Australian Government

RTA

Hume Highway duplication

Concept Plan, Sturt Highway to Tarcutta, Kyeamba Hill and Little Billabong Environmental Assessments

SUBMISSIONS REPORT AND REVISED STATEMENT OF COMMITMENTS

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Contents

1 Introduction and Background

The Roads and Traffic Authority of NSW (RTA) is proposing to upgrade five sections of the Hume Highway from single carriageway to a four-lane dual carriageway in the area from the Sturt Highway junction south to Albury (the Hume Highway Duplication). The sections to be upgraded are located in the area from approximately 37 kilometres south of Gundagai to approximately 41 kilometres north of Albury.

The RTA has prepared a Concept Plan Environmental Assessment for the Hume Highway Duplication as a whole in accordance with the process and requirements of Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act). In addition, the RTA has prepared, or is in the process of preparing individual project Environmental Assessments for each of the five sections. The Environmental Assessments address the key environmental issues and includes mitigation measures to address potential impacts.

This Submissions Report and Revised Statement of Commitments relates to the following Environmental Assessments prepared for the Hume Highway Duplication (being the Concept Plan and three of the five project assessments):

- Sturt Highway to Mullengandra, Concept Plan
- Sturt Highway to Tarcutta
- Kyeamba Hill
- Little Billabong

This report has been prepared pursuant to Section 75H(6) of the EP&A Act following the exhibition of the above Environmental Assessments. It includes the RTA's responses to the submissions (Chapter 2) and a revised Statement of Commitments (Chapter 3). Following consideration of the public submissions, no changes in design to that previously described in the Environmental Assessments are proposed. The preparation of a preferred project report was therefore not considered necessary.

The above Environmental Assessments were on public exhibition between Monday 12 March 2007 and Tuesday 17 April 2007 at locations detailed in Table 1.1. All necessary reference material was made available for review at the nominated locations and the Environmental Assessments were also available on the Department of Planning's website in addition to the RTA's website. Submissions were invited from anyone with an interest in the Hume Highway Duplication and comments were received up until Friday 20 April 2007.

Table 1.1: Locations where the Environmental Assessments were displayed

Location	Address
Wagga Wagga	Wagga Wagga City Library, Cnr Fitzmaurice and Morrow Streets
Albury	Albury Motor Registry, Cnr Hume and McCauley Streets
Holbrook	Holbrook Greater Hume Council Library, Library Lane
Sydney	Department of Planning, Information Centre, 23-33 Bridge Street

In addition to the above exhibition locations, project information was displayed by the RTA at the Tarcutta Halfway Café and Crafts (Sydney Street, Tarcutta), Albury City Council (533 Kiewa Street, Albury) and the RTA South West Regional Office (1 Simmons Street, Wagga Wagga).

2 Summary of issues and responses

Five submissions were received during the exhibition period and Table 2.1 lists all respondents and each respondent's allocated submission number. The table also indicates where in Chapter 2 their issues have been addressed.

Table 2.1: List of respondents

Respondent	Submission No.	Section where issues are addressed
Dr Peter Spooner, Charles Sturt University	1	2.1; 2.2.1; 2.2.2; 2.2.3; 2.3.1; 2.4; 2.13
NSW Heritage Office (on behalf of the Heritage Council of NSW)	2	2.3.1
Department of Environment and Climate Change (DECC)	3	2.2.1; 2.2.2; 2.2.3; 2.3.2; 2.4; 2.5; 2.6; 2.7.1; 2.7.2; 2.8; 2.10; 2.11; 2.12
Wagga Wagga City Council	4	2.5; 2.14
Department of Natural Resources (DNR)	5	2.5, 2.8, 2.9, 2.10

The issues raised in each submission generally applied to all four Environmental Assessments described in Chapter 1, however where an issue was raised that was specific to an individual section of the Hume Highway Duplication it has been noted in the summary of the issue.

Each issue raised within a submission was identified as a broad issue (eg. biodiversity, heritage, etc…) and then is broken down into a more detailed specific issue (eg. additional surveys and monitoring, non-Aboriginal heritage, etc…) if required. Consideration of each issue was undertaken by the RTA and a written response provided.

2.1 Justification

Submission number(s)

1

Issue description

In summary, the respondents raised the following issues:

- The decision for duplicating generally along the existing highway corridor to reduce the potential impacts to biodiversity from a new corridor is false and conflicts with other statements regarding biodiversity impacts. The Environmental Assessment suggests that the preferred option for the duplication is the best option for environment.
- The Hume Highway Duplication has been justified in terms of its economic and transport considerations, to the detriment of the present Hume Highway corridor's environment values.

Response

The duplication of the Hume Highway within the existing corridor has a range of benefits and impacts and on balance is assessed as providing the optimal solution. Within the Environmental Assessments prepared for the Hume Highway Duplication the specific design considerations have sought to maximise retention of native vegetation and minimise impacts on biodiversity.

A new corridor would not avoid additional impacts on biodiversity (including further clearing of native vegetation) and would create a further barrier to wildlife movement and severance of vegetation areas.

As part of the options development phase for the individual proposals, design principles were developed which aimed to provide an overarching framework and direction for the concept design. A number of the design principles developed included minimising or avoiding impacts to the environmental values of the existing Hume Highway, such as avoiding stands of significant native vegetation and heritage items. It is considered that the environmental values of the existing highway have generally being retained.

2.2 Biodiversity

2.2.1 Threatened species and conservation value

Submission number(s)

1, 3

Issue description

In summary, the respondents raised the following issues:

- The RTA has not adequately dealt with the environmental issues regarding biodiversity.
- Although the impact on a number of threatened species is documented, no consideration of mitigation measures has been undertaken or any alternatives to the engineering solution presented.
- Stands of hollow bearing trees and other examples of locally significant vegetation should be retained as priority with targets set to help protect populations of threatened species (eg. at Kyeamba Hill).
- Greater consideration should be given to the contribution of the existing road corridor to regional conservation and the role of the corridor as a habitat in its own right for threatened communities, populations and species.
- Vegetation surveys were conducted in summer (and during an extensive drought period), which would mostly explain why threatened plant species were not recorded.
- Mitigation measures should be considered at key crossing points to facilitate animal movements across the landscape as identified in separate ecological surveys.
- Upgrading the existing carriageway will significantly increase impacts on biodiversity, due to clearing, road widening and associated edge effects, weed invasion, etc… within the existing road corridor.
- Detail regarding the way in which sites will be re-vegetated and their longer term management is lacking and as such more detailed commitments are needed regarding vegetation disturbance, weed control and planting to ensure that impacts are minimised and environmental outcomes maximised.
- The commitments in relation to the relocation of fauna, erection of nest hollows and the re-distribution of felled timber lack detail and are unclear to the extent to which they are likely to prove effective in minimising impacts on fauna. Improperly implemented, a number of these measures have the potential to cause negative impacts.

Response

The RTA has considered biodiversity issues as required by the Director-General's Environmental Assessment requirements under Part 3A of the EP&A Act. The impacts of the Hume Highway Duplication on biodiversity were assessed in accordance with the *Department of Environment and Conservation Draft Guidelines for Threatened Species Assessment* (July 2005) and are described in Chapter 5 of the Environmental Assessments for the individual sections.

The RTA adopted the following principles in order of consideration: avoid, minimise, mitigate. The value of the habitat for threatened species was considered during the design of the Hume Highway Duplication and areas of high conservation value habitat (including stands of hollow bearing trees) were avoided where possible. Where areas of high value habitat could not be avoided, the duplication has been designed to minimise impacts to suitable habitat as far as practical. Where mitigation measures were considered necessary to ameliorate impacts to threatened species, they have been incorporated into the individual proposals where practical. Proposed mitigation measures relating to biodiversity are outlined in Chapter 5 of the Environmental Assessments for the individual sections.

Field surveys for flora species were undertaken in mid to late September 2006 and targeted those threatened species listed on biodiversity databases as having been previously recorded in the region or those threatened species considered likely to occur in the study area based on the presence of suitable habitat. Although the timing of the field surveys occurred during an extended drought period, the databases searched contained records of threatened species over a number of years before the drought and enabled the ecologists to adopt a precautionary approach whereby species presence was determined by assessing the value of the site's habitat rather than the identification of the species on site.

Mitigation measures have been incorporated into the design of the individual proposals at locations recommended in the ecological impact assessment technical paper (refer to Appendix D of the Environmental Assessments for the individual sections) to facilitate the movement of threatened species across the landscape. The majority of threatened species identified or considered likely to occur in the study area are birds that do not require mitigation measures to cross the proposed duplicated highway. Expert advice is currently being sought about the need and design of mitigation measures for threatened reptile species and Squirrel Gliders. A revised commitment reflecting this has been included in Table 3.1, Ref # B12 and B13.

Some sections of the existing Hume Highway alignment would be upgraded to improve road user safety. However, the proposed upgrade has been designed to avoid areas of high conservation value biodiversity habitat where possible or minimise impacts to those areas that could not be avoided. Safeguards in the environmental management plans will ensure that edge effects and weed invasion is minimised.

Planting of native vegetation in parts of the road reserve may be undertaken as a component of the RTA's proposed offset package. The amount of vegetation planting and its location will be detailed in the finalised offset strategy in consultation with the DECC and other relevant government agencies. Sites planted with vegetation would be monitored until the vegetation becomes established. The monitoring period would be for a minimum of two years.

The details in relation to the relocation of fauna, erection of nest hollows and distribution of felled timber will be described in the environmental management plans. Commitments to undertake these works are reflected in the revised Statement of Commitments (Table 3.1, Ref # B7 – B10).

2.2.2 Additional surveys and monitoring

Submission number(s)

1, 3

Issue description

In summary, the respondents raised the following issues:

- Ongoing monitoring of threatened fauna and flora species and populations should be undertaken to assess the real impacts of the proposals and design future mitigation measures.
- Research institutions should be contacted prior to the commencement of works to develop appropriate monitoring protocols, assess current conditions, and provide input on possible mitigation design strategies in cooperation with the RTA.
- Further survey work is required to develop appropriate and effective mitigation and offset measures for threatened species (such as, Squirrel Gliders, threatened reptiles and threatened woodland bird species).
- Additional investigations and expert advice is needed in relation to potential fauna crossing points for threatened and other fauna (eg. Squirrel Gilders and threatened reptiles), as the Environmental Assessments provide insufficient or no detail on the location and design of these.
- Specific advice in relation to Squirrel Glider crossing points is required as the draft Statement of Commitments relate to as yet unidentified crossing points and will not necessarily ensure that animals are able to safely cross the road.
- There is no provision for monitoring the impacts of the development on biodiversity, as required by the Director-General's environmental assessment requirements. A threatened species monitoring program is required to allow the effectiveness of mitigation and offset measures to be assessed during pre-construction, during construction and post construction and allows for their modification if necessary.

Response

The impact of the individual proposals on threatened fauna and flora species was determined by ecologists who undertook field surveys and habitat assessments in accordance with the *Department of Environment and Conservation Draft Guidelines for Threatened Species Assessment* (July 2005). Mitigation measures have been recommended by expert ecologists and will be incorporated into the construction and operation of the individual proposals. A threatened species monitoring program will be undertaken to allow for the effectiveness of mitigation measures to be assessed and allow for their modification if necessary (refer to Table 3.1, Ref # B14).

The ecological impact assessment technical paper (refer to Appendix D of the Environmental Assessments for the individual sections) described the current conditions of the study area and recommended mitigation strategies for those threatened species likely to be impacted by the individual proposals. The ecologists determined the need and location of these mitigation strategies based on field surveys and habitat assessments. In addition, the RTA are currently seeking further expert input on the need, design or location of mitigation strategies. A threatened species monitoring program will be undertaken to allow for the effectiveness of mitigation measures to be assessed and allow for their modification if necessary (refer to Table 3.1, Ref # B12, B13 and B15).

Mitigation measures will be incorporated into the individual proposals at key locations recommended in the ecological impact assessment technical paper. The mitigation measures have been based on field surveys and habitat assessment by specialist ecologists. The

preliminary offset strategy described in Chapter 5 of the Environmental Assessments for the individual sections will be finalised in consultation with the DECC and other relevant government agencies. A threatened species monitoring program will allow the effectiveness of mitigation and offset measures to be assessed and modified if necessary. Where necessary, the RTA may choose to consult with other institutions when determining appropriate monitoring protocols and mitigation strategies.

The majority of threatened species that are likely to occur in the locality are mobile species able to cross roads (such as birds). The individual proposals were considered unlikely to be a barrier to the movement of the majority of threatened fauna species likely to occur in the study area. For those threatened species considered to be adversely affected, mitigation measures to assist in their movement have been recommended at strategic locations such as creek crossings. Expert advice is currently being sought on the distribution of Squirrel Glider populations in proximity to the individual proposals as well as the areas of potential habitat for the Pink-tailed Worm-lizard and Striped Legless Lizard. This advice will assist in mitigation measures and offset strategies for the Squirrel Glider and threatened reptiles prior to construction (refer to Table 3.1, Ref # B12 and B13).

As discussed above, the impact of the individual proposals on threatened species was assessed in accordance with the *Department of Environment and Conservation Draft Guidelines for Threatened Species Assessment* (July 2005). The impact of the proposals on threatened species is described in Chapter 5 of the Environmental Assessments for the individual sections as well as the ecological impact assessment technical paper. The Director General's Environmental Assessment Requirements specify that the RTA identify mitigation and monitoring measures, particularly measures that provide a co-ordinated approach towards the mitigation of biodiversity impacts across the project corridor. The proposed offset strategy will provide a co-ordinated approach to mitigating impacts across the project corridor and will be monitored by the RTA to allow for modification if necessary (refer to Table 3.1, Ref # B5). In addition, a threatened species monitoring program will be developed to allow the effectiveness of mitigation and offset measures to be assessed and modified if necessary (refer to Table 3.1, Ref # B14).

2.2.3 Offset strategy

Submission number(s)

1, 3

Issue description

In summary, the respondents raised the following issues:

- The offset strategy should only be considered after all mitigation/re-design measures have been exhausted especially when threatened communities are impacted.
- The offset strategy as described can not fully compensate or replace a functioning ecosystem.
- There is insufficient detail to be able to determine the extent to which the 'preliminary offset strategy' will offset the impacts of the proposal. A revised commitment which sets out principals and links it to the NSW Property Vegetation Plan Developer is required to ensure that the objective of maintaining or improving the environment as a result of the proposal is achieved.

Response

The RTA adopted the following principles in order of consideration: avoid, minimise, mitigate. The value of the habitat for threatened species was considered during the design of the individual proposals and areas of high conservation value habitat (including stands of hollow bearing trees) were avoided where possible. Where areas of high value habitat could not be avoided, the proposals were designed to minimise impacts to suitable habitat as far as practical. Where mitigation measures were considered suitable for threatened species, they have been incorporated. The proposed offset strategy was considered after all reasonable measures had been undertaken to avoid and minimise impacts to biodiversity. The proposed offset strategy is a co-ordinated approach to ameliorating the Hume Highway Duplication's biodiversity impacts.

The offset strategy will be finalised in accordance with the relevant principles within the Biometric and threatened species assessment tools outlined in the Native Vegetation Regulation 2005 (Table 3.1, Ref # B5).

The preliminary offset strategy outlined in Chapter 5 of the Environmental Assessments for the individual sections will be finalised in consultation with the DECC and other relevant government agencies. The finalised offset strategy will include a suite of measures to improve the regional, landscape and site biodiversity values utilising the relevant principles within the Biometric and threatened species assessment tools outlined in the Native Vegetation Regulation 2005.

2.3 Heritage

2.3.1 Non-Aboriginal heritage

Submission number(s)

1, 2

Issue description

In summary, the respondents raised the following issues:

- The assessment of the non-Aboriginal heritage of the Hume Highway did not adequately describe the heritage values of the highway route itself especially that most sections still follow the original route first surveyed in 1838.
- It is unclear to the extent of which key road sections of heritage significance (eg. sections of remnant road pavement and locally significant vegetation) would be preserved. This should be made a priority with targets set (eg. at Kyeamba Hill).
- The proposal will have a greater impact than that described in Environmental Assessments upon the present values of the Kyeamba South Homestead, and adjacent roadways, by clearing all signs of the old route (eg. the carriageway and remnant trees), as well as having a severe impact on the visual curtilages.
- Overall, the Environmental Assessment documents have provided an adequate assessment of the heritage impacts of the proposed Hume Highway Duplication.
- All mitigation and management measures regarding non-Aboriginal heritage items of State, potentially State and Local significance including the key draft commitments are considered appropriate.
- The recommendations within the Environmental Assessment are supported and would be strengthened through the appropriate conditions of approval for the project including the preparation of a non-Aboriginal heritage management plan.

Response

The RTA has, where possible, endeavoured to ensure that the original route of the historic road, as well as elements of road side heritage, are preserved as part of the works. This has involved where practicable, preferential utilisation of the existing road alignment for the duplication works and minimising impacts on remnant road. Assessment of the cumulative impact, including impacts to the road remnants, notes the impacts are acceptable and will not adversely impact upon the heritage significance of the sites. The mitigation and management measures proposed ensure that representative examples of the old road pavement will be preserved in some sections of the duplication works to minimise the cumulative impact. This will be further developed in the management plan. The sections of remnant road identified during the survey are assessed individually and cumulatively with mitigation and management measures outlined in the Environmental Assessments for the individual proposals.

Heritage items, such as road side inns (eg. Kyeamba South Homestead), form an important part of the driving experience of the Hume Highway, maintaining a connection between the past and present and preserving the potential for ongoing and historically relevant utility of historic roadside items. An alternative option such as movement of the entire highway away from roadside elements including the inn would remove this connection to the road. It was the intent for such buildings to be alongside significant main roads. The RTA has ensured that the road level is maintained at the location of this property to minimise any impact to the visual connection to and from the road. The RTA has also ensured that the existing access is maintained to preserve potential utility of the item and landscaping would be undertaken and would be implemented with consideration to the heritage values.

The RTA notes that the Heritage Office has advised that the Environmental Assessments adequately addresses the impacts on non-Aboriginal heritage of the individual proposals.

A Non-Aboriginal Heritage Management Plan (NAHMP) will be prepared that details the heritage management strategies including the management and mitigation measures for heritage items impacted and heritage items that will not be impacted during construction. In addition the NAHMP will outline the processes for on-going consultation with the Heritage Council of NSW (refer to Table 3.1, Ref # H3).

2.3.2 Aboriginal heritage

Submission number(s)

3

Issue description

In summary, the respondents raised the following issues:

- The commitment to manage any Aboriginal heritage items directly impacted in consultation with Aboriginal stakeholders and the DECC is considered appropriate.
- The commitment to undertake test excavations of Aboriginal heritage objects and sites is supported to determine the significance of the Aboriginal heritage values, the extent of the potential impacts and the appropriate mitigation measures.
- It is recommended that the RTA commit to preparing an Aboriginal Heritage Management Plan (AHMP). The Plan should include the results of the archaeological test excavations, identifying Aboriginal heritage values, management and mitigation measures for impacted sites and sites that will not be impacted during construction, and processes for on-going consultation with Aboriginal stakeholders and the DECC where required.
- Fencing and signposting of any excluded Aboriginal heritage items should be undertaken in consultation with Aboriginal stakeholders.

- The commitment to provide Aboriginal heritage training to all personnel working on site is supported, however this should be undertaken in consultation with Aboriginal stakeholders.
- Although it is agreed that there is potential to uncover Aboriginal heritage items not previously recorded, the results of the test excavations and the preparation of an AHMP should provide sufficient assessment and detail of the nature, extent and significance of the Aboriginal Heritage values within the construction alignment, so that delays to construction can be avoided. A commitment to the immediate stop work should be included, however, for any potential human remains that may be uncovered during construction activities.

Response

The RTA's commitments to manage Aboriginal heritage would include those sites and places directly and indirectly affected by the works. This includes mitigation and management measures such as fencing and signposting of heritage items not impacted by the project, and the provision of heritage training which would be undertaken in consultation with the Aboriginal stakeholders and the DECC. A revised commitment reflecting this has been included in Table 3.1, Ref # AH1 – AH6.

It is noted that DECC has previously supported and approved the targeted test excavations, the results of which will inform the appropriate mitigation and management strategies. The RTA has progressed the test excavations and reporting which is included as part of the Aboriginal Cultural Heritage Management Plan described below.

The RTA is currently preparing an Aboriginal Cultural Heritage Management Plan (ACHMP) that incorporates the results of the archaeological test excavations, identifies Aboriginal cultural heritage values, and outlines heritage management strategies including management and mitigation measures for impacted sites and sites that will not be impacted during construction. In addition the ACHMP outlines the processes for on-going consultation with the Aboriginal stakeholders and the DECC. A document will be provided to Aboriginal stakeholders and the DECC for comment and will be finalised following consideration of comments received. A revised commitment reflecting this has been included in Table 3.1, Ref # AH3.

The RTA agrees that the ACHMP will ensure that Aboriginal heritage is managed appropriately avoiding delays to construction. The ACHMP will include the procedure to be followed should human remains be uncovered. A revised commitment reflecting this has been included in Table 3.1, Ref # AH6.

2.4 Design considerations

Submission number(s)

1, 3

Issue description

In summary, the respondents raised the following issues:

- Alternative options of road placement (such as bypassing) in sections of the Hume Highway with high ecological conservation value and/or non-Aboriginal heritage significance should be considered.
- Consideration should be given to the placement of an entire new 4-lane carriageway on adjacent cleared farmland as it would minimise the environmental impacts considerably.

- Further consideration of alternative options for the highway should be undertaken in consultation with regional ecologists, to retain as much of the existing significant native vegetation as possible.
- Retained road sections with non-Aboriginal heritage significance could be incorporated into roadside rest stops where suitable sections of the existing highway provide entry and exit points.
- An additional commitment is needed to maximise the extent of retained vegetation through the design process.

Response

The Concept Plan Environmental Assessment addressed the option of a new divided carriageway instead of duplication. The use of the existing carriageway to the maximum extent practicable meets economic constraints, limits impacts on agricultural lands (generally minimising the area of acquisition required and avoiding severance) and makes beneficial use of an existing asset. Within these constraints the design has been developed to maximise retention of areas of high ecological and heritage significance.

Where practicable, the RTA has given consideration to utilising redundant sections of the existing Hume Highway as rest stops. This will be further investigated during detailed design of the individual sections.

As part of the options development phase for the individual proposals, design principles were developed which aimed to provide an overarching framework and direction for the concept design. A number of the design principles developed included specific design considerations which sought to maximise retention of native vegetation and minimise impacts on biodiversity.

2.5 Resource management

Submission number(s)

3, 4, 5

Issue description

In summary, the respondents raised the following issues:

- The commitment to minimise water usage must not compromise other environmental objectives, and in particular use of water for dust suppression or to assist revegetation. It is therefore recommended that a comment be included in the draft Statement of Commitments to this effect.
- With possible depletion of groundwater levels already caused by the extended drought conditions minimisation of the use of water for the proposal is crucial. Reference to this issue should be included in the draft Statement of Commitments and there should be a commitment to implement water conservation measures wherever possible.
- In relation to securing a water supply, the RTA will be required to undertake a detailed assessment of the impacts on surface and/or groundwater resources and existing water users prior to a licence or approval to access the water.

Response

It is not the intention of the RTA to compromise any environmental management objectives while minimising water usage. The RTA will ensure that it meets its environmental obligations, such as suppressing dust and establishing areas of revegetation, while adopting alternative

approaches to water usage. This requirement will be documented into the environmental management plans for the Hume Highway Duplication.

The RTA is committed to investigating the use of water conservation measures during construction, including but not limited to opportunities to reuse and recycle water (refer to Table 3.1, Ref # RM3). Further measures will be developed and documented into the environmental management plans for the Hume Highway Duplication.

The RTA is committed to minimising impacts on surface and/or groundwater resources and existing water users. Strategies will be developed to manage groundwater issues associated with surrounding land uses, including management of recharge areas in consultation with the relevant government agencies (refer to Table 3.1, Ref # G1). Additional reporting and documenting of impacts as required by the licence or approval will be undertaken in consultation with the relevant government agencies.

2.6 Air quality and greenhouse gases

Submission number(s)

3

Issue description

In summary, the respondents raised the following issues:

- For areas where amenity or health impacts from dust are likely to be a problem it is recommended that the Statement of Commitments contain a clear commitment to use best practice to mitigate any dust impacts.
- It is recommended that the mitigation and management strategies for rehabilitating disturbed areas be included in the Statement of Commitments.
- No specific details are provided on the proposed dust deposition monitoring. It is recommended that at least two dust deposition gauges be installed adjacent to the sensitive receivers for each section of work. The performance criteria adopted to assess the effectiveness of the monitoring is the DECC guideline of 4 gm/sqm/month. To account for seasonal variation and the impacts of activities other than roadworks, it is recommended that a suitably located background gauge also be installed.
- The burning of green waste is not discussed in the Environmental Assessments. Nevertheless it is recommended that a condition prohibiting such practice be included in the Statement of Commitments.

Response

The RTA recognises that the extent of dust mitigation should relate to the potential impact of any generated dust. Best practice management dust mitigation measures will be adopted for the Hume Highway Duplication where appropriate (refer to Table 3.1, Ref # A1). These may include, but not be limited to:

- Watering of dry exposed surfaces;
- Watering haul roads, and limiting speed as necessary;
- Watering of earthworks where excavation or placement is generating dust;
- Cease activity near the sensitive area if dust cannot be controlled;
- Covering loads on trucks transporting material to and from site at all times;
- Spray planting cover crop of sterile grasses on long term stockpiles and exposed areas; and
- Preventing, and where necessary removing mud and dirt tracked on to road surfaces.

Mitigation measures relating to rehabilitating disturbed areas after earthworks are adopted in the Statement of Commitments for the Hume Highway Duplication. Rehabilitating disturbed areas would involve progressive revegetation (refer to Table 3.1, Ref # V1 and S12).

Dust deposition gauges will be installed at sensitive locations within the individual proposal sites, and the performance of the dust suppression actions will be assessed using DECC's *Approved Methods for Sampling and Analysis of Air Pollutants in NSW* (refer to Table 3.1, Ref # A2).

The RTA does not endorse the practice of burning green waste as demonstrated in the Statement of Commitments to the Concept Plan. An appropriate amendment to the draft project Statement of Commitments reflecting this has been included in Table 3.1, Ref # A5.

2.7 Noise and vibration

2.7.1 Construction

Submission number(s)

3

Issue description

In summary, the respondents raised the following issues:

- It is recommended that the mitigation and management strategies for minimising construction noise and impacts associated with blasting be included in the Statement of Commitments.
- Consideration of the impacts of excavating the rock material between Chainages 89000 to 89300 has not been specifically addressed in the Environmental Assessment for the Little Billabong section. It is noted that residence LB_3 is in close proximity to this location which will be subject to long-term and high impact construction noise impacts. It is considered that this location requires detailed assessment to ensure effective noise mitigation measures are implemented.
- In accordance with a best practice approach, the RTA should investigate the use of alternative beepers and vehicle motion warning systems with regard to feasibility and compliance with OH&S regulation, and if suitable implement their use.
- The location of construction compounds should be at a sufficient distance that the noise impact on any residential dwelling is not more that 5 dB(A) above background. The proposed minimum separation distance described in the Environmental Assessment of 100 m is not considered adequate.
- As a result of the major cuts within the Little Billabong section (Chainage 89100) and Sturt Highway to Tarcutta section (Chainage 38300), it is recommended that blasting commitments be included for these sections of work.

Response

Should blasting be required as part of the construction work for the individual proposals, mitigation and management strategies will be developed following the Australian and New Zealand Environment and Conservation Council (ANZECC) guideline *Technical Basis for Guidelines to Minimise Annoyance Due to Blasting Overpressure and Ground Vibration* (refer to Table 3.1, Ref # N8).

The residence at LB_3 is located 260 metres from the Little Billabong proposal. Typical sound power LA10 noise levels for the excavation equipment range from 100 to 115 dB(A). If a

conservative value of 115 dB(A) is adopted, then this would equate to a LA10 sound power level of 59 dB(A) at LB_3. It should be noted however that this calculation has not included attenuation effects such as ground absorption over a distance of 260 metres, intervening topography and air absorption which would decrease this calculated noise level. It is therefore considered that with the adoption of best practice management measures (including both source and path controls), any potential noise impacts on LB_3 have been adequately addressed.

The RTA will investigate the use of alternative beepers and vehicle motion warning systems with regard to feasibility and compliance with OH&S regulations and if suitable implement their use.

Construction compounds will be located to limit noise impacts on adjacent residential premises to not more than 5 dB(A) above background (refer to Table 3.1, Ref # N6). The proximity of construction compounds to adjacent residential premises will be therefore dependant on the intervening topography and the adoption of best practice management measures, such as, limiting vehicle movements outside the construction hours (including loading and unloading operations) and installing temporary construction noise barriers.

2.7.2 Operation

Submission number(s)

3

Issue description

In summary, the respondents raised the following issues:

- The Hume Highway Duplication must comply with the Environmental Criteria for Road Traffic Noise (ECRTN). Where the applicable criteria are exceeded, the ECRTN requires that, where feasible and reasonable, noise levels from existing roads should be reduced to meet the noise criteria. However in all cases, the redevelopment should be designed so as not to increase existing noise levels by more than 2 dB(A). This means that the 2 dB(A) allowance may only be applied after it has been determined that it is neither feasible nor reasonable to satisfy the applicable criteria. As such, it must be demonstrated that it is neither feasible nor reasonable to satisfy the applicable criteria prior to applying the allowance criteria.
- Column 4 of Table 1 of the ECRTN manual is generally calculated on the basis of the "future existing" noise levels plus 2 dB(A). There is concern that the future existing noise levels within the individual Environmental Assessment includes noise from increases in traffic carrying capacity resulting from other Hume Highway Duplication proposals, ie. the future existing noise levels should only consider organic traffic growth.
- A clear commitment to noise goals detailed in ECRTN should be the basis for the objective to minimise the operational noise. Modified wording of the existing Statement of Commitments to clearly state this is required.

Response

The RTA's Environmental Noise Management Manual (ENMM), which outlines the RTA noise policy for upgrading roads, is accepted by DECC based on the Environmental Criteria for Road Traffic Noise (ECRTN). The noise assessments undertaken for the Environmental Assessments of the individual sections were prepared in accordance with both the ENMM and ECRTN. The assessments identified operational noise mitigation as necessary to reduce predicted noise levels. As such, the RTA will adopt a reasonable and feasible approach to mitigation in

accordance with Practice Note iv of the ENMM and in consultation with relevant property owners (refer to Table 3.1, Ref # N9).

Future existing noise levels are based on the projection of noise levels measured for existing conditions to the year of project opening without the project proceeding. The traffic volume is modelled to determine the percentage of growth for future existing traffic based on all relevant parameters such as land development, adjoining roads, etc. and the calculated growth is used to determine the future existing noise levels. This is organic traffic growth and is RTA's standard procedure. This procedure was undertaken during the preparation of the noise assessments the individual sections.

2.8 Geology, soils and water quality

Submission number(s)

3, 5

Issue description

In summary, the respondents raised the following issues:

- The use of the draft *Managing Urban Stormwater: Soils and Construction, Volume 2 – Book 4 – Main Road Construction* is accepted by DECC provided that Type F or D sediment basins be based on 90th percentile storm event at Albury and *Managing Urban Stormwater: Soils and Construction, Volume 1* be used for issues not covered by Volume 2.
- It is recommended that the mitigation and management strategies for minimising construction impacts on water quality be included in the Statement of Commitments.
- Further detailed information on the management of potential erosion of stream bank areas, gully areas and the management of the potential movement of sediments is required to allow for the assessment of potential impacts on the adjacent watercourses.

Response

The acceptance of the use of the draft *Managing Urban Stormwater: Soils and Construction, Volume 2 – Book 4 – Main Road Construction* by DECC is noted. If any issues are encountered which are not covered by Volume 2, *Managing Urban Stormwater: Soils and Construction, Volume 1* will be used as the reference document. A revised commitment reflecting this has been included in Table 3.1, Ref # S7.

If required as part of the proposals, Type F or D sediment basins will be based on an appropriate percentile storm event in the area relevant to the individual proposal.

The mitigation and management strategies for minimising construction impacts on erosion and sedimentation and water quality will be developed in accordance with the principles described in the draft *Managing Urban Stormwater: Soils and Construction, Volume 2 – Book 4 – Main Road Construction*. Where relevant, the mitigation and management strategies will also refer to other government guidelines, such as DNR's riparian management guidelines. The details of the management strategies will be documented during the development of the environmental management plans.

2.9 Hydrology

Submission number(s)

5

Issue description

In summary, the respondents raised the following issues:

- The simple duplication of drainage structures leads to a doubling of friction losses associated with the flow of water through the structures therefore increasing afflux (upstream inundation depths, frequency and duration) over the existing scenario. It is recommended that this be further investigated and any drainage structures employed be sized to take this into account.
- The acceptability or otherwise of the afflux generated by the proposal is a matter for the RTA. The RTA should consider what development, if any, is affected by any additional inundation depths, frequency of inundation and duration of inundation.
- Regarding the Little Billabong section, it is understood that a parcel of floodplain land from Little Billabong Creek will be separated which suggests a reduction in floodplain storage. As this may have an impact downstream it is recommended that a flood assessment be undertaken to ensure there is minimal affect on downstream flood levels.
- Regarding the Little Billabong section, the methodology used in the hydraulic investigation (Appendix H of the Environmental Assessment) was examined but the adequacy of the model was not assessed.

Response

Whilst duplication the existing highway drainage infrastructure to maintain all necessary hydrological capacities was proposed, the detailed design will include hydraulic considerations to ensure that drainage meets appropriate requirements. This may include the location, type and size of the drainage structures.

The comments regarding the acceptability or otherwise of the afflux generated by the Hume Highway Duplication are noted. As part of the options development phase for the individual sections, design principles were developed which aimed to provide an overarching framework and direction for the concept design. One of the design principles developed included minimising flooding impacts on adjacent properties and road users. The detailed design of Hume Highway Duplication will further consider these design principles.

The hydraulic investigation for the Little Billabong section was undertaken on the concept alignment. It considered predicted flood levels at 1 in 20, 1 in 50, 1 in 100 and twice 1 in 100 for both the existing and proposed conditions. For all events it was determined that there would be no change in predicted flood levels, afflux or stream velocity downstream of the limits of construction within the floodplain. Upstream of the limits of construction there is a predicted increase in afflux to a maximum of 484 mm (1 in 20 year flood) and generally less than 300 mm. Similarly, velocities are predicted to increase by a maximum of 0.67m/sec (1 in 20 year flood).

For the 1 in 100 year flood the maximum afflux increase is predicted to be 416 mm with a corresponding increase in velocity of 0.53m/sec.

The extent of the increase in afflux and velocity is limited to a stream length of approximately 1160 m extending downstream of the proposed bridge in the Little Billabong section (Tumbarumba Road) to the limit of construction impacts of the new work. Transverse to the stream the increase in area under flood is generally restricted by the stream banks and there is

no significant increase in flood width at the 1 in 100 year flood. No developed land is affected by the increased flood. Anecdotally the flood peak lasts no longer than 6 hours.

The impacts of flooding will be confirmed with further modelling using appropriate techniques during development of the detailed design. Consultation will be undertaken with effected landowners.

2.10 Environmental management and licensing

Submission number(s)

3, 5

Issue description

In summary, the respondents raised the following issues:

- It is essential that an environmental management system (EMS) be developed and implemented to effectively minimise environmental impacts. The EMS and supporting documentation should be clear, concise and site-specific.
- Project-wide environmental management should include adoption of best practice, appropriate training of all staff, plans and construction method statements that identify site-specific mitigation measures, performance audits, corrective actions, the establishment of an environmental reference group and a commitment to comply with environmental legislation.
- There is a need to ensure that identified environmental issues can be effectively and expeditiously resolved. Therefore it is important that the appropriate authorities be notified where there is a breach of conditions or any statutes. Environmental staff should be given authority to issue stop work orders or work instructions as necessary.
- Based on the quantities listed in Environmental Assessments, approximately 110,000 tonnes of concrete will be required. Under Schedule 1 of the *Protection of the Operations Act 1997* (POEO Act), a licence is required for a batch plant with an intended production capacity of more than 30,000 tonnes per year.
- Based on photographs in the Little Billabong Environmental Assessment report the major source of fill material (at chainage 89100) appears to be predominately rock. If this is the case, and it is proposed to crush this material, then it will be necessary to obtain a licence for the operation of crushing, grinding or separating works.
- Any other activities, ancillary to construction of the Hume Highway Duplication, which are scheduled in the POEO Act, will require an Environment Protection Licence.
- Any proposed groundwater works whether new or replacement works and any proposed surface water extraction may require a licence or approval under the *Water Act 1912* or *Water Management Act 2000*.
- In the event of an exemption from requiring a licence or approval under the *Water Management Act 2000*, any extraction must be consistent with the rules of the relevant Water Sharing Plan including cease to pump levels for surface water.
- Localised re-alignments of waterways may require a licence or approval under the *Water Act 1912* or *Water Management Act 2000* and therefore will require full assessment of any impacts including, but not limited to, existing water users, geomorphologic issues, environmental issues, water quality issues, floodplain issues, details of any proposed protection works in the form of rock lining or the like.
- The capturing of surface water in dams is subject to legislative control under Section 53 of the *Water Management Act 2000*. Any capture of water in any storage in excess of Maximum Harvestable Rights Dam Capacity for the property may require a licence.

Response

The detailed design and construction of the Hume Highway Duplication will be delivered through two separate alliances between the RTA and construction contractors. In undertaking the detailed design and construction, the alliances will be operating under an environmental management system (EMS) developed and implemented in accordance with RTA's Specification DCM G36 which is guided by ISO 14001 (refer to Table 3.1, Ref # GE1).

The alliance's EMS will provide the framework for environmental management of the Hume Highway Duplication which includes:

- Documentary systems, including but not limited to project-wide and section-specific environmental management plans, work methods statements or equivalents. The documentation will be suitable to effectively communicate responsibilities, guidelines and instructions to various organisational levels and functions.
- Appropriate training/induction of all personnel and all sub-contractors working on site. The training will aim to achieve a level of competence and awareness appropriate to assigned activities.
- Regular review of the environmental management framework and controls. The review will assess the suitability of the framework and controls and identify areas where improvement and/or revision are needed.
- Reporting on performance, including both internal and external audits, and implementation of corrective action. The reporting will facilitate monitoring and evaluation of the environmental performance and corrective action will be implemented promptly where deficiencies are identified.
- Establishment of an environmental review group. The terms of reference for the environmental review group will be established by the RTA prior to the commencement of construction.
- Dedicated environmental personnel appointed to monitor the performance of the environmental management measures by ensuring the requirements of the environmental management framework are implemented and maintained.

The management of environmental issues will be defined in the environmental management plans for the Hume Highway Duplication. This would include, but not be limited to notification of the relevant government agencies should a breach of conditions or statutes occur.

The defined authority and responsibility of dedicated environmental personnel, such as issuing stop work orders and work instructions will be considered during the development of the environmental management plans for the Hume Highway Duplication.

Comments regarding the need for Environment Protection Licenses under the POEO Act are noted. Environment Protection Licences will be obtained where necessary.

Comments regarding the need to require a licence or approval under the *Water Act 1912* or *Water Management Act 2000* are noted. Any licence or approval will be obtained where necessary. Additional reporting and documenting of impacts as required by the licence or approval will be undertaken in consultation with the relevant government agencies. In the event of an exemption from requiring a licence or approval under the *Water Management Act 2000*, the RTA will undertake the activity to be consistent with the rules of the relevant Water Sharing Plan and in consultation with the relevant government agencies.

2.11 Draft Statement of Commitments

Submission number(s)

3

Issue description

In summary, the respondents raised the following issues:

- The term 'Guiding Principle' in the header row implies a connotation that compliance with the referenced document is not necessary required. As such, it is recommended that the heading be changed to 'Reference Document' or 'Policy/Methodology''.

Response

As it is not the intention of the RTA to avoid compliance, the suggestion to change the column heading to 'Reference Document' is agreed. The amendment has been included in the revised Statement of Commitments for the Hume Highway Duplication (Table 3.1).

2.12 Working hours

Submission number(s)

3

Issue description

In summary, the respondents raised the following issues:

- Although the draft Statement of Commitments is considered adequate to cover issues of after hours work, there is concern that the Environmental Assessments have not given adequate consideration to the possible extent and impact of after hours work, and this may create a false expectation in the affected community.

Response

The comments regarding the possible extent and impact of after hours work are noted. The Environmental Assessments prepared for the Hume Highway Duplication considered a number of potential impacts on the community which could occur as a result of undertaking after hours work. The potential impacts would generally relate to increases in noise levels and short-term disruption to traffic. However, mitigation and management strategies, including adoption of best practice, have been proposed to minimise these impacts. Additionally, the RTA is committed to consult with the potentially affected community prior to commencing any construction activities outside the construction hours (refer to Table 3.1, Ref # N3). Any issues raised during that consultation will be addressed appropriately.

2.13 Exhibition period

Submission number(s)

1

Issue description

In summary, the respondents raised the following issues:

- There was not sufficient time to review the documents provided on the RTA website in detail.

Response

The public exhibition period between 12 March 2007 and 17 April 2007 was based on the statutory timeframe described under Section 75H(3) of the EP&A Act, which states that the environmental assessments must be made publicly available for at least 30 days.

2.14 Local roads

Submission number(s)

4

Issue description

In summary, the respondents raised the following issues:

- The relevant local government authority should be consulted throughout the preparation of the dilapidation reports to be prepared for regional and local roads.

Response

The RTA is committed to consulting with the relevant local government authority during the preparation of the dilapidation reports for regional and local roads used by construction traffic. This will include periodic review and survey of road conditions with any rectification works undertaken as expediently as possible where considered necessary and/or where there are safety concerns. Commitments regarding this are provided in the revised Statement of Commitments (refer to Table 3.1, Ref # T3 and E3).

3 Revised Statement of Commitments

The environmental assessments of the Hume Highway Duplication and associated infrastructure identified a range of environmental outcomes and management measures that would be required to avoid or reduce the environmental impacts.

After consideration of the issues raised in the public and stakeholder submissions, the draft Statement of Commitments for the Hume Highway Duplication (refer to Chapter 7 of the Environmental Assessments for the individual sections) has been revised. The revised commitments will guide the subsequent phases of the Hume Highway Duplication development to minimise impacts on the environment.

Revision of the draft Statement of Commitments provided in the Concept Plan Environmental Assessment was not considered necessary. Instead, relevant commitments were included in the revised Statement of Commitments for each section of the Hume Highway Duplication below.

The revised Statement of Commitments, including commitments relating to the key issues described in the Director-General Environmental Assessment requirements are provided in Table 3.1.

Table 3.1: Revised Statement of Commitments

Objective	Ref #	Commitment	Timing	Reference Document
General				
Ensure the adequacy and compliance of environmental management measures	GE1	Environmental Management System(s) will be established and maintained to implement best practice management for environmental impacts.	Pre-Construction and Construction	RTA Specification DCM G36 ISO 14001
	GE2	Dedicated environmental personnel appointed to monitor the performance of the environmental management measures of the Proposal.	Pre-Construction and Construction	
Consultation				
Ensure effective and receptive consultation with the community is undertaken	C1	Newsletters and media coverage will be used regularly to cover the proposed works schedule, areas in which these works are proposed and the construction hours. The newsletters and media coverage will provide contact names and phone numbers of relevant staff.	Pre-Construction and Construction	RTA Community Involvement Practice Notes and Resource Manual (RTA 1998)
	C2	An internet site which contains periodic updates of work progress, consultation activities and planned work schedules will be established and maintained regularly. The internet site will provide contact names and phone numbers of relevant staff.	Pre-Construction and Construction	RTA Community Involvement Practice Notes and Resource Manual (RTA 1998)
Ensure effective management of complaints	C3	A 24 hour toll-free complaints contact telephone number will be established for the Proposal.	Pre-Construction	RTA Community Involvement Practice Notes and Resource Manual (RTA 1998) AS 4269 Complaints Handling
	C4	A system to receive, record, track and respond to complaints within a specified timeframe will be established.	Pre-Construction and Construction	RTA Community Involvement Practice Notes and Resource Manual (RTA 1998) AS 4269 Complaints Handling
Biodiversity				
Minimise native vegetation disturbance	B1	The limits of clearing and other native vegetation disturbance will be clearly marked on relevant work plans and on site with temporary fencing installed prior to clearing.	Construction	RTA QA Specification G40 Clearing and Grubbing
	B2	Equipment storage areas and stockpile areas will be located in existing cleared locations.	Construction	RTA Stockpile Management Procedures 2001
Minimise weed establishment	B3	Soil containing weeds will be stockpiled at least 25 m away from watercourses and native vegetation. Sediment fences will be erected down slope from stockpiled soil.	Construction	RTA QA Specification R178 Vegetation RTA Stockpile Management Procedures 2001
	B4	Noxious weeds in areas disturbed by construction activities will be	Construction and	RTA QA Specification G40

Objective	Ref #	Commitment	Timing	Reference Document
		managed for a minimum of two years post-construction completion.	Post-Construction	Clearing and Grubbing *Noxious Weeds Act 1993*
Offset the residual impacts of the Proposal on biodiversity, particularly on Box Gum woodland and habitat for threatened species so as to maintain or improve biodiversity values in the area in the long term	B5	A biodiversity offset strategy will be developed in consultation with DECC and other relevant government agencies. The offset strategy will include but not be limited to: • Revegetation within the road corridor • Revegetation on other land • A range of management actions to improve the regional, landscape or site value of native vegetation within the region. The strategy will be developed utilising the relevant principles within the Biometric and threatened species assessment tools outlined within the Native Vegetation Regulation 2005.	Pre-Construction and Construction	DEC Restoration and Rehabilitation Guidelines RTA Compensatory Habitat Policy and Guideline (draft) Biometric and threatened species assessment tools (Native Vegetation Regulation 2005)
	B6	Disturbed areas will be progressively revegetated using Box Gum Woodland plant species of local provenance	Construction	
Minimise impacts on hollow dependent fauna species	B7	An appropriately qualified person will check tree hollows prior to clearing for hollow-dependent fauna. Fauna found occupying tree hollows will be relocated into suitable available hollows or nesting boxes within adjacent vegetation. The suitability of adjacent vegetation for relocation will be determined on the basis of expert advice.	Construction	
	B8	Stands containing hollow-bearing trees will be cleared using a two stage clearing process with adjacent non-hollow-bearing trees to be cleared first.	Construction	
	B9	An appropriately qualified person will provide advice on any relocation of logs and dead trees that are to be cleared to provide habitat in adjacent areas where feasible and practicable. Such relocation will be undertaken in a manner to minimise damage to existing vegetation and will not occur in high condition remnant vegetation.	Construction	
	B10	Nest boxes will be fixed to suitable retained vegetation and in a way that does not damage the tree.	Construction and Post-Construction	
Maintain terrestrial fauna connectivity	B11	Drainage culverts will be designed to facilitate movement of fauna species where feasible.	Pre-Construction	
	B12	Expert advice will be sought to assist in identifying the need and location for crossing points for Squirrel Glider populations. Based on this advice and in consultation with DECC, the location and design of these crossing	Pre-Construction	

Objective	Ref #	Commitment	Timing	Reference Document
		points will be incorporated into the Proposal.		
	B13	Expert advice will be sought to assist in identifying the need and location for crossing points based on the areas of potential habitat for the Pink-tailed Worm-lizard and Striped Legless Lizard. Based on this advice and in consultation with DECC, the location and design of crossing points will be incorporated into the Proposal where feasible.	Pre-Construction	
Minimise impacts to Pink-tailed Worm-lizard and Striped Legless Lizard	B14	An appropriately qualified person will check Pink-tailed Worm-lizard and Striped Legless Lizard habitat prior to construction. Individuals found in the construction footprint will be relocated into suitable habitat. The suitability of adjacent habitat for relocation will be determined on the basis of expert advice.	Pre-Construction	
Ensure effectiveness of threatened species mitigation measures	B15	A Threatened Species Monitoring Program will be developed to allow the effectiveness of mitigation and offset measures to be assessed and allow for their modification if necessary.	Pre-Construction, Construction and Post Construction	
Maintain fish passage	B16	Culverts will be designed to facilitate fish passage where appropriate.	Pre-Construction	Why do fish need to cross the road? Fairfull and Witheridge (2003)
	B17	Fish passage will be maintained during construction.	Construction	Why do fish need to cross the road? Fairfull and Witheridge (2003)
Minimise impacts to aquatic habitat	B18	Riparian areas disturbed by the Proposal will be progressively revegetated using plant species of local provenance.	Construction	
	B19	DPI Fisheries will be consulted regarding use of cleared vegetation in re-snagging programs for waterways.	Construction	
Aboriginal heritage				
Minimise impact on Aboriginal heritage items	AH1	Any Aboriginal heritage items directly or indirectly impacted will be managed in consultation with Aboriginal stakeholders and DECC including development of the appropriate management and mitigation strategy.	Pre-Construction	
	AH2	Test excavation will be undertaken for the following Aboriginal heritage items: T-PAD-1, K3, K10, K-PAD-6, K-PAD-8, K-PAD-9, LB3, LB4, LB-PAD-3, YY7, YY14, YY17, M-PAD-1, M-PAD-3 and LB-PAD-1 and LB-3 (if impacted) and any additional management and mitigation measures will be developed in consultation with Aboriginal stakeholders and DECC.	Pre-Construction	

Objective	Ref #	Commitment	Timing	Reference Document
	AH3	An Aboriginal Cultural Heritage Management Plan (ACHMP) will be prepared, detailing the outcomes of the archaeological test excavations, the proposed mitigation and management measures including the management of any new impacts and any objects encountered during construction, and the process for ongoing consultation of the Aboriginal stakeholders and DECC. The ACHMP will be prepared in consultation with Aboriginal stakeholders and DECC.	Pre-Construction and Construction	
	AH4	Where appropriate through consultation with Aboriginal stakeholders, Aboriginal heritage items within the construction corridor not directly impacted will be marked on construction plans, fenced and signposted where necessary.	Pre-Construction and Construction	
	AH5	All personnel working on site will receive training in their responsibilities under the *National Parks and Wildlife Act 1974*. Site specific training will be developed in consultation with Aboriginal stakeholders and will be given to workers when working in the vicinity of identified heritage items.	Construction	*National Parks and Wildlife Act 1974*
	AH6	Should any human remains be uncovered during works, all works in the vicinity of the find will cease immediately, the Project Manager/Director and the Environmental Manager will notify the NSW Police, DECC, the RTA's Environmental Officer (Heritage) and the RTA's Senior Environmental Officer and will seek specialist advice if required. Works will not re-commence until appropriate clearance has been received.	Construction	*National Parks and Wildlife Act 1974*
Non-Aboriginal heritage				
Minimise impacts on non-Aboriginal heritage items	H1	Where the Proposal will directly impact heritage items of state and local significance, detailed heritage investigations and/or research will be performed prior to construction. Information collected will be documented in appropriate archival records.	Pre-Construction	RTA Heritage Guidelines *Heritage Act 1977*
	H2	Where heritage items are not directly impacted, care will be taken to not disturb them. This will include briefing of the construction works team to protect such assets during the construction phase, minimising access and clear delineation of items including fencing and signage would be provided where necessary in consultation with a heritage specialist. Identified heritage items will be clearly marked on construction plans.	Pre-Construction and Construction	
	H3	A Non-Aboriginal Heritage Management Plan (NAHMP) will be prepared, detailing the proposed mitigation and management strategies for all non-	Pre-Construction	

Objective	Ref #	Commitment	Timing	Reference Document
		Aboriginal heritage items either impacted directly or indirectly, the proposed management strategy for any new objects uncovered during construction activities and the process for consultation with the Heritage Council of NSW.		
	H4	All personnel working on site would receive training in their responsibilities under the *Heritage Act 1977*. Site-specific training will be given to workers when working in the vicinity of identified heritage items.	Pre-Construction and Construction	*Heritage Act 1977*
Resource Management				
Reduce demand on resources	RM1	Geotechnical investigations will be undertaken to identify suitable material on site for any additional fill material requirements.	Pre-Construction	
	RM2	The Proposal will be designed to achieve balanced earthworks where feasible.	Pre-Construction	
	RM3	Construction practices to minimise water use including investigating opportunities to reuse and recycle water will be adopted.	Pre-Construction and Construction	
	RM4	Appropriate water sources for the construction will be investigated and identified in consultation with the relevant government agency.	Pre-Construction	
Minimise transport associated with the demand for resources	RM5	Where feasible, suitable materials will be obtained from local existing licensed quarries.	Construction	
Managing the sourcing of additional fill material outside of the road corridor should it be required	RM6	Only suitably approved and licensed quarries would be used for fill material outside of the road corridor and accordingly environmental impacts from the use of such quarries would be addressed and managed through appropriate licensing and approval processes.	Pre-construction and Construction	RTA Stockpile Management Procedures 2001
Hydrology				
Minimise the impact on groundwater resources and land capability and manage land degradation relating to waterlogging and salinisation	G1	Strategies will be developed to manage groundwater issues associated with surrounding land uses, including management of recharge areas in consultation with the relevant government agencies.	Construction	
Minimise the impact of high water table on road infrastructure	G2	Appropriate subsurface drainage infrastructure (e.g. blind ditches) will be installed in areas identified as having shallow groundwater levels, to divert groundwater away from pavement subgrade.	Construction	

Objective	Ref #	Commitment	Timing	Reference Document
Traffic				
Minimise impact on traffic due to construction	T1	Construction vehicle movement arrangements will be developed to minimise impacts on other road users with specific regard to other road works in the region, local traffic movement requirements (stock or machinery) and peak traffic volumes, including long weekends and holiday periods.	Construction	RTA QA Specification G10 Control of Traffic
	T2	Construction will be planned to minimise disruption to traffic including use of road occupancy licences, variable message signage, static signage and coordination between sections as far as feasible through Hume Highway Duplication coordination meetings.	Construction	RTA QA Specification G10 Control of Traffic
	T3	Periodic review and survey of road conditions would be undertaken in consultation with Council(s) and rectification works undertaken as expediently as possible where considered necessary and/or where there are safety concerns.	Construction	
Social and Economic Considerations				
Minimise property impacts to adjacent landholders	E1	All property will be acquired in accordance with the RTA Land Acquisition Policy.	Pre-Construction	RTA Land Acquisition Policy
Minimise impacts to property access following construction	E2	Negotiations for property acquisition will include consultation on property adjustments where required to maintain farm management practices.	Pre-Construction	
Minimise impact to local and regional roads from construction traffic impacts	E3	Dilapidation surveys of regional and local roads used by construction traffic will be undertaken in consultation with the relevant local government authority. The RTA will be responsible for any necessary repair of deterioration attributable to the impacts of construction traffic.	Pre-Construction and Post-Construction	
Minimise the social and economic impact of the construction works on the local community	E4	Property access will be maintained for the duration of construction with any temporary access requirements being provided in consultation with adjacent landowners where necessary.	Construction	
	E5	Advance notification will be given to property owners on project schedules, construction works and access arrangements.	Pre-Construction and Construction	RTA Community Involvement Practice Notes and Resource Manual (RTA 1998)
Air Quality and Greenhouse Gases				
Minimise generation of dust	A1	Dust will be visually monitored and where necessary best practice mitigation measures will be implemented to minimise the generation of dust.	Construction	Australian Design Rules and relevant manufacturers specifications

Objective	Ref #	Commitment	Timing	Reference Document
	A2	Dust deposition gauges will be installed at sensitive locations, and the performance of the dust suppression actions will be assessed against the DECC guideline.	Construction	Approved Methods for Sampling and Analysis of Air Pollutants in NSW (DEC 2007)
Minimise greenhouse gas emissions and air pollution	A3	Plant and equipment will be maintained in a proper and efficient condition and operated in a proper and efficient manner.	Construction	Australian Design Rules and relevant manufacturers specifications
	A4	Greenhouse gas emission targets for the construction of the Proposal will be in line with government guidelines.	Construction	
	A5	There will be no burning of green waste or any other wastes.	Construction	
	A6	Construction will aim to use electrical energy derived from a renewable energy source accredited by the National Green Power Accreditation Steering Group (or equivalent) for the supply of at least 50 per cent of the on-site electrical energy requirement for the Proposal's construction.	Construction	
Noise and Vibration				
Establish baseline conditions prior to the start of construction	N1	As necessary, condition surveys will be undertaken on buildings and structures within the potential area of vibration impact prior to commencement of rock-breaking and blasting activities.	Pre-Construction	Technical Basis for Guidelines to Minimise Annoyance Due to Blasting Overpressure and Ground Vibration (ANZECC 1990)
Minimise the impact of construction noise and vibration on surrounding residents and where necessary, comply with all relevant standards to reduce noise and vibration to an acceptable level	N2	The standard construction hours for the Proposal will be 7.00am to 7.00pm Monday to Friday; 7.00am to 4.00pm Saturdays and no work on Sunday or public holidays.	Construction	
	N3	Works required outside of standard construction hours will only be undertaken where the works are essential to be completed in this period and after appropriate consultation with affected residences, the DECC, and local council and would be planned to minimise disruption to freight traffic.	Construction	RTA Environmental Noise Management Manual (RTA 2001)
	N4	All plant and equipment will be well maintained and fitted with adequately maintained silencers that meet the vehicle design specifications. At sensitive locations 'broadband' reversing alarms or other alternative vehicle motion warning systems will be considered in lieu of tonal reversing alarms.	Construction	AS 2436-1981 Guide to Noise Control on Construction, Maintenance and Demolition Sites
	N5	Prior consultation and notification will be undertaken with nearby residences that may be affected by noise or vibration generating activities.	Construction	RTA Environmental Noise Management Manual (RTA 2001) RTA Community Involvement

Objective	Ref #	Commitment	Timing	Reference Document
				Practice Notes and Resource Manual (RTA 1998)
	N6	Construction compounds will be located to limit noise impacts on adjacent residential premises to not more than 5 dB(A) above background.	Construction	
	N7	Best management practices will be adopted in accordance with the RTA Environmental Noise Management Manual. Inspections and noise monitoring will be undertaken to determine the effectiveness of mitigation strategies.	Construction	RTA Environmental Noise Management Manual (RTA 2001)
	N8	Controlled blasting techniques will be employed where feasible. Test blasts will be implemented at locations furthest from residential receivers and noise and vibration levels measured at the nearest structures would be undertaken.	Construction	Technical Basis for Guidelines to Minimise Annoyance Due to Blasting Overpressure and Ground Vibration (ANZECC 1990)
Minimise the operational noise impact on existing nearby residences	N9	Mitigation measures implemented in accordance with the RTA Environmental Noise Management Manual. These will be implemented during detailed design and in consultation with relevant property owners.	Construction and Post-Construction	RTA Environmental Noise Management Manual (RTA 2001) Environmental Criteria for Road Traffic Noise (EPA 1999)
Visual				
Minimise visual impact and continue existing landscape and vegetation types	V1	Disturbed areas will be progressively revegetated using plant species of local provenance selected in consultation with a qualified landscape officer.	Construction	RTA QA Specification R178 Vegetation
	V2	The landscaping plans for the Proposal will consider the retention of existing views and vistas from the highway having regard to road user safety requirements.	Pre-Construction and Construction	
	V3	Cuttings and embankments will be graded out wherever feasible to reflect and best fit the characteristics of the local landform.	Construction	
Waste Minimisation and Management				
Reduce creation of waste and maximise re-use and recycling.	W1	Reuse and recycling and avoidance strategies in accordance with the NSW Government's Waste Avoidance and Resource Recovery Strategy 2006 will be adopted.	Construction	Waste Avoidance and Resource Recovery Strategy 2006
Ensure waste generated is managed appropriately	W2	Waste materials will be classified and managed in accordance with DEC Environmental Guidelines: Assessment and Classification & Management of Liquid and Non-liquid Wastes.	Construction	DEC Environmental Guidelines: Assessment and Classification & Management of Liquid and Non-liquid Wastes

Objective	Ref #	Commitment	Timing	Reference Document
Geology, Soils and Water Quality				
Minimise scour impacts	S1	Scour protection will be installed in creek/river bank areas at risk of erosion as necessary.	Pre-Construction and Construction	RTA QA Specification G38 Soil and Water Management
	S2	Culverts will be installed as early as possible in the construction program to ensure that transverse drainage is in place during early stages of construction. Permanent stream protection measures and other waterway structure requirements will also be established as early as possible.	Construction	
Minimise the risk of water contamination and pollution of local watercourses	S3	Any construction materials and fuels stored or used on site will be appropriately managed to minimise the risk of water contamination.	Construction	Managing Urban Stormwater: Soils and Construction (Landcom 2005)
	S4	Operational stormwater controls will be implemented to meet identified receiving water objectives. These may include dispersed stormwater treatment through grassed swales, constructed treatment measures such as operational stormwater retention basins and the use of gross pollutant traps.	Pre-Construction and Construction	
	S5	The requirement for spill containment will be made on the basis of a site-specific assessment that considers the following: • The sensitivity of the receiving environment. • The likelihood of an accident occurring that would result in a spill. • The proximity of the discharge point to the receiving waters. • The condition of the receiving waters.	Pre-Construction and Construction	
Minimise disturbance to landform, geology and soils and prevent erosion and sedimentation	S6	A soil conservationist will be engaged to provide advice on management of soils through detailed planning and construction.	Pre-Construction and Construction	
	S7	Erosion and sedimentation controls will be installed, maintained and managed prior to and during construction. The principles in Managing Urban Stormwater: Soils and Construction, Volume 2 Book 4 - Main Road Construction will apply. If any issues are encountered which are not covered by Volume 2, Managing Urban Stormwater: Soils and Construction, Volume 1 will be used.	Pre-Construction and Construction	Managing Urban Stormwater: Soils and Construction, Volume 2 Book 4 - Main Road Construction (draft) Managing Urban Stormwater: Soils and Construction (Landcom 2005)
	S8	Sediment will be cleared from behind barriers on a regular basis and controls will be monitored and maintained to ensure they work effectively at all times.	Construction	RTA QA Specification G38 Soil and Water Management
	S9	Site access sediment controls such as hardstand material or rumble grids	Construction	

Objective	Ref #	Commitment	Timing	Reference Document
		will be installed at entry and exit points to minimise the tracking of soil and particulates onto pavement surfaces.		
	S10	Stockpiles will be established on slopes less than 2:1 (horizontal to vertical).	Construction	RTA Stockpile Management Procedures 2001
	S11	All stockpiles sites will be designed, established, operated and decommissioned in accordance with RTA Stockpile Management Procedures 2001. Stockpiles will be located not less than 100 metres from the high bank of any rivers or drainage lines.	Construction	RTA Stockpile Management Procedures 2001
	S12	Rehabilitation of disturbed areas will be undertaken progressively.	Construction	RTA QA Specification R178 Vegetation
Contaminated Land				
Identification and investigation of potentially contaminated sites	CL1	A review will be undertaken of all land impacted by the Proposal to identify potentially contaminated sites. Potentially contaminated sites will be further investigated in accordance with the RTA's Contaminated Land Management Guideline.	Pre-Construction	Contaminated Land Management Guideline (RTA 2005) Guidelines for Assessing Service Station Sites (EPA1994) Sampling Design Guidelines (EPA 1995)
Management of previously unidentified contamination	CL2	If site contamination investigations indicate that contaminants are present on the site in concentrations above the intended land use criteria, then an appropriate risk based management plan approach would be developed in accordance with the RTA's Contaminated Land Management Guideline. Where contamination is found to pose unacceptable risk to either the environment or human health receptors a remedial action plan will be developed and remediation works will be undertaken.	Pre-Construction and Construction	Contaminated Land Management Guideline (RTA 2005) SEPP 55 – Remediation of Land *Contaminated Land Management Act 1997* DEC Guidelines for NSW Site Auditor Scheme
Hazard and Risk				
Minimise the risk of an incident during construction	R1	Bunded storage areas will be located away from watercourses and will be established for oils and other hazardous liquids in accordance with Australian Standards. Spillages will be contained and collected any spillages for appropriate disposal.	Construction	AS 1940 The Storage and Handling of Flammable and Combustible Liquids
	R2	Activities with the potential for spillage such as refuelling, maintenance of equipment, mixing of cutting oil and bitumen will be conducted in bunded areas to prevent discharge into watercourses.	Construction	AS 1940 The Storage and Handling of Flammable and Combustible Liquids

Objective	Ref #	Commitment	Timing	Reference Document
	R3	Potentially hazardous and contaminating activities (such as washing construction plant, concrete mixers, bitumen surfacing equipment and handling hazardous chemicals) will be conducted in bunded areas away from watercourses.	Construction	AS 1940 The Storage and Handling of Flammable and Combustible Liquids