MODIFICATION REQUEST: Hume Highway - Woomargama Bypass

(08_0237 MOD1)

Modification to permit increased flooding inundation levels associated with the bridging of Mountain Creek

Director General's
Environmental Assessment Report
Section 75W of the
Environmental Planning and Assessment Act 1979

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EXECUTIVE SUMMARY

The Hume Highway Upgrade – Woomargama Bypass (08_0237) was approved by the then Minister for Planning on 31 January 2010 under Part 3A of the *Environmental Planning and Assessment Act, 1979*. The approved project involves the construction of a new dual carriageway highway three kilometres to the west of the village to 7.5 kilometres north of the village, encompassing a total length of approximately nine kilometres in the Greater Hume local government area.

The NSW Roads and Traffic Authority has submitted a request (08_0237 MOD1) under section 75W of the *Environmental Planning and Assessment Act, 1979* to modify the project to increase flooding inundation levels associated with the bridging of Mountain Creek and which are not compliant with condition 2.25 of the Minister's approval. Part of this modification includes modifying the twin bridges of Mountain Creek from six spans to four spans.

The Department has undertaken a detailed assessment of the modification request, considered the views of the public authorities and is satisfied that the proposal would not significantly increase the risk of potential flood damage to structures and buildings or the natural environment. The impacts and risks are of a minimal nature and do not require further mitigation measures beyond the existing conditions of approval and management plan.

The Department considers the proposal would have no adverse impacts upon the community, private land owners or the environment. Therefore it is recommended that approval be given to the NSW Roads and Traffic Authority's modification request to permit increased flooding inundation levels at Mountain Creek and endorse the Mountain Creek Bridge design for the Woomargama Bypass project.

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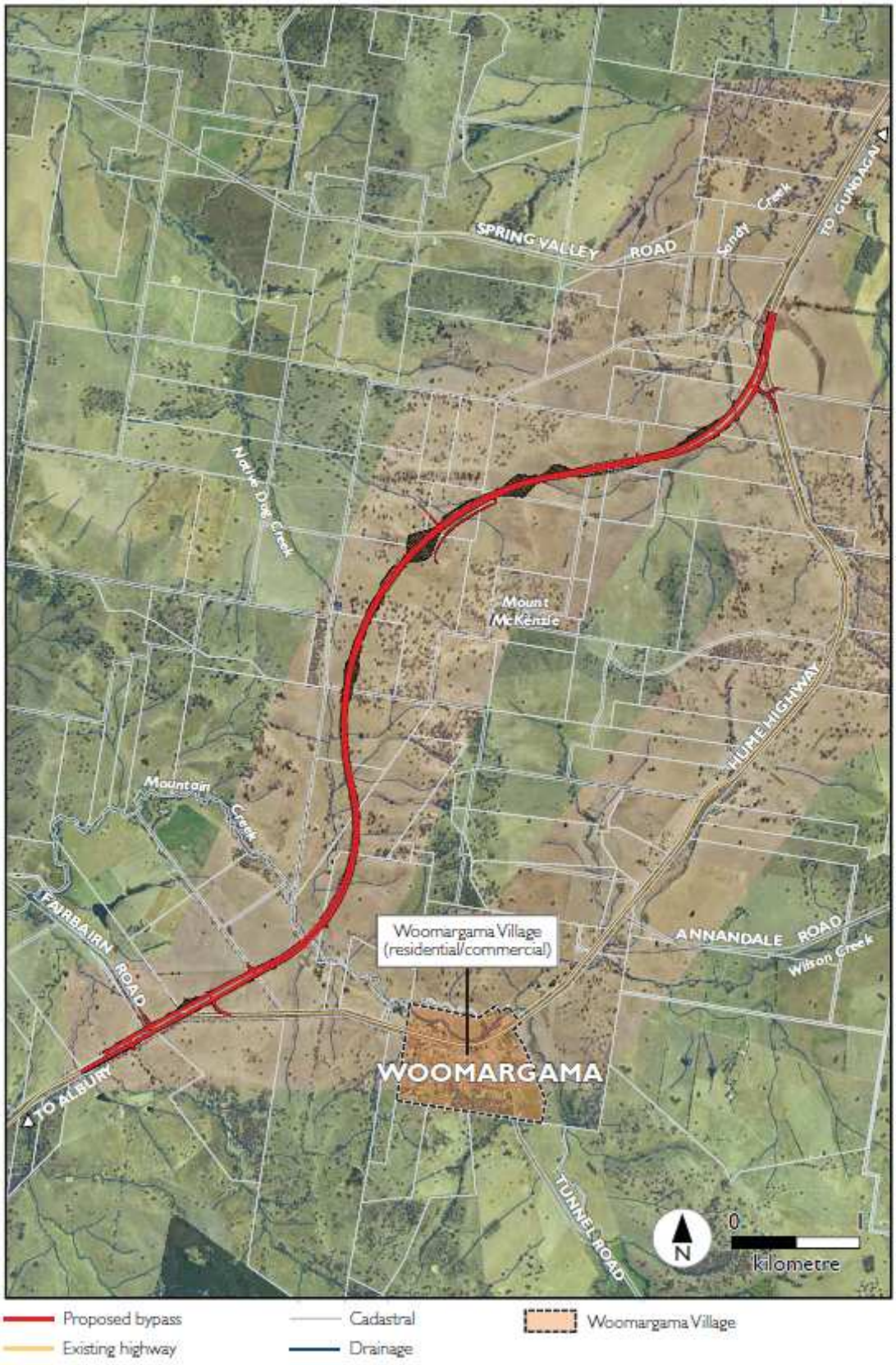
1. BACKGROUND

The Hume Highway Upgrade – Woomargama Bypass Project (08_0237) was approved by the then Minister for Planning on 31 January 2010 under Part 3A of the *Environmental Planning and Assessment Act, 1979* (the EP&A Act). The approved project involves the construction of a new dual carriageway highway three kilometres west of the village to 7.5 kilometres north of the village, encompassing a total length of approximately nine kilometres. Key components of the project are:

- Approximately nine kilometres of dual carriageway;
- An at-grade intersection with the existing Hume Highway approximately 6.5 kilometres north of Woomargama village;
- Bridge over Sandy Creek;
- Six deep cuttings;
- Twin bridges over Mountain Creek;
- An at-grade intersection with the existing Hume Highway approximately two kilometres south of Woomargama village; and
- An upgrade to the at-grade intersection at Fairbairn Road

Figure 1 Approved Project Layout



Woomargama is a small, rural village with a population of approximately 80 residents and a total population of 251 people in the surrounding district. It is located approximately 50

kilometres north of Albury and 15 kilometres south of Holbrook. Adjacent to the highway, land use through the village is a mixture of residential and commercial.

The village's main residential area is located to the south of, and along, the existing Hume Highway alignment. Further to the north west of the existing highway, beyond the smaller rural-lifestyle and hobby farm properties that line the highway, are some of the largest rural properties in the area.

The Construction Environmental Management Plan lodged by the RTA sought a maximum afflux level of 480mm, which does not comply with condition 2.25, which states:

> *The Proponent shall ensure that the detailed design of the project does not significantly increase flooding characteristics and limit to the greatest extent practicable, increases in inundation levels to a maximum of 50mm, and 1 hour, in a 1 in 100 year ARI rainfall event.*

Whilst there is some flexibility within this condition, this level was considered to be excessive and the Department raised issue with whether or not this level of inundation would be consistent with the existing project approval. As such, the RTA has submitted this modification request.

2. PROPOSED MODIFICATION

2.1 Modification Description

The NSW Roads and Traffic Authority (the Proponent) has submitted a request (08_0237 MOD1) under section 75W of the EP&A Act to insert condition 2.26A to read:

> Notwithstanding conditions 2.25 and 2.26 the detailed design of the new Hume Highway bridges at Mountain Creek shall limit to the greatest extent practicable increases in flooding impacts between the bridges and a point 600 metres upstream of the bridges to those shown on Drawing No. NB11038-SK-DR-0006 Rev E.

The Proponent requests the addition of this condition as a consequence of the changes to the flow regime from a reduction in the number of spans of the proposed Mountain Creek bridge (six to four spans).

The Proponent states that the reason for this bridge redesign is that the landowner adjacent to Mountain Creek decided to sell their portion of land to the east of the new alignment to the RTA so that there was no longer a requirement to provide the landowner with access across the new alignment to the severed portion of their land. It is noted that one span of the six span bridge was provided for the purpose of providing access to this part of the property.

During the detailed design process, a number of different bridge options for Mountain Creek were assessed, namely reducing the number of spans as the landowner crossing was no longer required. Reducing the number of spans has a number of advantages in terms of costs, use of resources, long term maintenance and constructability. The disadvantages of reducing the number of spans primarily relate to the potential for increased flooding upstream. Five, four and three span bridges across Mountain Creek were assessed and twin four span bridges was selected as the preferred option based on

cost and environmental considerations. While the modelling in the EA was adequate for its purpose, it was not of sufficient detail and rigour to use for the detailed design of the Mountain Creek bridges. A detailed hydrological model of Mountain Creek was developed for the assessment and 100 year flood extents were estimated for existing conditions and the 4 span bridge option.

3. STATUTORY CONTEXT

3.1 Modification of the Minister's Approval

Consideration of the modification request under section 75W of the EP&A Act is appropriate as the proposed modification is not consistent with the project approval, but is not a radical transformation of the approved project. The proposal allows a minor variation of the bridge design and associated inundation impacts.

3.2 Delegated Authority

On 25 January 2010, the Minister delegated his powers and functions under section 75W of the EP&A Act to Director's in the Major Projects Assessment Division in cases where there are less than 10 public submissions (not including submissions from public authorities) in the nature of objections in respect of the modification request.

As no public submissions were received, the modification request meets the above criteria, consequently the Director, Infrastructure Projects may determine the modification request under delegated authority.

4. CONSULTATION AND SUBMISSIONS

4.1 Consultation

Under Section 75X(2)(f) of the EP&A Act, the Director General is required to make the modification request publicly available. Accordingly, the Department placed the application and supporting documentation on the website and forwarded a copy of the application to the Office of Environment and Heritage, NSW Office of Water, Department of Primary Industries and Greater Hume Shire Council.

The Department did not publicly exhibit the modification request due to the minor nature of the modification request and the confined nature of the impact which would not have the potential to adversely affect any residents or result in any wider ranging impacts.

4.2 Public Authority Submissions

The Office of Environment and Heritage and NSW Office of Water raised no objection to the proposal.

No other agency responses were received.

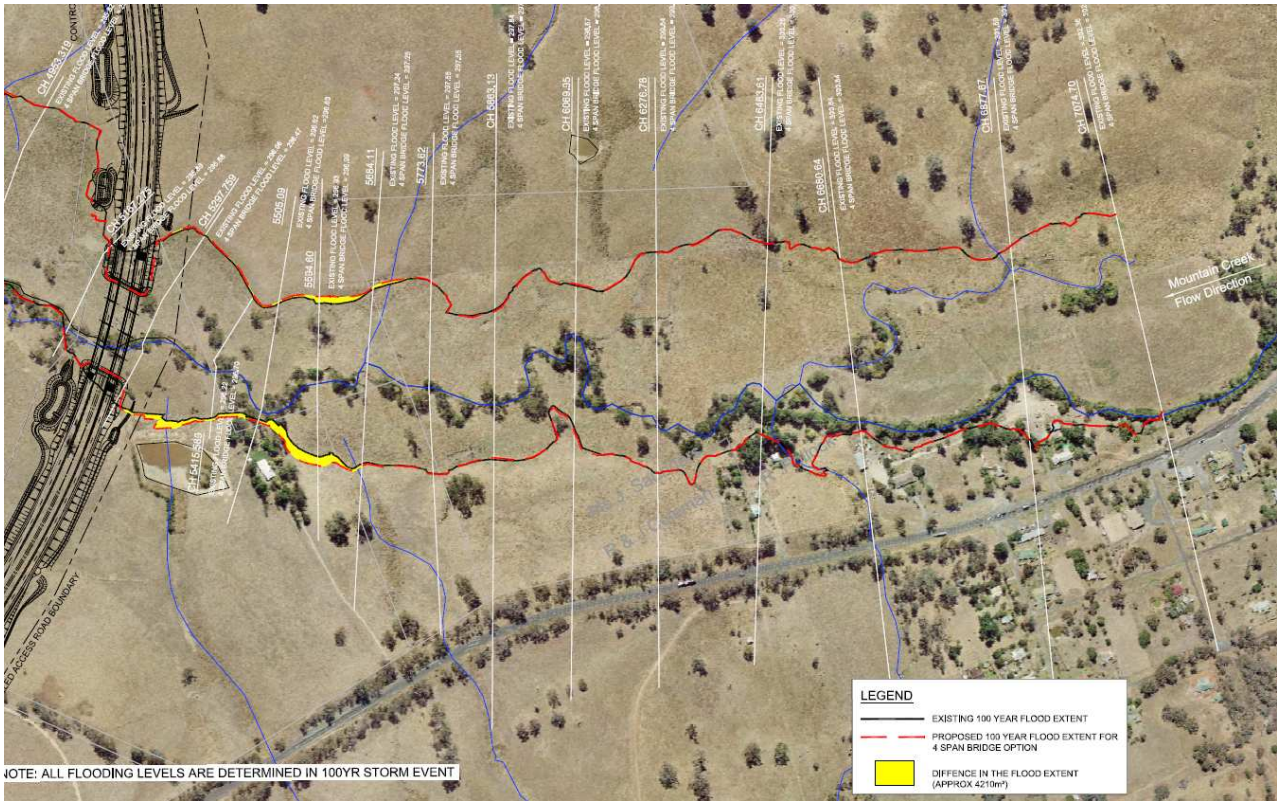
5. ASSESSMENT

Condition 2.25 specifies that the Proponent shall ensure that the detailed design of the project does not significantly increase flooding characteristics and limit to the greatest extent practicable, increases in inundation levels to a maximum of 50mm, and 1 hour, in a 1 in 100 year ARI rainfall event. As a result of a foreseen non-compliance with this condition, the Proponent has lodged this modification request.

It is noted by the Proponent that the hydrologic modelling undertaken during the detailed design of the project was more refined than the modelling presented in the Environmental Assessment. This resulted in some inconsistencies between the two, but in summary it indicated that the extent of the 100 year flooding impacts for the existing conditions was overestimated in the Environmental Assessment.

The proposed four span bridge results in a maximum afflux of approximately 480mm approximately 200 metres upstream, reducing to zero approximately 500 metres upstream. The flooding impacts remain wholly contained within the floodplain. At the location where afflux is greatest the width of the flow would marginally increase from 180 metres to 190 metres and the greatest increase in width of flow would be 25 metres at approximately 300 metres upstream (see Figure 2).

Figure 2 – Difference in flood extent



The Proponent notes that no improvements or other assets are subject to the additional flooding impacts and that there would be no inundation increase in the village of Woomargama or at any other property apart from the land owned by the

RTA. Finally, the Proponent argues that the impacts of additional flooding are minor and justified by the savings in cost and resources.

With respect to the rationale for the bridge redesign, the Department accepts that in the absence of access requirements for an adjoining resident it is justifiable to investigate a more cost effective option for the bridge. The redesign from six spans to four spans *per se* does not raise any issues of concern to the Department. It is noted that there would be visual differences between four spans and six spans, however the subject proposal would not result in substantial visual impacts.

The impact of the flooding is the primary issue for consideration. Modelling shows increases of up to 0.48m for the four span bridge option compared to existing conditions. In addition, near the bridge where floods level and extents increase, the time period which the existing 1 in 100 year flood is exceeded would be about six hours, both of which are significantly higher than the levels provided for in condition 2.25. However, about 600 metres upstream of the bridge, the hydrographs of the existing and four span bridges are identical.

Notwithstanding, this increased flooding impact will be confined to the existing floodplain area, with the width of the flood extent increasing by up to 25 metres approximately 300 metres upstream of the bridge. The Department is satisfied that this increase in width is minor in the context of the overall flooding impact, as is evidenced by Figure 2. Further, the flooding impact is contained to land that is owned by the RTA and is unable to be substantially developed in the future as it is zoned rural (as advised by Greater Hume Shire Council in accordance with Holbrook Interim Development Order 1970). The Department is satisfied that there would be no adverse impacts as a result of the relatively minor flooding changes due to the land being zoned rural, and the absence of any dwelling or other structure in the affected area.

It is also noted that Sandy Creek is predicted to increase its maximum flood level as a result of the project by 200mm within the project boundary. This maximum increased flood level reduces to below 50mm at the new road boundary (upstream). The flooding extent is contained within the existing main channel as a result of its relatively steep banks. It is further noted that the duration of flooding is not increased by greater than one hour. The Department considers that the extent of this flooding, which is significantly less than the Mountain Creek levels, combined with the fact that there is no bridge redesign for Sandy Creek, is consistent with the existing approval and there is no requirement for it to be included in the modification request.

With respect to impacts upon the natural environment, the proponent considers that there would potentially be positive impacts to the area due to the presence of the River Red Gum Endangered Ecological Community (EEC), which include the River Red Gum Tree (*Eucalyptus camaldulensis*) and predominately native understorey. It is noted by the Proponent that the ecosystems and vegetation in the River Red Gum EEC generally require periodic inundation of more than 30 days to ensure long term viability. Given the minor area of increased flooding and that the increase in flood duration is small, there is minimal impact on vegetation. However it does highlight the nature of the area to be affected as being typical floodplain.

Consultation and Mitigation Measures

The Proponent has consulted with the New South Wales Office of Water, Office of Environment and Heritage, and the Department of Primary Industries on the design and hydrological impacts on the bridges, with no concerns raised.

Wider consultation with the general public has not been addressed by the Proponent. The Department considers that general public consultation in this regard is not required due to the minor nature of the modification and the confined area of the impacts which do not affect any privately owned land.

The Department does not consider that any additional mitigation measures are required. The impacts of the modifications are considered acceptable and there are existing conditions of approval in place, including condition 2.26, which provides:

> *Where flooding characteristics are significantly increased and affect access, property or infrastructure, the Proponent shall, in consultation with the landowner, identify and implement further mitigation measures as necessary.*

6. CONCLUSION AND RECOMMENDATIONS

The Department accepts that the redesign from a six span to a four span bridge presents a viable alternative. It is considered that the removal of the access requirements of an adjoining land owner presented the RTA with an opportunity to explore and implement a more cost effective solution, provided that there are not significant adverse impacts.

The crux of the proposal is that the flooding levels will not be consistent with condition 2.25 of the existing approval. This is partly the result of the higher degree of accuracy used by the Alliance post determination and partly the result of reducing the twin bridges from four spans to six spans.

The Department has referred the proposal to the Office of the Environment and Heritage, NSW Office of Water, Department of Primary Industries and Greater Hume Shire Council. The Office of Environment and Heritage and NSW Office of Water issued comments, which did not object to the proposal.

The Department notes that the differences in flooding as a result of the bridge compared to existing conditions in a 100 year storm event are minimal and would continue to be confined to the floodplain area. There would be no flooding to any improvements, buildings or infrastructure. It is further noted that the land is zoned rural and therefore would not be subject to any significant residential development in the future

In order to address the technical non-compliance with condition 2.25, the Proponent has suggested the insertion of condition 2.26A to provide:

> Notwithstanding condition 2.25 the detailed design of the new Hume Highway bridges at Mountain Creek shall limit to the greatest extent practicable, increases in flooding impacts between the bridges and a point 600 metres upstream of the bridges to those shown on Drawing No. NB11038-SK-DR-0006 Rev E.

The Department considers the insertion of this condition to be appropriate. This is the most appropriate method of resolving the technical non-compliance of condition 2.25 and ensuring that the required bridges are appropriately and legally constructed. Therefore the Department recommends that the Director, Infrastructure Projects approve the modification request under section 75W of the EP&A Act, by signing the attached Instrument of Modification (Appendix C).

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APPENDIX A MODIFICATION REQUEST

https://majorprojects.affinitylive.com/public/7bf49aa4b6631e8f60b4813de97be5d0/Modification%20Request.pdf

APPENDIX B SUBMISSIONS

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=4777

APPENDIX C RECOMMENDED MODIFYING INSTRUMENT

Modification of Minister's Approval

Section 75W of the *Environmental Planning & Assessment Act 1979*

As delegate of the Minister for Planning and Infrastructure under delegation executed on 25 January 2010, I approve the modification of the project application referred to in Schedule 1, subject to the conditions in Schedule 2.

Glenn Snow
A/Director, Infrastructure Projects

Sydney 2011

SCHEDULE 1

Project Approval:	08_0237 granted by the Minister for Planning on 31 January 2010.
For the following:	The construction of approximately nine kilometres of dual carriageway, bypassing the Woomargama village.
Modification:	Modification to permit increased flooding inundation levels at Mountain Creek.

SCHEDULE 2

The approval is modified by:

1. Deleting condition 1.1 and replacing with the following:

    1.1 The Proponent shall carry out the project generally in accordance with the:
    a) Major Projects Application 08_0237;
    b) *Hume Highway Upgrade Woomargama Bypass – Environmental Assessment* (two volumes), prepared by Parsons Brinckerhoff Australia Pty Ltd and dated September 2009;
    c) Hume Highway Upgrade Woomargama Bypass – Environmental Assessment Submissions Report, prepared by the RTA and dated November 2009;
    d) the RTA's modification request dated June 2011 (08_0237 MOD 1); and
    e) the conditions of this approval.

2. Deleting condition 1.2 and replacing with the following:

    1.2 in the event of an inconsistency between:
    a) the conditions of this approval and any document listed under conditions 1.1a) to 1.1d) inclusive, the conditions of this approval shall prevail to the extent of the inconsistency; and
    b) any document listed under conditions 1.1a) to 1.1d) inclusive, the most recent document shall prevail to the extent of the inconsistency.

3. Inserting condition 2.26A to read the following:

    2.26A Notwithstanding condition 2.25 the detailed design of the bridges at Mountain Creek shall limit to the greatest extent practicable, increases in flooding characteristics between the bridges and a point 600 metres upstream of the bridges to those identified in modification request 08_0237 MOD1 and in particular shown on Drawing No. NB11038-SK-DR-0006 Rev E.