempt to seriously address potential impacts. The Environmental Impact Statement Supplement did not contribute any new information or assessment in this regard.

The key difficulty with assessing the traffic implications of the proposed development lies in the fact that the ultimate destination of dredged materials is not conclusively known at this stage. The Applicant intends to phase dredging works consistent with need and demand for fill materials on sites in the region. The two development proposals originally earmarked by the Applicant to receive a large proportion of the clean dredged material, the Austeel and Protech steel facilities, have both determined not to proceed (the former never progressed to lodging a development application and the latter received development consent which has now lapsed). In this context, the Department considers that it is not possible to undertake a detailed and quantified traffic impact assessment, simply by virtue of the uncertainty of the ultimate destination of materials and the transport routes likely to be used.

Having said this, the Department considers, however, that the issue of traffic impacts is one readily resolved through management. Unlike impacts associated with clearing of vegetation or the establishment of remediation criteria, traffic impacts are an issue for which scheduling and management is a ready means to mitigate and manage potential impacts. The Applicant's proposal to phase dredging is an additional mitigating factor that will see the intensity of traffic generation spread over phases of the proposal. In light of this, the Department considers it appropriate to manage traffic impacts through a detailed staging plan for the proposal, linked to a traffic management planning approach dependent on the identification of fill and disposal sites responsive to the needs of the dredge program. The recommended instrument of consent reflects this approach, with the Applicant required to formulate and apply a proactive and reactive phasing program, and develop traffic strategies for each phase, including in relation to the disposal of both clean and treated contaminated materials. These strategies must be prepared in consultation with the RTA and Council, and for the ultimate approval of the RTA, focussing on such issues as the quantity and quality of materials to be transported, road hierarchies for transport (including reference to any need to use B-doubles), scheduling of traffic movements to minimise the potential for road conflicts, implementation of alternative transport modes where possible, traffic management measures (including, for example, signalisation), traffic monitoring and planning and coordination of traffic impacts across all components of the proposed development.

While it is preferable that the ultimate destination of materials and associated routes are known now, the scale, nature and time frames for the proposed development are such that this requirement simply is not feasible in reality. As noted above, the Department nonetheless considers that traffic generation and impacts are matters that can be effectively managed through a proactive and reactive traffic management process, with specific

management measures developed and implement in response to the actual and real needs of each phase of the proposal.

#### *Structural Integrity of Tourle Street Bridge*

The Roads and Traffic Authority has provided advice that suggests that dredging within 50 metres of the Tourle Street Bridge may cause adverse lateral movement of the Bridge. However, it may be possible to permit dredging to progress closer than the predicted 50 metre threshold, depending on the outcomes of a structural analysis of the Bridge piles, and the effect of any stabilising works that may be applied to the piles.

As a precautionary measure, the Department recommends that if the Minister determines to approve the proposed development, a condition be imposed specifying that dredging must not be undertaken within an extended 100 metre distance from the Bridge without further structural assessment. The Applicant would be required to commission an independent structural or civil engineer to provide advice on this matter, to the satisfaction of the RTA. Where lateral movement of sediment or reduced Bridge integrity is independently established as likely to occur, the Applicant must formulate and implement mitigation measures before dredging is permit to encroach within the 100 metre exclusion area.

### **5. RECOMMENDED CONDITIONS OF CONSENT**

The Department is generally satisfied that the proposed development could be undertaken within acceptable environmental and public amenity limits. Notwithstanding, while the environmental and amenity impacts would lie within acceptable limits, there is a need to address residual impacts to ensure that the proposed development is constructed and operated with not only an acceptable impact, but a minimal impact. To this end, the Department considers that the Applicant should be required to implement additional measures to reduce environmental impacts to as low as reasonably possible, and in-line with environmental best practice. If the Minister determines to approve the proposed development, the Department recommends that these measures be imposed through conditions of the development consent. Key issues covered by the conditions include:

- development staging – the proposed development is to be undertaken in two stages, covering the dredging works (stage 1A) and trial remediation (stage 1B), and full remediation of contaminated materials (stage 2) informed by the outcomes of the trial remediation. The recommended instrument is constructed to provide the Applicant with the flexibility to demonstrated the robustness of the proposed remediation approach, with results of the trial remediation used to establish whether full remediation should proceed consistent with the trial approach, or whether the remediation approach needs to be modified (subject to a possible modification application if necessary) or completely rethought (a new development application for a different approach).
- strategic dredging approach – the Applicant is required to develop a Strategic Dredging Program to inform the progress of the proposed development and implement phases of dredging consistent with the availability of disposal sites and the demand for ship berths. The recommended instrument of consent ties the Program to demonstration that relevant consents and approvals are obtained for disposal options ahead of dredging commencing in each phase of the works.
- extent of dredging – the recommended instrument of consent imposes validation criteria protective of the environment and human health to establish the extent of dredging and excavation of contaminated materials. Contaminated areas are defined as a Principal Contaminated Area (known to be contaminated) and a Secondary Contaminated Area (strong probability of some contamination). A general requirement for removal of contaminated materials outside of these areas is also imposed, to address the possibility of additional areas of contamination being discovered during the course of the development.
- odour impacts – the Applicant is prohibited from emitted offensive odours beyond the boundary of the proposed development site, and is constrained to having no greater than 2,500 m<sup>2</sup> of contaminated materials exposed at any one time in order to limit the potential for elevated odour impacts. The recommended conditions also require the preparation and implementation of an Odour Management Plan to manage odour issues during the development.

- water quality – the Applicant is required to install a number of measures to minimise or prevent the pollution of water, including design requirements for the temporary sheet pile wall, a silt curtain and covers over stockpiles. The recommended instrument of consent imposes turbidity limits, to be monitored in accordance with a Water Quality Monitoring Program. Barriers separating the constructed swing basin and the Hunter must not be removed until the Applicant has demonstrated acceptable water quality outcomes. A Groundwater Monitoring Program is also required in relation to the potential migration of contaminated groundwater from the swing basin to the Hunter River.
- ecological impacts – the Applicant is required to develop and fund a compensatory habitat package in consultation with the DEC and DPI, comprising 15 hectares of Saltmarsh Community, or equivalent wetland rehabilitation works or intertidal habitat. An Ecosystem Monitoring Program must also be prepared and implemented to monitor and respond to any changes in the ecological health of the Hunter Estuary as a result of the proposed development.
- traffic and transport impacts – Materials Transport Strategies must be prepared for the remediation works and each phase of dredging to proactively and reactively manage potential traffic impacts once the exact final destination of materials is known. These Strategies must be prepared in consultation with the RTA and Council, and focus on scheduling traffic movements to avoid traffic conflicts, provision of traffic management infrastructure, and the identification and implementation of appropriate transport routes to minimise impacts. Dredging within 100 metres of Tourle Street Bridge is prohibited until an independent assessment of the Bridge's integrity is undertaken, including application of additional measures to address any elevated lateral strain on the Bridge as a result of the dredging works.
- noise impacts – restrictions are imposed on the hours of construction and operation for sheet piling, dry-land activities and blasting to minimise potential acoustic amenity impacts. Noise limits are also imposed, and the Applicant is required to meet established overpressure and vibration standards when blasting.
- community information and participation – all information and document required under the consent must be made publicly available, and the Applicant must implement complaints handling and response procedures to address community concerns and complaints.

## 6. CONCLUSIONS

The proposed development forms a key component of the Government's Port Growth Strategy, by facilitating the growth of the Port of Newcastle. The proposal will underpin significant economic stimulus in the Illawarra now and into the future, and as it grows, is likely to support and encourage the establishment of industries and commercial markets in the region. It will also address the on-going legacy of contamination of the sediments of the Hunter River as a result of previous industrial developments.

A key aspect of the proposal is the provision of flexibility to demonstrate the robustness of the cement stabilisation remediation approach, and to undertaken dredging activities reflective of the need for fill material on potential development sites in the region. The recommended instrument of consent provides the necessary flexibility on both accounts, by formally staging the development so that full remediation is only commenced once a remediation trial is demonstrated as successful, and by managing the strategic implications of material disposal and associated traffic implications.

Given the sensitive ecological context of the proposal, it is of fundamental importance that ecological values are protected and impacts on water quality in the Hunter River Estuary are minimised. To this end, the recommended conditions of consent require implementation of a compensatory habitat package that will not only replace, but improve upon the small tract of habitat lost as part of the proposal. A comprehensive and stringent suite of water quality mitigation, monitoring and management requirements are recommended to ensure the on-going integrity of water quality in the area.

The Department is satisfied that the proposed development could be undertaken within acceptable environmental and amenity limits. It has recommended a suite of stringent

conditions to address residual impacts to ensure that the positive effects attributable to the proposed development are not derogated by elevated negative environmental effects.

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