

# HEXHAM RELIEF ROADS

PRELIMINARY ENVIRONMENTAL ASSESSMENT

OCTOBER 2011







## Hexham Relief Roads

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Preliminary Environmental Assessment

**Australian Rail Track Corporation**

**October 2011**



**Upper Hunter Valley Alliance**



# Hexham Relief Roads

## Preliminary Environmental Assessment

Prepared for:

**Australian Rail Track Corporation**

Prepared By:

**KMH Environmental**

Level 12, South Tower

1-5 Railway Street

Chatswood NSW 2067

PO Box 5487

West Chatswood NSW 1515

Phone: (02) 9468 9300

Fax: (02) 8008 1600

### Document Control Log

Revision No.	Amendment	Date	Prepared By	Checked By	Approved By
A	0	June 2011	JK/NLB	EvdH/WB	WB
B	Incorporate ARTC comments	October 2011	JK/NLB	NLB/MD	MD
C	Incorporate ARTC comments	October 2011	NLB	NLB	WB

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## Glossary and Abbreviations

ARTC	Australian Rail Track Corporation.
ASS	Acid Sulphate Soils
DECCW	NSW Department of Environment, Climate Change and Water (Now the NSW Office of Environment and Heritage with some functions transferred to the NSW Department of Primary Industries).
DoPI	NSW Department of Planning and Infrastructure.
Down Coal	In a situation with more than one train line in the rail corridor, the Down Coal is the primary coal rail line that coal trains usually traverse when they are heading away from Newcastle Port and is usually positioned on the right when facing towards Newcastle.
Down Main	In a situation with more than one train line in the rail corridor, the Down Main is the primary rail line that trains usually traverse when they are heading away from Newcastle and is usually positioned on the right when facing towards Newcastle.
Down Side	The side of the track on which trains travel away from Newcastle.
EIS	Environmental Impact Statement.
EP&A Act	The NSW <i>Environmental Planning and Assessment Act 1979</i> . Provides the legislative framework for land use planning and development assessment in NSW.
EP&A Regulation	The NSW Environmental Planning and Assessment Regulation 2000.
EPBC Act	The <i>Commonwealth Environment Protection and Biodiversity Conservation Act 1999</i> . Provides for the protection of the environment, especially matters of national environmental significance, and provides a national assessment and approvals process.
LGA	Local Government Area.
PEA	Preliminary Environmental Assessment.
OEH	Office of Environment and Heritage.
Proposed Project Area	The proposed Project Area is the area in which the proposed Project would operate and be constructed.
Rail Corridor	Land dedicated to the ARTC for rail purposes.
RAMSAR Convention	An intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and use of

wetlands of international importance and their resources.

Relief Road	A rail line that runs parallel with the Up Coal. A Relief Road usually provides a passing facility enabling trains to pass those traversing or stationary on the Up Coal thus giving relief to the Up Coal operations. A Relief Road can also allow trains to remain stationary off the Up Coal allowing trains to continue to traverse the Up Coal.
SEPP Infrastructure	<i>State Environmental Planning Policy (Infrastructure) 2007.</i>
SEPP State and Regional Development	<i>State Environmental Planning Policy (State and Regional Development) 2011.</i>
Strategy	<i>2011-2020 Hunter Valley Corridor Capacity Strategy Consultation Document.</i>
Study Area	The study area is an area that is necessary for a technical specialist to undertake and complete an assessment of the proposed Project and varies in size depending on the discipline.
Train Line	The infrastructure on which a train travels. It includes two rails, sleepers, fastenings to secure the rails to the sleepers, and ballast around and under the sleepers.
Turnout	The mechanisms for the meeting of two tracks.
UHVA	Upper Hunter Valley Alliance.
Up Coal	In a situation with more than one train line in the rail corridor, the Up Coal is the primary coal rail line that coal trains usually traverse when they are heading toward Newcastle Port and is usually positioned on the left when facing towards Newcastle.
Up Main	In a situation with more than one train line in the rail corridor, the Up Main is the primary rail line that trains usually traverse when they are heading toward Newcastle and is usually positioned on the left when facing towards Newcastle.
Up Side	The side of the track on which trains travel to Newcastle.

## Executive Summary

This Preliminary Environmental Assessment (PEA) has been undertaken by the Upper Hunter Valley Alliance (UHVA) on behalf of Australian Rail Track Corporation (ARTC) for the construction of five Up Relief Roads located at Hexham (the proposed Project). The proposed Project is located adjacent to the Pacific Highway and Hexham Railway Station approximately 15 kilometres to the north of Newcastle and 176 kilometres north of Sydney by rail.

Coal mining is an important part of the economy of the Hunter Valley. The increase in worldwide demand for coal has resulted in an expansion of mining in the Hunter Valley. Consequently, coal exports are forecast to increase from around 140 million tonnes per annum (mtpa) in 2011 to over 200 mtpa in 2014. The majority of coal is taken by train to the Port of Newcastle for export.

To cater for this increase, ARTC is undertaking a number of projects to upgrade the rail network, to maintain rail capacity ahead of the demand requested by the coal producers. Full details of these projects are provided in ARTC's *2011-2020 Hunter Valley Corridor Capacity Strategy Consultation Document* (March 2011), which is available from ARTC's web site [www.artc.com.au](http://www.artc.com.au)

Following the forecast increased in coal exports, train modelling has shown that congestion will be a significant problem on the rail network from 2012 and by 2014 five new tracks will be required close to the Port to allow trains to be re-sequenced in the arrival queue for the coal terminals. These new tracks are known as Relief Roads as they enable the congestion in the network to be relieved.

The proposed Project is described in detail in Section 3 of this document including the options considered and justification for the preferred option. In summary, the key components of the proposed Project comprise:

- Five Up Relief Roads (Train Lines) to the west of the existing Up and Down Mains and between the existing Up Coal and a new Down Coal including:
  - The removal of the existing Down Coal (located to the west and right of the Up Coal);
  - The construction of five new train lines (tracks) for the Relief Roads;
  - The construction of a new Down Coal to the west and outside of the proposed Relief Roads;
  - Each Relief Road to store a minimum of 91 wagons (1,543m long) requiring a minimum standing room of 1,670 metres; and
  - New turnouts, return curves and other track changes.
- Installing new signal infrastructure for the 5 Relief Roads (including signal location cases, huts and gantries).
- Earthworks of approximately 45,000 cubic metres, including track formation, drainage and minor structures.
- Ancillary infrastructure that may include vehicle access tracks, temporary construction compounds and stockpile sites.
- Vehicular access tracks, land acquisition and the upgrading of existing rail infrastructure and public utilities as required.

The estimated cost of the proposed Project is approximately \$90 million and it is expected to take approximately 16 months to construct.

*State Environmental Planning Policy (State and Regional Development) 2011* (SEPP State and Regional Development), declares the Project State Significant Infrastructure (SSI) for the purposes of the *Environmental Planning and Assessment Act 1979* (EP&A Act). This is because the Project is a development for the purpose of rail infrastructure by the ARTC that has a capital investment value of more than \$50 million. The current approval process for SSI is via an assessment and determination

under Part 5.1 of the EP&A Act. The Minister for Planning and Infrastructure (the Minister) is the determining authority.

In accordance with the approval process under Part 5.1 of the EP&A Act, the ARTC is required to submit a project application to the Department of Planning and Infrastructure (the Department). Accompanying the project application, will be this PEA which will be used by the Department to brief Government agencies about the Project, and on which requirements for the preparation of an Environmental Impact Statement (EIS) will be based.

Under Section 115V of the EP&A Act, SSI may be declared to be Critical State Significant Infrastructure (Critical SSI) if it is of a category that, in the opinion of the Minister, is essential for the State for economic, environmental or social reasons. Provisions of the EP&A Act provide a more streamlined assessment process and include restrictions on the availability of appeals for projects declared Critical SSI. An opinion will be sought during the preparation of the EIS as to whether the proposed Project would be considered Critical SSI.

The majority of the Project is proposed on a site that has been highly disturbed by a previous coal washing facility. Based on preliminary project information and an environmental risk assessment conducted, the key environmental issues which will require more detailed investigation are:

- Flora and Fauna – The clearance of native vegetation potentially including threatened flora and fauna and endangered ecological communities. This may impact on SEPP 14 Wetlands and Hunter Estuary Wetlands comprising RAMSAR Wetlands.
- Hydrology – The construction location is adjacent to the Hunter River and Hexham Swamp which can be subject to flooding. Hexham is designated a high risk flood area.
- Noise - Noise impacts associated with the proposed development at nearby receivers, including temporary noise impacts associated with construction of the proposed Project.
- Non-Indigenous Heritage –The former Minmi to Hexham Railway runs perpendicular to the Main Northern Railway through the proposed project area.
- Water Quality – Potential soil erosion, soil instability and Acid Sulphate Soils impacting upon wetlands.

Assessment methodologies and mitigation and management measures for each environmental and community issue are included in Sections 4 and 5 of this document.

# 1. Introduction

This Preliminary Environmental Assessment (PEA) has been undertaken by the Upper Hunter Valley Alliance (UHVA) on behalf of Australian Rail Track Corporation (ARTC) for the proposed construction of five Up Relief Roads located at Hexham. The proposed Project is located adjacent to the Pacific Highway at the South end of Hexham Railway Station approximately 15 kilometres north of Newcastle and 176 kilometres north of Sydney by rail (refer Figure 1.1).

## 1.1. Development Context

Australian Rail Track Corporation (ARTC) was created after the Commonwealth and State Governments agreed in 1997 to the formation of a “one stop” shop for all operators seeking access to the National interstate rail network. Within NSW, ARTC is responsible for maintaining the rail network outside of the Sydney Metropolitan area. This network includes the Hunter Valley Coal Lines.

Coal mining is an important part of the economy of the Hunter Valley. The increase in worldwide demand for coal has resulted in an expansion of mining in the Hunter Valley. Consequently, coal exports are forecast to increase from around 140 million tonnes per annum (mtpa) in 2011 to over 200 mtpa in 2014. The majority of coal is taken by train to the Port of Newcastle for export.

To cater for this increase, ARTC is undertaking a number of projects to upgrade the rail network, to maintain rail capacity ahead of the demand requested by the coal producers. Full details of these projects are provided in ARTC’s *2011-2020 Hunter Valley Corridor Capacity Strategy Consultation Document* (March 2011), which is available from ARTC’s web site [www.artc.com.au](http://www.artc.com.au)

The Hunter Valley Coal Chain is one of the largest coal export operations in the world and involves coordinating delivery of over 80 brands of coal from 35 coal mines to three coal terminals at the Port of Newcastle. Operations and logistics planning is a 24 hour 7 day a week activity with a 2-3 day duration between the correct blend of coal being excavated at the mines, loaded onto trains and taken to the Port to meet arriving ships. Around 40 coal trains service the mines, operating a total of 50-60 trips per day from the Valley to the Port.

During the day to day operations of the Coal Chain, problems can occur with unplanned equipment breakdowns at the coal terminal dump stations. When this happens, the train heading for that particular dump station has to be held on the Coal Main. This results in all other coal trains heading towards Newcastle also being delayed. In summary, it creates a “traffic jam” of trains and causes congestion on the rail network.

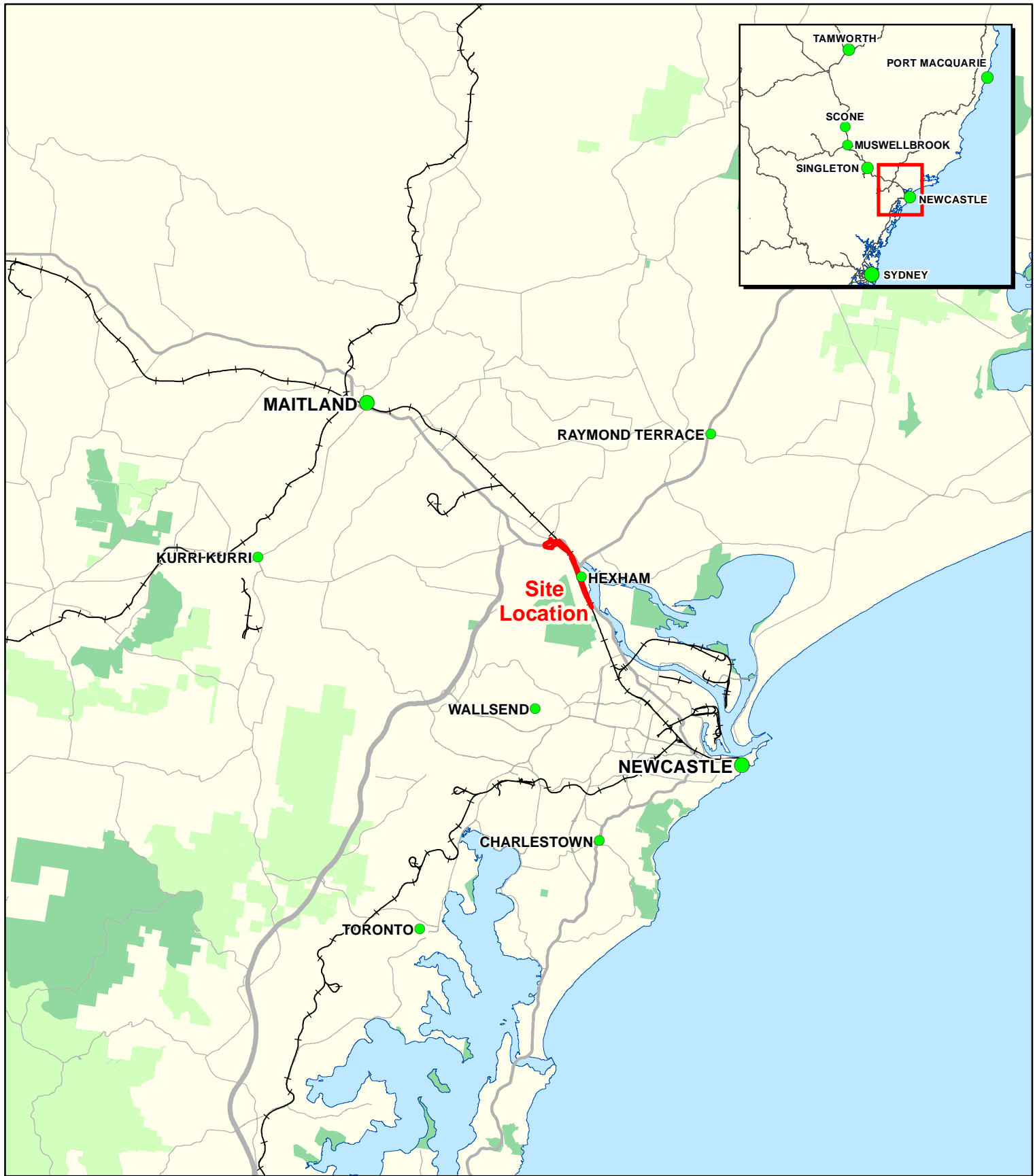
Similar problems can also occur if trains at the mines are loaded early and enter the rail network out of sequence. They then have to be rescheduled to their correct place in the queue for the coal terminals. This also results in congestion on the train network.

Following the forecast increase in coal exports, train modelling has shown that congestion will be a significant problem on the rail network from 2012 and by 2014 five new tracks will be required close to the Port to allow trains to be re-sequenced in the arrival queue for the coal terminals. These new tracks are known as Relief Roads as they enable the congestion in the network to be relieved.

## 1.2. Overview of the Proposed Project

ARTC proposes to develop five Relief Roads (tracks) and associated infrastructure at Hexham in the NSW Hunter Valley (the proposed Project). The proposed Project is located between the towns of Woodberry and Sandgate, approximately 176 kilometres north of Sydney by rail (refer Figure 1.1).

Key components of the proposed Project comprise:



- City/Town
- State Forest
- Site Location
- National Park Estate
- Road
- Railway



ARTC  
Hexham Relief Roads

### Location of the Proposal

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Revision	A5
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**Figure 1.1**

- Five Up Relief Roads (Train Lines) to the west of the existing Up Main, Down Main and Up Coal including:
  - The removal of the existing Down Coal (located to the west of the Up Coal);
  - The construction of five new train lines (tracks) for the Relief Roads;
  - The construction of a new Down Coal to the west and outside of the proposed Relief Roads;
  - Each Relief Road to store a minimum of 91 wagons (1,543m long) requiring a minimum standing room of 1,670 metres; and
  - New turnouts, return curves and other track changes.
- Installing new signal infrastructure for the 5 Relief Roads (including signal location cases, huts and gantries).
- Earthworks of approximately 45,000 cubic metres, including track formation, drainage and minor structures.
- Ancillary infrastructure that may include vehicle access tracks, temporary construction compounds and stockpile sites.
- Vehicular access tracks, land acquisition and the upgrading of existing rail infrastructure and public utilities as required.

The estimated cost of the proposed Project is approximately \$90 million and it is expected to take approximately 16 months to construct.

A more detailed description of the proposed Project is provided in Section 3 of this document.

### **1.3. Purpose of Report**

This PEA has been prepared to support a major project application under Part 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The PEA provides the following:

- An overview of the relevant planning legislation and approvals process (Section 2);
- A preliminary description of the proposed Project (Section 3);
- An outline of the findings of a project environmental risk assessment (Sections 4 and 5);
- A proposed scope for the subsequent EIS; and
- A basis for the receipt of the Environmental Assessment Requirements from the Director-General of the Department of Planning and Infrastructure under Part 5.1 of the EP&A Act, including requirements from other agencies.



## 2. Statutory and Planning Context

This section provides a discussion of the relevant legislation, including Acts and Environmental Planning Instruments, and provides discussion regarding the approvals process for the proposed Project. Discussion in relation to International agreements and NSW State Government Policy of relevance is also provided.

### 2.1. Environmental Planning and Assessment Act 1979

The *Environmental Planning and Assessment Act 1979* (EP&A Act) and *Environmental Planning and Assessment Regulation 2000* are the principal pieces of environmental legislation which provide for development planning and control in NSW.

Under *State Environmental Planning Policy (Infrastructure) 2007* (SEPP Infrastructure), development for the purpose of a railway or rail infrastructure facilities (including the proposed Project) may be carried out by or on behalf of a public authority without consent on any land under Part 4 of the EP&A Act.

*State Environment Planning Policy (State and Regional Development) 2011* (SEPP State and Regional Development) declares State Significant Infrastructure (SSI) to which development assessment and approval processes under Part 5.1 of the EP&A Act apply. Part 5.1 of the EP&A Act provides a separate, streamlined and integrated development assessment and approval regime for government infrastructure projects of State significance.

Under SEPP State and Regional Development, developments for the purpose of rail infrastructure which are permitted without development consent under Part 4 of the EP&A Act that also satisfy the following requirements are considered SSI to which Part 5.1 of the EP&A Act applies:

*“Schedule 3 State significant infrastructure – general*

*3 Rail infrastructure*

*Development for the purpose of rail infrastructure by or on behalf of the Australian Rail Track Corporation that has a capital investment value of more than \$50 million.”*

As the proposed Project is permissible without development consent under Part 4 of the EP&A Act and the estimated capital investment value of the proposed Project is \$90 million; the proposed Project will be assessed under Part 5.1 of the EP&A Act.

The Minister for Planning and Infrastructure (the Minister) is the determining authority under Part 5.1 of the EP&A Act and the ARTC is required to submit a project application to the Department of Planning and Infrastructure (the Department). Accompanying the project application, will be this PEA which will be used by the Department to brief Government agencies about the Project and on which requirements for the preparation of an Environmental Impact Statement (EIS) will be based.

Under Section 115V of the EP&A Act, SSI may be declared to be Critical State Significant Infrastructure (Critical SSI) if it is of a category that, in the opinion of the Minister, is essential for the State for economic, environmental or social reasons. Provisions of the EP&A Act provide a more streamlined assessment process and include restrictions on the availability of appeals for projects declared Critical SSI. An opinion will be sought during the preparation of the EIS as to whether the proposed Project would be considered Critical SSI.

## 2.2. Environmental Planning Instruments and Other NSW State Legislation

### 2.2.1. State Environmental Planning Policy (State and Regional Development) 2011

*State Environmental Planning Policy (State and Regional Development) 2011* (SEPP State and Regional Development) identifies development that is State significant infrastructure under Part 5.1 of the EP&A Act. As discussed above, the proposed Project is considered to be a development that falls under SEPP State and Regional Development and the proposed Project is required to be assessed in accordance with the requirements of Part 5.1 of the EP&A Act.

### 2.2.2. State Environmental Planning Policy (Infrastructure) 2007

*State Environmental Planning Policy (Infrastructure) 2007* (SEPP Infrastructure) permits rail infrastructure to be carried out on behalf of a public authority without consent on any land (clause 79). Therefore, the proposed Project is permissible.

As discussed above, the proposed Project is considered to be SSI under SEPP State and Regional Development and as such approval is required under Part 5.1 of the EP&A Act.

### 2.2.3. State Environmental Planning Policy No 14 - Coastal Wetlands

*State Environmental Planning Policy No 14 – Coastal Wetlands* (SEPP 14) has the primary aim of protecting coastal wetlands in the environmental and economic interests of the State. The policy applies to local government areas outside the Sydney metropolitan area that front the Pacific Ocean. The policy identifies over 1300 wetlands of high natural value from Tweed Heads to Broken Bay and from Wollongong to Cape Howe.

SEPP 14 requires that development for the purposes of clearing, levees, draining or filling is only permitted with the consent of the local council and the concurrence of the Director-General of the Department of Planning and Infrastructure. The SEPP also requires that the Director of the National Parks and Wildlife Service be consulted in relation to an application for these forms of development on affected land. Under Part 5.1 of the EP&A Act, approval can be granted for these works by the Minister for Planning and Infrastructure following consultation with relevant state agencies during the approval process.

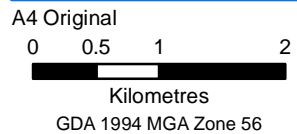
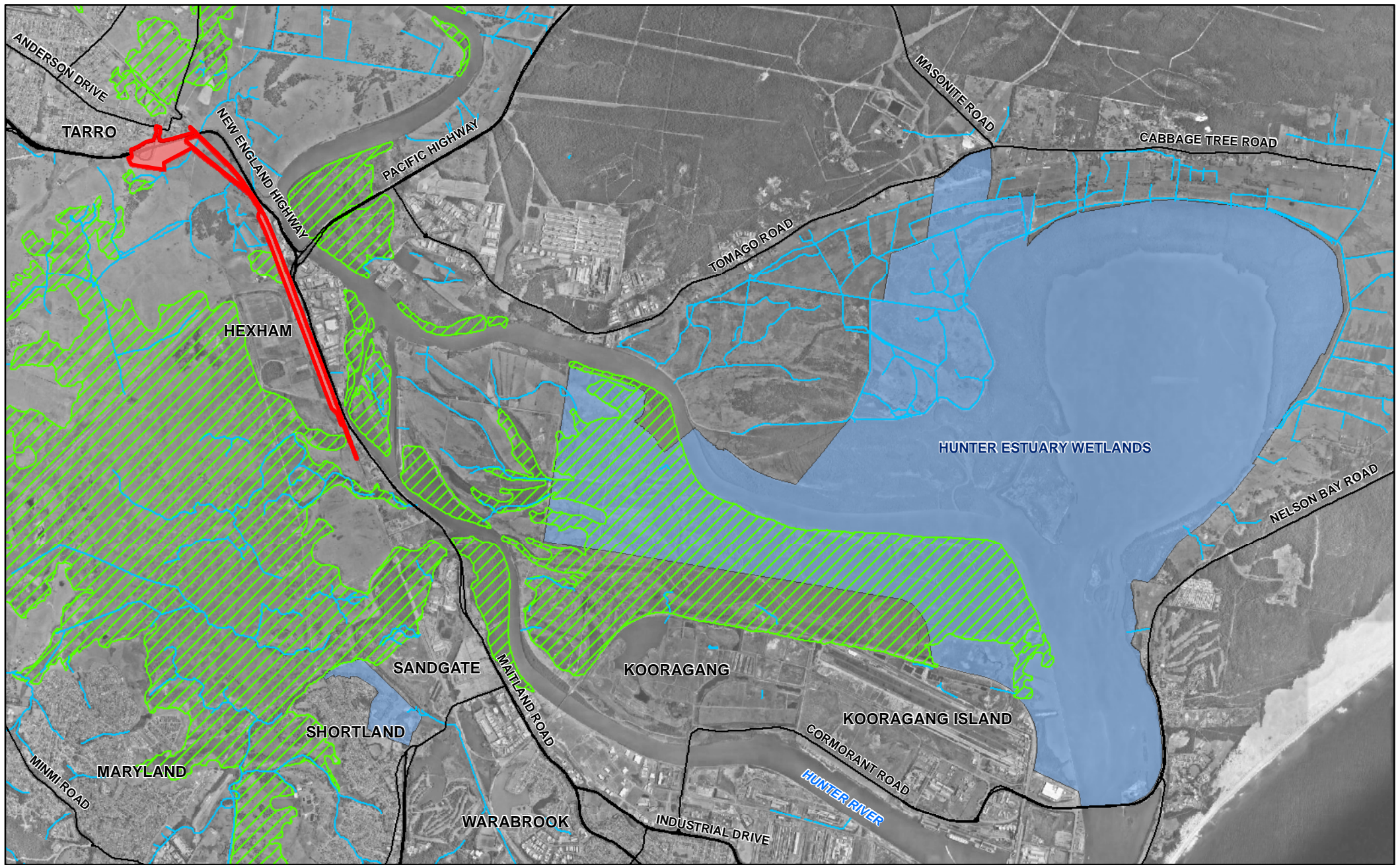
Figure 2.1 shows the location of SEPP 14 wetlands in relation to the proposed Project Area. The proposed Project Area is located over a small portion of SEPP 14 wetland to the north and a small section of SEPP 14 wetland to the south. The proposed Project Area shown in Figure 2.1 is the operational footprint for all of the alternatives being considered for the final detailed design. One of the aims in finalising the detailed design is to mitigate impacts of the proposed Project on these wetland areas. A smaller refined proposed Project Area will be presented in the EIS as the detailed design and construction methodology progresses. The impacts of the operation and construction of the proposed Project to coastal wetlands will be fully assessed under SEPP 14.

### 2.2.4. State Environmental Planning Policy No 71 - Coastal Protection

*State Environmental Planning Policy No 71 – Coastal Protection* (SEPP 71) commenced in 2002 with the aim of ensuring there is a consistent and strategic approach to coastal planning and management. The SEPP applies to the coastal zone and relevant matters for consideration are listed in Clause 8 of SEPP 71. The applicability of SEPP 71 will be further assessed in the EIS.

### 2.2.5. State Environmental Planning Policy No 55 - Remediation of Land

State Environmental Planning Policy No 55 – Remediation of Land (SEPP 55) provides consistent state wide planning and development controls for the remediation of contaminated land. A contamination assessment is being undertaken for the EIS and the applicability of SEPP 55 will be considered in that assessment and discussion included in the EIS.



- Project Area
- RAMSAR Wetland
- SEPP14 Wetland
- Road
- Drainage



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### RAMSAR and SEPP 14 Wetlands

Figure 2.1

### 2.2.6. Newcastle Local Environment Plan

The proposed Project is located within the Newcastle Local Government Area (LGA). The Environmental Planning Instrument relevant to the proposed Project is the *Newcastle Local Environmental Plan 2003* (LEP).

Part of the proposed Project is within the existing rail corridor which is within the 5(a) Special Uses Zone (Transport). Other areas adjacent to the railway corridor are zoned:

- 4(a) Port and Industry Zone;
- 4(b) Steel River Zone;
- 6(a) Open Space and Recreation Zone;
- 7(b) Environmental Protection Zone; and
- 8(a) National Parks Zone.

There is a local item of heritage within the proposed Project Area listed under the Newcastle LEP. This item is the former Minmi to Hexham Railway and has been described in the Newcastle LEP as being of State significance. The embankment of the former railway is still visible in the landscape and on aerial photographs and is approximately 8.2 kilometres in length. The former railway travels perpendicular from the Main Northern Railway at Hexham through the proposed Project Area west to the Newcastle suburb of Minmi.

In addition, there are 12 residential properties listed under the LEP within the suburb of Hexham. All of these items occur within approximately 200 metres of the proposed works.

The proposed Project Area has been identified as land within Class 2 of the 'Potential Acid Sulphate Planning Map' of the Newcastle LEP. There are five classes of potential acid sulphate soils (ASS). Class 1 land has the highest possibility of ASS and Class 5 has the least. For Class 2 land, the Newcastle LEP requires an assessment of the possibility of ASS for works below ground surface and works by which the water table is likely to be lowered.

Council has resolved to adopt a draft Newcastle LEP 2011 which will supersede the existing LEP. The draft LEP has been referred to the Department of Planning and Infrastructure for assessment. The draft LEP will come into operation when it is made by the Minister for Planning and Infrastructure and published on the NSW legislation website. This is expected to occur by November 2011.

Planning approval from Newcastle City Council under the LEP is not required as the proposed Project is subject to assessment under Part 5.1 of the EP&A Act which prevails over the local planning instrument. However, consideration will be given to the Newcastle LEP and draft LEP in the preparation of the EIS.

### 2.2.7. Protection of the Environment Operations Act 1997

The Office of Environment and Heritage (OEH) issues environment protection licences (EPLs) to the owners or operators of railway systems activities under the *Protection of the Environment Operations Act 1997* (POEO Act). The ARTC has an existing EPL (EPL 3142). A project specific EPL will be applied for following project approval.

### 2.2.8. Other NSW State legislation

Other NSW State legislation that may be relevant to the proposed Project includes the following:

- Contaminated Land Management Act 1997;
- Fisheries Management Act 1994;
- Heritage Act 1977;
- Hunter Regional Environmental Plan (Heritage) 1989;
- Land acquisition (Just Terms Compensation) Act 1991;
- National Parks and Wildlife Act 1974;

- Native title (New South Wales) Act 1994;
- Native Vegetation Act 2003;
- Noxious Weeds Act 1993;
- Occupational Health and Safety Act 2000;
- Roads Act 1993;
- Rural Fires Act 1997;
- Threatened Species Conservation Act 1995;
- Waste Avoidance and Resource Recovery Act 2001;
- Water Act 1912; and
- Water Management Act 2000.

The extent to which this legislation applies to the proposed Project will be documented in the EIS.

### 2.2.9. Legislation that does not apply to SSI

Part 5.1 of the EP&A Act overrides the need for certain additional approvals/ permits/ licences/ authorisations under certain Acts. Under Section 115ZG of the EP&A Act, the following authorisations are not required for approved SSI:

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

Division 8 of Part 6 of the *Heritage Act 1977* does not apply to prevent or interfere with the carrying out of approved SSI.

The following directions, orders or notices cannot be made or given so as to prevent or interfere with the carrying out of approved Critical SSI:

- An interim protection order (within the meaning of the *National Parks and Wildlife Act 1974* or the *Threatened Species Conservation Act 1995*);
- An order under Division 1 (Stop work orders) of Part 6A of the *National Parks and Wildlife Act 1974*, Division 1 (Stop work orders) of Part 7 of the *Threatened Species Conservation Act 1995* or Division 7 (Stop work orders) of Part 7A of the *Fisheries Management Act 1994*;
- A remediation direction under Division 3 (Remediation directions) of Part 6A of the *National Parks and Wildlife Act 1974*;
- An environment protection notice under Chapter 4 of the *Protection of the Environment Operations Act 1997*; and
- An order under section 124 of the *Local Government Act 1993*.

## 2.3. Commonwealth Legislation

### 2.3.1. Environment Protection and Biodiversity Conservation Act 1999

An environmental impact assessment will be conducted in accordance with the provisions of the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) to

determine if a referral to the Minister is required. If necessary, a referral to the Minister will be made to determine if the proposed Project is a controlled action requiring referral.

### 2.3.2. Native Title Act 1993

The *Native Title Act 1993* administers processes relating to the recognition, protection and determination of native title and dealings with native title land. Native title is concerned with the rights and interests of Aboriginal and Torres Strait Islander peoples in relation to land and water in Australia and its territories. The Act is administered by the Department of Sustainability, Environment, Water, Population and Communities.

An online search of the Native Title Register held by the National Native Title Tribunal undertaken in October 2011 revealed that there are no active native title applications currently pending in relation to the Project Area.

## 2.4. International Convention and Agreements

### 2.4.1. Ramsar Convention

The Ramsar Convention's broad aims are to halt the worldwide loss of wetlands and to conserve, through wise use and management, those that remain through international cooperation, policy making, capacity building and technology transfer. The Ramsar Convention encourages the designation of sites containing representative, rare or unique wetlands, or wetlands that are important for conserving biological diversity. Once designated, these sites are added to the Convention's List of Wetlands of International Importance and become known as Ramsar sites.

The EPBC Act establishes a framework for managing Ramsar wetlands in Australia. Under Schedule 6 of the *Environment Protection and Biodiversity Conservation Regulations 2000*, general principles are outlined for the management of wetlands of international importance. In addition to the Australian Ramsar management principles, other guiding principles are established by the Ramsar Convention on Wetlands.

Hunter Estuary Wetlands are listed as a declared Ramsar wetland site that has been designated under Article 2 of the Ramsar Convention. The site encompasses two separate components, being Kooragang Nature Reserve and Shortland Wetland Centre. These wetland components are approximately 2.5 and 2 kilometres from the proposed Project Area respectively. The locations of the wetlands from the proposed Project Area are shown in Figure 2.1.

Kooragang Nature Reserve covers the northern section of Kooragang Island and Fullerton Cove in the northeast of the estuary, and Shortland Wetland Centre occurs at the south-eastern end of the Hexham floodplain. The estuarine habitats represented within Kooragang Nature Reserve are considered to be of great foraging and roosting importance to migratory wading birds, which visit Eastern Australia from the northern hemisphere. Forty-five bird species that are listed under international migratory bird agreements between Australia and eastern Asian countries (See discussion below) have been recorded within the Kooragang Nature Reserve and apply. A number of these federally listed migratory species also use freshwater wetland habitats occurring in the Hunter River floodplain including the Hexham floodplain.

A full ecological assessment of the impact of the proposed Project in relation to the wetlands and species will be carried out as part of the EIS. As discussed above, during this assessment a determination will be made as to whether referral under the EPBC Act is required. If necessary, a referral to the Minister will be made to determine if the proposed Project is a controlled action requiring referral.

## 2.4.2. JAMBA, CAMBA and ROKAMBA

The first two bilateral agreements relating to the conservation of migratory birds were formed with the Government of Japan in 1974 and the People's Republic of China in 1986.

The Japan-Australia Migratory Bird Agreement and China-Australia Migratory Bird Agreement (JAMBA) and (CAMBA) agreements list terrestrial, water and shorebird species which migrate between Australia and the respective countries. In both cases, the majority of listed species are shorebirds.

Both agreements require the parties to protect migratory birds by:

- Limiting the circumstances under which migratory birds are taken or traded;
- Protecting and conserving important habitats;
- Exchanging information; and
- Building cooperative relationships.

The JAMBA agreement also includes provisions for cooperation on the conservation of threatened birds.

In April 2002, Australia and the Republic of Korea agreed to develop a bilateral migratory bird agreement (ROKAMBA) similar to the JAMBA and CAMBA. The ROKAMBA agreement was signed in Canberra on 6 December 2006. The agreement entered into force on 13 July 2007. The ROKAMBA formalises Australia's relationship with the Republic of Korea in respect to migratory bird conservation and provides a basis for collaboration on the protection of migratory shorebirds and their habitat.

All migratory bird species listed in the annexes to the bilateral agreements are protected in Australia as matters of national environmental significance under the EPBC Act. As discussed above, an assessment of the impact of the proposed Project to these bird species will be undertaken as part of the EIS to determine the need for a referral under the EPBC Act.

## 2.5. ARTC Code of Practice

As the proposed Project is subject to Part 5.1, Clauses 244D-J of Part 14 of the Environmental Planning and Assessment Regulation 2000 (Special Provisions relating to the ARTC) are not relevant. The ARTC *Code of Practice for Environmental Impact Assessment of Development Proposals in New South Wales* (the ARTC Code of Practice) is made under those clauses is therefore not applicable to the proposed Project.

## 2.6. NSW State Government Policy

### 2.6.1. NSW State Plan

The *NSW State Plan* (NSW Government, 2006) contains a set of goals and identifies priorities for Government action that will help achieve the goals. A review of the goals and the consistency of the proposed Project with the plan will be part of the EIS.

### 2.6.2. State Infrastructure Strategy

The *State Infrastructure Strategy* (NSW Government, 2008) is a rolling 10 year strategy to plan and fund the infrastructure that supports economic growth and the services that the NSW Government delivers. It is guided by NSW Government agencies, as well as the ARTC's, asset management plans, and forms the link between the infrastructure plans detailed in the four forward years of each State budget, the 10 year *NSW State Plan*, and the 25 year metropolitan and regional strategies. The extent to which the infrastructure strategy applies to the proposed Project will be documented in the EIS.

### **2.6.3. Lower Hunter Regional Strategy**

The *Lower Hunter Regional Strategy* plans for the provision of sufficient new urban and employment lands to meet expected strong demands for growth. The regional strategy also refocuses development in the Lower Hunter towards the strengthening of vibrant centres that support the role of Newcastle City Centre as the regional city.

The Regional Strategy incorporates the specific regional infrastructure requirements identified in the *State Infrastructure Strategy*. The regional strategy will continue to inform future infrastructure investment priorities for the Lower Hunter. Infrastructure planning will take into account the broad planning framework identified in the Strategy, to ensure that future population growth is supported by services and associated infrastructure. The consistency of the proposed Project in relation to the regional strategy will be assessed in the EIS.

### **2.6.4. NSW Wetlands Policy**

Consistent with the priority on natural resources management in the *NSW State Plan* to deliver better outcomes for native vegetation, biodiversity, land, rivers and coastal waterways, the *NSW Wetlands Policy* aims to provide for the protection, ecologically sustainable use and management of NSW wetlands.

The policy covers all wetlands in the state, including those that are mapped and the many that are yet to be formally identified in recognition of their critical importance in the ecological and hydrological systems of the state's catchments. The extent to which this policy applies to the proposed Project will be included in the EIS.

### **2.6.5. Other Policy**

The extent to which the *Hunter Wetlands Estuary Management Plan* and the *NSW Ramsar Plan 2006-2009* and associated requirements apply will also be considered within the EIS.

## 3. Description of the Proposed Project

### 3.1. Key Design and Operational Features

Five Up Relief Roads (train lines) to the west of the existing rail lines are proposed to be located adjacent to the Pacific Highway and Hexham Railway Station approximately 15 kilometres north of Newcastle and 176 kilometres north of Sydney by rail. The existing Down Coal would be removed to make way for the Relief Roads and would be replaced by a new Down Coal that would be constructed to the west and outside of the proposed Relief Roads.

Each Relief Road would be used to store a minimum of 91 wagons (1,543m long) requiring a minimum standing room of 1,670 metres. New turnouts, return curves and changes to the existing track formation would also form part of the proposed Project.

The tracks would be constructed on a foundation of coarse rock about 600mm deep. It is estimated that 45,000 cubic metres of rock would be required which would be brought onto the site using trucks. As the area around Hexham is very flat with poor drainage, the use of coarse rock would allow water to pass through the gaps between the rocks to minimise the impacts on the existing drainage flow paths.

New railway signalling would also be needed for the proposed Project to divert trains off the Coal Main, onto the Relief Roads and then back onto the Coal Main. This would involve installing electrical cables along the length of the relief roads and building a new overhead gantry for signals to control train movements. Some signalling enclosures would also be required to house the electronic control equipment. These would be built on platforms to be above the 1:100 year flood level.

Ancillary infrastructure would include vehicle access tracks, temporary construction compounds and stockpile sites. Land acquisition and the upgrading of existing rail infrastructure and public utilities would also be undertaken.

The estimated cost of the proposed Project is approximately \$90 million and it is expected to take approximately 16 months to construct.

Access to this site for construction and for future operations and maintenance is difficult. The existing access off the New England Highway at Woodlands Close has poor sight distances and would need to be upgraded if it is to be used for construction traffic. An alternative access may be possible off the Tarro Interchange, approximately 500m to the west of Woodlands Close. A detailed traffic study and road safety audit for these options is being undertaken as part of the Project design. The final solution would be selected in consultation with the RTA, Newcastle City Council and the local community.

Figures 3.1A-C provide a footprint of the proposed Project Area in relation to surrounding land. The proposed Project Area shown is the operational footprint for all of the alternatives being considered for the final detailed design. The proposed Project Area presented in the EIS may be smaller depending on the outcome of the detailed design and construction methodology.

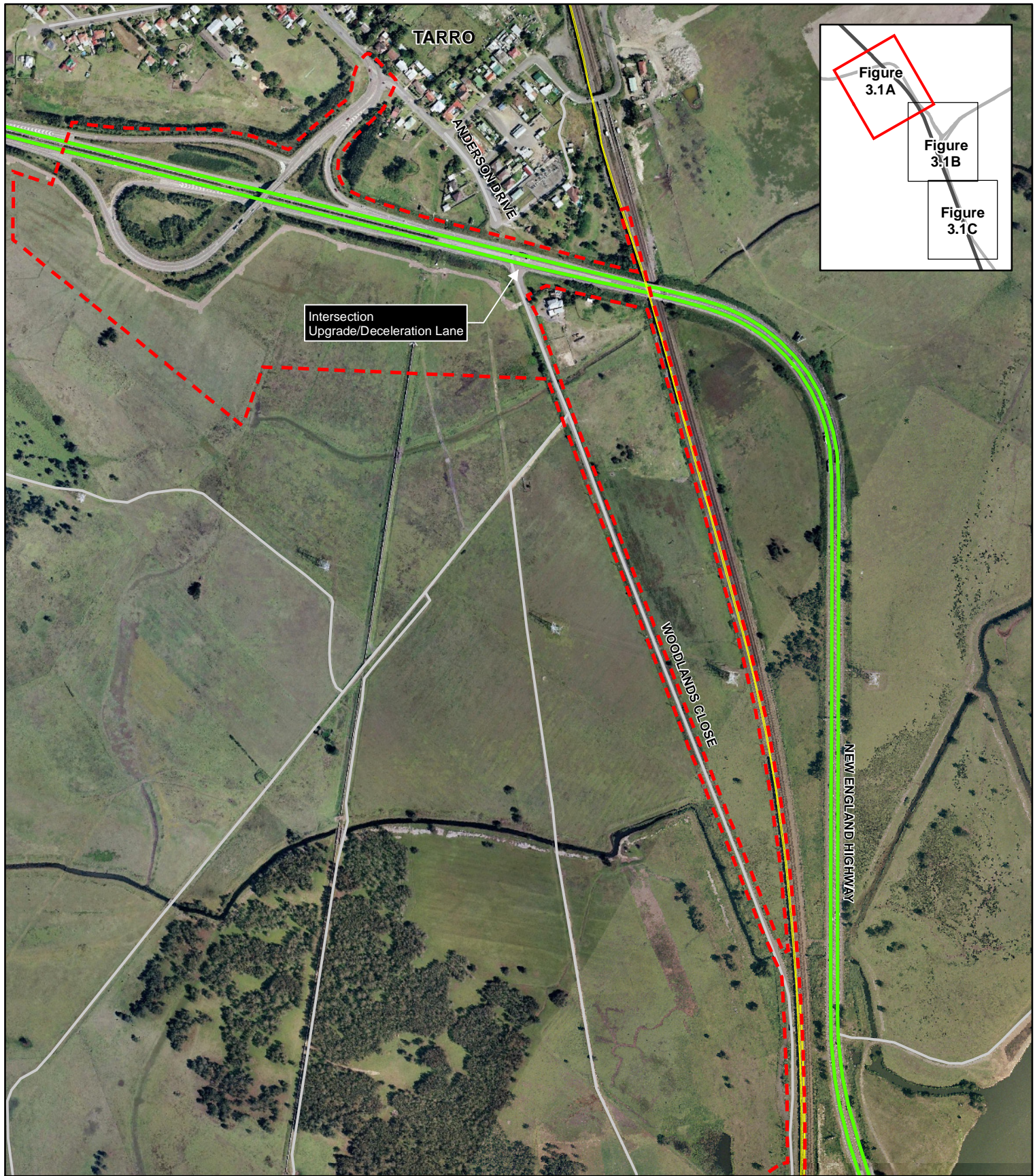
### 3.2. Construction Overview

#### 3.2.1. Outline Construction Methodology

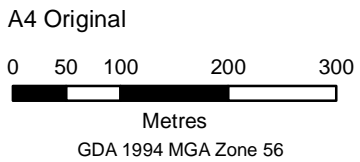
The construction period for the proposed Project would be approximately 16 months. The likely sequence and outline of key construction phases and activities would include:

##### **Mobilisation**

- Installation of environmental management controls as appropriate;



- Existing Alignment
- Major Road
- Local Road
- - - Project Area

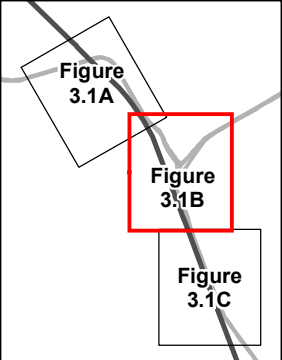
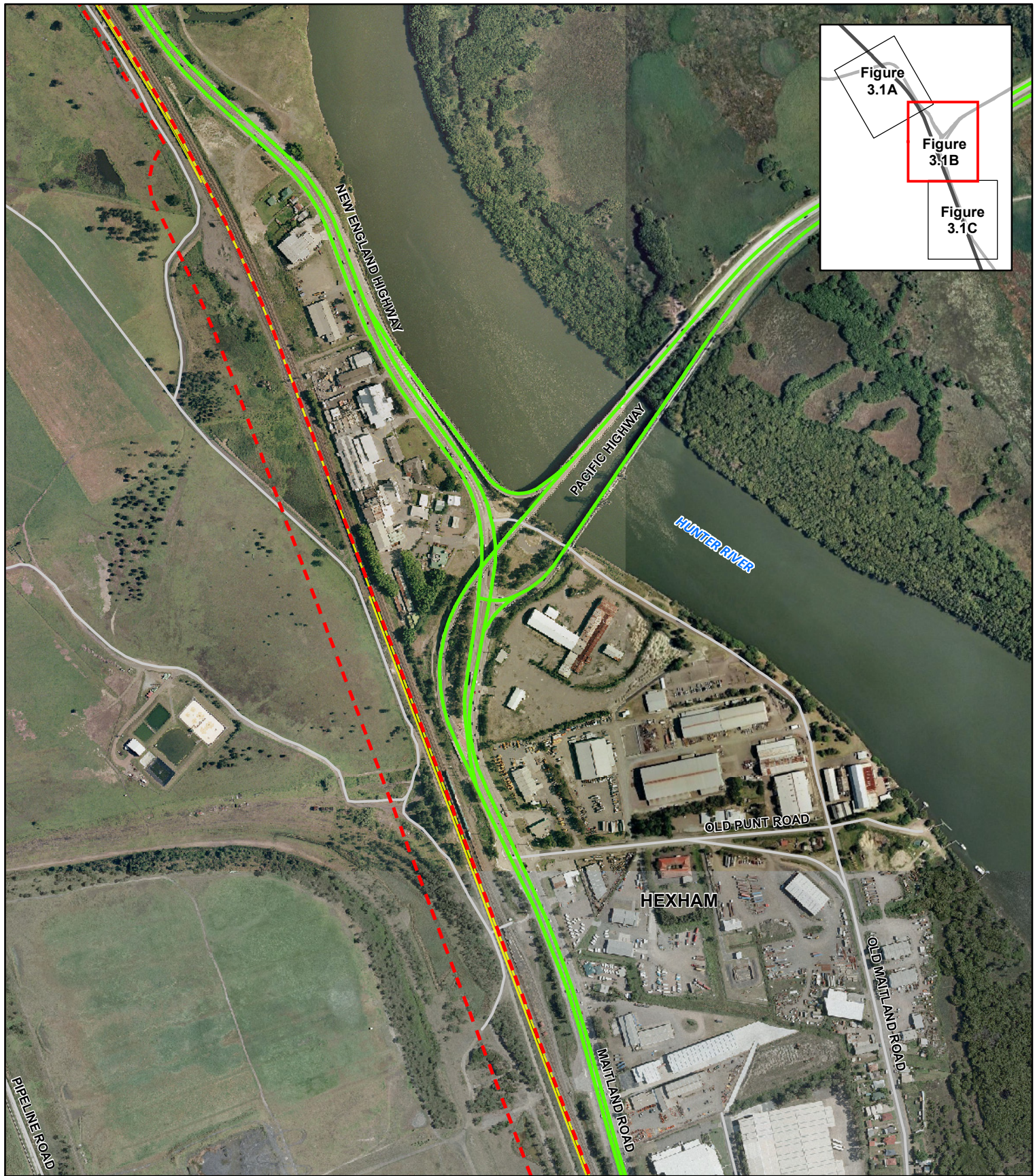


ARTC  
Hexham Relief Roads

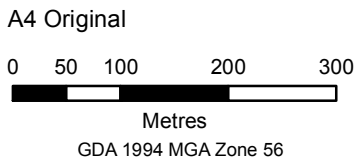
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## Proposed Relief Roads Project Area

**Figure 3.1A**



- Existing Alignment
- Major Road
- Local Road
- - - Project Area

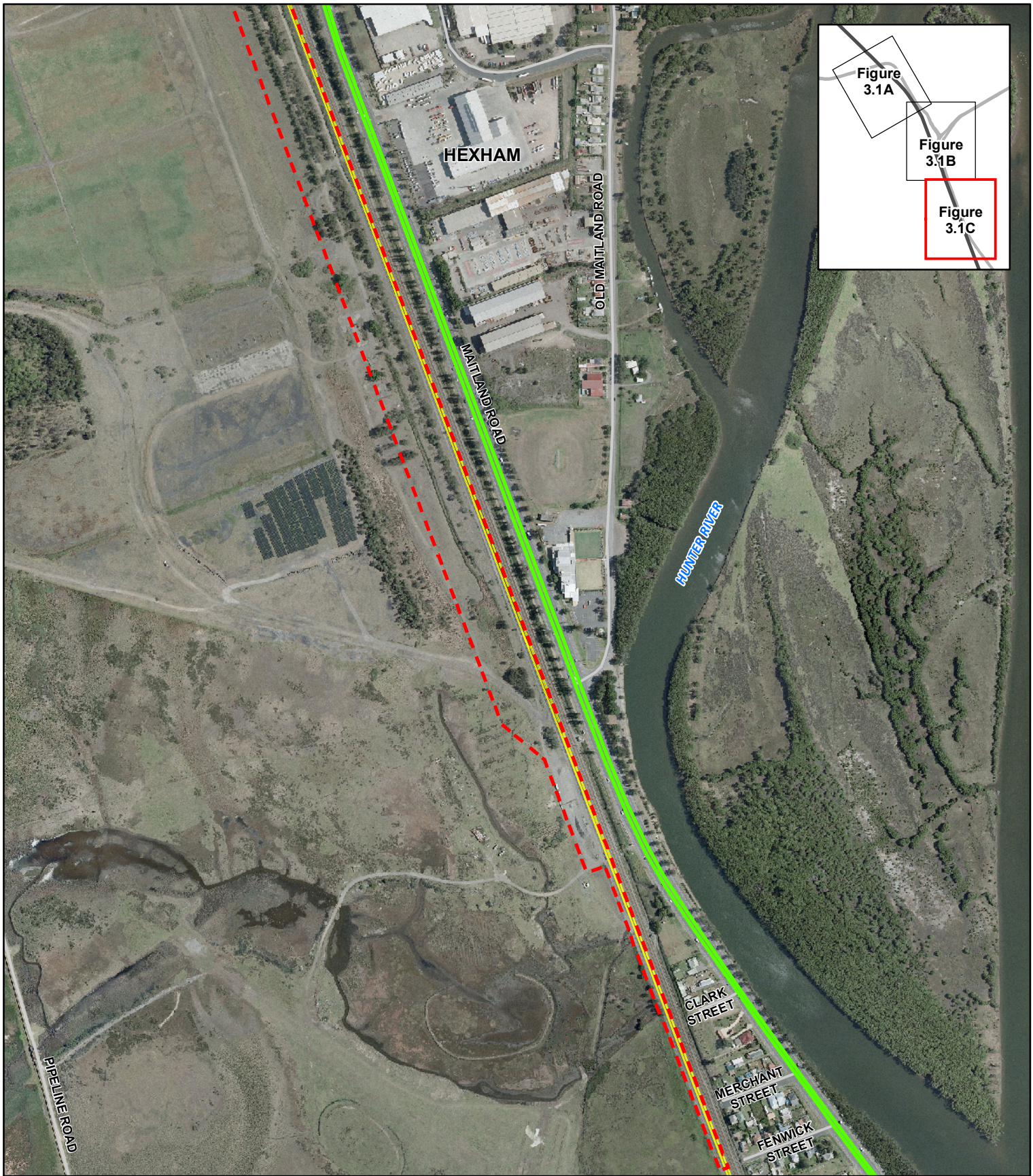


ARTC  
Hexham Relief Roads

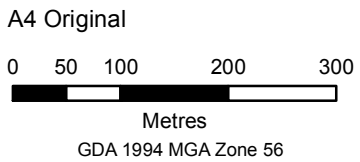
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Date	21.10.2011
Scale	1:7,000

## Proposed Relief Roads Project Area

### Figure 3.1B



- Existing Alignment
- Major Road
- Local Road
- - - Project Area



ARTC  
Hexham Relief Roads

Job Number	2110501A
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Scale	1:7,000

## Proposed Relief Roads Project Area

### Figure 3.1C

- Weed spraying / removal (if required);
- Establishment of site compounds and site accesses; and
- Services relocations (if required).

#### Earthworks

- Stripping of vegetation and topsoil;
- Bulk earthworks including approximately 45,000 cubic metres of rock to build a platform for construction of the new rail lines; and
- Grading.

#### Civil Construction and Track Work

- Drainage works;
- Placement of ballast, laying of new track; and
- Trenching, erection and connection of signalling equipment.

#### Demobilisation and Rehabilitation

- Demobilisation of site compounds;
- Rehabilitation of excavated and filled areas; and
- Removal of erosion and sediment control devices.

### 3.2.2. Plant and Equipment

Table 3.1 lists the anticipated construction plant and equipment to be used during construction.

**Table 3.1 Construction Plant and Equipment**

Construction Plant and Equipment		
Concrete truck	Generators	Tamping machine
Concrete vibrator	Pumps	Ballast regulator
Concrete pump	Front end loader	Rail cutting equipment
Cranes (various types and sizes)	Grader	Rail welding equipment
Hydraulic mobile crane	Vibratory roller	Rail grinder
Excavators (various sizes)	Semi trailer/tipper	'Hi-rail' vehicle
Backhoe	Dump truck	Bulldozer

### 3.2.3. Working Hours and Track Possessions

Standard construction hours would be adopted - 7am to 6pm Monday to Friday and 8am to 1pm on Saturdays.

Work conducted outside of standard working hours may include delivery of oversized materials, safety critical works or works during track possessions. A number of scheduled track possessions would also be utilised to facilitate connection of the new infrastructure to the existing. Work during possessions includes work outside of standard working hours.

Work conducted outside of standard working hours would be assessed as part of the noise and vibration assessment. This will be used to develop mitigation and management measures for the proposed Project.

### 3.2.4. Ancillary Facilities

A primary construction site compound would be established on ARTC land or adjoining land. The compound would be used for the site office, amenities and storage of equipment. Entry and exit to this compound is being considered via Woodlands Close or Tarro Interchange.

Secondary site compounds may also be required. Entry and exit to these sites will be further investigated as part of the concept design process and documented in the EIS.

### 3.2.5. Utility Adjustment

It is expected that public utility adjustments would be required to a high pressure gas main, overhead electricity wires, telecommunications services and an effluent pipe from the Oak Factory. Railway signalling and minor drainage works would also be required.

### 3.2.6. Interaction with Existing and Proposed Infrastructure

Consideration will be given to other works on the Main Northern Railway and other existing and planned transport infrastructure and services, including the F3 to Raymond Terrace Pacific Highway Upgrade (refer to Section 4.2.3). Consideration will also be given to a proposal by Queensland Rail National Coal within the Project Area for a train servicing facility (discussed at Section 4.2.10 of this report).

### 3.2.7. Property Acquisition

Construction of the proposed Project and associated infrastructure would require acquisition of land on the Down Side adjacent to the existing rail corridor. In the order of 5 landowners have been identified as potentially being affected. Discussions will be conducted with relevant landowners during preparation of the EIS.

Negotiations would also be held with landowners in relation to the temporary use of their land during construction e.g. for secondary site compounds, sediment control devices or other project requirements if required.

## 3.3. Options Considered

ARTC has developed and implemented a project management system (PP-157) which guides the staged development and approval of proposed infrastructure projects. The six main stages are as follows:

- Concept assessment;
- Project feasibility;
- Project assessment;
- Project approval;
- Project implementation (construction and commissioning); and
- Project close-out.

Environmental, engineering and economic considerations are integrated into every stage of the above process. Internal approvals are required from ARTC prior to progression between stages.

ARTC initially considered eight options (including a do nothing option) for detailed operational modelling and environmental and economic analysis. The key characteristics of each of the options are summarised in Table 3.2.

ARTC used criteria that included cost, property acquisition, regulatory approvals, constructability, operations and environmental issues to rank the sites in order to select a preferred option. Following this, Option 6 was selected as the preferred option based on:

- Relatively low cost per kilometre of track;
- Ease of property acquisition (QR being the main landholder);
- Ease of approval when compared to other location options;
- Relative ease of construction when compared to other options;
- Ease of connection to the existing rail network between Hexham 103 and 104 Points;
- Proximity to the coal terminals, providing maximum flexibility for train re-scheduling;
- Prior use of the site for industrial uses as a coal washery.

An environmental risk assessment was subsequently conducted on the preferred option.

**Table 3.2 Key Characteristics of Options**

Option	Location	Holding capacity (Trains)	Description	Comments/Issues
Option 1	Kooragang Island	2 Parallel lines	Two parallel tracks on the inside of the Kooragang Coal Terminal loop - turn off Weighbridge Road at approximately 174.700 kilometres turning back on to the arrival roads prior to the beginning of the radius into the dumps stations.	<ul style="list-style-type: none"> <li>• Can be constructed without interruption to throughput;</li> <li>• No property acquisition;</li> <li>• Close proximity to dump station;</li> <li>• Only services Kooragang terminal site as the holding roads are located after the new NCIG turnout (and potential Terminal 4 turnout) – no holding option for Carrington;</li> <li>• Trains travelling to the dump stations from the Relief Roads would block the arrival roads;</li> <li>• No storage option for Carrington terminal site;</li> <li>• Not a great deal of scope to extend storage capacity for future demands; and</li> <li>• Substantial relocation and modification of existing signalling infrastructure.</li> </ul>
Option 2	Kooragang Island	2 Parallel lines	Two parallel tracks on the Down Side of the Down Kooragang Branch on Kooragang Island. Turning off Down Kooragang Branch at approximately 172.600 kilometres turning back on to By Pass Road at approximately 174.800 kilometres.	<ul style="list-style-type: none"> <li>• Can be constructed without interruption to throughput;</li> <li>• Access to all arrival roads at Kooragang Coal Terminal;</li> <li>• With additional land acquisition; potential to extend storage capacity;</li> <li>• Close proximity to dump stations;</li> <li>• Land acquisition required due to encroaching batter slopes (Hunter Catchment Management Trust);</li> <li>• Consolidation, global stability, acid sulphate soils, extended construction program due to preloading (issues with building on swampy base);</li> <li>• Proximity to gas pipe line – may require relocation;</li> <li>• Only services Kooragang Coal Terminal; and</li> <li>• No storage available for Carrington terminal site.</li> </ul>
Option 3	Kooragang Island	Single line	One track on the Down Side of the Down Kooragang Branch on Kooragang Island. Turning off Down Kooragang Branch after Hunter River crossing at approximately 171.050 kilometres turning back on to By Pass Road at approximately 174.700	<ul style="list-style-type: none"> <li>• Minimal impact on existing rail;</li> <li>• Access to all arrival roads at Kooragang Coal Terminal;</li> <li>• Proximity to dump stations (efficient sequencing and constant provision of coal to terminal);</li> <li>• With appropriate, land acquisition; potential to extend storage facilities;</li> <li>• Only services Kooragang Coal Terminal;</li> </ul>

Option	Location	Holding capacity (Trains)	Description	Comments/Issues
			kilometres with a crossover located at approximately 172.928 kilometres to allow train queued on city-side of holding road access to Down Kooragang Branch.	<ul style="list-style-type: none"> <li>• Issue with swampy base;</li> <li>• Land acquisition required;</li> <li>• Proximity to gas pipe line; and</li> <li>• No storage available to Carrington terminal site.</li> </ul>
Option 4	North Fork	Single line	One track on the UP side of Up North Fork at Sandgate. Turning off Up North Fork after the Sandgate Flyover at approximately 170.875 kilometres and turning back on to Up North Fork at approximately 169.950 kilometres.	<ul style="list-style-type: none"> <li>• Access to all terminals on Kooragang Island;</li> <li>• Cannot be constructed without interruption to throughput;</li> <li>• Land acquisition required (TOLL Holdings);</li> <li>• Only provides one relief road;</li> <li>• No Carrington terminal option;</li> <li>• Swamp land issues;</li> <li>• No future extension options (queuing predicted to be compounded by greater future terminal capacity);</li> <li>• Alteration of Sandgate Road bridge required; and</li> <li>• RTA Rankin Park to Jesmond Bypass link road overpass.</li> </ul>
Option 5	Hexham	2 Parallel lines	Two tracks either side of the Up Coal at Hexham. Holding Road 1 turning off Up Coal on the Down side at approximately 175.400 kilometres turning back at approximately 173.520 kilometres. Holding Road 2 turning off Up coal on the Up side at approximately 175.280 kilometres turning back at approximately 173.400 kilometres. The existing Down Main and Up Main lines are slewed on to new track.	<ul style="list-style-type: none"> <li>• Minimises deviation from existing path for both the main and coal lines;</li> <li>• Potential to extend capacity;</li> <li>• Gives access to all coal terminals (Kooragang and Carrington);</li> <li>• Tracks cut and slewed onto alternate existing or new tracks;</li> <li>• Distance from dump stations (should not be an issue with adequate controls);</li> <li>• Some land acquisition required; and</li> <li>• Swamp land issues.</li> </ul>
Option 6	Hexham	5 Parallel lines	Five tracks between the Up Main and the Down Main (slew) at Hexham. Turning off Up coal at approximately 176.220 kilometres turning back at approximately 174.100 kilometres.	<ul style="list-style-type: none"> <li>• Does not impact on main line;</li> <li>• Provides access to all terminals;</li> <li>• Existing land issues; and</li> <li>• Land acquisition required (QR land).</li> </ul>

Option	Location	Holding capacity (Trains)	Description	Comments/Issues
Option 7	Beresfed	Single line	One track located between the Up Main and the Down Main between Thornton and Beresfield Stations. Turning off Up coal at approximately 181.900 kilometres and back on to Up Coal at approximately 180.220 kilometres. Up Main to be slewed on to new track.	<ul style="list-style-type: none"> <li>• Services all Newcastle terminals;</li> <li>• No property acquisition; and</li> <li>• Distance to dump stations.</li> </ul>

## 4. Preliminary Environmental Assessment

This section outlines the results of an environmental risk assessment of the proposed Project described in Section 3. The risk assessment includes a description of the existing environment, potential impacts as a result of the proposed Project, the proposed scope of further assessment, identification of required mitigation measures to reduce the potential impacts and the potential for residual impacts. Figures 4.1A-C presents the results of desktop research undertaken.

For the purpose of this PEA, the proposed Project Area is the operational footprint for the alternatives being considered for the final detailed design. The proposed Project Area presented in the EIS may be smaller depending on the progression of the detailed design and construction methodology at the time of lodgement.

Those issues where further detailed investigations are considered necessary are identified and referred to as key environmental issues for the proposed Project. Other issues for which no further environmental assessment is considered necessary and are expected to be satisfactorily managed through the adoption of standard environmental mitigation measures are also documented in this section.

### 4.1. Key Issues

#### 4.1.1. Hydrology

##### Existing Environment

The Hunter River has a long history of flooding. Being located on the banks of the Hunter River, Hexham (including the Project Area) has experienced the effects of this flooding. Floods in the river have been reported as far back as 1818. The largest flood on record occurred in 1955 which was estimated to have an annual exceedance probability (AEP) of around 1% and resulted in multiple fatalities and widespread damage (Photo 4.1). The most recent major flood events in the region occurred in February 1990 and June 2007.

The south arm of the Hunter River is the closest major water course to the Project Area and is some 200 metres away at its nearest point. Purgatory Creek crosses the very north of the Project Area. The creek flows away from the proposed Project Area to the Hunter River, crossing under the New England Highway, the existing rail corridor and Woodlands Close.

Due to the sites low level and flat profile, drainage of the area may also be problematic. There will be insufficient grade to drain via gravity under certain tidal conditions. Options for surface water storage, infiltration and/or pumping will be considered as part of the hydrological assessment.

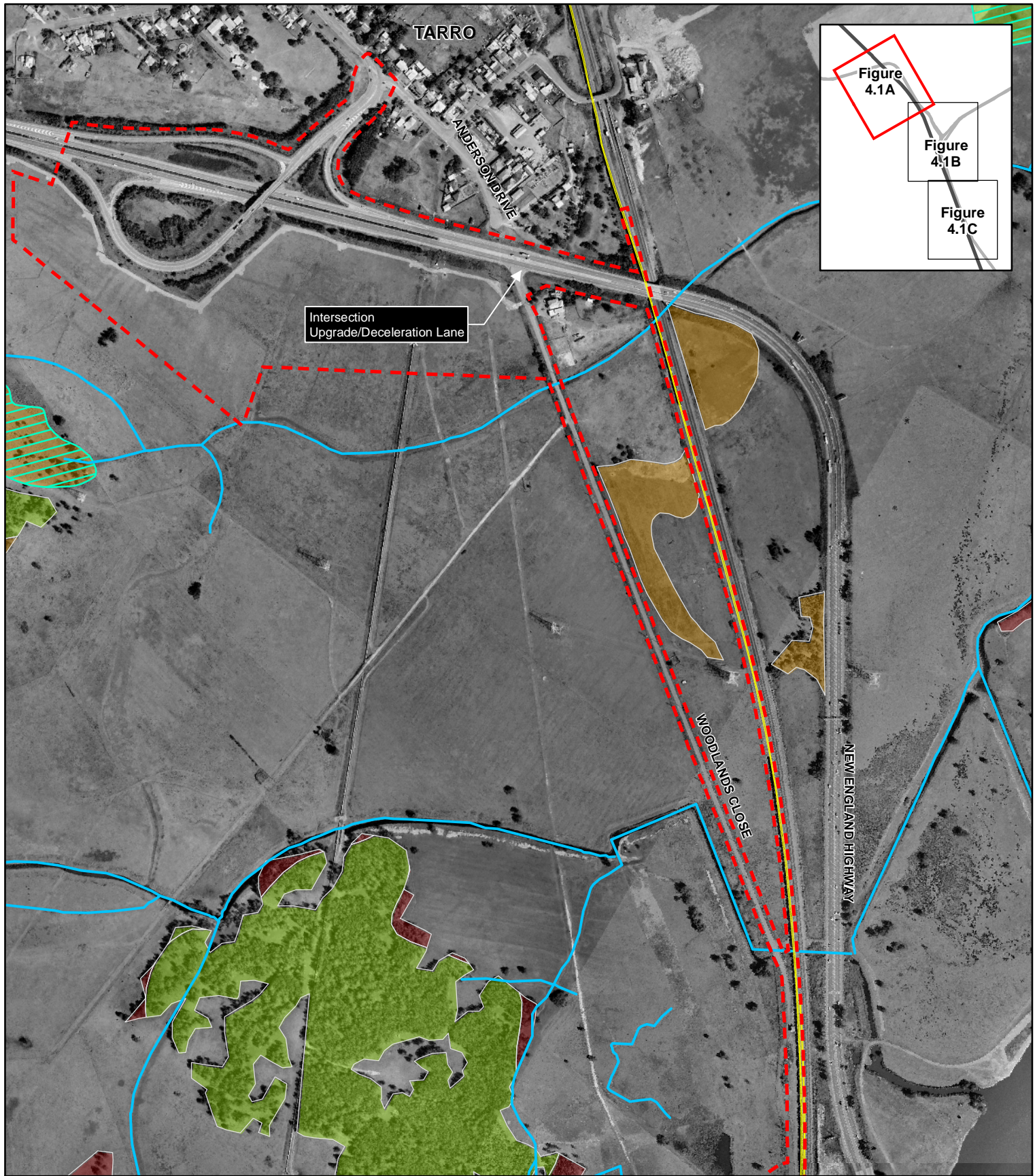
##### Previous Studies

###### Lower Hunter River Flood Study - Green Rocks to Newcastle

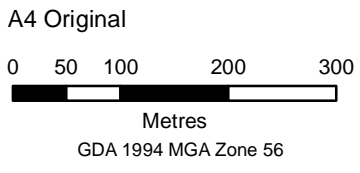
The Lower Hunter River Flood Study was undertaken by PWD in 1994 to provide Newcastle City and Port Stephens Councils with a flood management strategy. The study area was from Green Rocks to the Port of Newcastle on the Hunter River.

###### F3 to Raymond Terrace Pacific Highway Upgrade – Hydrology, Hydraulics and Water Quality Working Paper

In 2006, WBM Oceanics Australia produced a working paper to support the Pacific Highway upgrade road design options assessment undertaken for the RTA by Maunsell. The working paper took into account the impacts of the various road design options on flooding, local surface water drainage and water quality. The working paper included a review of historical flooding and previous flood modelling



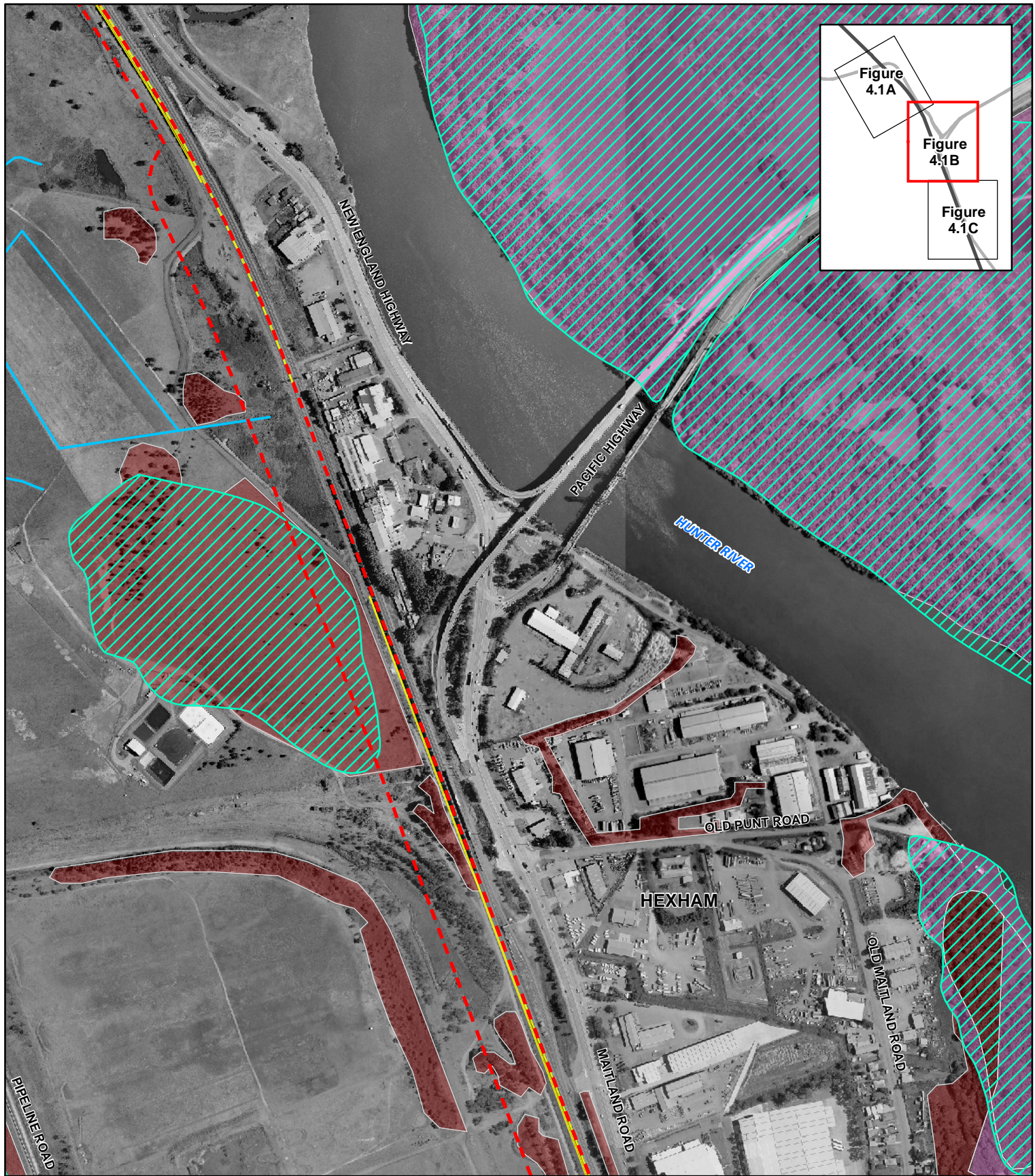
- Existing Alignment
- Drainage
- Project Area
- SEPP14 Wetland
- Freshwater Wetland Complex
- Mangrove-Estuarine Complex
- Swamp Mahogany - Paperbark Forest
- Swamp Oak Rushland Forest



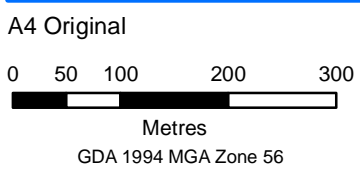
ARTC  
Hexham Relief Roads  
**Key Environmental Features**

Job Number	2110501A
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Scale	1:7,000

**Figure 4.1A**



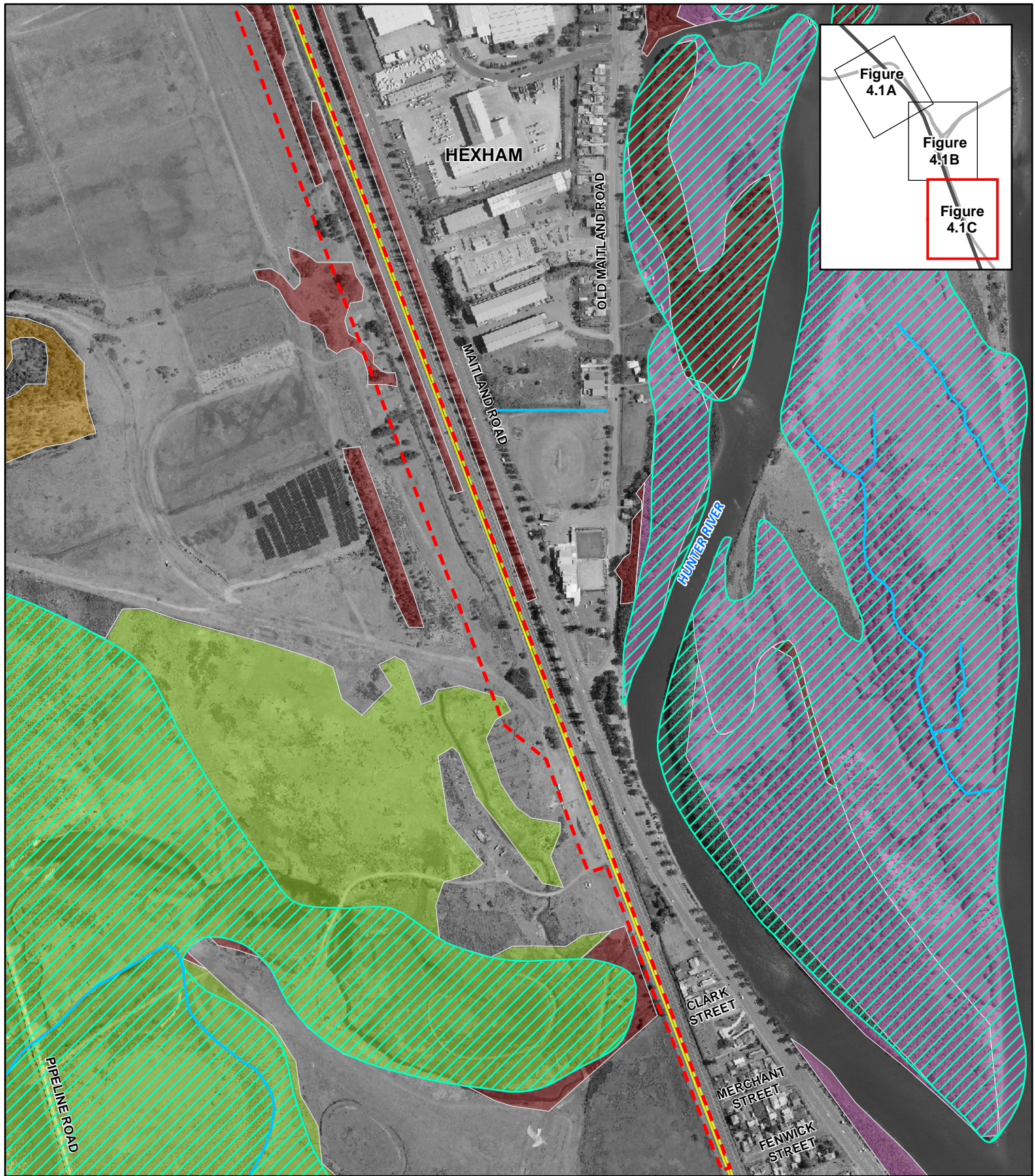
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- Project Area
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- Swamp Oak Rushland Forest



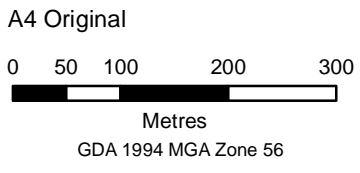
ARTC  
Hexham Relief Roads  
**Key  
Environmental  
Features**

Job Number	2110501A
Revision	A5
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Scale	1:7,000

**Figure 4.1B**



- Existing Alignment
- Drainage
- Project Area
- SEPP14 Wetland
- Freshwater Wetland Complex
- Mangrove-Estuarine Complex
- Swamp Mahogany - Paperbark Forest
- Swamp Oak Rushland Forest



ARTC  
Hexham Relief Roads  
**Key  
Environmental  
Features**

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Scale	1:7,000

**Figure 4.1C**

in the area. The study also contained an overview of current surface water drainage, water quality and consideration of the impacts on water quality and drainage as a result of varying road design options.

#### Newcastle Flood Planning: Stage 1 Concept Planning

BMT WBM prepared this document in July 2009. The document represents the stage 1 of a city-wide flood plan, and involves the development of a 'concept' flood strategy across the Newcastle Local Government Area. This strategy outlines the potential flood risk management measures, and flood risks 'hot spots' that should be assessed further as part of Stage 2 works.

#### Draft City-Wide Floodplain Risk Management Plan (2011)

The City of Newcastle has prepared a draft city-wide floodplain risk management plan for the Newcastle Local Government Area (LGA). The draft plan describes ways to manage and live with flash flooding in the urban areas, Hunter River flooding and sea level flooding (including long term sea level rise).

### **Potential Impacts**

During construction of the proposed Project, potential impacts on hydrology and water quality include:

- Review the existing flood studies for the area covered by the proposed Project.
- Carry out a two-dimensional hydraulic modelling of the site to assess the baseline flood conditions including depths of flooding, velocities across the site, flood hazard category, rate of inundation and available emergency access routes.
- Hydraulic modelling of the proposed Project to assess impacts (if any) on flooding of neighbouring properties and assets due to changes to ground levels and development of infrastructure on the site.
- Advise on design modifications to the proposed works to ameliorate exacerbation of flooding to neighbouring properties and assets.
- Provide recommendations on the likely requirements for further investigations resulting from the above.

### **Proposed Assessment Methodology**

Four studies will be undertaken in order to assess the impact of the proposed Project on hydrological conditions. These will include flood, groundwater, geomorphology and water quality assessments.

These assessments will consider the relevance of Commonwealth and State legislation, including the *Water Act 1912* and *Water Management Act 2000*.

#### Flood Assessment

The flood assessment will include the following key tasks (including the above):

- Review the existing flood studies for the area covered by the proposed Project.
- Hydraulic modelling of the site to assess the baseline flood conditions including depths of flooding, velocities across the site, flood hazard category, rate of inundation and available emergency access routes.
- Hydraulic modelling of the proposed Project to assess impacts (if any) on flooding due to changes to ground levels and development of infrastructure on the site.
- Provide recommendations on the likely requirements for further investigations resulting from the above.

#### Groundwater Investigation

The groundwater assessment will consider the different hydrogeological systems and potential impacts of the proposed Project, giving particular consideration to the proposed Project's proximity to the Hunter River and Hexham Swamp Nature Reserve. The groundwater investigation will include the following:

- Final ground levels and potential for gravity draining of some areas of the site.
- Additional storage within the drainage system (i.e. oversized channels) to allow for ‘tide locking’ of the site drainage system.
- Consideration of a pumped drainage system.
- Post flood management.

#### Geomorphology Assessment

A fluvial geomorphology assessment of watercourses on or adjacent to the site will be undertaken to identify potential impacts and pressures on channel integrity against the baseline characteristics which have clear linkages to other specialists assessments that will be completed as part of the preparation of the EIS. These may include:

- Environmentally sensitive or valuable aquatic habitats.
- Deterioration in macroinvertebrate/fish habitat and water quality.
- Current and future sediment sources to the channels.
- Geomorphological change over the design lifetime of the proposed Project. For example, channel change (e.g. widening or straightening) as a result of flooding leading to processes of erosion and/or deposition of sediments.

#### Water Quality

The water quality assessment will consider the potential impacts associated with construction and operation of the proposed Project. The mitigation measures proposed will address the risk posed by sedimentation, spillage of fuels and chemicals during construction and address issues to be included in the CEMP. An operational environment management plan will address issues relating to maintenance and drainage of the proposed Project once constructed.

### **4.1.2. Flora and Fauna**

#### **Existing Environment**

The land to be used for the proposed Project is mostly cleared and highly disturbed and as a result supports very little mature vegetation. However, some native vegetation remains within the proposed Project Area and in close proximity.

As discussed in Section 2, the proposed Project Area is located over a small portion of SEPP 14 Wetland to the north and a small section of SEPP 14 Wetland to the south. SEPP 14 Wetlands are also located on adjoining properties in proximity to the rail corridor and would support a variety of native flora and fauna species that should be assessed for their contribution to biodiversity in the area. Nearby Hunter Estuary Wetlands are listed as a declared Ramsar wetland site. The study area encompasses two separate components, being Kooragang Nature Reserve and Shortland Wetland Centre. The locations of the wetlands in relation to the proposed Project Area are shown in Figure 2.1.

Kooragang Nature Reserve covers the northern section of Kooragang Island and Fullerton Cove in the northeast of the estuary, and Shortland Wetland Centre occurs at the south-eastern end of the Hexham floodplain. The estuarine habitats represented within Kooragang Nature Reserve are considered to be of great foraging and roosting importance to migratory wading birds, which visit Eastern Australia from the northern hemisphere. Forty-five bird species that are listed under international migratory bird agreements between Australia and eastern Asian countries (JAMBA, CAMBA and ROKAMBA) have been recorded within the Kooragang Nature Reserve. A number of these federally listed migratory species also use freshwater wetland habitats occurring in the Hunter River Floodplain including the Hexham Floodplain.

An EPBC Act protected matters search identified the following resources present in the surrounding area:

- The Hunter Estuary Wetlands (of International Significance) which is 2 kilometres from the proposed site.
- One threatened ecological community: White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland.
- The following 10 threatened species or their habitat are likely to occur in the proposed project area:

#### Birds

- *Anthochaera phrygia* Regent Honeyeater;
- *Lathamus discolor* Swift Parrot; and
- *Rostratula australis* Australian Painted Snipe.

#### Frogs

- *Litoria aurea* Green and Golden Bell Frog

#### Mammals

- *Chalinolobus dwyeri* Large-eared Pied Bat, Large Pied Bat;
- *Dasyurus maculatus maculatus* (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population);
- *Potorous tridactylus tridactylus* Long-nosed Potoroo;
- *Pseudomys novaehollandiae* New Holland Mouse; and
- *Pteropus poliocephalus* Grey-headed Flying-fox.

#### Plants

- *Tetradlea juncea* Black-eyed Susan.

Small areas of the following species under the NSW *Threatened Species Conservation Act 1995* (TSC Act) have been identified during survey of the proposed Project Area:

- Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions;
- *Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregion*; and
- Coastal Saltmarsh in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions.

#### **Potential Impacts**

Clearing of native vegetation would be required within and adjacent to the existing railway corridor and the loss of this vegetation may impact on species, populations and ecological communities listed under the TSC Act and the Commonwealth *Environment Protection Biodiversity Conservation Act 1999* (EPBC Act). Potential temporary and permanent impacts and loss to fauna habitat may also result during both the construction and operation of the proposed Project. The risk of fauna fatalities may also be increased due to increased rail movements and the increased width of infrastructure needing to be crossed. Construction activities may also result in weed invasion that may contribute to the loss of biodiversity in the area. A noxious weed management plan would be required during the construction works and would be included as part of the Construction Environmental Management Plan (CEMP).

#### **Proposed Assessment Methodology**

The EIS will include detailed investigations to assess the potential impacts on flora and fauna and to identify appropriate and specific mitigation and management measures.

Flora and fauna investigations will be undertaken in accordance with the *draft Guidelines for Threatened Species Assessment* (DEC 2005) and the *Threatened Biodiversity Survey and*

*Assessment: Guidelines for Developments and Activities (Working Draft)* (DEC 2004). Assessment will include:

- Literature review and database searches to identify threatened species, populations and ecological communities with potential to occur.
- Compilation of lists of species recorded on-site.
- Detailed flora and fauna surveys to identify and confirm the presence of flora and fauna features of the proposed Project. This will include targeted surveys of potentially occurring threatened species, fauna habitat survey and floristic survey of vegetation communities and descriptions of the vegetation communities and fauna habitats occurring on-site.
- An assessment of potential impacts during construction and operation including loss of native vegetation, loss of fauna habitat and proliferation of weeds.
- Significance assessments for all threatened species, populations and ecological communities following the heads of consideration and the draft *Guidelines for Threatened Species Assessment under Part 3A (now Part 5.1)* (NPWS 2002) for listing under the TSC Act and the *EPBC Act Policy Statement 1.1 Significant Impact Guidelines* (DEC 2005).
- Preparation of assessments of significance for threatened species likely to occur on-site in accordance with Section 5A of the EP&A Act.

The proposed Project activities will be assessed to ensure an EPBC Act referral process is undertaken if required in relation to the federally listed Migratory species, the Green and Golden Bell Frog or other listed species.

A review of the *Fisheries Management Act 1994* following the aquatic survey will also be undertaken as part of the assessment to ensure that other relevant approvals are sought for the proposed Project.

### **Residual Impacts**

The flora and fauna assessment is expected to make recommendations regarding the preservation and protection of identified significant flora and fauna that may be affected by the proposed Project. Typically, this is implemented through ongoing investigation and mitigation during the construction process. It is expected that further investigations or activities which may be required will be identified in the mitigation measures specified in the assessment report and therefore there are not expected to be residual impacts remaining.

#### **4.1.3. Noise and Vibration**

##### **Existing Environment**

The nearest sensitive receivers to the proposed Project Area are residences situated on Old Maitland Road and off the Pacific Highway and commercial and agricultural land use adjacent to the site boundary. The proposed relief roads are separated from nearest residences by the Pacific Highway and Main Northern Railway, with nearest residential receivers located approximately 240 metres from the roads.

A residence on the corner of the New England Highway and Woodlands Close is approximately 70 metres from the existing rail corridor where signalling is proposed. The same residence is also approximately 20 metres from Woodlands Close and approximately 40 metres from the intersection of Woodlands Close and the New England Highway. The residence is located approximately 1.2 km from the proposed relief roads.

The existing day time (7am – 6pm) and evening (6pm – 10pm) noise environments at nearest receivers are expected to be dominated by noise from road traffic on the Pacific Highway, passenger and freight rail operations and commercial/ industrial activity.

Where road traffic flows and rail operations are reduced during the night time period (10pm – 7am), baseline noise levels at residential receivers are expected to be low ( $\leq 30$  dB(A) LA90) and representative of the most sensitive noise environment despite coal trains running continually.

Ground vibrations from construction or operation at the nearest receivers, located 300 metres from the proposed Project Area, and are not expected to be significant.

### **Potential Impacts**

The residence on the corner of the New England Highway and Woodlands Close is likely to be affected by any upgrade of that intersection for the proposed Project and by construction traffic.

Noise from the temporary construction works and future operation of the Relief Roads may be audible at other nearby residential receivers.

To minimise potential for disturbance feasible and reasonable noise management and mitigation measures to reduce and control noise impact, consistent with NSW Office of Environment and Heritage (OEH) guidelines, may be required

The implementation of noise management and mitigation will include potential control of source noise emissions, limiting off-site noise impacts through the planning and design of operations and consultation with the local community.

### **Proposed Assessment Methodology**

#### Baseline noise survey

To quantify the existing baseline noise levels and characterise the noise environment, a baseline noise survey will be undertaken at nearest residential dwellings and other noise sensitive receivers.

Prior to the commencement of the survey a review of aerial photography will be undertaken to identify key sensitive receivers and noise catchment areas. An initial site visit will be carried out to identify appropriate noise monitoring locations.

Baseline noise levels will be measured for a period of 1 week through unattended noise logging and short term attended measurements including the determination of existing operational rail noise (day, night and maximum noise levels). Measured noise data will be analysed and periods of unsatisfactory noise monitoring conditions such as extraneous noise or adverse meteorological conditions filtered from the datasets.

#### Noise and vibration criteria

Adopting the measured background (LA90) noise levels Project specific noise objectives for the assessment and management of potential construction impacts will be established with reference to the OEH (formerly Department of Environment, Climate Change and Water, DECCW) *Interim Construction Noise Guideline*, (ICNG, 2009).

The measured day time, night time (LAeq) and maximum (LAMax) existing rail noise levels will be applied to the OEH (DECCW) *Interim Guideline for the Assessment of Noise from Rail Infrastructure Projects* (IGANRIP, 2007) to assess operational rail noise triggers for residential and other noise sensitive receivers.

For the assessment of potential vibration impacts and management of perceptible (disturbance) and structural (damage) vibration issues, receiver specific vibration objectives will be established for construction works and train operations from the OEH (formerly Department of Environment and Conservation NSW) *Assessing Vibration: a technical guideline*.

#### Assessment of potential impacts

Referencing the Project concept design, potential noise impacts at sensitive receivers during construction and operation will be predicted utilising the SoundPLAN noise propagation software.

Construction impacts will be assessed for worst case noise generating works to assist in the management and mitigation of potential impacts.

Operational noise will be assessed for year of operation and up to 10 years post Project opening, based on available ARTC capacity modelling. The measured existing rail noise levels will be applied to the noise model to calibration noise impact predictions.

Potential vibration impacts will be assessed with reference to measured ground vibration levels from construction plant and freight train pass by events.

#### Reporting

A noise and vibration assessment report will be prepared for inclusion in the environmental assessment. The reporting will include:

- Description of the baseline noise environment and existing rail noise levels (LAeq,15hr and LAeq,9hr and 95th percentile LAMax).
- Measured baseline noise profiles including LAMax, LAeq, LA90, LA10 noise levels.
- Adopted noise objectives for construction and operational phases.
- Methodologies applied for the predictive assessment of noise impacts.
- Detailed predicted noise impacts at nearest receivers and surrounding land use.
- Discussion of potential noise impacts in consideration to the ICNG and IGANRIP guidelines.
- Recommendation of feasible and reasonable noise management and mitigation measures to reduce and control noise impacts where adopted noise objectives are predicted to be triggered.

#### **Residual Impacts**

Potential construction noise impacts may be audible at the nearest receivers and will be temporary during the construction program. Standard construction noise management and mitigation measures will be specified in the EIS and implemented during the construction works to limit potential off-site impacts.

Where a residual increase in operational rail noise is predicted and rail noise levels trigger IGANRIP noise objectives, a range of feasible and reasonable management and mitigation measures will be included in the EIS.

No off-site ground vibration impacts from construction or operational phases on the proposed Project are expected.

#### **4.1.4. Traffic Management**

##### **Existing Environment**

The surrounding regional and local road network includes the New England Highway (including the Tarro Interchange), Maitland Road and the Pacific Highway. The proposed Project Area can be accessed via Woodlands Close and Shamrock Street and the rail corridor.

The RTA has undertaken investigations to upgrade the Pacific Highway to provide the 'missing link' between the F3 Freeway south of John Renshaw Drive and the Raymond Terrace bypass. The upgrade involves a 15 kilometre dual carriageway upgrade of the Pacific Highway bypassing Heatherbrae. A design concept for the upgrade has been developed and this includes new bridges over Woodlands Close, the Main Northern Railway, the New England Highway and the Hunter River. Timing of construction depends on funding availability. Once this is determined, an EIS will commence and planning approval will be sought to allow construction to commence.

##### **Potential Impacts**

Construction traffic would be generated which would include heavy vehicles transporting ballast, railway sleepers, concrete and other construction materials and supplies.

Investigations are being undertaken for access to the proposed Project Area via the New England Highway and Woodlands Close intersection. Access via an upgrade to the Tarro Intersection is also being considered.

Property access arrangements to some properties may be affected.

The location of access roads and property access arrangements will be included in the scope of the EIS (including safety considerations).

### **Proposed Assessment Methodology**

The EIS will document the likely haulage routes to be used and the upgrades of local roads required as well as confirm the likely haulage volumes and period within which haulage will be undertaken. Local road conditions will be assessed as part of the concept and detailed design process to ensure that safety is maintained. Road intersection or infrastructure upgrades required will be determined as part of this process.

The RTA and other infrastructure owners will be consulted as part of the EIS.

### **4.1.5. Topography, Geology and Soils**

#### **Existing Environment**

The proposed Project Area is located approximately 200 metres from the Hunter River and is close to SEPP 14 and RAMSAR Wetlands, including the Hunter Estuary Wetlands and Hexham Swamp. The proposed Project Area and adjoining lands were created by the filling of wetlands of Hexham Swamp, including small watercourses. The topography of the proposed Project Area is flat in keeping with this coastal environment.

Acid sulfate soils (ASS) are acidic soil layers rich in iron sulfide; primarily pyrite. They generally occur in low lying areas in and around coastal swamps, estuaries and other coastal water bodies. When excavation or drainage brings these soils into contact with oxygen, the pyrite is oxidised to form sulfuric acid. If the amount of acid exceeds the neutralising capacity of the soil, and the pH falls below 4, the soils are known as actual ASS. Acid can run off these soils during rainfall, scalding vegetation and killing aquatic fauna. ASS may also react with concrete and steel infrastructure.

The proposed Project Area has been identified as being in land that is within Class 2 of the 'Potential Acid Sulphate Planning Map' of the Newcastle LEP. Class 1 has the highest possibility of ASS and Class 5 the least. For Class 2 lands, an assessment of the possibility of ASS is required to be undertaken for works below ground surface and works by which the water table is likely to be lowered.

#### **Potential Impacts**

The proposed works would not result in change to the local topography as the tracks would be at a similar grade as the existing railway infrastructure.

Clearance of some vegetation and disturbance of soils has the potential to result in erosion and sedimentation unless measures are implemented to protect receiving waterways.

Acid could run off ASS during rainfall, scalding vegetation and killing aquatic fauna and may also react with concrete and steel rail infrastructure.

### **Proposed Assessment Methodology**

A detailed investigation of the site soils will be undertaken as part of the Geotechnical Investigation undertaken for the proposed Project. This study will include the following:

- Borehole logs including descriptions of physical and chemical characteristics of soils including salinity, erodibility, and ASS;
- Likely impacts on site soils from the proposed Project; and
- Mitigation measures to minimise potential for erosion, soil instability and ASS impacts.

#### 4.1.6. Non-Indigenous Heritage

##### Existing Environment

Register searches were conducted and there were no Commonwealth or NSW State Heritage items identified within the proposed Project Area. A referral under the *Environment Protection and Biodiversity Conservation Act 1999* is therefore not required to be sought to alter, move or damage any part of a Commonwealth item. Assessment and approval of the impact of a project to a NSW State Heritage item by a project declared under Part 5.1 of the EP&A Act is assessed and approved under that part rather than the *Heritage Act 1977*. As there are no NSW State Heritage items within the Project Area, no assessment is required in the EIS and approval is not required to be sought under Part 5.1.

There is a local item of heritage value within the proposed Project Area listed under the Newcastle LEP. This item is the former Minmi to Hexham Railway and has been described in the Newcastle LEP as being of 'State significance'. The embankment of the former railway is still visible in the landscape and on aerial photographs and is approximately 8.2 kilometres in length. The former railway travels perpendicular from the Main Northern Railway through the proposed Project Area west to the Newcastle suburb of Minmi.

There are also 12 properties listed under the LEP within the suburb of Hexham. All of these items occur within approximately 200 metres of the proposed works.

##### Potential Impacts

Direct or indirect disturbance to items of heritage significance during construction or operation is possible given the results of searches already undertaken, in particular the former Minmi to Hexham Railway. Updated register searches will be undertaken and documented in the EIS and correlated with the observations during site inspections. Precautionary measures will be documented in the Statement of Commitments.

##### Proposed Assessment Methodology

The following key tasks will be undertaken to assess the non-Indigenous heritage impacts associated with the proposed Project:

- Review of existing data (such as the Heritage Office State Heritage Inventory and Newcastle LEP) for records of known heritage sites and issues.
- Field investigations of the investigation corridor (with a focus on registered heritage items) by archaeologists.
- Provide input to design team on significance of the heritage items and issues associated with impacting on the items.
- Prepare a report/ reports assessing the significance of identified and affected items, the significance of any impacts and recommending mitigation measures.

##### Mitigation and Management

The Heritage Act includes precautions and stop work provisions where items of heritage significance are uncovered as part of the construction process. For identified sites, dilapidation surveys may be carried prior to and following construction where necessary. Vibration monitoring may also be necessary during construction activities for these structures.

## 4.2. Other Issues

### 4.2.1. Indigenous Heritage

#### Existing Environment

The traditional owners of the land and waters covered by Newcastle LGA are the Awabakal and Worimi peoples. A search of the OEH Aboriginal Heritage Information Management System (AHIMS) database has been conducted in the preparation of this report. The search identified no known Indigenous sites and no Indigenous places within the proposed Project Area or 50 metres from the proposed Project Area.

#### Potential Impacts

The land on which the proposed Project would be developed has been substantially modified and disturbed by previous infrastructure development, railway operations, industrial and agricultural activities. The absence of sites in the specific area of the proposed Project is not generally conclusive as to the potential level of impact which may result as the location of potential archaeological deposits and other indigenous objects, sites and places may be currently unknown.

#### Proposed Assessment Methodology

An indigenous heritage assessment will be undertaken as part of the EIS following consultation and identification of traditional land owners. The assessment will identify the presence of indigenous artefacts or places to determine the significance of potential impacts and where necessary, provide appropriate mitigation measures. The work will be guided by and will adhere to the relevant NSW Government guidelines including the OEH (previously DECCW) *Aboriginal cultural heritage consultation requirements for proponents* (DECCW, 2010).

The following key tasks will be undertaken as part of the assessment:

- Review the records of known Aboriginal heritage objects and places, including the results of the AHIMS database search;
- Identify Aboriginal stakeholders with an interest in the proposed Project;
- Undertake field investigations of the study area with an archaeologist and representative(s) of registered Aboriginal stakeholders; and
- Complete an impact assessment that identifies the significance of impacts on Aboriginal objects or places and provides recommended mitigation measures.

As Aboriginal people are the primary determiners of cultural heritage, the cultural significance of the Project area will also be sought from Aboriginal stakeholders registered for the Project during consultation for the assessment.

#### Residual impacts

The indigenous heritage assessment is expected to make recommendations regarding the preservation and protection of indigenous heritage places or objects identified which may be affected by the proposed Project. Typically, this is implemented through ongoing investigation and mitigation during the construction process. It is expected that further investigations or activities which may be required will be identified in the mitigation measures specified in the assessment report and agreed with the Aboriginal stakeholder groups and therefore there are not expected to be residual impacts.

### 4.2.2. Contaminated Land and Hazardous Materials

#### Existing Environment

There are no contamination notices for the proposed Project Area or surrounding areas in DECCW's Contaminated Land Record. No signal huts or other trackside structures are proposed to be altered or

demolished as part of the proposed works. However, the potential for contaminated land to exist within the rail corridor is high as a result of past industrial activities.

The land to the immediate west of the rail corridor, some of which is within the proposed Project Area, has been subject to a Stage 1 Preliminary Contaminated Site Investigation. This investigation has revealed that it is unlikely that past activities have resulted in significant contamination. The site was previously used as a coal washing and stockpiling area and there is no evidence that the site was used for mechanical repairs, maintenance or locomotive storage.

### **Potential Impacts**

It is possible there are residual contaminants in railway ballast materials and soils within and adjacent to the railway from railway operations and maintenance activities and from other sources such as the storage and use of pesticides; storage and fuelling of machinery and the use of asbestos cement pipes in irrigation. There is also the potential of contamination on land to the immediate west of the rail corridor within the proposed Project Area and off-site contamination from the industrial site adjacent to the Pacific Highway and rail corridor. These sources may present a hazard to construction workers or others through dermal (skin) contact, ingestion and inhalation.

### **Mitigation and Management**

If it is proposed to remove railway ballast or soils from the proposed Project Area, samples would be taken to establish the level of contamination that exists and the suitability of the material for off-site use or disposal. Sampling would be undertaken in accordance with OEH's (previously DECCW's) *Guidelines for Consultants Reporting on Contaminated Material* and classified in accordance with OEH's (previously DECCW's) *Waste Classification Guidelines*.

A risk assessment would be included in the CEMP and be undertaken by the contractor prior to works commencing. This would include contingency events, the outcomes of contamination investigations undertaken as well as a general watching brief to be undertaken by workers. The use of personal protective equipment to be worn by workers would also reduce potential exposure concerns.

## **4.2.3. Visual**

### **Existing Environment**

The proposed Project will be visible from the Pacific and New England Highways and from the Main Northern Railway adjacent to the site. Given the flat topography of the proposed Project Area and the surrounding area, it is considered that the proposed Project would not be prominent from distant view points.

### **Potential Impacts**

The proposed works are unlikely to result in a substantial change to the visual amenity of the area. The majority of the proposed works are located within the existing rail corridor or adjoining the rail corridor in an area dominated by existing industrial development and rail infrastructure. The overall visual impact of the proposed Project would be low, due to:

- The key elements of the proposed Project, being consistent with the existing infrastructure, would represent an incremental increase rather than a substantial new element in the landscape. The new infrastructure would also adjoin the existing railway corridor.
- Relatively limited amount of earthworks and vegetation removed.
- There being limited near field residential or external viewpoints to the rail corridor.

Temporary visual impacts may result from the construction works/ compounds and other construction facilities used. Clearing of native vegetation may add to the perception of visual changes. These changes would be temporary however as the land would be rehabilitated at the conclusion of construction and more gradually over time.

## **Mitigation and Management**

The mitigation measures to reduce potential adverse visual impacts will centre upon progressive stabilisation/ rehabilitation of areas as soon as is practical.

### **4.2.4. Air Quality**

#### **Existing Environment**

The proposed Project is located adjoining wetlands, industrial areas, a working railway and the Pacific Highway. Key characteristics of local air quality are likely to be elevated levels of dust arising from these sources.

#### **Potential Impacts**

Dust would be generated by construction works particularly bulk earthworks and the movement of construction vehicles on unsealed roads or roads overlain with silt or dirt. Emissions from diesel locomotives would also increase as a result of commissioning and the future growth in rail traffic, although given the remoteness of sensitive receivers, no exceedances of criteria or changes in air quality are expected to be observable.

#### **Mitigation and Management**

Construction dust emissions would be controlled through the application of standard mitigation measures such as covering all loads, ensuring roads are routinely swept (if sealed) or construction roads are liberally watered to reduce dust. Fugitive coal dust emissions from locomotives would be controlled in accordance to the ARTC's EPL. All mitigation measures proposed will be included in the Statement of Commitments.

### **4.2.5. Waste Minimisation**

#### **Potential Impacts**

The majority of waste would be generated during the construction phase. The *Waste Avoidance and Resource Recovery Act, 2001*, the *Protection of the Environment Operations Act, 1997* and relevant regulations and industry guidelines would be used to classify, determine measures for handling, determine storage requirements and appropriate disposal options.

#### **Mitigation and Management**

Mitigation measures included in the EIS will include the preparation of a Waste Management Plan as part of the CEMP with a focus on waste reduction and avoidance and recycling and reuse of construction packaging and office wastes.

### **4.2.6. Energy Efficiency and Greenhouse Gases**

#### **Potential Impacts**

Greenhouse gas (GHG) emissions would be generated during the construction phase associated with the combustion of fossil fuels in both stationary and mobile construction plant, equipment and vehicles and clearance of vegetation. Additionally, electricity used in offices is another source of greenhouse gas emissions. Embodied energy in construction materials used would also generate increased greenhouse gas emissions.

The proposed Project would improve the efficiency of coal train movements and reduce waiting (idling) times.

#### **Mitigation and Management**

Opportunities to reduce GHG emissions during both construction and operational phases will be included in the EIS.

#### 4.2.7. Planning, Land Use and Property

##### Existing Environment

The majority of the proposed Project is within the existing Main Northern Railway corridor which is within the 5(a) Special Uses Zone (Transport). Other areas adjacent to the railway corridor are zoned:

- 4(a) Port and Industry Zone;
- 4(b) Steel River Zone;
- 6(a) Open Space and Recreation Zone;
- 7(b) Environmental Protection Zone; and
- 8(a) National Parks Zone.

These zones reflect the current use of the land, i.e. rail, industry, open space and areas of land protected and reserved for their environmental significance.

There is a local item of heritage within the proposed Project Area listed under the Newcastle LEP. This item is the former Minmi to Hexham Railway and has been described in the Newcastle LEP as being of state significance. The embankment of the former railway is still visible in the landscape and on aerial photographs and is approximately 8.2 kilometres in length. The former railway travels perpendicular from the Main Northern Railway through the proposed Project Area west to the Newcastle suburb of Minmi.

##### Potential Impacts

Land adjoining the railway will need to be permanently acquired and incorporated into the rail corridor. Additional temporary land leases may also be required for construction purposes and environmental management measures.

The proposed Project may result in the disturbance of a section of the former Minmi to Hexham Railway. The EIS will include an assessment of the impact that the proposed Project may have to the item, the significance of impact and recommend mitigation measures where appropriate.

##### Mitigation and Management

Land permanently acquired for the proposed Project would be conducted in accordance with the Land Acquisition (Just Terms Compensation) Act, 1991 if direct negotiations with the land owners are not successful.

Where possible, temporary lease areas will be identified in the EIS or criteria used to guide future site selection provided.

A list of affected properties will be compiled and included in the EIS and land owners consulted as part of the EIS consultation process.

#### 4.2.8. Social Impact

##### Potential Impacts

The proposed Project would result in a long term, economic benefit in relation to the increased capacity and efficiency of coal trains on the Hunter Valley Coal Lines. The construction of the proposed Project would also result in direct employment opportunities and benefit local and regional service providers.

Temporary social impacts may be sustained during the construction phase as a result of disruption of access, land acquisition and increased traffic movements.

##### Mitigation and Management

The EIS will document the potential social benefits and impacts of the proposed Project and measures to enhance the benefits, where possible.

#### **4.2.9. Cumulative Impacts**

##### **Potential Impacts**

Queensland Rail National Coal (QRNC) has submitted a PEA for a Train Support Facility (TSF), a potential intermodal freight precinct and an industrial subdivision for related and unrelated land uses. The purpose of the TSF is to service QRNC's growing Hunter Valley coal freight business. This proposal is adjacent to the proposed Project Area. The ARTC and QRNC have, and continue to, discuss design and operational interaction between the two potential projects. The EIS will identify and assess cumulative impacts, in particular with regard to construction scheduling, traffic, interaction with existing infrastructure, noise and air quality.

##### **Mitigation and Management**

The EIS will present the spatial and temporal environmental effects from the QRNC proposal and where required, mitigation measures will be documented in the EIS.



## 5. Stakeholder Consultation

A community consultation and stakeholder engagement plan will be developed and implemented for the proposed Project to identify key objectives and outcomes of consultation activities with the community, stakeholders and government agencies. Community and stakeholder engagement will commence prior to and during the preparation of the EIS so that all issues are detailed and considered. This would ensure that stakeholder requirements are accurately captured and considered in the detailed design and mitigation measures.

ARTC propose to undertake an appropriate level of consultation with relevant communities and stakeholders including:

- Department of Planning and Infrastructure (including the Hunter Regional Office);
- Office of Environment and Heritage;
- Hunter Central Rivers Catchment Management Authority;
- Transport for NSW (previously the RTA, NSW Maritime, the Transport Construction Authority, Railcorp and the Country Rail Infrastructure Authority);
- Department of Trade & Investment, Regional Infrastructure and Services;
- Department of Sustainability, Environment, Water, Population and Communities;
- Service and infrastructure providers including Queensland Rail National Coal and Pacific National;
- Special interest groups including the Local Aboriginal Land Council and Aboriginal stakeholder groups;
- Newcastle City Council;
- Hunter Water Corporation;
- Business Interest Groups;
- Transport and Emergency Services; and
- The community, including all potentially affected landowners and businesses.

Consultation requirements for the proposed Project will be outlined in the EIS requirements provided by the Director-General of the Department of Planning and Infrastructure (the Department). The above list is preliminary. Where additional stakeholders become apparent during the preparation of the EIS, appropriate consultation will be undertaken and documented within the EIS.

To ensure an appropriate level of consultation, the community consultation and stakeholder engagement plan would include the following:

- Confirmation of the aims of community consultation for the EIS as required by the Department as per the Director General's Requirements;
- Identification of affected (directly and indirectly) stakeholders;
- Outline the activities and techniques proposed to effectively engage the community and stakeholders to raise awareness and identify issues;
- Establishment the scope and responsibility for consultation with the stakeholders from within the proposed Project's team;
- A planning focus meeting;
- Provision of a website, email address and telephone information line for enquiries;
- A letter to stakeholders introducing the proposed Project and providing details regarding the provision of the website, email address and telephone information line for enquiries;
- Continued liaison with stakeholders; and
- Consultation including one on one meetings with impacted owners and key stakeholders.



All consultation materials prepared by UHVA would provide accurate and timely information on the proposed Project's objectives, EIS process, study outcomes and construction activities, with a view to maintaining stakeholder and community confidence during all phases of the proposed Project.

## 6. Environmental Impact Statement

The EIS report will have a structure similar to the following:

- An Executive Summary;
- A review of the relevant NSW and Commonwealth legislation and approvals;
- Strategic and project justification, including an outline of the options assessment process undertaken;
- A detailed description of the proposed Project which includes:
  - Project area and corridor investigated;
  - Key design elements;
  - Construction methods and outline program;
  - Description of ancillary facilities; and
  - Outline of land requirements.
- An updated environmental risk assessment;
- An assessment of the key environmental and community issues including description of the existing environment, methodology and approach, standards and guidelines adopted, an assessment of impacts resulting from both construction and operation of the proposed Project (as relevant) and a description of the measures to avoid, reduce, manage and monitor expected impacts and residual impacts;
- An assessment of cumulative impacts;
- A draft statement of commitments;
- Certification by the author that the information contained in the EIS is neither false nor misleading; and
- Appendices which contain detailed information relevant to the EIS including specialist studies reports.



## References

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- ARTC, 2011, 2011-2020 Hunter Valley Corridor Capacity Strategy Consultation Document.
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