Australian Rail Track Corporation

Maitland to Minimbah Third Track Project

Submissions Report including Preferred Project Report

September 2010

H8R-REP-S2G-ENV-0019-0

Part C Preferred Project

Migratory Species

No migratory species listed on the EPBC Act were recorded during field surveys.

A number of other migratory species have potential to occur in the investigation area, at least on an occasional basis, and are identified in the Supplementary Terrestrial Fauna Impact Study in Appendix C.

6.2.3 Impact Assessment

Vegetation Removal

As discussed in Section 6.1.3 of this report, the revised construction impact zone has resulted in an overall increase in the vegetation clearing totals that were outlined in the Flora and Aquatic Ecological Assessment (Appendix E of the Environmental Assessment).

The removal of vegetation would result in a decreased potential foraging area and a reduction in potential roosting and nesting sites for woodland, grassland, wetland and farm dam species. The removal of vegetation would also increase the level of local habitat fragmentation by a small degree and increase the potential impacts of edge effects by a similar degree. Where vegetation would be removed, remaining woodland remnants would decrease in size by a small degree and the resulting change in ratio of edge to area of remnant would increase edge effects.

The loss of some areas of vegetation associated with the Project would decrease the extent of fauna habitat available within the investigation area. However given the relatively small area of habitat to be removed within a long investigation area and the availability of nearby similar or better quality habitat it is not expected that the removal of vegetation would greatly impact any of the non-listed fauna species.

Removal of riparian vegetation would increase the degree of fragmentation and edge effects of riparian habitat areas due to the relatively narrow and linear nature of such habitats within the study locality.

Construction and Operational Potential Impacts

Section 10.3 of the Environmental Assessment discusses the potential impacts to fauna species associated with construction activities and operation of the third track. The proposed amendments to the Project would not alter the potential impacts or increase the likelihood of the impacts.

Threatened Species Conservation Act 1995 (TSC Act)

This assessment addresses the potential effects of the Project on threatened fauna species or their habitats according to Appendix 3 of the Draft Guidelines for Threatened Species Assessment under Part 3A of the *Environmental Planning and Assessment Act* 1979 (DECC and DPI, 2005). Threatened fauna species known or with potential to occur within the study area are in Table 6-3 above.

The potential impact of the Project on the eight threatened species listed on the TSC Act is assessed via 7-part test in Section 6.4.1.4 of the Supplementary Terrestrial Fauna Impact Study in Appendix C.

Following an assessment of the potential impacts of the Project it was found that the Project is unlikely to significantly impact upon the eight threatened species listed under the TSC Act and one threatened species listed under the EPBC Act (Table 6-3) identified with potential habitat in the revised investigation area and listed on the TSC Act.

The implementation of mitigation measures recommended in Section 6.2.4 and the development of a Compensatory Habitat Strategy, in consultation with DECCW, would further reduce the level of potential impact on threatened fauna species and their habitats and would effectively address Action 2 of the of the Draft National Recovery Plan for the Grey-headed Flying Fox.

Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)

With regard to fauna, the only matters of national environmental significance (NES) relevant to the revised investigation area are nationally listed threatened species and migratory species. The only species that occurs or could potentially occur within the revised investigation area and are subject to assessment pursuant to the Act is the Grey-headed Flying-fox (*Pteropus poliocephalus*), which is vulnerable under the EPBC Act.

The relevant criteria given in the administrative guidelines for the Act to determine whether the action will or is likely to have a significant impact on nationally threatened species' is provided in Section 6.5 of the Supplementary Terrestrial Fauna Impact Study in Appendix C.

Following an assessment of the potential impacts of the Project it was found that the Project is unlikely to significantly impact upon any local population of the one threatened species listed on the EPBC Act.

6.2.4 Mitigation Measures

Section 7 of the Terrestrial Fauna Impact Assessment (Appendix F of the Environmental Assessment), outlines mitigation measures recommended to mitigate fauna impacts of the Project. The principles underlining the mitigation measures for the project are considered appropriate and transferable to the revised construction impact zone. No further mitigation measures other than those outlined in Section 7 of the Terrestrial Fauna Impact Assessment (Appendix F of the Environmental Assessment), are required.

There is the potential for direct and indirect ecological impacts to occur as a result of the Project. While many of these impacts can be minimised through avoidance or management, there are some impacts that cannot be adequately mitigated on site. To address these impacts, ARTC would implement a Compensatory Habitat Strategy, in consultation with DECCW, to further mitigate impacts and contribute to the maintenance and improvement of local and regional biodiversity values. This would effectively address Action 2 of the Draft National Recovery Plan for the Grey-headed Flying Fox.

The implementation of mitigation measures and the development of a Compensatory Habitat Strategy would further reduce the level of potential impact on fauna species, habitats and biodiversity.

6.3 Aboriginal Heritage

This section identifies the potential changes to impacts to Aboriginal heritage associated with the Project. It also discusses any additional management measures proposed to reduce these potential impacts. A detailed assessment on Aboriginal heritage is currently underway.

This assessment is based on the revised construction impact zone as shown in Figure 5.2 of this report.

6.3.1 Methodology

The revised construction impact zone includes areas outside of the original investigation area of the Environmental Assessment. Additional Aboriginal heritage field investigations were undertaken with representatives of the local Aboriginal community to assess the presence of, and potential for, Aboriginal heritage relics and areas of cultural significance in these areas. These additional field investigations also assessed locations that were potentially considered for inclusion in the Project but excluded due to environmental, design, construction or other constraints.

The additional investigation areas were surveyed consistent with the methodology outlined in Chapter 5 of the Aboriginal Heritage Impact Assessment (Appendix G of the Environmental Assessment).

The additional investigation areas were surveyed 16 to 18 June 2010 and 28 to 30 June 2010. The original investigation area and additional investigation areas make up the revised investigation area.

6.3.2 Existing Environment

The majority of revised construction impact zone areas are either within the original investigation area or in a narrow strip (approximately 10 metres) directly adjacent to the original investigation area. Therefore the topography and site conditions are generally consist with that of the original investigation area.

Larger areas within the revised construction impact zone that are not consistent with such conditions are limited to:

- The proposed construction compounds at Shipley Drive, Rutherford and Allandale Road, Allandale.
- The proposed increase in the area of the construction compound at Hermitage Road, Belford.
- Potential borrow pits, screening mounds and spoil disposal areas along the corridor.

6.3.3 Impact Assessment

As previously noted, the additional investigation areas were surveyed 16 to 18 June 2010 and 28 to 30 June 2010. The original investigation area and additional investigation areas make up the revised investigation area.

Analysis of the results of the additional investigations, and the assessment of the potential impacts of the revised construction impact zone on any Aboriginal heritage relics or areas of cultural significance, is currently underway.

However, based on the predictive modelling included in the Aboriginal Heritage Impact Assessment (Appendix G of the Environmental Assessment) and the results of the assessment, any relics within the additional investigation areas are likely to be either artefacts scatters (generally anywhere, but more likely along higher order watercourses and adjacent low gradient simple slopes and crests), and grinding grooves (potentially within sedimentary bedrock along watercourses). Areas of cultural, mythological or traditional significance would only be identified following consultation with the local Aboriginal community.

6.3.4 Mitigation Measures

It is anticipated that implementation of the mitigation measures included in Section 12.4 of the Environmental Assessment and incorporated into the Statement of Commitments would also mitigate the impacts on any Aboriginal heritage relics identified within the additional investigation areas.

The results of the field investigations, impact assessment and consultation with the local Aboriginal community undertaken as part of the assessment of the additional investigation areas would be documented and provided to the Department of Planning and the Department of Environment, Climate Change and Water (DECCW) for review.

In the event that the impact assessment and consultation with the local Aboriginal community identifies relics or significant areas that require specific mitigation and management measures, these would be incorporated into the Aboriginal heritage Management Plan that would be developed prior to the commencement of construction activities that could impact on Aboriginal heritage relics or significant areas.

6.4 Non-Indigenous Heritage

This section identifies the potential changes to impacts to non-indigenous heritage associated with the Project. It also discusses any additional management measures proposed to reduce these potential impacts.

This assessment is based on the revised construction impact zone as shown in Figure 5.2 of this report and the proposed staging of construction described in Section 5.2 of this report.

6.4.1 Existing Environment

Non-Indigenous Heritage

Section 13.2.1 of the Environmental Assessment describes the non-indigenous heritage items located within or in close proximity to the Project and the revised construction impact zone.

The former Greta Migrant Camp is listed as a local heritage item under the Cessnock Local Environmental Plan 1989. However, it is not listed as such via a search of the Department of Planning (Heritage) website. Therefore it was omitted from the Non-Indigenous Heritage Impact Assessment (Appendix H of the Environmental Assessment). It should be noted that this property is the subject of a development approval issued by Cessnock City Council for residential and mixed use development (discussed further in Section 6.5).

A submission on the Environmental Assessment from the Department of Planning commented on the lack of information on the Branxton Railway Station Group Movable Relics, which is listed on the State heritage Register. These relics are not located at the Branxton Station or the Main Northern Railway corridor, but rather located on private property adjacent to the rail corridor, and not impacted by the Project.

Natural Heritage

Section 13.2.2 of the Environmental Assessment notes the Allandale Area, a natural heritage site listed under the Commonwealth Environment *Protection and Biodiversity Conservation Act* 1999 and on the Register of the National Estate.

6.4.2 Impact Assessment

Non-Indigenous Heritage

The revised Project and design and construction impact zone would not amend the potential impacts on non-indigenous heritage described in Section 13.3 of the Environmental Assessment.

The Project would require a strip acquisition from part of the property containing the former Greta Migrant Camp. The Project would avoid disturbance of areas where remnants of the camp are located. The approved master plan for development of the site indicates that remnants would be disturbed by the site development.

The Hunter 8 Alliance has been regularly liaising with Railcorp with regards to the proposed modifications at the affected stations (including Branxton and Greta). However, given the changes to phasing of the Project only Lochinvar Station would be affected by Phase 1.

The Hunter 8 Alliance is currently working with Railcorp towards an outcome that reflects the issue raised in the submission by Railcorp, such that the modifications at Lochinvar Station are agreed between Railcorp and ARTC especially relating to:

- Maintaining continuous and safe access during construction.
- Reinstating access in the final arrangement that satisfies Railcorp standards and its obligation to continue its implementation of its accessible Transport Action Plan for NSW.

Under the DSAPT and Action Plan the Government (Railcorp) is progressively upgrading rail infrastructure to provide accessible public transport. Negotiations with Railcorp are primarily undertaken by ARTC (a member of the Hunter 8 Alliance) and the CEO's of both organisations have recently nominated two senior managers to lead the discussions (which obviously includes stations outside the project area).

The Hunter 8 Alliance believes that these negotiations should be allowed to continue after issuing of the Project Approval, which is consistent with the submission of both Railcorp and NSW Transport.

Upon agreement between Railcorp and the Hunter 8 Alliance on the Lochinvar Station modifications, the agreed design would be submitted to the Department of Planning for approval (as a condition of the Minister's Conditions of Approval) prior to any works commencing on the Lochinvar Station.

As previously discussed, modifications to Greta and Branxton Stations would be deferred as part of the Phase 2 constructions activities. The timing of Phase 2, and therefore any modifications to the stations required for construction of the third track, is to be determined.

The Hunter 8 Alliance believes that a similar condition be applied to Phase 2 stations (Greta and Branxton) in that agreed plans (between ARTC and Railcorp) would be required to be submitted for approval (with consideration to DSAPT and Action Plan, *Disability Discrimination Act* 1992 and the *Heritage Act* 1977) before construction could begin.

Natural Heritage

The proposed amendments to the Project do not include changes to the earthworks design through the Allandale Area. Therefore the potential impacts have not changed.

6.4.3 Mitigation Measures

Non-Indigenous Heritage

In addition to the mitigation measures proposed in Section 13.4 of the Environmental Assessment, the Hunter 8 Alliance and ARTC would implement the following with regard to protection of non-indigenous heritage at the Greta and Branxton Railway Stations:

- Prior to commencement of construction of Phase 2 of the Project the ARTC would consult with Railcorp and the Department of Planning (Heritage) to develop station designs that comply with the requirements of the DSAPT and Action Plan, Disability Discrimination Act 1992 and the Heritage Act 1977.

Natural Heritage

The mitigation measures included in Section 13.4 of the Environmental Assessment would remain applicable for mitigating the potential impacts on the Allandale Area.

6.5 Land Use

This section identifies the potential changes to impacts to land use associated with the Project. It also discusses any additional management measures proposed to reduce these potential impacts.

This assessment is based on the revised construction impact zone as shown in Figure 5.2 of this report.

6.5.1 Methodology

The revised construction impact zone includes areas outside of the original investigation area of the Environmental Assessment. In some sections the construction footprint has reduced and therefore the physical impacts and acquisition requirements have also been amended. However in other areas the construction impact zone has increased.

This assessment also takes into consideration changes to the development approval status of some properties directly impacted by, or adjacent to, the Project. Such changes have become apparent through consultation with councils and landholders, and reviews of submissions to the Environmental Assessment.

6.5.2 Existing Environment

The key changes to the existing land use environment within the Project area from that described in Section 14.2 of the Environmental Assessment relate to development approval of the following:

- Proposed service station and tourist development at the southeastern corner of the New England Highway and Hermitage Road adjacent to the Up side of the Main Northern Railway at chainage 223.300 and 223.700 kilometres.
- Proposed residential and mixed use development on land located between Greta and Allandale Road adjacent to the Down side of the Main Northern Railway between chainages 206.750 and 209.850 kilometres. This development, known as Anvil Creek, has development approval for Stage 1 of the development, and a staged approval for the remainder, which requires separate development applications for each subsequent stage of the development.

6.5.3 Impact Assessment

Property Acquisition

As discussed in Section 5.3 of this report, the strip acquisition to achieve the required width of the new rail corridor would involve the partial or entire acquisition of approximately 107 lots from 79 landowners and would need to occur on both sides of the track. This is a reduction from the 145 properties proposed in the Environmental Assessment for partial or entire acquisition.

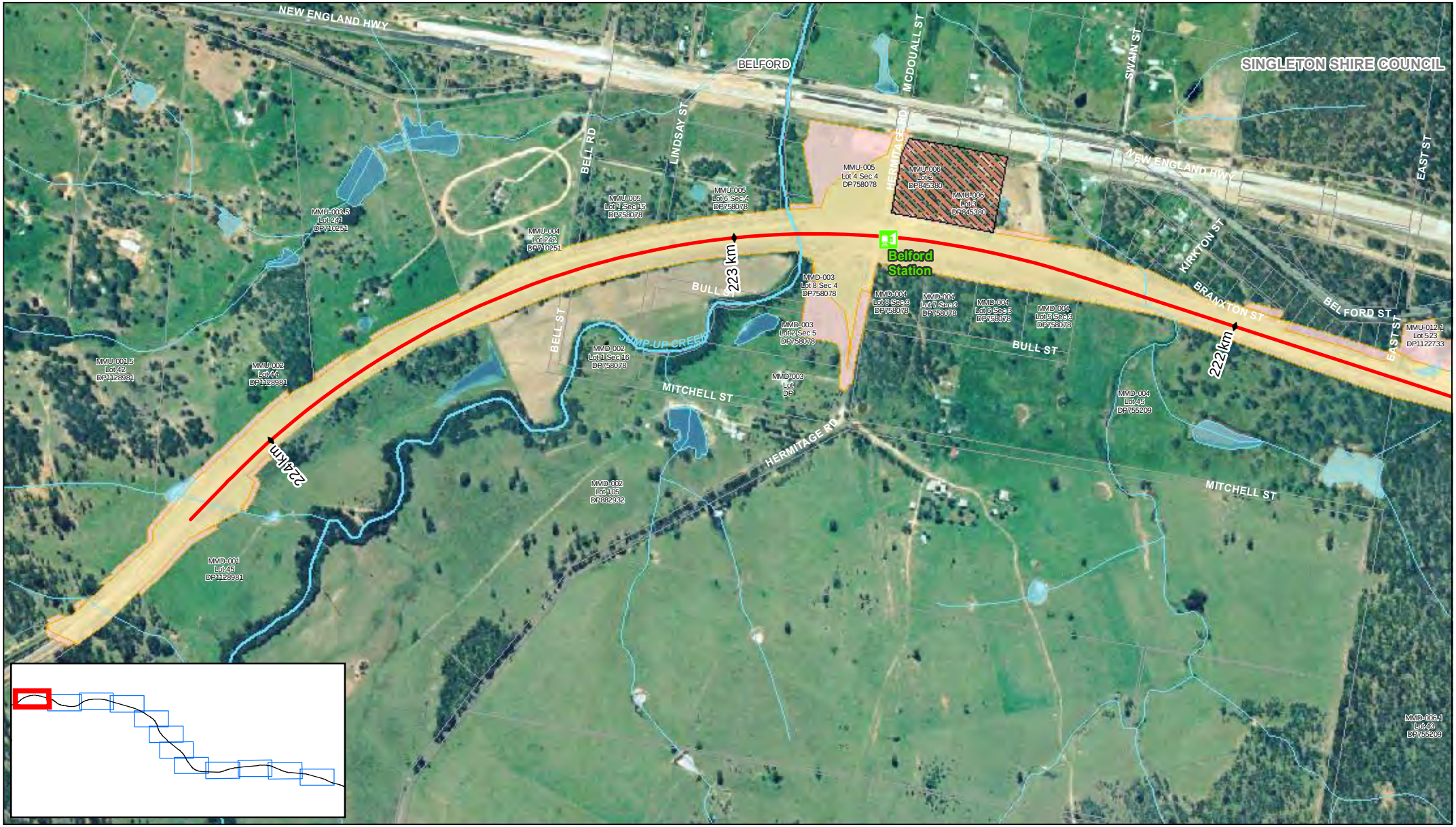
Figure 6.3 displays the property impacts and significant areas associated with the Project.

A breakdown of proposed property acquisition within each of the local government areas and between private and government properties is shown in Table 6-4. The number in brackets is that which was presented in the Environmental Assessment.

Table 6-4 Summary of Proposed Property Acquisition

Local Government Area	Number of Properties	Number of Private Properties	Number of Government Properties
Singleton	37 (47)	28 (41)	9 (6)
Cessnock	43 (45)	38 (37)	5 (8)
Maitland	27 (53)	26 (50)	1 (3)

In addition to the properties required for acquisition, a number of properties are proposed to be leased for use as construction compounds and for construction access and haul roads. These are located within the proposed revised construction impact zone and would be the subject of commercial negotiations with the landholder.



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Metres

Map Projection: Transverse Mercator
Horizontal Datum: Australian Geodetic Datum 1966
Grid: Integrated Survey Grid, Zone 56-1

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Legend

- Project Location
- Watercourse
- Existing Rail
- Hunter Expressway
- Cadastre
- Property Acquisition Area
- Proposed Lease Area
- LocalGovernmentArea
- Watercourse Area

Land Use Significant Areas

- Farley Investigation Area
- Heritage Green
- Huntlee
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- Pacific National
- Preliminary Investigation Area
- Rutherford Industrial
- Rutherford Industrial Estate
- Rutherford Industrial Investigation Area
- Proposed Service Station Site
- Proposed Anvil Creek Development

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Maitland To Minimbah Third Track Submissions Report

Job Number	22-14471
Revision	A
Date	August 2010

Property Impacts and Significant Areas

Figure 6.3a

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Property Impacts and Significant Areas

Figure 6.3b

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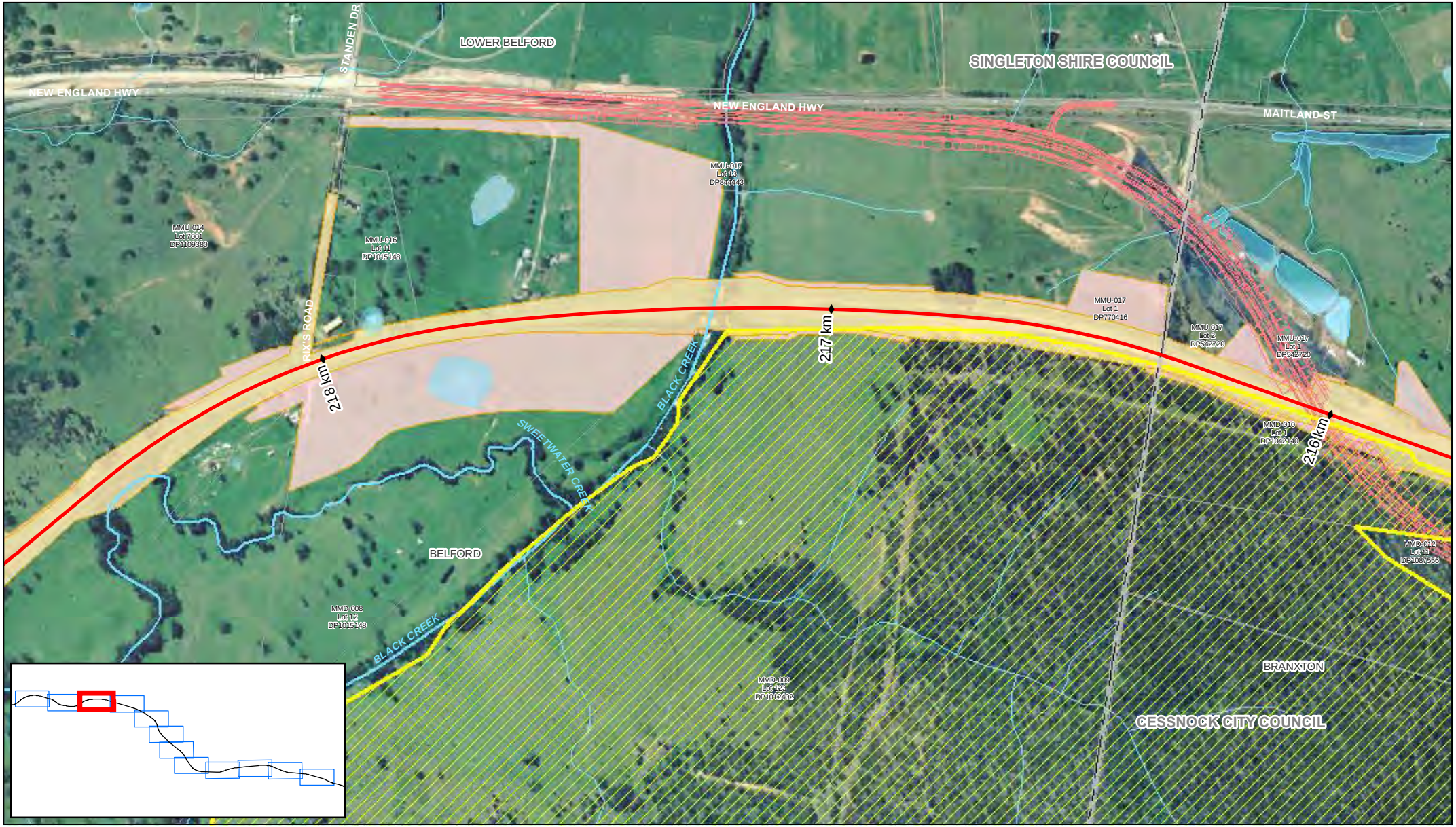

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Property Impacts and Significant Areas

Figure 6.3c

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Property Impacts and Significant Areas

Figure 6.3d

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Property Impacts and Significant Areas

Figure 6.3e

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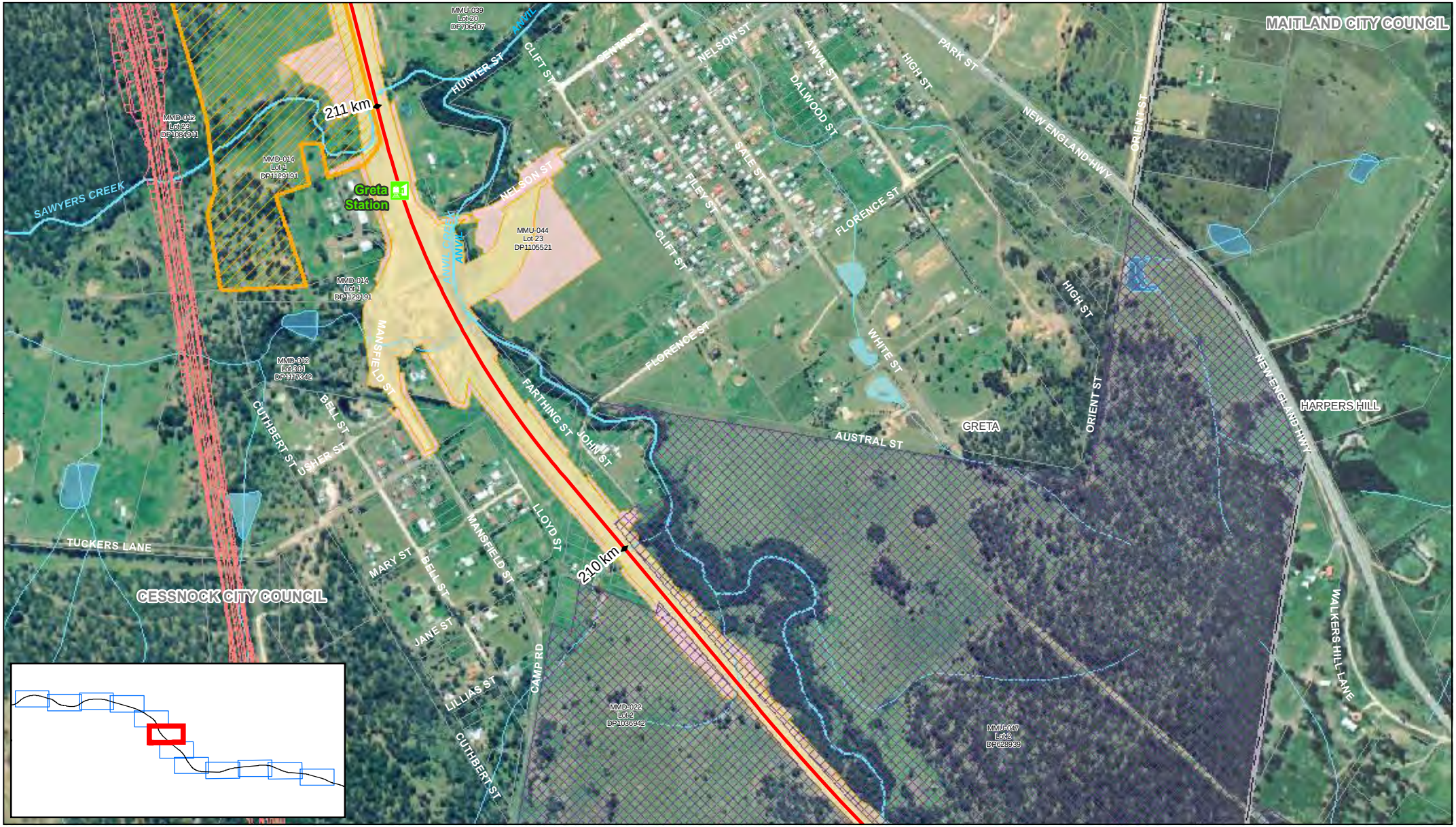

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Revision A
Date August 2010

Property Impacts and Significant Areas

Figure 6.3f

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Property Impacts and Significant Areas

Figure 6.3g

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Property Impacts and Significant Areas

Figure 6.3h

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0 40 80 160 240 320

Metres

Map Projection: Transverse Mercator
Horizontal Datum: Australian Geodetic Datum 1966
Grid: Integrated Survey Grid, Zone 56-1

N

Legend

- Project Location
- Watercourse
- Existing Rail
- Hunter Expressway
- Cadastre
- Property Acquisition Area
- Proposed Lease Area
- LocalGovernmentArea
- Watercourse Area

Land Use Significant Areas

- Farley Investigation Area
- Heritage Green
- Huntlee
- Lochinvar Investigation Area
- Pacific National
- Preliminary Investigation Area
- Rutherford Industrial
- Rutherford Industrial Estate
- Rutherford Industrial Investigation Area
- Proposed Service Station Site
- Proposed Anvil Creek Development

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Property Impacts and Significant Areas

Figure 6.3i

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0 40 80 160 240 320

Metres

Map Projection: Transverse Mercator
Horizontal Datum: Australian Geodetic Datum 1966
Grid: Integrated Survey Grid, Zone 56-1

N

Legend

- Project Location
- Watercourse
- Existing Rail
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- Watercourse Area

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Property Impacts and Significant Areas

Figure 6.3j

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0 40 80 160 240 320

Metres

Map Projection: Transverse Mercator
Horizontal Datum: Australian Geodetic Datum 1966
Grid: Integrated Survey Grid, Zone 56-1

N

Legend

- Project Location
- Watercourse
- Existing Rail
- Hunter Expressway
- Cadastre
- Property Acquisition Area
- Proposed Lease Area
- LocalGovernmentArea
- Watercourse Area

Land Use Significant Areas

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- Heritage Green
- Huntlee
- Lochinvar Investigation Area
- Pacific National
- Preliminary Investigation Area
- Rutherford Industrial
- Rutherford Industrial Estate
- Rutherford Industrial Investigation Area
- Proposed Service Station Site
- Proposed Anvil Creek Development

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Property Impacts and Significant Areas

Figure 6.3k

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0 40 80 160 240 320

Metres

Map Projection: Transverse Mercator
Horizontal Datum: Australian Geodetic Datum 1966
Grid: Integrated Survey Grid, Zone 56-1

N

Legend

- Project Location
- Watercourse
- Existing Rail
- Hunter Expressway
- Cadastre
- Property Acquisition Area
- Proposed Lease Area
- LocalGovernmentArea
- Watercourse Area

Land Use Significant Areas

- Farley Investigation Area
- Heritage Green
- Huntlee
- Lochinvar Investigation Area
- Pacific National
- Preliminary Investigation Area
- Rutherford Industrial
- Rutherford Industrial Estate
- Rutherford Industrial Investigation Area
- Proposed Service Station Site
- Proposed Anvil Creek Development

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Property Impacts and Significant Areas

Figure 6.3l

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Private Infrastructure

As discussed in Section 5.4 of this report, the number of dams, bores and structures directly impacted by construction has reduced from that included in the Environmental Assessment as follows:

- 13 farm dams where there would be a structural modification/alteration required. This is a reduction from 16 as listed in Section 14.3 of the Environmental Assessment.
- No groundwater bores. This is unchanged from the Environmental Assessment.
- Five structures (such as residential properties, garages, farm sheds, pump houses and stables). This is a reduction from 11 as listed in Section 14.3 of the Environmental Assessment.

Table 6-5 identifies the properties, the number of impacted dams (requiring eventual closure and filling) on each property by the Project, and the overall capacity of the dam/s.

Table 6-5 Details of Dams Impacted by the Project

Property	Number of Dams	Overall Estimated Dam/s Capacity (ML)
MMU-002	1	1
MMU-004	1	0.3
MMU-012	4	9
MMU-12.5	1	2.1
MMU-016	1	0.5
MMD-028	2	1.6
MMU-038	1	0.3
MMU-053	1	0.5
MMU-055	1	0.4

Future Land Uses

The Hunter 8 Alliance has commenced negotiations with the proponents of approved developments (the two described in Section 6.5.2 of this report and Heritage Green as described in Section 14.2.4 of the Environmental Assessment). From negotiations with the landholders the key issues relate to property acquisition (strip) where applicable and noise attenuation.

Consultation is ongoing between the Hunter 8 Alliance and the proponents of the two approved developments requiring strip acquisition.

With regard to noise attenuation, all three developments have a requirement to provide noise attenuation as part of the development consent. As a result, the Hunter 8 Alliance has proposed the following process for the Heritage Green site and the proposed service station and tourist development site to assess the potential impacts and the requirement for any additional attenuation:

- The Hunter 8 Alliance has requested that the proponents provide design details of the development, particularly the proposed noise attenuation for the developments to comply with the development consent.
- The Hunter 8 Alliance would incorporate the development and the noise attenuation into its noise model for the Project and assess the noise level at the development site.
- If the modelling indicates that there is an exceedence of the IGANRIP trigger levels with inclusion of the proposed noise attenuation in the model, the Hunter 8 Alliance would negotiate with the proponent on how to manage this exceedence.

The staged development approval for the Anvil Creek development at Greta requires the proponents to consider noise from the proposed Maitland to Minimbah Third Track Project and provide noise attenuation. The Hunter 8 Alliance would assist by providing details of predicted train movements and data from its noise modelling.

As described in Section 4.1, the Hunter 8 Alliance does not propose provision of noise attenuation for properties the subject of unapproved development applications or investigations for residential development. Such attenuation would be the responsibility of the proponent.

6.5.4 Mitigation Measures

The mitigation measures described in Section 14.4 of the Environmental Assessment would be implemented as appropriate.

The Hunter 8 Alliance is to provide landholders with appropriate compensation for the loss of these dams and for their replacement. It would be the landholder's responsibility to attain all necessary approvals prior to construction and operation of these new dams if they choose to replace the dams.

The process described in Section 6.5.3 of this report would be implemented to determine if the Hunter 8 Alliance is to assist with noise management at the Heritage Green and the service station and tourist development sites. The form of assistance, if required, would be resolved through negotiation and consultation with the proponents.

6.6 Traffic and Access

This section identifies how the proposed modifications to the design, construction and operation of the Project may amend or increase the potential traffic and access impacts identified in the Environmental Assessment, and develop any additional mitigation measures required. A detailed assessment on traffic and access is included in the Traffic and Access Study in Appendix D.

This assessment is based on the revised construction impact zone as shown in Figure 5.2 of this report.

6.6.1 Methodology

The methodology applied to this assessment is generally as for the Traffic Assessment (Appendix J of the Environmental Assessment).

A summary of the methodology is:

- Existing road network conditions
- Assessment of potential traffic impacts from the Project:

- Estimate volume of additional construction traffic.
- Assess changes to level of service on public roads due to predicted construction traffic.

- Proposed mitigation measures.

For this assessment, the design changes to be incorporated are:

- Phased construction of the Project
- Changes to the size and location of construction compounds as shown in Table 6-6.

6.6.2 Existing Environment

The key roads in respect to the Project are as described in Section 2.2 of the Traffic Assessment (Appendix J of the Environmental Assessment). These key roads include:

- Wollombi Road, Telarah
- Racecourse Road, Rutherford
- Shipley Drive, Rutherford
- Kyle Street, Rutherford
- Station Lane, Lochinvar
- Old North Road, Allandale
- Allandale Road, Allandale
- Nelson Street, Greta
- Station Street, Branxton
- Wine Country Drive (Bridge Street), Branxton
- Standen Drive (Rixs Road)
- Hermitage Road, Belford

6.6.3 Impact Assessment

The revised location, size and number of the proposed construction compounds would change the level of construction traffic and therefore the traffic impact on affected roads and intersections reported in the Environmental Assessment.

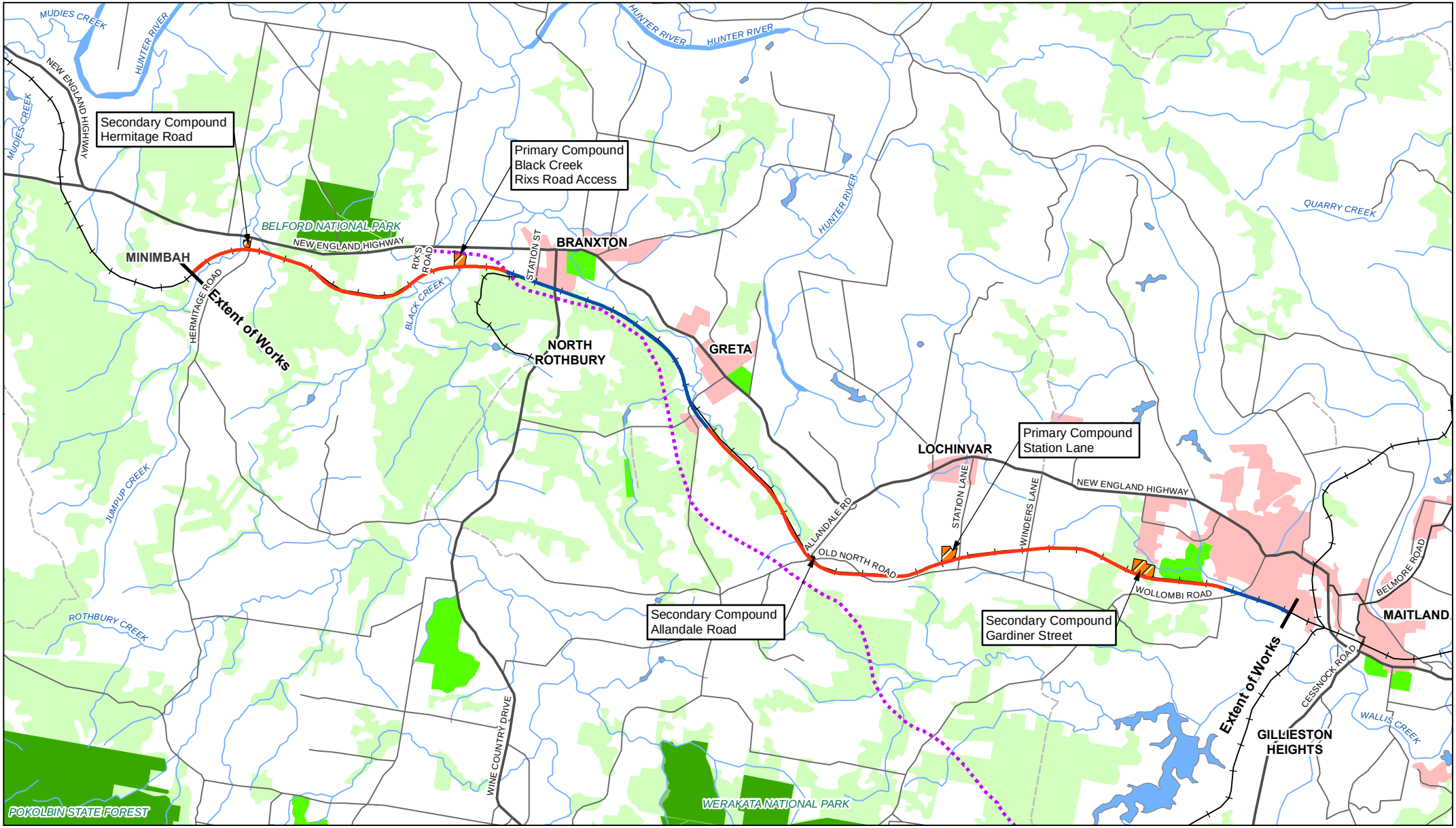
Changes to Construction Compounds

Table 6-6 summarises the compound locations that were considered in the Environmental Assessment and the additional sites and access roads for Phases 1 and 2 for assessment in the Traffic Assessment (Appendix D).

Table 6-6 Compound locations and access roads

Compound Location	Road access to NEH	Compound Type in Environmental Assessment	Revised Compound Type	Phase 1	Phase 2
Wollombi Road, Farley	Wollombi Road, Telarah	Secondary	Secondary	·	✓
Gardiner Street, Rutherford	Shipley Drive, Rutherford	None	Secondary	✓	·
Station Lane, Lochinvar	Station Lane, Lochinvar	Primary	Primary	✓	·
Allandale Road, Allandale	Allandale Road, Allandale	None	Secondary	✓	·
Nelson Street, Greta	Nelson Street, Greta	Secondary	Secondary	·	✓
Sawyers Creek	Nelson Street, Greta	None	Secondary	·	✓
Bridge Street, Branxton	Station Street, Branxton	Primary	Secondary	·	✓
Black Creek, Belford	Rixs Road, Belford	Secondary	Primary	✓	·
Hermitage Road	Hermitage Road, Belford	Secondary	Secondary	✓	·

The sites listed above are shown together with the extents of Phase 1 in Figure 6.4, and Phase 2 in Figure 6.5 .



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0 0.5 1 2 3

Kilometers

Map Projection: Transverse Mercator
Horizontal Datum: Australian Geodetic Datum 1966
Grid: Integrated Survey Grid, Zone 56-1

N

LEGEND

- Principal Road
- Secondary Road
- Minor Road
- Track
- Existing Rail
- Water Course
- Hunter Expressway
- Built Up Areas
- Watercourse Areas
- Phase 1 Project Location
- Phase 2 Project Location
- Recreation Areas
- Nature Conservation Reserve
- State Forest
- Forest Or Shrub
- Construction Compound

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Local Roads Network
for Phase 1

Figure 6.4

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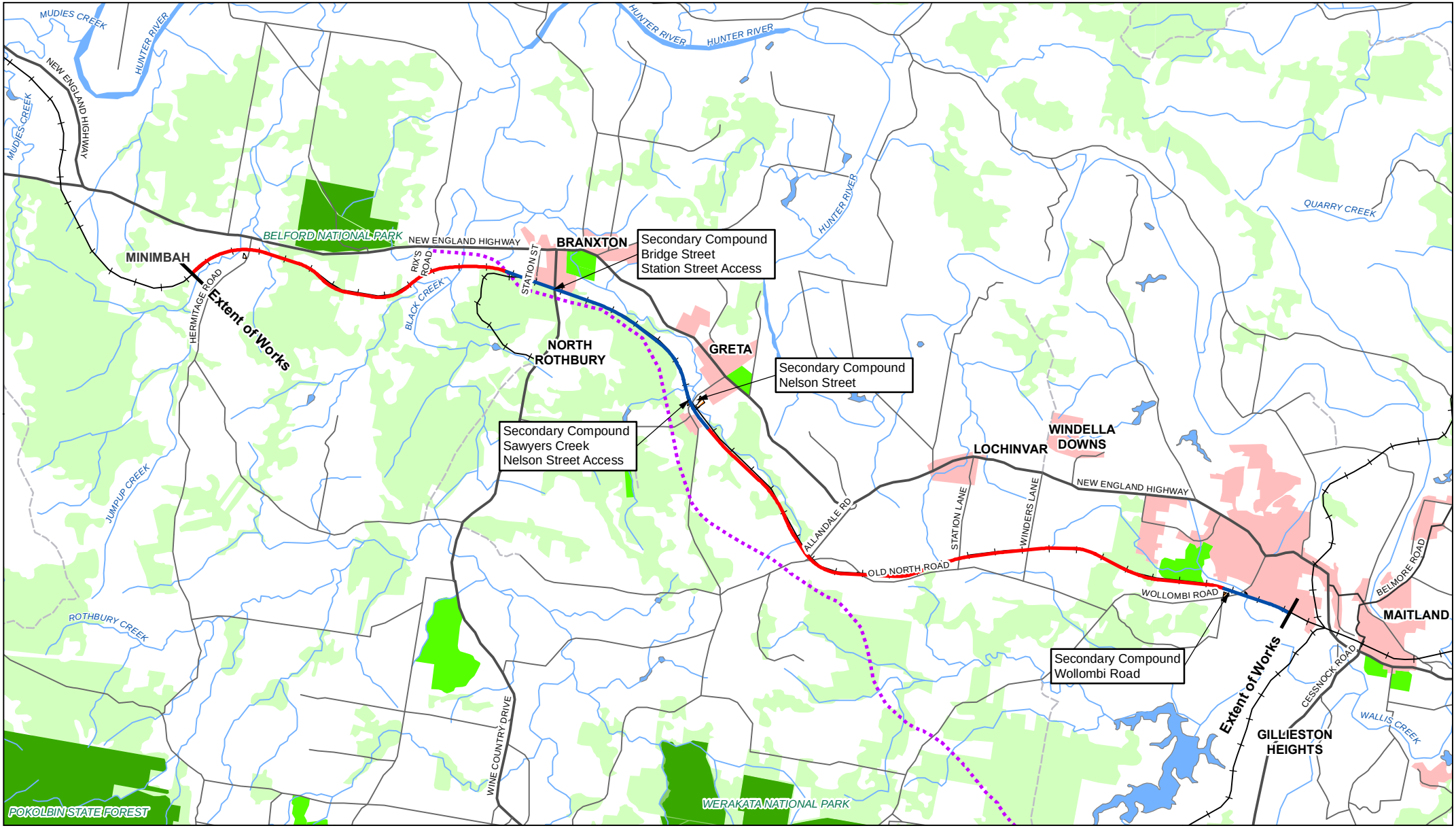

1:120,000 (at A4)

0 0.5 1 2 3

Kilometers

Map Projection: Transverse Mercator
Horizontal Datum: Australian Geodetic Datum 1966
Grid: Integrated Survey Grid, Zone 56-1

N

LEGEND

- Principal Road
- Secondary Road
- Minor Road
- Track
- Existing Rail
- Water Course
- Hunter Expressway
- Built Up Areas
- Watercourse Areas
- Phase 1 Project Location
- Phase 2 Project Location
- Recreation Areas
- Nature Conservation Reserve
- State Forest
- Forest Or Shrub
- Construction Compound

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Local Roads Network for Phase 2

Figure 6.5

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Table 4.2 in the Traffic Assessment (Appendix J of the Environmental Assessment) lists proposed construction compounds. The changes to the construction compounds being assessed in this report are listed in Table 6-7.

Table 6-7 Environmental Assessment Compound Locations and Proposed Changes

Location	Suburb	Compound Type in Environmental Assessment	Changes to Construction Compounds
Wollombi Road	Rutherford	Secondary	No change
Gardiner Street (Shipley Drive Access)	Rutherford	None	New secondary compound
Station Lane	Lochinvar	Primary	No change
Allandale Road	Allandale	None	New secondary compound
Nelson Street	Greta	Secondary	One additional secondary compound
Bridge Street (Station Street Access)	Branxton	Primary	Change from primary to secondary compound
Black Creek (Rixs Road Access)	Belford	Satellite	Change from satellite to primary compound
Hermitage Road	Belford	Secondary	No change

The affected roads that intersect with the New England Highway are listed in Table 6-8. The table also shows the construction phase applicable for each compound, demonstrating that construction activity at several sites would not occur at the same time.

Table 6-8 Phasing of Proposed Construction Compounds

Location	Compound Type	Phase 1	Phase 2
Wollombi Road, Telarah	Secondary	·	✓
Gardiner Street, Rutherford (Shipley Drive Access)	Secondary	✓	·
Station Lane, Lochinvar	Primary	✓	·
Allandale Road, Allandale	Secondary	✓	·
Nelson Street, Greta	Secondary	·	✓
Bridge Street, Branxton (Station Street Access)	Secondary	·	✓
Black Creek, Belford (Rixs Road Access)	Primary	✓	·
Hermitage Road, Belford	Secondary	✓	·

The proposed construction activities are as described in Section 4 of the Traffic Assessment (Appendix J of the Environmental Assessment). The proposed construction traffic generated by the Project and impacting each of the intersections with the Highway that would be impacted is shown in Appendix A of the Traffic and Access Study in Appendix D.

6.6.4 Intersection Performance

A summary of the modelled performance of intersections during construction of Phase 1 and Phase 2, based on existing traffic layout and controls, is given in Table 6-9 and Table 6-10 respectively.

Table 6-9 Phase 1 Construction Traffic Impact on Intersection Capacity

Location	Suburb	Level of Service Existing [1]	Level of Service Construction
Shipley Drive at New England Highway (Gardiner Street compound)	Rutherford	LOS B	LOS B
Station Lane at New England Highway	Lochinvar [2]	LOS D	LOS F
Allandale Road at New England Highway	Allandale	LOS F	LOS F
Old North Road at Allandale Road	Allandale	LOS B	LOS B
Rixs Road at New England Highway (Black Creek compound)	Belford [2]	LOS A	LOS F
Hermitage Road at New England Highway	Belford[2]	LOS B	LOS D

1. Level of service (LOS) is based on the worst movement except for at Shipley Drive where the intersection LOS is reported
2. These sites were assessed in Traffic Study (Appendix J of the Environmental Assessment)

Table 6-10 Phase 2 Construction Traffic Impact on Intersection Capacity

Location	Suburb	Level of Service Existing [1]	Level of Service Construction
Wollombi Road at New England Highway	Telarah	LOS F	LOS F
Nelson Street at New England Highway (Nelson Street and Sawyers Creek compounds)	Greta [2]	LOS E	LOS F
Station Street at New England Highway (Bridge Street compound)	Branxton [2]	LOS D	LOS F

1. Level of service at these priority controlled junctions is reported as the 'worst movement' LOS
2. These sites were assessed in Traffic Study (Appendix J of the Environmental Assessment)

Table 6-9 and Table 6-10 show that the addition of construction compounds increases traffic at intersections with the New England Highway. The increase in traffic generally results in delays for traffic leaving the side road turning right onto the New England Highway.

The Hunter Expressway is expected for completion at the end of 2013. Once this road is open to traffic, there will be a substantial decrease in the traffic volumes on the New England Highway through the Project investigation area. Construction of Phase 2 of the Project may occur after Hunter Expressway has opened. The impacts and mitigation measures for Phase 2 should be reviewed in consultation with the RTA prior to construction Phase 2 of the Project.

Construction

A brief description of the analysis results for the existing and construction cases for each intersection is given in Table 6-11.

Table 6-11 Construction Traffic Impact

Location	Existing Traffic	With Phase 1 Construction Traffic	With Phase 2 Construction Traffic
Wollombi Road, Telarah	The right turn movement out of Wollombi Road onto the New England Highway is currently over-capacity in both morning and afternoon peak periods.	No construction traffic in Phase 1.	The addition of vehicles in the morning between 6.30 – 7.30 AM, when construction vehicles would peak, would further increase delays for vehicles turning right out of Wollombi Road.
Shipley Drive, Rutherford (Gardiner Street compound)	The roundabout is reported to operate at good level of service with some spare capacity in both the morning and afternoon peaks.	The performance of the intersection is good with acceptable delays and spare capacity with the addition of construction vehicles. In the morning peak, there is a small increase in delay for vehicles leaving Shipley Drive. This delay is still within good performance criteria.	No construction traffic in Phase 2.
Station Lane, Lochinvar	Unchanged from Environmental Assessment.	Unchanged from Environmental Assessment.	No construction traffic in Phase 2.
Allandale Road, Allandale	The movements out of Allandale Road onto the New England Highway and into Allandale Road from the west are nearing capacity in the morning peak and over-capacity in the afternoon peak period. Vehicles travelling on the New England Highway experience acceptable delays.	The addition of construction vehicles in the morning peak would reduce the performance of the intersection. In the afternoon peak, vehicles leaving Allandale Road would experience increased delays.	No construction traffic in Phase 2.
Nelson Street, Greta (Nelson Street and Sawyers Creek compounds)	The existing intersection is currently at capacity in afternoon peak for the through and right turn movements from the southern approach of Nelson Street. Vehicles travelling along the New England Highway experience acceptable delays.	No construction traffic in Phase 1.	The addition of construction vehicles increases the delays out of Nelson Street from the southern approach and increases the risk of crashes.

Location	Existing Traffic	With Phase 1 Construction Traffic	With Phase 2 Construction Traffic
Station Street, Branxton (Bridge Street compound)	The existing intersection is operating near capacity in the morning peak with the movement out of Station Street being critical.	No construction traffic in Phase 1.	The addition of construction vehicles to this intersection would further reduce the level of service of vehicles exiting Station Street resulting in the intersection being over capacity in the morning and afternoon peak periods. There is a three tonne load limit on local roads between Bowen Street and Wine Country Drive. This restriction results in Station Street being the only access to the Project site from the New England Highway in Branxton.
Rixs Road, Belford (Black Creek compound)	The existing intersection is generally performing with acceptable delays and spare capacity.	The addition of construction traffic increases delays for vehicles exiting Rixs Road in the morning peak. Rixs Road LOS reduces to F for left turning vehicles and E for right turning vehicles.	No construction traffic in Phase 2.
Hermitage Road, Belford	Unchanged from Environmental Assessment.	Unchanged from Environmental Assessment.	No construction traffic in Phase 2.

Operation Impact Assessment

There is expected to be marginal traffic generation from the project during the operational phase of the Project. Maintenance works are expected to be carried out on an as-needed basis, and the subsequent traffic generation is expected to occur at variable times throughout the day and night. Therefore the impact on the local road network as a result of a potential increase in maintenance activities is expected to be negligible. Vehicles which are currently in use for the existing tracks would be used to maintain the current and proposed track and only a minor increase in the number of maintenance vehicles is expected.

Therefore, modelling was not performed for vehicles in the operational phase of the Project.

6.6.5 Mitigation Measures

The proposed mitigation measures for the Project are shown in Table 6-12.

Sketches of the proposed linemarking at Allandale Road, Allandale and Rixs Road, Belford are shown in Appendix C of the Traffic and Access Study in Appendix D.

The measures proposed for the Phase 2 construction activities would be reviewed prior to construction. The level of service of the identified intersections may have changed depending on the operation status of the Hunter Expressway and therefore intersection treatment to be provided may be amended.

Table 6-12 Proposed Intersection Treatments

Road access to New England Highway	Compound Type	Phase 1 Treatment	Phase 2 Treatment
Wollombi Road, Telarah	Secondary	None required – No traffic Phase 1	Traffic Signals*
Shipley Drive, Rutherford (Gardiner Street compound)	Secondary	None required – Adequate	None required – No traffic Phase 2
Station Lane, Lochinvar	Primary	Traffic Controllers	None required – No traffic Phase 2
Allandale Road, Allandale	Secondary	Lane closure/realignment	None required – No traffic Phase 2
Nelson Street, Greta (Nelson Street and Sawyers Creek compounds)	Secondary	None required – No traffic Phase 1	Traffic Controllers*
Station Street, Branxton	Secondary	None required – No traffic Phase 1	Traffic Signals*
Rixs Road, Belford	Primary	Lane closure/realignment	None required – No traffic Phase 2
Hermitage Road, Belford	Secondary	None required – Adequate	None required – No traffic Phase 2

* To be reviewed prior to construction to consider operational status of Hunter Expressway and potential impacts on traffic.

6.7 Noise and Vibration

This section identifies the potential changes to noise and vibration impacts associated with the Project. It also discusses any additional management measures proposed to reduce these potential impacts. A detailed assessment on noise and vibration is included in the Noise and Vibration Impact Study in Appendix E.

This assessment is based on the revised construction impact zone as shown in Figure 5.2 of this report.

6.7.1 Methodology

Noise and vibration goals remain as described in the Noise and Vibration Impact Assessment Report (Appendix K of the Environmental Assessment).

Construction Noise and Vibration

The project amendments do not affect the assessment methodology outlined in the Noise and Vibration Impact Assessment Report (Appendix K of the Environmental Assessment). However, the following amendments do affect the extent of zones potentially impacted by construction activities:

- Modifications in blasting locations as a result of earthworks design changes.
- Deferment of works between the nominated chainages.
- Relocation and addition of construction compounds.

Operational Noise and Vibration

With regards to operational noise and vibration, the major changes pertain to deferment of construction of the third track and installation of rail turnouts at the chainages described in Chapter 5 of this report.

The operational rail noise model has been updated to include the following:

- Change in earthworks and rail alignment design since preparation of the Environmental Assessment noise model.
- Operational scenarios with and without the abovementioned works deferments.

The modelling methodology and parameters otherwise remain as per those described in the Noise and Vibration Impact Assessment Report (Appendix K of the Environmental Assessment).

The deferment of the third track construction along the abovementioned chainages will also lead to trains stopping, idling and starting near the turnout locations to allow trains to cross paths. This issue has been discussed qualitatively.

6.7.2 Existing Environment

The existing environment remains identical to that described in Section 3 in the Noise and Vibration Impact Assessment Report (Appendix K of the Environmental Assessment).

Noise sensitive receivers along the Project route are essentially residential receivers. Table 6-13 and Table 6-14 present the noise catchment areas (NCA) identified on the up side and down side of the Project, respectively, including land which has been approved or has entered the approval process for residential development but is not built-up yet (such as Heritage Green).

Table 6-13 Noise Catchment Areas – Up Side

Chainage	NCA ID	Land Description
222.900 – 223.850	U1	Three scattered residences on rural land, west of Hermitage Road, Belford.
222.300 – 222.700	U2	Proposed Service Centre and Motel (approved).
220.350 – 222.300	U3	Eight scattered residences from Pothana Lane to Hermitage Road, Belford.
214.100 – 215.350	U4	Built-up residential area between Thomas Street and Short Street, Branxton.
210.000 – 210.950	U5	Scattered residences and proposed residential subdivision off Nelson Street and Florence Street, Greta.
205.100 – 206.500	U6	Two residences on rural (grazing) land off Allandale Road, Allandale.
202.050 – 202.500	U7	One residence on rural (grazing) land off Station Lane, Lochinvar.
200.250 – 201.100	U8	Three scattered residences on rural (grazing) land off Winders Lane, Farley/Lochinvar.
196.200 – 197.600	U9	Heritage Green.
195.600 – 196.200	U10	Built-up residential subdivision between Wollombi Road and Heritage Green.
194.400 – 194.750	U11	Built-up residential area between South Street and Lismore Street, Telarah.

Table 6-14 Noise Catchment Areas – Down Side

Chainage	NCA ID	Land Description
222.300 – 223.300	D1	3 scattered residences off Hermitage Road.
221.000 – 221.350	D2	2-3 isolated residences west of Pothana Lane.
219.250 – 219.700	D3	Pothana Winery.
218.000 – 218.150	D4	One isolated residence at the end of Standen Drive.
215.650 – 217.200	D5	Huntlee Residential Development (going through approval process).
214.850 – 215.100	D6	Two residences off Wine Country Road, Branxton.
209.850 – 210.900	D7	Built-up residential area in Greta.
206.750 – 209.850	D8	Greta Estates Pty Ltd land (approved residential development masterplan).
205.750 – 206.300	D9	3 residences on rural land at intersection of Allandale Road and Lovedale Road.
203.050 – 205.100	D10	7 scattered residences on rural land off Old North Road.
200.800 – 202.500	D11	8 scattered residences off Old North Road, east of Station Lane.
195.600 – 196.250	D12	Residences off Wollombi Road.

6.7.3 Impact Assessment

Construction Noise and Vibration

The relocation or addition of construction compounds would have some impact on the areas potentially affected by construction activities. Deferment of works also implies that construction noise and vibration impacts would be limited at receivers located along the subject chainages. Construction noise and vibration impact zones have therefore been revised to reflect the above and are shown in Figure 6.6.

Similarly, blasting impact zones are also expected to be slightly modified, as shown in Table 6-15 and Figure 6.7.

Table 6-15 Proposed Blasting Locations

Chainage (kilometres)	Cut	Up or Down Side
195.360 to 195.400	2	Up
195.960 to 195.980	3	Up
204.680 to 204.940	11	Up
205.200 to 205.680	12	Up
211.540 to 211.760	15	Up and Down
213.420 to 213.700	16	Up
214.060 to 214.180	17	Up and Down
214.900 to 215.460	18	Down
216.180 to 216.940	19	Up and Down
218.720 to 218.960	21	Up
221.000 to 221.360	23	Up
221.600 to 221.920	24	Up
222.520 to 222.600	25	Up
223.840 to 223.960	26	Up

The findings of the Environmental Assessment regarding construction noise and vibration impacts remain otherwise unchanged.

8. Conclusion

The Environmental Assessment and this Submissions Report have addressed:

- The key issues and general requirements identified in the Director-General's Environmental Assessment Requirements under Part 3A of the Environmental Planning and Assessment Act 1979 (EP&A Act).
- Issues raised by government agencies and members of the community.
- The objects of the EP&A Act together with the Project's consistency with the aims and objectives of the NSW State Plan and State Infrastructure Strategy.

The Project would produce some adverse impacts, which are unavoidable for development of this scale. However, the Project's design (including a number of the design modifications described in Chapter 5 of this report) and the measures included in the Statement of Commitments (refer to Chapter 7) substantially mitigate the potential impacts during construction and operation.

The Project remains a key component in meeting the objectives and ARTC's strategy of improvements endeavouring to keep system capacity ahead of industry demands. In doing so the Project would be expected to produce economic and transportation benefits to the coal industry on a local, national and international scale that would, in turn, provide flow-on economic benefits to the Hunter Region.