



Appendix E

Biodiversity working paper addendum



M5 West Widening – Biodiversity

Addendum to the Biodiversity Working Paper

PREPARED FOR Roads and Traffic Authority of NSW

PROJECT NO 09SYDECO-0092

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1.1 INTRODUCTION

A Biodiversity Working Paper was prepared for the M5 West widening project in September 2010 and exhibited in the Environmental Assessment report. Since finalisation of the report, RTA has refined the design in a number of areas. While some of these design components were described in the EA and working paper, the impacts have now been revised. This addendum considers changes to the extent of vegetation clearing required and assesses potential impacts on threatened species, populations or ecological communities.

The areas considered in this addendum include:

- Spoil re-use areas in Casula;
- Widening at the Toll Plaza on the southern side of the motorway assessed for approximately 415m from the Toll Plaza carpark westbound;
- A permanent soil re-use area (Area Z) opposite the Toll Plaza which was identified in the Biodiversity Working Paper but not previously included in clearing calculations;
- Widening for line of site on the southern side of the M5 Motorway for approximately 780m between Queen St and Beaconsfield St;
- Widening for line of site on the southern side of the M5 Motorway for approximately 680m between the Hume Highway and Graham Avenue;
- Widening for an on ramp from the M7 Motorway on the northern side of the M5 Motorway for approximately 380m between Beech Road and Box Road; and
- Installation of approximately 5km of new noise barriers and augmentation to approximately 17km of existing noise barriers.

Note that distances provided above are for the purposes of this assessment and may not reflect the actual exact distances.

1.2 REFINEMENT OF SOIL RE-USE AREA'S IN CASULA

The RTA has undertaken to not clear endangered ecological communities for any purpose which is not a core requirement of the proposal (i.e. soil re-use and site compounds). As such, impacts from the proposed M5 West Widening on Cumberland Plain Woodland (CPW), a Critically Endangered Ecological Community (CEEC) in the vicinity of Casula were investigated further as part of this addendum.

Site inspections were undertaken to the south of Graham Avenue and at the DeMeyrick Avenue underpass on 22 November 2010. The area of CPW to the south of Graham Avenue (as shown on Figure 8f of the Biodiversity Working Paper) was confirmed to meet the TSC Act criteria for this CEEC with characteristic species from all structural layers present. As a result of this inspection, the permanent soil re-use area will be relocated from the Graham Avenue site to the road reservation and part of the adjacent motorway corridor at Liverpool St (opposite the Graham Avenue site). There is potential that the large bare area to the north of the Graham Avenue may also be utilised for soil re-use purposes.

The area of CPW at the DeMeyrick Avenue underpass (also shown on Figure 8f of the Biodiversity Working Paper) was determined to consist solely of three remnant canopy trees with no native midstorey or understorey. As a result of the inspection it was determined that these trees could be retained provided the existing access track could be utilised during construction. Construction activities may result in increased soil compaction and disturbance, however as the access track is already located within the drip-line of the trees (i.e. existing impact), it may be utilised for construction purposes.

These trees should be monitored and if they senesce appropriate offset measures should be determined in consultation with DECCW.

As a result of these inspections and subsequent modifications to the proposal, direct impacts on CPW have been entirely avoided.

1.3 NOISE BARRIERS

The RTA has identified that approximately 5km of new noise barriers and augmentation to approximately 17km of existing noise barriers is required for the proposed M5 West Widening. While the installation and augmentation of noise barriers was generally described in the EA and working paper, the impacts have now been revised.

The RTA provided Geographic Information System (GIS) data for the location of each new and augmented noise barrier, as well as construction footprints (5m) and access locations (from the M5 Motorway or from adjoining properties). This data was utilised to determine construction footprints for each noise barrier for the purposes of recalculating the impacts of the proposal.

Where Endangered Ecological Communities (EECs) were likely to be impacted on by construction of noise barriers from adjoining properties, the RTA modified the design in order to construct the noise barriers from the M5 Motorway. As a result of these modifications, additional impacts to EECs as a result of the installation of noise barriers have been entirely avoided.

1.4 CLEARING CALCULATIONS

Potential impacts as a result of the proposed sections of road widening were calculated through assessment of the 'extent of works' drawings as provided by the RTA. All vegetation between the nominated 'extent of works' and the edge of pavement was identified for clearing. For the permanent soil re-use area (Area Z) it was assumed that all vegetation between the pavement and boundary fence would be cleared. Table 1 provides a revised summary of the level of potential impact of the entire proposed M5 West Widening on vegetation communities and includes an analysis of the potential impact on the regional distribution of those communities.

Table 1: Overall impacts to vegetation communities

Vegetation Community	Conservation Significance	Total Area Occupied within M5 Motorway Corridor	Area identified to be cleared in EA	Revised area to be cleared December 2010	Revised Area to be cleared May 2011	% Clearing	% Clearing of regional distribution (5km) from NPWS (2002)
Castlereagh Scribbly Gum Woodland	Vulnerable (TSC Act)	3.70 ha	0.66 ha	0.66 ha	1.11 ha	30%	<1%
Coastal Mangrove Swamp	Protected (FM Act)	0.59 ha	0 ha	0 ha	0 ha	-	-
Coastal Saltmarsh	Endangered (TSC Act)	0.67 ha	0 ha	0 ha	0 ha	-	-
Cooks River/ Castlereagh Ironbark Forest	Endangered (TSC Act)	3.38 ha	0.27 ha	0.27 ha	0.28 ha	8%	<1%
Cumberland Plain Woodland	Critically Endangered (TSC Act / EPBC Act)	1.35 ha	0.33 ha	0 ha	0 ha	-	-
River Flat Eucalypt Forest	Endangered (TSC Act)	1.43 ha	0.14 ha	0.14 ha	0.14 ha	10%	<1%

Vegetation Community	Conservation Significance	Total Area Occupied within M5 Motorway Corridor	Area identified to be cleared in EA	Revised area to be cleared December 2010	Revised Area to be cleared May 2011	% Clearing	% Clearing of regional distribution (5km) from NPWS (2002)
Shale Gravel Transition Forest	Endangered (TSC Act) / Critically Endangered (EPBC Act)	1.2 ha	0 ha	0.02 ha	0.02 ha	2%	<1%
Swamp Oak Floodplain Forest	Endangered (TSC Act)	0.3 ha	0.18 ha	0.18 ha	0.18 ha	60%	<1%
Landscaping	Not listed	60.10 ha	9.8 ha	12.8 ha	17.36 ha	29%	N/A
Total Clearing		72.72 ha	11.38 ha	14.07 ha	19.27 ha	26%	

1.5 CONCLUSION

The potential impacts of the proposed sections of road widening, permanent soil re-use area (Area Z) and new and augmented noise barriers on the vegetation communities within the Study Area are considered insignificant in terms of the condition, past and current disturbances, fragmentation and isolation of each patch. The main increase in clearing in this additional assessment is for previously landscaped areas (approximately 7.9ha). The additional impacts on EECs (including Cooks River/ Castlereagh Ironbark Forest and Shale Gravel Transition Forest) have been calculated due to canopy mapped within the M5 motorway corridor at the permanent soil re-use area (Area Z) and are considered minor. As such no additional impact assessment for these communities was undertaken. The only other increase in clearing of note is an additional 0.4ha of Castlereagh Scribbly Gum Woodland, a Vulnerable Ecological Community (VEC) listed under the *Threatened Species Conservation Act 1995* (TSC Act).

When the Biodiversity Working Paper was originally submitted in September 2010, Castlereagh Scribbly Gum Woodland was not listed on the TSC Act. This community was gazetted as a VEC on 05 December 2010. As such, the potential impacts of the proposed M5 West Widening were not adequately assessed in the Biodiversity Working Paper. Appendix A of this addendum provides an impact assessment of the proposal on Castlereagh Scribbly Gum Woodland in accordance with the Draft *Guidelines for Threatened Species Assessment* (DEC 2005).

The assessment of these additional works is considered consistent with the methodology and assessment contained within the Biodiversity Working Paper. The additional works as outlined in this addendum are not likely to significantly impact on threatened species, populations or ecological communities as listed under the TSC Act or EPBC Act.

Appendix A Impact Assessment

An assessment of the impacts of the proposed M5 West Widening on Castlereagh Scribbly Gum Woodland has been undertaken. The proposal will be assessed under Part 3A of the EP&A Act and consequently this impact assessment was undertaken in accordance with the Draft *Guidelines for Threatened Species Assessment* (DEC 2005).

The Study Area supports large remnants extensive areas of native vegetation including the TSC Act and EPBC Act listed Endangered Ecological Communities which are potential and known habitat for a number of threatened flora and fauna species. The Subject Site itself has been subject to a history of modification due to the original development of the M5 West Motorway, subsequent landscaping and maintenance activities to the extent that only small, isolated patches of remnant vegetation remain.

Castlereagh Scribbly Gum Woodland

Castlereagh Scribbly Gum Woodland occurs almost exclusively on soils derived from Tertiary alluvium, or on sites located on adjoining shale or Holocene alluvium (NSW Scientific Community 2010). This community predominantly occurs at Castlereagh, with small patches at Kemps Creek, Longneck Lagoon and at Holsworthy. Since European settlement, Castlereagh Scribbly Gum Woodland has undergone a 47% reduction in extent.

Within the study area, Castlereagh Scribbly Gum Woodland has been mapped in a linear strip on either side of the motorway between Heathcote Road and Moorebank Road in the vicinity of Holsworthy (shown on Figure 8e and 8f of the Biodiversity Working Paper).

Castlereagh Scribbly Gum Woodland is listed as a Vulnerable Ecological Community (VEC) under the *Threatened Species Conservation Act 1995* (TSC Act).

How is the proposal likely to affect the habitat of a threatened species, population or ecological community?

The proposal requires the removal of 1.1 ha of degraded Castlereagh Scribbly Gum Woodland from the Subject Site for the installation of a number of new and augmented noise barriers. These patches are isolated from other areas of Castlereagh Scribbly Gum Woodland and have been subject to a history of degradation since the construction of the original M5 Motorway. The Castlereagh Scribbly Gum Woodland remaining in the M5 Motorway corridor consists of scattered remnant trees with a highly disturbed understorey.

The removal of 1.1 ha of Cumberland Plain Woodland from the Subject Site constitutes a loss of 30% of this community from the Study Area (within the M5 Motorway corridor). The loss these small patches of Castlereagh Scribbly Gum Woodland are not considered to be significant for the ecological community in the locality (less than a 1% loss of its regional distribution).

How is the proposal likely to affect current disturbance regimes?

Considering the current disturbances within the Subject Site (particularly stormwater runoff, weed invasion, noise and traffic flow), the proposal is unlikely to additionally affect the disturbance regimes. The proposed upgrade to the M5 Motorway is likely to result in an increase in the surface water runoff and despite the Georges River and its tributaries already being highly degraded, the proposal includes measures (water quality controls) to mitigate against any increases in pollutant loads.

Considering the proposed upgrade to the M5 Motorway is to be largely accommodated within the existing grassed median, it is not expected that the proposal will result in further degradation of surrounding vegetation communities.

How is the proposal likely to affect habitat connectivity?

The Castlereagh Scribbly Gum Woodland at the Subject Site is already highly fragmented within the landscape; therefore, the proposal is unlikely to further affect the habitat connectivity for this VEC.

The proposal requires the removal of 1.1 ha of Castlereagh Scribbly Gum Woodland in an approximately 5m wide construction corridor along the M5 Motorway between Heathcote Road and Moorebank Road in the vicinity of Holsworthy (shown on Figure 8e and 8f of the Biodiversity Working Paper). The remaining Castlereagh Scribbly Gum Woodland within the study area is not likely to be further fragmented by proposal.

How is the proposal likely to affect critical habitat?

No critical habitat has been declared for Castlereagh Scribbly Gum Woodland.