TransGrid

FAR NORTH NSW **PROJECT**

SUBMISSIONS REPORT

OCTOBER 2012

www.transgrid.com.au

URS

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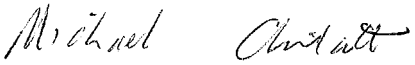

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Abbreviations

Abbreviation	Description
AER	Australian Energy Regulator
ABL	Australian Bat Lyssavirus
AHHMP	Aboriginal and Historic Heritage Management Plan
AHIMS	Aboriginal Heritage Information Management System
AHIP	Aboriginal Heritage Impact Permit
AHMP	Aboriginal Heritage Management Plan
ALA	Aeroplane landing area
AOS	Assessment of Significance
API	Aerial Photograph Interpretation
ASIR	Aboriginal Site Impact Recording
BAL	Bushfire Attack Level
BBAM	Biobanking assessment methodology
CAP	Catchment Action Plan
CEMP	Construction Environmental Management Plan
CMA	Catchment Management Authority
CWD	Coarse woody debris
DECCW	Department of Environment, Climate Change and Water
DEWHA	Department of Environment Water Heritage and the Arts
DGRs	Director-General's Requirements
DPI	NSW Department of Primary Industries
DP&I	NSW Department of Planning and Infrastructure
DSEWPaC	Department of Sustainability, Environment, Water, Population and Communities (Commonwealth)
EA	Environmental Assessment
ECRTN	Environmental Criteria for Road and Traffic Noise
EEC	Endangered Ecological Community
EIS	Environmental Impact Statement
EMF	Electric and Magnetic Field
EPA	Environmental Protection Agency
EP&A Act	NSW Environment Planning and Assessment Act 1979
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)
FM Act	Fisheries Management Act 1994
GDEs	Groundwater Dependent Ecosystems
GHG	Greenhouse Gas
GIS	Geographic Information System
HV	High Voltage
ICNG	Interim Construction Noise Guidance
I&I NSW	Industry and Investment NSW
ISF	Institute of Sustainable Futures
KTPs	Key threatening processes
LALC	Local Aboriginal Land Council
LGA	Local Government Area
MNES	Matters of National Environmental Significance
MTOW	Maximum take off weight
NER	National Energy Rules

Abbreviations

Abbreviation	Description
NOW	NSW Office of Water
NSW	New South Wales
NPWS	National Parks and Wildlife Service
OEH	NSW Office of Environment and Heritage (previously DEC and DECCW)
PPR	Preferred Project Report
QLD	Queensland
RfP	Request for Proposals
RoTAP	Rare or Threatened Australian Plants
RTA	Roads and Traffic Authority
SIC	Significant Impact Criteria
SOCs	Statement of Commitments
TAG	TransGrid Action Group
TEC	Threatened Ecological Community
TMP	Traffic Management Plan
TSC Act	Threatened Species Conservation Act 1995
UDAG	Upper Dumaresq Action Group
UDEN	Upper Dumaresq Environment Network
WoNS	Weeds of National Significance
WSP	Water Sharing Plan

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Introduction

1.1 Project Context

TransGrid, a state owned corporation, is proposing to construct a 330kV transmission line approximately 205 kilometres (km) long, between the existing Dumaresq Switching Station (near Bonshaw) and Lismore Substation in Far North New South Wales (NSW). The Project is publicly referred to as the 'Far North NSW Project', simplified to 'the Project' for this Report.

The Project is proposed by TransGrid to address the forecasted growth in peak demand for electricity in Far North NSW. The upgrades and additions to the existing transmission network that have been undertaken to date have responded to the increasing demand for electricity, and have addressed identified limitations in the network.

Notwithstanding demand management measures implemented, current forecasts indicate that overall electricity demand in Far North NSW is predicted to increase in the order of 25% for the 10 years between 2012 and 2021. The reliability of supply is expected to be compromised in the future by potential single contingency events which may cause significant interruptions and disturbance to electricity supply. Therefore, to maintain reliability of supply in accordance with the requirements of the National Electricity Rules (NER) and to meet the increasing demand for electricity across Far North NSW, TransGrid plans to invest $227 million in infrastructure to augment the capacity of the electricity network.

This Report responds to and addresses the submissions received following the public exhibition of the Environmental Assessment (EA) which was prepared under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act). Further detail in relation to this assessment process is provided in **Section 1.3**.

1.2 Project Location and Description

The Project is located within five Local Government Areas (Inverell, Tenterfield, Kyogle, Richmond Valley and Lismore) and can be broadly divided into two main sections:

- Alignment West: a new 96km 330kV transmission line and 60m easement through greenfield areas from Dumaresq Switching Station to the proposed location of the new Tenterfield 330/132kV Substation (Tenterfield 330kV Substation). This section of the alignment would traverse eastward from the existing Dumaresq Switching Station just south of Bonshaw, to a point on the existing 132kV alignment, approximately 14km north east of Tenterfield at the proposed Tenterfield 330kV Substation. Within this area, there is no existing transmission line. Alignment west includes the proposed Tenterfield 330kV Substation and all associated access tracks.
- Alignment East: the proposed alignment runs from the location of the proposed Tenterfield 330kV Substation to the Lismore Substation. Between the Tenterfield 330kV Substation and Casino (95km), the 330kV transmission line would replace the existing 132kV transmission line and the existing 45 metre (m) easement would be extended to 60m. Between Casino and Lismore Substation (14km), the new 330kV transmission line would run adjacent to the existing 132kV transmission line (which would remain operational on completion of construction). The existing 45m easement would be extended to 90m for this section. The majority of access tracks in alignment east are currently established to provide access to the existing 132kV line and easement. However, some upgrade and/or re-alignment of access tracks would be required.

The Project would consist of the transmission line and associated supporting structures, conductors, and earthwires as well as the transmission line easements, access tracks and establishment of a new substation and upgrade works to the existing substation infrastructure at both ends of the transmission line.

For a more detailed description of the Project refer to **Chapter 4 Project Description** of the Far North NSW Project Environmental Assessment (the EA) (URS, 2011)[1].

1.3 Environmental Assessment

An EA was prepared under Part 3A of the EP&A Act to assess the environmental impacts of the Project.

An EA is part of a larger assessment process in which the Proponent of a Project:

- identifies a need;
- considers alternatives and identifies a preferred option;
- assesses the likely environmental impacts and identifies mitigation measures;
- presents the EA to the Department of Planning and & Infrastructure (DP&I) for public exhibition;
- responds to submissions from the public exhibition in a submissions report; and
- provides a copy of the EA and submissions report to DP&I for their consideration.

The EA was placed on public exhibition between 8th September and 24th October 2011. It was also made available on the DP&I website. During this period, submissions were invited from anyone with an interest in the Project. The DP&I sent these submissions to TransGrid from the 26 October 2011 to the 25 November 2011.

Appendix A provides a summary of all the submissions and **Appendix B** presents the submissions in full.

This document has been prepared in response to a request from the Director-General for TransGrid to respond to the issues raised in these submissions in a submissions report. If there are proposed changes to the project to minimise its environmental impact then DP&I advised a Preferred Project Report (PPR) may be required and the Statement of Commitments (SOCs) may need to be revised to reflect any proposed changes to the project.

The submissions report will be submitted to DP&I and placed on its website. DP&I will then assess the EA and submissions report (this report). The Director General will then prepare an assessment report for the Project, which will take into account comments form relevant Government Authorities as well as other stakeholders and the community. The assessment report will be provided to the Minister for Planning who will determine whether to grant Project approval and, if so, may impose a number of conditions upon that approval.

The submissions report comprises the following:

- Section 1: Introduction including background and context.
- Section 2: Summary of consultation during the Exhibition stage.
- Section 3: A summary of the submissions.
- Section 4: Response to the submissions.
- Section 5: The revised SOCs for the Project.

[1] http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=3472

1 Introduction

The submissions report is supported by the following Appendices:

- Appendix A: Summary of Submissions.
- Appendix B: The Submissions as Issued.
- Appendix C: Revised Surface Water Classification.
- Appendix D: Additional Biodiversity Information.

2

Exhibition Consultation

2.1 Stakeholder Consultation

Consultation with the community and other key stakeholders regarding the Project commenced in April 2009 and is ongoing. A program of community, landowner and government agency consultation was undertaken as part of the EA to assist in the identification of relevant issues and potential impacts, whilst also addressing the Director General's Requirements (DGRs) for the Project.

Consultation with the wider community in relation to the Project has taken a variety of forms to this point, including face to face meetings, letters, newsletters, as well as Information Days.

Information Days to coincide with the Exhibition of the EA were held at four locations between 20 and 23 September 2011. This section summarises the outcomes of this consultation effort.

2.2 EA Information Days

The Information Days were held in the towns of Tenterfield, Mingoola, Drake and Casino. These towns are located near the areas that are most likely to be directly affected by the Project.

In total, 52 stakeholders were consulted during the four Information Days, including 36 directly affected property owners. **Table 2-1** provides a summary of the attendance at the Information Days.

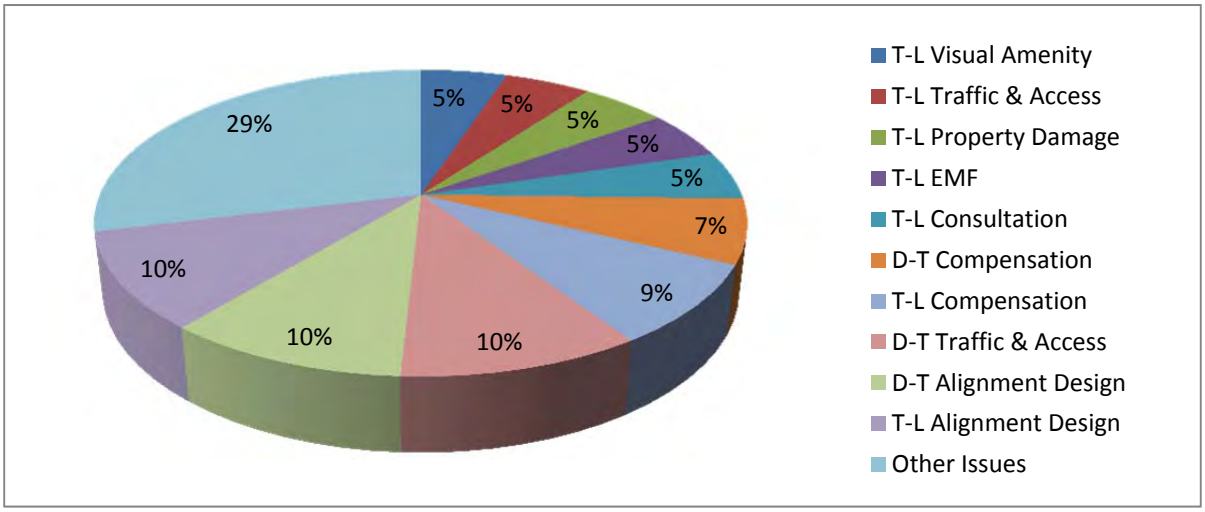
Table 2-1 Information Day Attendance

Date	Location	Attendees (directly affected landholders)	Attendees (not directly-affected landholders)
Tuesday 20th September	Tenterfield	9	0
Wednesday 21st September	Mingoola	11	4
Thursday 22nd September	Drake	6	4
Friday 23rd September	Casino	10	8
	Totals	**36**	**16**
	Total number of attendees	**52**	

A summary of the issues discussed at the Information Days are presented in **Figure 2-1**.

2 Exhibition Consultation

Figure 2-1 Issues Raised During the EA Information Days



**Note: D-T refers to the section of the Project between Dumaresq Switching Station and the proposed Tenterfield 330kV Substation (i.e. alignment west), and T-L refers to the section of the Project between the proposed Tenterfield 330kV Substation and Lismore Substation (i.e. alignment east).*

Note: Individual issues that comprise less than 5% of the issues raised have been consolidated into the 'Other Issues' category; these include issues such as T-L Easement, T-L Property Values, D-T Need for Project, D-T Visual Amenity, T-L Flora and Fauna, T-L Heritage Aboriginal, D-T EMF, D-T Flora and Fauna, D-T Property Damage, D-T Water Quality.

During discussions between TransGrid and landholders at the Information Days, four landholders requested minor design changes to structure locations and access tracks on their property. These requests included the following:

- One landholder requested that the proposed steel lattice tension structure on his property be substituted with a three pole angle structure. The landholder was made aware that the three pole structure would be larger in size, as at least three sets of twin guy wires would be required for this angle structure.
- One landholder suggested the repositioning of the access tracks on their property.
- Two landholders requested that one structure location is moved on each of their properties.

Discussions between TransGrid and these landholders are continuing and the feasibility of these requests continues to be investigated by TransGrid. It is not possible to finalise these design changes at this point in the assessment process. Confirmation of the change would be subject to finalisation of designs and agreement with the affected landowner. No other Project amendments are proposed at this point in time. Consequently, the Project remains as exhibited, and a Preferred Project Report is not included within this Report.

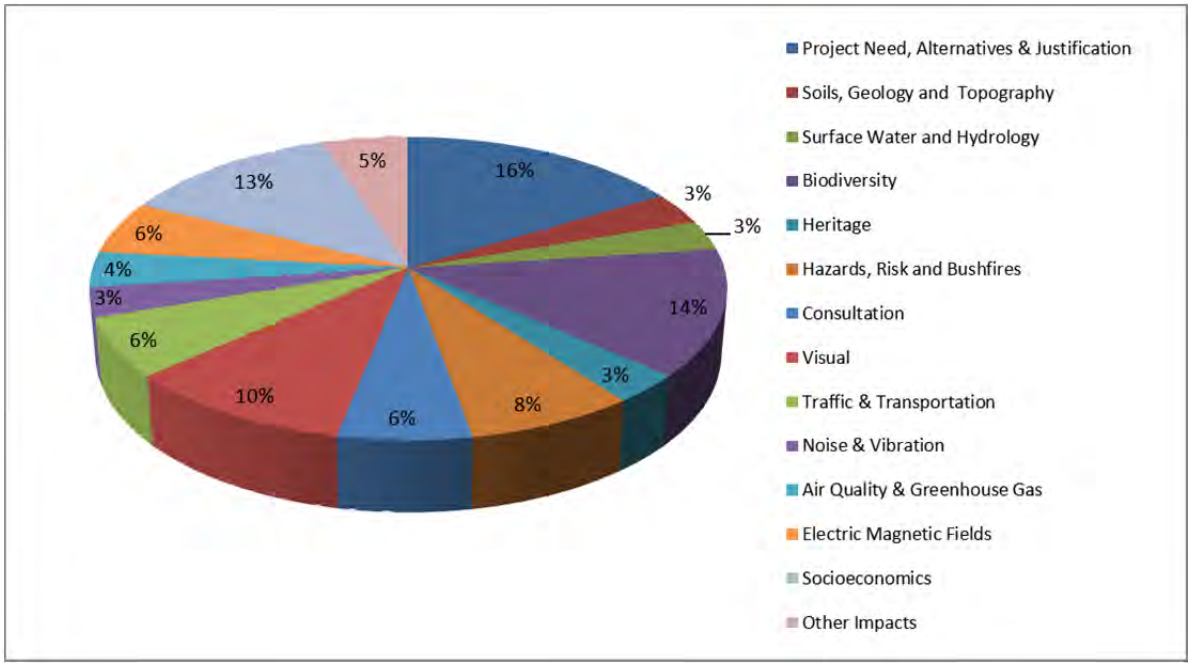
3

Summary of Submissions

Eighty two submissions were received in response to the public exhibition. Nine were from 'Government Agencies' (including local councils) and 73 were from groups or individuals. Throughout this Report each submission is identified by both author and the submission reference number, as assigned by DP&I. If a DP&I reference number was not available, for reference these submissions have been numbered TG 1, TG 2 etc.

A summary of the issues raised within the submissions is presented in **Figure 3-1**

Figure 3-1 Summary of Issues Raised in the Submissions



Note: for more information on 'Other Impacts' please refer to **Section 4.15 of this Report.*

Submissions were received from the following government agencies and local councils:

- Lismore City Council;
- Inverell Shire Council;
- NSW Office of Environment and Heritage;
- NSW Office of Water;
- Northern Rivers Catchment Authority;
- Border Rivers – Gwydir Catchment Management Authority;
- Department of Primary Industries – Fisheries;
- Department of Primary Industries – Crown Lands; and
- NSW Rural Fire Service.

The submissions received from Inverell Shire Council (22824) and Crown Lands (DPI) (23772) did not raise any issues with respect to the Project that would require further consideration (refer to **Appendix B**).

3 Summary of Submissions

Table 3-1, 3-2 and **3-3** outline where a government agency, action group or member of the public can find a response to an issue or comment they have raised in a submission. Where possible, these issues have been grouped into similar environmental aspects. A comprehensive summary of all issues raised by each submission, and where these are addressed, is also provided in **Appendix A**. All of the submissions in full are provided in **Appendix B**.

Table 3-1 groups each of the Government Agency submissions under similar environmental aspects and outlines where in **Chapter 4** of this Report each aspect is addressed.

Table 3-1 Summary of Government Agency Submissions

Issue Category	Agency	Submission Report Section Addressed
Project Need, Alternatives & Justification	Lismore Council (22004)	**Section 4.2**
Soils, Geology and Topography	NSW Office of Water (22818); Northern Rivers Catchment Management Authority (22820)	**Section 4.4**
Surface Water and Hydrology	Department of Primary Industries – Fisheries (22816); NSW Office of Water (22818); Northern Rivers Catchment Management Authority (22820)	**Section 4.5**
Biodiversity	Office of Environment & Heritage (22807); Department of Primary Industries – Fisheries (22816); Northern Rivers Catchment Management Authority (22820)	**Section 4.6**
Heritage	Office of Environment & Heritage (22807)	**Section 4.7**
Hazards, Risk and Bushfires	NSW Rural Fire Service (22809)	**Section 4.12**

Submissions were also received from members of the public and from local action groups. Many of these submissions referenced information contained within privately commissioned technical reports. Equally many of the action group members also made personal submissions. Therefore to avoid confusion, the submissions received from the Action Groups were separated out from those received from individual members of the public.

The four Action Groups that made submissions were:

- TransGrid Action Group Incorporated (TAG Inc.);
- Upper Dumaresq Environment Network (UDEN);
- Upper Dumaresq Action Group (UDAG); and
- Mingoola Progress Association Incorporated.

Table 3-2 groups each of the submissions from these action groups under similar environmental aspects and outlines where in **Chapter 4** of this Report each aspect is addressed.

3 Summary of Submissions

Table 3-2 Summary of Action Group Submissions

Issue Category	Stakeholder	Submission Report Section Addressed
Project Need, Alternatives & Justification	TAG Inc (21948); Upper Dumaresq Environment Network (22639); Upper Dumaresq Action Group(22639)	**Section 4.2**
Consultation	Mingoola Progress Association Inc (21932); Upper Dumaresq Environment Network (22639)	**Section 4.3**
Soils, Geology and Topography	Upper Dumaresq Action Group (22824)	**Section 4.4**
Surface Water and Hydrology	Mingoola Progress Association Inc (21932)	**Section 4.5**
Biodiversity	TAG Inc (21948); Upper Dumaresq Action Group(22639)	**Section 4.6**
Visual	TAG Inc (21948); Mingoola Progress Association Inc (21932); Upper Dumaresq Environment Network (22639)	**Section 4.8**
Traffic & Transportation	Upper Dumaresq Environment Network (22639)	**Section 4.9**
Noise & Vibration	TAG Inc (21948); Mingoola Progress Association Inc (21932); Upper Dumaresq Environment Network (22639)	**Section 4.10**
Air Quality & Greenhouse Gas	Upper Dumaresq Environment Network (22639)	**Section 4.11**
Hazards, Risk and Bushfires	Upper Dumaresq Environment Network (22639)	**Section 4.12**
Electric Magnetic Fields	Upper Dumaresq Environment Network (22639)	**Section 4.13**
Socioeconomics	Upper Dumaresq Environment Network (22639)	**Section 4.14**
Other Impacts	Upper Dumaresq Action Group (22639)	**Section 4.15**

Sixty nine submissions came from members of the public, principally, although not exclusively, from local residents likely to be directly affected by the Project. These submissions have been sorted following the rules below:

- multiple, identical submissions with more than one submission number authored by the same individual have been treated as one submission;
- where multiple and different submissions have been received from the same author, each submission has been considered and referenced as a separate submission; and
- documents and reports that were attached to specific submissions have been referenced, under the DP&I issued submission number for the submission to which they were attached.

Table 3-3 groups each of the public submissions under similar environmental aspects and outlines where in **Chapter 4** each aspect is addressed.

3 Summary of Submissions

Table 3-3 Summary of Public Submissions

Issue Category	Stakeholder	Submission Report Section Addressed
Project Need, Alternatives & Justification	Peter Woodrow (20521); Name Withheld (21481, 21483, 21485); Ruth Matthews (21590, 21592, 21618); John Rodwell (21715); Name Withheld (21720); Jane I'Ons (21799); Paulene Brookes (21847); Name Withheld (21908); Colin Kilburn (21912); Marilyn Moballe (21920); Richard Harpham (21922); Susan Yeates (21924); Lynn Takayama (21940); Name Withheld (21951); Susan Bailey (21953); Julia Harpham (21957); William Eastgate (21961); Name Withheld (21967); David Harpham (21972); Martin I'Ons (21978); Edward Hickson (21986); Name Withheld (22006); JJ Spedding (22619); Pearl Austin (22625); Ralph Weatherley (22631); RS & MO Dowe (22633); Simon Clough (22637, 21990,21988); Colin & Helen Chevalley (22641); Deborah Adam (22643); Sandor von Kontz (22648); Peter Spedding (22803); Julia Harpham (22824(attachment)); John Rodwell (22824(attachment)); Sandra Smith (23073); Sandor von Kontz (23459); William Harpham (23626); Sandor von Kontz (23766); Charmaine Harrison (TG 1); Christopher Harpham (TG 2); AL and VA Schroder (TG 3); James & Philippa Lilyman (TG 4); and Janelle Nairn-Ambrose (TG 5).	**Section 4.2**
Consultation	Name Withheld (21908); Name Withheld (21955); Julia Harpham (21957); Matthew Cater (22017); Andrew Hynes (22606); Sandor von Kontz (22648); Peter Spedding (22803); and Julia Harpham (22824(attachment)).	**Section 4.3**
Soils, Geology and Topography	Name Withheld (21908); Susan Yeates (21924); Julia Harpham (21957); Matthew Cater (22017); Andrew Hynes (22606); Pearl Austin (22625); Colin & Helen Chevalley (22641); and Julia Harpham (22824(attachment)).	**Section 4.4**
Surface Water and Hydrology	Name Withheld (21908); Susan Yeates (21924); Julia Harpham (21957); Pearl Austin (22625); Sandor von Kontz (22648); and Julia Harpham (22824 (attachment)).	**Section 4.5**

3 Summary of Submissions

Issue Category	Stakeholder	Submission Report Section Addressed
Biodiversity	Peter Woodrow (20521); Ruth Matthews (21590, 21592, 21618); Paulene Brookes (21847); Justyn Comer (21892); Name Withheld (21908); Name Withheld (21910); Name Withheld (21914); Name Withheld (21916); Craig Rose (21918); Richard Harpham (21922); Susan Yeates (21924); Christine Harpham (21934); Lynn Takayama (21940); Julian Scantlebury (21942); Merlene Madge (21946); Name Withheld (21951); Susan Bailey (21953); Julia Harpham (21957); Neroli Endacott (21970); David Harpham (21972); Edward Hickson (21986); Andrew Hynes (22606); Deborah Newell (22614); JJ Spedding (22619); Pearl Austin (22625); Ralph Weatherley (22631); RS & MO Dowe (22633); Sandor von Kontz (22648); Peter Spedding (22803); Julia Harpham (22824(attachment)); Sandra Smith (23073); Sandor von Kontz (23459); William Harpham (23626); Sandor von Kontz (23766); Charmaine Harrison (TG 1); and Janelle Nairn-Ambrose (TG 5).	**Section 4.6**
Heritage	Paulene Brookes (21847); Name Withheld (21908); Susan Bailey (21953); Julia Harpham (21957); Edward Hickson (21986); Andrew Hynes (22606); Julia Harpham (22621); RS & MO Dowe (22633); and Julia Harpham (22824(attachment)).	**Section 4.7**
Visual	Mark Hesse (21620); Name Withheld (21908); Name Withheld (21910); Colin Kilburn (21912); Name Withheld (21914); Name Withheld (21916); Marilyn Moballe (21920); Richard Harpham (21922); Susan Yeates (21924); Julian Scantlebury (21942); Julian Scantlebury (21942); Name Withheld (21944); Name Withheld (21951); Susan Bailey (21953); Name Withheld (21955); Julia Harpham (21957); Edward Hickson (21986); Steven Francis (22008); Matthew Cater (22017); Andrew Hynes (22606); Marie lhle (22623); Pearl Austin (22625); RS & MO Dowe (22633); Colin & Helen Chevalley (22641); Sandor von Kontz (22648); Julia Harpham (22824(attachment)); Sandra Smith (23073); William Harpham (23626); Charmaine Harrison (TG 1); and James & Philippa Lilyman (TG 4).	**Section 4.8**
Traffic & Transportation	Name Withheld (21481, 21483, 21485); Name Withheld (21908); Name Withheld (21955); Julia Harpham (21957); Angelo Saccon (21959); Phae Smith (21992, 22627, 21998); Steven Francis (22008); Matthew Cater (22017); Andrew Hynes (22606); Pearl Austin (22625); Colin & Helen Chevalley (22641); Sandor von Kontz (22648); Sandra Smith (23073); Christopher Harpham (TG 2); and AL and VA Schroder (TG 3).	**Section 4.9**
Noise & Vibration	Name Withheld (21908); Julia Harpham (21957); Matthew Cater (22017); Kim Hamel (22027); Pearl Austin (22625); Pearl Austin (22625); and Julia Harpham (22824(attachment)).	**Section 4.10**

3 Summary of Submissions

Issue Category	Stakeholder	Submission Report Section Addressed
Air Quality and Greenhouse Gas	Peter Woodrow (20521); Justyn Comer (21892); Name Withheld (21908); Name Withheld (21914); Name Withheld (21916); Christine Harpham (21934); Name Withheld (21951); Matthew Cater (22017); Sandor von Kontz (22648); Julia Harpham (22824(attachment)); and Sandor von Kontz (23766).	**Section 4.11**
Hazards, Risk and Bushfires	Name Withheld (21720); Craig Rose (21918); Name Withheld (21951); Julia Harpham (21957); Neroli Endacott (21970); Daniel I'Ons (21976); Andrew Hynes (22606); Barbara Potter (22610); Pearl Austin (22625); RS & MO Dowe (22633); Sandor von Kontz (22648); Julia Harpham (22824(attachment)); and AL and VA Schroder (TG 3).	**Section 4.12**
Electric Magnetic Fields	Ruth Matthews (21590, 21592, 21618); Paulene Brookes (21847); Lynn Takayama (21940); Name Withheld (21951); Name Withheld (21955); Julia Harpham (21957); Matthew Cater (22017); Kim Hamel (22027); Andrew Hynes (22606); Pearl Austin (22625); Julia Harpham (22824(attachment)); Sandra Smith (23073); Sandor von Kontz (23459); Sandor von Kontz (23766); and James & Philippa Lilyman (TG4).	**Section 4.13**
Socioeconomics	Peter Woodrow (20521); Ruth Matthews (21590, 21592, 21618); Paulene Brookes (21847); Justyn Comer (21892); Name Withheld (21908); Name Withheld (21910); Colin Kilburn (21912); Marilyn Moballe (21920); Richard Harpham (21922); Susan Yeates (21924); Christine Harpham (21934); Lynn Takayama (21940); Julian Scantlebury (21942); Susan Bailey (21953); Name Withheld (21955); Julia Harpham (21957); Angelo Saccon (21959); William Eastgate (21961); Daniel I'Ons (21976); Edward Hickson (21986); Matthew Cater (22017); Andrew Hynes (22606); JJ Spedding (22619); Marie Ihle (22623); Pearl Austin (22625); Ralph Weatherley (22631); RS & MO Dowe (22633); Colin & Helen Chevalley (22641); Sandor von Kontz (22648); Peter Spedding (22803); Julia Harpham (22824(attachment)); Sandra Smith (23073); Sandor von Kontz (23459); William Harpham (23626); Charmaine Harrison (TG 1); AL and VA Schroder (TG 3); and James & Philippa Lilyman (TG 4).	**Section 4.14**
Other Impacts	Peter Woodrow (20521); John Rodwell (21540); Ruth Matthews (21590, 21592, 21618); Donna Harpham (21926); Name Withheld (21936); Julia Harpham (21957); Name Withheld (21967); Matthew Cater (22017); James Harpham (22031); Simon Clough (22637, 21990,21988); and Sandor von Kontz (22648).	**Section 4.15**

4

Response to Submissions

4.1 Introduction

The submissions received from the government agencies, action groups and the community raised issues that can be broadly categorised into the following topic areas:

- Project Need, Justification and Alternatives;
- Consultation;
- Soils, Topography and Contamination;
- Surface Water and Hydrology;
- Biodiversity;
- Heritage;
- Visual;
- Traffic and Transportation;
- Noise and Vibration;
- Air Quality and Greenhouse Gases;
- Hazards, Risks and Bushfires;
- Electric Magnetic Fields;
- Socioeconomics; and
- Other.

This chapter provides responses to each of the issues raised in the submissions. The responses have been grouped according to each relevant environmental aspect.

4.2 Project Need, Alternatives and Justification

The responses to submissions in this section of the Report were prepared in the first quarter of 2012 and were correct at the time of preparation.

As part of a well established joint planning process with electricity distributors, demand forecasts are reviewed and updated every year. Each forecast incorporates information which has become available since the previous forecast was produced. Consequently, forecasts can change with time.

Subsequent to the preparation of the responses in this Report, TransGrid has analysed the latest 2011-12 peak summer demand data and electricity demand forecasts from electricity distributor Essential Energy. This information was published in the NSW Annual Planning Report 2012.

Based on the most recent demand forecasts, the earliest a transmission line between Dumaresq andLismore (Far North NSW Project) would be required is winter 2016. It is possible this date may be deferred until 2022 if electricity imports can continue to be relied upon from Queensland via the coast.

TransGrid acknowledges the changes to Project timing cause a degree of uncertainty for the community, particularly those landholders who are affected by the Project. As part of the normal joint planning process, TransGrid will continue to:

- Monitor summer and winter maximum demands;
- Monitor the availability of electricity imports from Queensland via Directlink (between Mullumbimby and Terranora); and
- Work with local distributors and industry participants to identify opportunities to improve capacity of existing electricity infrastructure and availability of electricity imports where cost effective.

Given the volatility of recent peak demand, the most responsible action is to continue the environmental approval process and complete easement compensation and acquisition for the

4 Response to Submissions

Project. This will help reduce uncertainty within the local community. It will also enable TransGrid to minimise Project lead times and so respond to changing circumstances more effectively should future peak demand forecasts bring forward the Project delivery date.

It is anticipated that project approval, should it be granted, would be valid for between 5 and 10 years. Given that there is a potential need for the Project to be initiated within 5 years, it is prudent to ensure that it can be delivered within this timeframe. The impacts of the Project have been assessed, and commitments have been made to ensure that the Project is delivered in a responsible manner.

TransGrid will continue to monitor and report on the timing for delivery of the Project in its Annual Planning Report.

4.2.1 Agency Submissions

4.2.1.1 Agency Issue 1 – Project Alternatives

The submission from Nick Stephens at Lismore City Council (22004) raised concerns regarding:

Project Alternatives

The submission states that there has been inadequate consideration given to alternatives to the Project.

"Lismore City Council strongly suggests that in preference to spending $227 million on infrastructure, and the resulting 60m cleared easement through native vegetation, that this money be used to establish and implement a demand management strategy with Essential Energy for the Far North Coast and facilitate the development of a significant renewable energy Project in the Far North Coast. Issues to be considered in the development of these programs include:

- *the huge uptake of photovoltaics by people in this region, and preference for renewable sources of energy*
- *the lack of any current demand management strategy to reduce electricity consumption in this region*
- *latest research indicating that large scale photovoltaic energy generation will soon be at price parity with coal generated electricity (www.bloomberg.com)*
- *the apparent lack of consideration of Metgasco's 30 MW gas powered electricity plant to help meet peak summer demand."* –Lismore City Council

Response

Alternatives to the Project were considered, including demand management, small scale network augmentation, new generation and transmission network options. As described in **Chapter 2 Project Need and Alternatives** in the EA, TransGrid and Essential Energy carried out an extensive strategic planning process to identify and assess the potential options for addressing the network limitations in Far North NSW.

4 Response to Submissions

Below are responses to the individual points raised in submissions.

Photovoltaic Uptake

The (now closed) Solar Bonus Scheme did result in increased installation of photovoltaic systems on the far north coast. The Institute for Sustainable Futures comments on photovoltaic installations on page 4 of its report and concludes that the recent installations would give a reduction of about 8MW in summer maximum demand. This is approximately one year's forecast load growth.

To be effective in managing ongoing demand growth, installation of around the same amount of photovoltaic systems as was installed in the area under the Solar Bonus Scheme would be required each year. This outcome is unlikely given that the Solar Bonus Scheme has been closed and the subsidies that drove growth in solar capacity in the region have been removed.

Demand Management Strategy

TransGrid has sought non-network options to reduce demand for more than ten years. This process has included a thorough Request for Proposals process detailed in **Chapter 2 Project Need and Alternatives** of Volume 1 of the EA. Options for reducing demand, particularly at the level that would be required to avert longer term supply issues, have not been identified through this process.

Bloomberg Report

The submission does not indicate which Bloomberg report is being referenced. TransGrid carried out a search for this Report and found two potentially relevant articles. A Bloomberg Report dated 25 October 2010 states:

"*The group's latest analysis places the unsubsidised cost of best-in-class photovoltaic and solar thermal electricity generation at just below $200/megawatt-hour – nearly four times the equivalent cost for a coal-fired plant ($56/megawatt-hour) – and between two and four times the cost of onshore wind power*".[2]

This relatively recent Bloomberg report clearly contradicts the conclusions stated in the submission.

A Bloomberg report dated April 2011 states:

"Electricity from coal costs about 7 cents a kilowatt hour compared to 6 cents for natural gas and 22.3 cents for solar photovoltaic in the final quarter of last year according to New Energy Finance estimates"[3]

However, it goes on to discuss large PV installations, and notes projections that the costs of these will halve by 2020.

It should be noted that Transmission networks are an efficient and secure platform to connect new forms of generation, including photovoltaic and solar generation to the National Electricity Market, making them a key facilitator in the shift toward lower emissions and a greater uptake of renewable energy. TransGrid is already connected to more than 4,000 Mega Watts of wind and hydro generation.

Metgasco's Proposed Power Station

Metgasco's proposed power station was considered as a contribution to meeting future demand in the region, as were other potential generation developments in the area.

[2] http://www.bloomberg.com/news/2010-10-25/us-solar-poised-for-100bn-growth-surge.html
[3] http://www.bloomberg.com/news/2011-04-05/solar-energy-costs-may-already-rival-coal-spurring-installation-boom.html

4 Response to Submissions

A key consideration for TransGrid in assessing the strategic contribution such a facility could make to meeting future demand is the reliability of supply from such a facility. TransGrid has obligations relating not only to the delivery, but also the reliability, of power supply through its transmission network. If it is to meet those obligations through contracting with proponents of non-network options, it must be able to rely on those non-network options being available when required. However, it is not possible to rely on any development being available to supply power to the TransGrid network while there is uncertainty about whether that development might proceed, or if it does proceed, when it may be in service and begin to supply power.

TransGrid uses criteria developed by the Australian Energy Market Operator (AEMO) to assess and consider the level of certainty of proposals. TransGrid considers that the power station does not meet the AEMO criteria and consequently, it would not be prudent to rely on this style of proposal to guarantee the future energy supply to the region.

60m Easement

An easement establishes a 'right of way' to ensure that the alignment can be accessed for routine inspection, repairs or in case of an emergency. The width of the easement is dependent on the voltage of the transmission line and is calculated to ensure its safe operation.

4.2.1.2 Agency Issue 2 – Incorrect Demand Forecasts

The submission from Nick Stephens of Lismore City Council (22004) raised concerns regarding:

Incorrect Demand Forecasts

The submission states that there is "*evidence of a state wide decrease in electricity consumption of 2% per annum over the last 2 years*" and that there has been a lack of appreciation for the growth in uptake of renewables which has led to inaccurate forecasts. The submission also states an anticipated further reduction in demand for carbon-based electricity due to carbon pricing legislation.

Response

With their interlinked responsibilities in the region, TransGrid and Essential Energy work in partnership to manage the strategic planning process for the electricity transmission and distribution networks serving the Far North NSW region.

As part of the normal planning process, forecasts of maximum demand are updated each year. Each forecast incorporates information that has become available since the previous forecast was produced. Consequently, there can be variations in the forecasts from year to year. TransGrid has taken this into account within the current Project timeline, and has deferred the Project.

Despite this, as described in **Chapter 2 Project Need and Alternatives** of Volume 1 of the EA, historical electricity demands show a general increase year on year. There continues to be an increasing summer maximum demand for electricity in the Far North NSW region which is pushing the transmission network to its limits in terms of safe and reliable operation.

This submission also mentions changes in (probably annual) energy consumption in NSW and draws an incorrect conclusion from the data, confusing energy consumption with maximum demand. Energy consumption is the amount of energy used over a period, such as a year. Maximum demand is the maximum rate at which energy is used over a short period, typically any half hour period.

4 Response to Submissions

In accordance with electricity supply obligations, including the Transmission Network Design and Reliability Standard for NSW – Dec 2010, transmission networks serving a particular area must be able to accommodate the maximum demand for electricity in that area. When assessing the adequacy of the transmission network serving the far north coast area, the relevant consideration is the maximum demand in the far north coast area, rather than annual energy usage in NSW overall.

4.2.2 Action Group Submissions

4.2.2.1 Action Group Issue 1 - Project Justification

The submission from John Rodwell, TransGrid Action Group (TAG) Incorporated (22824), objected to the Project for the following reason:

Justification for the Project

The submission states that there is no justification for the Project and therefore the area should not suffer the environmental disturbance.

"If the proposal is approved, our region would be presented with a major disturbance to the environment and this disturbance is based on unacceptable planning and justification" – John Rodwell (TAG)

Response

The need and justification for the Project has been driven by a forecasted growth in peak demand for electricity in the Far North NSW region. Current forecasts indicate that overall electricity demand in the region is predicted to increase in the order of 25% for the 10 years between 2012 and 2021. The upgrades and additions to the existing transmission network that have been undertaken to date have responded to the increasing demand for electricity, and have addressed identified limitations in the network. However, the reliability of supply is expected to be compromised in the future by potential single contingency events, for example an outage of the Armidale to Coffs Harbour 330kV transmission line, that may cause significant interruptions and disturbance to electricity supply. Therefore, as described in **Chapter 2 Project Need and Alternatives** of Volume 1 of the EA, to maintain reliability of supply and to meet the increasing demand for electricity across the Far North NSW region, the Project is required.

Under the National Electricity Rules, TransGrid is required to provide a safe, sufficient and reliable electricity supply of suitable quality in the most cost-effective manner (refer to **Section 2.2.2** of Volume 1 of the EA). In accordance with the National Electricity Rules, TransGrid has consulted with the market and undertaken a regulatory consultation process.

Further to this, the EA for the Project clearly outlines both the Project Need and the Project Justification in **Chapter 2 Project Need and Alternatives** and **Chapter 20 Project Evaluation and Justification** of Volume 1 of the EA.

4 Response to Submissions

In relation to the environmental impacts of the Project, the EA provides a comprehensive assessment of the Project and includes investigations regarding all relevant environmental issues. Impacts have been assessed and strategies to avoid, minimise and mitigate those impacts form a key part of the EA. Where impacts cannot be avoided, the suite of mitigation measures contained in **Chapter 19 Draft Statement of Commitments** of Volume 1 of the EA would be implemented during construction and operation, including appropriate offsets where these are required.

TransGrid has determined that the Project is both required and justified as summarised in **Section 20.5** of Volume 1 of the EA.

4.2.2.2 Action Group Issue 2 – Inadequate request for proposals

Submissions from TAG (21948), John Rodwell (TAG Inc) (22824) and the Upper Dumaresq Action Group (UDAG) (22639) objected to the Project for the following reason:

Inadequate Request for Proposals

The submission suggests that during Project planning, TransGrid is required by the National Electricity Rules to issue a Request for Proposals (RfP). This document is designed to highlight any proposals that would satisfy the stated objectives of the Project. The submissions state that the RfP for the Project was inadequate and did not satisfactorily consider proposals outside the 330kV Dumaresq to Lismore Transmission Line, in some cases ruling out alternative transmission line routes due to perceived difficulties in gaining permission.

"The RfP is an inadequate document upon which to base any conclusions about alternatives to the construction of the line (EA, section 2.3.4). The RfP issued by TransGrid in 2010 did not seek alternatives to the construction of the Dumaresq to Lismore line" – UDAG

Response

The National Electricity Rules do not require a RfP seeking network support to be produced.

Nevertheless, an RfP published by TransGrid specifically sought non-network alternatives. On page iii of the RfP, it states:

"Consequently, to enable the timing of network augmentation works to be optimised, TransGrid is issuing this RfP seeking proposals for non-network alternatives (Proposals) which will reduce the loading on the network at critical times (Network Support Services)".

Further, on page 14 it states:

"TransGrid is seeking non-network solutions that in aggregate would provide network support in the NSW Far North Coast area such that capacity of the current system will remain sufficient to meet the remaining aggregate customer peak demand in the NSW Far North Coast area for an additional one or more years.

4 Response to Submissions

It is envisaged that these non-network solutions could include:

- *reductions in end-use demand, either in the Proponent's facility or in the facilities of other end-users as arranged by the Proponent, including the use of standby generators located within these facilities, whether or not the generators are synchronised with the grid.*
- *local generation projects (also referred to as embedded generation) connected to the lower voltage networks supplying end-use Proponents".*

TransGrid did not restrict responses to the RfP to only those that could replace the transmission line (i.e. defer it indefinitely). Rather, it sought options that may allow the Project to be deferred for any period.

The conclusions of the RfP process are summarised in **Sections 2.3.3 and 2.3.4** in Volume 1 of the EA as well as in more detail in **Appendix B-5** of Volume 2 of the EA. In brief, only one of the six responses received contained sufficient information to enable it to be evaluated and there were concerns about whether the development proposed would proceed and be capable of providing network support.

As the RfP process did not identify any non-network options that could be relied upon to help TransGrid to meet its reliability obligations, it was concluded that the proposed Project is the most cost effective feasible solution.

4.2.2.3 Action Group Issue 3 – Non-compliance with National Energy Rules

Submissions from TAG (21948) and UDAG (22639) noted the following:

Non-compliance with the National Energy Rules

The submissions have noted that the Project does not comply with the National Energy Rules (NER) as set out by the National Energy Regulator.

"Clause 5.6.6 is designed to provide transparency and accountability in planning and consultation processes and to ensure competitive neutrality between network and non-network alternatives.

This investigation report has found shortcomings in the process conducted by TransGrid in reaching its decision to build the 330kV transmission line between Dumaresq and Lismore:

- *the application notice did not contain an adequate analysis of all reasonable network and non-network options (clause 5.6.6(c)(iii))*
- *neither the application notice nor the final report adequately examined the potential for material inter-network impacts, (clauses 5.6.6(c)(5) and 5.6.6(d))*
- *the final report did not summarise or respond to submissions on the application notice (clause 5.6.6(h))*
- *the decision to limit the analysis to a single reasonable scenario was inadequately justified (regulatory test version 3, paragraph 19) and thus did not meet the requirement for the application notice to set out a detailed analysis of why the regulatory test was satisfied or, alternatively, if the asset satisfied the regulatory test as a reliability augmentation, why the asset was a reliability augmentation (clause 5.6.6(6))" – TAG*

4 Response to Submissions

Response

Following receipt of an allegation that TransGrid may have breached the National Electricity Rules (NER) whilst undertaking the regulatory consultation process for supply to the Far North Coast of NSW, the Australian Energy Regulator (AER) carried out a review.

The report[4] of the AER's review included the AER's opinion on what it perceived to be shortcomings in the process. In relation to whether the perceived shortcomings affected the outcome of the consultation process, the AER stated (on page 21 of its report):

"However, in this instance it appears unlikely that a fundamentally different outcome would be achieved even if the shortcomings in the process were addressed".

The clauses covering material inter-network impacts in the version of the NER in force at the time aimed to ensure that detrimental impacts within a transmission network, caused by a development in another transmission network, were adequately considered. Where agreement between the affected network owners could not be reached the Rules provided for a report to be prepared by a separate body (the Inter-regional Planning Committee). As TransGrid had Powerlink's agreement, such a report was not necessary.

In relation to clause 5.6.6 (c)iii, it is noted that the only submissions to the Application Notice were from proponents of non-network options. As TransGrid was working with them to determine whether it was possible to establish contracts, it was not possible to describe the nature of the submissions or to name the parties which provided them. However, TransGrid did disclose the maximum amount of information which could be revealed in the circumstances.

TransGrid considered a single scenario and considered the important factors affecting the need to reinforce the transmission network (the availability of Directlink and flows on QNI) as sensitivities. The outcome was the same as if those factors had been treated as separate scenarios.

TransGrid has advised the AER that it will apply the new Regulatory Investment Test for Transmission (RIT-T) to the Project. To ensure the most up to date information is used, TransGrid will endeavour to run the RIT-T at a time that minimises, as much as practical, the time between making the final RIT-T decision and needing to financially commit to the preferred solution. Thus the timing of running the RIT-T will be after the environmental approval process has reached a conclusion and will also depend on, amongst other matters, the load forecast for Far North NSW.

Construction of the Project is not proposed to commence until the RIT-T process is completed. However, the Project has previously satisfied the Regulatory Test. Given this, as well as the AER's comment upon what it described as 'shortcomings' in the process and its comment that "it appears unlikely that a fundamentally different outcome would be achieved even if the shortcomings in the process were addressed", and further considering the lead times required to undertake environmental assessments and obtain environmental planning approvals for major projects, it is prudent to continue to seek approval for the Project at this time.

Notwithstanding the commitment to apply the RIT-T to the Project in due course, TransGrid considers that the Project is already adequately justified for the purposes of the Minister's determination of the project application. This is based on the material already contained in the application and the

[4] Investigation Report *Compliance with the planning and network development provisions of the National Electricity Rules* TransGrid September 2010"

Regulatory Test documentation. The RIT-T is an economic analysis tool that ranks options, rather than a tool to demonstrate need. Both the Regulatory Test and the RIT-T are economic tools to rank feasible options. The outcome of the RIT–T would be unlikely to change the design or alignment for the Project.

Similarly, it is also prudent to continue with the easement acquisition process for the project, endeavour to resolve the landowner compensation negotiations, and so provide certainty for landowners.

Should revised load forecasts, or the implementation of the new RIT-T process, determine that the Project can be deferred, then TransGrid would take appropriate decisions in accordance with its obligations under the NER and as a State Owned Corporation.

TransGrid will continue to monitor and report on the timing for delivery of the optimum solution in its Annual Planning Report so that stakeholders are kept informed.

4.2.2.4 Action Group Issue 4 – Cost of project

Submissions from Upper Dumaresq Environment Network (UDEN) (22639) and TAG (21948) objected to the Project for the following reason:

Cost of the Project

The submissions state that the cost of the Project is too high and that TransGrid could more effectively spend the available funds on other (non-network) projects including demand management and investment in renewable energies. These submissions contend that, the Project does not represent the most cost effective option to meet the Project objectives as the cost of non-network options is considerably lower than the proposed Project.

"The proposal is massively expensive and will inevitably lead to higher electricity prices which will affect the whole NSW community negatively. The carbon tax soon to be in place is intended to offset some of the costs, but we cannot understand why a proposal which costs so much more than the other options identified in the report by the Institute for Sustainable Futures could be approved." – UDEN

Response

The assertion that the cost of the Project is 'too high' is based on analysis undertaken by the Institute of Sustainable Futures (ISF). The ISF analysis attempted to compare the cost of the Project with the cost of non-network options, and it appears to have considered these only across a two to three year period. Consequently, the ISF study has two major shortcomings. These are outlined below.

Calculation of Annualised Costs

Annualised costs can be thought of as the annual payment over the life of a Project to repay a loan taken out to construct the Project. In considering only a short time period that is significantly less than the approximate 50 year life of the Project (refer to **Section 4.7** in Volume 1 of the EA), it can be considered that the ISF analysis has significantly (and artificially) inflated the annualised cost of the Project. Effectively, the ISF analysis has assumed that the useful life of the line is only two to three years. This assumption would only be valid if a new line were to be built every two to three years. As the expected life of the Project is approximately 50 years (and not 2-3 years), the annualised cost of the Project, calculated by ISF, is incorrect and not a sound basis for cost comparison.

4 Response to Submissions

Cost of Non-network Options

Normal practice when implementing a series of projects, such as non-network options to meet identified network constraints, is to start with the most cost effective (lowest cost) options. With the passage of time, the lower cost options are progressively implemented and only increasingly more expensive options remain. Thus, the cost of implementing a series of options typically increases with time.

In considering a relatively short time period of two to three years, the ISF analysis has considered only the stage where the lowest cost non-network options are available. Had a longer time period been considered, such as the life of the proposed Project, the cost of implementing non-network options would be considerably higher.

Consequently, and as commented on above in relation to annualised cost comparisons, ISF's cost comparisons are not a sound basis upon which to rely for decision making on this Project.

Further, TransGrid has publicly sought non-network options for more than ten years, including through an RfP process, and the non-network options detailed in the ISF study have not been submitted to TransGrid in response to any of the documents that were published.

4.2.2.5 Action Group Issue 5 – Project Alternatives

Submissions from the TAG (21948); John Rodwell (TAG Inc) (22824); UDEN (22639); and UDAG (22639) raised concerns regarding:

Project Alternatives

The submissions state that there has been inadequate consideration given to alternatives to the Project. A number of submissions state that TransGrid did not investigate alternatives as required to satisfy the National Energy Rules (NER) as laid out by the Australian Energy Regulator (AER).

Specifically, the submissions have stated that:

- alternative energy sources, such as photovoltaics were not adequately explored;
- the strengthening of Directlink has not been explored as a transmission network option;
- Metgasco's approval for a 30MW gas fired electricity plant south of Casino and the Red Sky Energy 27MW gas station have been overlooked;
- TransGrid have not considered demand management in this region; and
- TransGrid could much more effectively spend the money proposed for the transmission line in supporting regional organisations seeking to reduce non - renewable energy consumption by 20% by 2020.

The above listed submissions comment that TransGrid should ensure support for renewable forms of energy in the region.

Some specific comments regarding Project Alternatives from a number of submissions are highlighted below.

"The AER's decision not to require TransGrid to address breaches in code was based on incorrect information regarding the need for the Project and the possible alternatives." – UDAG

4 Response to Submissions

"Despite the requirements of clause 5.6.6(c)(I)(iii) to describe all reasonable network and non-network alternatives to address the identified constraint, the application notice did not describe the sorts of non - network alternatives that would address the emerging network limitation.

Further, TransGrid did not provide sufficient detail in its public documents to support its conclusions on the inappropriateness of some options. For example, the AER was provided with internal TransGrid planning documents that considered a range of broader options that were not published as part of the application notice. The AER notes that during its investigation, TransGrid has provided further information on its assessment of options. The AER considers that much of this information should have been in the application notice." – TAG

"To assure stakeholders that there is no systemic bias against the consideration of non-network solutions, the AER sought further evidence from TransGrid of similar processes that allowed reasonable non-network solutions to be described in the final report and, where applicable, included in the regulatory test assessment. TransGrid did not respond to this request. This area will be a particular focus of the AER in future compliance assessments. In addition, the AER expects this issue to be addressed by TransGrid in future." – TAG

Response

Alternatives to the Project were considered, including demand management, small scale network augmentation, new generation and transmission network options. As described in **Chapter 2 Project Need and Alternatives** in the EA, TransGrid and Essential Energy carried out an extensive strategic planning process to identify and assess the potential options for addressing the network limitations in Far North NSW.

Section 4.2.1.1 of this report also provides further information regarding consideration of alternatives.

Below are responses to the individual points raised in submissions.

Non-compliance with the National Energy Rules

Refer to **Section 4.2.2.3** of this Report for the response regarding alleged non-compliance with the National Energy Rules.

Network Options

In relation to TransGrid considering the strengthening of Directlink as a network option, TransGrid has no jurisdiction to instruct privately owned companies such as the owners of Directlink. The RfP process is the appropriate avenue for privately owned companies to identify (and provide details) of proposals that could provide network support. Directlink did not respond to the RfP. Despite this, TransGrid continues communication with the owners of Directlink. However, no resolution has been reached to date.

Non-network Options

TransGrid has sought non-network options for more than ten years, including through an RfP process. TransGrid has no preference for any particular types of non-network options and does not limit the nature of the options that can be proposed. Consequently, it does not "target" any particular technologies (such as photovoltaic generation).

Section 4.2.1.1 of this Report provides a more detailed response to 'Project Alternatives' specifically discussing Photovoltaics, Demand Management and Metgasco's Proposed Power Station.

4 Response to Submissions

'Red Sky Energy Proposal' and 'Support for Renewable Forms of Energy'

The submission provides no evidence to support the contention that "*supporting regional organisations seeking to reduce non-renewable energy consumption*" would be cost effective or that it would deliver the reductions in maximum demand necessary to delay the need for the Project.

TransGrid is aware of Red Sky Energy's gas exploration activities and that they have had discussions with Essential Energy. However, at this stage any proposal to establish generation is at a very preliminary stage and cannot be relied upon as a Project alternative.

TransGrid has sought network support including through a Request for Proposals. TransGrid does not limit the nature of non-network options that can be proposed. For further discussion on this refer to **Section 4.2.2.2** of this Report for comments on the consideration of embedded generation such as photovoltaics and generators.

Further, as outlined in **Section 4.2.2.3** of this Report, TransGrid will also apply the new RIT-T to the Project. The RIT-T process includes public consultation in accordance with the NER and proponents of non network options have an opportunity to make submissions.

Should the implementation of the new RIT-T process determine that the Project can be deferred then TransGrid would consider this outcome and make appropriate decisions in accordance with its obligations under the NER and as a State Owned Corporation. Despite the commitment to apply the RIT-T to the Project, TransGrid considers that the Project is already adequately justified for the purposes of the Minister's determination of this project application on the basis of the material already contained in the application and the Regulatory Test documentation.

Detail of Regulatory Test Consultation Documents

The Regulatory Test consultation process undertaken involved the publication of two reports:

- the Application Notice, which, inter alia, included information on possible options and sought submissions (comments, queries, proposals, etc.); and
- the Final Report[5], which incorporated relevant information from submissions received.

The Application Notice included information and details that TransGrid considered appropriate. TransGrid provided tailored responses to any queries or requests for more information in relation to the Application Notice. This enabled appropriate and relevant information to be provided to any interested parties and information to be provided to anyone with queries.

As part of the AER review, TransGrid provided further information to the AER on its assessment of options. TransGrid also provided a series of commitments to address the AER's comments and guide planning for future projects. The AER has welcomed these commitments.

[5] http://www.transgrid.com.au/projects/projects/dumaresq_lismore/Documents/Final%20Report.pdf

4 Response to Submissions

4.2.2.6 Action Group Issue 6 –Incorrect Demand Forecasts

Submissions from TAG (21948); UDEN (22639); and UDAG (22639) raised concerns regarding the following issue:

Incorrect Demand Forecasts

A number of submissions state that TransGrid has overestimated the level of network support required and that there are inconsistencies regarding estimates among different TransGrid documents. The submissions state that local trends suggest a reduction in electricity usage and that the stated need for the Project is inaccurate.

"Annual demand growth has fallen significantly since TransGrid submitted their final report on their proposal to build a power line from Lismore to Dumaresq (TransGrid 2009), in which they projected an increase of 97 MW in peak demand over a five year planning horizon, and identified a need for network support of 62 MW. TransGrid has not revised their estimates of the network support to correspond to the reduction in demand growth. While the five year projected growth in peak demand has fallen to 49 MW, the identified need for network support at the five year planning horizon is essentially the same, namely 61 MW.

Assuming TransGrid is currently meeting reliability standards, there is no apparent reason why the need for network support would be greater than the projected increase in demand in the next five year planning horizon, namely either the 49 MW projection for growth in the Environmental Assessment, (TransGrid 2011c) or the 22 MW identified in the 2011 Annual Planning Report (TransGrid 2011b)." – TAG (Institute of Sustainable Futures) (21948).

Response

Section 4.2.1.2 of this Report provides a response regarding incorrect demand forecasts. As part of a well-established joint planning process with Essential Energy, summer and winter maximum demands figures from the substations that supply Essential Energy network are reviewed and updated every year. Each forecast incorporates information which has become available since the previous forecast was produced. Consequently, forecasts can change with time.

The statements within the above submissions are based on the report produced by the Institute of Sustainable Futures (ISF) which attempted to reconcile load forecasts produced at various times with the corresponding levels of network support required. In its investigation the ISF made at least one error and appears to have adopted an unorthodox approach regarding its forecasting methodology. These issues are discussed below.

Level of Support Required

Table 1 on page 6 of the ISF report provides the far north coast area demands and associated levels of support required. These have been taken from the Final Report of the regulatory consultation and the environmental assessment.

The Final Report gave the levels of support required to compensate for outages of two 330kV lines, the 87 Armidale – Coffs Harbour line and the 89 Coffs Harbour – Lismore line. The figure included in ISF's Table 1 is for the wrong 330kV line outage (Table 1 has 62MW of support for an outage of 89 line rather than 120MW of support for an outage of 87 line). In TransGrid's opinion, this error led ISF to understate the difference in the levels of support required by 60MW and, consequently, to incorrectly conclude that the level of support required had not changed.

4 Response to Submissions

ISF Approach

The ISF report has calculated demand growths over various periods by taking the difference between a forecast demand and an actual demand.

The forecast demands are based on standard weather (long term average) conditions. Actual demands are affected by actual weather conditions on the day on which they occur (which may or may not be the same as standard conditions). As a result the growth calculated by ISF reflects the forecast growth and the extent to which actual weather conditions varied from standard conditions. Using such an approach, which is affected by variations in actual weather conditions, can lead to anomalous results that should not be used as a basis for estimating forecast growth.

An alternative broad ('sanity') check on whether the demand forecasts and levels of support required are consistent, is to calculate the "approximate supportable load[6]" by subtracting the level of support required from the forecast demand for the area. This gives approximate supportable loads of around 320MW which is consistent with the forecasts used in the Final Report and in the Environmental Assessment for this Project.

2011 Annual Planning Report Forecast

The ISF analysis includes an estimate of the far north coast area demand based on the substation forecasts published in the 2011 Annual Planning Report[7]. In that process the Essential Energy loads at Dunoon and Mullumbimby were not included[8]. Consequently, ISF's conclusion that the forecast in the Environmental Assessment is higher than that in the 2011 Annual Planning Report is technically incorrect when the figures are adjusted to a like-for-like basis, by allowing for the Essential Energy loads at Dunoon and Mullumbimby.

Notwithstanding this technical difference, TransGrid has committed to the AER to apply the RIT-T to the Project. This should ensure market and broader community confidence in the Project (refer to **Section 4.2.2.3** of this Report). This will be conducted prior to commencement of Project construction.

6 The level of support required depends to a degree on the distribution of loads within the far north coast region and on external factors such as the magnitude of loads and network developments in adjoining areas such as the mid north coast. Consequently, the "approximate supportable load" is not a fixed quantity. It can vary slightly from year to year as forecasts and the network configuration changes.

7 http://www.transgrid.com.au/network/np/Documents/Annual%20Planning%20Report%202011.pdf

8 The forecast published in the Final Report included a Lismore load, which was the load at TransGrid's Lismore 330/132 kV substation supplied via Essential Energy's three 132kV lines that connect to that substation. Those three lines supply Essential Energy's substations at Lismore, Dunoon and Mullumbimby. Consequently, the Final Report did not separately include forecasts for the loads at those three Essential Energy substations.

When calculating the total load based on the forecasts in the 2011 Annual Planning Report, ISF summated the forecasts for the substations listed in the Final Report. This resulted in the load at Essential Energy's Lismore Substation being included (in lieu of that at the 330/132kV substation) and those at Dunoon and Mullumbimby not being included.

4 Response to Submissions

4.2.3 Community Submissions

4.2.3.1 Community Issue 1 – Project Justification

Submissions from *Name Withheld* (21908); Marilyn Moballe (21920); Richard Harpham (21922); Susan Yeates (21924); AL and VA Schroder (TG 3); James and Philippa Lilyman (TG 4); Julia Harpham (21957); William Harpham (23626); Ralph Weatherley and Sylvia Grigg (22631); William Eastgate (21961); and Peter Spedding (22803) objected to the Project for the following reason:

Project Justification

The submissions claim that there is no justification for the level of network support required by the Project.

Response

Section 4.2.2.1 of this Report provides a response regarding Project justification.

4.2.3.2 Community Issue 2 – Inadequate Request for Proposals

The submissions from Julia Harpham (21957); James and Philippa Lilyman (TG 4); and from Peter Woodrow (20521) objected to the Project for the following reason:

Inadequate Request for Proposals

The submissions states that the proponent initially failed to complete an RfP document. Additionally the submissions claim that when the RfP document was completed, it was not completed adequately, failing to properly assess non-network options. The submissions claim that:

"*Furthermore, the attempt by TransGrid to remedy this in 2010 represented a process deliberately designed to fail*". – Peter Woodrow

Response

Sections 4.2.2.2 and **4.2.2.5** of this Report provide a comprehensive response regarding the RfP process. As discussed the RfP process identified a number of alternatives to the Project. These alternatives were examined and the proposed Project was found to be the most cost effective and feasible solution. TransGrid has successfully implemented non-network options on other projects. Examples include:

- the implementation of supply to the Newcastle/Wollongong/Sydney area;
- one supply contract for the Sydney Inner Metropolitan Area that will be delivered next summer (2012/13); and
- one supply contract being negotiated for the Mid North Coast.

When entering into negotiations regarding alternatives and options as part of the RfP process, neither party can guarantee that the negotiations will be successful. Failure to reach an agreement can be due to many factors and does not automatically mean that the negotiations were "designed to fail".

The submission also noted a discussion held by TAG with a "Significant Alternative Energy Supplier". TransGrid was not present at that discussion and therefore it is not possible to verify the accuracy of the report or to understand the context of the discussion.

4 Response to Submissions

4.2.3.3 Community Issue 3 – Non-compliance with National Energy Rules

The submissions from John Rodwell (21715); *Name Withheld* (21720); Paulene Brookes (21847); *Name Withheld* (21951); Susan Bailey (21953); Julia Harpham (21957); Christopher Harpham (TG 2); William Eastgate (21961); William Harpham (23626); JJ Spedding (22619); James and Philippa Lilyman (TG 4); Ralph Weatherley and Sylvia Grigg (22631); Sandor von Kontz (22648); Sandor von Kontz (23459 – attachment) Colin & Helen Chevalley (22641); Peter Spedding (22803); and Sandra Smith (23073) objected to the Project for the following reason:

Non-compliance with the National Energy Rules

The submissions raise concerns that the Project does not comply with the National Energy Rules (NER) as set out by the Australian Energy Regulator (AER). These rules set out a process for the justification for the construction of new transmission lines. According to the submissions, there have been instances of non-compliance with the rules, notably clause 5.6.6.

The submission from Julia Harpham (21957) states that TransGrid is acting outside the NER, and by doing so, is acting outside its power (*ultra vires*) and in bad faith (*mala fides*) in attempting a compulsory purchase of the land for the proposed alignment. The submission notes in relation to these points:

*"**ultra vires** There is, of course, no question about Transgrid generally having legal power under the Act to resume an easement through freehold land. That said, if they have not complied with any procedural requirements that are a pre-condition to being able to use the resumptive power, or they don't comply with the processes under the Act itself, then this may give grounds for saying they are acting "outside of power".*

***mala fides** Requires Transgrid to give objective and bona fide consideration to what is "necessary" to achieve the relevant public purpose. A court has no power to review Transgrid's decision on the merits in order to determine which is the "best" or "correct" decision, and can only interfere if the particular choice made by Transgrid was not reasonably and rationally open to Transgrid in all the circumstances"* – Julia Harpham

Response

Section 4.2.2.3 of this Report provides the response regarding alleged non-compliance with the National Electricity Rules. TransGrid emphatically rejects the proposition that it has at any time acted in bad faith, or outside its power.

4.2.3.4 Community Issue 4 – Project Alternatives

Submissions from Peter Woodrow (20521); *Name Withheld* (21720); Paulene Brookes (21847); Colin Kilburn (21912); Lynn Takayama (21940); *Name Withheld* (21951); Susan Bailey (21953); Julia Harpham (21957); William Eastgate (21961); James and Philippa Lilyman (TG 4); Martin I'Ons (21978); JJ Spedding (22619); Marie lhle (22623); Pearl Austin (22625); Peter Spedding (22803); RS & MO Dowe (22633); Simon Clough of Sustain Northern Rivers (21990, 21988 and 22637); Sandor von Kontz (23459 – attachment); Colin & Helen Chevalley (22641); Janelle Nairn-Ambrose (TG 5); Sandor von Kontz (23766); Charmaine Harrison (TG 1); Sue Higginson (as Part of Sandor Von Kontz submission) (22648); and Sandra Smith (23073) raised concerns regarding:

4 Response to Submissions

Project Alternatives

The submissions state that there has been inadequate consideration given to alternatives to the Project. Many submissions state that TransGrid did not investigate alternatives as required to satisfy the NER, as laid out by the AER.

The submissions comment that TransGrid did not take into any account the impact of non-network options prior to the initial proposal as mandated by section 5.6.6 of the NER. The submissions state that neither the application notice[9] (in April 2008) nor the final report[10] (in March 2009) adequately examined the potential for material inter-network impacts.

Specifically, a number of submissions have stated that:

- TransGrid should collaborate with community organisations that have shown the commitment and capacity to reduce the area's dependence on coal fired electricity;
- alternative energy sources have been overlooked (e.g. photovoltaics and Metgasco's gas fired electricity plant);
- TransGrid's Project does not take the region's uptake of, and commitment to, energy saving technology and renewable energy into account;
- the 'Terranora connector' is highlighted as the cheapest option despite ownership issues;
- it is pointed out that TransGrid is an electricity carrier and therefore has a vested interest in maintaining business as usual rather than investing in smart grids and local generation options; and
- the proposed power lines should be located underground as advantages would include no visual pollution, less storm damage, and less maintenance.

Some specific comments regarding Project Alternatives from a number of submissions are noted below.

"TransGrid and Country Energy have erred in claiming in the Final Report to have "applied the regulatory test to all known reasonable options to meet the network limitations described", since the Final Report has not given adequate consideration to current and potential demand management and local generation options…. - Sue Higginson (as Part of Sandor Von Kontz submission) of EDO

"Since the RFP did NOT seek proposals for alternatives to the construction of the 330kV line, how can the AER possibly maintain the RFP enabled prospective providers of non-network (and network) solutions to formulate and submit alternatives to the construction of the 330 kV line?" – Julia Harpham

Response

The submissions raised a number of issues regarding Project Alternatives. **Section 4.2.1.1** of this Report provides a response regarding Project Alternatives and specifically discusses photovoltaic uptake and Metgasco's power station proposal. Further information regarding the consideration of alternatives (including non-network options and consideration of renewables) is provided in **Sections 4.2.1.1** and **4.2.2.5** of this Report as well as **Chapter 2 Project Need and Alternatives** in the EA. **Section 4.2.2.3** of this Report provides a response regarding non-compliance with the National Energy Rules. **Section 4.2.2.2** of this Report provides a response regarding the RfP process.

[9] http://www.transgrid.com.au/projects/projects/dumaresq_lismore/Documents/Application%20Notice.pdf
[10] http://www.transgrid.com.au/projects/projects/dumaresq_lismore/Documents/Final%20Report.pdf

4 Response to Submissions

The community submissions also make several other points which are addressed below.

Collaboration with the public

TransGrid have collaborated with community organisations that have shown the commitment and capacity to reduce the area's dependence on coal fired electricity through the RfP process. While collaboration with community organisations is highly desirable and canvassing of non-network options obligatory, TransGrid is always subject to reliability obligations set out in the *Transmission Design Reliability Standard for NSW - December 2010*.

The Terranora Connector (Directlink)

Section 4.2.2.5 of this Report provides the response regarding Directlink.

Alternative Energy Sources

As discussed previously in this Submissions Report, TransGrid has sought to identify non-network options for over ten years including via a Request for Proposals. TransGrid has reliability obligations under the *Transmission Design Reliability Standard for NSW – December 2010*[11] (Department of Industry and Investment). Hence, non-network options must be proven to be reliable.

Vested Interests of TransGrid

Under the NER, TransGrid is not allowed to favour any particular generation technologies, hence it must transport the energy needed by end-use customers irrespective of its source.

Further, most large scale renewable energy resources are remote from population centres and would require an efficient transmission network to transport energy generated in those areas to where it is to be used.

Undergrounding

Section 2.5.2 in Volume 1 of the EA discusses the benefits and weaknesses of an underground transmission line as opposed to an overground transmission line. In summary, although construction of long-distance underground transmission lines is technically feasible, primarily offering advantages in minimising visual impacts, there are a number of factors that constrain its practical implementation for the proposed Project, including:

- Cost: the installation cost for underground transmission cables can range from 5 and up to 10 times the cost of an equivalent overhead line;
- Maintenance: although underground cables may have less outages initially, when outages do occur it can be much more time-consuming to locate, diagnose the problem and repair an underground transmission cable;
- Installation: the time, effort and impact of underground installation is greater than overhead installation. They require all surface vegetation and obstacles to be cleared for the full length of the line; and

[11] http://www.trade.nsw.gov.au/__data/assets/pdf_file/0019/374302/nsw-transmission-network-design-and-reliability-standard.pdf

- Capacity constraints: all electricity transmission cables produce heat as a consequence of power transmission, and, therefore, have a limit on the amount of power that they can carry. Underground cables cannot dissipate heat as well as overhead lines, given that they are surrounded by soil that has a greater insulating effect than air.

4.2.3.5 Community Issue 5 – Incorrect Demand Forecasts

Submissions from Simon Clough (21990, 21988 and 22637); *Name Withheld* (22006); Peter Woodrow (20521); John Rodwell (21715); *Name Withheld* (21720); Jane I'Ons (21799); Paulene Brookes (21847); Lynn Takayama and Leigh Kelly (21940); *Name Withheld* (21951); Susan Bailey (21953); Julia Harpham (21957); William Eastgate (21961); *Name Withheld* (21967); David Harpham (21972); Edward Hickson (21986); J.J. Spedding (22619); Marie lhle (22623); Ralph Weatherley and Sylvia Grigg (22631); RS & MO Dowe (22633); Charmaine Harrison (TG 1); James and Pilippa Lilyman (TG 4); Sandor von Kontz (23766); Sandor von Kontz (23459 – attachment); Sue Higgingson (as Part of Sandor Von Kontz submission) (22648); Peter Spedding (22803); Sandra Smith (23073); *Name Withheld* (21481); *Name Withheld* (21483); *Name Withheld* (21485); Ruth Matthews (21590); Ruth Matthews (21592); and Ruth Matthews (21618) raised concerns regarding the following issue:

Incorrect Demand Forecasts

A number of submissions state that there is inadequate demand for power on the Far North Coast of NSW to justify such a large scale project. It is stated that TransGrid's predicted energy demands are based on population growth, rather than actual energy usage, which has declined or remained flat over the last few years despite increasing population growth on the North Coast.

A number of submissions raise a concern that TransGrid has not recognised the inaccuracy of its demand forecasts for the last 3 years in forecasting future demand. A number of submissions state that the basic electricity demand information on which the original proposal was based is flawed and has been proved incorrect.

A number of submissions also state that there has been 30% decline in energy needs to this area compared to what was predicted from the original proposal. They state that TransGrid originally warned of supply shortfalls by 2012 and now it has shifted this projection to 2018-2020.

The submissions reiterate that the current projected capacity shortfall could be met by distributed energy options. Among the submissions are the following points:

"TransGrid's predicted energy demands are based upon population growth, rather than actual energy usage, which has according to TransGrid's own documentation declined or remained flat over the last 3 years despite increasing population growth on the North Coast. " – JJ Spedding

"TransGrid have started to talk about "peak demand" as the reason for building, It does seem incongruous that a government would spend such a huge sum on a possibility of need for 3 days of the year this possibility being exactly that. " – Julia Harpham

"AER is concerned that there is a systemic bias towards inflated forecasts because of the framework for establishing forecasts of required capital and operating expenditure.' The network limitations anticipated by TransGrid are the result of projected increases in end-user demand over the next decade. However, there is widespread evidence that TransGrid consistently overestimates demand forecasts. Need in the region is decreasing." – Sue Higginson and Sandor von Kontz

4 Response to Submissions

Response

TransGrid has reliability obligations under the *Transmission Design Reliability Standard for NSW – December 2010*[12] (Department of Industry and Investment) that require planning and development of the transmission network to be able to cater for periods of forecast high load.

As part of the normal planning process, forecasts of maximum demand are updated each year. Each forecast incorporates information that has become available since the previous forecast was produced. Consequently, there can be variations in the forecasts from year to year. TransGrid has taken this into account within the current Project timeline, and has deferred the Project.

Over recent summers a number of factors that can reduce the demand for electricity have coincided to varying degrees. These include;

- La Nina weather patterns which result in cooler and wetter than normal summers;
- The Global Financial Crisis, uncertainty about the US and some European economies and the "two speed" Australian economy;
- Recent increases in electricity prices; and
- The impact of PV installations in response to the solar bonus scheme.

While it is not possible to identify the extent to which individual factors (or combinations of interacting factors) may have impacted on demand for electricity, it is likely that the recent confluence of events will not persist indefinitely. For example, the solar bonus scheme has closed and the Bureau of Meteorology recently announced that the La Nina weather pattern had ended[13]. Consequently demand forecasts are likely to reflect a return to more normal weather and economic conditions.

Further to this;

- the summer maximum demand is at the maximum level currently able to be reliably supported by TransGrid's network;
- supply to the area presently relies on additional (occasionally unreliable) supply support from Queensland via Directlink; and
- while reductions in forecasts have reduced the level of support required and deferred the timing of the Project, they have not "removed" the need for the line.

Section 4.2.1.2 and 4.2.2.6 of this Report also provide a response regarding incorrect demand forecasts.

4.2.3.6 Community Issue 6 – Cost of Project

Submissions from Simon Clough (21990, 21988 and 22637); Peter Woodrow (20521); Name Withheld (21908); Marilyn Moballe (21920); Richard Harpham (21922); Lynn Takayama and Leigh Kelly (21940); Julia Harpham (21957); and Deborah Adam (22643) objected to the Project for the following reason:

[12] http://www.trade.nsw.gov.au/__data/assets/pdf_file/0019/374302/nsw-transmission-network-design-and-reliability-standard.pdf
[13] http://www.bom.gov.au/climate/enso/

Cost of the Project

The submissions state that the cost of the Project is too high and that TransGrid could more effectively spend the money on other (non-network) projects including demand management and investment in renewable energies. The common theme across these submissions is that the Project does not represent the most cost effective option to meet the stated objectives.

Comments within the submissions included:

"The figures provided by the Institute of Sustainable Futures (UTS) show conclusively that at minimum this Project is nine (9) times more expensive than its less energy demanding alternatives and at a maximum twenty (20) times more expensive." – Simon Clough

"Such that such an enormous transmission line as the one proposed will become, more or less, a white elephant - at a huge and wasteful cost to the taxpayer" - Lynn Takayama

"The I-Grid Report clearly stated that infrastructure spending is the most expensive option and that Smart-metering and demand management of the Far North coast is the single most cost effective strategy." – Peter Woodrow

Response

Section 4.2.2.4 of this Report also provides a response regarding the cost of the Project and the inaccuracies regarding the ISF figures.

Regarding the 'I-Grid Report', it is not clear to which "I-Grid Report" the submission refers. In an attempt to locate the relevant report and respond to the submission, a search of the www.igrid.net.au – 'Resources and Publications' webpage was undertaken. However, a copy of the report was not able to be located. As discussed in **Section 4.2.2.2** of this Report, the RfP process did not identify any non-network options that could be relied upon to help TransGrid to meet its reliability obligations. This outcome does not support the contention that smart metering and non-network options are the single most cost effective strategy.

4.3 Consultation

4.3.1 Agency Submissions

No Agency submissions raised issues or concerns about the consultation carried out by TransGrid to date. The Department of Primary Industries (22816) and NSW Office of Water (22818) submissions discuss requirements for ongoing consultation to do with water licensing / permitting requirements and watercourse crossing design. These issues are addressed in **Section 4.5 Surface Water and Hydrology**.

4 Response to Submissions

4.3.2 Action Group Submissions

4.3.2.1 Action Group Issue 1 – TransGrid's Approach to Consultation

The submissions from UDEN (22639) and Mingoola Progress Association Inc. (21932) raised concerns about the following issue:

TransGrid's approach to consultation

"Many people have objected to the high handed way in which they were dealt with. Some feel they have been harassed, and others feel that they have been subjected to undue pressure to sign an agreement, before the proposal has been verified." – UDEN

"*Consultation with landowners has been perfunctory, and in some cases promises have been made which have not been kept about the siting of the line. Consultation has in many cases been accompanied by an implied threat that if landowners do not comply they will in some way be negatively impacted. We object on the grounds of inadequate consultation according to the Director General's Requirements."* - Mingoola Progress Association Inc.

Response

The Director-General's Requirements for the Project were issued on 11 September 2009. They stated that "*an appropriate and justified level of consultation"* with Government Stakeholder, Local Aboriginal Land Council and the local community must be undertaken. TransGrid has undertaken an extensive program of consultation in relation to the Project.

Prior to the issuing of the DGRs, TransGrid had engaged in consultation with a number of organisations and the local community. Consultation with the community and other key stakeholders commenced in April 2009 and is ongoing. A program of community, landowner and government agency consultation was undertaken as part of the process of preparing and exhibiting the EA. This consultation effort assisted in the identification of relevant issues and potential impacts. For example, as part of the Constraints Identification and Preferred Corridor Stage (February – September 2009), following feedback from the community, preliminary environmental studies and aerial surveys, an additional route option was identified for crossing the Mole River and an additional option was also identified to the north of Tenterfield. The options fed into the design process and were considered as part of the identification of the preferred corridor, the progression of the assessment of the preferred alignment and the associated easement. This assessment is detailed within the Constraints Identification Report (refer to **Appendix B-3** in Volume 2 of the EA).

A summary of the consultation program is provided in **Appendix D Consultation Report** in Volume 2 of the EA and includes details of comments received under the program and where/how these issues have been addressed.

<u>Undue pressure to sign an agreement, before the Project has been verified</u>

The Project has been determined as the most reliable way to meet future energy demands of communities across Far North NSW. In order to deliver this important infrastructure and secure reliability of supply for the region, TransGrid needs to acquire a corridor for the transmission line in the form of easements over private and public land.

4 Response to Submissions

As major projects take many years to deliver, including the lead times associated with acquiring easements, undertaking the environmental assessment and obtaining approval, TransGrid must undertake these processes concurrently in order to achieve completion of the Project by the required need date.

During the property acquisition process, owners of both private and public lands are treated equally and with respect. In addition to this, TransGrid's land acquisition officers are available to address any concerns landowners may have and are bound to act professionally at all times.

TransGrid encourages landowners to gain their own independent valuation advice to assist with compensation negotiations. As part of this process, TransGrid meets all reasonable costs incurred by landowners while gaining independent legal and valuation advice.

There are instances where TransGrid will seek to exercise compulsory acquisition powers under the provisions of the *Land Acquisition (Just Terms Compensation) Act 1991* for the purposes of the *Electricity Supply Act 1995*. However it should be noted that compulsory acquisition is a last resort and TransGrid only exercises this right when negotiations fail, and a suitable outcome for both parties cannot be reached.

In addition to this, all compulsory acquisitions require approval from the Minister for Resources and Energy. In order to grant approval, the Minister must be satisfied as to the necessity of the acquisition for the proposed public purpose.

4.3.2.2 Action Group Issue 2 – Consultation not carried out beyond directly affected landholders

The submissions from UDEN (22639) and Mingoola Progress Association Inc. (21932) raised concerns about the following issue:

Consultation not carried out beyond directly impacted landholders

"Some people who are neighbours of the easement have never been consulted, and feel they will be affected in a number of ways, and there are no provisions within the proposal to compensate them for the negative effects they will experience." – UDEN

"The Planning Authority requires consultation with all affected parties, not just those who own land on the easement. This process has not taken place with members who own land adjacent, or with members who rent, live or work on a property affected." - Mingoola Progress Association Inc.

Response

The DGRs state "*You must undertake an appropriate and justified level of consultation with the following parties during the preparation of the EA: …each landowner and land occupier within and adjacent to the corridor of the proposed development sites and transmission route*..."

4 Response to Submissions

A range of consultation activities have been undertaken in order to present information to directly affected lot holders, as well as the wider community, on the need for the transmission line, the history of the Project and the process to be undertaken in order to identify an alignment. Consultation with the wider community regarding the Project commenced in April 2009 and is ongoing. To date, TransGrid records indicate the consultation effort has included:

- eight public information sessions in key locations along the alignment during the preparation of the EA and 4 public information sessions for the exhibition of the EA to update the community on the progress of the Project;
- a number of public fixed displays at set locations along the alignment, coinciding with the announcement of the expanded study areas, the announcement of the preferred corridor and during the exhibition of the EA;
- 23 media releases have been published from 2009 onwards to communicate to the public updates on the Project as they arose;
- 20 newspaper advertisements have been published in the local press to communicate to the public updates on the Project as they arose;
- responding to 1,132 phone enquiries since April 2009 (including calls to the 1800 info phone line and general phone enquiries);
- establishment of a Tenterfield Site Office for community members to have a local centre for any enquiries and to access Project information;
- 205 one-on-one landholder meetings either on site or at Tenterfield site office since the announcement of the preferred corridor;
- 134 Project emails have been sent to answer enquiries and disseminate Project information;
- a Project page was set up on the TransGrid website which has been regularly updated to communicate to the public updates on the Project as they arose; and
- four focus groups were undertaken to gather feedback on the Project.

Each of these communication vehicles provided opportunities for the wider community (outside of those directly affected by the proposed Project) to learn about the Project and provide input to the Project team. This consultation program is ongoing. A summary of the consultation effort to date is provided in **Appendix D Consultation Report** in Volume 2 of the EA and **Section 2** of this Report.

4.3.3 Community Submissions

4.3.3.1 Community Issue 1 – General inadequacy of the consultation process

The submissions from Julia Harpham (21957, 22824 – attachment); Sandor von Kontz (22648); Matthew Cater (22017); *Name Withheld* (21908); Andrew Hynes (22606); Julia Harpham (22824) and Peter Spedding (22803) raised concerns about the following issue:

General inadequacy of the consultation process

The above submissions noted concerns about the general adequacy and approach TransGrid had adopted towards consultation, or raised objections to the Project on the basis of this general issue. Examples of comments made included:

"The initial posting of their intention to build was done without affected landowners having the opportunity to object. We have only had this opportunity to object since the Planning Department required an EIS to be done." - Julia Harpham

4 Response to Submissions

"In summation, our dealings with Transgrid have been unpleasant. They have never told us the full truth about their intentions, and have fobbed us off, or tried to make us feel better by saying they will move the line further away from where they originally sited it so we would agree to it." - Matthew Cater

The submission from Julia Harpham (21957) and Sandor von Kontz (22648) raised concerns that TransGrid had not followed the recommendations of the Senate Inquiry reporting on the Eastlink report[14].

Response

A range of consultation activities has been implemented in order to engage and present information to the community on the need for the Project, the history of the Project and the process to be undertaken in order to identify and assess an alignment. These activities have included:

- Sending letters on multiple occasions to landowners within the originally identified 'study area', the 'expanded study area', and then to lot holders who were identified as being directly affected by the Project.
- Project Community Updates (newsletters) were mailed out to lot holders within the study area in May 2009. Further updates were sent in July and December 2009 and again in June and September 2010. Newsletters were also sent upon request to other community members and published on TransGrid's website.
- A number of Project updates have been provided to the media (including newspapers) and these have been published on TransGrid's website.
- Public Fixed display sites have been established on a number of occasions within Lismore, Kyogle, Richmond Valley, Tenterfield and Inverell Councils. They were set up to coincide with the announcement of the expanded study areas, the announcement of the preferred corridor and during the exhibition of the EA. The display sites included material such as the Project update newsletters, feedback forms, mapping sheets and CDs containing high resolution maps for community members requiring more detailed images.
- Public information sessions have been held on a number of occasions to provide an opportunity for the community to discuss the Project and provide local information and feedback. The information sessions were held at readily accessible locations in proximity to the study area.
- The EA was placed on public exhibition in accordance with the requirements of the EP&A Act, allowing further public involvement and participation in the environmental planning and assessment process for this Project.
- Feedback tools have also been provided throughout the Project including a toll free 1800 number, project email and feedback forms.

On this basis, TransGrid believes it has undertaken an '*appropriate and justified level of consultation*' as required in the DGRs.

[14] Eastlink: The Interconnection of NSW and Queensland Electricity Grids with a High Voltage Powerlink – December 1995

4 Response to Submissions

4.3.3.2 Community Issue 2 – Lack of consultation regarding access roads.

The submission from Julia Harpham (21957) raised concerns about the following issue:

Lack of consultation regarding access roads

Julia Harpham (21957) mentioned a lack of consultation regarding the location of proposed access tracks required along the alignment.

""Access roads consultation has been extremely poor or non-existent. ... Indeed in many cases (our own included) the first thing we knew about the access tracks was when they were published last month." - Julia Harpham

Response

Where TransGrid representatives were able to access properties and meet with landowners they consulted with the owners in relation to the proposed access tracks. When access to the remainder of the properties is available then TransGrid representatives will also meet with the respective landowners and discuss the proposed access tracks. Access track locations were identified by TransGrid for assessment purposes and the potential impacts of these were assessed accordingly as part of the environmental assessment for the Project.

During the exhibition of the EA, the location of certain access tracks was also discussed with landowners. The final location of the access tracks would continue to be negotiated as part of the consultation process. Any changes in the location of the access tracks would be subject to a change process (outlined in **Section 19.3.2** in Volume 1 of the EA).

4.3.3.3 Community Issue 3 – TransGrid's general approach to consultation

The submissions from Sandor von Kontz (22648); *Name Withheld* (21955); Julia Harpham (21957); Julia Harpham (22824 – attachment) and Peter Spedding (22803) raised concerns about the following issue:

TransGrid's general approach / attitude to consultation

The above community submissions raised concerns about various aspects of their interactions with TransGrid representatives. Examples of comments made included:

"*Unfortunately, our dealings with TransGrid have been unsatisfactory, without genuine appreciation of our concerns*." - *Name Withheld*

"*The public has been treated patronisingly and with arrogance*" - Sandor von Kontz (22648). This submission also indicated that TransGrid refused to answer a number of questions regarding Project needs and alternatives, and presented the Project as a *fait accompli* from the first meeting.

"*TransGrid is still following the practice of one-by-one basis negotiations, and making landowners sign a privacy agreement with them to not disclose the amounts being offered to each landholder….TransGrid uses harassment and bullying techniques, and landowners are not made aware of their rights. At present they are trying to intimidate landowners into signing agreements even though this proposal has not been passed by the Planning Department*." - Julia Harpham

Two community submissions raised concerns about an apparent lack of transparency in the consultation approach by TransGrid. The submissions from Julia Harpham (21957) (and paraphrased in (22824)) states:

4 Response to Submissions

"Much of their consultation they demand to be secret, which is not a legal requirement." - Julia Harpham

Peter Spedding (22803) stated that TransGrid had lied to landowners and entered properties when refused access.

Response

Sections 4.3.2.1 and **4.3.2.2** of this Report provide an overview of the level and type of consultation completed by TransGrid for the Project to date. TransGrid has engaged in an extensive community consultation process since the Project was announced in 2009. Feedback received during this time has been considered throughout the Project planning and assessment process. Also, as presented in **Appendix D** of Volume 2 of the EA, the views of each consultee were recorded as part of the consultation process. Where applicable, these concerns were discussed and given due consideration. In certain circumstances, one-on-one meetings were arranged to understand particular concerns in more detail.

The Project is not considered by TransGrid as a '*fait accompli'*. Should revised forecasting or the implementation of the new RIT-T process determine that the Project can be deferred, then TransGrid would consider this outcome and make appropriate decisions in accordance with its obligations under the NER and as a State Owned Corporation. TransGrid will continue to monitor and report on the optimum solution timing in its Annual Planning Report so that stakeholders are kept informed.

Prior to field surveys being undertaken, access to properties was sought from all potentially affected land owners. TransGrid and its agents made every effort not to enter any property if access was denied. However, following the exhibition of the EA it was identified that some survey may have inadvertently taken place by accident on one property where access had been denied and apologies were made to this landowner at the time.

Under the provisions of Section 11 and 12 of the *Land Acquisition (Just Terms Compensation) Act, 1991*, TransGrid may acquire an interest in land by agreement with owners who have a registered interest or are in lawful occupation of the land to be acquired.

In this regard, one of the objects of the Act is to encourage the acquisition of land by agreement instead of a compulsory process. Negotiations are therefore carried out with affected landowners on an individual basis. These landowners are encouraged to obtain independent legal and valuation advice, the reasonable cost of which would be paid by TransGrid.

During the property acquisition process, owners of both private and public lands are treated equally and with respect. In addition to this, TransGrid's land acquisition officers are available to address any concerns landowners may have and are bound to act professionally at all times.

There are instances where TransGrid will seek to exercise compulsory acquisition powers under the provisions of the *Land Acquisition (Just Terms Compensation) Act 1991* for the purposes of the *Electricity Supply Act 1995*. However it should be noted that compulsory acquisition is a last resort and TransGrid only exercises this right when negotiations fail to reach a suitable outcome for both parties.

In addition to this, all compulsory acquisitions require approval from the Minister for Resources and Energy. In order to grant approval, the Minister must be satisfied as to the necessity of the acquisition for the proposed public purpose.

4 Response to Submissions

As major projects take many years to deliver, including the lead times associated with acquiring easements, undertaking the environmental assessment and obtaining approval, TransGrid must undertake these processes concurrently in order to achieve completion of the Project by the required date.

4.3.3.4 Community Issue 4 – Appropriate Level of Consultation

The submissions from Sandor von Kontz (22648) and Julia Harpham (21957, 22824 – attachment) raised concerns about the following issue:

Appropriate Level of Consultation

Sandor von Kontz (22648) noted that TransGrid was required by the DGRs to undertake an appropriate and justified level of consultation with each landowner and land occupier within and adjacent to the corridor. According to Sandor von Kontz, TransGrid has never made contact with him, nor offered any compensation to him, in relation to the Project. The submission states that the line would not run through this property, but would be adjacent to it. The submission states, however, that the Project would present more of an imposition to Sandor von Kontz than his neighbour, through whose property it does run, because the neighbour resides in another valley.

Julia Harpham (21957) comments that no direct communication has been undertaken by TransGrid with residents outside of the potentially immediately impacted area. "*The man who works for us will be very heavily impacted, and so far he and his wife have received no communication from TransGrid*." - Julia Harpham

This submission states an objection to the Project *"… on the grounds that all persons impacted should have according to regulations been contacted."* - Julia Harpham

Response

Sections 4.3.2.1 and **4.3.2.2** of this Report provide an overview of the level and type of consultation completed by TransGrid for the Project to date. It is clear from these responses that TransGrid employed a thorough and inclusive approach to consultation. Efforts were made to reach all potentially affected landowners and tenants as part of the Project. This included media releases in local papers, information on the publicly available TransGrid website and provision of a 1800 number and a Project email, where issues could be raised and responded to by TransGrid.

As discussed previously, consultation with the wider community regarding the Project commenced in April 2009 and is ongoing. The consultation program has included:

- Public Information Sessions;
- media releases;
- newspaper advertisements;
- fixed displays;
- 1800 number;
- information on the TransGrid website; and
- focus groups.

Each of these media have provided opportunities for the wider community (outside of those directly affected by the proposed Project) to learn about the Project and provide input. This consultation program is ongoing.

Compensation would be offered to all landowners from whom an easement is to be acquired having regard to the Heads of Compensation provisions in the *Land Acquisition (Just Terms Compensation) Act, 1991*. This Act does not contemplate payment of compensation to landholders in circumstances where no interest in that land has been acquired. This approach is standard for the development of all transmission lines and linear infrastructure across NSW.

4.4 Soils, Geology and Topography

4.4.1 Agency Submissions

4.4.1.1 Agency Issue 1 – Acid sulphate soils

The submission from NSW Office of Water (22818) noted the following regarding:

Acid sulphate soils

"As a precautionary approach, NOW recommends that the CEMP should include a management plan for any acid sulphate soils identified during construction."

Response

As noted in **Section 7.2.5** of **Chapter 7 Soils, Geology and Topography** in Volume 1 of the EA, the potential for acid sulfate soils to occur within the vicinity of the Project is low and the CEMP would include measures for managing Acid Sulphate Soils should they be identified during construction.

4.4.1.2 Agency Issue 2 – Soil loss

The submission from Northern Rivers Catchment Management Authority (22820) requested the following regarding:

Soil Loss

That the Project minimise soil loss and disturbance from the site and associated access tracks during construction and post construction.

Response

The comment is noted. Draft Statement of Commitment B4 from **Chapter 19 Draft Statement of Commitments** in Volume 1 of the EA states that a "Soil and Water Management Plan shall be prepared, including an Erosion and Sediment Control Plan, which shall be implemented as part of the CEMP. Soil conservation and erosion prevention measures shall be in accordance with "*Managing Urban Stormwater: Soils and Construction Volume 1 (Landcom, 2004) and Volume 2 (DECC, 2008)" (The Blue Book Volumes 1 & 2)*.

4.4.2 Action Group Submissions

4.4.2.1 Action Group Issue 1 – Soil disturbance

The submission from Upper Dumaresq Action Group (22824) objected on the grounds of:

Soil Disturbance

"There is fear that any disturbance to the soil, however minimal, will require ongoing work for years to remove the damage. Any rehabilitation work will be slip−shod and not on−going. The residents will be left with the expense of rehabilitation of land underneath the power lines." (UDAG)

Response

Mitigation measures to minimise the impact on soils have been outlined in **Section 7.4** in Volume 1 of the EA. These measures would form the basis for the more detailed Soil and Water Management Plan which would be developed as part of the CEMP. Further, it is in TransGrid's interest to ensure that appropriate rehabilitation works are undertaken at the construction stage to ensure that the structural integrity of the Project is maintained, and that areas of disturbance do not require ongoing maintenance.

Some specific measures are stated within **Section 7.3** of Volume 1 of the EA as follows:

*"The alignment design, proposed supporting structure placement and access track locations have been designed to avoid vegetated areas, wherever possible, so as to reduce the overall clearing required. Disturbance from vegetation clearing would be limited as far as possible, e.g. through restricted clearing and through locating supporting structures to allow spanning of gullies wherever possible (refer to **Chapter 9 Biodiversity**). Where vegetation clearing cannot be avoided, mitigation measures (as discussed in **Section 7.4**) would be applied to limit the impact of the disturbance to surface soils. Where possible, vegetation would be pushed over rather than uprooted and removed. This would limit direct soil exposure and hence reduce potential erosion. All access tracks would be appropriately graded and stabilised to minimise erosion impacts. Temporary features such as benched work site areas or temporary access roads would be reformed to the natural slope of the terrain and revegetated at the conclusion of construction."*

4.4.3 Community Submissions

4.4.3.1 Community Issue 1 – General impacts on soils

Submissions from Susan Yeates (21924), *Name Withheld* (21908), Pearl Austin (22625) and Julia Harpham (22824 – attachment) noted concerns regarding:

General Impacts to soils

Submissions noted that there would be impacts to soils from the construction and maintenance of the transmission line. Concerns were expressed that there would be soil and erosion implications with ongoing monitoring and maintenance of the towers.

Response

Section 4.4.2.1 of this Report provides a response to concerns about the Project's potential impacts on soils. As discussed **Chapter 7 Soils, Geology and Topography** in Volume 1 of the EA outlines the measures that would be implemented to ensure that any impacts relating to soil erosion during construction and operation are minimised.

4.4.3.2 Community Issue 2 – Erosion concerns

Submissions from Julia Harpham (21957), Matthew Cater (22017), Andrew Hynes (22606), Colin & Helen Chevalley (22641) noted concerns regarding:

Erosion

The potential for future erosion issues to arise as a result of the Project was one of the concerns raised by a number of submissions. These concerns arose especially from an increase in traffic and the dispersive nature of the soils. Concerns were also raised regarding the impact of erosion on land use. The concerns included an assertion that the EA used old maps that may now be incorrect in relation to land use mapping.

Response

Operational activities along the alignment would be limited to 4WD inspections of the line as well as access track and easement maintenance (e.g. maintaining appropriate vegetation clearance). All access tracks would be appropriately graded and stabilised to minimise erosion impacts. Consequently, there is limited potential for significant erosion impacts to occur during the operation of the Project. Further to this, all access tracks would be maintained in line with the commitments put forward within **Chapter 19 Draft Statement of Commitments** in Volume 1 of the EA and in line with standard TransGrid policies for such maintenance (refer to **Appendix C-1 Easements and Access Track Maintenance Policy**, in Volume 2 of the EA).

Landuse was a key consideration during the feasibility study and preferred corridor selection stage of the Project (**Appendix B** in Volume 2 of the EA). Landuse (including zoning, current and proposed development/subdivision, location of residents, grazing and cropping land and forested areas) were investigated at this time through field assessments, mapping (2009), and initial consultation with the community and local councils.

4.5 Surface Water and Hydrology

4.5.1 Agency Submissions

4.5.1.1 Agency Issue 1 - Waterway classification

The submission from the Department of Primary Industries – Fisheries (DPI) (22816) raised comments on the following issue:

Waterway classification within the Environmental Assessment

The submission notes that where waterway crossings are proposed, the EA does not apply the habitat classification scheme provided in Fairfull and Witheridge (2003), instead using a modified version with three rather than four categories.

4 Response to Submissions

"*DPI Fisheries believes the classification used in the EA does not accurately reflect the fish habitat value of the sites and the upstream waters. This is particularly the case for sites known or likely to have threatened species present*." - DPI (22816)

According to the submission; "*Many of the waterways classified as "unlikely fish habitat" within the EA contain in-stream aquatic vegetation, a defined channel and generally permanent pools. Using the Fairfull and Witheridge (2003) classification some of these waterways would be considered Class 1 or 2, major or moderate fish habitat, respectively. In addition, some of the waterways classified as "unlikely fish habitat" within the EA are known habitat for threatened fish species; Purple Spotted Gudgeon (Mogurnda adspersa), Agassizi's Glassfish (Ambassis agassizi) and Eel Tailed Catfish (Tandanus tandanus). Using the Fairfull and Witheridge (2003) classification waterways that form the habitat of a threatened fish species*" - DPI (22816)

The DPI submission comments that by incorrectly classifying the value of certain waterways, the Project would result in unacceptable impacts on threatened species and significant fish habitats. As such the "Statements of Commitments" (C6 - C8) within the EA would not be achieved.

Response

The watercourse classification as undertaken as part of the EA (refer to **Appendix E Surface Water and Hydrology** Volume 2 of the EA) was a desktop assessment based on Geoscience Australia data[15]. Watercourse classification according to this dataset was based on a 'Major' or 'Minor' class, as well as 'intermittent' or 'permanent' flow attributes available from the data set. Following further consultation with Department of Primary Industries- Fisheries (DPI), and the provision of additional ecological data following exhibition, the watercourse classification has been revisited. The additional aquatic ecology information included threatened species records plus the distribution of important aquatic communities. In addition, DPI has provided valuable aquatic habitat information about a number of specific locations known to the department to provide significant aquatic habitat along the alignment. This information has been incorporated into the revised mapping presented in **Appendix C** of this Report).

As requested, the additional information has been used to apply the four class system of classification in line with the Fairfull and Witheridge (2003)[16] to the watercourses that intersect either the alignment or access tracks. In addition, DPI has provided revised Strahler Classifications for a number of proposed crossings. The limitations of a desktop assessment are noted, and the information from DPI has been considered and incorporated in preparing the revised classification and assessment.

The revised watercourse classification table (revised **Table B-2, Appendix E** in Volume 2 of the EA) and map series is presented in **Appendix C** of this Report. A summary of the revised findings is presented below.

Watercourse Crossing – Revised Assessment Outcomes

Preliminary field assessment has been carried out on 93 of the 109 watercourse crossing locations for the Project. This represents coverage of approximately 85% of watercourse crossing locations.

[15] Geoscience Dataset refers to the GIS data downloaded from Commonwealth of Australia (Geoscience Australia) 2010 upon which the Project mapping is based.
[16] http://www.dpi.nsw.gov.au/__data/assets/pdf_file/0004/202693/Why-do-fish-need-to-cross-the-road_booklet.pdf

4 Response to Submissions

Table 4-1 below presents the maximum potential number of watercourse crossings required as part of the Project as well as the Fairfull and Witheridge class within which each watercourse falls at a specific crossing point. The table includes confirmed upgrade or new watercourse crossing requirements, crossing requirements which cannot be confirmed due to access restrictions and identified locations where no works would be required as there are existing suitable crossings.

The table includes 8 locations along alignment west and 34 locations along alignment east where the need for watercourse crossing locations are as yet unconfirmed/undetermined. For the Casino to Lismore section of the alignment, no defined access tracks have been proposed as part of this Project, however a number of roads run close to the existing alignment. Access to this part of the alignment would be from existing roads where required The precise route from the road to the proposed structure would depend on specific weather and soil conditions and the use of the land for that particular growing season. It is likely that many of the unconfirmed/undetermined watercourse crossings along this section of the alignment would not be required.

Table 4-1 Revised Watercourse Crossing Assessment Outcomes

	Class 1	Class 2	Class 3	Class 4	
Alignment West	15	7	14	24	60
Alignment East	1	4	10	34	49
Total	16	11	24	58	**109**[1]

[1] The watercourse crossing locations are based on preliminary field inspection notes and both confirmed and unconfirmed access track locations across the Project area.

The maximum potential number of watercourse crossings in proximity to Threatened Aquatic Species (records and known occurrences) and the Darling River EEC across the Project, as identified by desktop study, is presented in **Table 4-2** and shown in **Appendix C** of this Report. The table is conservative in that it includes the 40 unconfirmed watercourse crossing locations.

Table 4-2 Worst Case Impacts on Watercourses of Significant Ecological Value

	Threatened Aquatic Species	TEC
Alignment West	13	3
Alignment East	2	0
Total Alignment	**15**	**3**

The revised assessment has identified 26 existing crossings to be upgraded as part of the Project along alignment west and 11 to be upgraded along alignment east. As outlined in the EA, the assessment has identified a requirement for 27 new crossings along alignment west and no new crossings confirmed as yet for access tracks across alignment east. Following further field assessment, these crossing locations would be negotiated with landholders in consultation with DPI.

Table B-2 in **Appendix C** of this Report gives a preliminary description of the works likely to be required at the watercourse crossing locations. The recommendations contained therein are based on **Table 4-3** which was provided by DPI.

4 Response to Submissions

Table 4-3 Matching Waterway Classification to Watercourse Crossing Type

Classification	Minimum Recommended Crossing Type
Class 1 Major fish habitat	Bridge, arch structure or tunnel #.
Class 2 Moderate fish habitat	Bridge, arch structure, culvert^ or ford.
Class 3 Minimal fish habitat	Culvert* or ford.
Class 4 Unlikely fish habitat	Culvert~, causeway or ford.

 # In all cases bridges are preferred to arch structures, culverts, fords and causeways (In that order)
^ High priority given to the "High Flow Design" culverts
** Minimum culvert design using the "Low Flow Design" procedures; however, "High Flow Design" and "Medium Flow Design" should be given priority where affordable*
~ Fish friendly waterway crossing designs possibly unwarranted. Fish passage requirements should be confirmed with the local fisheries department/authority.
Source: Fairfull, S. and Witheridge, G. (2003) Why do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings. NSW Fisheries, Cronulla.

Notes and Limitations on the watercourse crossing assessment

There are inherent limitations in basing this assessment upon desktop review of aerial and topographic mapping. Limitations based on the scale of mapping available for the Project have been noted by DPI and amendments drawn from DPI's additional analayis, and based on 1:25,000 topographic mapping, have been incorporated into this Report. This has ensured that **Appendix C** reflects the best available desktop level information that can then be used to inform future consultation during the design and construction stages of the Project.

As noted within the EA, further field assessment and consultation with DPI would be required prior to any creek crossing construction works. **Section 4.1.1** of **Appendix E Surface Water and Hydrology**, Volume 2 of the EA, notes that the design of creek crossings would be site specific and potential crossing types may range from the installation of culverts and bridges, to fords or wet crossings or causeway types in accordance with the published guidelines available from the DPI. Different crossing types have associated benefits and disadvantages in different settings. Construction of any type of crossing would require site specific assessment and consultation with the relevant landowners.

In line with **Table B-2** in **Appendix C** of this Report, DPI would also need to be consulted for certain watercourse crossing locations post approval, during the design stage, and prior to construction. TransGrid confirms that the revised **Table B-2** incorporating recent DPI consultation will inform the basis of ongoing consultation between TransGrid and DPI at later stages of the Project as final locations and designs of crossings are determined.

TransGrid is committed to complete survey of access track and watercourse crossing locations should the Project gain approval and unrestricted access across the alignment and surrounding areas is obtained. It is noted that final access track locations and crossing types would be influenced by consultation with affected landholders in consideration of the agricultural value of the land through which the alignment and access tracks would pass, topographical and geotechnical considerations, design requirements and consultation with DPI.

It is noted that this assessment has considered the maximum impact case, where a watercourse crossing requirement is assumed across any mapped watercourse intersected by the alignment or access track. It is noted that many of the water features along the Project are small intermittent streams and creeks which require further site inspection to determine if construction of a crossing or upgrade of an existing crossing is required.

4 Response to Submissions

This supplementary assessment aims to provide DPI with further information about the Project and to seek advice regarding proposed crossing types for waterways which provide moderate and major fish habitat.

4.5.1.2 Agency Issue 2 - Construction work at waterway crossings

The submissions from DPI (22816); Northern Rivers CMA (22820); and NSW Office of Water (NOW) (22818) raised comments on the following issue:

Clarification on the nature of construction work at waterway crossings

The submission from DPI (22816) notes that *"The EA does not specify the nature and scope of works to be undertaken at each particular waterway crossing, rather, broad categories are used to describe the works required."* - DPI (22816).

Response

Further field assessment and consultation with DPI would be required prior to any creek crossing construction works. As noted in **Section 4.1.1** of **Appendix E Surface Water and Hydrology**, Volume 2 of the EA, in accordance with the published guidelines available from the DPI, the design of creek crossings would be site specific and potential crossing types may range from the installation of culverts and bridges, to fords or wet crossings or causeway types. Different crossing types have associated benefits and disadvantages in different settings. Construction of any type of crossing would require site specific assessment and consultation with the relevant landowners. In line with **Table B-2** in **Appendix C** of this Report, DPI would also need to be consulted for certain watercourse crossing locations post approval and prior to construction.

Given the restrictions of access along the alignment at present, TransGrid has presented (within the EA) the preliminary locations of access tracks and potential watercourse crossings (including confirmed and unconfirmed crossings) prior to the detailed design stage of the Project. For this reason, the approach of providing broad categories describing potential watercourse crossing construction and upgrade is considered appropriate prior to detailed site assessment. The broad categories selected and discussed within the EA are in line with available agency (DPI) guidance, and input from DPI has been incorporated into the desktop assessment presented in **Appendix C.** This has ensured that the best available desktop level information is available for the design and construction phases of the Project.

The revision of the waterway classification provides the most complete basis for focusing further assessment of the nature of surface water features along the alignment and their ecological importance prior to any works being carried out (refer to **Appendix C** of this Report).

4.5.1.3 Agency Issue 3 - Water course crossing recommendations

The submission from DPI (22816) raised comments on the following issue:

Water course crossing recommendations

The DPI recommends several conditions of approval:

"DPI Fisheries recommends the soil and water management plan prepared as part of the 'Statement of Commitments' (B4) incorporate the preparation, by an appropriately qualified person, of site specific erosion and sediment control plans for each crossing location. Effective implementation of sediment and erosion controls requires site specific knowledge and DPI Fisheries consider this appropriate due to the potential for sediment and erosion impacts on threatened fish species. DPI Fisheries recommend that this intent be incorporated into the 'Statement of Commitments". - DPI (22816)

4 Response to Submissions

Response

As per the submission from DPI, Statement of Commitment B4 has been amended to reinforce the commitment towards ensuring site specific detailed assessment of all locations requiring the installation or upgrade of watercourse crossings along the alignment or as part of access track construction or upgrade.

Section 7.4 of Volume 1 of the EA presents the Draft Statement of Commitments that are relevant to Soils, Geology and Topography. Commitment B4 states:

A Soil and Water Management Plan shall be prepared, including an Erosion and Sediment Control Plan, which shall be implemented as part of the CEMP. Soil conservation and erosion prevention measures shall be in accordance with "Managing Urban Stormwater: Soils and Construction Volume 1 (Landcom, 2004) and Volume 2 (DECC, 2008)" (The Blue Book Volumes 1 & 2).

In order to further strengthen this commitment and take on board DPI's comments above, draft statement of commitment B4 has been replaced with the text below:

A Soil and Water Management Plan shall be prepared, including an Erosion and Sediment Control Plan, which shall be implemented as part of the CEMP. TransGrid commits to site specific detailed assessments of all locations requiring the installation or upgrade of watercourse crossings along the alignment or as part of access track construction works. Soil conservation and erosion prevention measures shall be in accordance with "Managing Urban Stormwater: Soils and Construction Volume 1 (Landcom, 2004) and Volume 2 (DECC, 2008)" (The Blue Book Volumes 1 & 2).

This measure will be included in a revised draft Statement of Commitments in **Section 5.2** of this Report.

4.5.1.4 Agency Issue 4 - Watercourse crossing design and Barriers to Fish Passage

The submissions from DPI (22816) and the NOW (22818) raised comments on the following issue:

Watercourse Crossing Design and Barriers to Fish Passage

DPI Fisheries has concerns that the proposal, as outlined in the EA, would result in barriers to fish passage being installed or maintained within the known habitat of threatened fish species. According to DPI, "*The 'Statements of Commitments' C6, C7 and C8 within the EA are considered inadequate in addressing these issues. It is recommended that the preferred project report include a classification of waterways using the Fairfull and Witheridge (2003) waterway classification and also include a description of the specific crossing type proposed at each site. These amendments should be made in consultation with DPI Fisheries.*" - DPI (22816).

The NSW Office of Water (NOW) (22818) provides draft conditions of consent which include a requirement for watercourse crossings to be designed in consultation with NOW so as to maintain the geomorphic stability of the watercourse.

Response

A revised classification table and map series is presented in **Appendix C** of this Report. Revisions have been undertaken in consultation with DPI and have incorporated threatened fish species records into the mapping and into consideration of waterway classifications. The revised findings are presented in **Table B-2** of **Appendix C**. The revised **Table B-2** will be the basis for further consultation between TransGrid and DPI during the design and construction stages of the Project.

Where possible, the location of the access tracks and creek crossings have been identified from site visits. In many cases, however, aerial images and general location knowledge have had to be relied upon to identify potential access track routes due to access restrictions. Therefore, providing a description of a specific crossing type at each creek crossing, as requested by DPI (22816), would not be possible as the selection of crossing type relies not only on environmental considerations, but also landowner and specific design requirements. The design of creek crossings would be site specific and in line with agency guidance (Fairfull and Witheridge, 2003). This guidance assigns particular watercourse crossing designs to the different classifications of waterways based on potential aquatic ecological significance. Further field assessment and consultation with DPI would be required prior to any creek crossing construction works.

Section 8.6 of Volume 1 of the EA presents the Draft Statement of Commitments that are relevant to Surface Water and Hydrology. Commitment C6 states:

Watercourse crossings would be designed in accordance with department of Primary Industries Policy and Guidelines for Fish Friendly Waterway Crossings (2004) and Why Do Fish Need to Cross the Road? (NSW Fisheries, 2003).

In order to further strengthen this commitment and take on board DPI's comments above, TransGrid proposes to amend draft commitment C6 with the text below:

*Watercourse crossings would be designed in accordance with Department of Primary Industries Policy and Guidelines for Fish Friendly Waterway Crossings (2004) and Why Do Fish Need to Cross the Road? (NSW Fisheries, 2003). NSW Fisheries would be consulted (where identified in **Table B-2**) during design and construction of waterway crossings to ensure fish passage and fish habitat protection are adequately considered and incorporated into the designs and proposed construction techniques.*

This measure will be included in a revised draft Statement of Commitments in **Section 5.2** of this Report.

4.5.1.5 Agency Issue 5 - Requirements to minimise disturbance of riparian zones

The submission from The Northern Rivers CMA (22820) raised comments on the following issue:

Requirements to minimise disturbance of riparian zones

The Northern Rivers CMA (22820) submission notes that the Environmental Assessment acknowledges the Northern Rivers Catchment Action Plan (CAP)(2006). The submission recommends that soil, water, flora and fauna management practices be implemented to achieve the following outcomes: "*Minimise disturbance of riparian zones particularly at river and creek crossings to ensure river and creek bank stability …"* - The Northern Rivers CMA (22820)

Response

Minimising disturbance to riparian zones has been a key objective in the route selection stage of the Project. The route selection process for the alignment and access tracks sought to minimise the number of watercourse crossings and also to avoid locating structures or access tracks in close proximity to watercourses wherever possible.

During construction, TransGrid and its contractors would endeavour to minimise disturbance of riparian zones particularly at river and creek crossings to ensure river and creek bank stability. Consultation with DPI and site specific field assessment would help ensure that the watercourse crossings are upgraded and constructed in a manner that minimises disturbance of the riparian zone.

4.5.1.6 Agency Issue 6 - Water licence and approval requirements

The submission from NSW Office of Water (22818) comments on the following issue:

Water licence and approval requirements

The submission notes that licence and approval requirements apply to some dams. NOW (22818) states that the proponent must consult with NOW to ensure that the taking of water from any artificially constructed dam for the proposed Project is appropriately authorised.

NOW (22818) also notes that the proponent must consult with NOW to ensure that dewatering for any footing structure is appropriately authorised under the relevant water legislation.

Response

TransGrid notes these requirements and would ensure that all activities in relation to the Project are appropriately approved and licensed.

4.5.1.7 Agency Issue 7 - Identification of Water Sharing Plans

The submission from NOW (22818) comments on the following issue:

Identification of Water Sharing Plans

The submission notes that the EA fails to identify that the Water Sharing Plan (WSP) for the Richmond River Area Unregulated, Regulated and Alluvial Water Sources 2010 applies to part of the proposed Project in the Richmond River Catchment Area. It is also noted that the EA also fails to identify that the WSP for the NSW Border Rivers Unregulated and Alluvial Water Sources and the WSP for the NSW Murray-Darling Basin Fractured Rock Groundwater Sources are due to commence in the near future (early 2012) and would apply to part of the proposed Project in the Border Rivers Catchment Area.

Response

Appendix E Surface Water and Hydrology in Volume 2 of the EA included the review of WSPs which apply to the Project. This assessment was carried out in February 2010, and at the time of assessment, the Water Sharing Plan for the Tenterfield Creek Water Source (2003) was the only commenced water sharing plan applying to the Project. The EA notes that The *Water Act 1912* applies to areas not yet covered by WSPs, whilst the *Water Management Act 2000* applies to areas covered under WSPs.

Since the EA was written, the three WSPs noted above have been developed for the Richmond Area, NSW Border Rivers area and NSW Murray-Darling Basin. These WSPs have no impact on the outcomes of the assessment in the EA. The applicability of whether a geographical area is covered by a WSP (or not) is an important component to the post approval phase of a Project in relation to the licences and permits required to carry out approved works. TransGrid has committed to ongoing consultation with NOW to ensure all licensing and permitting requirements are met for potential dewatering of footings and carrying out activities in proximity to surface water features during construction.

4 Response to Submissions

In February 2010, NOW advised of the applicability of the Coastal Alluvial Embargo which applies to all new subsurface water licences under Part 5 of the Water Act 1912. Under this embargo, no new water licences can be lodged where the embargo applies; and the embargo remains applicable until the commencement of WSPs outlined.

As various WSP are drafted and finalised, TransGrid would consult with NOW to understand any changes to specific licensing and permitting requirements.

4.5.1.8 Agency Issue 8 - Groundwater dependent ecosystems

The submission from NOW (22818) comments on the following issue:

Groundwater dependent ecosystems

NOW (22818) considers that a key water management issue for the proposed Project is the impact of watercourse crossings on surface water sources, groundwater sources and their dependent ecosystems. NOW considers that this issue is adequately addressed by the mitigation measures and commitments proposed in the EA, and NOW's recommended conditions of approval.

The submission notes that the EA should have assessed the potential impact of the proposed Project on Gibraltar Springs and Basket Swamp as the closest groundwater dependent ecosystems (GDEs) to the Project.

Response

As presented in **Section 3.4.1** of **Appendix E Surface Water and Hydrology** in Volume 2 of the EA, the closest GDEs to the alignment, as recorded within the Geoscience Australia dataset, was located approximately 10km to the east of Lismore Substation. The Gibraltar Springs and Basket Swamp GDE's were not included as part of this dataset at the time of the assessment. In light of the submission from NOW, **Figure C-3** in **Appendix E Surface Water and Hydrology** of the EA has been revised to illustrate the proximity of Gibraltar Springs and Basket Swamp to the Project. It is noted that neither of these systems are within close proximity to the alignment; Basket Swamp and Gibraltar Springs are approximately 7.2km and 10.5km from the Project respectively. The revised **Figure C-3** is presented in **Appendix C** of this Report.

There would be sufficient distance between the GDEs and the Project (approximately 7.5km) that any potential dewatering activities would be unlikely to negatively impact upon these GDEs.

4.5.2 Action Group Submission

4.5.2.1 Action Group Issue 1

The Submission from Mingoola Progress Association Inc (21932) raised an objection to the Project on the grounds of the following concern:

Flooding issues

"TransGrid also contends that there are no areas of flood plain affected by the line which we know to be untrue (Beardy, Reedy Creek and Mole Rivers). In the January 2011 floods large trees and power poles were picked up like match sticks. TransGrid has not properly planned for such a contingency." - Mingoola Progress Association Inc (21932).

4 Response to Submissions

Response

Appendix E Surface Water and Hydrology in Volume 2 of the EA, outlines flood prone areas across the alignment. The report discussed that there are areas of the alignment which are subject to inundation. **Figure C-2** included in **Appendix C** of **Appendix E** in Volume 2 of the EA shows that the study area ranges from the coastal lowlands in the east, across floodplains through to low foothills and ranges. Areas around Casino are shown to be prone to inundation, and a number of fragmented wetlands are identified across the floodplains.

Flooding events are unlikely to impact upon the Project during the operational stage given the solid foundations of the transmission line structures. Construction would likely be impacted by flooding, and work would not proceed during times of flood.

OEH prepares rural floodplain management plans which are made statutory plans under Part 8 of the Water Act 1912 (to be replaced by provisions within the Water Management Act 2000). It is proposed to develop rural floodplain management plans progressively for each of the State's key inland floodplains. None of the areas traversed by the Project are currently covered by a rural floodplain management plan.

4.5.3 Community Submissions

4.5.3.1 Community Issue 1 - General surface water impacts

The submissions from Julia Harpham (22824 – attachment) and Name Withheld (21908) commented on the following issue:

General surface water impacts

These submissions raised objections to the proposal, noting impacts to surface water features as a key concern.

Response

Appendix E Surface Water and Hydrology, in Volume 2 of the EA notes the potential impacts on surface water features. Both the EA and this Report have stated TransGrid's commitment to complete further site investigations regarding directly affected identified water features and to undertake additional consultation with relevant State Agencies where appropriate.

4.5.3.2 Community Issue 2- Inadequate assessment of water related impacts

The submissions from Sandor von Kontz (22648) and Susan Yeates (21924) raised comments on the following issue:

Inadequate assessment of water related impacts

Sandor von Kontz (22648) commented that the EA had included an incorrect waterway classification: "*Table 8.2 on p183 Main report Vol. 1 fails to identify Reedy Creek as a class 2 creek*".- Sandor von Kontz (22648)

Susan Yeates (21924) comments that there would be soil and surface water impacts occurring in areas noted as nationally significant. This submission states that the impacts have not been properly assessed.

Response

Appendix C of this Report includes a revised waterway classification. The original classification of waterways has been amended in consultation with DPI Fisheries and now notes the ecological significance of the waterways within the Project area.

The presence or potential presence of threatened aquatic species, as well as proximity to recorded threatened ecological communities have been accommodated into the stream order class to provide revised waterway classes within the Project area. This information will facilitate future consultation with DPI Fisheries prior to the commencement of any construction works. **Table B2** in **Appendix C** includes information on further site investigations and further agency consultation. It also includes a preliminary description of proposed works and notes both guidance recommendations for appropriate watercourse crossing types at specific locations as well as minimum requirements for bank protection works.

It is noted that as part of the revision process, Reedy Creek has been revised from a class 3 watercourse to a class 2. The Project passes in proximity to Reedy Creek between angle position (AP) 14 and AP15, as illustrated in revised **Figure 2e** (**Appendix C** to this Report). Revised **Table B2** in **Appendix C** also notes that the existing crossing has been assessed as adequate, however bank protection works would be required to minimise any construction impacts to Reedy Creek. In addition to this, further consultation with DPI-Fisheries will occur in relation to any works in this area.

Soil and surface water impacts have been addressed in **Chapter 7 Soils, Geology and Topography** and **Chapter 8 Surface Water and Hydrology** of Volume 1 of the EA, respectively. These chapters were developed in accordance with the DGRs and provide mitigation measures to minimise the impacts on these environmental aspects. These assessments have been found adequate by the DP&I and other agencies.

4.5.3.3 Community Issue 3 - Flood issues

The submissions from Julia Harpham (21957, 22824 – attachment) and Pearl Austin (22625) commented on the following issue:

Flood issues

Julia Harpham cites flood issues within submission 21957: "*In the proposal it is stated that nowhere crossing the proposed line is there a likelihood of flood − untrue, Beardy River, Reedy Creek and Mole River would all have flooded across the proposed sites of pylons. The area where the proposed easement crosses Woolshed Creek and Reedy Creek on Moorabinda has flooded 3 times in the past 2 years, and washed away all the fences within proximity of both creeks the development should not be carried out until a rural floodplain management plan is developed*." - Julia Harpham (21957)

The submission from Pearl Austin (22625) states that the EA had not considered flood damage, or isolation due to flood damage to local roads.

Response

Section 4.5.2.1 of this Report provides a response regarding flood impacts. As discussed, flooding events are unlikely to impact upon the Project during the operational stage given the solid foundations of the transmission line structures. Construction would likely be impacted by flooding, and work would not proceed during times of flood.

4.6 Biodiversity

Following discussions with a number of agencies (i.e. NSW DPI, DSEWPaC and NSW OEH) and review of the submissions for the Project, it was decided that certain sections of the Biodiversity Report (refer to Appendix F in Volume 2 of the EA) should be revised to include additional information and to clarify certain points. OEH and DPI have also provided comments on the draft Submissions Report. These comments have been integrated within the text in this Report as required.

The revised sections of the Biodiversity Report are provided as appendices to this Report, and have been referenced throughout **Section 4.6 Biodiversity**. For clarity the revisions are summarised below:

- **Appendix D1** – NSW Assessments of Significance (AOS), to replace Appendix I of Appendix F in Volume 2 of the EA.
- **Appendix D2** - Commonwealth Significant Impact Criteria (SIC) assessments to replace Appendix J of Appendix F in Volume 2 of the EA.
- **Appendix D3** – Includes AOS and SIC outcome summary tables with additional information on associated vegetation formations and the maximum likely hectares likely to be impacted by vegetation clearing for each threatened biota.
- **Appendix D4** - Replaces Section 7, Impact Mitigation of the Biodiversity Report, Appendix F in Volume 2 of the EA.
- **Appendix D5** – Includes **Figures 6a**, **6b**, **7e**, **7g**, **8e** and **9a** which replace these figures in Appendix F in Volume 2 of the EA. **Appendix D5** also includes Figure 1, a new figure, developed since the EA to show the location of Grey Headed Flying Fox camps.

4.6.1 Agency Submissions

4.6.1.1 Agency Issue 1 - Impacts on Threatened Fauna – Determination of Significant Impact Criteria Assessments

The submission from OEH (22807) raised concerns about the following issue:

Impacts on Threatened Fauna – Determination of SIC Assessments

The OEH submission requested a review of the Biodiversity Assessment: "*Assessments made using the EPBC Act Significant Impact Criteria (SIC) heads of consideration listed in summary form (in Tables 6.1 and 6.4) should be reviewed for consistency against detailed assessments (in Appendices I and J).*" - OEH (22807).

Response

As requested, **Appendix I** (NSW AOS) and **Appendix J** (Commonwealth SIC assessments) of **Appendix F** in Volume 2 of the EA have been reviewed, and replaced. The replacements to the AOSs and SIC assessments have been included as **Appendices D1** and **D2** to this Report. Where changes to the AOS and SIC assessments have resulted in a change to the threatened biota assessment outcome, these changes have been highlighted within **Appendix D3** of this Report. Given that AOS and SICs are developed using Project area knowledge, ecological expertise and the 'precautionary principle', the amended outcomes do not alter the relative impacts associated with the Project. AOS and SIC edits were triggered by agency submissions to provide greater consistency and to provide additional information where relevant or recently available. Revisions have been undertaken to ensure

consistency between the AOS and SIC assessments and the relevant tables that summarise the outcomes of these assessments (**Appendix D3** of this Report). These tables are:

- Table 6-1 Threatened Flora Assessment Outcomes;
- Table 6-2 Threatened Ecological Community Assessment Outcomes;
- Table 6-4 Threatened Fauna Assessment Outcomes; and
- Table 6-5 Threatened Population Assessment Outcomes.

As requested, **Appendix D3** has been developed to include relevant areas of suitable habitat for each of the threatened flora, ecological communities, fauna and populations in terms of associated vegetation formations and the maximum likely hectares of habitat that would be impacted by vegetation clearing.

4.6.1.2 Agency Issue 2 - Impacts on Threatened Fauna – Focussed Management Controls for Threatened Fauna

The submission from OEH (22807) raised concerns about the following issue:

Impacts on Threatened Fauna – Focussed Management Controls for Threatened Fauna

According to OEH: "*A more precautionary approach should be adopted in the selection of species for which "focused management controls" will be developed, expanding the current list from those species likely to be 'adversely' affected (under NSW AOS assessments) to also include any species deemed in the EA SIC (i.e. EPBC Act) assessments to be 'significantly' impacted (in Table 6.4, Appendix F, pp99-101), and/or any species listed as 'critically endangered' (regardless of AOC/SIC assessments).*" - OEH (22807).

Response

The potential impacts of the Project on each of the identified threatened biota has been reviewed (refer to **Appendix D1**, **D2**, and **D3** of this Report) and in light of this **Section 7**, **Appendix F** in Volume 2 of the EA has been replaced with **Appendix D4**. The reviews have been undertaken, in part to address focused management of threatened biota through the following mechanisms:

- AOS and SIC assessment revisions (refer to **Appendix D1** and **D2)** which have been strengthened through Project area knowledge and recent ecological information to ensure the 'precautionary principle' has been adopted as outlined in detail in **Chapter 20** in Volume 1 of the EA;
- updated the Statement of Commitments for Biodiversity (**Table 7-1, Appendix D4**) to enhance pre-clearance survey requirements to target threatened flora that have the potential to occur in suitable habitat within the Project area, as well as threatened fanua, populations and ecological communities in areas not yet surveyed, as outlined in **Appendix D4**. Surveys would also target additional, more recently listed/recorded, threatened biota, considered within the EA, but not surveyed for in the 2009/2010 surveys;
- a focus on recommended pre-clearance requirements (specific survey methodology and timing constraints) as well as staging and implications of survey for threatened biota with the potential to occur, as per **Section 7.2.1** (refer to **Appendix D4)**; and

- a revised **Section 7.2.2** to take into account **Section 7.2.1** (**Appendix D4**), **Appendix D3** and other submission related revisions with respect to biodiversity related focused management controls and/or adaptive management in consultation with DSEWPaC, OEH and NSW DPI. Focused management controls would be designed by ecologists, specifically for each threatened biota.

The commitments related to pre-clearance surveys, focussed management controls and strategic offsets align with the precautionary principle and the conservation of biological diversity and ecological integrity, which are principles of ecologically sustainable development (ESD) (section 6(2)(c) of the *Protection of the Environment Administration Act 1991)*.

4.6.1.3 Agency Issue 3 - Accurate Records of Habitat Features and Nesting Resources

The submission from OEH (22807) raised concerns about the following issue:

Accurate Records of Habitat Features and Nesting Resources

The submission from OEH (22807) states *"DP&I should seek commitment to the collection/documentation of accurate records of specific habitat features and nesting resources that will be significantly impacted by this proposal, as inventoried during pre-clearance assessments (pp136-9). This information should be undertaken as part of a monitoring and compliance strategy and taken into account in the development of the proposed offset package. Unavoidable losses of such habitat features (if not already accounted for by any existing offset package) should be compensated for via further suitable offsets." - OEH (22807)*

Response

Following review of the OEH submission and discussions with key OEH staff the biodiversity related Statement of Commitments (refer to **Table 7-1, Appendix D4**) have been modified to incorporate OEH requirements. These modifications include requirements to:

- undertake pre-clearance surveys to locate and map key habitat features and nesting resources (i.e. hollow bearing trees, stags, coarse woody debris and rocky outcrops) along the entire alignment and along access tracks to identify those habitat resources that could be avoided, or to identify impacts which might be mitigated or offset (refer to **Appendix D4**).
- use the pre-clearance survey outcomes to provide further detail to inform final negotiations, between TransGrid, DP&I, OEH and DSEWPaC with respect to the location of, and specific offset requirements for, any threatened biota or suitable habitat resources, detected during pre-clearance surveys, where impact may be unavoidable, to ensure the conservation of biological diversity and ecological integrity.

Appendix D3 and **Sections 7.2.1** and **7.2.2** of **Appendix D4** have also been amended to align with the proposed changes to the Statement of Commitments.

4 Response to Submissions

4.6.1.4 Agency Issue 4 - Pre-Clearance Surveys

The submission from OEH (22807) raised concerns about the following issue:

Pre-Clearance Surveys

The submission from OEH expresses concern that only two threatened flora species were identified despite the large area covered in field surveys. The OEH submission comments that: "*[a] suitably qualified ecologist with expertise in specific landscapes should be commissioned for any proposed pre-clearing surveys for the presence of threatened species, to maximise the potential identification of threatened flora."* - OEH (22807)

Response

It is recognised that a number of threatened flora species are likely to be impacted by the Project. Following desktop reviews and a number of flora focused field surveys (80 flora quadrats), two threatened flora species were identified and numerous threatened flora species with the potential to occur were assessed for their likely impacts (**Appendix D1** and **D2**). Surveys used various methods such as random meander (Cropper, 1993) and conform to the *Threatened Biodiversity and Assessment: Guidelines for Developments and Activities Working Draft* (DECCW, 2004) and the relevant requirements contained in the NSW OEH Threatened Species Profile database and Commonwealth DSEWPaC Species Profile and Threats Database.

Field surveys were undertaken by suitably qualified ecologists, as outlined in **Table 4-4** of **Appendix F** in Volume 2 of the EA.

Following discussions with OEH and DSEWPaC, the likely impacts on each of the Commonwealth and NSW threatened flora species and communities have been reviewed (refer to **Appendices D1, D2** and **D3** of this Report). **Section 7**, **Appendix F** in Volume 2 of the EA has also been revised. This revision is presented in **Appendix D4** of this Report. This appendix includes the following revisions:

- updated Statement of Commitment for Biodiversity (**Table 7-1, Appendix D4**) to reflect updates to targeted flora pre-clearance survey requirements that would be undertaken by a suitably qualified ecologist (botanist). These surveys would target threatened flora that have the potential to occur (**Table 7-3, Appendix D4**). Ecologists would also target additional, more recently listed/recorded, threatened fauna, populations and ecological communities considered within the EA, but not surveyed for in the 2009/2010 surveys. These targeted surveys would be conducted across the Project area.
- an additional **Section 7.2.1** (**Appendix D4**) has been prepared to address the threatened flora pre-clearance requirements (including specific survey methodology and timing constraints) as well as staging, and implications of survey for all threatened flora with the potential to occur.

4.6.1.5 Agency Issue 5 - Impacts on Threatened Flora

The submission from OEH (22807) raised concerns about the following issue:

Impacts on Threated Flora

The submission from OEH (22807) states: *"DP&I should seek commitment to the collection/documentation of accurate records of threatened flora and its habitat that will be significantly impacted by this proposal, as part of a monitoring and compliance strategy. Unavoidable losses of threatened flora (if not already accounted for by any existing offset package) should be compensated for, possibly through translocation if appropriate, or via further suitable offsets that can demonstrate no net loss of threatened species and their habitat."* - OEH (22807)

Response

Following the OEH submission, and additional correspondence received from OEH, revisions have been made to **Sections 7.2.1** and **7.2.2** (refer to **Appendix D4** of this Report), in order to strengthen the commitment to accurately record the Project's potential impact on Commonwealth and NSW threatened flora (refer to **Appendix D1, D2, D3** and **D4** of this Report). Key revisions include:

- updated Statement of Commitments for Biodiversity (**Table 7-1, Appendix D4**) to confirm that targeted threatened flora pre-clearance surveys would be undertaken by a suitably qualified ecologist (botanist). Surveys would target threatened flora that have the potential to occur in areas not yet surveyed and additional, more recently listed/recorded flora considered within the EA, but not surveyed for in the 2009/2010 surveys;
- **Appendix D4** including **Chart 1** and **Table 7-3**. These confirm the key stages of, and components for, the proposed threatened flora pre-clearance surveys, as well as the associated implications should threatened flora be identified;
- an additional **Section 7.2.1** (**Appendix D4**) has been prepared to address the outstanding threatened flora pre-clearance survey requirements staging and other implications of survey for all threatened flora with the potential to occur within the Project area;
- **Section 7.2.2** (**Appendix D4**) has been revised to take into account the content of **Section 7.2.1** (**Appendix D4**), **Appendix D3** and other submission related revisions with respect to flora management planning, vegetation clearance management, and specific threatened flora management/monitoring and offsetting; and
- a requirement (as requested by OEH), that the results of the pre-clearance surveys help guide the final offset components. This is in addition to the existing offset package commitments (refer to **section 7.3.1**, **Appendix F** in **Volume 2 of EA**) and detailed discussions that have commenced with OEH and DSEWPaC in relation to the scale, geographic location, and biodiversity assets that would need to be reflected in the final agreed offset.

4.6.1.6 Agency Issue 6 - Mitigation Monitoring and Adaptive Management

The submission from OEH (22807) raised concerns about the following issue:

Mitigation Monitoring and Adaptive Management

OEH recommend that, *"in addition to the stated strategies and the monitoring strategies, reference should be made to the use of a compliance strategy that will communicate the results of the monitoring program and any adaptive measures arising as a result of this program to [DP&I] and other relevant agencies and stakeholders.* - OEH (22807)

Response

Revisions have been made to **Section 7**, **Appendix F** in Volume 2 of the EA to convey the communications that would take place to address monitoring and adaptive management (refer to **Chart 1, Appendix D4**). These revisions have been made in order to strengthen the strategies with respect to the survey effort to identify what threatened biota are present across the Project area and thus the approach to clearance and associated mitigation and monitoring. Revisions include:

- A refined Statement of Commitments for Biodiversity, which focuses on:
  - Pre-clearance surveys to target comprehensively threatened flora in suitable habitat across the Project area as well as threatened fauna, populations and ecological comminities that have the potential to occur in areas not yet surveyed. They would also target additional, more recently listed/recorded, threatened biota, considered within the EA, but not surveyed for in the 2009/2010 surveys (refer to **Appendices D3** and **D4** of this Report).
  - Threatened biota that might be found during pre-clearance surveys would be subject to adaptive management and monitoring initiatives that would be designed and implemented on a species specific basis. These initiatives would also be designed in consultation with relevant agencies (OEH, DPI and/or DSEWPaC) (refer to **Chart 1, Appendix D4**).
- **Section 7.2.2 (Appendix D4)** outlines the associated management, protection, offsetting and monitoring of ecological values relevant to the Project; and
- strategies outlined in **Appendix D4** (**Chart 1** and **7.2.2**) that will form the compliance and communication strategy with relevant agencies (OEH, DPI and/or DSEWPaC) regarding threatened biota.

4.6.1.7 Agency Submissions Issue 7 - Developing an Offset Package

The submission from OEH (22807) raised concerns about the following issue:

Developing an Offset Package

"The offset package should be developed based on quantitative understandings of losses and gains to biodiversity values. Given significant uncertainties about quantities and qualities of biodiversity assets that may need to be offset, there is a need to determine a strategy for managing information gaps in framing such an offset. Given the approach taken to identifying site specific attributes as the project unfolds, offset negotiations would ideally be somewhat open-ended as specific cases arise with regard to threatened flora, fauna and associated habitat." - OEH (22807)

"The proponent should have due regard in developing its proposed offset package to use of OEH's Biobanking Assessment Methodology (BBAM) as a means of determining the nature and scale of impacts to be offset." - OEH (22807)

Response

Section 7.3 of **Appendix F** of the EA outlines the Biodiversity Offset strategy for the Project. As noted in that section, detailed discussions have commenced with OEH in relation to the offset package for the Project. The offset package for the Project is currently being developed in consultation with OEH and DSEWPaC, and would be designed to maintain or improve biodiversity in the locality, consistent with the principle of ESD that biodiversity conservation and ecological integrity should be a fundamental planning consideration. This consultative process can and will accommodate the issues

raised in the submission. Consistent with the DECC (2005) guidelines for Part 3A biodiversity assessments (i.e. to maintain and improve biodiversity values resulting in no net impact on threatened species or native vegetation), as well as the Commonwealth Draft Policy Statement: use of environmental offsets under the *Environment Protection and Biodiversity Conservation Act 1999* (DEWHA 2007), and the DoP, and Supplementary DGR's. The offset strategy currently being developed would be finalised following the consideration of the information gained from pre-clearance surveys.

As noted in **Section 7.3** (**Appendix D4**), there have been constraints on the impact assessment which have limited the degree to which all potential impacts could be quantified. As requested by OEH and DSEWPaC, the offset strategy would be flexible to allow for consideration of the results of the pre-clearance surveys and TransGrid is committed to reaching an agreement with both OEH and DSEWPaC on an offset initiative that would meet the requirements, principles and guidelines for offsetting established by those bodies. To this end, detailed discussions are progressing with OEH to confirm the scale, geographic location, and biodiversity assets that would need to be reflected in an agreed offset outcome.

4.6.1.8 Agency Submissions Issue 8 - Avoidance of Impacts on Native Vegetation and Habitat

The submission from OEH (22807) raised concerns about the following issue:

Avoidance of Impacts on Native Vegetation and Habitat

The OEH submission states the following: "*OEH recognises that there has been effort to provide and explain impact avoidance 'rules' applied. OEH also recognises that the commitment to undertaking more developed pre-clearance surveys at later stages. However, given that post approval surveys are likely to increase knowledge of impacts to significant vegetation, species of habitat, OEH reinforces the need for the adoption of a precautionary or conservative approach to uncertainty in general, and specifically to the estimates provided for the clearing of potentially significant native vegetation.*" - OEH (22807).

OEH notes that "*Although the EA indicates that the easement route will generally avoid significant biodiversity assets, it should be noted that in several instances the easement cuts through important blocks of vegetation of high conservation value.*" - OEH (22807).

Response

A maximum vegetation clearance scenario has been calculated to outline the greatest clearing area which would be required for the establishment of the alignment and proposed access tracks. This represents a worst case scenario for clearing. This scenario would be considered in determining the size of the biodiversity offset in consultation with OEH and DSEWPaC and shows that the precautionary principle as well as the principles of ESD (as outlined in detail in **Chapter 20** in Volume 1 of the EA) have been adopted for this Project.

TransGrid acknowledges that the alignment cuts through blocks of vegetation. However, potential impacts on biodiversity have been avoided where possible and the alignment has been developed to avoid native vegetation through the following means:

- a detailed route selection process was undertaken to identify and assess environmental constraints within the study area (Constraints Identification and Preferred Corridor Report, URS, 2009);

- sections of the Project have been located in cleared areas to avoid native vegetation and habitat, specifically to avoid threatened species, populations and ecological communities;
- during the route selection process, the use of certain topography was considered to reduce vegetation clearance, for example locating structures to allow vegetation to be retained in the surrounding gullies, where the proposed conductor height is sufficient to make clearing unnecessary;
- access track locations have been selected with consideration of minimising disturbance to vegetation and protected ecological features;
- where possible the alignment has been selected to cross waterways at right angles to minimise the need for riparian vegetation removal; and
- future adaptive measures and strategies as mentioned in **Appendix D4** (**Chart 1** and **7.2.2**) would seek to avoid clearanace of native vegetation and impacts on threatened biota during construction and operation of the Project.

4.6.1.9 Agency Submissions Issue 9 - Construction stage recommendations

The submissions from the Border Rivers- Gwydir Catchment Management Authority (22830) and Northern Rivers Catchment Management Authority (22820) commented on the following issue:

Construction stage recommendations

The Border Rivers-Gwydir Catchment Management Authority (22830) commented that Global Positioning System (GPS) reference points should be provided at a more detailed scale during the Construction Process to more accurately represent location and extent of ecologically significant areas and individual species.

The Border Rivers − Gwydir CMA reiterates the need to disseminate mitigation measures relating to limiting the spread of weeds and limiting soil erosion during the construction and maintenance phases of this development to all contractors and comments that other mechanisms for doing this should be stipulated in detail prior to the next phase of design.

The Northern Rivers Catchment Management Authority (22820) reiterated the importance of minimising the clearing of native vegetation and habitat along the route to reduce the impact on the area's biodiversity values, and also commented that disturbance of riparian zones particularly at river and creek crossings should be minimised to ensure river and creek bank stability.

Response

The new map series in **Appendix C** of this Report presents the location of, and provides a reference for, each point where the Project crosses a watercourse.

Table 19-1 and **Section 19.3** of **Chapter 19 Statement of Commitments** of the EA state that TransGrid (and their contractors) would produce a Construction Environmental Management Plan (CEMP) prior to construction commencing. The primary purpose of the CEMP would be to provide a reference document that ensures that the safeguards and mitigation measures specified as part of the Project approval are implemented and monitored. Construction personnel would undergo training in accordance with the CEMP. The CEMP would include a number of sub-plans including a Soil and Water Management Plan and a Weed Management Plan. These plans would be agreed with DP&I prior to construction commencing.

Section 4.6.1.8 of this Report provides a response on how TransGrid has avoided vegetation clearing where possible. Further biodiversity mitigation measures are presented in **Appendix D4** of this Report.

The avoidance and minimisation of disturbance on riparian areas has been addressed in **Sections 6.1** and **7.1** of **Appendix F** in Volume 2 of the EA and Statement of Commitments and Impact Mitigation sections (refer to **Appendix D4**). Commitments and mitigation measures are focused on the avoidance of riparian vegetation clearance, the protection of waterway zones in terms of erosion and sediment control, as well as the appropriate construction of waterway crossings to conform with NSW DPI *Policy and Guidelines for Fish Friendly Waterway Crossings* and *Why Do Fish Need to Cross the Road?* (2003), *Managing Urban Stormwater: Soils and Construction Volume 1* (2008), and Volume 2, *The blue book Volumes 1 and 2* (2008).

4.6.1.10 Agency Submissions Issue 10 - Aquatic habitat assessment

The submission from the Department of Primary Industries – Fisheries (22816) raised the following point:

Aquatic habitat assessment

This submission points out that where waterway crossings are proposed, the EA does not apply the habitat classification scheme provided in Fairfull and Witheridge (2003), instead the EA uses a modified version with three rather than four categories. According to the Department of Primary Industries – Fisheries, many of the waterways classified as "*unlikely fish habitat*" within the EA contain in-stream aquatic vegetation, a defined channel and generally permanent pools. The submission asserts that using the Fairfull and Witheridge (2003) classification, some of these waterways would be considered Class 1 or 2, major or moderate fish habitat, respectively.

DPI Fisheries believes the classification used in the EA does not accurately reflect the fish habitat value of the sites and the upstream waters. This is particularly the case for sites known or considered likely to have threatened species present. By incorrectly classifying the value of certain waterways the current proposal would result in unacceptable impacts on threatened species and significant fish habitats. As such the "Statements of Commitments" (C6 – C8) within the EA would not be achieved.

Response

The watercourse classification as undertaken as part of the EA (refer to **Appendix E Surface Water and Hydrology** Volume 2 of the EA) was a desktop assessment based on Geoscience Australia data[17]. Watercourse classification according to this dataset was based on a 'Major' or 'Minor' class, as well as 'intermittent' or 'permanent' flow attributes available from the data set. Following further consultation with NSW DPI, the watercourse classification and threatened fish information was revised. This information has been incorporated into the revised mapping presented in **Appendix C** of this Report.

[17] Geoscience Dataset refers to the GIS data downloaded from Commonwealth of Australia (Geoscience Australia) 2010 upon which the Project mapping is based.

4 Response to Submissions

As requested, the additional information has been used to apply the four class system of classification in line with the Fairfull and Witheridge (2003)[18] to the watercourses that intersect either the alignment or access tracks. The limitations of a desktop assessment are noted, however the revised classification and assessment has been developed in consultation with NSW DPI. NSW DPI have agreed that the assessment reflects the nature of the aquatic habitat likely to be present along the alignment and access tracks[19]. The revised watercourse classification table (revised **Table B2, Appendix E** Volume 2 of the EA) and map series is presented in **Appendix C** of this Report. A summary of the revised findings is presented in **Section 4.5.1.1** of this Report.

Watercourse crossings would be designed and constructed in accordance with commitments C6, C7 and C8 (refer **Section 5.2** of this Report and **Chapter 19 Draft Statement of Commitments** in Volume 1 of the EA).

4.6.1.11 Agency Submissions Issue 11 - Threatened Aquatic Species

The submission from the Department of Primary Industries – Fisheries (22816) raised the following point:

Threatened Aquatic Species

Some of the waterways classified as "unlikely fish habitat" within the EA are known habitat for threatened fish species; Purple spotted Gudgeon (*Mogurnda adspersa*), Agassizi's Glassfish (*Ambassis agassizi*) and Eel Tailed Catfish (*Tandanus tandanus*). Using the Fairfull and Witheridge (2003) classification, waterways that form the habitat of a threatened fish species are categorised as Class 1 waterways.

Response

Following finalisation of the EA, NSW DPI has provided spatial data to demonstrate the known habitat within the Project area for Purple spotted Gudgeon (*Mogurnda adspersa*), Agassizi's Glassfish (*Ambassis agassizi*), Eel Tailed Catfish (*Tandanus tandanus*), Eastern Freshwater Cod (*Maccullochella ikei)* and Murray Cod *(Maccullochella peelii peelii).* Records for these species within the Project area are presented in **Figures 2a – 2ae** of **Appendix C** of this Report. Relevant ecological assessments for threatened fish species are provided in **Appendices D1** and **D2** of this Report.

In addition **Section 4.5.1.1** of this Report provides a response regarding the classification of waterways using the Fairfull and Witheridge approach. The revised classification has been completed in consultation with DPI and has included recently provided ecological information. The revised classification (including Class 1 waterways) is provided in **Table B-2** of Appendix C of this Report. The revised classification and assessment has been developed in consultation with NSW DPI.

[18] http://www.dpi.nsw.gov.au/__data/assets/pdf_file/0004/202693/Why-do-fish-need-to-cross-the-road_booklet.pdf
[19] NSW DPI, email correspondence, 18/01/12.

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4.6.1.12 Agency Submissions Issue 12 - Fish passage requirements

The submission from the Department of Primary Industries – Fisheries (22816) raised the following point:

Fish passage requirements

"All waterway crossings (new and upgraded) must comply with the FM Act and government policy and be designed so as to adequately allow for the free passage of fish." - Department of Primary Industries – Fisheries (22816).

Response

Sections 4.5.1.1 and **4.5.1.4** of this Report provide a response regarding fish passage and waterway crossing design. As noted in these sections, new creek crossings and upgrades to existing crossings would be designed on a site specific basis, in line with NSW DPI guidance in order to conform with the FM Act and government policies such as Fairfull and Witheridge, 2003. New crossing design would also take into account fish passage requirements, topography and geotechnical constraints as well as landowner requirements.

As noted in **Section 4.1.1** of **Appendix E** Surface Water and Hydrology, Volume 2 of the EA, in accordance with the published guidelines available from the DPI, the design of creek crossings would be site specific and potential crossing types may range from the installation of culverts and bridges, to fords or wet crossings or causeway types. Different crossing types have associated benefits and disadvantages in different settings. Construction of any type of crossing would require site specific assessment and consultation with the relevant landowners.

4.6.2 Action Group Submissions

4.6.2.1 Action Group Issue 1 - Weed issue raised in the assessment

The submission from the TransGrid Action Group (TAG) (21948) included the EnviroFactor Report as an attachment. The following issue was raised in this report:

Weed issue raised in the assessment

"Coolatai Grass is wrongly identified as a noxious weed in Table 5.4 of the report. This species is not listed as noxious under legislation."- TAG (attachment) (21948)

Response

A weed control order regarding coolatai grass (*Hyparrhenia hirta*), was published in the NSW *Government Gazette* dated 30 September 2011 (Weed Control Order No. 28). That order declared coolatai grass to be a noxious weed, and applied a weed control class of 3 to the plant. That order applies to 33 local government areas[20].

Under the relevant legislation the weed is not considered noxious within the local areas the Project passes through.

[20] http://www.dpi.nsw.gov.au/__data/assets/pdf_file/0019/410059/Order28.pdf

4 Response to Submissions

4.6.2.2 Action Group Issue 2 - Key Threatening Processes Poorly Addressed

The submission from the TransGrid Action Group (TAG) (21948) included the EnviroFactor Report as an attachment. The following issue was raised in this submission and attachments:

Key Threatening Processes Poorly Addressed

According to the EnviroFactor attachment:

"Key Threatening Processes (KTPs) are poorly addressed. Those relevant under the Fisheries Management Act have not been addressed despite the need for an upgrade of 17 water crossings and the installation of 25 new crossings. KTPs relevant to the project include:

- *Degradation of native riparian vegetation along NSW water courses*, and
- *Removal of large woody debris*." - TAG (attachment) (21948).

TAG (21948) draws the following conclusion: "*Many key threatening processes are overlooked particularly those listed under the FM Act, and regarding water crossings and fish management.*" - TAG (21948).

Response

KTP's under the *Fisheries Management Act 1994* (FM Act) are threatening processes that, in the opinion of the Fisheries Scientific Committee, *adversely affect threatened species populations or ecological communities, or could cause species, populations or ecological communities that are not threatened to become threatened* (DPI, 2012). There are eight KTPs listed in *Schedule 6* to the FM Act. Of these eight KTPs, three are relevant to the Project as shown in **Table 4-4**.

Table 4-4 FM Act Key Threatening Processes

Key Threatening Process – FM Act	Relevance to Project
Current shark meshing program in NSW waters	No
Hook and line fishing in areas important for the survival of threatened fish species	No
Human-caused climate change	Yes
The introduction of fish to fresh waters within a river catchment outside their natural range	No
The removal of large woody debris from NSW rivers and streams	No
The degradation of native riparian vegetation along New South Wales water courses	Yes
Instream structures and other mechanisms that alter natural flow	Yes
Introduction of non-indigenous fish and marine vegetation to the coastal waters of New South Wales	No

Potential impacts related to the KTP, *Human-caused climate change* were addressed in **Section 6.1.7**, **Appendix F** in Volume 2 of the EA.

The KTP, *removal of large woody debris from NSW rivers and streams* is not considered relevant to the Project as there is no requirement for the removal of large woody debris for the construction of new water crossings or the upgrade of existing water crossings.

4 Response to Submissions

The following KTPs however were not directly addressed in the EA**,** and are now responded to below, namely:

- *degradation of native riparian vegetation along New South Wales water courses, and*
- *instream structures and other mechanisms that alter natural flow.*

The degradation of native riparian vegetation along New South Wales water courses

Riparian vegetation includes vegetation on land that adjoins, directly influences or is influenced by, a body of water, such as land immediately alongside creeks and rivers, areas around lakes, and wetlands on river floodplains (NSW Fisheries, 2005). Riparian vegetation has numerous ecological benefits, including:

- providing a source of organic matter;
- providing a supply of large woody debris, which are important habitat and spawning sites for many native fish species;
- stabilising river beds and banks;
- providing shade and shelter;
- habitat for fish; and
- acting as a filter for sediments, phosphorous and organic nitrogen, improving the quality of water entering watercourses.

The Project would require the removal and modification of riparian vegetation for the construction of new, and upgrades to existing, water crossings. The general impacts of vegetation clearing and modification in relation to the Project are discussed in detail in **Section 6.1.7**, **Appendix F** in Volume 2 of the EA. Potential impacts specifically related to degradation of riparian vegetation would only occur where access tracks cross waterways. Such localised impacts may include:

- increased nutrient and sediment runoff;
- altered flow patterns;
- loss habitat for aquatic and terrestrial fauna;
- introduction of exotic vegetation; and
- bank erosion.

Appendix D4 of this Report provides detailed mitigation measures in relation to the construction of in stream structures (i.e. waterway crossings), and notes that these would be in accordance with relevant policies and guidelines including:

- NSW DPI Policy and Guidelines for Fish Friendly Waterway Crossings (2008) and Why Do Fish Need to Cross the Road? (2003);
- Landcom Managing Urban Stormwater: Soils and Construction Volume 1 (2008), and DECC Volume 2, The blue book Volumes 1 and 2 (2008); and
- Relevant TransGrid guidelines.

Instream structures and other mechanisms that alter natural flow

Instream structures that modify natural flow include dams, weirs, canals, navigation locks, floodgates, culverts, flow regulators, levee tanks, erosion control structures and causeways (NSW Fisheries, 2005).

4 Response to Submissions

The Project would require the installation of new crossings and upgrades to existing watercourse crossings. Potential impacts would vary depending on the type of crossing and construction method and may include:

- creation of physical barriers to native fish movement and migration;
- alteration to the natural processes of sediment erosion, transport and deposition, leading to loss of fish habitat; and
- creation of environments more suited to exotic species.

The EA (**Section 7, Appendix F** in Volume 2 of the EA) provides detailed mitigation measures in relation to the construction of instream structures (i.e. waterway crossings), and notes that these would be in accordance with relevant policies and guidelines listed above and outlined in **Appendix D4**.

4.6.2.3 Action Group Issue 3 - Assessment emphasis along alignment east

The submission from the TransGrid Action Group (TAG) (21948) included the EnviroFactor Report and a further written submission from the action group. The following issue was raised within the submission and attachments:

Assessment emphasis along alignment east

"For many species the focus of the assessments is along the eastern alignment even though they are equally as likely to occur along the western alignment."- TAG, and TAG (attachments) (21948)

Examples are offered in the EnviroFactor Report focused on the survey effort applied to fauna species: *"Examples of affected species and populations include: Glossy Black Cockatoo, Squirrel Glider, Regent Honeyeater, Black-chinned Honeyeater, Painted Honeyeater, Tusked Frog and Bush-stone Curlew."* - TAG (attachment) (21948)

Response

Field surveys undertaken in 2009 and 2010 focused on mapping vegetation communities and on the identification of terrestrial and aquatic threatened flora and fauna, within the proposed alignment and associated access tracks. Due to access constraints and general logistic limitations, a uniform and complete assessment of all areas was not possible.

Full details of biodiversity surveys conducted for the Project have been provided in **Section 4.2, Appendix F** in Volume 2 of the EA**. Figures 6a** and **6b** (**Appendix D5** of this Report) illustrate the fauna survey effort for the Project. These figures show the locations of 31 flora assessments and 53 fauna assessments that were conducted within alignment east. This compared to the 49 flora assessments and 54 fauna assessments undertaken in alignment west. These tallies demonstrate that the fauna survey effort was roughly equal between both the eastern and western alignment.

In areas where property access was not available, surveys were undertaken in areas representative of the vegetation communities that were unable to be surveyed. Survey effort was based on methods in *Threatened Biodiversity and Assessment; Guidelines for Developments and Activities Working Draft* (DEC, 2004). Survey locations were also selected on a targeted basis reflecting the likelihood of an area providing habitat for threatened species and communities, connectivity and landscape/topographic position, as well as on the basis of previous records.

4 Response to Submissions

More detailed pre-clearance surveys will be carried out, in any event, as discussed at **Sections 7.2.1** and **7.2.2** of **Appendix D4**, and included in the commitments in **Table 7-1**. It is expected that these surveys will identify all threatened biota in or near alignment west.

4.6.2.4 Action Group Issue 4 - Detrimental impacts on fauna species

The submission from the Upper Dumaresq Environment Network (UDEN) (22639) raised concerns about the following issue:

Detrimental impacts on fauna species

UDEN expressed concern in relation to the potential impacts of the Project on three threatened species resulting from potential impacts on grassy woodlands. The particular species were:

- Brush-tailed Rock Wallaby;
- Squatter Pigeon; and
- Turquoise Parrot.

Response

The EA includes an assessment of the impacts of the Project on each of these three species (**Appendix F** in Volume 2 of the EA). These impact assessments are also provided in **Appendices D1** and **D2** of this Report. A summary of these impact assessments is provided below:

- The SIC assessment and AOS concluded that the Project is not likely to impact significantly on the Brush-tailed Rock Wallaby (*Petrogale penicillata*);
- The SIC assessment concludes that the Project is likely to have a significant impact and the AOS concludes that the Project is likely to have an adverse impact on the Squatter Pigeon (*Geophaps scripta scripta*), due to potential habitat loss; and
- The AOS concludes that the Project is considered likely to have an adverse impact on the Turquoise parrot (*Neophema pulchella*).

A number of measures are recommended in **Appendix D4** of this Report to mitigate the potential impacts and to ensure that biodiversity values within the Project area are maintained or improved.

4.6.2.5 Action Group Issue 5

The submission from the TransGrid Action Group (TAG) (21948) included the EnviroFactor Report as an attachment. The following issue was raised in this report, and within the TAG submission and attachment to the TAG submission:

Adequacy of vegetation mapping

The submission asserts that the determination of vegetation stratification units has not used existing, and appropriately scaled, vegetation mapping for alignment west. The submission comments that the Keith (2004) system of vegetation classification is too broad for use as a basis for the assessment of the Project.

"It doesn't appear that in determining stratification units URS have made use of existing and more appropriately scaled vegetation mapping of the western alignment or numerous NPWS reports in and around this area". - TAG (21948)

4 Response to Submissions

The EnviroFactor Report notes that *"Stratification appears not to have been extended much beyond the broad vegetation types as outlined by Keith (2004). As such, the degree of sampling required has been underestimated."* - TAG (attachment) (21948)

The EnviroFactor Report also notes: *"Areas along the proposed transmission line have not been mapped even though they appear to support vegetation. Polygons do not fully cover patches."* - TAG (attachment) (21948)

The submission and attachments assert that *"the amount of time spent on vegetation community mapping seems minimal given the length of the project area, and significant variation in terrain elements, elevation, geology and climate."* - TAG (21948)

Response

Seven vegetation formations and 49 associated vegetation communities were surveyed and consequently mapped for the Project (**Table 5-1** and **Figures 7a** to **7m, Appendix F** in Volume 2 of the EA). Vegetation formations and associated communities were based on the DECC *Vegetation Types Database* (2008) communities for the Northern Rivers CMA and Border Rivers/Gwydir CMA areas, Keith (2004) vegetation classifications of far north NSW as well as Forest's NSW mapping. These mapping references are considered valid for the large scale vegetation mapping required for this Project and generally are:

- widely used and accepted as standard vegetation classifications for NSW;
- prepared by floristic specialists and verified across large data sets; and
- considered suitable for detailed assessment of cumulative impacts on a local, state and national scale.

The use of stratification units as described by Keith (2004) and the subsequent survey effort is considered valid given that:

- across the Project area 80 flora quadrats/assessments were conducted to cover the diversity of vegetation communities that potentially would be impacted;
- across the Project area 107 fauna assessments were conducted to cover the diversity of habitats that potentially would be impacted;
- where access was not possible, field surveys were undertaken in areas of vegetation that were representative of those areas unable to be accessed. Survey effort was as recommended in *Threatened Biodiversity and Assessment; Guidelines for Developments and Activities Working Draft* (DEC, 2004);
- survey locations were also selected on the basis of the likelihood that they would provide habitat for threatened species and communities, as well as in relation to their connectivity and landscape/topographic position, plus the location of previously recorded species; and
- survey methods were guided by the *Threatened Biodiversity and Assessment; Guidelines for Developments and Activities Working Draft* (DECCW, 2004), the NSW OEH Threatened Species Profile database and the Commonwealth DSEWPaC Species Profile and Threats Database.

TransGrid acknowledges that access constraints limited the scope of biodiversity surveys along the alignment. The long linear nature of the Project and the large number of private properties meant that accessing every property to undertake detailed survey was not possible. This is a common issue for long linear projects. Notwithstanding the limitations, surveys were undertaken across all areas where access was granted, representative of the majority of the Project area, following standard NSW survey

guidelines. Further, the assessment has taken a precautionary approach and habitat assessments for all threatened biota predicted or known to occur within the Project were completed. This precautionary approach has allowed both TransGrid and the regulators to understand the current ecological condition and thus the impact that the Project could potentially cause to local and regional biodiversity.

In addition to ecological surveys already undertaken, pre-clearance surveys are proposed to be completed in line with agreements with the OEH and DSEWPaC (discussed in more detail in **Appendix D4**). Pre-clearance surveys would target comprehensively threatened flora (**Table 7-3** of **Appendix D4**) with the potential to occur across the Project area as well as threatened fauna, populations and ecological communities that have the potential to occur in areas not yet surveyed (listed in **Appendix D4** of this Report). They would also target additional, more recently listed/recorded, threatened fauna, populations and ecological communities considered within the EA, but not surveyed for in the 2009/2010 surveys. These surveys would also verify current Project mapping as well as regional vegetation mapping to provide comprehensive data regarding vegetation formations and associated communities.

4.6.2.6 Action Group Issue 6

The EnviroFactor Report was included as an attachment to the TAG submission (TAG (attachment) (21948)). The following issue was raised in this report and referred to in the TAG submission (21948) and the UDEN and UDAG submissions (22639):

Inadequacy of Box Gum Woodland vegetation classification

"*For Box Gum Woodland the probable under estimation of the area of this community, for the reasons outlined in our report, make it likely this proposal will have a greater impact on the extent and condition of this EEC and CEEC than indicated in the URS report.*" - UDEN (22639)

"*In regards to Box Gum Woodland, many of the areas conform to the minimum condition criteria, using a quadrat 60% smaller than that required by SEWPaC for identification of the CEEC (i.e. 0.04ha instead of 0.1ha), which is likely to mean that their actual condition is better than stated within the biodiversity report, and as such, may mean that the biodiversity report has underestimated the amount of some communities.*" - UDEN (22639)

Response

The TSC Act and EPBC Act threatened ecological community (TEC): *White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and derived grasslands* ecological community (Box Gum Woodland) within the proposed alignment and immediate surrounds has been identified and mapped in accordance with the definitions and guidelines provided under State and Commonwealth legislation (DEH, 2006 and NPWS).

Vegetation surveys used quadrat survey methods (20m by 20m) except in areas where vegetation occurred in a linear space (e.g. along a riparian zone), in which case some quadrats were 10 x 40 m, as per DEC (2004) recommendations.

The Commonwealth Conservation Advice on Box Gum Woodland (Threatened Species Scientific Committee 2006) states that "*Patches must be assessed at a scale of 0.1 ha (1000m^2) or greater*". The patch size of Box Gum Woodland as listed under the EPBC Act is an important consideration for whether the community meets the minimum requirements for inclusion as an EPBC Act listed

community. The minimum patch size for inclusion in the EPBC Act listed community is 0.1 ha (if the community has an understorey with 12 or more non-grass native species as defined in EPBC Act policy statement 3.5 - White box - yellow box - Blakely's red gum grassy woodlands and derived native grasslands (Department of the Environment and Heritage 2006)), or 2ha of sufficient mature trees and/or regeneration of canopy species. Hence, any patches of vegetation that had understorey sufficient to meet condition requirements outlined in EPBC Act Policy Statement 3.5 (Department of the Environment and Heritage 2006) were mapped as Box Gum Woodland under the EPBC Act only when patch size exceeded 0.1ha. While quadrat size was limited to 20m by 20m or 10m by 40m quadrats, sufficient random meander surveys were undertaken to determine if areas of Box Gum Woodland were of a patch size sufficient to meet requirements outlined in EPBC Act Policy Statement 3.5 (Department of the Environment and Heritage 2006). Given this, it is unlikely that the total area of EPBC Act condition Box Gum Woodland has been underestimated. It is considered that while URS survey efforts did not undertake 20m x 50m quadrat surveys for Box Gum Woodland vegetation as recommended within the Threatened Species Scientific Committee (2006) conservation advice, that surveys were adequate for the community as listed under the TSC Act and EPBC Act.

While URS surveys did not complete 20m x 50m quadrats, quadrats were positioned to gather the most comprehensive floristic data on each location, namely, the aim was to record as many species as possible for each quadrat.

The NSW National Parks and Wildlife Service (undated) Identification Guidelines for Endangered Ecological Communities: White Box Yellow Box Blakely's Red Gum Woodland states that "*It is important to note that the size or ages of the remnant are not determining factors as to whether it constitutes the listed EEC or not.*" As such, there is no minimum patch size for inclusion as the TSC Act listed community, and 20m x 20 m quadrats are adequate to assess condition and floristics.

Further pre-clearance surveys targeting Box Gum Woodland are proposed to be completed post approval, and in line with agreements with the OEH and DSEWPaC. These surveys would be comprehensive, and would be conducted in areas of likely habitat within the Project area. These pre-clearance surveys would verify existing mapping, and map vegetation formations and associated communities, including Box Gum Woodland.

4.6.2.7 Action Group Issue 7 - Inadequacy of vegetation classification and survey effort

The EnviroFactor Report was included as an attachment to the TAG submission (TAG (attachment) (21948). The following issue was raised in this report and referred to in the TAG submission (21948) and the UDEN and UDAG submissions (22639):

Inadequacy of vegetation classification and survey effort

The EnviroFactor Report asserts that there was *" ..an inappropriate survey effort which has potentially underestimated the area of critically endangered and endangered ecological communities and threatened species present on the project area"* - TAG (attachment) (21948)

4 Response to Submissions

The authors of the EnviroFactor Report note that the EA appears to exclude a number of species (flora and fauna) from the assessment *"due to a lack of database records in the vicinity of the project area. This appears to be particularly true for the western alignment. Lack of records is likely to be due to lack of survey, hence few records."* - TAG (attachment) (21948). It is asserted that the precautionary principle should be used; if habitat is present then the species should be assessed.

The EnviroFactor Report notes the absence of threatened ecological communities and species from survey and/or assessment, *"including:*

- *Bothriochloa biloba (vulnerable EPBC Act); identified as a dominant species within some communities. No mention in the report of its status, distribution or abundance and no assessment of impacts.*
- *Montane Peatlands; review of SPOT imagery indicates potential to occur in project area. This community was not been targeted during survey and no assessment of potential impacts have been undertaken.*
- *Upland Wetlands; this community should have been targeted in searches (as per Montane Peatlands).*
- *Carex Sedgelands – not listed as a TEC during initial survey but was on public exhibition during August 2010. Field work was on-going in September 2010 - as such, this community should have been included in the survey and assessment. Review of SPOT imagery indicates areas of community towards the north and east of Tenterfield, within the project area.*
- *New England Peppermint Woodlands on Basalts and Sediments; the New England Peppermint / Fuzzy Box community identified in the project area may constitute this TEC. Clearing for roads and powerlines has been identified as a threat to this community, yet it has not been identified or assessed within the report.*
- *Monotaxis macrophylla; found in the Tenterfield area but excluded from survey and assessment. One of a number of threatened flora species that are likely to occur but have been excluded.*
- *Boronia repanda - excluded due to its occurrence on rock outcrops. Report includes a number of other rock outcrop endemics. The largest known population of Boronia repanda occurs in a valley and is not associated with any rock outcropping or platforms, it should therefore be included in the assessment.*
- *Pomaderris queenslandica; occurs in moist eucalypt forest and sheltered woodlands and has a scattered distribution across the Northwest Slopes, New England Tablelands and North Coast. Although difficult to survey for it is likely to occur on the project area.*
- *Capparis canescens; although only known from one population near Bonshaw this species should have been targeted in searches as other populations may potentially occur within the project area."* - TAG (attachment) (21948)
- The EnviroFactor Report (TAG (attachment) (21948)) also suggests a mis-identification of woodland areas dominated by what are referred to as *Eucalyptus chloroclada* (Dirty Gum) and *Eucalyptus microcarpa* (Inland Grey Box). The authors of the EnviroFactor Report do not believe that large/extensive areas of woodlands dominated by these species would occur within Project area. They assert, however, that if the identification is correct, the occurrences of these associations would be of regional significance.

4 Response to Submissions

Response

A detailed literature review was undertaken by URS in 2009 and again in 2010 to identify threatened species, populations and ecological communities listed under the TSC Act, *Fisheries Management Act, 1994* (FM Act) and/or EPBC Act that had the potential to occur within the Project area. The literature on threatened biota obtained between the 2009 and the subsequent 2010 search identified a large number of additional species. Given the nature of the Project area, it is likely that there are new records being recorded by a number of people each year leading to new or revised listings. The literature reviews included the following sources to inform survey and reporting:

- the Department of Environment, Climate Change and Water (DECCW) Online Wildlife Atlas database was reviewed for all TSC Act listed species within the locality (i.e. a 10km buffer around the Project area) (**Appendix B** of **Appendix F** in Volume 2 of the EA);
- a Geographic Information System (GIS) data request was sent to the Spatial Data Programs at the NSW Department of Environment, Climate Change and Water (DECCW) for all records of threatened species within the Ashford (9139), Texas (9140), Clive (9239), Stanthorpe (9240), Tenterfield (9339), Drake (9340), Coaldale (9439), Bonalbo (9440) and Lismore (9540) 1:100,000 map sheets on 10 March 2009 (**Figures 4** & **5, Appendix F** of **Appendix F** in Volume 2 of the EA);
- the Commonwealth EPBC Online Protected Matters Database search tool was reviewed for all EPBC Act listed species, populations, ecological communities, migratory species and Ramsar sites within the locality (i.e. a 10km buffer of the Project area) (SEWPAC, 2010) (**Appendix C** of **Appendix F** in Volume 2 of the EA);
- the DECCW 'Find by Geographic Region' threatened species, populations and ecological communities online search tool for the Northern Rivers CMA (Clarence Lowlands, Richmond - Tweed (Qld - Scenic Rim), Rocky River Gorge, Cataract, Woodenbong and Stanthorpe Plateau sub-regions), and the Border Rivers/Gwydir CMA (Nandewar, Northern Complex and Tenterfield Plateau sub-regions) (Department of Environment and Climate Change 2009) (**Appendix D** of **Appendix F** in Volume 2 of the EA);
- the Industry and Investment NSW (I&I NSW) 'Threatened fish and marine vegetation – find a species by geographic region' online search tool for the Border Rivers/Gwydir CMA and Northern Rivers CMA (**Appendix E** of **Appendix F** in Volume 2 of the EA);
- 'Threatened Species Records', recorded by Forest NSW (2008) for the far north NSW region (**Figures 4** & **5, Appendix F** of **Appendix F** in Volume 2 of the EA);
- relevant vegetation mapping and classification for the region including State Forest mapping, NSW National Parks mapping, CMA mapping, DECCW Vegetation Types Database (2008), and Keith (2004) *Ocean Shores to Desert Dunes: the native vegetation of New South Wales and the ACT*; and
- relevant Plans of Management for National Parks, State Forests and Nature Reserves within the locality.

Specifically in relation to the species and ecological communities listed above, please find below the rationale for how and why each have, or have not been addressed within the EA:

- Lobed Blue-grass *(Bothriochloa biloba)* – Current distribution mapping for the species shows historical records of the species which overlap with the proposed alignment (NSW Bionet and Commonwealth Species Profile and Threats Database). This species was observed during surveys undertaken within the study area as per **Section 4.6.2.13** below, therefore this species would be targeted by a suitably qualified botanist during pre-clearance surveys in areas of suitable habitat. This species was not identified in any database searches undertaken by URS. Therefore, this

species was not *addressed* in the habitat assessment performed for the Project. Lobed Blue-grass *(Bothriochloa biloba)* was de-listed as a vulnerable species from TSC Act in 2004, but is still listed under the EPBC Act.

- *Montane Peatlands and Swamps of the New England Tableland, NSW North Coast, Sydney Basin, South East Corner, South Eastern Highlands and Australian Alps bioregions* (TSC Act). During the habitat assessment undertaken as part of the EA this TEC was considered unlikely that this TEC would occur within the Project area. Therefore this TEC would not be the focus of targeted TEC surveys for the Project.
- *Upland Wetlands of the Drainage Divide of the New England Tableland Biore*gion (TSC Act) and *Upland Wetlands of the New England Tablelands and the Monaro Plateau* (EPBC Act). The closest known location of this TEC occurs just north of Glen Innes at its northern most extent. Therefore this TEC is not considered likely to occur within the Project area and would not need to be the subject of pre-clearance surveys.
- *Carex Sedgelands of the New England Tableland, Nandewar, Brigalow Belt South and NSW North Coast Bioregions (TSC Act).* This community is only known to occur within one LGA (Inverell LGA) that is traversed by the Project. This TEC is newly listed (Gazetted Friday 15 April 2011) since the 2009 vegetation mapping, field surveys and the EA for the Project.
- Since the delivery of **Appendix F** of the **EA** in June 2011 there have been two vegetation community changes in the broader region that impact biodiversity Project mapping, but not within the proposed alignment. Following the initial URS constraints assessment (URS, 2009, Constraints Identification and Preferred Corridor Report), qualified botanists have re-classified the *New England Peppermint Woodland* community to align with the 2009 biometric vegetation types for the Border Rivers/Gwydir CMA. This amended classification was due to characteristic floristic associations, landscape position and underlying geology. Wattle-leaved Peppermint (*Eucalyptus acaciiformis*) and Narrow-leaved Peppermint (*Eucalyptus radiata subsp. sejuncta*), are non-dominant canopy species as part of this community. **Appendix F** of the **EA** has been revised to outline the change from originally mapped EEC "*New England Peppermint Woodland*" (mapped in 2009) to correctly name the community as per the NSW Vegetation Types Database for Border Rivers/Gwydir: *New England Blackbutt Dry Heathy Open Forest on Granites*. **Figure 7g** (refer to **Appendix D5**) has been updated to reflect the biometric wording from: *New England Blackbutt, Peppermint and Red Mahogany Dry Open Forest on Granites* to *New England Blackbutt Dry Heathy Open Forest on Granites*. Upon detailed review by qualified botanists (since the 2009 mapping) of the TSC Act and EPBC Act TEC profiles and 2009 field sheet records, **Appendix F** of the **EA** has been revised to classify three 'disturbed' patches of vegetation previously referred to as Inland Grey Box (disturbed) into the TSC Act listed endangered ecological community (EEC) '*Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions'* (**Figures 7e** and **8e** of **Appendix D5**). As it occurs within the Project area, this TEC is found outside of the geographic distribution range of the 2010 EPBC Act EEC listing for *Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia* (DECC, 2007; DEWHA 2010), thus the Commonwealth listing does not apply. The TSC Act listing for the community is broader, and the community does meet the requirements for TSC Act listing, even in its disturbed state. **Figures 7e** and **8e** have therefore been amended (refer to **Appendix D5**).
- Large-leafed Monotaxis *(Monotaxis macrophylla*). This species is *known* from the Tenterfield area. Its presence was noted from CMA database searches. However, there are no specific records held of its occurrence in the Project area (NSW DEC 2005). During the habitat assessment undertaken

as part of the EA it was considered unlikely that this species would occur within the Project area. Therefore this species has not been considered nor surveyed for in relation to the Project.

- Repand Boronia *(Boronia repanda)* - The species is known from only one location in NSW, which occurs as one large population and two small outliers bounded by Border Road and Kurrajong Lane close to the NSW-Queensland state border, east of Stanthorpe. Furthermore, all known locations within Queensland occur within a 20km area of Stanthorpe (DSEWPaC 2012). The NSW location of the species is approximately 50km north of the proposed alignment. Furthermore, due to the clustered nature of the species around Stanthorpe, it is considered unlikely that this species would occur within the Project area. Therefore this species has not been considered nor surveyed for in relation to the Project.
- Scant Pomaderris (*Pomaderris queenslandica*) - Widely scattered but not common in north-east NSW and in Queensland. It is only known from a few locations on the New England Tablelands and North West Slopes, including near Torrington and Coolatai, and also from several locations on the NSW north coast (NSW DEC 2005). The closest population occurs near Torrington, which is south of the proposed alignment (< 10km). This species was excluded in the habitat assessment within **Appendix F** of the EA as this species was only *predicted* to occur based on CMA database results but is not *known* to occur within the relevant CMA, and no results exist for this species within NPWS Atlas results for the Project.
- Wild Orange (*Capparis canescens*) - The species is known in NSW from a single population about 20km north-north-west of Bonshaw and 50km north of Ashford, however this population is reported to have recently been cleared by roadworks. Seven plants are said to still survive at the site (DEC NSW 2005). This population is close to 30km north of the most western tip of the proposed alignment and it is therefore considered unlikely for the species to occur within the Project area. As such the species has not been considered nor surveyed for in relation to the Project.

Based on habitat requirements, and the existing survey data, some of the species and ecological communities listed above have the potential to occur within the Project area. Targeted searches for these species, and ecological communities with the potential to occur within the Project area, would be conducted during post approval, pre-clearance surveys, as agreed with OEH and DSEWPaC and discussed in detail in **Appendix D4**. Such surveys would also clarify/confirm existing vegetation mapping for the Project.

4.6.2.8 Action Group Issue 8 - Adequacy of field assessment methodology

The EnviroFactor Report was included as an attachment to the TAG submission (TAG (attachment) (21948)). The following issue was raised in this report and referred to in the TAG submission (21948) and within the UDAG submission (22639):

Adequacy of field assessment methodology

According to EnviroFactor and the TAG submission and attachments, *"Survey effort does not meet DEC 2004 survey guidelines and may go part way to explaining the low number of flora species identified. 82 20m x 20m quadrats from within 49 identified vegetation communities equates to less than 2 sites per community and indicates a lack of replication."* - TAG (attachment) (21948)

EnviroFactor also suggests that: "While the use of a 20m x 20m (0.04ha) quadrat is acceptable for general vegetation survey, it is not consistent with DEH 2006 (now SEWPaC) guideline for the identification of the Critically Endangered Ecological Community (CEEC) - White Box Yellow Box Blakely's Red Gum Grassy Woodland and Derived Native Grasslands." - TAG (attachment) (21948)

4 Response to Submissions

"The use of a 20m x 20m (0.04ha) quadrat is not consistent with DEH 2006 (now SEWPaC) guidelines for the identification of the Critically Endangered Ecological Community (CEEC) - Box Gum Woodland. The guideline specifies the use of a 20m x 50m quadrat (0.1ha) which may increase the number of groundcover species identified, and therefore the likelihood of an area to meet EPBC Act listing criteria for the CEEC. Consequently, it is possible the flora survey has underestimated the area of the CEEC within the project area." - TAG (attachment) (21948)

EnviroFactor and TAG points out an omission in the field assessment methodology: *"dry Rainforest is a regionally significant vegetation community which is commonly found in disjunct patches in sheltered gullies along the western alignment. This regionally significant community should have been targeted in searches as it is habitat for a number of threatened flora species."* - TAG (21948) and TAG (attachment) (21948)

UDAG (22639) concludes from the points raised in the EnviroFactor Report that *"there was an inappropriate survey effort which has potentially underestimated the area of critically endangered and endangered ecological communities and threatened species present on the project area."* - UDAG (22639)

Response

As identified in **Appendix F** in Volume 2 of the EA vegetation formations were used as stratification units to determine survey effort. The survey effort applied in the assessment is based on Tables 5.1 and 5.2, of the *Threatened Biodiversity and Assessment; Guidelines for Developments and Activities Working Draft* (DEC, 2004) which describes the use of vegetation formations as stratification units.

Vegetation formations, rather than vegetation communities were used to determine the survey effort per stratification unit, and on this basis a total of 79 quadrats (20 x 20m) would be required to meet minimum survey effort as recommended by DEC (2004). The survey effort for this Project included 80 (20 x 20m) quadrats in total.

For a variety of reasons, including limitations on access and other reasons outlined in **Section 4.2.7**, **Appendix F** in Volume 2 of the EA, a complete and comprehensive survey of the alignment was not possible as part of the assessment. The long linear nature of the Project and the large number of private properties meant that accessing every property to undertake detailed survey was not possible, a common issue for long linear projects. Notwithstanding the limitations, surveys were undertaken across all areas where access was granted, representative of the majority of the Project area, following standard NSW survey guidelines. Further, the assessment has taken a precautionary approach and habitat assessments for all threatened biota predicted or known to occur within the Project were completed. This precautionary approach has allowed both TransGrid and the regulators to understand the ecological conditions and the impact that the Project could potentially cause to local and regional biodiversity.

TransGrid has committed to undertaking pre-clearance surveys post Project approval, in order to comprehensively target the threatened ecological communities (TECs) that have the potential to occur in areas not yet surveyed, and to target TECs considered within the EA but not surveyed. These TEC pre-clearance surveys would be undertaken in line with NSW and Commonwealth TEC profiles and guidelines. These pre-clearance surveys would verify all existing vegetation formations and associated communities.

4 Response to Submissions

Section 4.6.2.6 of this Report provides a detailed response regarding Box Gum Woodland survey components, classification and assessment undertaken to date as well as proposed survey requirements.

With respect to the above mentioned "Dry rainforest" URS on behalf of TransGrid has reviewed available literature and listings of threatened vegetation communities, and has not identified any information to support the contention that this community is recognised as a regionally significant ecological community. The proposed pre-clearance surveys would provide additional information to complement data available through current investigations. This would enable the full suite of listed biota likely to occur in the Project area to be confirmed.

4.6.2.9 Action Group Issue 9 - Fauna survey inconsistencies

The EnviroFactor Report was included as an attachment to the TAG submission (TAG (attachment) (21948)). The following issue was raised in this report:

Fauna survey inconsistencies

Specific points raised included:

a) "Anabat – 1008 hours over 8 nights – this is probably a typo but if not, and even presuming 12 hours of darkness, the maximum effort that could be achieved is 96 hours. Even so for 8 nights of Anabat survey over 200kms of habitat only 9 micro-bat species were identified and only one apparently in the grassy woodlands, a very poor result. The report states that 22 sites were surveyed but the maps appear to show only 6 sites and with only one survey site located along the western alignment." - TAG (attachment) (21948)

b) "10 hours were spent frogging but only two frog species have been recorded ... no obvious frog sites appear on the survey location maps. No mention is made in the report of this obviously poor result given the project area lies within country known for its rivers, creeks wetlands and soaks." - TAG (attachment) (21948)

c) Of the call play-back survey carried out: "call playback – only one site appears to have been surveyed along the western alignment near Tenterfield." - TAG (attachment) (21948)

d) Of habitat searches: *"..report states 30 hours of habitat searches were undertaken, however, only seven reptile species (6 lizards and 1 snake) were recorded, and of these all except one are medium to large reptiles readily observed at a distance. Missing are any number of small terrestrial and fossorial lizards, snakes and geckoes commonly found under fallen logs, surface rock and bark during habitat searches in the type of country that occurs across the project area. Again a very poor result of which no mention is made in the report. No habitat search sites are recorded on the survey maps."* - TAG (attachment) (21948)

e) Of hair tube methods: *".. report states 170 tubes over 10 days, but according to the methodology 20 tubes were laid per transect and 2 transects were positioned in each vegetation formation except for 1. Based on these figures the effort should have been 20 tubes x 2 transects x 6 formations = 240 tubes. In contrast the survey maps appear to indicate 16 hair tube transects which would equate to 320 tubes. Clarification is required."* - TAG (attachment) (21948)

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Response

a) Eleven Anabat detectors were employed to record calls across the Project area. Passive recording was utilised whereby Anabats were set at various locations across the proposed alignment for a total of 12 hours (e.g. 6pm – 6am), each night, over an 8 day period – allowing for a total of 1056 hours of survey (11*12*8 = 1,056). However, a problematic feature of the Anabat, commonly experienced by field ecologists, is the ability for the recording device to occasionally fail to record. As such, during field surveys, a small number of detectors failed to record over four separate nights. Consequently, the total number of Anabat recording hours achieved over the 8 nights was reduced to 1,008 hours. Anabats were set at 24 sites. Unfortunately due to the scale of **Figure 6b** (**Appendix F** in **Volume 2** of the **EA**), there appears to be some visual discrepancy with these numbers, due to the overlapping nature of the symbology in the figure. For this reason, **Figure 6b** has been revised (refer to **Appendix D5**).

b) Regarding the survey effort for amphibians, it should also be noted that despite extensive surveying it can still be very difficult to identify all species within a region, particularly in an area as large as the Project area. Nevertheless surveys for these groups were undertaken opportunistically in areas of suitable habitat, and at key sites. Further, a precautionary approach has been undertaken and applied to assessments (i.e. AOS and SICs) for all amphibians and threatened biota, which assumes the presence of each biota as a precaution. Additionally, a commitment has been included to target the potentially occurring frog species and frog population as part of pre-clearance surveys.

c) Call playback was undertaken at five sites along alignment west. As per the response provided above (response b), there appears to be some visual discrepancy with these numbers, due to the overlapping nature of the symbology in the figure. For this reason, **Figure 6b** has been revised (refer to **Appendix D5**).

d) Habitat search sites are shown in **Figure 6a** and **Figure 6b** (refer to **Appendix D5**). As discussed above, a number of desktop searches and field surveys were completed for a range of threatened biota. Equally the precautionary principle was used to help identify biota that could potentially be present within the Project area. In line with accepted guidance the EA assessed the potential impacts of the Project on a range of threatened biota (refer to **Section 6.1**, **Appendix F** in **Volume 2** of the **EA**). However, in a further application of the precautionary principle, the EA and this Report recommended that a number of pre-clearance surveys be completed to confirm the level of impact outlined within the EA and to ensure that appropriate mitigation strategies are developed and implemented.

e) Seventeen hair tube transects were laid across the Project area over a 10 day period. Each hair tube transect consisted of 10 hair tubes (5 small, 5 large) (10*17 = 170). A minimum of two transects were laid per vegetation formation (20 hair tubes), across the following seven formations:

- Dry Sclerophyll Forests (shrub/grass formation);
- Dry Sclerophyll Forests (shrubby formation);
- Forested Wetland;
- Grassland;
- Grassy Woodland;
- Semi Arid Woodlands (shrubby sub formation); and
- Wet Sclerophyll Forest (shrubby formation.

As discussed above, unfortunately due to the scale of **Figure 6b** (**Appendix F** in **Volume 2** of the **EA**), there appears to be some visual discrepancy, due to the overlapping nature of the symbology in the figure. For this reason, **Figure 6b** has been revised (refer to **Appendix D5**).

4.6.2.10 Action Group Issue 10 - Inaccuracies in Flora Assessment Results

The EnviroFactor Report was included as an attachment to the TAG submission (TAG (attachment) (21948)). The following issue was raised in this report and referred to in the TAG submission (21948) and additional TAG (attachment) (22639) submission:

Inaccuracies in Flora assessment results

The EnviroFactor Report asserts that "Two Rare or Threatened Australian Plants (RoTAP) species were identified as present on the project area, Eucalyptus youmanii and Discaria pubescens. Although neither are of conservation significance, neither species are identified as such in the report and no assessment of the potential impact of the proposal on these species has been undertaken." - TAG (attachment) (21948)

Response

It is acknowledged that *Eucalyptus youmanii and Discaria pubescens* are listed as *Rare and Threatened Australian Plants (RoTAP) in NSW.* However there is no formal requirement for RoTAP listed species to be individually assessed, unlike those species listed under the TSC Act or EPBC Act. Therefore the impact of the Project on these two species has not been individually assessed.

4.6.2.11 Action Group Issue 11 - Incompleteness of Assessment

The EnviroFactor Report was included as an attachment to the TAG submission (TAG (attachment) (21948)). The following issue was raised in this report and referred to in the TAG submission (21948):

Incompleteness of Assessment

The EnviroFactor Report (TAG (attachment) (21948)) asserts that no assessment of impacts is possible until all vegetation along the proposed alignment is mapped accurately, including areas of non-native vegetation such as cultivated areas. It states that:

"*An adequate assessment of the impact of this proposal can only be made when the impacted vegetation is identified and its landscape context understood. In the absence of this information no reliable assessment regarding the impact of the proposal can be made."* - TAG (attachment) (21948)

The TAG submission (21948) asserts that the impact assessment is dependent on the development and implementation of various management plans and as such is an inappropriate document to assess the proposed Project.

Response

As noted in previous responses throughout **Section 4.6**, as a result of access limitations and other constraints, a comprehensive biodiversity survey across the entire Project area was not, and at present is not, possible. Therefore a precautionary approach to the biodiversity assessment found within **Appendix F**, Volume 2 of the EA was employed. This precautionary approach has allowed both TransGrid and the regulators to understand the ecological conditions and the impact that the Project could potentially cause to local and regional biodiversity.

TransGrid has recognised that further pre-clearance surveys would be required to confirm the final Project impacts and mitigation strategies. This approach has been agreed with both the OEH and DSEWPaC. Pre-clearance surveys are proposed to be conducted post approval and once access is possible. These would target comprehensively threatened flora with the potential to occur within the Project area as well as threatened fauna, populations and ecological communities that have the potential to occur in areas not yet surveyed. They would also target additional, more recently listed/recorded, threatened biota, considered within the EA, but not surveyed for in the 2009/2010 surveys. These targeted surveys would be conducted across the Project area. These surveys aim to close any remaining survey gaps and help inform discussions between TransGrid and regulators in relation to the biodiversity offset that would be required for this Project.

It is also standard practice with major projects across NSW that Project related management plans and strategies for Project construction and operation be developed post approval in agreement with all of the relevant agencies, e.g. DPI, OEH and DSEWPaC.

4.6.2.12 Action Group Issue 12- Various issues related to the adequacy of AOS and SIC assessments within the Environmental Assessment

The EnviroFactor Report was included as an attachment to the TAG submission (TAG (attachment) (21948)). The following points were raised in this report and referred to in the TAG submission (21948) and within the UDEN and UDAG submissions (22639):

Various issues related to the adequacy of AOS and SIC assessments within the Environmental Assessment

The EnviroFactor Report, states that the SICs and AOSs are poorly executed and inconsistent. *"At least one species listed under both the TSC Act and EPBC Act has two opposing outcomes (significant and not significant). Tables 6.1, 6.2 and 6.4 in this report are inconsistent."* - TAG (attachment) (21948)

Drawing upon the EnviroFactor Report, TAG (21948) asserts that many serious items within the AOS/SIC are not addressed. UDEN (22639) also refers to the EnviroFactor statement in its submission, stating:

"The Environmental Assessment does not deal satisfactorily with the threats to threatened species. The Envirofactor Report states (on p10):

"Within the S5A (AOS in the report) and EPBC (SIC in the report) assessments many of the potentially serious and deleterious impacts of the proposed transmission line are simply overlooked." – UDEN (22639)

EnviroFactor asserts that fragmentation is poorly dealt with as an issue within the EA. According to EnviroFactor, the EA states that clearing along alignment east would not impact on populations of threatened species because the vegetation is already highly fragmented. *"This argument overlooks the impacts small areas of clearing can have in fragmented landscapes. Impacts include local species extinctions, as habitat blocks become too small to support populations and larger habitat gaps prevent species from moving across the landscape to access alternate habitat resources (food, breeding sites and mates)."* - TAG (attachment) (21948)

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The EnviroFactor Report (TAG (attachment) (21948)) comments that the biodiversity report claims that the Project would fragment habitat relevant to koalas and native mice, potentially creating two or more populations from what is now one. According to EnviroFactor, why this is not considered significant in the report "*remains a mystery*".

The UDAG (22639) submission comments that the EA provides a "*flawed assessment of the major impacts associated with the project including habitat loss and fragmentation and loss of essential habitat components (e.g. tree hollows, feed trees)"* - UDAG (22639)

Response

Appendix I (NSW AOS) and **Appendix J** (Commonwealth SIC assessments) of **Appendix F** in Volume 2 of the EA has been revised and these revisions have been included as Appendices to this Report (**Appendix D1** and **D2** respectively). Where changes to the AOS and SIC assessments have resulted in a change to the threatened biota assessment outcome, these changes have been highlighted within **Appendix D3** of this Report. Given that AOS and SICs are developed using Project area knowledge, ecological expertise and the 'precautionary principle' the amended outcomes do not alter the relative impacts associated with the Project. AOS and SIC edits were triggered by agency submissions to provide greater consistency and to provide additional information where relevant or recently available.

Revisions have also taken place to ensure consistency between the AOS and SIC assessments and the relative tables that summarise the outcomes of these assessments (refer to **Appendix D3** of this Report) namely:

- Table 6-1 Threatened Flora Assessment Outcomes;
- Table 6-2 Threatened Ecological Community Assessment Outcomes;
- Table 6-4 Threatened Fauna Assessment Outcomes; and
- Table 6-5 Threatened Population Assessment Outcomes.

Appendix D3 has also been enhanced to include the relative areas of corresponding suitable habitat for each of the threatened flora, ecological community, fauna and population in terms of associated vegetation formations and the maximum likely hectares of habitat that would be lost though clearance.

The revised AOS and SIC assessments address both the direct and indirect impacts associated with the Project, this includes but is not limited to:

- fragmentation;
- edge effects;
- changes in drainage patterns and soil erosion;
- changes in surface run off;
- species habitat loss; and
- physical and genetic isolation.

By addressing these impacts, it is considered that the potential impact of the Project on threatened biota has been given adequate consideration.

4 Response to Submissions

In addition to this, consideration, within the EA and via this Report, has been given to the impact on threatened biota based on the Project contributing to the following FM Act, TSC Act and EPBC Act KTPs, including:

- *alteration to the natural flow regimes of rivers, streams, floodplains & wetlands* (TSC Act);
- *clearing of native vegetation* (TSC Act);
- *bushrock removal* (TSC Act)*;*
- *competition and grazing by the feral European rabbit* (TSC Act);
- *ecological consequences of high frequency fires* (TSC Act);
- *human-caused Climate Change* (TSC Act and FM Act);
- *invasion and establishment of exotic vines and scramblers* (TSC Act);
- *infection of frogs by amphibian chytrid causing the disease chytridiomycosis* (TSC Act);
- *infection of native plants by Phytophthora cinnamomi* (TSC Act);
- *invasion of native plant communities by exotic perennial grasses (TSC Act);*
- *invasion, establishment and spread of Lantana (Lantana camara L.sens. Lat)* (TSC Act);
- *loss and/or degradation of sites used for hill-topping by butterflies* (TSC Act);
- *loss of Hollow-bearing trees* (TSC Act);
- *predation by feral cats (TSC Act);*
- *removal of dead wood and dead trees* (TSC Act);
- *competition and habitat degradation by Feral Goats, Capra hircus Linnaeus 1758* (TSC Act);
- *competition from feral honeybees* (TSC Act);
- *invasion and establishment of Scotch broom (Cytisus scoparius)* (TSC Act);
- *invasion and establishment of the Cane Toad (Bufo marinus)* (TSC Act);
- *predation and hybridisation of Feral Dogs, Canis lupus familiaris* (TSC Act);
- *predation by the European red fox* (TSC Act);
- *predation by the plague minnow (Gambusia holbrooki)* (TSC Act);
- *predation, habitat degradation, competition and disease transmission by feral pigs (Sus scrofa)* (TSC Act);
- *Invasion of native plant communities by African Olive Olea europea L.sunsp. cuspidate (Wall ex G.Don Ciferri)* (TSC Act);
- *introduction and establishment of exotic rust fungi in the order Pucciniales pathogenic on plants in the order Myrtaceae* (TSC Act);
- *loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants* (TSC Act);
- *competition and land degradation by rabbits* (EPBC Act);
- *Competition and land degradation by unmanaged goats (*EPBC Act*);*
- *dieback caused by the root-rot fungus (Phytophthora cinnamomi) (*EPBC Act*);*
- *infection of amphibians with chytrid fungus resulting in chytridiomycosis (*EPBC Act*);*
- *land clearance (*EPBC Act*);*
- *loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants (*EPBC Act*);*
- *loss of terrestrial climatic habitat caused by anthropogenic emissions of greenhouse gases (*EPBC Act*);*
- *predation by European red fox (*EPBC Act*);*
- *predation by feral cats (*EPBC Act*);*
- *predation, Habitat Degradation, Competition and Disease Transmission by Feral Pigs (*EPBC Act*);*

- *the biological effects, including lethal toxic ingestion, caused by Cane Toads (Bufo marinus) (*EPBC Act*);*
- *the degradation of native riparian vegetation along New South Wales water courses (FM Act); and*
- *instream structures and other mechanisms that alter natural flow (FM Act).*

4.6.2.13 Action Group Issue 13 - Adequacy of Assessment

The following issue was raised in the EnviroFactor Report and referenced / summarised within the TAG submission (21948), as well as the submissions from UDAG (22639) and UDEN (22639):

Adequacy of Assessment

The submissions from UDEN (22639); UDAG (22639) and TAG (21948) assert that "*the assessment as presented in the URS Biodiversity Report has a variety of deficiencies which make it inadequate for approval authorities to effectively assess the impact of this development.*" – UDAG (22639)

Submission point 3 from TAG (21948) states that there are several inaccuracies within the Biodiversity report. "*These include the following:*

f) *inadequate vegetation mapping which has left large sections of the project area unmapped*
g) *inappropriate survey effort which has potentially underestimated the area of critically endangered and endangered ecological communities and threatened species present on the project area*
h) *unexplained paucity of survey findings*
i) *failure to identify a number of vegetation communities found on the project area as comprising endangered ecological communities*
j) *failure to identify Bothriochloa biloba found on the project area as a threatened species*
k) *omission of a significant number of ecological communities and threatened species from survey and assessment that potentially occur on the project area*
l) *a flawed assessment of the major impacts associated with the project including habitat loss and fragmentation and loss of essential habitat components (e.g. tree hollows, feed trees)*." - TAG (21948)

EnviroFactor (TAG (attachment) (21948)) asserts that the Biodiversity Report as presented in the EA is not consistent with DECC 2007 guidelines which states that outcomes of assessment should be presented as significant or not significant. Instead, the EA uses None, Potential or Adverse.

EnviroFactor raises a concern regarding the adequacy of assessment conclusions which is presented in the UDEN (22639) submission: "*No explanation is tendered as to why the loss of tree hollows as a result of this proposal will not impact on local populations of threatened species dependent upon hollows for breeding and roosting such as the Turquoise Parrot, Nyctophilus timoriensis and Little Lorikeet*." - UDEN (22639)

Response

Sections 4.6.2.3, 4.6.2.5, 4.6.2.6, 4.6.2.7, 4.6.2.8, 4.6.2.9, 4.6.2.10, 4.6.2.11 and **4.6.2.12** discuss the adequacy of the broader biodiversity assessment. These sections have addressed the points raised above with respect to; survey effort, impact assessment and vegetation community mapping.

4 Response to Submissions

It was noted in **Appendix F** in Volume 2 of the EA that *Bothriochloa biloba* was one of the ground storey species found within the grassland formation during the 2009/2010 surveys. Verification of the location and distribution of this species would be undertaken as part of the targeted flora pre-clearance surveys.

AOS and SIC assessments have been developed using Project area knowledge, ecological expertise, the 'precautionary principle', the principles of ESD (**Chapter 20** in Volume 1 of the EA) and in accordance with *EPBC Act Policy Statement 1.1 Significant Impact Guidelines Matters of National Environmental Significance* (2009) and the *Threatened Species Assessment Guidelines – The Assessment of Significance* (DEC 2007). The AOS terminology of None, Potential or Adverse has been used as concluding statements within each of the AOSs (refer to **Appendix D1** of this Report). **Appendix F** in Volume 2 of the EA provides a definition for each of these terms. This definition is repeated below:

- **None:** The results of the AOS indicate that the Project would not have an impact on the species, population or ecological community;
- **Potential:** The results of the AOS indicate that the Project has the potential to impact on the species or the associated habitat for the species, population and community; and
- **Adverse:** The results of the AOS indicate that the Project would have an adverse impact on the species or the associated habitat for the species, population and community.

This terminology has been accepted by the various regulators and is considered relevant for a linear Project for which the impact on threatened species is highly variable.

The impacts relating to the loss of hollow bearing trees on hollow dependent fauna species has been addressed within the EA (**Section 6**, **Appendix F** in Volume 2 of the EA) as well as through the AOS and SIC assessments (refer to **Appendix D1** and **D2** of this Report), and also within the revised **Section 7** (**Appendix D4**) of this Report.

4.6.2.14 Action Group Issue 14 - Paucity of findings as a result of inadequate assessment

The following issue was raised in the EnviroFactor Report and referenced / summarised within the TAG submission (21948), as well as the submissions from UDAG (22639) and UDEN (22639):

Paucity of findings as a result of inadequate assessment

The submissions from UDEN (22639); UDAG (22639) and TAG (21948) assert that there is an unexplained paucity of survey findings which has led to further inaccuracies throughout the report.

EnviroFactor (TAG (attachment) (21948)) notes that a number of threatened species likely to occur on or within habitat in the Project area have been omitted from the EA:

- *Anomalopus mackayi* – is likely to occur towards the west edge of the Project area and should be assessed;
- *Chalinolobus picatus* – is likely to occur towards the western edge of the Project area and should be assessed;
- *Furina dunmalli* – is likely to occur towards the western edge of the Project area and should be assessed;
- *Litoria booroolongensis* – may occur in Project area and should be assessed;
- *Oedura rhombifer* – may occur on the Project area and should be assessed;

4 Response to Submissions

- Stripe-faced Dunnart – may potentially occur in the Bonshaw area and should be assessed; and
- Eastern Cod – occurs in the Clarence catchment with records west of Lismore so should be included in the assessment.

Response

Sections 4.6.2.7 and **4.6.2.11** of this Report provide detailed responses regarding the submissions on adequacy of the assessment.

Species specific responses to the above mentioned items finding and are provided below:

- Five-clawed Worm Skink *(Anomalopus mackayi*) – The species range coincides with the western most tip of the proposed alignment. In this area, the species is known to occur in heavy, black and grey, alluvial cracking clay soils, showing no preference for any particular vegetation types. This species was excluded in the habitat assessment undertaken as part of the EA, as this species was only *predicted* to occur based on CMA database results and is not *known* to occur within the Project area CMAs. Further, no results exist for this species within NPWS Atlas results or the Commonwealth Protected Matters Search Tool (PMST) results for the Project area.
- Little Pied Bat *(Chalinolobus picatus)* – The species' most easterly range limit does not extend further than Inverell LGA (Churchill 2008). The proposed alignment extends some 5km into this LGA at the western edge. Consequently, the western extent of the proposed alignment is beyond the eastern distribution of the species as indicated by Atlas records. This species was determined to be unlikely to occur in the habitat assessment undertaken as part of the EA. This species was only *predicted* to occur based on CMA database results and is not *known* to occur within the relevant Project area CMA's, and no results exist for this species within NPWS Atlas results for the Project.
- Dunmall's Snake *(Furina dunmalli)* – The known distribution of the species extends from near the Queensland border throughout the Brigalow Belt South and Nandewar bioregions, as far south as Ashford in New South Wales (NSW) (DSEWPaC 2012). Ashford is in close proximity to the proposed alignment (< 5km). This species was excluded in the habitat assessment undertaken as part of the EA, as this species was only *predicted* to occur based on CMA database results and is not *known* to occur within the relevant CMA, in addition no results exist for this species within NPWS Atlas results for the Project.
- Booroolong Frog (*Litoria booroolongensis*) – The current geographic distribution of the Booroolong Frog extends from two streams near Tamworth in northern NSW to the Southern Highlands in Victoria. Though this represents a large extent of occurrence, the area of occupancy of the species is likely to represent only a tiny portion of this range (DEWHA 2007). Tamworth is located more than 200km south of the Project. It is considered unlikely that this species would occur within the Project area and therefore it has not been considered within the EA and would not need to be the subject of targeted threatened species searches.
- Zig-zag Velvet Gecko (*Oedura rhombifer*) – Scientific literature on the species distribution shows historical records from along the NSW/Queensland border within Inverell LGA. However it should be noted that in NSW, the species is known from only three single specimens, including Warialda, Bebo State Forest, and Arakoola Nature Reserve (NSW DEC 2005). All locations of which are west of the proposed alignment, and not in close proximity to the Project (> 25km). It is considered unlikely that this species would occur within the Project area and therefore it has not been considered within the EA and would not need to be the subject of targeted threatened species searches.

- Stripe-faced Dunnart (*Sminthopsis macroura*) – This species is found in native dry grasslands and low dry shrublands, often along drainage lines in the Border-Rivers / Gwydir CMA. In the Border-Rivers / Gwydir CMA, the species' range is in the western portion of the CMA, however there are some scattered records in the eastern portion of the CMA. This species was excluded in the habitat assessment undertaken as part of the EA, as this species was only *predicted* to occur based on CMA database results and is not *known* to occur within the relevant CMA, in addition no results exist for this species within NPWS Atlas results for the Project area.
- Eastern (Freshwater) Cod (*Maccullochella ikei*) – The species (listed under the FM Act and EPBC Act) occurs within the Project area; with a single record from a tributary of the Clarence River (2003), 5 km south of Tabulum. This single record appears to be the only recent record in the vicinity of the alignment (NSW I&I Records Viewer 2012). This species is also stocked[21] as part of NSW DPI, Native Fish Stocking program, within waterways within the Project area. The AOS and SIC assessment undertaken for this species, since submission of the EA concludes that there would not be a significant impact on the species provided mitigation measures are implemented.

4.6.2.15 Action Group Issue 15 - Accuracy of the Biodiversity Assessment

The EnviroFactor Report (TAG (attachment) (21948)) raised the following concern which was summarised in the TAG Submission (21948) and also discussed within the UDEN submission (22639):

Accuracy of the Biodiversity Assessment

EnviroFactor (TAG (attachment) (21948)) asserted that there were "*contradictions between results and assessments [within the EA]:*

a) *The report states that vegetation clearing will increase the ability of foxes to access remnant areas (e.g. AOS for woodland birds). However, the SIC for the Quoll states that the project won't contribute to the spread of foxes.*
b) *Field survey results show that V. troughtoni (Eastern Cave Bat) was 'possibly' recorded and the species is listed in the fauna survey results yet AOS states that this species was not identified during survey.*
c) *The report states that Dichanthium setosum was 'detected during field surveys conducted within the broader study area' implying it was not found within the transmission line easement but contradicts this statement later with 'the species was found in fairly constricted locations within the easement and study area'."* - TAG (attachment) (21948)

TAG (21948) pointed out in their submission that there were a number of inconsistencies between the fauna survey effort as stated and the results presented. "*The poor survey results are of concern, as is the failure of the report to acknowledge the paucity of records. This along with the inconsistencies in the survey effort described and survey maps throw severe doubt on the effectiveness of the survey. It is our opinion the results of this survey are at best inadequate and at worst unreliable for effective impact assessment.*" - TAG (21948)

[21] Fish stocking is the practice of raising fish in a hatchery and releasing them into a river, lake, or the ocean to supplement existing populations, or to create a population where none exists. Stocking may be done for the benefit of commercial, recreational, or tribal fishing, but may also be done to restore or increase a population of threatened or endangered fish in a body of water closed to fishing. Found on the World Wide Web: http://en.wikipedia.org/wiki/Fish_stocking

4 Response to Submissions

The UDEN (22639) submission points out that the species lists for a number of communities are incomplete, this includes many of the various communities which comprise the CEEC.

Response

Responses to points a) to c) are provided below:

a) Revisions to the AOS and SIC assessments deal with foxes slightly differently due to the assessment criteria. The differences in the manner in which assessments are dealt with relates to the wording of the NSW AOS and the Commonwealth SIC assessments. AOSs and SICs ask a different question, described below:

   The relevant AOS item questions *"whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process".* KTPs relevant to the Project and this question include: *Predation by the European red fox and Predation by feral cats.* The relevant SIC item questions whether the action would *"result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat".* As such, the AOS is questioning whether a KTP will be increased as a result of the Project, and the SIC is asking if invasive species will become established as a result of the Project. In this instance, predation by the European red fox may be slightly increased due to vegetation clearing associated with the Project (noted in the AOS), however as foxes are already established within the area, the SIC question is answered differently, as the Project will not result in the establishment of foxes within the region.

   Full AOS and SIC assessments can be found in **Appendix D1** and **D2** of this Report respectively.

b) The AOS for Eastern Cave Bat (*Vespadelus troughtoni)* has been updated and can be found in **Appendix D1** of this Report. The AOS, as per the Anabat survey records that were outlined within **Appendix F** of the EA, indicate that the species was recorded with a 'possible' detection probability.

c) **Appendix F** in Volume 2 of the EA (refer to **Section 5.2.2** and **Appendix I** of Appendix F, of the EA) stated that *Dicanthium setosum* was:

   a. "*detected during field surveys conducted within the broader study area and a small population was also found within the easement"; and*
   b. "observed in scattered patches on the same property (as per the revised **Figure 9a** of **Appendix D5**) within the community Natural Grasslands on Basalt and Fine Alluvial Plains".
   c. Targeted pre-clearance surveys would aim to determine the full extent of this species within the alignment and along associated access tracks.

4 Response to Submissions

4.6.2.16 Action Group Issue 16 - Incorrect assessment of TECs / inconsistencies with DECC 2007 assessment guidelines

The EnviroFactor Report was included as an attachment to the TAG submission (TAG (attachment) (21948)). The following issue was raised in this report and referred to in the TAG submission (21948):

Incorrect assessment of TECs / inconsistencies with DECC 2007 assessment guidelines

The EnviroFactor Report (TAG (attachment) (21948)) and TAG submission (21948) asserts that Swamp Sclerophyll Forest – is incorrectly assessed. The EA states this is a widespread community within NSW, hence Project impact would not be significant. This is incorrect according to EnviroFactor, who point out that the community has a wide geographical distribution, but occurrences are patchy and highly disjunct. 2,500ha of this community are believed to remain in the Clarence Valley.

The submissions also assert that the EAs reasoning is also inconsistent with DECC 2007 assessment guidelines which require the impact to be assessed at a local scale. The assessment gives no indication of the size of the local occurrence to be impacted.

Response

The AOS undertaken for *Swamp sclerophyll forest on coastal floodplains of the NSW North Coast, Sydney Basin and South east corner bioregions* was based on a range of scientifically robust information relevant to NSW and available map data, including, but not limited to:

- DEC (2005) Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions – profile: http://threatenedspecies.environment.nsw.gov.au/tsprofile/profile.aspx?id=10786
- DECC (2007) Swamp Sclerophyll Forest on Coastal Floodplains. Identification Guidelines for Endangered Ecological Communities – guidelines: http://www.environment.nsw.gov.au//resources/threatenedspecies/EEC_Swamp_Sclerophyll_Forest_241207_Low_Res.pdf.
- NSW Scientific Committee (2004) Swamp sclerophyll forest on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions - endangered ecological listing: http://www.environment.nsw.gov.au/determinations/SwampSchlerophyllEndSpListing.htm.

The outcome of the AOS (refer to **Appendix D1)** for this TEC, in the EA, concluded that the ecological community would likely be 'adversely' impacted as a result of the Project. Mitigation measures for all TECs have been outlined in **Section 7.2** (refer to **Appendix D4**) to address; vegetation clearance, pre-clearance surveys and restricted access to TEC areas. Offset options for TECs are currently being negotiated between TransGrid and OEH regarding this community.

The NSW Scientific Committee final determination (2011) for the TSC Act listed TEC, *Swamp sclerophyll forest on coastal floodplains of the NSW North Coast, Sydney Basin and South east corner bioregions* states the following:

"…the remaining area of Swamp Sclerophyll Forest on Coastal Floodplains is likely to be considerably smaller and is likely to represent much ***less than 30% of its original range****. For example, there were less than 350 ha of native vegetation attributable to this community on the Tweed lowlands in 1985 (Pressey and Griffith 1992),* ***less than 2500 ha on the Clarence floodplain*** *in 1982 (Pressey 1989a)."*

4 Response to Submissions

The occurrence of this TEC within the study area (study area as defined by DECC 2007) was assessed where access was available. The adverse impact conclusion (refer to **Appendix D1**) for this TEC is based on the information that some clearing of this community would be required as a result of the Project. This clearing is not likely to result in a risk of extinction to this TEC. However, it would reduce the amount of this community within its local occurrence.

DECC (2007) notes that *"Critical thresholds of remnant size, and species and structural composition required to maintain ecological functioning will vary from ecological community to ecological community.*" The amount of vegetation to be cleared from within this community as a result of the Project has been assessed as not being large enough to lead to potential risks of extinction to the local occurrence of this community. In addition, changes to species and structural composition are not likely to be significantly altered outside of the Project area.

The AOS for this community notes that*: "The Project will require the clearing of and disturbance to, Swamp Sclerophyll Forest and will result in increased edge effect within the Project area. The Project may result in the establishment or spread of exotic species which may result in increased competition for native species. Assuming mitigation measures are adopted (***Appendix D4***), it is not considered likely that the Project would result in a substantial change in the species composition of the Swamp Sclerophyll Forest outside the Project area; however there will be clearing of vegetation that constitutes this community within the Project area."*

Given this finding, and taking into account the definitions provided within the *Threatened species assessment guidelines: The assessment of significance* DECC (2007)*,* it is considered that a suitable assessment was conducted for this community through the original AOS.

4.6.2.17 Action Group Issue 17 - Assumptions around fauna mobility

The UDEN (22639) submission raised concerns about the following issue:

Assumptions around fauna mobility

The submission notes the following: *"Species which live in the habitat to be cleared can't simply move into what habitat remains, as the habitat that remains will already be occupied. It is also highly unlikely that the resident fauna will readily share limited feeding and breeding resources with the clearing refugees".* – UDEN (22639)

Response

It is acknowledged, scientifically, that if fauna are required to disperse into adjacent habitat that there would be a higher level of competition for a smaller amount of resources within these areas.

As discussed in **Section 6**, **Appendix F** of the EA, the Project has the potential to significantly increase habitat fragmentation primarily through clearance of vegetation for the Project.

TransGrid in consultation with OEH and DSEWPaC is in the process of negotiating an appropriate offset which would be set aside in perpetuity for the protection and conservation of biodiversity which would provide protected fauna with replacement habitat. **Section 4.6.1.7** and **Section 7.3** of **Appendix D4** of this Report provides further information regarding the offset strategy for the Project.

4 Response to Submissions

4.6.2.18 Action Group Issue 18 - Underestimation of Biodiversity impacts from the Project

The submission and submission attachments from TAG (21948); UDAG (22639) and UDEN (22639) draw the following conclusion:

Underestimation of Biodiversity impacts from the Project

"The independent authors of the Envirofactor report suggests that the proponent underestimates the impacts that the transmission line will have on biodiversity." - UDEN (22639)

Response

As noted in previous responses throughout **Section 4.6**, as a result of access limitations, a comprehensive biodiversity survey across the entire Project area was not possible as part of the EA. This remains the case. Therefore a precautionary approach was employed to the biodiversity assessment within **Appendix F**, Volume 2 of the EA. This precautionary approach has allowed both TransGrid and the regulators to understand the ecological conditions and the impact that the Project could potentially cause to local and regional biodiversity.

Surveys were however, undertaken in areas identified as being likely to be representative of the majority of the project area and based on a survey effort recommended in the relevant guidelines.

TransGrid has recognised that further pre-clearance surveys would be required to confirm the final Project impacts and mitigation strategies. This approach has been agreed with both OEH and DSEWPaC. These surveys aim to close any remaining survey gaps, outline impacts on biodiversity and help inform discussions between TransGrid and regulators in relation to the biodiversity offset that would be required for this Project.

4.6.2.19 Action Group Issue 19 - Conservation imperatives and appropriateness of an offset strategy for Box Gum Woodland Clearance

The submission from UDEN (22639) raises the following issue:

Conservation imperatives and appropriateness of an offset strategy for Box Gum Woodland Clearance

The submission states that in the case of Box-Gum Woodland, less than 10% is estimated to remain nationally in all its various conditions. According to UDEN (22639), it is questionable whether the removal of any further areas of this community can be adequately offset. The submission comments that even with an offset provided, the reality is that in the short to medium term, there is a net loss (i.e. areas of the EEC / CEEC are cleared): *"In the time lag between the clearing and when the offset area finally achieves similar habitat values to those lost (for hollow-bearing trees 140 years or more) local species extinctions will occur, particularly in fragmented habitats."* - UDEN (22639)

Response

The offset would be based on detail provided in **Appendix D4** and pre-clearance survey data. Detailed discussions have commenced with OEH and DSEWPaC in relation to the scale, geographic location, and biodiversity assets that would need to be reflected in an agreed offset outcome. TransGrid is committed to reaching an agreement with both OEH and DSEWPaC that would meet the requirements, principles and guidelines for offsetting established by those bodies. The final offset details and outcome for the Project are yet to be determined in agreement with OEH and DSEWPaC.

4 Response to Submissions

While some revegetation efforts may contribute towards increasing the size and security of Box Gum Woodland, it would be through negotiation with OEH and DSEWPaC that existing vegetation, in this case vegetation classified as Box Gum Woodland, would be confirmed as suitable for an offset. Consequently, there is unlikely to be a 140 year time lag, as suggested by the submission, as the offset would seek to protect existing Box Gum Woodland vegetation features and associated habitat values, as soon as practicable. Also, it is likely that any BGW identified as suitable for an offset would not be part of an existing protected area, however, if it were to form part of the offset for the Project, it would then be protected for the long term.

Mitigation measures outlined within **Appendix D4** provide guidance on vegetation clearing strategies that are designed to minimise impacts on local fauna within the Project area. It is considered that implementation of such strategies are likely to reduce the risk of impacts to local fauna, and in turn, minimise the potential for any local extinctions.

4.6.2.20 Action Group Issue 20 - Additional survey and the provision of management plans

The submissions from UDEN (22639) and TAG (21948) raised the following points:

Additional survey and the provision of management plans

UDEN (22639) asserts that the deficiencies in the Biodiversity report should be enough to suggest as a minimum a new round of surveys.

UDEN (22639) also notes that management plans for the Project are not yet developed and the offset strategy is yet to be developed. The absence of the various environmental management plans upon which mitigation of the proposal impacts are contingent, according to UDEN (22639), makes an assessment of the impacts of the Project difficult. UDEN (22639) asserts that "*Until a Biodiversity Offset Strategy is developed no effective assessment of this proposal can be made by an approval authority."* - UDEN (22639).

The TAG submission (21948) similarly asserts that the impact assessment is dependent on the Project and implementation of various management plans and as such is an inappropriate document to assess the Project.

Response

As noted in previous responses throughout **Section 4.6** of this Report, as a result of access limitations, a comprehensive biodiversity survey across the entire Project area was not possible. However, pre-clearance surveys are proposed post approval to comprehensively target threatened flora that have the potential to occur within the Project area as well as threatened fauna, populations and ecological comminuties that have the potential to occur in areas not yet surveyed. They would also target additional, more recently listed/recorded, threatened biota, considered within the EA, but not surveyed for in the 2009/2010 surveys. These targeted surveys would be conducted across the Project area. This approach has been agreed with the OEH and DSEWPaC and would inform the final offset strategy under development with OEH and DSEWPaC.

It is also standard practice with major projects across NSW that Project related management plans and strategies for Project construction and operation be developed post approval in agreement with all of the relevant agencies, DPI, OEH and DSEWPaC.

4 Response to Submissions

4.6.3 Community Submissions

4.6.3.1 Community Issue 1 - General objection to detrimental impacts on biodiversity

The submissions from Justyn Comer (21892); Paulene Brookes (21847); Sandor von Kontz (23459); Neroli Endacott (21970); Peter Woodrow (20521); Name withheld (21914); Name withheld (21916); Julia Harpham (attachment) (22824); Ruth Matthews (21590, 21592, 21618); Craig Rose (21918); Name withheld (21910); Charmaine Harrison (CD-1); Julia Harpham (21957); Merlene Madge (21946); Pearl Austin (22625); Sandra Smith (23073); Edward Hickson (21986); Janelle Nairn-Ambrose (CD-5); and Name withheld (21951) raised the following issue:

General objection to detrimental impacts on biodiversity

These submissions raise objections to the Project on the basis of impacts to the region's biodiversity. A selection of comments is presented below.

"*The area will suffer irreparable ecological damage as a result of the project"* - Name withheld (21916)

"The Project will have an impact on the local wildlife." - Merlene Madge (21946)

"This is going to destroy one of the most extraordinary places where time has stood still and allowed fascinating flora and fauna to live and flourish!!!" - Justyn Comer (21892)

"This activity could potentially cause the disappearance of much local wildlife and many species of plants and animals may never recover from the disturbance." - Neroli Endacott (21970)

"There are environmentally protected birds and animals in the area whose habitat would be distressed if this project goes ahead." - Edward Hickson (21986)

"There will be permanent destruction of native endangered habitat." - Name withheld (21951)

"The proposed line passes over country that it would be a travesty to clear regardless of whether or not there are threatened species involved." - Sandra Smith (23073)

Response

TransGrid acknowledges that the proposed Project would have an impact on local biodiversity. Impacts on biodiversity have been avoided where possible, as outlined in **Appendix F** in **Volume 2** of the **EA**, through the following means:

- a detailed route selection process was undertaken to identify and assess environmental constraints within the study area (*Constraints Identification and Preferred Corridor Report,* URS, 2009 found within **Appendix B**, Volume 2 of the EA). The route selection process identified: ecological, heritage, visual, social, surface water and ground water, geology, soils and topographic constraints, so as to guide the final location of the Project to avoid impacting on these features;
- sections of the Project has been located in cleared areas to avoid native vegetation and habitat, specifically to avoid threatened species, populations and ecological communities;
- during route selection where topography allowed (i.e. gullies and escarpments) vegetation has been designed for retention, where conductor height is sufficient to make clearing unnecessary;
- access track locations have been selected with consideration of minimising disturbance to vegetation and protected ecological features;

- where possible the alignment has been selected to cross drainage lines at right angles to minimise the need for riparian vegetation removal; and
- use of the existing easement within alignment east reduces the clearing requirement for the Project by avoiding potential clearing requirements by seventy-five percent.

A comprehensive biodiversity offset is also currently being developed between TransGrid and OEH in consultation with DSEWPaC (refer to **Section 4.6.1.7**). The proposed pre-clearance surveys would help inform the nature, scale and location of the biodiversity offset.

4.6.3.2 Community Issue 2 - Potential detrimental impacts upon specific fauna species

The submissions from RS & MO Dowe (22633); Sandor von Kontz (23459); and Paulene Brookes (21847) raised concerns regarding:

Potential detrimental impacts upon specific fauna species

d) The submission from RS & MO Dowe (22633) expressed concern over loss of habitat connectivity and implications of loss of habitat for Koalas within the region.
e) Sandor von Kontz (23459) raised concerns for the Grey Headed Flying Fox (*Pteropus Poliocephalus*), which is seen regularly on his property. This submission notes increased threats to this species due to clearing and fragmentation of remnant forest and "*other vegetation remnants used for roosting sites*" (Threatened Species of the New England Tablelands and North West Slopes of NSW; NSW NPWS 2003), which the submission notes, is likely to occur if the Project is to proceed.
f) Sandor von Kontz (23459) also specifies risks to the Squatter Pigeon (*Geophaps Scripta*) and the Turquoise Parrot (*Neophema Pulchella*), which is said to breed on a property near the alignment.
g) Paulene Brookes (21847) raised specific concerns about impacts on lyrebirds and Koalas: "I also wish to object to the TransGrid proposed project on the basis of the Ecological Impacts on the ecology and landscape with our property being the home of lyrebirds and Koalas (photograph attached)."- Paulene Brookes (21847)

Response

The potential impacts of the Project on the following threatened species; Koala (*Phascolarctos cinereus*), Grey Headed Flying Fox (*Pteropus Poliocephalus*), Squatter Pigeon (*Geophaps scripta*) and Turquoise Parrot (*Neophema pulchella)* have been addressed and can be found in the revised AOS and SIC assessments (**Appendices D1** and **D2** of this Report respectively). In addition **Section 7**, **Appendix F** in **Volume 2** of the **EA** has been revised (refer to **Appendix D4** of this Report) to ensure that pre-clearance surveys are completed by qualified ecologists and these species are avoided and protected accordingly, or offset, if impacts are unavoidable.

The potential impact of the Project on Lyrebirds has not been assessed individually as they are not listed as threatened under State or Commonwealth legislation. Mitigation measures to reduce impacts to all native fauna have been included within the **Section 7** (refer to **Appendix D4**).

TransGrid acknowledges that the Project would potentially impact on a range of both common and threatened species. A number of alternatives to the Project were considered and it was determined that transmission network augmentation was the only viable approach and the alignment for the proposed Project is the most suitable location for the augmentation. The EA provides a

comprehensive assessment of the Project and the impacts have been assessed and strategies to avoid and mitigate those impacts form a key part of the EA. Where impacts cannot be avoided, the suite of mitigation measures contained in **Chapter 19 Draft Statement of Commitments** of Volume 1 of the EA would be implemented during construction and operation, including appropriate offsets where these are required. TransGrid has determined that the Project is both required and justified as summarised in **Section 20.5** of Volume 1 of the EA.

4.6.3.3 Community Issue 3 - Impacts to significant threatened vegetation communities and threatened species, including those listed under the EPBC Act

The submissions from Ralph Weatherley and Sylvia Grigg (22631); Peter Woodrow (20521); Julia Harpham (21957); Susan Bailey (21953); Justyn Comer (21892); Sandor von Kontz (22648, 23459); Julia and Philip Harpham (21957); JJ Spedding (22619); Pearl Austin (22625); and RS & MO Dowe (22633) raised a concern regarding:

Impacts to significant threatened vegetation communities and threatened species, including those listed under the EPBC Act

The above submissions specify an objection to the Project based on the potential impacts to a number of State and federally listed vegetation communities and flora and fauna species:

"The transmission line will impact on the communities of White Box, Blakely's Red Gum, Orange gums, Lyrebirds and Koalas." - Ralph Weatherley and Sylvia Grigg (22631)

"The proposed route for the transmission lines through the Tenterfield region will impact dramatically on a number of indigenous fauna and flora listed as environmentally significant. In particular the proposed route will impact on the Conservation of EPBC Act listed communities White Box, Blakely's Red Gums, Orange Gums, Lyrebirds and Koalas." - Susan Bailey (21953)

"The proposed route for the transmission lines through the Tenterfield region will impact dramatically on a number of indigenous fauna and flora listed as environmentally significant. In particular the proposed route will impact on the Conservation of EPBC Act listed communities White Box, Blakely's Red Gums, Orange Gums, Lyrebirds and Koalas." - Peter Woodrow (20521)

The submission from Sandor von Kontz (22648) comments that the Project has unacceptable impacts on matters of national environmental significance.

Response

Sections 4.6.2.4, 4.6.2.5, 4.6.2.6, 4.6.2.7, 4.6.2.8, 4.6.2.11, 4.6.2.12 and **4.6.3.2** provide detailed responses regarding the NSW and Commonwealth listed threatened biota raised above. In addition **Appendix F** in Volume 2 of the EA, **Appendices D1, D2, D3** and **D4** also address threatened biota likely to be impacted by the Far North NSW Project.

The potential impacts on Matters of National Environmental Significance (MNES) have been addressed in **Section 6**, **Appendix F** in Volume 2 of the EA and specifically in **Appendix D2**.

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4.6.3.4 Community Issue 4 - Objection to impacts on the unique flora of Moorabinda

The submission from Julia Harpham (21957) raises the following concern:

Objection to impacts on the unique flora of Moorabinda

The submission comments that there are unique subspecies of Eucalyptus species within their property and along the proposed alignment: *"we have our own species which has developed Eucalyptus caleyi subsp. Ovendenii (Ovenden's Ironbark) on Moorabinda with a few trees on adjoining properties, but also it was very likely that there were other species yet to be identified due to the interesting geographical changes in land, and the protective land forms. The Ovenden's Ironbarks were listed as vulnerable and we understand may be raised to endangered. Some were identified on the proposed easement."*- Julia and Philip Harpham (21957)

Response

The Biodiversity assessment presented in **Appendix F** in Volume 2 of the EA has given consideration to the potential impacts on the Vulnerable (TSC Act and EPBC Act) Ovenden's Ironbark (*Eucalyptus caleyi* subsp *ovendenii*). Refer to the relevant AOS and SIC assessments (**Appendix D1** and **D2** of this Report).

All threatened flora, fauna ecological communities and populations, protected by FM Act, TSC Act and/or EPBC Act would be targeted comprehensively in pre-clearance surveys in areas not yet surveyed. Surveys would also target additional, more recently listed/recorded, threatened biota, considered within the EA, but not surveyed for in the 2009/2010 surveys to confirm the Project's impacts and ensure appropriate mitigation and offset strategies.

4.6.3.5 Community Issue 5 - Project impacts to flora and fauna and fragmentation impacts

The submissions from William Harpham (23626); Julia Harpham (attachment) (22824); Sandor von Kontz (23459); RS & MO Dowe (22633); Susan Yeates (21924) and Name Witheld (21908) raised a concern regarding:

Project impacts to flora and fauna and fragmentation impacts

The submission from William Harpham (23626) comments that the Project would destroy fauna and flora and then effectively sever fauna and flora corridors.

Julia Harpham (attachment) (22824) noted that landholders are very concerned about fragmentation of habitat and loss of trees.

The submission from Sandor von Kontz (23459) notes that *"...the Brush-tailed Rock Wallaby is frequently seen in the proposed corridor and is threatened by "loss and fragmentation of habitat" (NPWS 2003) through clearing and frequent fires, both of which are likely due to the proposed line."* - Sandor von Kontz (23459)

The submission from RS & MO Dowe (22633) raises concerns over loss of habitat connectivity and implications the loss of habitat would have on Koalas within the region.

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The submissions from Susan Yeates (21924) and Name Withheld (21908) also refer to the potential fragmentation of EPBC communities located on the Moorabinda property (through which the alignment passes). The submissions assert that the impacts of fragmentation on these communities have not been properly assessed.

Response

Habitat fragmentation can lead to a reduction in landscape connectivity, which can cause a loss of essential pathways and habitat corridors that facilitate the movement of native flora and fauna. Potential impacts of the Project in relation to habitat fragmentation on both flora and fauna have been addressed in **Section 6**, **Appendix F** in Volume 2 of the EA.

The potential impact of the Project on the Brush-tailed Rock Wallaby (*Petrogale penicillata*) and the Koala (*Phascolarctos cinereus*) has been assessed against NSW and Commonwealth criteria, with results presented in the relevant AOS and SIC assessments (refer to **Appendix D1** and **D2** of this Report).

4.6.3.6 Community Issue 6 - Project impacts on the Border Ranges World Heritage listed area

The submission from Julia Harpham (21957) raises the following concern:

Project impacts on the Border Ranges World Heritage listed area

"The line passes over the Border Ranges which has been designated as a wildlife corridor and a World Heritage listed area, in order to protect species along it. The line would greatly impact upon this. We object on the grounds that as a World Heritage Area it should not be impacted by this proposal." - Julia and Philip Harpham (21957)

Response

The Border Ranges National Park is listed as part of the Gondwana Rainforests of Australia World Heritage Area. It is located over 50km north of the proposed alignment. The Project does not impact upon any of the areas that make up this World Heritage Area.

Wildlife corridors facilitate the movement of fauna between patches of habitat, and are important to the migratory pathways for the viability of regional populations. The potential impact of the Project on wildlife corridors in terms of the various protected vegetated areas including; national parks, state forests and wilderness areas has been assessed in **Section 6.1.8**, **Appendix F** in Volume 2 of the EA.

4.6.3.7 Community Issue 7 - Construction impacts on flora and fauna

The submission from Julia Harpham (22824) (attachment) raised a concern regarding:

Construction impacts on flora and fauna

The submission from Julia Harpham (22824) (attachment) states that: *"Noise from the building using jackhammers etc as described in the proposal will negatively impact the many rare and protected species which occur within the easement."* - Julia Harpham (22824) (attachment)

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Response

Noise related impacts may include disturbance to native biota in the areas surrounding the Project. It is considered that any such impacts are likely to be minor, as pre-clearance surveys and two-stage clearing procedures (outlined in **Appendix D4** of this Report) are likely to remove or identify sensitive biotic receptors which can be relocated from within the Project area prior to construction if necessary. **Section 4.10.3.2** of this Report provides a response regarding construction noise impacts on wildlife.

4.6.3.8 Community Issue 8 - Fauna species not identified within the assessment

The submissions from Pearl Austin (22625); Sandor von Kontz (23459); Sandor von Kontz (22648); and Julia Harpham (21957) raised a concern regarding:

Fauna species not identified within the assessment that are believed to be present

These submissions list a number of fauna species that the submissions assert are present within the study area, however which have not been identified in the EA.

Species found on the property of Pearl Austin (22625) include "*wedge tail eagles, quoits, whip tail wallabies, echidnas, little gliders amongst many others"*. - Pearl Austin (22625)

The submissions from Sandor von Kontz (23459 and 22648) state that the Squatter Pigeon, Spotted Tailed Quoll and the Brush Tailed Rock Wallaby have been observed on the property *".. despite the Biodiversity report stating that 'No threatened species listed under the EPBC act were recorded during the survey of the study area."* - Sandor von Kontz (22648)

The submission from Julia and Philip Harpham (21957) notes:

"The following are found in the area (and are not covered adequately in the assessment):

- *Brown Tree Creepers,*
- *Grey Crowned Babblers,*
- *Squatter Pigeons,*
- *Diamond Firetails,*
- *Red Goshawk,*
- *Spotted Harrier,*
- *Little Eagle,*
- *Square Tailed Kite,*
- *Black Tailed Cockatoos,*
- *Spotted Tailed Quoll,*
- *Bush Stone Curlews,*
- *Koalas,*
- *various Frogs,*
- *varieties of bats and flying foxes,*
- various different native mice,
- *different types of owls (all protected)*
- *varieties of small parrots, gliders, wallabies small and large, kangaroos, and snakes."*

- Julia and Philip Harpham (21957)

4 Response to Submissions

Response

Sections 4.6.2.3, 4.6.2.7, 4.6.2.9, 4.6.3.2 and **4.6.3.3** respond to the issues raised above including fauna survey effort, survey adequacy and survey constraints. In addition to these sections, **Appendix D4** of this Report also provides detailed impact mitigation and management strategies regarding biodiversity and all the relative components.

4.6.3.9 Community Issue 9 - Specific flora species present within the area

The submission from Deborah Newell (22614) raised a concern regarding:

Specific flora species present within the area

The submission notes that the native grass *Microlaena stipoides* is present in the area and would be threatened by this action.

"In reviewing the identified native species that will be affected by this development one globally important 'umbrella species' stands out - the native grass Microlaena Stipoides. This is one of the world's wonder plants... It is therefore imperative that it remains protected across all its various native homoclimes and ranges to ensure we have this grass in safe keeping as it may be needed to save the world." - Deborah Newell (22614)

Response

Weeping Grass *(Microlaena stipoides)* is not listed as threatened under State or Commonwealth legislation therefore an individual assessment of the potential impacts of the proposed Project on this commonly occurring species is not required and has not been undertaken.

4.6.3.10 Community Issue 10 - Potential increase in Hendra virus risks

The submission from Julia Harpham (attachment) (22824) raised a concern regarding:

Potential increase in Hendra virus risks

The submission comments that the Project presents a potential increase in occurrence of the Hendra virus due to increased stress levels in flying fox populations resulting from removal of habitat.

Response

There is no scientific evidence to support the proposition that the Project may increase the occurrence of the Hendra virus.

4.6.3.11 Community Issue 11 - Physical obstruction impacts, orientation impacts from HV radiation, and potential EMF impacts

The submissions from Sandor von Kontz (23459); Sandor von Kontz (attachment) (23766); and Julia Harpham (attachment) (22824) raise the following issues as a concern:

Physical obstruction impacts, orientation impacts from HV radiation, and potential EMF impacts

According to Sandor von Kontz (23459), transmission lines present a danger to birdlife – they present a potential obstruction hazard and can act to disorientate wildlife and impact upon breeding. Sandor von Kontz (23766) raises specific concerns for the Grey Headed Flying Fox (*Pteropus Poliocephalus*)

in relation to potential impacts from HV power lines. The submission comments that this species is also at risk of flying into them, and that the disturbance and potential orientation from radiation may impact negatively on their breeding.

The submission from Julia Harpham (attachment) (22824) raises a concern about unknown impacts of EMFs on native wildlife. She comments that the health effects of powerlines on native wildlife have never been studied.

Sandor von Kontz (23459) also comments on the unknown nature of EMF risks: "There is no mention of the impact of the presence of the HV line on flora and fauna and the ecological balance of the highly sensitive woodlands within the Project area. There is still not enough scientific data on the impact of HV transmission lines on the environment to completely ignore the possibility of significant impacts. The precautionary principle should be applied and therefore an impact on the listed communities and species considered as likely. (See the comments of the Parliament of Australia: Senate: Committees: Economics Committee: Eastlink 1996 Chapters 2, 3 and 4 on similar issues.)" - Sandor von Kontz (23459)

Response

Section 4.13.3.2 provides a response regarding the effect of EMF on wildlife.

Impacts resulting from the Project associated with physical obstruction as a result of the Project primarily relate to habitat fragmentation (**Section 6** of **Appendix F** of the EA). The Project will not create a barrier for species traversing from one area to another; however it will pose as an obstacle to species such as birds and bats which may be at risk of collision. A number of indirect impacts may also occur as a result of the Project, discussed in detail in **Section 6** of **Appendix F** of the EA. Mitigation measures have been developed to minimise potential impacts associated with the Project are provided in **Appendix D4**.

The potential impacts of the Project on fauna such as birds and bats, due to physical obstruction with the proposed transmission line have been considered in specific threatened fauna AOS and SIC assessments (**Appendix D1** and **D2** of this Report respectively), which have employed the precautionary principal in their development.

4.6.3.12 Community Issue 12 - Threatened Species listing updates

The submission from Julia Harpham (21957) raised the following issue:

Threatened Species listing updates

This submission comments that since the assessment was completed, further species and communities have been added to the TSC Act.

Response

A detailed literature review was undertaken in 2009 and again in 2010 to identify threatened species, populations and ecological communities listed under the TSC Act, *Fisheries Management Act, 1994* (FM Act) and/or EPBC Act that had the potential to occur within the Project area. The literature on threatened biota obtained between the 2009 and the subsequent 2010 search identified a large number of additional species. Given the nature of the Project location it is likely that there are new records being recorded by a number of people each year.

Pre-clearance surveys are proposed to be conducted post approval. These would target comprehensively threatened flora with the potential to occur across the Project area, as well as threatened fauna, populations and ecological communities (listed in **Appendix D4**) that have the potential to occur in areas not yet surveyed. They would also target additional, more recently listed/recorded, threatened biota, considered within the EA, but not surveyed for in the 2009/2010 surveys. These targeted surveys would confirm existing threatened biota records and determine the likely presence and extent of further threatened biota.

4.6.3.13 Community Issue 13 - Microbat handling protocol

An attachment to the submission Julia Harpham (attachment) (22824) notes a specific concern regarding a stated inaccuracy within the EA:

Microbat handling protocol

The submission comments that the EA states that only vaccinated ecologists with the lyssavirus inoculation would handle microbats. The submission asserts that there is no such thing as a dedicated lyssavirus inoculation, it is actually a rabies virus anti− toxin usually administered as an anti−dote.

Response

Australian bat lyssavirus (ABL) is a virus that can be transmitted from bats to humans, causing serious illness. The virus was first identified in 1996 and has been found in four kinds of flying foxes/fruit bats and one species of insect-eating microbat. Evidence of previous infection has been found in blood tests from a number of other bat species. It is therefore assumed that any bat in Australia could potentially carry the virus. ABL is one of seven types of lyssavirus which are found around the world. ABL is closely related but not identical to rabies, a serious and invariably fatal disease in humans. Rabies vaccine is used to protect against ABL infection (QLD DPI, 2012).

4.6.3.14 Community Issue 14 - Adequacy of Assessment

The submissions from Julia Harpham (21957); David Harpham (21972); Christine Harpham (21934); Richard Harpham (21922); William Harpham (23626); Lynn Takayama (21940); Name withheld (21908); and Edward Hickson (21986) raised a concern regarding:

Adequacy of Assessment

The above submissions either make general comments to this effect, such as: "*the bio-diversity report is inadequate"* - Richard Harpham (21922); or "*the ecological assessment has a variety of deficiencies"* - Lynn Takayama (21940); or include a number of more specific points highlighting the areas of said inadequacy.

Referring to the EnviroFactor Report, the submission from David Harpham (21972) comments on the highlighted deficiencies in the EA, as well as the efficacy of offset strategies.

William Harpham (23626) comments that *"fundamental flaws identified in the Biodiversity Report indicate that the report was either prepared on a shoestring budget or it was prepared by persons who did not, or were not allowed to, undertake a proper assessment."* - William Harpham (23626)

The submission from Julia Harpham (21957) comments that the Ecological assessment was not conducted in a thorough and unbiased manner.

4 Response to Submissions

Response

The biodiversity assessment presented in **Appendix F** in Volume 2 of the EA and additional **Appendices D1** to **D5** of this Report have been prepared in accordance with State and Commonwealth guidelines applicable to major projects. Due to Project related constraints outlined throughout **Section 4.6** there is additional survey work to be completed when access is available to the whole Project area. This work would be completed post approval as pre-clearance surveys in consultation with OEH and DSEWPaC.

4.6.3.15 Community Issue 15 - Adequacy of Assessment of TEC and threatened species

The submission from Julia Harpham (21957) raised a concern regarding:

Adequacy of Assessment of TEC and threatened species

The submission from Julia and Philip Harpham (21957) cites a specific inadequacy of the assessment as being the omission of Dry Rainforest from the list of impacted Threatened Ecological Communities. The submission also comments that the EA failed to identify one of the three EPBC identified communities within the Moorabinda property: *"ALL of the area affected in our property is covered by EPBC, in fact 3 different types, although Transgrid only identifies 2. White Box Yellow Box Blakely's Red Gum Grassy Woodland and Derived Native Grasslands. The third, Dry Rainforest also occurs on the easement in our property, (within and adjacent to the creek beds) but was not identified.*"- Julia and Philip Harpham (21957)

Further to this, the submission comments that Departmental guidelines for threatened species surveys were not followed adequately.

Response

Sections 4.6.2.3, 4.6.2.5, 4.6.2.6, 4.6.2.7, 4.6.2.8 and **4.6.2.9** provide a response regarding the adequacy of the biodiversity assessment.

4.6.3.16 Community Issue 16 - The adequacy of field assessment methodology

The submissions from Julia Harpham (21957); Julia Harpham (attachment) (22824); Sandor von Kontz (23459); and the Envirolink Report (attachment) (23766) raised a number of concerns regarding the following:

The adequacy of field assessment methodology

a) The EnviroFactor Report attached to Sandor von Kontz's submission (23766) comments that the Survey methodology employed within the study falls short of the requirements of the DEC 2004 survey guidelines and may go part way to explaining the very low number of flora species identified.

b) The EnviroFactor Report (attachment) (23766) notes that the assessment provided within the EA was not consistent with DEH 2006 (now SEWPaC) guidelines for the identification of the Critically Endangered Ecological Community (CEEC) - *White Box Yellow Box Blakely's Red Gum Grassy Woodland and Derived Native Grasslands.*

A number of other points raised in the EnviroFactor Report (attachment) (23766) are cited within the above listed community submissions.

4 Response to Submissions

c) Julia and Philip Harpham (21957) comment that the survey methodology was inadequate for a Project of this scale. The submission states that *"The URS biodiversity report relies on old surveys of flora from similar areas, rather than performing their own vegetation mapping."* - Julia and Philip Harpham (21957)

d) Julia Harpham (attachment) (22824) comments that Dry Rainforest is a regionally significant vegetation community but was missed in assessment. *"This regionally significant community should have been targeted in searches as it is habitat for a number of threatened flora species."* - Julia Harpham (attachment) (22824)

e) Julia and Philip Harpham (21957) comment that *"the poor survey results are of concern, as is the failure of the report to acknowledge the paucity of records. This along with the inconsistencies in the survey effort described and survey maps throw severe doubt on the effectiveness of the survey."* - Julia and Philip Harpham (21957)

f) Julia Harpham (attachment) (22824) asserts that *"The sampling method employed to map threatened flora and fauna groups is inadequate and many communities have been omitted. These include:*

- *Dry Rainforest,*
- *Ribbon Gum,*
- *Mountain Gum,*
- *Snow Gum and*
- *Inland Grey Box"* - Julia Harpham (attachment) (22824)

g) The submission continues: *"....Similarly threatened fauna is also present, the following are examples of fauna that has been sighted in the area:*

- *Brown Tree Creepers,*
- *Grey Crowned Babblers,*
- *Squatter Pigeons*
- *Diamond Firetails*
- *Red Goshawk,*
- *Spotted Harrier*
- *Little Eagle and*
- *Square Tailed Kite*
- *Black tailed Cockatoos*
- *Spotted Tailed Quoll"* - Julia Harpham (attachment) (22824)

h) Sandor von Kontz (23459) asserts that "*The ecological assessors have not been on Moorabinda a rather large property on the corridor and one of the very few in the world where the Ovenden's Ironbark Eucalyptus caleyi subsp. ovendinii occurs. Any threat to this extremely rare tree is very significant. According to NPWS (2003) the main threats are*

- "Invasion of habitat by invasive introduced grasses..."
- *"Clearing and fragmentation of grassy woodland.."*
- *"Frequent fires"*
- *The recommended conservation actions are the prevention of the above actions, i.e. the prevention of the building of the line."* - Sandor von Kontz (23459)

4 Response to Submissions

Response

Sections 4.6.2.2, 4.6.2.3, 4.6.2.4, 4.6.2.5, 4.6.2.6, 4.6.2.7, 4.6.2.8, 4.6.2.9, 4.6.2.11 and 4.6.2.12 address the key issues including adequacy of survey effort, survey findings and vegetation community mapping. In addition TransGrid has committed to pre-clearance surveys as agreed with OEH and DSEWPaC to target threatened flora with the potential to occur within the Project area as well as threatened fauna, populations and ecological communites that have the potential to occur in areas not yet surveyed (**Appendix D4**). Pre-clearance surveys would also target, more recently listed/recorded, threatened biota, considered within the EA, but not surveyed for in the 2009/2010 surveys.

Section 4.6.2.8 provides a response regarding the dry rainforest community and Sections **4.6.2.3, 4.6.2.5, 4.6.2.6, 4.6.2.7, 4.6.2.8 and 4.6.2.9** provide a response regarding the adequacy of the biodiversity assessment.

URS ecologists conducted surveys within the Moorabinda property in March 2010. Two URS staff were accompanied by a TransGrid representative and conducted flora quadrats and habitat assessments within close proximity to the proposed easement. URS acknowledges that there are several threats to Eucalyptus caleyi subsp. ovendenii, identified within submission 23459, and note that mitigation measures, aimed at minimising potential impacts to threatened biota are provided within **Appendix D4**. A NSW AOS (**Appendix D1**) and Commonwealth SIC assessment (**Appendix D2**) have been completed for this species, and it will be targeted in pre-clearance surveys in locations not yet surveyed, as outlined in **Appendix D4**.

4.6.3.17 Community Issue 17 - Inadequacies in vegetation mapping / classification

The submissions from the Envirolink Report (attachment) (23766); Julian Scantlebury (21942); and Julia Harpham (21957) raised a concern regarding:

Inadequacies in vegetation mapping / classification

According to the EnviroFactor Report (attachment) (23766), "*the amount of time spent on the vegetation community mapping i.e. 5 hours aerial photograph interpretation (API) seems minimal given the length of the project area, and significant variation in terrain elements, elevation, geology and climate."* - EnviroFactor Report (attachment) (23766)

The submission from Julia and Philip Harpham (21957) questions the determination of Box Gum Woodland quality as included in the EA. According to this submission, "*the following species of grass have been identified in the assessment that suggest that the condition of Box Gum Woodland is better than stated in the assessment:*

- *Themeda australis (Kangaroo Grass),*
- *Poa spp (Tussock Poa),*
- *Cymbopogon refractus (Barbed Wiregrass),*
- *Bothriochloa biloba (Lobed Redgrass,) and*
- *Microlaena stipoides (Weeping Rice Grass).*

Additionally these descriptions indicate the presence of a number of forbs including;

- *Wurmbea biglandulosa (Early Nancy),*
- *Bulbine bulbosa (Native Leek),*
- *Glycine clandestina (Twining Glycine), and*
- *Ranunculus lappaceus (Common Buttercup)." - Julia and Philip Harpham (21957)*

4 Response to Submissions

The submission from Julian Scantlebury (21942) comments that further ecological study may be necessary.

Response

URS ecologists conducted vegetation quadrat surveys and random meander surveys (Cropper, 1993) within Box Gum Woodland throughout the proposed easement (also refer **Section 4.6.2.6**). It is considered that the condition of vegetation recorded during quadrat surveys is accurate. To meet the criteria for inclusion as the EPBC Act listed ecological community, Box Gum Woodland must:

- have, or one have been dominated by White Box, Yellow Box or Blakely's Red Gum;
- have a predominantly native understorey. Namely, at least 50% of the perennial vegetation cover in the ground layer must be made up of native species; and
- be 0.1ha or larger in size with at least 12 or more native understorey species present, excluding grasses, with at least one important species present; or
- be at least 2ha in size with an average of 20 or more mature trees per hectare (with a circumference of at least 125cm at 130cm above ground) or have natural regeneration of the dominant overstorey eucalypts (when there are mature trees plus regenerating trees of at least 15cm circumference at 130cm above the ground).

As such, while the species listed in the submission may be present on site, if the other conditions for inclusion are not met, the vegetation is not considered to form part of the ecological community as listed under the EPBC Act (DEH 2006). Inclusion as the community under the TSC Act is far less rigorous, with degraded and small patches both included within the TSC Act definition.

Sections 4.6.2.5, 4.6.2.6, 4.6.2.7 and **4.6.2.8** provide a response to the vegetation community classification and mapping issues raised above.

4.6.3.18 Community Issue 18 - Competency of Ecologists carrying out the assessment

The submissions from Julia Harpham (21957) and Julia Harpham (attachment) (22824) raised a concern regarding:

Competency of Ecologists carrying out the assessment

These submissions point to the inexperience of the field staff undertaking the assessment. The comment is made that the ecologists on site were "*too inexperienced to identify what was here, let alone what might be here and has never been identified."* - Julia and Philip Harpham (21957)

Response

A qualified URS ecologist with adequate field experience (6 years consulting experience) and another URS Project consultant accompanied TransGrid representatives and the landowners across Moorabinda. Areas of the property of particular concern to the owners were visited.

URS confirm that a satisfactory and objective record of ecological features present across the areas of Moorabinda accessed was obtained and reported. In addition, the Moorabinda property would be surveyed as part of the post approval commitment to pre-clearance surveys.

4.6.3.19 Community Issue 19 - Weeds and Weed Management

The submissions from Julia Harpham (attachment)(22824); Julia Harpham (attachment)(21957); Sandor von Kontz (22648); Sandra Smith (23073); Peter Spedding (22803); Andrew Hynes (22606); Name withheld (21720); and Sandor von Kontz (23459) raised a concern regarding:

Weeds and Weed management

These submissions variably raise concerns about the spread of weeds from construction contractors and additional access roads.

The submission from Sandor von Kontz (23459) asserts that the use of access tracks by maintenance personnel and unauthorised visitors is likely to result in an increase of weeds spread through vehicle movements etc. The submission notes that the property is currently weed free due to its inaccessibility.

The submission from Julia Harpham 22824 (attachment) comments that weeds have been identified as issues within the assessment, but asserts that the EA does not adequately address how much ongoing management such issues would require.

The submission from Sandor von Kontz (22648) objects to the imposition of chemical methods of weed and vegetation control being used in proximity to his residence. The submission states it is an infringement of their right to enjoy their property by having their environment poisoned by chemicals.

Response

TransGird has committed to pre-clearance surveys across the Project area specifically to target DPI listed noxious weeds. Following the location and mapping of such weeds the construction and operational works would be guided by various management plans and strategies to control the spread of and actively remove noxious weeds along the alignment. **Appendix D4** of this Report outlines the revised Statement of Commitments for Biodiversity as well as the various management plans required for the control of noxious weeds for the Project. **Section 4.6.1.9** of this Report reiterates TransGrid's commitment to produce a Weed Management Plan as part of the CEMP. During operation of the Project weeds would be controlled in line with TransGrid's *Easements and Access Track Maintenance Policy* (refer to **Appendix C**, Volume 2 of the EA).

4.6.3.20 Community Issue 20 - Ongoing impacts during the operational phase

The submissions from Pearl Austin (22625); Sandor von Kontz (22648, 23459) and Julia Harpham (attachment)(22824) comment on the following issue:

Ongoing impacts during the operational phase

These submissions comment on ongoing impacts of the Project beyond the construction phase. Pearl Austin (22625) notes there would be impacts from the maintenance of the alignment; and Julia Harpham (attachment) (22824) expressed concern that rehabilitation of disturbed areas would be unsuccessful, as the soil within the alignment does not respond well to disturbance. The submission from Sandor von Kontz (22648) strongly objects to the imposition of chemical methods of weed and vegetation control being used in proximity to his residence.

4 Response to Submissions

Response

Operational mitigation measures, as outlined in **Appendix F** of the EA would include measures for the avoidance or minimisation of impacts on native flora and fauna as well as aquatic ecology. Operational mitigation measures would also include ongoing monitoring requirements, performance indicators, timing and responsibilities. Mitigation measures would be implemented to avoid removal of threatened biota during clearing, to ensure the protection of local populations, to promote long-term connectivity of populations within the landscape, manage sediment and erosion, and to control pest species where necessary.

4.6.3.21 Community Issue 21 - Suitability of potential offset arrangements

The submission from Julia Harpham (attachment)(21957) raised a concern regarding:

Suitability of potential offset arrangements

The submission notes that there are several risks involved in implementing a biodiversity offset strategy; *"notably that the displaced fauna cannot simply more to new areas because of the existing fauna in that area. Also that the time lag (up to 140 years) between habitat loss and habitat recreation will result in local species extinctions."* - Julia and Philip Harpham (attachment)(21957)

The submission also comments that *"TransGrid would develop a strategy to offset the impact of the Project – as yet the government policy that facilitates the creation of an offset strategy is unwritten. The trading of biodiversity credits is an unacceptable alternative to destroying "irreplaceable" habitat."* - Julia and Philip Harpham (attachment)(21957)

4.6.3.22 Response

Section 4.6.1.7 and 4.6.2.19 of this Report provides a response regarding the proposed offset strategy for the Project.

4.7 Heritage

4.7.1 Agency Submissions

4.7.1.1 Agency Issue 1 – Avoidance of Indigenous Heritage Impacts

The submission from Office of Environment and Heritage (OEH) (22807) noted the need for the following additional statement of commitment or condition of approval as appropriate to address:

Avoidance of Indigenous Heritage Impacts

"All reasonable efforts must be made to avoid impacts to Aboriginal cultural heritage at all stages of the development works. If impacts are unavoidable, mitigation measures are to be negotiated with the local Aboriginal community and OEH. All sites impacted must have an OEH Aboriginal Site Impact Recording (ASIR) form completed and be submitted to OEH's AHIMS Registrar within 3 months of completion of these works." -OEH

Response

Avoidance of Aboriginal sites has been a key component of the Aboriginal heritage assessment process undertaken for the EA and all reasonable efforts will be made to avoid impacts to heritage sites at all future stages of development works. As noted in **Section 6.1.1, Appendix G Heritage Report** in Volume 2 of the EA, as a result of the movement of poles and early planning whereby heritage sites were spanned where possible, of the 50 recorded Aboriginal sites, only twelve are likely to be directly impacted by the proposed works. A further thirteen sites are located near potential access tracks, and this group would be avoided to a great extent, but where landform constraints are challenging, some partial impacts to sites may occur.

Where impacts are unavoidable, mitigation and salvage measures have been recommended during the construction stage. These recommendations have been discussed with the Aboriginal community stakeholder groups that registered interest in Project. These groups have been consulted throughout the survey and in the development of the heritage assessment and its mitigation measures. **Section 1.7** as well as **Appendices 2** and **3** of **Appendix G Heritage Report** in Volume 2 of the EA, describe the community consultation undertaken to date. Further, the recommended management measures for all sites would be documented in an Aboriginal and Historic Heritage Management Plan. This plan would be developed in consultation with OEH and the Aboriginal Stakeholders for the Project (see also **Section 4.7.1.4**).

All OEH ASIR forms would be prepared and registered with AHIMS within the statutory timeframe once pre-construction and construction works are underway.

4.7.1.2 Agency Issue 2 – Aboriginal Cultural Education Program

The submission from Office of Environment and Heritage (OEH) (22807) noted the need for the following additional statement of commitment or condition of approval, as appropriate:

An Aboriginal Cultural Education Program

"An Aboriginal Cultural Education Program must be developed for the induction of all personnel and contractors involved in the construction activities on site. Records are to be kept of which staff/contractors were inducted and when for the duration of the Project. The program should be developed and implemented in collaboration with the local Aboriginal community."- OEH

Response

Section 10.8 of Volume 1 of the EA outlines the Draft Statement of Commitments that are relevant to Indigenous Heritage. Commitment E4 states:

'*The construction team would undergo site induction concerning Aboriginal and historic heritage issues, prior to working on the site.*'

This draft commitment is expanded upon in **Sections 6.1.4** and **6.1.8** of **Appendix G Heritage Report**. Management recommendations in these sections refer to the need for Aboriginal heritage inductions/awareness training.

In order to further strengthen this commitment to ensure the protection of heritage during construction, TransGrid proposes to replace draft commitment E4 with: *"An appropriate Aboriginal Cultural Education Program would be developed for the induction of all personnel and contractors involved in the construction activities on site. Records would be kept of dates when staff/contractors are inducted; these records would be kept for the duration of the construction phase."*

This measure will be included in a revised draft Statement of Commitments in **Section 5.2** of this Report and in the Aboriginal and Historic Heritage Management Plan (AHHMP) to be prepared for the Project as part of the CEMP.

4.7.1.3 Agency Issue 3 – Mitigation measures if heritage sites are located

The submission from OEH (22807) has noted the need for the following additional statement of commitment or condition of approval as appropriate:

Mitigation measures if heritage sites are located.

The submission from OEH notes that *"If human remains are located in the event that surface disturbance occurs, all works must halt in the immediate area to prevent any further impacts to the remains. The NSW Police are contacted immediately. No action is to be undertaken until police provide written notification to the proponent. If the skeletal remains are identified as Aboriginal, the proponent must contact OEH's Enviroline on 131 555 and representatives of the local Aboriginal community. No works are to continue until OEH provide written notification to the proponent.*

4 Response to Submissions

In the event that surface disturbance identifies a new Aboriginal object, all works must halt in the immediate area to prevent any further impacts to the object(s). A suitably qualified archaeologist and the registered Aboriginal representatives must be contacted to determine the significance of the object(s). The site is to be registered in the Aboriginal Heritage Information Management System (AHIMS) (managed by OEH) and the management outcome for the site included in the information provided to the AHIMS. The proponent will consult with the Aboriginal community representatives the archaeologist and OEH to develop and implement management strategies for all objects/sites." - OEH

Response

Section 10.8 of Volume 1 of the EA presents the Draft Statement of Commitments that are relevant to Indigenous Heritage. Commitment E7 states:

"*Should any previously unidentified Aboriginal objects or sites be uncovered during the course of construction, work in that area would cease and DECCW (OEH) would be informed to seek advice on how to best proceed. If burials are uncovered, the NSW police would be informed immediately. Should the remains be then identified as archaeological in context, DECCW (OEH) would be informed and consulted to clarify how to best proceed.*"

In order to further strengthen this commitment and take on board OEH's comments above, TransGrid proposes to replace draft commitment E7 with two new commitments based on the OEH text above:

<u>New Commitment E7</u>

If human remains are located during the construction phase, all works would be stopped within a 30m radius of the remains. The NSW Police would be contacted immediately and no work within the 30m radius would take place until the police provide written notification to the proponent that work can recommence.

If the skeletal remains are identified as Aboriginal, the proponent would contact OEH's Enviroline on 131 555 and representatives of the local Aboriginal community. No work within the 30m radius of the remains would take place until OEH provide written notification to the proponent that work can recommence.

<u>New Commitment E8</u>

If a new Aboriginal object(s) is identified during the construction phase, all works within a 30m radius of the find would be stopped to prevent any further impact to the object(s). A suitably qualified archaeologist and the registered Aboriginal representatives from the local area would be contacted to determine the significance of the object(s).

TransGrid would consult with the relevant local Aboriginal community representatives, a suitably qualified archaeologist and OEH to develop and implement management strategies for all new objects/sites. Once the significance of the object is ascertained the site and/or object would be registered in the Aboriginal Heritage Information Management System (AHIMS) and the management outcome for the site would be included in the information provided to the AHIMS.

These precautionary measures will be included in a revised draft Statement of Commitments in **Section 5** of this Report and in the Aboriginal and Historic Heritage Management Plan to be prepared for the Project as part of the CEMP.

4.7.1.4 Agency Issue 4 – Indigenous Heritage Consultation

The submission from OEH (22807) noted the need for the following additional statement of commitment or condition of approval from TransGrid as appropriate:

Indigenous Heritage Consultation

"*The proponent must continue to consult with, and involve, all the registered local Aboriginal representatives for the Project, in the ongoing management of the Aboriginal cultural heritage values. Evidence of this consultation must be collated and provided to the consent authority upon request."* - OEH

Response

To date all Aboriginal heritage assessment and heritage management has been undertaken in full consultation with the Registered Aboriginal stakeholders, and this aim would continue to be fulfilled throughout the remainder of the Project.

Section 10.8 of Volume 1 of the EA presents the Draft Statement of Commitments that are relevant to Indigenous Heritage. Commitment E3 states:

"*An Aboriginal and Historic Heritage Management Plan (AHHMP) would be developed and would include the management of sites as presented in the Heritage Assessment.*"

In order to further strengthen this commitment and take on board OEH's comments above, TransGrid proposes to amend draft commitment E3 with the text below:

"*An Aboriginal and Historic Heritage Management Plan (AHHMP) would be developed in consultation with OEH and the Aboriginal community stakeholders for the Project. This AHHMP would include the recommended management of all sites presented in the Heritage Assessment. The AHHMP would include provisions to consult with the local Aboriginal community in the management of sites where appropriate.* "

This measure will be included in a revised draft Statement of Commitments in **Section 5.2** of this Report.

4.7.1.5 Agency Issue 5 – Aboriginal Heritage Management Plan

The submission from Office of Environment and Heritage (OEH) (22807) noted the need for the following additional statement of commitment or condition of approval from TransGrid as appropriate:

An Aboriginal Heritage Management Plan:

"*The proponent must develop an Aboriginal Heritage Management Plan (AHMP) for the Project area to reflect the management outcomes for Aboriginal cultural heritage. The AHMP is to be developed and implemented in consultation with the registered Aboriginal stakeholders. The plan must include procedures for ongoing consultation and community involvement; details of the responsibilities of all stakeholders; details of proposed mitigation and management strategies of all Aboriginal sites; including any additional investigation processes proposed e.g. program of ground-truthing, any monitoring strategies, salvage activities, etc; procedures for the identification and management of previously unrecorded sites (excluding human remains); identification and management of any proposed cultural heritage conservation/relocation area(s); details of an appropriate keeping place agreement with local Aboriginal community representatives for any Aboriginal objects salvaged*

through the development process; include maps or plans identifying those areas subject to archaeological monitoring and salvage activities; detail protection measures for Aboriginal sites which will remain in situ within the Project area, to be protected in perpetuity; details of an Aboriginal cultural heritage education program for all contractors and personnel associated with construction activities; detail the current legislative requirements and environmental management standards follow recent legislative amendments; and compliance procedures in the unlikely event that non-compliance with the AHMP is identified." – OEH

Response

TransGrid recognise that a management plan addressing aboriginal heritage issues would be required as part of the CEMP for the Project. The revised draft commitment E3 noted in **Section 4.7.1.4** of this Report makes it clear that OEH would be consulted as the AHHMP is developed. It is clear that during this consultation OEH would want to see that that the points outlined above are properly addressed.

4.7.2 Action Group Submissions

4.7.2.1 Action Group Issue 1 – Indigenous Heritage

The submission from Upper Dumaresq Action Group (22824) raised a concern regarding the following issue:

Indigenous Heritage

The submission stated that the route of the proposed alignment was not adequately surveyed for Aboriginal heritage and Kamilaroi people were not consulted.

Response

Inadequate Survey of the Alignment

This methodology used to survey the alignment is consistent with industry practice and it is considered an appropriate way to determine the heritage characteristics of the Project (or any large area) and identify the most sensitive areas that require survey.

The NSW National Parks and Wildlife Service (NPWS) Aboriginal Cultural Heritage Standards and Guidelines Kit (1997) was the guiding document for Aboriginal cultural heritage assessment (**Appendix G**, Volume 2 of the EA) at the time of assessment. This guiding document does not state the requirement for full archaeological survey over a project area. Rather it acknowledges that total survey is not feasible even if the scale of the project (i.e. a small project area) may enable it from a physical perspective, because to achieve full survey would require 100% ground surface visibility. It is noted that for large projects (considered to be over 1km^2), it is normal for a total of 5% or less of the project area to undergo survey.

For the Far North NSW Project, approximately 56% of the alignment and 34% of the access tracks were physically assessed. Access limitations and/or low archaeological sensitivity as designated by the desktop assessment were the key reason that not all of the Project area was physically assessed.

Both DP&I and OEH agreed that the methodology and assessment were adequate.

4 Response to Submissions

It was acknowledged in the Heritage Assessment (refer to **Appendix G**, Volume 2 of the EA) that additional sites may be present in portions of the alignment that have not yet been surveyed, and that these sites, which are likely to be smaller, less complex and hence probably of lower significance, would be picked up during walkovers prior to construction taking place in any specific location.

Kamilaroi people were not consulted

As noted in **Section 1.7, Appendix G Heritage Report** in Volume 2 of the EA, the Project falls within the boundaries of three Local Aboriginal Land Council (LALCs) Areas namely – Casino, Jubullum and Moombahlene. The Project does not continue west into the Toomelah LALC area, which is within Kamilaroi lands[22].

Neither the Department of Environment and Climate Change (DECC, now OEH) North east nor North west branches advised that groups to the west (Kamilaroi) needed to be contacted. Consultation with this group has also not been raised as an issue during any of the consultation with the registered stakeholders undertaken to date.

4.7.3 Community Submissions

4.7.3.1 Community Issue 1 – Impact on non-Aboriginal Heritage sites

Submissions from Paulene Brooks (21847); *Name Withheld* (21908); Susan Bailey (21953); Andrew Hynes (22606); and RS & MO Dowe (22633) raised concerns regarding:

Impact on Non – Aboriginal Heritage Sites

The concerns expressed are exemplified by the following comments:

"Our property also has historical and archaeological links to the past being part of the original Tenterfield Station and later owned by Dr Watt, a historical person of importance to the area. Located on our property close to the proposed line are remnants of a shepherds hut dating back to the years when Tenterfield was first settled" – Paulene Brooks

"There has been no consultation as to the effects on my heritage or my children's. The Hynes family have been on this property for almost 103 years. This I would have thought would have been foremost in their assessing what disruption they may cause" - Andrew Hynes

"The proposed line on our property impacts on an area which has been preserved by four generations of our family because of its significance… was part of the 'Brisbane Line', and an Army Camp during World War Two from 1939 to 1948…Thunderbolt frequented this area." - RS & MO Dowe

[22] http://www.alc.org.au/media/33571/map.jpg; and http://www.samuseum.sa.gov.au/archives/collections/tribes

Response

Heritage Surveys

The presence of historical and archaeological links to the past can be found on most properties throughout NSW. The surveys undertaken as part of the Project focussed on the alignment and access tracks. Should physical remains of heritage be present within these impact footprints, they would have been identified and recorded such that management of possible impacts could be devised.

The values mentioned in the submission from Paulene Brooks are not currently listed on statutory registers and are not within the Project impact footprint. Whilst it is not disputed that historical values are not always physical, and that a prior owner of the property may have been an important regional figure historically, unless the Project had transected an item of heritage related to this occupation, it would not be a value that could be taken into account within the framework of the EA.

DP&I and OEH accepted the methodology and assessment for the identification of non-aboriginal heritage sites as adequate. The methodology is detailed in **Appendix G** in Volume 2 of the EA.

Brisbane Line and Army Camp

The sites referred to by the Dowe family were recorded as part of the survey of the Project area. These remains comprise sites HS07 and HS08, being described as dry stone walls relating to the WWII army deployment along the 'Brisbane Line'. These sites are described as being on the southern boundary of the proposed easement, **Section 6.2, Appendix G Heritage** in Volume 2 of the EA indicates that these remains would not be directly impacted by the proposed Project. **Table 6-10** in **Appendix G Heritage** identifies the management measures proposed to ensure that no inadvertent impacts occur as a result of construction, noting that any access to the alignment would be from the north and that the site would be fenced during the construction period.

4.7.3.2 Community Issue 2 – Inadequate Survey

The submissions from Julia Harpham (21957, 22621) raised concerns regarding the following issue:

Inadequate Survey

The submission states that inadequate survey was undertaken for the following reasons:

- no Aboriginal people were invited to inspect the site on their properties *"even though it is traditionally known to be a site of considerable importance*" (the survey was undertaken by a student from a University (not Aboriginal)) - Julia Harpham; and
- an area within the property (Harpham) was known as 'a Women's Place' (a birthing place). There are marked trees and scatterings on the easement, access tracks and very close to the proposed Project. The submission states that Aboriginal elders have verified this as a held belief, even though it has not been verified by an expert to be included in the report.

Response

Inadequate Survey

As noted in **Section 4.1.7, Appendix G Heritage** in Volume 2 of the EA, the survey team was prepared to access the Harpham property during the early weeks of the heritage survey, but at that time access to the property had not been granted. At that stage, and for all the survey undertaken between September and December 2009, the heritage assessment team included a minimum of four Aboriginal community representatives working in partnership with the archaeologists each day.

4 Response to Submissions

By the time access was granted to the Harpham property (March 2010) the formal survey period for the Project had been completed. At this stage it was challenging (in terms of time) to re-form the same team for assessment of a small portion of one property. Consequently, Ms Pauline Hams, an archaeologist from the University of New England, who had been involved with assessment of the Project alignment under OzArk senior archaeologist, Mr Ben Churcher, for several weeks in 2009, was contracted to attend Moorabinda with TransGrid and URS team member to undertake that portion of the assessment.

In accordance with Statement of Commitment E1 (refer to **Section 10.8** in Volume 1 of the EA), this property would be revisited and resurveyed by the survey team, including the relevant registered local Aboriginal representative prior to construction activities commencing.

Women's Place

Assessment of the easement within Moorabinda was undertaken on March 11 2010. During this assessment, no Aboriginal artefacts were recorded. No marked trees were identified where the marks were thought likely to have been made as a result of Aboriginal activities. Several very large trees are described to have been present (and were photographed) and it is not impossible that these trees may have been associated with a birthing site. There was no visible archaeological evidence of the usage of the land for that purpose at the time of inspection. It is acknowledged that there was very low ground surface visibility along much of the Reedy Creek area during survey.

Requests were made of all Aboriginal groups involved in the Project to report if they were aware of any sites or places within the vicinity of the Project that had cultural significance. While some information was provided as a result of this process, there was no mention of a birthing place on Moorabinda, or anywhere in the nearby area. If an Aboriginal person (elder) has knowledge of the birthing site, the Project team would be keen to discuss this. It should be noted, however, that this information was not offered during the survey of the Harpham property.

4.7.3.3 Community Issue 3 – Inadequate consultation

Submissions from Julia Harpham (21957, 22621, 22824 – attachment) and Edward Hickson (21986) raised concerns regarding the following issue:

Inadequate Consultation

The submissions stated that inadequate consultation was undertaken because:

- The Kamilaroi people were not consulted, despite proposed Project passing over Kamilaroi lands. This is not indicated in the report.

Response

Section 4.7.2.1 of this Report provides a response regarding consultation with the Kamilaroi people.

4.7.3.4 Community Issue 4 – Impact on Aboriginal Heritage Sites

Submissions from Julia Harpham (21957, 22621); *Name Withheld* (21908); Edward Hickson (21986) and RS and MO Dowe (22633) raised concerns regarding:

Impact on Aboriginal Heritage Sites

A number of submissions raised concerns of the Project potentially impacting on Aboriginal Heritage sites on their land.

Response

Avoidance of Aboriginal sites has been a key component of the Aboriginal heritage assessment process undertaken for the EA. As noted in **Section 6.1.1** of **Appendix G Heritage** in Volume 2 of the EA, of the 50 recorded Aboriginal sites within the easement, only twelve are likely to be directly impacted by the proposed works. This is a result of route selection, spanning of heritage sites, and where possible the movement of structures away from recorded Aboriginal sites. A further thirteen sites are located near potential access tracks. This group of sites would be avoided where possible, however, where landform constraints are challenging, some partial impacts to sites may occur.

Considering the length of the Project and all the various environmental constraints, the overall impact to Aboriginal heritage as a result of this Project has been avoided wherever possible, and reduced as much as is feasible.

4.8 Visual Impacts

4.8.1 Agency Submissions

None of the Agency submissions received during the exhibition period raised issues relating to visual impacts of the Project.

4.8.2 Action Group Submissions

4.8.2.1 Action Group Issue 1 – Visual Amenity

The submissions from The Upper Dumaresq Environment Network (UDEN) (22639); TransGrid Action Group (TAG) (21948); and Mingoola Progress Association Inc (21932) raised concerns about the following issue:

Visual amenity impacts of the Project

The Action Groups anticipate significant visual impacts as a result of the Project. Their submissions included the following quotes on the issue:

"Concerns have been raised over the significant impact that the Project will have aesthetically on the landscape. Currently much of the proposed easement is a classic unmarked rural landscape." – UDEN

"The uglification of the landscape is one of the most pressing issues to our organisation. Views will be impacted and scars formed on the landscape as a result of the building of the line and access roads. Those of us who have moved here in order to escape urban landscapes are particularly distressed by the Project." - Mingoola Progress Association Inc

4 Response to Submissions

Response

Minimising potential visual impact has been a consideration in the route selection and in the design of the Project. Avoidance of sensitive receptors, including residences, was an objective of the route selection process undertaken to determine the proposed alignment. Wherever possible, angle positions have been placed in strategic locations to minimise potential visual impact (e.g. avoiding, where possible, skyline views) and to provide maximum setback from residences and roads.

The visual impact assessment (refer to **Appendix H Visual Assessment**, Volume 2 of the EA) considered the overall visibility of the Project by determining the relative ability of the landscape to accept modifications and alterations without the loss of landscape character or deterioration of visual amenity (defined as visual absorption capability within the visual impact assessment). The visual impact assessment determined that the majority of the landscape along the proposed alignment would have a high to moderate visual absorption capability thereby reducing the potential for visual (and aesthetic) impacts from surrounding viewpoints.

Whilst the majority of the Project would be located within a rural landscape context, the visual impact assessment illustrated that a significant portion is a modified landscape. Agricultural improvement and various constructed elements associated with human occupation (including an existing 132kV transmission line between Tenterfield and Lismore) occur within and beyond the proposed alignment and therefore the majority of the landscape is not considered to be unmarked.

The visual impact assessment determined that the transmission line and substation would have an overall low visual impact for the majority of people travelling through or residing in areas surrounding the Project and that the landscape would have a predominantly medium to high visual absorption capability along a significant portion of the alignment which would tend to restrict the extent and location from which the Project may be visible.

Equally, just over half of the proposed easement length (109km of the total 205km) would be located along, and replace, the majority of an existing 132kV transmission line.

The visual impact assessment identified a number of environmental management strategies to minimise the potential visual impact of the access tracks including by considering:

- the overall length and extent of access tracks;
- the use of existing tracks on properties where practicable;
- the need for clearing vegetation;
- the potential for erosion;
- the extent of cut and fill;
- the sourcing of local construction materials where available; and
- the potential to maximise rehabilitation at completion of the construction phase.

The visual assessment determined that the construction of the Project would generally not result in any significant visual impacts on the majority of views from residential receptors, road and rail corridors near, approaching or passing beneath the transmission line. Nevertheless, mitigation measures outlined in the EA would assist in minimising the potential visual impact of the Project.

4.8.2.2 Action Group Issue 2 – Understatement of visual impact

The submission from Mingoola Progress Association Inc (21932) raised concerns about the following issue:

Understatement of visual impact assessment included within the EA

This submission states;

"We object to the URS assessment of visual amenity and levels of impact on the grounds that the methodology used is based on subjective assessment, and cannot accurately reflect the opinions of people looking at a line. For some people, a view with a line in it may not be distasteful. For others, including our members, any view with a line in it is unacceptable".- Mingoola Progress Association Inc

Response

The visual impact assessment used established structured methodologies and criteria consistent with industry standards; these ensure that any subjectivity is removed as far as possible. However, it is a reasonable assumption that the Project would be subject to a range of opinions with regard to visual impact that would be largely determined by an individual's perception of the Project.

The visual impact assessment (refer to **Appendix H Visual Assessment** in Volume 2 of the EA) methodology comprised the following key activities:

- desktop study addressing visual character of the proposed west and east alignments and immediate surrounding area;
- identification of the Project view catchment;
- site inspection and fieldwork;
- assessment and determination of Visual Absorption Capability;
- preparation of photomontages;
- assessment of visual impact from publicly accessible view points and residential dwellings; and
- discussion of mitigation measures and how they may reduce levels of visual impact.

The potential visual impact of the Project was assessed using a number of criteria that included:

- the extent to which the Project and associated structures would be visible from surrounding areas;
- the degree of visual contrast between the Project and associated structures and the capability of the surrounding landscape to visually accommodate the Project;
- the category and type of situation from which receptors may view the Project;
- the distance between the receptor and the Project;
- the potential number of receptors with a view toward the Project from any one location;
- the duration of time the receptor may view components of the Project from any static or dynamic view location, and
- the visual sensitivity of receptors surrounding the Project.

4.8.3 Community Submissions

4.8.3.1 Community Issue 1 – Visual amenity impacts

The submissions from *Name Withheld* (21908); *Name Withheld* (21910); *Name Withheld* (21914); *Name Withheld* (21916); Richard Harpham (21922); *Name Withheld* (21944); *Name Withheld* (21951); Susan Bailey (21953); *Name Withheld* (21955); William Harpham (23626); Charmaine Harrison (TG 1); James & Philippa Lilyman (TG 4); Julia Harpham (21957); Matthew Cater (22017); Andrew Hynes (22606); Marie lhle (22623); Pearl Austin (22625); Peter Woodrow (20521); RS & MO Dowe (22633); Sandor von Kontz (22648); and Sandra Smith (23073) raised objections to the Project based on the following issue:

Visual amenity impacts of the Project

The community submissions listed above highlighted the natural beauty of the region, and expressed concern about the nature of visual impacts that would result from the Project. A common concern expressed throughout these submissions was the potential impact of the Project on present and future amenity of the area. A number of points were raised by residents who would be directly impacted by the Project and other submissions were received from further afield. Examples of specific comments made were:

"I believe the Project will adversely affect the visual amenity of the area" - Name Withheld

"the line will be clearly visible at all times from our house…the view from our house will be very ugly." - Matthew Cater

"This power line will be visible from almost all of the property. This will decrease aesthetic values of our open spaces and great views we have on our property. This will also have a great effect on valuation and resale of land in the district." - Andrew Hynes

"Because the line crosses diagonally across our property, we would be able to see part of it from almost everywhere. There would be 16 structures on our place and we would also be able to see quite clearly another 7 on our neighbours' properties. All our good viewing points where we take visitors would have their views ruined by the line and the scars in the landscape caused by the roads that would be constructed to build and service the line." - Sandra Smith

"Apart from destroying the majestic landscape and local and regional views of the Northern Tablelands, the TransGrid Project, will harm the local tourist industry, which depend for its very livelihood the pristine, unspoilt and natural local landscape." - Peter Woodrow

Response

The visual impact assessment (refer to **Appendix H Visual Assessment**, Volume 2 of the EA) acknowledges that the Project would have varying visual impacts depending on the receptor type and location relative to the Project.

Minimising visual impact and avoidance of sensitive receptors including residences was an objective of the route selection process undertaken to determine the proposed alignment. Wherever possible, angle positions have been placed in strategic locations to minimise potential visual impact (e.g. avoiding, where possible, skyline views) and to provide maximum setback from residences and roads.

Despite best efforts to minimise visual impacts, the EA acknowledges that the Project would have visual impacts and that the highest sensitivity receptor category includes residential properties and locations with shorter view distances.

Where high visual impacts have been identified for residents, priority would be given for visual screening or other relevant mitigation measures, in consultation with affected residents.

The assessment considered the overall visibility of the proposed Project by determining the relative ability of the landscape to accept modifications and alterations without the loss of landscape character or deterioration of visual amenity (defined as visual absorption capability). The visual impact assessment determined that the majority of the landscape along the proposed alignment would have a high to moderate visual absorption capability thereby reducing the potential for visual and aesthetic impacts on the existing landscape.

Whilst the majority of the proposed transmission line would be located within a rural landscape context, the visual impact assessment identifies that significant portions of the landscape have been modified though agricultural use, and contain various constructed elements associated with human occupation (including an existing 132kV transmission line between Tenterfield and Lismore). Just over half of the proposed alignment length (109km of the total 205km) would be located along, and replace, the majority of an existing 132kV transmission line.

4.8.3.2 Community Issue 2 – Understatement of visual impact

The submissions from Julia Harpham (21957); Mark Hesse (21620); Marilyn Moballe (21920); Sandor von Kontz (22648); and Julia Harpham (22824) raised concerns about the following issue:

Understatement of visual impact assessment included within the EA

The above submissions challenge the outcomes of the visual impact assessment within the EA. The view is expressed that the visual assessment understates the potential visual impacts of the Project. Comments included:

"TransGrid's visual assessment grossly minimises the impact of the transmission line on the visual amenity of northern New South Wales... What we have here is structures which will have an enormous visual impact. The beautiful rural and wilderness outlook for residents, and tourists, will be dramatically changed." - Marilyn Moballe

"*The proposal states that beyond a 1km view catchment the transmission line would not be a major landscape feature. The Westlink line is clearly visible from 10 km away…"* - Julia Harpham

Some submissions raise specific examples of locations where it is contended that the visual impact assessment has potentially understated the impact of the Project on visual amenity:

Mark Hesse (21620) disagrees with the assessment in the EA that replacing existing 132kV line with the 330kV line would have negligible visual impacts.

The submission from Marilyn Moballe (21920) proposes that planning authorities drive from Wallangarra to Tenterfield along the New England Highway or west from the Bruxner Highway - New England Highway intersection:

"…They would travel along the valley of Tenterfield Creek. The tree cover in this region is minimal; the towers and transmission wires would be visible from all locations over a long period of time. In

particular the views to the Doctors Nose to the south and Sundown National Park to the north would be severely impacted by the line." - Marilyn Moballe

"Near Tenterfield the proposed line would pass through, or in front, of the beautiful Boonoo Boonoo range, which for much of its length forms the border between NSW and Queensland. This range is a striking feature of the Tenterfield district and can be seen from many kilometres distant. It is absurd for TransGrid to maintain that any visual impact will be minimal." - Marilyn Moballe

The submission from Julia Harpham (21957) questions whether the EA has used acceptable methods of measurement of visual impact, citing an example of a photomontage included in the visual impact assessment report:

"A photo published in the URS report of a house further down the valley belonging to the Hamel family as an example of how low the visual amenity effect will be, has shocked and upset that family by how grossly ugly it looks. Mrs Boggs who is a daughter of the Hamels and who lives on Moorabinda is extremely stressed by the photo. We object on the grounds that there can be no measurement of how much the line is noticeable, because that is a subjective measurement and not an objective one. The URS report has not used acceptable methods of measurement of visual impact." - Julia Harpham

Sandor von Kontz (22648) comments that his residence has not been included in the visual impact assessment, and comments:

"In Volume 2 Appendix H the "visual receptors" are defined and listed. On page 38 just south of AP15 between R7 and R8 I should be listed. But I do not exist for TransGrid even though the line would be in plain view from my entrance." - Sandor von Kontz

Response

Section 4.8.2.2 of this Report provides an overview of methodology used to assess the likely visual impacts of the Project. Further details regarding the methodology, assessment and relevant mitigation measures can be found in **Appendix H Visual Assessment**, Volume 2 of the EA.

In summary, the visual impact assessment considered the overall visibility of the Project by determining the relative ability of the landscape to accept modifications and alterations without the loss of landscape character or deterioration of visual amenity (defined as visual absorption capability within the visual impact assessment). The visual impact assessment determined that the majority of the landscape along the proposed alignment would have a high to moderate visual absorption capability thereby reducing the potential for visual and aesthetic impacts on the existing landscape.

Whilst the majority of the proposed Project would be located within a rural landscape context, the visual impact assessment notes that significant portions of the landscape within the proposed alignment is modified through agricultural improvement and by containing various constructed elements associated with human occupation. This human modification includes approximately half of the proposed alignment which would replace the majority of an existing 132kV transmission line.

View Catchment

The visual impact assessment does not state that beyond a 1km view catchment the transmission line would not be a major landscape feature, but does state that *"whilst some project components would be noticeable from areas beyond one kilometre, they are unlikely to appear as a dominant visual element within the landscape at this distance."*

Whilst a transmission line may be visible at a distance of 10km, it is very unlikely that the transmission line would result in any significant visual impact at this distance.

The view catchment was defined as the area within which the Project would be most readily visible from surrounding areas and for the purpose of visual impact assessment, the view catchment was determined as a one kilometre offset from either side of the proposed transmission line. The visual impact assessment noted that *"views toward the project may have a greater tendency to be screened by undulating landform or the presence of vegetation for portions of the west and east alignments.*

The visual impact assessment also noted that the *"view catchment is a generalised assessment, where views toward the project could, in some situations, be blocked by buildings, vegetation or local landform features at specific points within the one kilometre offset, and similarly glimpses of the Project would be available from isolated positions outside the view catchment area".*

Understatement of Visual Impact

The visual impact assessment used established structured methodologies and criteria consistent with industry standards. The visual impact assessment for alignment east where the existing 132kV transmission line will be replaced with the proposed 330kV line, determined that the visibility rating for residential receptors would generally be low. This rating results from a combination of factors, including tree cover, the orientation of the dwellings toward the Project and the resultant reduction in visibility toward supporting structures following removal of the 132kV transmission line. .

The visual impact assessment does state that *"the determination of visibility ratings also acknowledges the fact that the 330kV transmission line supporting structures would be capable of spanning greater distances than the existing 132kV transmission line and that there would be an overall reduction in the number of visible supporting structures along the east alignment".*

The proposed transmission line is approximately 8km from Doctors Nose Mountain at its nearest point and would be located north of the Bruxner Highway and Tenterfield Creek. Views toward the Doctors Nose from roads within the vicinity of Tenterfield Creek (including the Bruxner and New England Highways) are unlikely to be severely impacted by the proposed transmission line.

Similarly the scale of the proposed transmission line structures together with the medium to high visual absorption capability of the landscape south of the Sundown National Park and Boonoo Boonoo range would restrict visibility of the Project from these areas and from the road corridor. Therefore the Project is unlikely to result in severe visual impacts.

In response to the submission from Sandor von Kontz, his residential dwelling is located beyond the visual impact assessment 2km view catchment (1km either side of the alignment used for the purposes of the visual assessment) and has not been documented within the visual impact assessment report (**Appendix H** in Volume 2 of the EA). Whilst the area is outside the direct assessment zone, to assist in addressing the submission, the visual assessment from this residence has been reviewed and indicates that direct and significant views from this residence are unlikely to extend toward the transmission line due to undulating landform and scattered tree cover.

4.8.3.3 Community Issue 3 – Alternatives to reduce visual impact

The submission from Mark Hesse (21620) makes a specific comment on the following issue:

Alternatives to reduce visual impact at individual property

4 Response to Submissions

The Project involves replacing the existing wooden 132kV pole with a much larger 330kV Angle Position steel tension structure 140m from the property of the submission's author. The submission suggests that a more suitable angle position structure could be designed at this location as the angle is only 22 degrees. The author has been consulting with TransGrid which have been open to considering alternative options at this location to reduce the visual impact.

"we request that TransGrid design an alternative structure at angle AP60 in lieu of the proposed steel lattice tower to lessen the visual impact on our property" - Mark Hesse

Response

As discussed in **Section 2** of this Report, the landholder has been informed that it may be possible to substitute the proposed steel lattice tension structure with a three pole angle structure (refer **Section 2** of this Report). The landholder was advised that the three pole structure would be larger in size as at least three sets of twin guy wires would be required for this angle structure. Confirmation of the change would be subject to finalisation of designs and agreement with the affected landowner.

4.8.3.4 Community Issue 4 – Tourism impacts from reduced visual amenity

The submissions from *Name Withheld* (21720); *Name Withheld* (21908); Colin Kilburn (21912); Marilyn Moballe (21920); Susan Yeates (21924); Julian Scantlebury (21942); Susan Bailey (21953); Edward Hickson (21986); Peter Woodrow (20521); Sandor von Kontz (22648); Pearl Austin (22625); Colin & Helen Chevalley (22641); and *Name Withheld* (21951) raise the following concern:

Tourism impacts from reduced visual amenity

The above submissions contend that tourism in the region could be significantly impacted by the reduction of visual amenity and natural beauty. Examples of comments submitted include:

"*Visual Amenity Impacts of the proposed transmission line will have detrimental impacts directly on my land value and the tourism industry in the community. Apart from destroying the majestic landscape and 'local and regional views' of the Northern Tablelands, the TransGrid Project will harm the local tourist industry, which depends for its very livelihood on the pristine, unspoilt and natural local landscape.****"*** - Pearl Austin

"*The visual unsightliness… will result in financial hardship and significantly impair our ability to develop eco-tourism in the area****."*** - Edward Hickson

"*Tourism is a very important and growing source of economic development in the Tenterfield district and to destroy these popular tourist destinations, either by the visual pollution of power lines or by transgressing in the vicinity of these areas is economically, historically and environmentally irresponsible…****"*** - Susan Bailey

"Visual Amenity Impacts of the proposed transmission line will have detrimental impacts on both the land-value and tourism industry in the community." - Peter Woodrow

Response

Sections 4.14.2.3 and **4.14.3.2** of this Report provide a response regarding the potential impacts of the Project on tourism. It is difficult to quantify the extent to which the transmission line aesthetics and visual impacts of the Project may impair any ability to develop ecotourism in the area. However, given the extent of the existing transmission line to be replaced, that the Project would not pass through any

existing ecotourist facility and the limited visibility from existing National Parks, State Forests, Conservation Areas and Wilderness Areas, the overall potential to impair ecotourism on aesthetic grounds is considered low.

4.8.3.5 Community Issue 5 – Visual impact on land values

The submissions from Colin Kilburn (21912); Marilyn Moballe (21920); Pearl Austin (22625); *Name Withheld* (21951); Steven Francis (22008); Sandor von Kontz (22648); Peter Woodrow (20521); Mark Hesse (21620); and Andrew Hynes (22606) raise the following concern:

Visual impact would decrease value of land

The above submissions contend that the value of land across the region could be significantly impacted by the reduction of visual amenity and natural beauty. Comments submitted include:

"*The beautiful rural and wilderness outlook for residents...will be dramatically changed. Land values will inevitably decline; there will be no compensation for this decline. This devaluation of land has not been included in TransGrid 's estimation of the cost of the Project. In short the line affects the whole community's visual amenity, but there is no compensation****"*** - Marilyn Moballe

"*This power line will be visible from almost all of the property… This will decrease aesthetic values of our open spaces and great views we have on our property. This will also have a great effect on valuation and resale of land in the district.****"*** - Andrew Hynes

Response

Sections 4.14.2.1 and 4.14.3.1 of this Report provide a response regarding the potential impacts of the Project on land values. In summary, the impact of the Project on property values has and continues to be taken into consideration during TransGrid's acquisition process. All landholders from whose property an easement would be acquired are entitled to compensation under the *Land Acquisition (Just Terms Compensation) Act 1991.*

The *Land Acquisition (Just Terms Compensation) Act 1991*, does not contemplate payment of compensation to landholders where no interest in land has been acquired. This approach is standard for the development of all transmission lines across NSW. There is no empirical evidence, approach or mechanism available to determine a decrease in property value over time as a result of a power line being introduced into a landscape. [23]

[23] Conclusions from the "Inquiry into Community Needs and High Voltage Transmission Line Development" commissioned by the NSW Government and conducted by former Chief Justice of the High Court of Australia, Sir Harry Gibbs, 1991.

4.9 Traffic and Transportation

4.9.1 Agency Submissions

4.9.1.1 Agency Issue 1 – Concurrent approvals

The submission from NSW Roads and Traffic Authority (RTA) (22822) noted that:

Concurrent Approval

"Where the proposed power line crosses a public road, under Section 138 of the NSW Roads Act 1993, the proposed works would require formal approval from the appropriate Council, Council is the roads authority (consent authority) for all public roads within its area. On a classified road, the RTA must concur before any consent may be given by a Council. As such, detailed information on the proposed works would be required to be submitted to both Council and the RTA to enable a determination to be made." - RTA

Response

TransGrid note this requirement. **Chapter 5 Statutory Planning** in Volume 1 of the EA outlines the interrelationship of legislation that governs the determination of the Project. All necessary approvals will be obtained.

4.9.2 Action Group Submissions

4.9.2.1 Action Group Issue 1 – Increase in traffic and safety concerns

The submissions from the UDEN (22639) and Mingoola Progress Association Inc (21932) raised concerns about:

Increase in traffic and safety concerns

The submissions state that the Project would cause an increase in the traffic along the local roads. The Mingoola Progress Association Inc objects to the Project on the grounds that the Project would impose unnecessary extra risks of travel on already dangerous roads. The submission cites safety concerns about traffic volumes and three school buses using the roads at present.

"*..we feel that any extra traffic would seriously impact the poor state of the road, as well as posing an extra threat to us as users."* - Mingoola Progress Association Inc

Response

Chapter 13 Traffic and Transportation in Volume 1 of the EA contains detailed information regarding the number and type of vehicles that would be required along the alignment during the construction phase of the Project. **Table 13-2** and **Table 13-3** of the EA list all the vehicles that are anticipated to be used for the construction of the Project.

The estimated increase in traffic described in the EA is based on a "worst case" scenario. Under this scenario all the vehicles involved in the construction of the Project are on site at the same time. Due to the linear nature of the Project and the staged construction process, the actual impact of the construction traffic on any of the roads in the area is likely to be much less than that assessed in the

EA. The assessment illustrates that during construction the performance of the analysed road sections would not significantly change.

All the drivers employed in the construction phase of the Project would have undertaken appropriate training to allow them to drive safely and in line with the conditions of the road. Concern has also been raised regarding the safety of school busses along the Bruxner Highway during the construction stage of the Project. Draft Statement of Commitment G5 (refer to **Section 13.7** in Volume 1 of the EA) states that:

"*A Traffic Management Plan would be developed for the construction phase of the Project and would be included within the CEMP. The Traffic Management Plan would comply with all relevant Regulations and By-Laws and in particular address 'long' and ''heavy' load movement requirements and safe access and egress off the public road network.*"

4.9.2.2 Action Group Issue 2 – Incorrect classification of the Bruxner Highway

The submissions from UDEN (22639) and Mingoola Progress Association Inc (21932) noted the following issue:

Incorrect classification of the Bruxner Highway

The Bruxner Highway is documented in the EA as a road that is managed by the RTA while the submissions note that it is a Shire road that is maintained by the local Government.

"it has not been State owned for some years, and is now the responsibility of the shires across which it traverses – Tenterfield and Inverell."- Mingoola Progress Association Inc

Response

It is noted that the above submissions have highlighted an inaccuracy in the identification of the Bruxner Highway.

Under Section 138 of the *NSW Roads Act 1993* the Project requires formal approval from the appropriate consent authority when the Project passes over a road.

As the Bruxner Highway is managed by the local council and not the RTA, this would have an impact on the appropriate consent authority from which permission under Section 138 of the Act must be sought. However, the discrepancy does not have a material impact on the assessment methodology or the reported findings within the EA.

4.9.2.3 Action Group Issue 3 – Inadequate assessment of transport and traffic issues

The submission from Mingoola Progress Association Inc (21932) raised the following concern:

Inadequate assessment of traffic and transport issues

The submission notes that "*the Project has clearly not investigated these roads, the effects of more traffic upon them, or even the possibility that their own vehicles may not be able to access them for quite extended periods.*" - Mingoola Progress Association Inc

4 Response to Submissions

Response

Chapter 13 Traffic and Transportation in Volume 1 of the EA contains the Traffic Impact Assessment for the construction phase of the Project. The methodology employed in the assessment followed best practice guidelines and involved a desktop assessment using aerial photography and topographic information.

Traffic count data for the relevant locations along the classified roads was obtained from the Roads and Traffic Authority (RTA) database. Traffic generation during the construction and operation phases of the Project were based on construction vehicle volumes and operational activities.

This methodology was deemed to be adequate by the Department of Planning and Infrastructure, in consultation with the RTA and is consistent with industry practice.

4.9.3 Community Submissions

4.9.3.1 Community Issue 1- Impact of increased traffic

The submissions from *Name Withheld* (21908); Julia Harpham (21957); *Name Withheld* (21955); Steven Francis (22008); Matthew Cater (22017); and Andrew Hynes (22606) raised concerns regarding:

General Impact of increased traffic

These submissions noted that there is a perception that the Project would cause a significant increase in road usage within the local area.

"the state of our local roads is very poor now and would not stand up to heavy traffic". – Name Withheld

"This road is unsafe now, without a massive increase in large vehicles carrying heavy loads, as well as workers transport" – Julia Harpham

Response

The estimated increase in traffic described in the EA is based on a "worst case" scenario. Under this scenario all the vehicles involved in the construction of the Project are on site at the same time. Due to the linear nature of the Project and the staged construction process, the actual impact of the construction traffic on any of the roads in the area is likely to be much less than that assessed in the EA. In the unlikely event of the "worst case" scenario, the assessment illustrates that the performance of the analysed road sections would not significantly change.

Draft Statement of Commitment G5 (refer to **Section 13.7** in Volume 1 of the EA) states that:

"*A Traffic Management Plan would be developed for the construction phase of the Project and would be included within the CEMP. The Traffic Management Plan would comply with all relevant Regulations and By-Laws and in particular address 'long' and ''heavy' load movement requirements and safe access and egress off the public road network*."

Further to this, the Traffic Management Plan would include the design of temporary works on local roads where and if required, in order to accommodate heavy vehicles associated with the haulage of equipment and materials. These works may include intersection treatments, temporary speed zoning, traffic control devices (such as signage and linemarking) and modifications to street furniture and structures.

4.9.3.2 Community Issue 2 – Disrepair of roads

Submissions *Name Withheld* (21955) and Julia Harpham (21957, 22824 (attachment)) raised regarding:

Disrepair of roads

The submissions state that the roads are currently in a state of disrepair and are unsuitable for the proposed increase in traffic that would occur as a result of the Project.

Response

The existing maintenance level of roads is the responsibility of the relevant managing authority, either the local council or the Roads and Maritime Services. **Section 4.9.3.1** of this Report provides a response regarding the proposed traffic increases.

4.9.3.3 Community Issue 3 – Incorrect classification of the Bruxner Highway

Submissions *Name Withheld* (21955), Matthew Cater (22017) and Julia Harpham (21957, 22824 (attachment)) noted that:

Incorrect classification of Bruxner Highway

The submissions note that while the EA identifies the Bruxner Highway as a state road, managed by the RTA, it is in fact a shire road and is maintained by the local government areas through which it passes.

Response

It is noted that the above submissions have highlighted an inaccuracy in the identification of the Bruxner Highway. Further information is provided in **Section 4.9.2.2** of this Report.

4.9.3.4 Community Issue 4 – School safety

Submissions from Julia Harpham (21957); *Name Withheld* (21955); Matthew Cater (22017); and Phae Smith (21998, 21992, 22627) raised concerns regarding:

School Safety

The submissions stated that the increase of traffic along the Bruxner Highway would have an impact on the safety of the school busses that run through the locality.

"There are 3 school buses (Texas/Bonshaw, Tenterfield and Mingoola) using the road. The bus drivers have already voiced concerns over the condition and dangerous nature of the road." –Matthew Cater

Response

Section 4.9.2.1 of this Report provides a response regarding the safety of the school buses.

All the drivers employed in the construction phase of the Project would have undertaken appropriate training to allow them to drive safely and in line with the conditions of the road.

Concern has also been raised regarding the safety of school busses along the Bruxner Highway during the construction stage of the Project. Draft Statement of Commitment G5 (refer to **Section 13.7** in Volume 1 of the EA) states that:

"*A Traffic Management Plan would be developed for the construction phase of the Project and would be included within the CEMP. The Traffic Management Plan would comply with all relevant Regulations and By-Laws and in particular address 'long' and ''heavy' load movement requirements and safe access and egress off the public road network.*"

4.9.3.5 Community Issue 5 – Increase on road wear

Submissions from Julia Harpham (21957, 22824 (attachment)); Pearl Austin (22625); Colin and Helen Chevalley (22641); and Sandra Smith (23073) noted concerns regarding:

Increase in road wear

The submissions noted that the increased traffic on the local roads due to the Project would cause additional wear to the road network. The following is representative of the comments made:

"Who is going to repair and maintain our existing minor roads after heavy TransGrid vehicles and trucks loaded with steel materials and machinery, travelling on them have worn them away?" - Julia Harpham

Response

Section 4.9.3.1 of this Report provides a response regarding the proposed traffic increases. The existing maintenance level of roads is the responsibility of the relevant managing authority, either the local council or the Roads and Maritime Services. TransGrid, where liable, would rectify any damage caused to roads by the construction of the Project.

4.10 Noise and Vibration

4.10.1 Agency Submissions

No objections or comments concerning noise and vibration impacts were raised in submissions received from Government Agencies.

4.10.2 Action Group Submissions

4.10.2.1 Action Group Issue 1 – General noise impacts

The submission from TAG (21948), the Upper Dumaresq Environment Network (UDEN) (22639) and the Mingoola Progress Association Inc (21932) raised a concern regarding:

General Noise Impacts

The TAG submission noted a concern in relation to inevitable noise impacts which would arise from the Project. The UDEN submission commented that noise during the construction phase and future maintenance stages is very concerning to those living within and adjacent to the easement.

"The noise and dust from the machinery working to build the line will be extreme, and will affect not only those people living closer to it, but also on windy days many others as well." - Mingoola Progress Association Inc

Response

Chapter 14 Noise and Vibration in Volume 1 of the EA contains a detailed description of the noise and vibration impacts of the Project. The *Interim Construction Noise Guidance* (ICNG) (DECC 2009) stipulates the level of acoustic increase that is acceptable during the construction phase of the Project.

Sections 14.4, 14.5 and **14.6** in Volume 1 of the EA discuss the noise impacts of the Project and indicate how any impacts would be reduced through the use of mitigation measures where appropriate. The residual noise impacts of the Project were assessed to be within acceptable parameters for the majority of identified receptors. This was mainly due to the linear nature of the Project, and the fact that the construction would be transient.

In instances where acoustic exceedances are unavoidable, such as blasting, TransGrid would engage in targeted community notification and mitigation to ensure that impacts can be minimised. A full list of the mitigation measures that would be in place during the construction phase of the Project is contained in **Table 14-20** in Volume 1 of the EA.

Section 14.4.3 in Volume 1 of the EA outlines the operational noise impacts of the Project. Operational noise impacts associated with the transmission line and access tracks would be negligible given the few vehicles that would be required to maintain the Project and as transmission lines are typically quiet in operation. Relevant operational noise limits would also be achieved at receptors near Lismore Substation.

4.10.2.2 Action Group Issue 2 – Inadequacy of noise assessment in the EA

The submission from UDEN (22639) raised a concern regarding:

Inadequacy of noise assessment within EA

The submission states that it does not appear that the noise caused through the construction phase would in fact comply with permissible and acceptable noise standards.

Response

Chapter 14 Noise and Vibration in Volume 1 of the EA contains the noise and vibration assessment for the Project. This quantitative assessment followed the methodology presented in **Section 14.2.1** and used the guidance and standards set out in **Section 14.2.2**.

Due to the linear nature of the Project, the impact of construction noise on receptors would be transient and intermittent within the anticipated 32 month construction period. Works would not be undertaken in one location in a single period for longer than three weeks. The ICNG identifies works that last for up to three weeks as 'short-term' in nature. Notwithstanding, a quantitative assessment has been undertaken.

The noise assessment highlighted a number of locations along the alignment that could potentially experience short term (up to approximately 3 weeks) noise impacts due to exceedances of the ICNG construction noise limits. The ICNG criteria are characteristically very difficult to achieve, especially in rural areas, such as in the vicinity of the alignment. This is because background noise levels are typically relatively low in such areas. As the duration of exceedances would be less than three weeks, it is considered that any potential impact would be minor and this level of impact should be balanced against any social and economic benefits derived by the Project.

The only exception to this conclusion is the receptors within 400m of Lismore Substation, which may be subject to longer periods of noise above the noise affected criterion (40 dB(A)) during construction. As stated in **Section 14.4.1** in Volume 1 of the EA:

"The upgrade work at Lismore Substation is expected to last eight months (including periods of inactivity). During this period, peak construction is expected to last approximately 13 weeks. During this period, the (construction) *activities … would take place. The excavation, formwork and concrete pouring activities would last approximately 3-4 weeks, with the final 'movements' phase occurring intermittently over the remaining 9-weeks. Commissioning would occur within the next few months following the completion of the transmission line."*

It should be noted that the Highly Noise Affected criterion of 75 dB(A) would not be exceeded during construction and all work at the substation would be completed within standard working hours (refer to draft Statement of Commitment H5 in **Table 14-20**, Volume 1 of the EA). As outlined in draft Statement of Commitment H1:

"*Consultation with local residences would take place before, during and after the construction phase. Residents would be informed of the construction programme prior to work starting and a complaints register would be maintained.*"

In line with this commitment, TransGrid would aim to work with local residents to assist in the alleviation of community concerns and provide sufficient warning to nearby receptors of works that could cause potential disturbance.

Other potential impacts for both the construction and operation phase were also identified, however provided the mitigation measures outlined in **Table 14-20**, Volume 1 of the EA are implemented, any residual impacts would be considered minimal.

4.10.2.3 Action Group Issue 3 – Construction noise impacts on livestock

The submission from the Mingoola Progress Association Inc (21932) raised a concern regarding:

Construction noise impacts on livestock

The submission commented that, *"The noise and dust from the machinery working to build the line will be extreme, and will also upset animals grazing close to it."* - Mingoola Progress Association Inc

Response

The nature and scale of the Project mean that the majority of the noise impacts would be transient, intermittent and would only last three weeks. This is certainly the case for the majority of the transmission line, easement and access track construction works. Construction and upgrade works for the substations and switching station may have a longer overall construction programme, but these sites would also be subject to intermittent peaks of high activity followed by periods of inactivity.

The noise assessment presented in **Chapter 14 Noise and Vibration** in Volume 1 of the EA uses accepted standards and guidance to predict and assess noise impacts. These standards and guidance focus on human receptors and therefore any assessment of the impact of noise on livestock would be purely qualitative. Equally at this stage the final construction programme is unknown and therefore cannot be discussed with local residents to understand where they would be grazing their livestock in the future.

4 Response to Submissions

To mitigate this potential impact, TransGrid has committed to consulting with local residents before and during the construction phase (refer to draft Statement of Commitment H1, in **Table 14-20**, Volume 1 of the EA). This consultation would involve TransGrid discussing the proposed construction programme prior to work starting on site. At this point residents would be able to raise any particular concerns including making any grazing requirements known.

4.10.3 Community Submissions

4.10.3.1 Community Issue 1 – General noise impacts

The submissions from Pearl Austin (22625); *Name Withheld* (21908); Kim Hamel (22027); *Name Withheld* (21908); Julia Harpham (21957,22824 – attachment) and Matthew Cater (22017) raised a concern regarding:

General Noise Impacts

The above submissions listed noise or noise and vibration impacts as a concern and point of objection to the Project. These submissions raise objections to the Project on the basis of potential noise impyacts and disturbance to local residents. The submission from Julia Harpham (21957) commented that the impact to local residents would be severe.

The submission from Matthew Cater states, “the line is proposed to be built so close to our house that we consider the impact of dust and noise will be unbearable”.

Response

Section 4.10.2.1 of this Report provides a response regarding the general noise impacts.

4.10.3.2 Community Issue 2 – Construction noise impacts on wildlife

The submissions from Julia Harpham (21957, 22824 – attachment) and Pearl Austin (22625) raised a concern regarding:

Construction noise impacts on wildlife

The above submissions raise concerns about construction noise impacts on wildlife and livestock in the area. Typical of the comments submitted included:

“Noise from the building using jackhammers etc as described in the proposal will affect animals grazing within the area, and negatively impact the many rare and protected species which occur within the easement, and whose habitat we would like to see protected” - Julia Harpham

Response

Section 4.10.2.3 of this Report provides a response regarding potential noise impacts on livestock and wildlife.

As with assessing the effect of noise on livestock, any assessment of the impact of construction noise on wildlife along the alignment would be qualitative and subjective. Different fauna species are likely to have different tolerances to noise volume and tonality, and much in the same way that different people accept different levels of noise, individuals within a species are likely to be affected by noise in different ways (Blickley and Patricelli 2010). This combined with the lack of research on the effects of noise on a wide variety of fauna species makes any meaningful assessment almost impossible at an individual species level.

Notwithstanding this, any noise impact on a particular threatened fauna species that have the potential to occur in close proximity to the Project, is likely to be transient and intermittent as construction would only occur in one location for a maximum of three weeks. Potential noise impacts to livestock and wildlife, as a result of the Project, would be caused by construction works associated with the transmission line, easement and access tracks, and as such any potential noise pollution impacts would be short-term.

4.10.3.3 Community Issue 3 – Traffic noise impacts

The submissions from Julia Harpham (21957 and 22824 – attachment) raised a concern regarding:

Traffic Noise Impacts

The above submissions raise concerns about the impact of traffic generated noise and vibrations during the construction period.

"Vehicles on unsealed roads (specifically Reedy Creek Road) will create noise [and] vibration":- Julia Harpham

Response

Chapter 14 Noise and Vibration in Volume 1 of the EA contains an assessment of construction traffic noise. This assessment was conducted according to the methodology stipulated within *NSW Environmental Criteria for Road Traffic Noise* (ECRTN, EPA, 1999). The findings of the assessment (**Table 14-4** within the EA) did not find any instances where the guidelines were exceeded.

Although the ECTRN assessment is applicable to freeways and arterial roads, the extrapolated findings can be applied to other roads including Reedy Creek Road. Draft Statement of Commitment H5, in **Table 14-20**, Volume 1 of the EA limits the hours within which construction work can be carried out.

4.11 Air Quality and Greenhouse Gas

4.11.1 Agency Submissions

No objections or comments concerning air quality or greenhouse gas impacts were raised in submissions received from Government Agencies.

4.11.2 Action Group Submissions

4.11.2.1 Action Group Issue 1 – Dust during construction

The submission from UDEN (22639) objected on the grounds of:

Dust during construction

The submission commented that "*…Dust during the construction phase and future maintenance stages are very concerning to those living within and adjacent to the easement.*" - UDEN

4 Response to Submissions

Response

Chapter 15 Air Quality in Volume 1 of the EA contains an assessment of potential air quality impacts, including issues arising from the creation of dust during the construction phase. A number of measures would be implemented to ensure that any dust impacts are suitably mitigated. These measures are presented in **Table 15-1** in Volume 1 of the EA. Draft commitments I1, I2 and I4 are of particular relevance. In summary, these measures include:

- dust awareness training for personnel undertaking construction and operational activities;
- progressively revegetating or rehabilitating disturbed areas following construction;
- vehicles used for construction and operational activities would be properly maintained; and
- water trucks for dust suppression would be utilised during construction where required.

4.11.3 Community Submissions

4.11.3.1 Community Issue 1 – Greenhouse Gas Emissions

Submissions from Peter Woodrow (20521); Name Withheld (21908); Sandor von Kontz (22648, 23766) noted concern in regard to the following issue:

Greenhouse Gas Emissions

The submission from Peter Woodrow (20521) contends that the evaluation of the emissions does not account for the built emissions associated with the production of materials used to construct and subsequently operate the transmission line.

"*On page 38 of the main report TransGrid claims, the Project will save 33,000 tons of CO2 per year due to increased efficiency of the network. This is completely ludicrous… In relation to the EastLink enquiry… The Committee recommends that the Commonwealth Government investigate in detail the likely impact of Eastlink on coal consumption and the implications of any change in that consumption for greenhouse gas emissions having regard to its international obligations.*" – Sandor von Kontz

Response

Section 15.4 in Volume 1 of the EA discusses Greenhouse Gas (GHG) emissions as well as Scope 1, 2 and 3 emissions.

As noted in **Section 15.4**, the Project would produce Scope 3 emissions from the production and distribution of materials used for the transmission infrastructure (e.g. aluminium, concrete and steel).

However, there are a number of offsetting factors to consider when assessing the overall greenhouse impact of the Project:

- whilst the Project involves the clearance of native vegetation, sections of the alignment may be able to retain some vegetation. The final clearing requirement of the alignment would be assessed for each span on a case by case basis and would depend on terrain, vegetation, environmental conditions and precise height of conductors. A Biodiversity offset package would also be developed to mitigate some of these vegetative losses (refer to **Appendix F Biodiversity** of Volume 2 of the EA). Revegetation of land would permit the land to again play a, albeit small, role in CO_2 absorption from the atmosphere; and
- increasing the voltage of the existing transmission network would reduce electrical losses related to transmission.

4 Response to Submissions

Apart from meeting increasing demand and maintaining the security of electricity supply, the Project would result in efficiency improvements which would act to reduce Scope 2 emissions associated with transmission of electricity along the line. The existing 132kV line would be replaced with a 330kV line, providing a significant decrease in line losses along the route. It has also been estimated that the overall transmission network energy losses, would be reduced by approximately 35.5 Giga Watt hours (GWh) over its first year of operation - the equivalent of the electricity consumed in the area of Tenterfield. This saving is estimated to be a saving of 33,000 tons of CO_2 emissions per annum as a result of the improved efficiency of the higher voltage transmission line.

Sources of GHG emissions related to the generation of the electricity that is transported via the transmission infrastructure are regarded as indirect emissions over which TransGrid has no direct control. The Project itself does not provide any direct incentive for users to use more power, however if demand increases as predicted, this could lead to increases in GHG emissions, depending on the source of electricity generation.

4.11.3.2 Community Issue 2 – Promotion of coal generated electricity

Submissions from Jane I'Ons (21799), Sandor von Kontz (23766); Julia Harpham (22824 – attachment); Justyn Comer (21892), *Name Withheld* (21914), *Name Withheld* (21916), *Name Withheld* (21951); Christine Harpham (21934) object on the grounds of:

Promoting Coal Generated Electricity

A number of submissions stated that the Project represents an increased reliance on coal generated electricity and is supporting the use of coal-fired power stations instead of renewable fuels. One submission states that:

"The CO_2 emissions from coal fired power stations create a significant environmental impact and represent an out-dated power generation technology" – Jane I'Ons

Part of the submission received from Julia Harpham included an extract from *Gas & Electricity – Combining Efficiency and Greenhouse* (The Senate Standing Committee on Industry, Science and Technology, 1992). The extract stated that, "*the development of a national grid must not preclude the further development of … new technologies."* – Julia Harpham

Response

Once the Project is operational it would be used to carry electricity generated from a variety of sources. TransGrid has an obligation to ensure that the transmission network is adequate to maintain a supply of electricity, the implementation of the Project meets this requirement. TransGrid does not, and is not permitted to promote one source of power generation over another.By augmenting the transmission capacity in the Far North of NSW, the Project may indeed facilitate, rather than preclude, the future development of large scale renewable energy power projects in the region. Transmission line capacity is a key driver for the location of renewable technologies such as utility scale solar power stations. Such development might not otherwise be feasible without sufficient infrastructure.

4.11.3.3 Community Issue 3 – Dust during construction

The submissions from Julia Harpham (22824 – attachment) and Matthew Cater (22017) raised concerns regarding:

Dust during construction

Typical of comments submitted is "*The line is proposed to be built so close to our house that we consider the impact of dust … will be unbearable."* - Matthew Cater

Response

Chapter 15 Air Quality in Volume 1 of the EA contains an assessment of potential air quality impacts, including issues arising from the creation of dust during the construction phase. A number of the draft Statement of Commitments have been developed to ensure that any dust impacts are suitably mitigated. These draft commitments are presented in **Table 15-1** in Volume 1 of the EA. Draft commitments I1, I2 and I4 are of particular relevance. In summary, these measures include:

- dust awareness training for personnel undertaking construction and operational activities;
- progressively revegetating or rehabilitating disturbed areas following construction;
- vehicles used for construction and operational activities would be properly maintained; and
- water trucks for dust suppression would be utilised during construction where required.

4.12 Hazards, Risks and Bushfire

4.12.1 Agency Submissions

4.12.1.1 Agency Issue 1 – Bushfire safety during construction

The submission from the NSW Rural Fire Service (22809) has noted the need for the following to be included in the final Statement of Commitments for the Project:

Safeguards during construction

The submissions states that during construction work (on all lands associated with the Far North NSW Project, except managed lands) were cutting, grinding or welding of metal materials is to be undertaken:

- *"Construction crew and maintenance staff would be trained on basic first response fire fighting techniques including notification of fires and reporting.*
  - On all days of construction, 1,000 litres of fire fighting water, extinguishers, knap-sacks and rakehoes would be available on each construction site.
  - All trained personnel would be provided personal protective equipment suitable for the fire activities.
- *On days of Total Fire Ban or days of Catastrophic Fire Danger days, 4WD striker unit(s), extinguishers, knap-sacks and rakehoes would be available to respond to any bushfire fire threat.*
- *TransGrid (or the operating company) shall provide route/infrastructure plans, bushfire management plan and contact details to all District Fire Control Centres that the Project traverses through. "*

4 Response to Submissions

Response

Section 16.3 Bushfire Assessment in Volume 1 of the EA presents a summary of **Appendix I-3 Bushfire Risk Assessment** in Volume 2 of the EA. **Table 16.2** in Volume 1 of the EA presents ten draft commitments for the Project relating to bushfire risk. These commitments largely address the requirements of the NSW Rural Fire Service outlined above.

In addition, TransGrid also has procedures to assess and manage fire risks associated with construction activities. These procedures incorporate a risk assessment and management framework.

For example, if a Total Fire Ban with a Catastrophic rating is declared by the NSW RFS then no works classified as Hot Work are permitted. Hot Work would include work activities that have a high likelihood of creating a fire risk and includes slashing, mulching, welding and grinding.

The requirements for water and extinguishers on site are determined by fire risk assessments for each activity. All construction staff would be required to complete a fire risk assessment and nominate control measures prior to undertaking any hot work.

The existing commitments in the EA and TransGrid's procedures for managing fire risk are considered adequate.

4.12.2 Action Group Submissions

4.12.2.1 Action Group Issue 1 – Disaster management plan

The submissions from The Upper Dumaresq Environment Network (22639) and the Upper Dumaresq Action Group (22824) raised the following concern regarding:

A Disaster Management Plan

The submissions stated that the absence of an integrated Disaster Management Plan at this stage of a Project is unsatisfactory.

Response

As discussed within the EA (refer to **Section 19.3.1** of Volume 1), a Bushfire Emergency and Evacuation Plan would be developed as part of the suite of management plans within the CEMP prior to construction. The objectives of such a plan would be similar to those that would be included in a 'Disaster Management Plan' outlined above. The preparation of this plan post approval and pre-construction is standard practice in relation to project assessment, approval and implementation practice.

4.12.2.2 Action Group Issue 2 – Increased bushfire risk

The submissions from UDEN (22639); Mingoola Progress Association Inc (21932) and UDAG (22824) raised the following concern regarding:

Increased bushfire risk and impact on emergency service response

The submissions state that the increased likelihood of bushfires as a result of a high voltage power line is a significant issue. The submission from Mingoola Progress Association Inc (21932) noted that TransGrid accepts that there could be increased fire frequency and damage to the surrounding environment. According to this submission, the modelling of areas of high risk appears to be inadequate and the EA has glossed over the management of fire.

4 Response to Submissions

The submission from Mingoola Progress Association Inc (21932) discusses potential interference with radio and telephone reception and consequently on emergency responses in the event of fire events. *"We fear that the mobile phone coverage may be completely disabled, and would like to point out that TransGrid has not addressed this problem. We object on the grounds that our communication networks are vital to our safety as well as for our social well-being, and the line will disrupt these networks."* - Mingoola Progress Association Inc

Response

Section 16.3 Bushfire Assessment in Volume 1 of the EA states that electricity infrastructure causes less than 4% of bushfires nationally (Parliament of Victoria, 2009). The draft Northern Tablelands Bushfire Risk Management Plan (2010) identifies three primary sources of ignition for the region and none of them are transmission lines or their associated infrastructure.

To understand the risks from bushfire TransGrid commissioned a thorough Bushfire Risk Assessment (refer to **Appendix I-3**, in Volume 2 of the EA) of the Project. This included assessing the bushfire risk presented by the Project within the framework recommended by the NSW Bush Fire Coordinating Committee Guidelines (refer to **Section 16.3.1** in Volume 1 of the EA for further details). This assessment has identified a number of high risk areas and management measures have been presented in the form of draft Statement of Commitments to ensure any risk of bushfire is minimised (refer to **Table 16-2** in Volume 1 of the EA). A Bushfire Emergency Evacuation Plan would be developed as part of the suite of management plans post approval and prior to construction which would include contingencies for bushfire risk during construction.

Section 4.13.3.3 of this Report provides a response regarding the effect of EMF on mobile reception.

Historically, TransGrid has not found that the presence of transmission lines causes interference with radio and telephone reception or communications.

4.12.3 Community Submissions

4.12.3.1 Community Issue 1 – Increased bushfire risk

Submissions from Pearl Austin (22625); RS & MO Dowe (22633), Sandor von Kontz (22648), *Name Withheld* (21951) Julia Harpham (21957), Julia Harpham (22834 (attachment)); Andrew Hynes (22606), AL and VA Schroder (TG 3) and Barbara Potter (22610) object on the grounds of:

Increased Risk of Bushfire

A number of submissions raised concerns regarding the Project increasing the risk of bushfires. The submissions noted that the enquiry into the Victorian bushfires showed power lines to be a major cause for bushfires. The submissions stated that the rural nature of the Project area would mean that if a fire was to be started by the new transmission line there is an increased risk to residents. The submissions also stated the lack of a localized Crisis Management Plan for the residents and landholders to access in the event of a crisis, and the rural nature of the Project, was not taken into consideration when developing the 'bushfire intensity scores'.

Increased bushfire risk from fallen lines, electrical storms and lightning strike was also stated to be a concern of a number of submissions.

One typical comment in relation to this issue stated *"I disagree with the [BAL] intensity score around my place. Particularly sections 7 and 8 are well grassed woodlands and very steep forested slopes."* – Sandor von Kontz

Response

Section 4.12.2.2 of this Report provides a response regarding the increased risk of bushfire. The Bushfire Risk Assessment (refer to **Appendix I-3** in Volume 2 of the EA) included an assessment of the risk of the transmission line causing a fire and it presents measures to minimise this risk. Therefore, the Study Area was focussed on the area immediately surrounding the transmission line. Mitigation measures that minimise the risk of the Project causing a bushfire can be considered also to minimise risk to areas outside the Study Area. Sandor Von Kontz's property is outside the Study Area and therefore has not being individually identified as part of **Appendix I3 Bushfire Risk Assessment** of the EA. However the mitigation measures presented are relevant to minimising the risk to all properties in the wider surrounding areas. The bushfire intensity figures for sections 7 and 8 have been identified by an accredited specialist in bushfire risk assessment and these figures range from Intensity Class 6 to 2.

4.12.3.2 Community Issue 2 – Lightening strike

Submissions from Barbara Potter (22610) and *Name Withheld* (21720) object on the grounds of:

Lightning strike issues

These submissions suggest that there is a high incidence of lightning strikes in the area.

A typical comment submitted was: "South East Queensland and Northern New South Wales have one of the highest incidents of lightning strike in Australia. Towers which are 35/40 metres high have the potential to become lightning rods which puts into question the reliability of this line." - Name Withheld

The submission from *Name Withheld* (21720) also points out that the EA does not consider the impact of lightning strike impact on the reliability of the line.

Response

Local climatic conditions, including the incidence of lightning are considered when transmission lines are designed to ensure the required reliability would be achieved. The proposed transmission line would include an overhead earthwire that would provide effective lightning protection by intercepting the lightning and providing an electrical path to ground where the lightning is absorbed.

4.12.3.3 Community Issue 3 – Risk to Sunnyside Airstrip

The submissions from Daniel I'Ons (21976) and AL and VA Schroder (TG 3) express concerns about the following issue:

Risk to the Sunnyside Aerodrome

These submissions express concerns about the Project interfering with flight paths.

A typical comment received was: *"The proximity of the proposed power line to the north (<2kms) and west (<3kms) of Sunnyside aerodrome presents a significant hazard both to aircraft in the circuit and aircraft taking off to the west, in particular during periods of low cloud or engine failure."* - Daniel I'Ons

4 Response to Submissions

Response

TransGrid takes into account the proximity of any commercial or agricultural airstrip when planning a preferred route for a transmission line and places a high priority on safety by maintaining appropriate buffer zones and clearances.

In 2010, TransGrid engaged aviation consultants Rehbein to undertake an assessment of the Project's effect on Sunnyside airstrip[24]. The results of the study show the Project would not affect the operation of Sunnyside airstrip and would be well outside the approach and take-off length required under the Civil Aviation Safety Authority's Aerodrome Standards.[25]

The Rehbein study also reviewed the potential impact of the transmission line in the event that the runway was upgraded to different standards. The report concluded that:

i). upgrading of the runway to facilitate occasional operations by Beech King Air 200C air ambulance aeroplanes during daylight hours would require grading and sealing the runway, taxiway and apron to improve aerodrome availability during wet weather. The aerodrome would not require reclassification and could retain its present status as an aeroplane landing area (ALA).

ii). upgrading of the runway to support operations by single engine aeroplanes with a maximum take off weight (MTOW) in excess of 2000 kg and multi engine aeroplanes not exceeding 5,700 kg MTOW (specified in Civil Aviation Advisory Publication 92-1(1)), would not be affected by the proposed power line.

iii). if the runway is upgraded to non-instrument Code 2B status to support operations by Beech king Air 350 aeroplanes, then an operating restriction requiring right hand circuits for landing would be required. Upgrading of the runway to non-precision instrument Code 2B status to support all weather operations would similarly require a restriction on circling to the north of the runway in weather conditions that necessitate flight under the instrument flight rules, and would cause an operational penalty in the form of a higher minimum descent altitude for all aircraft instrument approach categories. The operational penalty could be alleviated by the introduction of non-precision instrument approach procedures that provide straight-in approach minima but the considerable infrastructure cost of upgrading the runway to support this level of service is likely to be prohibitive.

Therefore the proposed Project would not impact the operation of the Sunnyside Airstrip either now or in the future.

[24] Rehbein AOS (2010). *Sunnyside Aerodrome OLS – Aeronautical Study for TransGrid*. Prepared March 2010.
[25] Annex 5 to the *ICAO Convention on International Civil Aviation, and the Manual of Operational Standards, Part 139 — Aerodromes*

4.12.3.4 Community Issue 4 – Risk of electrocution

Submissions from Julia Harpham (21957) and *Name Withheld* (21720) object on the grounds of:

Risk of Electrocution

Submissions received noted a concern that the proposed transmission line may raise the risk of electrocution in certain circumstances. Comments included:

"*According to the TransGrid officials, to prevent build-up of static charge, fences and gates in the vicinity of the transmissions line would have to be earthed. Does this mean when it's wet we can't fence? Does it mean we will be electrocuted if the earths are inefficient or removed by flood or bushfire?"* - Julia Harpham

"The Tenterfield District is a fire prone area. In the event of a major bush fire, there is a risk of electrocution due to carbon being attracted to the magnetic field. If you do not understand the danger of high voltage power lines, a 60 metre cleared area could be considered a place to fight the fire from or to seek refuge." - Name Withheld

Response

The transmission line would be designed with certain safeguards, which cause the electricity to shut off in case of a fault or interference, including a major bushfire.

As part of the design of the overall Project, consideration is also given to fences in close proximity to the transmission line to ensure they are sufficiently earthed where required. If any damage occurs to the earthing during the operation phase, TransGrid would fix this as part of the maintenance of the transmission line.

4.13 Electric Magnetic Fields

4.13.1 Agency Submissions

No objections or comments concerning the impacts of electric magnetic fields were raised in submissions received from Government Agencies.

4.13.2 Action Group Submissions

4.13.2.1 Action Group Issue 1 - Health Impacts of EMF

Submissions from UDEN (22639); UDAG (22639); and Mingoola Progress Association Inc (21932) contained issues regarding:

Health Impacts of EMF

The submissions state that the long term impacts of EMF on human health are not fully understood and those living and working near the Project could be adversely impacted in ways not appreciated at this point. One comment noted:

"*The future effects of EMF's is of great concern to many residents, and has not been properly addressed. TransGrid tells us a policy of prudent avoidance is their answer but we would like to know how we can prudently avoid something whilst living and working on our properties, and going about our daily business.*" - Mingoola Progress Association Inc

4 Response to Submissions

Response

The health impacts of EMFs have been the subject of many detailed studies around the world for more than 30 years. To date, no detrimental health effects have been established, although the possibility they may exist has not been ruled out.

Due to the inconclusive nature of studies on the potential health effects of EMF and TransGrid's strong commitment to public safety, a precautionary approach of prudent avoidance has been adopted. This approach is common practice in the electricity industry and involves:

- taking EMFs into account in the design and location of new facilities/assets;
- closely monitoring ongoing research and reviews by scientific panels and international policy developments;
- continuously reviewing TransGrid policies and practices in light of the latest scientific information; and
- providing information to interested people when requested.

It is important to note the approach of prudent avoidance is undertaken by TransGrid and not something that is imposed on individual land owners.

In addition to the above, the Project has been designed in accordance with standards produced by the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA). The standards set limits for public and occupational exposure to EMF, to prevent adverse effects. Given that the predicted EMF levels from the Project are well below limits set by ARPANSA, it is considered that activities such as grazing and working on properties traversed by the Project would not pose an EMF hazard. ARPANSA is the Federal Government agency with responsibility for protecting the health and safety of people and the environment from the harmful effects of ionising and non ionising radiation, and states:

"*On balance the scientific evidence does not indicate that exposure to EMFs found around the home, the office or near power lines is a hazard to human health*".

TransGrid takes any risk to human health very seriously. As a result, TransGrid closely monitors ongoing EMF research and reviews by scientific panels and international policy developments, continually reviewing our policies and practices in light of the latest scientific research.

A vast amount of research and literature has focused on childhood cancer and leukaemia in particular. Other diseases including adult cancers; heart disease, Alzheimer's disease and depression have also been examined.

In 2010, the European Health Risk Assessment Network on Electromagnetic Fields Exposure released a report[26] that noted in particular that "*There is limited evidence for an association between magnetic fields and the risk of leukaemia in children. However, it is possible that a combination of chance, bias and confounding may have produced this result.*"

[26] European Health Risk Assessment Network on Electromagnetic Fields Exposure (EFHRAN). D 2 – Risk analysis of human exposure to electromagnetic fields. 2010 Oct 4. Available at: <http://efhran.polimi.it/docs/EFHRAN_D2_final.pdf>.

Further, the report stated, "*There is inadequate evidence for Alzheimer's Disease, childhood brain tumours, and Amyotrophic lateral sclerosis. However the data suggest some elevated risks may exist, particularly for Alzheimer's disease, which suggests further studies on these outcomes would be useful. For all other cancers, other neurodegenerative diseases and for symptoms, there is also inadequate evidence, but there appears to be no justification to conduct further studies.*" Finally, they found a consistent absence of effects for breast cancer and cardiovascular disease.

The authors conclude, "*For none of the diseases is there sufficient evidence for a causal association between exposure and the risk of the disease.*" They support their classifications with references to about 20 recent scientific publications.

As part of TransGrid's strong commitment to the health and safety of the community, TransGrid would continue to monitor current and future research into EMF, taking on board evidence and results from around the world.

4.13.3 Community Submissions

4.13.3.1 Community Issue 1 – Health impacts of EMF

Submissions from Andrew Hynes (22606); Paulene Brookes (21847); *Name Withheld* (21951); *Name Withheld* (21955); Julia Harpham (21957); Matthew Cater (22017); Kim Hamel (22027); Pearl Austin (22625); Sandra Smith (23073); Lynn Takayama (21940); Sandor von Kontz (23459 – attached); James & Philippa Lilyman (TG 4); Neroli Endacott (21970); Craig Rose (21918); Christopher Harpham (TG 2); and Ruth Matthews (21590, 21592, 21618) have objected for the following reason:

Health Impacts of EMF

The submissions state that the long term impacts of EMF on human health are not fully understood and those living and working near the Project could be adversely impacted in ways not appreciated at this point. The submissions suggest the adoption of a policy of "prudent avoidance" when dealing with EMF. However, it is pointed out that avoidance is not possible to achieve when forced to live or work under a transmission line. One typical comment on this point was:

"*we are very concerned about the effect of EMF's, especially since we have very young children. We fear that our children's health will be affected*" - Matthew Cater

Submissions from Neroli Endacott (21970) and Craig Rose (21918) also raised concern regarding the safety of children playing, camping or visiting the area with the *'loud hum of the huge overhead wires above and dangers below'.*

The report into the Eastlink Transmission Line that was submitted as an attachment to Submission number 23459 claimed that even if there is no documented proof of health risks from EMF, the perception of possible risks may in itself be causing health impacts to those living in the vicinity of transmission lines.

The submission from Paulene Brookes (21847) raises a specific concern over the potential impact of EMFs on pacemakers.

Response

Section 4.13.2.1 of this Report provides a response regarding the potential health impacts of EMF.

Historically, TransGrid has not found EMF associated with the operation of transmission lines to impact the operation of pacemakers. The recent publication 'EMF and Your Health' from the Electric Power Research Institute, a respected research organisation in the US, states the sensitivity of pacemakers depends on manufacturer, design, and how they are used by a patient. It states that high levels of exposure to EMF may cause interference with the operation of pacemakers, but also notes that "in practice, interference is very rare."[27]

In regard to the Project, the predicted EMF fields at the edge of the easement and at the boundaries of the sub and switching station are below maximum recommended levels and can be considered similar to those experienced everyday from common appliances[28].

4.13.3.2 Community Issue 2 – EMF impact on wildlife and livestock

Submissions from Julia Harpham (21957, 22824 – attachment); James and Philippa Lilyman (TG 4); Sandra Smith (23073); Colin and Helen Chevalley (22641); Andrew Hynes (22606); Ruth Matthews (21590, 21592, 21618); and Pearl Austin (22625) have objected for the following reason:

Impact of EMF on wildlife and livestock surrounding the Project

The submissions claim that EMF from the Project could have long term impacts on native wildlife and livestock, including cow and sheep fertility, in areas surrounding the alignment. One comment noted:

"One issue unresolved is whether the lines will affect the price of cattle and other livestock grazing under the lines, especially if research shows that there are definitely health issues for animals in proximity" – Julia Harpham (Eastlink comparison)

Response

A number of studies from around the world have investigated, researched, collected data and observed the effects of EMF on plant growth and animal health.[29] The studies were conducted over a long period of time, and research is ongoing. 'EMF exposure has not been shown to have any consistent detectable, adverse effects on plant growth or animal health.'[24] Studies[30] that were completed in France and Finland in September 2011 found: "*Animal experiments have provided no evidence that Extremely Low Frequency (ELF) Magnetic Fields could affect the mammalian development, brain tumours, and haematopoietic tumours.*"

[27] Electric Power Research Institute (January 2012), *EMF and Your Health*
[28] Source: http://www.ena.asn.au/udocs/2009/08/Electric-and-Magnetic-Fields-What-we-know.pdf
[29] Electric Power Research Institute (January 2012), *EMF and Your Health*
[30] Lagroye I., Percherancier Y., Juutilainen J., Poulletier De Gannes F., Veyret B. 'ELF magnetic fields: Animal studies, mechanisms of action'. Progress in Biophysics and Molecular Biology, Volume 107, Issue 3, December 2011, 369-373.

Other research[31] published in November 2011 from Russia, USA and Italy investigated different animal's perception of low level magnetic fields. While the study did not specifically look at the potential health effects, the study did examine the animal's ability to perceive and react to magnetic fields and biological systems. Animals that formed part of the study included wildlife such as birds, turtles and pigeons. The findings suggested that naturally occurring geomagnetic fields assisted the navigational paths of birds but that random magnetic fields such as those produced by transmission lines did not affect their flight path.

Given the current supporting literature, TransGrid considers that the EMF produced by transmission lines would not adversely affect native wildlife and livestock; therefore the Project would not affect the price of cattle and livestock grazing under the transmission line. This is further supported by the large number of livestock which graze under TransGrid's existing assets which have not shown to be affected by exposure to EMF.

4.13.3.3 Community Issue 3 – EMF impact on mobile phones

The submission from Julia Harpham (21957, 22824 (attachment)) has raised concerns about the following issue:

Impact of EMF on Mobile phone reception

The submission raises concerns about the impact of EMF from the Project on the level of mobile phone reception in the area.

Response

Historically, TransGrid has not found EMF to impact the operation of mobile phones, or their reception in the vicinity of transmission towers and lines. The frequency ranges associated with the operation of mobile phone networks and EMFs produced by transmission lines are different and therefore would not impact each other.

4.13.3.4 Community Issue 4 – Lack of scientific data regarding EMF impacts

The submission from Sandor von Kontz (23766) raised concerns regarding:

The lack of scientific data on the impact of EMF

The submission claims that in the absence of certainty on the impact of EMF, the Precautionary Principle should be applied.

"There is still not enough scientific data on the impact of HV transmission lines on the environment to completely ignore the possibility of significant impacts." – Sandor von Kontz

[31] Studies include : Chernetsov N, Kishkinev D, Kosarev V, Bolshakov CV. Not all songbirds calibrate their magnetic compass from twilight cues: a telemetry study. J Exp Biol. 2011 Aug 1;214(15):2540-3. (The Journal of Experimental Biology); and Fuxjager MJ, Eastwood BS, Lohmann KJ. Orientation of hatchling loggerhead sea turtles to regional magnetic fields along a transoceanic migratory pathway. J Exp Biol. 2011 Aug 1;214(15):2504-8; and Del Seppia C, Mencacci R, Luschi P, Varanini M, Ghione S. Differential magnetic field effects on heart rate and nociception in anosmic pigeons. Bioelectromagnetics. 2011 Sep 27

Response

Sections 4.13.2.1, 4.13.3.1, 4.13.3.2 and 4.13.3.3 of this Report discuss the scientific data on the impact of EMF. Whilst research is ongoing, the majority of the research completed to date indicates that EMF from transmission lines would not impact either the local community or the environment.

4.14 Socioeconomic Impacts

4.14.1 Agency Submissions

No objections or comments concerning socioeconomic impacts were raised in submissions received from Government Agencies.

4.14.2 Action Group Submissions

4.14.2.1 Action Group Issue 1 – Impact on land values

Submissions from UDAG (22639); Mingoola Progress Association (21932); UDEN (22639); and TAG (20521) raised the following issue:

Land Values

These groups expressed concern that the impact of the Project would cause a reduction in value of land both along and surrounding the alignment. One comment noted that:

"the Project will lead to a massive loss in property values" - UDEN

Response

TransGrid's compensation assessment and subsequent offer to landowners takes into account the effect of the easement on the current market value of the property. Compensation is paid for any reduction in value of the property where an easement would be acquired for a transmission line, in accordance with the *Land Acquisition (Just terms Compensation) Act 1991*. This is in line with accepted practices for such compensation. This amount may vary due to differing factors, which are considered when assessing compensation.

Available sales evidence does not show measurable levels of decreased property value attributable to the presence of infrastructure such as transmission lines.

To help ensure a fair acquisition process, TransGrid encourages landholders to seek independent valuation and legal advice when considering their offers of compensation. All reasonable costs incurred by the landholder as a result of the acquisition process, such as legal costs or valuation fees, are reimbursed by TransGrid.

The *Land Acquisition (Just Terms Compensation) Act 1991* does not contemplate payment of compensation to landholders in circumstances where no interest in that land has been acquired.

Avoidance of sensitive receptors including residences was an objective of the route selection process undertaken to determine the proposed alignment. Wherever possible, angle positions have been placed in strategic locations to minimise potential visual impact (e.g. avoiding, where possible, skyline views) and to provide maximum setback from residences and roads.

4.14.2.2 Action Group Issue 2 – Compensation to residents

The submission from UDEN (22639) raised the following issue:

Compensation to Residents

The Submission states that the compensation being offered by the proponent is inadequate and does not take future increases in land values into consideration. The submission states that:

"Compensation offered has been very poor, and does not reflect the real value of properties. Many landowners do not have a dedicated superannuation fund, and rely upon the sale of their properties to fund their retirement".- UDEN

Response

Compensation would be offered to all landholders from whom an easement is to be acquired having regard to the Heads of Compensation provisions as prescribed in Section 55 of the *Land Acquisition (Just Terms Compensation) Act, 1991*. TransGrid employs independent registered property valuers to carry out detailed current land valuations in order to determine the amount of compensation.

TransGrid's compensation assessment and subsequent offer to landowners takes into account the effect of the easement on the current market value of the property.

To help ensure a fair acquisition process, TransGrid encourages landholders to seek independent valuation and legal advice when considering their offers of compensation. In addition, all reasonable costs incurred by the landholder as a result of the acquisition process, such as legal costs or valuation fees, are reimbursed by TransGrid.

4.14.2.3 Action Group Issue 3 – Tourism impacts

The submission from UDEN (22639); Mingoola Progress Association (21932); and TAG (20512) raised the following issue:

Tourism impacts

The submission states that the Project would have a potential impact on local tourism in the area: The submission states:

"The Project will affect the burgeoning eco-tourism and winery industry in the more remote areas" - UDEN

Response

Tourists are attracted to any area for a variety of reasons. In circumstances where an increase in population is anticipated over coming years there is no evidence to suggest that tourism numbers would decline.

The visual assessment undertaken as part of the Environmental Assessment (refer to **Appendix H** in Volume 2 of the EA) considered the visibility of the Project from a number of public recreation and conservation areas that include Wilderness Areas, National Parks, State Conservation Areas and State Forests. These areas are tourist destinations and offer a range of recreational activities such as camping, bushwalking and four wheel drive facilities. It was determined there would be a nil visibility rating from most of these areas due to topography and vegetation except for the Girard State Forest which had a low visibility rating. In this location the transmission line is proposed to follow the

alignment of the existing 132kV transmission line which is generally screened from camping and day use areas within the State Forest.

4.14.2.4 Action Group Issue 4 – Value of the Project

The submission from TAG (20512) raised the following issue:

Value of the Project

The submission states that the Project has been incorrectly valued due to the fact that the potential losses in land value along the alignment should be included in the total cost of the Project. The submission notes:

"The Project costing does not reflect the reduced value of assets in the vicinity of the proposed transmission line due to the many factors including visual impacts and perceived health risks. A reduced value of assets has been transferred as a hidden cost to the asset owners in the vicinity of the transmission line, both within the, and outside the easement. Consequently the Project costing is false." - TAG

Response

The Project cost estimate is approximately $227 million and is comprehensive and inclusive of all costs associated with the planning, design, environmental assessment, approvals, construction and easement acquisition and the associated payments to landowners.

Compensation payments are formulated on the basis of advice from registered valuers, and as such TransGrid considers itself entitled to rely on that advice in preparing Project costings.

The *Land Acquisition (Just Terms Compensation) Act 1991* does not contemplate payment of compensation in circumstances where no interest in land has been acquired.

4.14.3 Community Submissions

4.14.3.1 Community Issue 1 – Valuation of land

Submissions from *Name Withheld* (21720); Paulene Brookes (21847); Lynn Takayama (21940); *Name Withheld* (21908); Colin Kilburn (21912); Susan Bailey (21953); Julia Harpham (21957, 22824 – attachment); William Eastgate (21961); Sandra Smith (23073); Edward Hickson (21986); Matthew Cater (22017); Andrew Hynes (22606); JJ Spedding (22619); *Name Withheld* (21955); Pearl Austin (22625); Ralph Weatherley and Sylvia Grigg (22631); RS & MO Dowe (22633); Sandor von Kontz (22648); William Harpham (23626); Charmaine Harrison (TG 1); AL and VA Schroder (TG 2); Sandor von Kontz (23459 –attachment); Peter Woodrow (20521); Peter Spedding (22803); James & Philippa Lilyman (TG 4); and Ruth Matthews (21590, 21592, 21618) raised the following issue:

Valuation of Land

These submissions raised concerns that land values would decrease in lands directly affected by the Project and also in neighbouring lands, overlooking the alignment. The submission from *Name Withheld* (21720) notes that the Project would render the author's land suitable only for grazing by eliminating all potential housing sites. Other submissions make the following comments:

"Whereas, in past times, land values perhaps did not diminish as much as a result of power lines being built over them, there is now much more public antipathy, which makes the land far less valuable" - Julia Harpham

"*the proposed Project will not only greatly devalue the acreage of current landholders, it will certainly deter new purchases from coming to this naturally beautiful area.."* - James & Philippa Lilyman

Response

Section 4.14.2.1 of this Report provides a response regarding the regulations that TransGrid must adhere to when valuing land. As discussed, the impact of the easement on property values are assessed independently by experienced valuation firms and registered valuers. In undertaking the compensation assessments, valuers are required to have regard to market evidence of potential land value impacts.

4.14.3.2 Community Issue 2 – Project impacts on local tourism

Submissions from Marilyn Moballe (21920); Julian Scantlebury (21942); Susan Bailey (21953); Pearl Austin (22625); Colin & Helen Chevalley (22641); Colin Kilburn (21912); *Name Withheld* (21908); Peter Woodrow (20521); Edward Hickson (21986); Sandor von Kontz (23459 – attachment)James & Philippa Lilyman (TG 4); and Julia Harpham (21957, 22824 – attachment) raised the following issue:

Impact of the Project on the local tourism

These submissions raised questions about the extent to which the socioeconomic assessment in the EA addressed the potential for the Project to have an impact on local tourism and eco-tourism. One typical submission noted:

"The cost in the decline of tourism, especially ecotourism, across the entire Project area has not been considered in the EA" - Marilyn Moballe

Response

Section 4.14.2.3 of this Report provides a response regarding the impact of the Project on local tourism.

4.14.3.3 Community Issue 3 – Restrictions to growth of towns along the alignment

Submissions from Name Withheld (21967); JJ Spedding (22619); Name Withheld (21720); James & Philippa Lilyman (TG 4); and RS & MO Dowe (22633) raised the following issue:

Restrictions to natural growth of towns along the alignment

These submissions raised a concern that the location of the Project may restrict the growth of towns along the alignment by deterring potential new residents from moving to the area. One submission noted:

"*Since Transgrid has been brought to the attention of the general community, I have lost several sales and there has been minimised interest as purchasers were dubious of the proposed corridors and didn't want to buy in the path of the power lines*" - Name Withheld

Response

Prospective residents are attracted to an area for a variety of reasons. It is projected that there will be an increase in population in the area over the coming years. The proposed transmission line would support this growth in population, including projected growth in energy demand, over that period and beyond. It would also support the development of economic activities, which can provide livelihoods for the regions growing population. Given the distance of the transmission line from the nearest towns, it is considered unlikely that the Project would restrict their growth. Increased electricity reliability and infrastructure support is likely to be required to allow these towns to develop in the future.

4.14.3.4 Community Issue 4 – Cost of electricity

The submission from Justyn Comer (21892) raised the following issue:

Cost of Electricity

The Submission suggests that the large cost of the Project is likely to push up the cost of electricity in the region.

*"It [*The Project*] is so massively expensive and likely to force up the cost of electricity in NSW"* - Justyn Comer

Response

In NSW, transmission charges contribute approximately ten per cent to the total amount stated on a consumer's bill. The cost of the proposed Project is a fraction of the total transmission cost apportioned to each customer's bill; as such, the impact of this specific Project on a consumer's bill would be minimal.

4.14.3.5 Community Issue 5 - Impacts on future land subdivisions

Submissions from Sandra Smith (23073); *Name Withheld* (21955); Julia Harpham (21957); Andrew Hynes (22606); Angelo Saccon (21959); Edward Hickson (21986); Colin & Helen Chevalley (22641); Sandor von Kontz (23459 – attachment); AL and VA Schroder (TG 3) and Susan Yeates (21924) expressed concern about the following issue:

Impacts on further subdivision of land

These Submissions raised questions about the ability of land owners who would be impacted by the Project to further subdivide their land. A number of submissions commented that falling land values and the inability to subdivide would impact their long term financial security. They also expressed concern about the Project impacting upon superannuation plans, given the importance of future land block sales for future income generation. Comments within submissions included:

"The proposed Project will particularly affect landholders who wish in the future to sub-divide their landholdings" - Susan Yeates

"Some of this land was set aside for superannuation but will now be very devalued or even unsaleable." - Andrew Hynes

4 Response to Submissions

Response

Compensation offered is assessed under the Heads of Compensation provisions in Part 3 of the *Land Acquisition (Just Terms Compensation) Act, 1991*.

The impact of the easement on property values is assessed independently by experienced valuation firms. In undertaking their assessments, valuers are required to have regard to market evidence. The subdivision potential of affected properties is taken into account by valuers in assessing the current market value of the property and associated compensation.

4.14.3.6 Community Issue 6 – Compensation offers by TransGrid

Submissions from Richard Harpham (21922); Julia Harpham (21957); Andrew Hynes (22606); Sandor von Kontz (22648); Edward Hickson (21986); *Name Withheld* (21955); Marilyn Moballe (21920); Peter Spedding (22803); *Name Withheld* (21908); and Matthew Cater (22017) raised the following issue:

Compensation offered by TransGrid

The Submissions expressed concern that the compensation offered by TransGrid to the land owners impacted by the Project is inadequate when compared to the anticipated reduction in value of land as a result of the Project. A typical comment was:

"The compensation offered is more equal to an annual payment than fair compensation. The offer in no way covers loss of production, land devaluation, possible health risks, fire risk, and ongoing work and expense that will be needed for tracks and address weed problems" - Andrew Hynes

Response

Compensation offered is assessed under the Heads of Compensation provisions in Part 3 of the *Land Acquisition (Just Terms Compensation) Act, 1991*.

TransGrid's compensation assessment and subsequent offer to landowners considers the effect of the alignment on the current market value of the property.

TransGrid uses experienced valuers during the acquisition process, who follow legal precedence and interpret current property value data to determine compensation offers.

4.14.3.7 Community Issue 7 –Impacts on local farming

Submissions from Susan Bailey (21953); *Name Withheld* (21955); Pearl Austin (22625); RS & MO Dowe (22633); Colin & Helen Chevalley (22641), William Harpham (23626); Andrew Haynes (22606); Sandra Smith (23073); Sandor von Kontz (23459-attachment); and Ruth Matthews (21590, 21592, 21618) raised the following issue:

Impact on local farming

The submissions claim that the Project would have an impact on local farming. The impact of EMF and additional construction traffic on the cattle, the quality of the beef produced and the ability of the cattle to procreate are all variably raised within the submissions as factors that may have an economic impact on local farms. One typical comment was:

*"It [*the Project*] will destroy my family's valuable farmland which has been in the family for generations and places in danger the traditional land usage in the area of beef cattle and organic farming"* - Pearl Austin

4 Response to Submissions

Response

Section 4.13.3.2 of this Report provides a response regarding the effects of EMF on livestock.

Land located within the Project easement may be used for agricultural activities such as grazing and cropping; provided trees, shrubs and crops within the easement do not exceed 4m in mature plant height and access to the structures is not restricted.

The proposed easement would not be fenced. Therefore the Project would not result in rural land fragmentation. Consequently, it would be unlikely the Project would result in a significant loss of productivity for agricultural land following construction.

If land is identified as organic farmland then TransGrid would consult with the landowners to determine and agree on construction and maintenance practices to ensure that any organic status is not affected by either the construction or operation of the Project.

4.14.3.8 Community Issue 8 – Local impacts

Submissions from Matthew Cater (22017); *Name Withheld* (21910) and Julia Harpham (21957); Pearl Austin (22625); and Sandra Smith (23073) raised the following issue:

Local impacts of the Project

These submissions claimed that any positive impacts of the Project would be felt not by those suffering its imposition but by those living in the coastal areas. It is also claimed that the Project is symptomatic of an inequality between coastal and country areas.

It is claimed that the economic advantages stated within the EA would not be felt by those who surround the impacted areas as the products that are required during construction are not produced in the vicinity. Comments included:

"Why should the people of the inland parts of Australia sacrifice their livelihoods and health for this out-dated coal driven power line that will have no direct benefits for the local communities and land it will run through?"- Pearl Austin

"I believe that it will have very adverse socio-economic impacts on multiple properties, businesses and people in the area." – Name Withheld

Response

As described in **Chapter 18 Socioeconomic,** Volume 1 of the EA, the construction of the transmission line would provide short-term work (approximately one to two years) for construction crews and it is anticipated the workforce would include local contractors for some activities. The cost of constructing the Project is estimated at approximately $210 million, with approximately $125 million expected to be spent on capital/materials costs and approximately $85 million spent on labour.

Construction activity in the area would provide flow-on economic benefits, including increased spending in the local area through demand for accommodation and associated services. Direct spending within the local economy would have a positive impact on local services and businesses. After adjustments for intermediate inputs, the contribution to Gross Regional Product is calculated as $124 million.

Further to the short term regional economic improvement, the provision of a reliable electrical supply would benefit both existing and future industries as well as the local community. A reliable electricity supply is essential in maintaining the lifestyle, job security and employment opportunities in Far North NSW.

The alignment would pass through approximately 185 private holdings and the majority of the proposed easement and access tracks traverse privately owned property (**Chapter 18 Socioeconomic**, Volume 1 of the EA). The Project would have varying impacts on those living near the Project, with the level of impact being influenced by factors such as location relative to the Project, and an individual's personal opinion and perception of the Project. Minimising impacts and avoidance of sensitive receptors including residences was a key objective of the route selection process undertaken to determine the proposed alignment.

A number of alternatives to the Project were considered and it was determined that transmission network augmentation was the only viable approach and the alignment for the proposed Project is the most suitable location for the augmentation. If the Project does not proceed, it would result in more frequent interruptions to supply to large numbers of customers in the region. This would have an ongoing and increasing impact on regional customers, significantly affecting their quality of life and the effective operation of businesses in the region.

4.14.3.9 Community Issue 9 – Government carbon reduction objectives

The submissions from Sandor von Kontz (22648); Julia Harpham (21957); *Name Withheld* (21908); Christine Harpham (21934); Marie lhle (22623); and *Name Withheld* (21720) raised the following issue:

Government carbon reduction objectives

The submissions state that completion of the Project would be contrary to the Government's carbon reduction objectives, in particular the introduction of a price on carbon. The submissions contend that while the Commonwealth Government is working to reduce carbon emissions, the State government if it were to approve this Project, would be endorsing a Project that would be less efficient than local power production and also rely on coal fired power stations.

Response

Section 15.4 Greenhouse Gas Emissions in Volume 1 of the EA discusses Greenhouse Gas (GHG) emissions. The Project would contribute to the release of greenhouse gases from the operation of the mobile plant and transport vehicles, through vegetation removal and from the production and distribution of materials used for the transmission infrastructure (e.g. aluminium, concrete and steel).

TransGrid has no direct control over sources of GHG emissions related to the generation of the electricity that is transported via the transmission infrastructure. TransGrid, being the state's transmission network operator transports electricity from where it is generated to areas where it is needed. The Project itself does not provide any direct incentive for users to use more power, however if demand increases as predicted, this could lead to increases in GHG emissions, depending on the source of electricity generation.

It is noted that the proposed 330kV transmission line is more efficient than the existing 132 kV transmission line that it is replacing. Reducing the amount of energy which is lost in transmission would increase the efficiency of the transmission network, and would achieve CO_2 emissions reductions compared with operations of the current line.

4.15 Other

4.15.1 Agency Submissions

No objections or comments were raised in submissions received from Government Agencies.

4.15.2 Action Group Submissions

4.15.2.1 Action Group Issue 1 – Stress on the community

The submission from UDEN (22639) raised the following issue:

Stress on the community

The UDEN submission notes that *"Imposing such unnecessary psychological, social and economic stress on a rural community at this time and in the circumstances, namely that there is independent expert evidence that the Project is in fact not required at all, would be irresponsible of any Government."*

Response

TransGrid is proposing the Project in order to ensure a reliable supply of electricity is maintained, and so is responding to a community need. TransGrid is obliged to guarantee a reliable supply of electricity to its customers for the foreseeable future. In constructing and operating the Project, steps have been taken to avoid, mitigate and off-set the potential impacts of the Project, and thereby reduce the overall impact that the Project may have on the communities through which it is proposed to pass.

In addition, TransGrid has undertaken significant consultation with the community and, where possible, has sought to adjust the design of the Project to address community concerns raised through this process.

4.15.3 Community Submissions

4.15.3.1 Community Issue 1 – Potential human health impacts

Submissions from Julia Harpham, (21957), Matthew Cater (22017), Ruth Matthews (21590, 21592, 21618) and Sandor von Kontz (22648) noted the following:

Human Health Impacts

These submissions contend that the potential human health impacts of the Project may extend beyond direct impacts as people who live in the vicinity of the transmission line have been suffering increased anxiety as a result of the proposed Project's assessment and consideration for approval by Government. Submissions have noted that:

4 Response to Submissions

"In terms of health effects, there has been a real increase in anxiety and stress related syndromes to many people living on the proposed line. Mental health issues have become an increasing problem since the Project was instigated. There is no recognition of the detrimental effects from fear and the impact this new Project is clearly having upon individuals within our own valley, let alone the rest of the line." – Julia Harpham

The threat of the line going through our valley here alone, has caused me considerable stress anxiety and depression. – Sandor von Kontz

Response

The EA has sought to assess the direct impacts of the Project on the environmental, and socio-economic, baseline case.

The objectives of the community consultation (that forms part of the EA process) is to provide the community with an opportunity to gain information about the Project and also to provide an opportunity for the community to ask questions and identify areas of concern. The community consultation initiatives, therefore, should assist in alleviating or addressing concerns of the community insofar as this is possible. TransGrid appreciates that there are still concerns within the community and has always endeavoured to minimise impacts to the community and assist with addressing any concerns as much as possible.

Where the Project is assessed to have a material economic impact on directly affected landowners, these impacts are addressed through the compensation process being coordinated by TransGrid and with independent inputs to that process. TransGrid is committed to continuing discussions with directly affected landowners in order to resolve compensation negotiations and provide certainty for landowners.

TransGrid remains open to discussions with all residents who may be affected by the Proposal.

4.15.3.2 Community Issue 2 – Variation in quoted Project costs

The submission from Peter Woodrow (20521) raised the issue of:

Variations in quoted Project costs

The submission noted the following:

"On page 4 of the ES the Project cost is quoted at $227 million, on page 12 at $210 million and in their most recent community publication $270 million. It beggars belief that after a 3 year delay and the imposition of the new cost of an $18-20 million dollar substation at Tenterfield that the price could actually drop. Even at this level the unprofessional and imprecise planning is apparent."

Response

The Project cost estimate is approximately $227 million. This figure is comprehensive and inclusive of all costs associated with the planning, design, environmental assessment, approvals, construction and easement acquisition and the associated payments to landowners. The $210 million figure relates solely to the capital/material and labour costs associated with construction of the Project. Therefore both costs are correct when considered in this context.

However whilst both of these costs were relevant at the time of the production of the EA, the estimated cost of the Project is subject to change as details regarding the Project are finalised. Due to the nature and scale of Projects such as this one, the final Project cost is likely to be subject to refinement up to the point that the construction of the Project commences.

4.15.3.3 Community Issue 3

Submissions from Julia Harpham (21957); and Christine Harpham (21934) objected to the Project on the grounds of:

Inadequate Assessment

One typical comment was: *"The EA is not adequate for the assessment of the Project"* – Julia Harpham

Response

The EA was submitted to the Department of Planning on 22 March 2011 and deemed adequate to place on public exhibition on 11 August 2011.

Issues raised as a result of that exhibition, by Government Agencies, and by community members and groups, are further being addressed through this submissions report.

Following lodgement of the submissions report, the Project will be assessed by the NSW Department of Planning and Infrastructure. An assessment report will be provided to the Minister for Planning who will determine whether to grant Project Approval and, if so, may impose a number of conditions on its implementation.

4.15.3.4 Community Issue 4 – Inaccurate location of access tracks

The submissions from Angelo Saccon (21959) and Andrew Hynes (22606) noted the:

Inaccurate location of access tracks

The submissions note that some of the access tracks are incorrectly marked within the EA.

"It has come to my attention that some of the off easement roads are incorrect on your maps. One particular pole will need deep gully excavation for access" –Andrew Hynes

Response

The EA was finalised as accurately as possible at the time of compilation. Restrictions on access to properties could have led to some minor inaccuracies in siting of the access tracks. Equally thick vegetation and undulating terrain also hindered access to some parts of the Project. Confirmation of specific environmental constraints on some properties is required. These would be identified during the detailed design process following approval.

In the majority of cases these changes are likely to be minor and are unlikely to affect the overall conclusions of the EA or the viability of the commitments noted in **Table 19-1** in Volume 1 of the EA. Nevertheless it has been discussed with the DP&I that a transparent process for managing any change would be developed. Further details regarding this process can be found in **Section 19.3.2** of Volume 1 of the EA.

4.15.3.5 Community Issue 5 – Unauthorised property access due to access track development

Submissions from Julia Harpham (21957); Sandor von Kontz (22648); Christopher Harpham (TG-2); Sandra Smith (23073); *Name Withheld* (21481, 21483 and 21485) raised concerns regarding:

Unauthorised access to property

These submissions raised concerns regarding the creation of new access tracks providing an opportunity for unauthorised access onto private property. Comments submitted included:

"Most land owners in the Dumaresq Valley have enough trouble with unauthorised shooters and piggers, and theft of animals, without extra road access along the line to provide these people with a highway through our back country which we cannot police." – Julia Harpham

"*Access tracks will be an ongoing burden since we are already experiencing difficulty with unauthorised persons entering properties."* - Christopher Harpham

Response

New access tracks must be created as part of the Project to allow maintenance and repairs to the transmission line. The final location of all access tracks, gates and locking arrangements would be determined in consultation with landowners. At any point where the new access tracks join a classified public road, these access points would be gated to block unauthorised access. TransGrid would maintain these gates under lock wherever possible.

5

Revised Statement of Commitments

5.1 Introduction

The majority of the commitments detailed with **Section 19.2 of the EA** are still relevant to the Project. The following Section outlines where certain commitments have been revised and/or where additional commitments have been agreed following exhibition of the EA. This is in response to the above submissions and in accordance with clause 75F(6) of the EP&A Act.

5.2 Revised Commitments

The following commitments have been revised following the receipt of a number of submissions. **Table 5-1** outlines the original wording of the commitments, and **Table 5-2** provides the revised commitments.

Table 5-1 Commitments to be Replaced

	Mitigation Measure and Commitment	Implementation of mitigation measures		
		Design	Construction	Operation
B4	A Soil and Water Management Plan shall be prepared, including an Erosion and Sediment Control Plan, which shall be implemented as part of the CEMP. Soil conservation and erosion prevention measures shall be in accordance with "*Managing Urban Stormwater: Soils and Construction Volume 1 (Landcom, 2004) and Volume 2 (DECC, 2008)" (The Blue Book Volumes 1 & 2)*.	✓	✓	
C6	Watercourse crossings would be designed in accordance with department of Primary Industries Policy and Guidelines for Fish Friendly Waterway Crossings (2004) and Why Do Fish Need to Cross the Road? (NSW Fisheries, 2003)		✓	
D2	A suitably qualified ecologist (botanist or fauna specialist, as relevant) would be engaged to conduct pre-clearance surveys to target threatened biota that have the potential to occur in areas not yet surveyed. Ecologists would also undertake pre-clearance surveys to target additional, more recently listed/recorded threatened biota, considered within the EA, but not surveyed for in the 2009/2010 surveys. These targeted surveys would be conducted across the Project area. Threatened biota identified along the Project area to be avoided, protected, offset, or adaptively managed/ monitored according to OEH, DPI and/or DSEWPaC advice, depending on biota level of protection.	✓	✓	
D3	A Flora Management Plan would be developed and included in the CEMP. The Flora Management Plan would identify measures and management protocols designed to assist in the avoidance and mitigation of impacts on flora as a result of vegetation clearing associated with the Project. Mitigation measures would be implemented to maximise the avoidance of threatened plants during clearing, to ensure the protection of local populations, to promote long-term connectivity of populations within the landscape and to control weed invasion where necessary.	✓	✓	

5 Revised Statement of Commitments

	Mitigation Measure and Commitment	Implementation of mitigation measures		
D5	A suitably qualified ecologist would undertake surveys to locate habitat resources (hollow bearing trees, stags, coarse woody debris and rocky outcrops) across the Project area to determine the habitat resources that may require protection or offset. Where practical, hollow bearing trees would be selectively retained. This would be assessed on a case by case basis as part of the pre-clearance assessments.	✓		
D6	With TECs listed under the TSC and EPBC Act, the construction footprint associated with access tracks and transmission line structures would be minimised as far as possible. Access tracks would occur at restricted points and would be located in areas with minimal canopy cover where practical. If ground cover removal is required, all top soils from the area would be stockpiled separately and re-established following completion of construction activities.	✓	✓	✓
D7	With TECs listed under the TSC and EPBC Act, and important threatened species habitat constrained clearing and maintenance practices (Appendix C, TransGrid Policies, Volume 2, EA) would be implemented wherever possible, taking into consideration TransGrid's clearance requirements (GD AS G3 015 'Principles for the Clearing of Transmission Line Easements'). Wherever possible, bands of understorey vegetation would be retained. Intact habitat features such as hollow logs would be placed in these bands of vegetation.	✓	✓	✓
D8	Weed surveys, focusing on noxious weeds, listed by local control authorities (Noxious Weeds Act 1993 (NW Act)), in areas representing high risk in terms of weed management as assessed by a qualified ecologist/botanist, would be undertaken immediately prior to construction. These would identify and record the noxious weeds occurring along the alignment and associated access tracks, and in surrounding areas. (This information would then be utilised to prepare the Weed Management Plan that is part of the CEMP).	✓	✓	
D12	A Fauna Management Plan would be developed as a part of the CEMP to minimise impacts to resident native and threatened species. This would include the following procedures: • targeted pre-clearance surveys for breeding / nesting / primary habitat for threatened species; • two stage clearing process for hollow bearing trees; • management of fauna for translocation and rescue; • coarse woody debris relocation plan; • rehabilitation and revegetation plan to re-establish fauna passageways; and • habitat replacement plan, including nest box, bat roosts and glider pole allocation and placement	✓	✓	
D14	Where needed all fauna habitat features such as logs and tree hollows, known as coarse woody debris (CWD), would be relocated to the edge of the easement subject to safety and fire risk considerations.		✓	
D16	If injured microbats are found during vegetation clearing procedures, only a vaccinated ecologist with the lyssavirus inoculation would handle these species		✓	

5 Revised Statement of Commitments

	Mitigation Measure and Commitment	Implementation of mitigation measures		
D17	During targeted pre-clearance assessments, ecologists would undertake targeted searches for the presence of gliders as well as the habitat suitability along the transmission to determine whether there is a requirement for installation of glider poles	✓	✓	
D21	A Biodiversity Offset Strategy would be developed in consultation with DECCW and DEWHA to compensate for clearing associated with the proposal.	✓	✓	
E3	An Aboriginal and Historic Heritage Management Plan (AHHMP) would be developed and would include the management of sites as presented in the Heritage Assessment.		✓	
E4	The construction team would undergo site induction concerning Aboriginal and historic heritage issues, prior to working on the site		✓	
E7	Should any previously unidentified Aboriginal objects or sites be uncovered during the course of construction, work in that area would cease and DECCW would be informed to seek advice on how to best proceed. If burials are uncovered, the NSW police would be informed immediately. Should the remains be then identified as archaeological in context, DECCW would be informed and consulted to clarify how to best proceed		✓	

Table 5-2 Revised Commitments

	Mitigation Measure and Commitment	Implementation of mitigation measures		
		Design	Construction	Operation
B4	A Soil and Water Management Plan shall be prepared, including an Erosion and Sediment Control Plan, which shall be implemented as part of the CEMP. TransGrid commits to site specific detailed assessments of all locations requiring the installation or upgrade of watercourse crossings along the alignment or as part of access track construction works. Soil conservation and erosion prevention measures shall be in accordance with “Managing Urban Stormwater: Soils and Construction Volume 1 (Landcom, 2004) and Volume 2 (DECC, 2008)” (The Blue Book Volumes 1 & 2).	✓	✓	
C6	Watercourse crossings would be designed in accordance with Department of Primary Industries Policy and Guidelines for Fish Friendly Waterway Crossings (2004) and Why Do Fish Need to Cross the Road? (NSW Fisheries, 2003). NSW Fisheries would be consulted (where identified in **Table B-2**) during design and construction of waterway crossings to ensure fish passage and fish habitat protection are adequately considered and incorporated into the designs and proposed construction techniques..	✓	✓	

5 Revised Statement of Commitments

	Mitigation Measure and Commitment	Implementation of mitigation measures		
		Design	Construction	Operation
D2	A suitably qualified ecologist (botanist or fauna specialist, as relevant) would be engaged to conduct pre-clearance surveys in line with Section 7.2.1 of Appendix D4 below. These surveys would: • target threatened biota that have the potential to occur in areas not yet surveyed • target potentially occurring/impacted threatened flora (Table 7-3) across the Project area, and • target additional, more recently listed fauna, populations and ecological communities across the Project area, considered within the EA, but not surveyed for in the 2009/2010 surveys. Threatened biota identified along the Project area to be avoided, protected, offset, or adaptively managed/ monitored according to OEH, DPI and/or DSEWPaC advice, depending on biota level of protection.	✓	✓	
D3	A Flora Management Plan would be developed and included in the CEMP. The Flora Management Plan would identify measures and management protocols designed to assist in the avoidance and mitigation of impacts on flora as a result of vegetation clearing associated with the Project. Mitigation measures would be implemented to maximise the avoidance of threatened plants during clearing, to ensure the protection of local populations, to promote long-term connectivity of populations within the landscape and to control weed invasion where necessary. The Flora Management Plan would also identify offset measures proposed for unavoidable impacts.	✓	✓	
D5	A suitably qualified ecologist would undertake surveys to locate habitat resources (hollow bearing trees, stags, coarse woody debris and rocky outcrops) across the Project area to determine the habitat resources that may require protection or offset. Where practical, hollow bearing trees would be selectively retained. This would be assessed on a case by case basis as part of the pre-clearance assessments.	✓		
D6	For TECs listed under the TSC, FM and EPBC Act, the construction footprint associated with access tracks and transmission line structures would be minimised as far as possible. Access tracks would occur at restricted points and would be located in areas with minimal canopy cover where practical. If ground cover removal is required, all top soil removed from the area would be stockpiled separately and re-established following completion of construction activities.	✓	✓	✓

5 Revised Statement of Commitments

	Mitigation Measure and Commitment	Implementation of mitigation measures		
		Design	Construction	Operation
D7	For TECs listed under the TSC, FM and EPBC Act, and important threatened species habitat, constrained clearing and maintenance practices (**Appendix C TransGrid Policies** in Volume 2 of EA) would be implemented wherever possible, taking into consideration TransGrid's clearance requirements (GD AS G3 015 'Principles for the Clearing of Transmission Line Easements'). Wherever possible, bands of understorey vegetation would be retained. Intact habitat features such as hollow logs would be placed in these bands of vegetation.	✓	✓	✓
D8	Weed surveys, focusing on noxious weeds, listed by local control authorities (Noxious Weeds Act 1993 (NW Act)), would be undertaken by a qualified ecologist/botanist prior to construction. These surveys would identify and record the noxious weeds occurring along the alignment, along associated access tracks and in surrounding areas. This information would then be utilised to prepare the Weed Management Plan that is part of the CEMP.	✓	✓	
D12	A Fauna Management Plan would be developed as a part of the CEMP to minimise impacts to resident native and threatened species. This would include the following procedures: • targeted pre-clearance surveys for breeding / nesting / primary habitat for threatened biota (as per **Section 7.2.1** in Appendix D4 of this Report); • two stage clearing process for hollow bearing trees; • management of fauna for translocation and rescue; • coarse woody debris relocation plan; • rehabilitation and revegetation plan to re-establish fauna passageways; and • habitat replacement plan, including nest box, bat roosts and glider pole allocation and placement.	✓	✓	
D14	All fauna habitat features (hollow bearing trees, stags, coarse woody debris and rocky outcrops), would be relocated to the edge of the easement subject to safety and fire risk considerations.		✓	
D16	If injured microbats are found during vegetation clearing procedures, only a vaccinated ecologist with the rabies inoculation suitable for Australian Bat Lyssavirus would handle these species.		✓	
D17	During targeted pre-clearance assessments, ecologists would undertake targeted searches for the presence of gliders as well as the habitat suitability along the Project area to determine whether there is a requirement for installation of glider poles.	✓	✓	

5 Revised Statement of Commitments

	Mitigation Measure and Commitment	Implementation of mitigation measures		
		Design	Construction	Operation
D21	A Biodiversity Offset Strategy is currently being developed in consultation with NSW OEH and the Commonwealth DSEWPaC in order to offset for clearing and associated impacts on threatened flora, ecological communities, fauna and populations or the resources for such species, associated with the Project. Following information obtained from pre-clearance surveys, the final offset package would be determined in discussion with DP&I, OEH and DSEWPaC.	✓	✓	
E3	An Aboriginal and Historic Heritage Management Plan (AHHMP) would be developed in consultation with OEH and the Aboriginal community stakeholders for the Project. This AHHMP would include the recommended management of all sites presented in the Heritage Assessment. The AHHMP would include provisions to consult with the local Aboriginal community in the management of sites where appropriate.		✓	
E4	An appropriate Aboriginal Cultural Education Program would be developed for the induction of all personnel and contractors involved in the construction activities on Site. Records would be kept of dates when staff/contractors are inducted; these records would be kept for the duration of the construction phase.		✓	
E7	If human remains are located during the construction phase, all works would be stopped within a 30m radius of the remains. The NSW Police would be contacted immediately and no work within the 30m radius would take place until the police provide written notification to the proponent that work can recommence. If the skeletal remains are identified as Aboriginal, the proponent would contact OEH's Enviroline on 131 555 and representatives of the local Aboriginal community. No work within the 30m radius of the remains would take place until OEH provide written notification to the proponent that work can recommence.		✓	

5.3 Additional Commitments

One additional commitment is proposed following receipt of the submissions. This commitment is presented in **Table 5-3** below.

Table 5-3 Additional Commitments

	Mitigation Measure and Commitment	Implementation of mitigation measures		
		Design	Construction	Operation
E8	If a new Aboriginal object(s) is identified during the construction phase, all works within a 30m radius of the find would be stopped to prevent any further impact to the object(s). A suitably qualified archaeologist and the registered Aboriginal representatives from the local area would be contacted to determine the significance of the object(s). TransGrid would consult with the relevant local Aboriginal community representatives, a suitably qualified archaeologist and OEH to develop and implement management strategies for all new objects/sites. Once the significance of the object is ascertained the site and/or object would be registered in the Aboriginal Heritage Information Management System (AHIMS) and the management outcome for the site would be included in the information provided to the AHIMS.		✓	

6

Limitations

URS Australia Pty Ltd (URS) has prepared this report in accordance with the usual care and thoroughness of the consulting profession for the use of TransGrid and only those third parties who have been authorised in writing by URS to rely on the report. It is based on generally accepted practices and standards at the time it was prepared. No other warranty, expressed or implied, is made as to the professional advice included in this report. It is prepared in accordance with the scope of work and for the purpose outlined in the Proposal dated 10 November 2008 and subsequent variations.

The methodology adopted and sources of information used by URS are outlined in this report. URS has made no independent verification of this information beyond the agreed scope of works and URS assumes no responsibility for any inaccuracies or omissions. No indications were found during our investigations that information contained in this report as provided to URS was false.

This report was prepared between 12 September 2011 and 8th October 2012 and is based on the conditions encountered and information reviewed at the time of preparation. URS disclaims responsibility for any changes that may have occurred after this time.

This report should be read in full. No responsibility is accepted for use of any part of this report in any other context or for any other purpose or by third parties. This report does not purport to give legal advice. Legal advice can only be given by qualified legal practitioners.

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