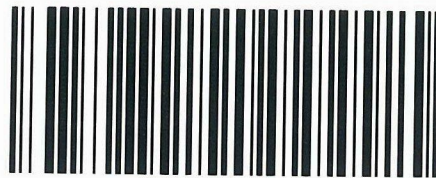


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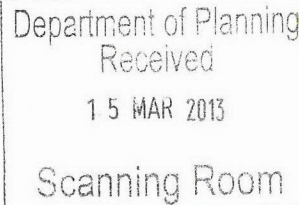


PCU042555

12 March 2013



Ms Belinda Scott
NSW Department of Planning and Infrastructure
GPO Box 39
SYDNEY NSW 2001



CC: NSW Office of Environment and Heritage

Dear Belinda

MACQUARIE RIVER TO ORANGE PIPELINE PROJECT - CLARIFICATION OF CALCULATIONS OF PERMANENT AND TEMPORARY VEGETATION IMPACTS

1 Introduction

I refer to your request for further clarification of the estimate of temporary and permanent vegetation impacts presented in the environmental assessment (EA) and preferred project report (PPR) for the project. This letter has been prepared in response to a request from the NSW Department of Planning and Infrastructure (DP&I), sent via email to Orange City Council (dated 26 February 2013), for further clarification of the impacts on native vegetation. The email requested "a formal letter report to outline the changes, where and how reductions have occurred relative to other vegetation (ie. corridor and edge effect reductions) with maps as appropriate. Please also include vegetation impacts listed as permanent as well".

This letter also provides similar advice to the NSW Office of Environment and Heritage (OEH), as requested by Mr Robert Taylor of OEH Dubbo in a meeting with Council on Friday 22 February.

As noted in the PPR and subsequent to lodgement of the PPR, the design of the project has continued to progress since the EA was placed on public exhibition. This has enabled the impact calculations to be refined and has led to a decrease in the estimate of potential impacts to native vegetation. As the detailed design progresses, these calculations will continue to be refined. The aim of these design refinements is to ensure that the environmental impacts of the project are minimised as far as practicable.

This letter provides:

- a review of the assumptions used to calculate vegetation impacts during preparation of the EA and then PPR
- a summary of the methods used to revise the estimates of temporary disturbance to native vegetation during construction
- current estimates of impacts on native vegetation.

This letter is supported by the following attachments:

- Example A – Example of temporary disturbance in highly constrained area - chainage 0 to 1100
- Example B – Example of temporary disturbance in moderately constrained area - chainage 24000 to 25500

MACQUARIE RIVER TO ORANGE PIPELINE PROJECT - CLARIFICATION OF CALCULATIONS OF PERMANENT AND TEMPORARY VEGETATION IMPACTS

12 March 2013

- Example C – Example of temporary disturbance in moderately constrained area - chainage 19000 to 20000
- Example D – Example of change in classification of temporary vegetation impact - Box-Gum Woodland, chainage 13500 to 16500

2 Background to the calculation of potential impacts on vegetation

The ecology assessments undertaken for the EA and PPR recognised that the project would result in both temporary and permanent impacts to vegetation along the route. They also noted that the assessment undertaken in the EA (and refined as part of the PPR) was based on the concept design for the project. This design provided a broad estimate of the potential areas (widths) of clearing for the purpose of undertaking a conservative estimate of the potential impacts of the project, consistent with the precautionary principle.

Section 12.3 of the EA notes in relation to the construction impacts of the project on flora and fauna:

'As noted in chapter 7, a 20 m wide (maximum) construction access corridor would be required along the pipeline route to allow for trench excavation, equipment storage, movement and access of construction vehicles along the corridor and storage of topsoil, backfill and spoil. Clearing and grading would be minimised where practicable to the extent necessary for construction of the project and would not exceed the 20 m wide corridor. At the river offtake site a wider clearing will be required of around 60 m to allow access to steep grades via a proposed access road switchback between chainages 0 and 400.

The area that would be directly impacted by construction activities would range in width from 6 to 20 m, depending on factors such as presence of significant vegetation, constructability, construction management and safety considerations, land form, slopes and anticipated sub-soil structures. Direct impacts would be reduced as far as practicable with narrower clearances (6 to 10 m) used where feasible. The final clearance zone (within the construction corridor) would be defined during detailed design.

The proponent is committed to minimising the environmental impact of the project and is investigating opportunities to reduce actual impact widths where practicable. The proponent has based this environmental assessment on the project corridor described in chapter 6, and the construction corridor described above.'

For the purpose of the assessments, potential impacts were defined as follows:

- Permanent impacts – defined as the permanent loss of vegetation that would occur at the locations of permanent infrastructure, such as pumping stations, valves sites, and the permanent access track within the pipeline and powerline easements.
- Temporary impacts – defined as areas where ground layer vegetation would be disturbed by construction activities and by installation of temporary construction features, such as compounds, access tracks, pipe laydown areas and spoil stockpiles sites. These areas have been preferentially located in cleared areas or areas of exotic pasture, and would be subject to rehabilitation works that would aim to re-establish the pre-existing vegetation so there would be no permanent loss of native vegetation.
- Direct impacts – temporary disturbance or permanent removal of vegetation in the construction corridor.
- Indirect impacts – disturbance of flora and fauna located outside the direct impact area.

MACQUARIE RIVER TO ORANGE PIPELINE PROJECT - CLARIFICATION OF CALCULATIONS OF PERMANENT AND TEMPORARY VEGETATION IMPACTS

12 March 2013

This current assessment addresses the direct impacts only, being temporary and permanent impacts on native vegetation. An assessment of the potential for indirect impacts is provided in the EA and the PPR.

The following sections detail the assumptions on which the calculations were based, and the methodology used to undertake the calculations.

3 Impact calculation assumptions

3.1 Permanent impacts

3.1.1 *Project described in the EA*

The following assumptions were used to estimate the potential permanent impacts of the project on native vegetation. These assumptions were documented in the terrestrial flora and fauna assessment (Appendix F of the EA). It was assumed that construction of the following components of the project would result in permanent direct impacts to vegetation:

- Trenching and installation of the pipeline, with associated clearing of corridor of variable width of 6 to 10 m to create a permanent easement over the full length of the pipeline corridor.
- Construction of the new section of power line, and creating a permanent easement, involving clearing a 20 m wide corridor.
- Pump station footprints, each with a hardstand footprint of around 1,500 m².
- Sixty-four scour valves and manholes along the final pipeline easement, each with a 4 m² permanent direct impact area.
- Thirteen poles to be installed for the new power supply within non-timbered areas, each with a 1 m² permanent direct impact area.
- Eighty-seven new poles to be installed within the existing power supply easement, each with a 1 m² permanent direct impact area.

3.1.2 *Assumptions for the refined project described in the PPR*

The following assumptions were used to calculate the potential permanent impacts on native vegetation within the MR5a section of the refined route, between Long Point Road the river.

- Pipeline construction clearing zone of 6 to 10 m width over approximately 6 km.
- Clearing to construct a new section of overhead power line in timbered areas, with a 20 m wide permanent easement to be created over approximately 3.1 km, from approximate chainage 1200 to 4328 metres. The vast majority of this section of overhead powerline would be located in cleared paddocks, as described in the PPR.
- A pipeline corridor from chainage 00 to 1200 along an existing cleared 4 m wide farm track, as three metres either side of the track (that is, a total assumed width of 10 m).
- An access track from about chainage 1200 down to the offtake point at the Macquarie River along the existing 4 m wide farm track, as 1.5 metres either side of the track (that is, a total assumed width of 7 m).

MACQUARIE RIVER TO ORANGE PIPELINE PROJECT - CLARIFICATION OF CALCULATIONS OF PERMANENT AND TEMPORARY VEGETATION IMPACTS

12 March 2013

3.2 Temporary impacts

3.2.1 *Project described in the EA*

The assessment of temporary impacts on native vegetation for the EA assumed that the following features would require disturbance to vegetation during the construction phase, with rehabilitation in the post-construction phase. Temporary impacts were assumed to include:

- Pipeline construction clearing zone (20 m wide, excluding the permanent pipeline easement) within non-timbered areas.□
- Pipeline construction access zone, outside of the construction clearing zone.
- Construction compounds.
- 13 poles to be installed for the new power supply within non-timbered areas, each with a 20 m² temporary impact area.
- 87 new poles to be installed within the existing power supply easement, each with a 20 m² temporary impact area.
- 19 existing poles within the existing power supply easement to have cross-arms replaced, each with a 20 m² temporary impact area.

3.2.2 *Assumptions for the refined project described in the PPR*

The assessment of temporary impacts on native vegetation for the PPR was based on similar assumptions to those adopted for the EA. The assumptions specific to the refined section of the project corridor (MR5a) are:

- Pipeline construction clearing zone (20 m wide, excluding permanent pipeline easement) within non-timbered areas.□
- Pipeline construction access zone, located on either side of the construction clearing zone, within timbered areas. This is a variable width corridor that extends from the permanent corridor easement.

There would be no temporary impacts associated with construction of the new section of overhead powerline.

4 Impact calculation methods

4.1 Permanent vegetation impacts

The estimates of the potential amount of vegetation that would be permanently removed have not been updated since publication of the PPR. This is because Council is currently commencing the early stages of detailed design, which involves detailed analysis of the construction corridor and permanent easement for the pipeline.

MACQUARIE RIVER TO ORANGE PIPELINE PROJECT - CLARIFICATION OF CALCULATIONS OF PERMANENT AND TEMPORARY VEGETATION IMPACTS

12 March 2013

As the assessment of the project application continues, Council proposes to progress the detailed design. As part of this process, Council aims to reduce the amount of native vegetation that would be permanent lost, by:

- Small scale adjustments to the alignment of the pipeline to further avoid stands of trees (or individual trees).
- Reductions to the width of the construction corridor in selected locations (particularly where native vegetation and/or stands of Box Gum Woodland occur) to minimise the amount of clearing of native vegetation that would be required at these locations.

4.2 Temporary vegetation impacts

Since publication of the PPR, and in response to requests DP&I for clarification of temporary impacts on vegetation, Council has conducted a detailed review of the potential impacts on native vegetation. This review represents preliminary work that has been completed for the detailed design of the proposal.

The concept design generated by Council included delineation of areas that would have permanent and temporary impacts. These lines were overlain on an aerial photograph and vegetation mapping conducted for the project. An algorithm was then run in GIS (ArcGIS) to generate the areas that fell within each disturbance area, categorised into vegetation types. This process identified areas of temporary vegetation impact.

A thorough review of the temporary impact areas was then conducted for the entire pipeline route using ArcGIS. Amendments were made to the areas of temporary disturbance based on the following general rules:

- For any location where a paddock tree or small patch of trees is surrounded by cleared, introduced grassland, it was assumed that temporary disturbance would be restricted to cleared areas.
- Any area of temporary disturbance that would occur where native vegetation is adjacent to the temporary impact areas was left unchanged (i.e. assumed that temporary impacts would occur within native vegetation).
- Any temporary disturbance that mapped less than half of the canopy of a mature tree presumed that the tree would be retained and hence temporary disturbance to the canopy (i.e. removal) would not occur.

The areas of temporary disturbance include access tracks, site compounds and stockpile sites, all of which would either be cleared, disturbed or modified during the construction phase but then rehabilitated over time to re-establish the pre-existing vegetative cover. Areas of temporary disturbance have been specifically identified during concept design to minimise impacts on native vegetation and wherever possible, restrict temporary impacts to areas of non-native vegetation.

5 Results

The following section presents the results of the further calculation refinements undertaken following submission of the PPR. The current estimates of temporary and permanent impacts on native vegetation are provided in Table 1.

MACQUARIE RIVER TO ORANGE PIPELINE PROJECT - CLARIFICATION OF CALCULATIONS OF PERMANENT AND TEMPORARY VEGETATION IMPACTS

12 March 2013

5.1 Permanent impacts

The estimates of permanent loss of native vegetation listed in Table 1 are as per the PPR. The revised estimates for permanent removal of vegetation would be available for review as part of the forthcoming biodiversity offsets package.

5.2 Refined estimate of temporary impacts

As described in section 4.2, estimates of temporary impacts on native vegetation have been revised since the PPR was prepared. This has resulted in a reduction in the estimate of temporary impacts on vegetation reported in the PPR, with the current estimate being 7.79 hectares (Table 1). It is anticipated that the estimates of vegetation impacts (both temporary and permanent) will be further refined as the detailed design progresses.

As requested, a number of plan maps has been prepared to show areas of temporary vegetation disturbance within the pipeline corridor. The following maps are attached:

- Example A – Example of temporary disturbance within native vegetation - chainage 0 to 1100.
- Example B – Example of temporary disturbance in native vegetation (moderate value) - chainage 24000 to 25500.
- Example C – Example of temporary disturbance in native vegetation - chainage 19000 to 20000.
- Example D – Example of change in classification of temporary vegetation impact - Box-Gum Woodland, chainage 13500 to 16500.

Example D in particular shows how the areas of temporary impacts were revised for a section containing Box-Gum Woodland.

Table 1 Current estimates of vegetation impacts for the refined project (as at 5 March 2013)

Vegetation community	TSC Act status	EPBC Act status	Temporary removal (ha)	Permanent removal (ha)
Apple Box – Yellow Box – Mountain Gum open woodland on flats and low hills of the central tablelands	Not listed	Not listed	0.00	0.23
Blakely's Red Gum – Yellow Box open woodland of the tablelands	Endangered (Box-Gum Woodland)	Critically endangered (Box-Gum Grassy Woodland)	0.00	1.83
Blakely's Red Gum – Yellow Box open woodland of the tablelands	Endangered (Box-Gum Woodland)		0.01	1.42
Exotic woodland	Not listed	Not listed	0.08	0.06
Exotic grassland	Not listed	Not listed	8.82	6.41
Native grassland	Not listed	Not listed	3.22	0.79
Reedland	Not listed	Not listed	0.11	0.00
Red Stringybark – Blakely's Red Gum – Yellow Box woodland	Not listed	Not listed	0.39	0.80
Stringybark – Box-Gum woodland	Not listed	Not listed	2.26	5.46
White Box – Kurrajong woodland	Not listed	Not listed	0	0.02
Red Stringybark – Long-leaved Box – Black Cypress Pine shrub/grass woodland on siliceous sedimentary ranges in the upper NSW South Western Slopes Bioregion and South Eastern Highlands Bioregion (PCTID 321)	Not listed	Not listed	0.14	0.13
River Oak – Rough-barked Apple – Red Gum – box riparian tall woodland (wetland) of the Brigalow Belt South Bioregion and Nandewar Bioregion (PCTID 84)	Not listed	Not listed	0.02	0.47
Blakely's Red Gum - White Box - Yellow Box - Black Cypress Pine box grass/shrub woodland on clay loam soils on undulating hills of central NSW South Western Slopes Bioregion (PCTID 282)	Endangered (Box-Gum Woodland)	Critically endangered (Box-Gum Grassy Woodland)	1.64	0.96
Blakely's Red Gum - White Box - Yellow Box - Black Cypress Pine box grass/shrub woodland on clay loam soils on undulating hills of central NSW South Western Slopes Bioregion (PCTID 282)	Endangered (Box-Gum Woodland)		0.00	0.21
TOTAL			16.70 ha	18.79 ha
Total <i>non-native</i> vegetation			8.90 ha	6.47 ha
Total <i>native</i> vegetation			7.79 ha	12.32 ha

MACQUARIE RIVER TO ORANGE PIPELINE PROJECT - CLARIFICATION OF CALCULATIONS OF PERMANENT AND TEMPORARY VEGETATION IMPACTS

12 March 2013

6 Conclusion

This letter provided an outline of the assumptions, methods and results associated with the estimates of potential impacts on native vegetation as a result of construction of the Macquarie River to Orange pipeline project, as requested by DP&I. As part of the Council's progress towards the final design of the pipeline, the estimates of temporary disturbance to native vegetation presented in the PPR have been revised since publication of the PPR. This letter provided an explanation of how these revised estimates were calculated and lists the assumptions that formed the basis of the calculations.

In summary, it is currently estimated (at 5 March 2013) that the project would result in temporary disturbance to 7.79 ha of native vegetation during construction. This estimate is the result of a detailed analysis of the vegetation within the pipeline corridor, and adjustments to impact areas using GIS, according to a clear set of assumptions.

Impacts on native vegetation within the proposed new section of overhead powerline and new section of access track are not considered permanent, and as such do not form part of this revised estimate. The estimates of permanent impacts on native vegetation presented in this letter are the same as those presented in the PPR. Council has committed to conducting a detailed review of these estimates as part of the detailed design process and preparation of the biodiversity offsets package, which is currently in progress.

Council will continue to refine the project during the assessment throughout the detailed design process and throughout the determination of the project under Part 3A of the EP&A Act. These refinements will require further amendments to the estimates of impacts on native vegetation, which will feed into forthcoming assessments of biodiversity offsets. Council will continue to consult with DP&I, OEH and DSEWPaC during this process.

If you have any further questions, please do not hesitate to contact me on 6393 8312.

Yours faithfully



John Boyd
PROJECT MANAGER (OPERATIONS MANAGER)