Appendix 1: Submissions Received

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NSW GOVERNMENT | Planning & Infrastructure

Contact: Alexander Scott
Phone: (02) 9228 2096
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Email: alexander.scott@planning.nsw.gov.au

Our ref.: SSI 5039

Mr Jubrahil Khan
Project Manager
State Water Corporation
GPO Box 1604
Sydney NSW 2001

Dear Mr Khan

Subject: Exhibition of Chaffey Dam Augmentation and Safety Upgrade (SSI 5039)

The exhibition of the Environmental Assessment for the above project ended on 31 January 2013. Submissions received by the Department during the exhibition of the project are available on the Department's website at the following location: http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=5039.

A submission from the NSW Department of Primary Industries has not been received to date. The Department is following this up with DPI and will forward a copy of its submission and place a copy on the Department's website when it is received.

In accordance with section 115Z of the *Environmental Planning and Assessment Act 1979*, the Director-General requires State Water Corporation to respond to the issues raised in these submissions. A Preferred Infrastructure Report may be required if there are any proposed changes to the State significant infrastructure to minimise its environmental impact or to deal with any other issue raised during the assessment of the application. The response and/or Preferred Infrastructure Report should be submitted to the Department by 5 March 2013.

Your contact officer for this proposal, Alexander Scott, can be contacted on (02) 9228 2096 or via email at alexander.scott@planning.nsw.gov.au. Please mark all correspondence regarding the proposal to the attention of the contact officer.

Yours sincerely,

L Mitchell 20.2.13

Lisa Mitchell
Manager Water Projects
Infrastructure Projects

Project Need and Justification

The Department is concerned that the justification for the project is not fully addressed in the EIS, particularly with regard to the alternative safety and augmentation options discussed in Section 4.11 (the 80GL and 120GL alternatives), as well as a "do nothing" alternative. Further work is needed to separately clarify the safety upgrade and augmentation components of the proposal, and to provide detailed justification for each component.

Need for safety upgrade: discussion of the safety concerns of the existing dam (e.g. non-compliances with relevant ANCOLD and Dam Safety Committee standards) in the EIS refers to studies that pre-date the completion of the existing auxiliary spillway in 2011. The Department requires a current assessment of the dam's safety improvement requirements that considers the construction of the auxiliary spillway.

Need for augmentation: while the existing and likely future demands on the water supply sourced from Chaffey Dam for Tamworth town water and for agricultural uses are discussed in general in Sections 3 and 4.11 of the EIS, the Department considers that a more quantitative and clear justification for the augmentation is required, in isolation of the safety upgrade. For example, page 41 of the EIS notes the projected reduction of time in which Tamworth is expected to be subject to water restrictions without providing details on the recent history of water restrictions, and states that an augmentation of Chaffey Dam is required to meet the future needs of the region without quantifying these future water needs or the projected population increase upon which future water needs would be based.

The Department requires a detailed assessment of the social, economic and environmental costs and benefits of the alternative safety and augmentation options, particularly the 80GL and "do nothing" options. For example, social and economic costs and benefits should quantify the projected future demand for high and general security water and how these relate to current and future licence requirements, and the economic impact for agricultural industries from the expected greater availability of general security water. Environmental costs and benefits should accurately map the full supply level of an 80GL reservoir and compare the impacts on terrestrial and aquatic biodiversity between the 100GL proposal and the 80GL option.

Historic Heritage

The Department requires an assessment of the significance of all heritage sites and buildings were identified in the Navin Officer Heritage Consultants 2008 report, likely impacts resulting from the proposal, and any mitigation activities that may be required. This assessment should be in accordance with the guidelines and methodologies specified in the Director-General's Requirements and may include archaeological investigation if appropriate.

Heritage Council of New South Wales

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heritage@heritage.nsw.gov.au
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Contact: Lucy Moore
Telephone: (02) 9873 8535
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File: 11/21677
Job ID No: A1259607
Your Ref: SSI_5039

Ms Lisa Mitchell
Manager, Water
Infrastructure Projects
Department of Planning & Infrastructure
GPO Box 39
SYDNEY NSW 2001

PCU040274

Dear Ms Mitchell

RE: Exhibition of Environmental Impact Statement for Chaffey Dam Augmentation and Safety Upgrade (SSI_5039)

Reference is made to your letter, dated 11 December 2012, advising that the State Water Environmental Impact Statement (EIS) is currently on public exhibition for the abovementioned project.

In providing comment, I draw your attention to our previous responses and comments on the draft EIS, dated 1 and 21 November 2012.

Section 8.5 and Appendix 10 deal with European Cultural Heritage and the impact of the project on these values.

In the 'Preliminary Archaeological and Heritage Assessment, undertaken by Navin Officer Heritage Consultants in 2008, 12 recorded European sites were noted and a further 14 previously unrecorded sites identified.

Although this is the case, the EIS only assesses the impact of the project on the five sites listed on Tamworth Regional Council's Local Environmental Plan (these include Bowling Alley Point Cemetery, Bowling Alley Point School, Iron Footbridge, Uniting Church and the Bowling Alley Point Geological Site) as well as the project's impact on Chaffey Dam itself (proposed for inclusion on the State Water section 170 Register).

Although assessment of unlisted heritage sites is not specified in the DGRs, the purpose of an EIS is to assess impacts on all heritage items, not just those contained on existing statutory registers.

In the EIS, Navin Officer Heritage Consultants has made recommendations for five of the unlisted heritage sites. However, the failure to assess the impact of the project (and provide suitable mitigation recommendations) on each of the known heritage sites, listed or not, is a weakness of the EIS.

The EIS also states that, due to the absence of archaeological sites on Tamworth Council's LEP within the project site, no archaeological assessment methodology was prepared. Considering the number of heritage sites identified (included on statutory lists or not), this statement is considered inadequate and a full archaeological study of non-Aboriginal sites and the development of the appropriate methodology is recommended.

Although appropriate archaeological methodology is not deemed to be necessary by the EIS, the document states that if a "previously unidentified potential heritage object is uncovered during construction, measures will be implemented to avoid disturbance to the item, until an appropriate management strategy is implemented" (p197). Again, it is recommended that an archaeological assessment be undertaken to identify what may be uncovered during the project and outline the appropriate methodology to use if and when these finds are made.

The Heritage Branch would be happy to review any further documentation that may address any likely heritage impacts. If you have any further enquiries regarding this matter, please contact Lucy Moore, Heritage Officer, on (02) 9873 8535.

Yours sincerely

19/12/2012

Dr Siobhan Lavelle OAM
Acting Manager – Conservation Team
Heritage Branch
Office of Environment & Heritage
Department of Premier and Cabinet

As Delegate of the NSW Heritage Council

NSW EPA

Our reference: : DOC13/2560 LIC09/986-02
Contact : Mr Lindsay Fulloon ~ 02 6773 7000 ~ armidale@epa.nsw.gov.au
Date: : 30 January 2013

Ms Lisa Mitchell
Manager, Water
Infrastructure Assessments
NSW Department of Planning & Infrastructure
GPO Box 39
SYDNEY NSW 2001

Dear Ms Mitchell

Exhibition of Environmental Assessment for Chaffey Dam Augmentation and Safety Upgrade (SSI_5039)

I refer to the correspondence from the Department of Planning and Infrastructure (DoP&I) dated 11 December 2012 inviting the Environment Protection Authority (EPA) to make a submission further to the public exhibition of the Environmental Assessment (EA) for the Chaffey Dam Augmentation and Safety Upgrade Project. The EPA received a copy of the above correspondence and the EA on the 13 December 2012.

The EPA has reviewed the information provided. Detailed comments and recommendations on the proposal are provided at **Attachment 1** to this letter. In summary, from the information presented in the EA, the EPA is of the opinion that the most significant issues that will need to be addressed in any project approval are:

- Additional air quality mitigation strategies are required to ensure that predicted air impacts at all sensitive receptors meet EPA assessment criteria;
- An Air Quality Management Plan will be required for the Project; and
- Alternative piling methods such as bored or vibratory approaches should be considered in lieu of impact piling where feasible and reasonable to reduce noise emissions.

Should you have any questions with respect to the attached notice, please do not hesitate to contact Mr Lindsay Fulloon in the EPA's Armidale office on (02) 6773 7000 or via e-mail at armidale@epa.nsw.gov.au.

Yours sincerely

ROBERT O'HERN
Head Regional Operations – Armidale
Environment Protection Authority

Environment Protection Authority
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ATTACHMENT 1 – EPA SUBMISSION FOR PROPOSED CHAFFEY DAM AUGMENTATION AND SAFETY UPGRADE

AIR QUALITY IMPACTS

The EPA has reviewed the report *Chaffey Dam Augmentation and Safety Upgrade Air Quality Impact Assessment* (SLR Consulting Australia Pty Ltd, 25 September 2012) (the AQIA).

The AQIA was undertaken generally in accordance with the requirements outlined in the EPA document *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (Approved Methods). The AQIA includes emissions of significant pollutants from each of the main emission sources including:

- excavation, handling and stockpiling of soil and rocks (excavators, truck loading and unloading);
- dozers and graders working on stockpiles and haul routes;
- vehicle movements on unpaved roads; and
- wind erosion of stockpiles and disturbed soils.

The AQIA models a worst case emission scenario with the main construction activities occurring simultaneously to ensure worst case impacts from the Project are assessed and conservative outcomes are predicted.

The Project has the potential for adverse air impacts at residential receptors located close to the road construction activities along Western Foreshore Road and Bowling Alley Point. Air impacts are predicted to exceed EPA assessment criteria at some sensitive residential receptors in these areas.

The AQIA predicts exceedences of the 24-hour average PM_{10} assessment criteria (50 $\mu g/m^3$) at residential receptors R5 (maximum 57 $\mu g/m^3$, 4 exceedences predicted), R7 (maximum 155 $\mu g/m^3$, 16 exceedences predicted) and R8 (maximum 64 $\mu g/m^3$, 6 exceedences predicted).

The AQIA also predicts exceedences of the Project adopted 24-hour $PM_{2.5}$ criteria (25g/m^3) at residential receptor R7 (30.5 $\mu g/m^3$, 3 exceedences predicted).

The predicted exceedences and risk of significant adverse air quality impacts are associated with construction activities along adjacent roads. The most impacted receptor (R7) is located closest to Rivers Road where the Project alone contributes 150 $\mu g/m^3$ to the maximum 24-hour average PM_{10} concentration. The modelling of construction activities has been based on a worst case scenario for this receptor, with all earthmoving equipment operating in the section of road immediately adjacent to this residence. The AQIA notes that due to the transient and short term nature of the Project, this scenario will not occur for an entire year, and the number of predicted exceedences is likely to be lower in reality.

The AQIA notes that higher PM_{10} concentrations could occur at receptors R3 and R6 when the earthmoving equipment associated with the realignment of Tamworth-Nundle Road, Rivers Road and Bowling Alley Point Bridge occurs further to the north. Impacts at these receptors however are expected to be less than those at receptor R7 however, as they are located further away from the road.

The Environmental Impact Statement (Section 8.8.4) states that construction activities will be carried out in a manner that minimises dust emissions wherever practicable, utilising best practice dust control measures. Additional dust management is proposed to be implemented during road and bridge construction activities in the vicinity of receptors R5, 7 and 8 including:

- construction to be carried out during the summer months where practicable;
- travel speed to be limited to 40 km/hr; and
- additional watering of unsealed roads under adverse conditions.

Recommendations: The EPA recommends that DoP&I require the proponent (State Water) to:

1. Revise the AQIA to include additional particle mitigation strategies so that predicted air impacts at all sensitive receptors meet EPA assessment criteria. Any additional particle emission controls must be consistent with best practice.
2. Develop and implement an air quality management plan (AQMP) for the Project. The AQMP will require the following information for each air pollutant and emission source:
   - key performance indicator;
   - monitoring method;
   - location frequency and duration of monitoring;
   - record keeping;
   - response mechanisms; and
   - compliance reporting.
3. Provide further details of each proposed mitigation strategy to ensure the effective implementation of each strategy can be demonstrated, consistent with the above requirements.

NOISE AND VIBRATION IMPACTS

The EPA has reviewed the "Chaffey Dam Augmentation and Safety Upgrade Noise and Vibration Impact Assessment" dated 3 October 2012 prepared by SLR (Dam NVIA) which forms part of the Environmental Impact Statement prepared by Worley Parsons dated 7 December 2012 (Dam EIS).

In summary, there are no major issues with the Dam NVIA. The Environmental Assessment Requirements (EARs) as presented in the Dam EIS have been satisfactorily addressed.

The Dam construction and operational noise criteria are based on the minimum INP background noise level of 30 dBA.

The EPA notes that there are a number of residential receivers in the vicinity of the Dam project that are predicted to be affected by construction noise emissions above the noise management levels (NMLs) presented in the Dam NVIA. A number of noise mitigation and management measures are proposed to address the construction noise impacts and the Dam NVIA appropriately acknowledges that even with these measures in place, the NMLs are not likely to be achieved at a number of locations. The EPA therefore recommends that alternative piling methods, such as bored piling or vibratory piling, should be considered in lieu of impact piling where feasible and reasonable to reduce noise emissions.

The EPA also notes that a moderate increase in noise due to Dam construction traffic is predicted on Lindsays Gap Road/Garoo Road, although the total road traffic noise level remains within the relevant criterion.

The Dam EIS and Dam NVIA state that construction activities are only to take place during the standard construction hours specified in the Interim Construction Noise Guideline. The EPA recommends that any works outside those standard hours require prior approval and appropriate justification.

As noted in the Dam NVIA, any blasting activities should be monitored to ensure compliance with the relevant airblast and vibration criteria.

Recommendations: While the EPA acknowledges that the NVIA satisfactorily addresses the EARs, it recommends that DoP&I requires the proponent (State Water) to:

1. Utilise alternative piling methods (e.g. boring or vibratory piling) where feasible and reasonable to further reduce impacts at affected receptors;
2. That should the necessity arise for any construction works to occur outside the standard construction hours specified in the Interim Construction Noise Guideline, that this should only occur with prior approval from DoP&I and with appropriate justification; and
3. Monitor the air blast overpressure and ground vibration associated with any blasting activities to ensure compliance with the relevant performance criteria.

Catchment Management Authority Namoi

30th January 2013

Department of Planning and Infrastructure
GPO Box 39
Sydney NSW 2001

Attention: Ms Lisa Mitchell, Manager Water Infrastructure Assessments

Dear Lisa,

Re: Chaffey Dam Augmentation and Safety Upgrade (SSI-5039)
Review of Environmental Impact Assessment

Thank you for the opportunity to review and comment on the Environmental Impact Statement for the Chaffey Dam Augmentation and Safety Upgrade.

Namoi CMA is primarily interested in major developments such as the Chaffey Dam Augmentation from the perspective of catchment impacts especially in the areas of soil and water management, protection of biodiversity, management of riparian areas and enhancement of social and economic values. Namoi CMA advocates the protection, maintenance and improvement of the Catchment for the benefit of all community members.

Namoi CMA has two documents which serve to guide major developments in the Catchment:

- Namoi Catchment Action Plan 2010-2020 (Namoi CAP).
- Biodiversity Offsets Policy (BOP 2011).

1. Namoi Catchment Action Plan 2010 - 2020

The Namoi Catchment Action Plan 2010-2020 (Namoi CAP 2010-2020) was developed by Namoi CMA in conjunction with the Catchment community and guides natural resource management within the Namoi Catchment. The Namoi CAP 2010-2020 was developed in accordance with the Catchment Management Authorities Act 2003 and received Ministerial approval in July 2012.

The Namoi CAP 2010-2020 aims at managing and protecting the Catchment assets including biodiversity, land, water and people through identifying targets and actions.

It is noted that the Namoi CAP 2010-2020 and targets are considered in the EIS Project Description, section 4.10.

In regard to the Chaffey Dam Augmentation, Namoi CMA believes that three Catchment assets will be impacted, namely biodiversity, water and people. The applicable asset targets that will be impacted include:

Biodiv 1: By 2020 there is an increase in native vegetation extent and vegetation does not decrease to less than 70% in less cleared sub-catchments and 30% in over cleared sub-catchments and no further Regional Vegetation Community decreases to less than 30% extent as identified by 2010 baseline.

Biodiv 3: By 2020 contribute to the recovery of priority viable threatened species, populations and communities.

Water 1: By 2020 there is an improvement in the condition of those riverine ecosystems that have not crossed defined geomorphic thresholds as at the 2010 baselines.

People 1: Natural resource management decisions contribute to social well being.

More detail regarding the Namoi CAP 2010-2020 can be found at Namoi CMAs website (www.namoi.cma.nsw.gov.au).

Reference will made to the Namoi CAP 2010-2020 targets in the following review together with comments on specific environmental and development issues.

2. Namoi CMA Biodiversity Offsets Policy 2011

In 2011, Namoi CMA developed a 'Biodiversity Offset Policy' for the Namoi Catchment. This Policy highlights some of the inadequate biodiversity outcomes that are contained with the current NSW State and Commonwealth Government's approaches to biodiversity offsets. It also provides guidance for proponents to enable the achievement of beneficial biodiversity offsets. The current Government approaches have significant implications on Namoi CMA's ability to meet the biodiversity targets under the Namoi CAP 2010-2020 for the following reasons:

- Insufficient Gain – the amount of land apportioned for offset to compensate for loss of native vegetation is insufficient. Simply setting aside an area that already exists and only changing its conservation status still results in net loss of vegetation and can result in critical "vegetation extent" thresholds being crossed.
- Equivalence - even when the same vegetation types are replanted or regenerated as part of an offset, planted or restored vegetation will take many generations to achieve biodiversity richness when compared to the natural vegetation communities that are removed.
- Time Lags – the timeframes for biodiversity increments to occur in assisted regeneration or new plantings are lengthy. It may take hundreds of years to achieve the biodiversity richness of the natural vegetation that is removed.

Consequently, any offsets proposed by proponents need to compensate for the predicted impacts, ensure that there is no net loss of native vegetation, ensure that the development does not cross any critical ecological thresholds and be consistent with the existing NSW Government and Commonwealth legislative biodiversity offset requirements as a minimum standard.

As such, offsets proposed for the Chaffey Dam Augmentation must also meet the following principles:

- Offsets should be considered as a last resort, after consideration of the alternatives to avoid and/or mitigate impacts.
- Offsets must be based on sound ecological principles and deliver on priorities identified in the draft Namoi Biodiversity Conservation Plan.
- Offset areas must be within the Namoi Catchment boundaries (wholly or in part – as a contiguous area of native vegetation).
- Offsets must be beneficial and of the same vegetation type and be at least the size, equivalent biodiversity value & configuration of the vegetation lost and additional to existing native vegetation areas.
- Offsets must be in perpetuity and be registered on title.
- Offset conditions must be monitored, enforceable, clearly mapped, recorded and publicly available.
- An offset area, once designated, cannot be used for further offsetting of subsequent developments in future.

The NCMA Biodiversity Offsets Policy 2011 and Namoi Biodiversity Conservation Plan can be downloaded from our website www.namoi.cma.nsw.gov.au

It is noted that the NSW Government and Commonwealth legislative biodiversity offset requirements are considered in the EIS in section 8.2.6 Offset Strategy

Reference will made to the NCMA Biodiversity Offsets Policy 2011 in the following review and comments on specific environmental and development issues.

3. Specific Comments

The following specific comments are provided as a consequence of the review of the EIS and relevant sections and appendices.

Namoi CMA is aware of the project, its components, objectives and description. Raising the full supply level will result in inundation of an additional 185ha of foreshore land including 1.7km of the Peel River and relocation of a number of roads and bridges.

Namoi CMA does not object to the proposed development, however we have a number of concerns and issues that need to be further addressed.

Namoi CMA acknowledges consideration in the EIS of the Catchment Management Authorities Act 2003 and the Native Vegetation Act 2003.

We are aware that an overall Construction Environmental Management Plan (CEMP) will be prepared to address environmental issues within the project construction area. Namoi CMA request as a condition of approval that it be consulted during the preparation of the CEMP especially in regard to soil conservation and vegetation management.

Section 8.1 Soil and Water

Section 8.1.1 Existing Environment

Namoi CMA notes that within the description of the existing soils and geology that the EIS has referred to AUSLIG 1990, DEC 2004 and Natural Resource Atlas 2012 for soil mapping. Namoi CMA has a number of publicly available datasets including Soil Landscape Mapping for the Namoi Catchment which provides greater detail and accuracy on soils while also providing information on the soil limitations and best management practices. The soil landscape mapping for the areas surrounding Chaffey Dam can be downloaded from our website www.namoi.cma.nsw.gov.au

The information provided in the EIS on soils is sufficient, however, for future reference please be aware of the soils data held by Namoi CMA.

Section 8.1.2 Potential Construction Impacts

Namoi CMA realises that as a consequence of an additional 185ha of inundation that there will be a loss of land available for agriculture especially on the southern and western foreshores. The inundation and resultant road construction will mean a loss of prime agricultural land, as well submergence of soils and terrestrial vegetation.

The additional inundation will also result in a decrease in aquatic stream environment, however the EIS states on page 106 the decrease is about 1.2km. Scaling from the Figure 4.4, page 26 appears to indicate that the length of inundation will be 1.7km. The length and impacts of the additional stream environment inundation needs to be clarified, especially with regard to the Booroolong frog habitat.

Section 8.1.4 Mitigation Measures

Soil and water mitigation measures proposed include the preparation of a Sediment and Erosion Control Plan for the construction phase and the revision of the Foreshore Management Plan. Namoi recommends that a condition of approval be as follows:

- that Namoi CMA be consulted during the preparation of the Sediment and Erosion Control plan, and
- that Namoi CMA is consulted during the revision of the Foreshore Management Plan.

Section 8.2 Terrestrial Biodiversity

Section 8.2.1 Existing Environment

Namoi CMA has reviewed this section of the EIS and is satisfied with the identification of the threatened flora and fauna and ecological communities.

As stated in the EIS, Namoi CMA is continuing it's work to assess and protect the habitat for the Booroolong frog. Additional frog surveys along the Peel River are currently occurring with results expected by mid February. Namoi CMA is keen to protect the frog and its habitat in line with Namoi CAP 2010-2020 targets **Biodiv 3** and **Water 1.**

Namoi CMA has reviewed the identified vegetation communities within the study area and is satisfied with the communities mapped and their alignment with Regional Vegetation Communities. The community descriptions as detailed in the EIS and Appendix 8 are mostly satisfactory. However, there is little information regarding the condition status of the vegetation communities and their assessment against RVC ecological condition benchmarks and the Namoi CAP 2010-2020 critical thresholds.

Namoi CMA understands that further information on vegetation condition, meeting benchmarks and thresholds will be included in the Biodiversity Management Plan.

Section 8.2.2 Potential Construction Impacts

It is noted that as a consequence of dam construction and realignment of roads that 68ha of native vegetation will be cleared, of which 63ha is EEC Box Gum Woodland. It is stated in the EIS that most of the Box Gum Woodland is in low condition with only 4ha meeting EPBC criteria. Furthermore, it is also stated in the EIS that there may be significant areas of Queensland Bluegrass that may be cleared as a result of road realignment activity.

Also, as a consequence of inundation there will be 135ha of native vegetation that will be ecologically changed and eventually decay and die. Once changed this terrestrial vegetation will have very little ecological value. Of the 135ha, 117ha is considered to be EEC Box Gum Woodland with only 6ha meeting the EPBC criteria.

Namoi CMA realises that it is proposed to offset the land clearance areas with the conservation of significant areas of nearby woodlands and grasslands, however even with the proposed offsets there will be a net loss of native vegetation from the Namoi Catchment. The net loss of native vegetation is of concern to Namoi CMA and our ability to meet Namoi CAP 2010-2020 target **Biodiv1** and the NCMA Biodiversity Offset Policy 2011.

Namoi CMA is especially concerned with regard to CAP target **Biodiv 1** as the current extent of Box Gum Woodland Community within the Namoi Catchment as at the 2010 threshold is just below the 30% threshold (27% extent).

Additionally, Namoi CMA is concerned with the net loss of native vegetation and the project's ability to comply with the NCMA Biodiversity Offset Policy 2011 as the offsets proposed will only result in the change of conservation status of existing woodlands or

an improvement in the condition of pre-existing vegetation providing for insufficient gain.

Namoi CMA is also concerned with the loss of habitat resulting from inundation of hollow bearing trees, artificial man made habitats and Booroolong frog habitat.

We are especially concerned with the loss of Booroolong frogs and their habitat. Our research and surveys have indicated that the river reach directly above the existing full supply level contains the most robust and resilient population of Booroolong frogs within the Namoi Catchment. We know that the frog's habitat is constrained by geomorphic and topographic conditions and they already occupy all of the existing and potential optimal habitat upstream of Chaffey Dam. Importantly, Booroolong frogs are dependent on permanent water as well as basking areas.

Our research and investigations reveal that Booroolong frogs do not migrate or translocate very well. We believe that with the increased inundation over the 1.7km of river reach will result in a decline of the Booroolong frog population and a loss of habitat critical for the frog's survival.

We agree with the statements in the EIS that 'inundation to the new FSL … the project is likely to have a significant impact on the population of the endangered Booroolong frog previously recorded immediately upstream of Chaffey Dam on the Peel River'. However we disagree with the statement that 'the impact to the species across its range is unlikely to be significant.'

Recent surveys have found Booroolong frogs occurring in the headwater streams of the Namoi Catchment between 400 to 700 metres above sea level. Within the Namoi Catchment there is evidence of the frog in the mid to low elevation streams in the Cockburn and Peel River sub-catchments above Chaffey Dam. The population is conservatively estimated to be between 600 and 800 frogs. Thus the Namoi Catchment is an important area for the survival of this species.

The range for the Booroolong frog in the Namoi catchment is very limited, so the likely impact on the frog and its habitat across its range will be significant.

Section 8.2.5 Proposed Mitigation Measures

Namoi CMA agrees that if the project proceeds the impacts on biodiversity given the increased FSL are unavoidable. The land clearance impacts can largely be offset with appropriate mitigation measures, however we believe the impacts on the Booroolong frog and its habitat will be extremely difficult, if not impossible, to completely mitigate.

Our research and investigations indicate that mitigation measures like habitat creation and the translocation of Booroolong frogs is highly unlikely to succeed because of the species dependence upon permanent water, shallow riffles, island rock structures, shade and basking sites. Therefore, we believe that whatever mitigation measures are employed, they will not completely offset the negative impact on this species. We have explored a few options for habitat re-creation including rock placement, riffle creation and tree planting near the point where the Peel River would enter the dam in

the future, however we are very cautious with this suggestion as there is little evidence to suggest this would be an effective or long term mitigation for habitat loss. We believe that this needs to be investigated further, however we are not confident that it would provide an acceptable offset measure.

Activities which address Key Threatening Processes impacting the Booroolong frog may allow for population increases in already populated areas, reducing population decline. The activities which may achieve this include reduction/removal of stock pressure and improvement in native vegetation on channel buffers to reduce sedimentation and nutrient pollution. The purchase of land adjacent to the Peel River upstream of Chaffey Dam would be the most effective way to achieve this. Control of foxes, feral goats and pigs to limit unnatural predation could also be undertaken. Carp control measures have been proven to be futile in reducing riverine carp numbers in the medium to long term.

We believe that if the project proceeds in it's current form there will be a decline in the Booroolong frog population and a guaranteed loss of habitat.

Namoi CMA requests that additional research and investigation be undertaken prior to project approval into possible mitigation measures for the protection and conservation of the Booroolong frog and its habitat.

Terrestrial biodiversity mitigation measures proposed in the EIS include the preparation of a Biodiversity Management Plan. The Biodiversity Management Plan is proposed to include a Booroolong Frog Management Plan and a Vegetation Management Plan. Namoi CMA recommends that a condition of approval be as follows:

- that Namoi CMA is consulted during the preparation of the Biodiversity Management Plan including the Booroolong Frog Management Plan and the Vegetation Management Plan.

Section 8.2.6 Offset Strategy

Namoi CMA realises that it is difficult to determine offset strategies until all relevant data is obtained including the potential areas of Queensland Bluegrass. Current surveys will obviously assist with determining offset strategies. Namoi CMA looks forward to being consulted during the preparation of the Offset Strategy.

Namoi CMA recommends the following be included in the preparation of the Offset Strategy:

- that the proponent consider the Namoi CMA Biodiversity Offset Policy 2011 when preparing the Offset Strategy,
- that offsets achieve multiple identifiable benefits,
- that the whole 203ha of native vegetation including 180ha of Box Gum Woodland be adequately offset through conservation and management of pre-existing vegetation,

- that Biobanking Assessment Methodology be used to determine both the number and type of credits required to offset impacts,
- that an appropriate area of at least 203ha be planted to native vegetation to offset the loss of native vegetation thus ensuring there is no net loss of native vegetation in the Namoi Catchment,
- that a pro-rata area of native vegetation be planted to offset the loss of equivalence and functional time lags compared to the native vegetation cleared,
- that an Offset Monitoring Plan is included in the Offset Strategy,
- that processes are in place to complete a Conservation Property Vegetation Plan to secure the biodiversity offsets.

Section 8.4 Aboriginal Heritage

Namoi CMA has reviewed the Aboriginal Heritage section of the EIS. We are satisfied with the description of the existing environment, levels of consultation, record of finds within the construction area and mitigation measures.

It is important that the managers of the augmented Chaffey Dam partner with the Aboriginal community and Namoi CMA to ensure Aboriginal Heritage is conserved, access to country is improved and natural resource management decisions contribute to the social wellbeing of the Catchment community (Namoi CAP 2010-2020 **People 1**).

Namoi CMA requests that it be consulted during the development of the 'Back to Country' protocol.

Section 8.11 Socio-economic

Namoi CMA has reviewed the socio-economic section of the EIS. Namoi CMA recognises the importance of Chaffey Dam to the catchment and community and commends the Chaffey Dam augmentation and safety upgrade. Chaffey Dam provides significant economic and social well being for the community, especially in terms of increased water security, dam safety, flood protection and recreational values (Namoi CAP 2010-2020 **People 1**).

Namoi CMA is satisfied with the assessment of the construction and operational socio-economic impacts.

The mitigation measures proposed include development of an Emergency Response plan in consultation with a number of emergency aid groups. Namoi CMA suggests consultation with North West Local Land Services as they will have an emergency response role with regard to agriculture and livestock management. North West Local Land Services is expected to be operational by January 2014.

4. Summary of Concerns and Recommendations

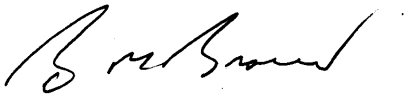
Concern and/or issue	Recommendations / Conditions of Approval
Overall environmental issues within construction area	Namoi CMA be consulted during the preparation of the CEMP
Length of aquatic environment inundated	The length and impacts of the additional stream environment inundation needs to be clarified, especially with regard to the Booroolong frog habitat.
Soil erosion and sedimentation	Namoi CMA be consulted during the preparation of the Sediment and Erosion Control Plan
Foreshore land management	Namoi CMA is consulted during the revising of the Foreshore Management Plan.
Booroolong frog population decline and habitat loss	Additional research and investigation be undertaken prior to project approval into possible mitigation measures for the protection and conservation of the Booroolong frog and its habitat.
Impacts on terrestrial biodiversity	Namoi CMA is consulted during the preparation of the Biodiversity Management Plan including the Booroolong Frog Management and the Vegetation Management Plans.
Net loss of native vegetation And compliance with the NCMA Biodiversity Offset Policy 2011	Namoi CMA is consulted during the preparation of the Offset Strategy. Recommended inclusions: • consideration of the Namoi CMA Biodiversity Offset Policy 2011, • offsets achieve multiple identifiable benefits, • the whole 203ha of native vegetation be adequately offset, • Biobanking Assessment Methodology be used, • at least 203ha be planted to native vegetation to offset net loss of native vegetation, • that a pro-rata area of native vegetation be planted to offset the loss of equivalence and functional time lags, • Offset Monitoring Plan and the completion of a Conservation Property Vegetation Plan.
Aboriginal Heritage	Namoi CMA requests that it be consulted during the development of the 'Back to Country' protocol
Emergency Response	Namoi CMA suggests consultation with the yet to be established North West Local Land Services.

5. Conclusion

Namoi CMA believes that if the above concerns are addressed in the Response to Submissions then Namoi CMA will support the Chaffey Dam Augmentation and Safety Upgrade Project.

If you need to discuss this matter further, please do not hesitate to contact Glenn Bailey on (02) 6742 9204 and/or Anna Cronin (02) 6764 5953 (Booroolong frog specialist).

Yours Sincerely



Bruce Brown
General Manager
Namoi Catchment Management Authority

NSW GOVERNMENT | Catchment Management Authority Namoi

22nd February 2013 Ref No GB NAM02286

nghenvironmental
PO Box 470
Bega NSW 2550

Attention: Mr David Maynard, Ecologist

Dear Dave,

Re: Chaffey Dam Augmentation and Safety Upgrade (SSI-5039)
Additional comments on Terrestrial Biodiversity

Thank you for your email of the 14th February 2013 requesting additional comment on the Environmental Impact Statement for Chaffey Dam Augmentation and Safety Upgrade section 8.2.1 Terrestrial Biodiversity – Existing Environment. Your email requests clarification on Namoi CMA's comments with regard to condition assessments, Regional Vegetation Community benchmarks and Namoi Catchment Action Plan critical thresholds.

I have re read section 8.2.1 of the EIS and Appendix 8 Terrestrial and Aquatic Flora and Fauna Assessment especially sections 3.4 Flora Surveys and 4.1 Flora results. Re-examination of these sections, especially section 4.1.2 Vegetation Communities reveals that assessments of condition and RVC benchmarks for the 6 native vegetation communities are adequately addressed within the appendix. I apologise, I missed the detail provided in Appendix 8 section 4.1.

Furthermore, Namoi CMA is satisfied with the information provided in sections 4.1.3, 4.1.4 and 4.1.5 of Appendix 8. I believe the information provided in these sections satisfies our request for additional information on CAP critical thresholds. Namoi CMA is always concerned with clearing of the Box Gum Woodland Community as its 2010 extent was close to the ecological threshold of 30% within the Namoi Catchment. However, with the offsets being proposed, Namoi CMA is satisfied that CAP critical threshold for the Box Gum Woodland Community will not be further eroded.

If you need to discuss this matter further, please do not hesitate to contact Glenn Bailey on (02) 6742 9204.

Yours Sincerely

Glenn Bailey, Catchment Coordinator
Namoi Catchment Management Authority

All Correspondence - PO Box 546 GUNNEDAH NSW 2380
Tel: (02) 6742 9220 – Fax: (02) 6742 4022

NSW GOVERNMENT | Office of Environment & Heritage

Date: 1st February 2012
Your reference: SSI 5039
Our reference: DOC13/3081
Contact: Liz Mazzer
68835325

Lisa Mitchell
Manager – Water Projects
NSW Department of Planning & Infrastructure
GPO Box 39
Sydney NSW 2001

Dear Ms Mitchell

RE: Chaffey Dam Augmentation Project (MP SSI 5039) – Exhibition of Environmental Assessment

I refer to your letter dated 11th December 2012 seeking comment from the Office and Environment and Heritage (OEH) on the Environmental Assessment (EA) for the Chaffey Dam Augmentation Project.

Advice regarding biodiversity considerations is provided in Attachment A. In summary, OEH considers that some further information is required.

- Further targeted surveys are required for *Dichanthium setosum*
- That the proponent quantify habitat surrounding the site that is suitable for threatened species identified as using, or potentially using, the area. This could be conducted as part of the offset strategy investigations.
- The assessment of impacts to the Booroolong Frog should be reviewed and amended by adopting a more precautionary approach.
- Adequate population and habitat surveys throughout the Upper Peel should be conducted to inform both the assessment of impacts and the potential for offsets.
- Specific strategies should be considered that mitigate impacts to riparian areas for terrestrial biodiversity that are dependent on such habitat.
- It needs to be demonstrated that the high risks and potentially significant impacts of relocation of affected fauna as a mitigation measure have been considered and will not apply in this case or alternative strategies be formulated.
- The proponent should provide specific alternative strategies for mitigation, or reconsider the level of impact on the Booroolong Frog and Border Thick-tailed Gecko, and how this affects biodiversity offset requirements.
- With regard to environmental flows, OEH recommends that any stimulus flows should, unless advised otherwise by the Environmental Water Manager, be released to reflect the natural rates of the rise and fall for the Peel River system.

A number of points regarding the preparation of a detailed biodiversity offset plan have also been provided in Attachment A.

PO Box 2111 Dubbo NSW 2830
Level 1 48-52 Wingewarra Street Dubbo NSW
Tel: (02) 6883 5312 Fax: (02) 6884 8675
ABN 30 841 387 271
www.environment.nsw.gov.au

With regard to Aboriginal Cultural Heritage, OEH considers that some buffer zones are required to protect particular sites, and some sites need to be registered on the Aboriginal Heritage Information Management System (AHIMS). Clarification of the processes followed is also required.

More detailed advice relating to Aboriginal Cultural Heritage is provided in Attachment B.

If you have any questions regarding this matter further please contact Liz Mazzer on 02 6883 5325 or email liz.mazzer@environment.nsw.gov.au

Yours sincerely

ROBERT TAYLOR
Manager, Environment & Conservation Programs
Conservation and Regulation Division

ATTACHMENT A
Biodiversity

Unless otherwise stated, citations in this section refer to EIS Appendix 8.

OEH understand that the impacts of the proposed project have been estimated to include:

- Removal and/or inundation of approximately 194.25ha of native vegetation, of which 180ha was mapped by the Proponent as TSC Act Box-Gum EEC, including:
    - 134ha of Box-Gum EEC Derived Native Grassland (DNG); and
    - 10ha of Box-Gum CEEC listed under the EPBC Act.
- Removal and/or inundation of habitat for up to 25 threatened fauna species, of which six species are known from the Project Area, including:
    - 1,700m of known stream habitat for the Endangered Booroolong Frog; and
    - 5.26ha of known habitat for the Vulnerable Border Thick-tailed Gecko.

IMPACT ASSESSMENT

ISSUE 1

Selection of threatened flora species for targeted surveys.

Background

Targeted surveys were conducted for the following four threatened flora species (Table 3-2, p. 12-13):

- *Asterolasia* sp. “Dungowan Creek”
- *Dichanthium setosum*
- *Diuris pedunculata*
- *Euphrasia arguta*

In Appendix B (Table B.2), the Proponent considered the habitat of all four of these species to be present within the Project Area. However, Table B2 also considered the habitat of three other threatened flora species to be present, namely *Eucalyptus rubida* subsp. *barbigerorum*, *Thesium australe* and *Bothriochloa biloba* (EPBC Act listed). The Proponent states that following initial surveys, the former four species were considered to potentially occur in the Project Area, and consequently were targeted. However, the Proponent has not adequately justified why the latter three species were not targeted for survey. This decision process should be documented in the EIS.

Recommendations

That the Proponent provide adequate justification for not targeting *Eucalyptus rubida* subsp. *barbigerorum*, *Thesium australe* and *Bothriochloa biloba* as part of this assessment.

ISSUE 2

Timing of surveys for *Dichanthium setosum*.

Background

The Proponent concedes that targeted surveys for *Dichanthium setosum* were undertaken outside the optimal period for detection (p. 12, p. 37). Further, the Proponent recommends that additional targeted surveys be undertaken for this species to accurately determine the potential for and extent of impacts as a result of the Proposal.

Recommendation

That the Proponent undertake additional targeted surveys for *Dichanthium setosum* of an appropriate intensity and during the optimal period for detectability.

ISSUE 3

Assessment of impacts to threatened fauna species.

Background

The assessment presented in Table B-1 indicates that the habitat of a number of fauna species is likely to be affected. This has not been clearly stated in the section of the EIS that discusses Terrestrial Fauna Species (page 133). Many species that have been recorded as having habitat and/or being recorded as present on-site have not been assessed in any detail.

Additionally, for many species Table B-1 considers impact to be low, stating that "abundant habitat is available adjacent to the site". This assumption has not been verified in the EIS.

Recommendation

That the proponent quantify habitat surrounding the site that is suitable for threatened species identified as using, or potentially using, the area. This could be conducted as part of the offset strategy investigations.

ISSUE 4

Assessment of impacts to the Booroolong Frog.

Background

OEH have significant concerns over any impacts that will reduce the availability of habitat to the Booroolong Frog in the Upper Peel. The Booroolong has declined from around 50% of its former range, with the great majority of declines occurring in the northern half of its distribution. The remaining northern populations in the subcatchments of the Cockburn and Upper Peel Rivers (in addition to restricted records from the Isis River east of the Murray Darling Basin) are separated from the nearest population in the Turon River by more than 200km, and are themselves isolated from each other. Consequently, the Upper Peel Booroolong population is extremely important to the species as a whole, and any proposed reduction in this population will reduce the resilience of it to threatening processes, including climate change.

The Proponent has acknowledged (p. 18) that surveys for the Booroolong Frog were undertaken outside of the optimal period for detecting this species. This is particularly important for surveys in areas that are occupied by both the Booroolong Frog and its close congenors *Litoria wilcoxii* and *L. lesueurii* (as in the Upper Peel). In addition, OEH note that Environmental Assessment Requirements provided by the Commonwealth Department of Sustainability, Environment, Water, Population and Communities (SEWPAC) provide specific survey requirements for the Booroolong Frog.

Notwithstanding the Proponent's proposal to undertake "additional population and habitat surveys" as part of a Booroolong Frog Management Plan (p. vi), a suitably timed survey was not undertaken for this EIS. Consequently, the Proponent's assessment of impacts to the Booroolong Frog should necessarily have been precautionary: OEH do not believe this to be the case.

The Proponent appears to have over-emphasized the influence of shade as a determinant of habitat (p. 20 and p. 46) in it's assessment of Booroolong Frog habitat within and upstream of the new FSL. While OEH agree that shading of habitat areas may affect Booroolong habitat selection (given potential metabolic implications for juvenile and adult frogs, as well as prey species), OEH assert that the two most important factors affecting Booroolong habitat within its extant distribution are the presence of water and the presence of exposed rocky substrates with crevices. Landuse-related practises that affect either of these factors (i.e. that alter hydrological regimes, facilitate weed invasion and increase sedimentation) will reduce habitat availability and preclude habitat selection by this species. While an important ecological consideration, shading can only be considered secondary to water and rock crevices. Moreover, considerable temporal variation is expected in the amount of shade caused by riparian canopy species subject to natural processes including tree senescence and floods. Unshaded areas of streams can actually be important for the species because the Chytrid fungus is intolerant of such conditions (North West Ecological Services 2009).

Consequently, in the absence of adequate surveys and given a necessity to adopt a precautionary approach, OEH asserts that it should be assumed that the stretch of the Upper Peel to be subsumed within the new FSL should be considered Booroolong Frog habitat. Further, considering the results of surveys by North West Ecological Services (2009), who recorded several hundred individuals at this location, it is likely that this portion of the Upper Peel is of relatively high importance in comparison with other stretches upstream.

Thus, OEH interpret the following impacts to the Booroolong Frog arising from this proposal:

- loss of 1,700m of known habitat, representing at least 15% of the total Upper Peel population, and which may be proportionately greater given the relative importance of this stretch;
- reduced population resilience and increased vulnerability to extinction; and as a consequence
- broader implications for the overall range and security of the species.

Recommendation

That the proponent:

- review and amend the assessment of impacts to the Booroolong Frog by adopting a more precautionary approach; and
- undertake adequate population and habitat surveys throughout the Upper Peel (note: this will inform both the assessment of impacts and the potential for offsets – see below).

MITIGATION & OFFSET STRATEGY

ISSUE 5

Mitigation of indirect impacts associated with construction.

Background

OEH note that the Proponent provides recommended mitigation strategies for potential impacts associated with construction (Section 6.1). Elsewhere in the EIS, the Proponent has made the distinction between aquatic biodiversity and terrestrial biodiversity, on the basis of their relevance under the Fisheries Management Act and the TSC Act (respectively). This distinction is continued in the discussion of mitigation strategies, wherein control of erosion and sediments are discussed in terms of impacts to water quality under the heading of “Aquatic”. OEH emphasize that riparian terrestrial biodiversity should be considered when managing indirect impacts associated with construction, and that this is not limited to weed control. Matters to consider include prevention of any sediments affecting Booroolong Frog habitat, and protocols to prevent the introduction and spread of amphibian chytrid fungus.

Recommendation

That the Proponent specifically consider strategies that mitigate impacts to riparian areas for terrestrial biodiversity that are dependent on such habitat.

ISSUE 6

Relocation of fauna from the impact area.

Background

OEH note that proposed management plans for the Booroolong Frog and Border Thick-tailed Gecko involve the translocation of individuals from the impact area to locations outside the proposed footprint (p. 78). OEH retain serious concerns over the suitability of such a strategy, and the Proponent’s reliance on it.

Prior to relocating animals, the suitability of a receiving site would need to be properly assessed to ensure that appropriate habitat is present and available (i.e. unoccupied), and that relevant threats are adequately managed. For the Border Thick-tailed Gecko, the Goat Mountain receiving site has apparently been assessed and confirmed to contain appropriate habitat (as demonstrated by the presence of this species); however, the availability of unoccupied habitat for relocated individuals has

yet to be addressed, and the management of threats has yet to be ensured. Habitat availability is influenced by both resident conspecifics and other fauna that occupy the same or similar ecological niche: i.e. is the area already at or near carrying capacity? With regard to threats that might influence the success of a relocation exercise, the Proponent has recommended that the wildlife corridor between the Project Area and Goat Mountain be managed for stock and weed impacts; however, the efficacy of such management will depend on the security of tenure (see Issue 7, below); and regardless, no such management has been proposed for the actual receiving site.

By contrast, threat management has been proposed for Booroolong Frog receiving sites, albeit without assurance of the long-term security of such sites. However, concerns surrounding habitat availability are accentuated for the Booroolong Frog when the impacts of augmenting existing populations is considered in the context of the amphibian chytrid fungus. Specifically, the virulence of chytrid will increase with increasing altitude (receiving sites will be located upstream), and increasing population density (augmentation will increase the density of resident populations).

Recommendations

That the Proponent:

- demonstrate consideration of the high risks and potentially significant impacts of relocation of affected fauna as a mitigation measure; and
- provide specific alternative strategies for mitigation, or reconsider the level of impact on the Booroolong Frog and Border Thick-tailed Gecko and how this affects biodiversity offset requirements.

ISSUE 7

Adequacy of the exhibited offset strategy.

Background

OEH note that the Proponent has provided an offset strategy that describes what a future offset proposal would entail and how it would address State and Commonwealth offset policies. However, in the absence of an actual plan, and considering the issues raised above concerning uncertainties around the impact assessment and proposed mitigation strategies, OEH cannot comment in detail on the adequacy of the exhibited offset strategy. Moreover, public consultation on a detailed offset plan is similarly not possible.

Notwithstanding, OEH raise the following points regarding the exhibited offset strategy:

- It is OEH's preference by that the Proponent submit a final offset plan prior to project determination (p. 81, *Terrestrial and Aquatic Flora and Fauna Impact Assessment*).
- OEH emphasize that in addition to considering the SEWPAC *Environmental Offsets Policy*, the Proponent should consider the OEH *Interim policy on assessing and offsetting biodiversity impacts of Part 3A, State significant development (SSD) and State significant infrastructure (SSI) projects* with which OEH would review any future offset plan. This policy includes reference to both the Biobanking Assessment Methodology (BBAM) and the *Principles for the use of Biodiversity Offsets in NSW*.
- OEH considers that the Proponent's reference to the potential use of the Credit Converter for the conversion of outstanding credit requirements to areas of habitat is inappropriate (p. I-2). The Credit Converter is a tool developed under the Biodiversity Certification Assessment Methodology (BCAM); Tier 3 Variation Criteria C of the OEH Offset Policy refers to the use of BBAM (and not BCAM) for the conversion of ecosystem credits into hectares.
- OEH notes the Proponent's reference to the management and security of offset sites, and in particular the likelihood that Conservation Property Vegetation Plans (CPVPs) would be used as a mechanism for doing so (p. I-5 – I-6). The OEH *Guidance on Appropriate Mechanisms for Securing Biodiversity Offsets* asserts that the preferred mechanism for securing offsets are: the establishment of a biobanking site with a Biobanking agreement under the TSC Act; the retirement of biobanking credits; and dedication of land as a public reserve under the NPW Act. Although establishment of CPVPs to secure offsets may be considered where it is not possible to negotiate the use of any other recommended mechanism, the above mechanisms (in addition to

others detailed in the latter *Guidance*) are preferred. Note that rezoning and s88 covenants (as alluded to by the Proponent) are not recommended mechanisms.

- With reference to how the Offset Strategy would address Offset Principle 9, the Proponent claims to have addressed assessment requirements for both the Impact site and the offset sites. Clearly, this has not been undertaken for the offset areas as these have yet to be identified, and uncertainties need to be addressed with regard to specific impacts on several threatened species (as discussed above).
- Section 6.2 of the Terrestrial and Aquatic Flora and Fauna Impact Assessment states,

  The Project will impact upon habitat for listed threatened species and vegetation communities. The exact offset requirements will be calculated according to the EPBC Act Offsets Policy and using the EPBC offset calculator for relevant EPBC listed species and communities. The Biobanking Assessment Methodology and Calculator will be applied for TSC listed species.

  It should be noted that the offset strategy needs to include all native vegetation communities to be affected, not just those listed under the EPBC and TSC Acts.

Recommendations

That the Proponent considers the above points in their preparation of a detailed biodiversity offset plan, and address all known and potential impacts arising from the Project.

ISSUE 8

Stimulus flows

Background

Section 4.8.1 of the Environmental Impact Assessment discusses environmental releases and states,

At present, environmental releases are only provided once a minimum storage volume is reached, only in certain months of the year and only if flood flows of a given magnitude have not occurred. None of these conditions apply after augmentation. The background document to the Peel Valley Water Sharing Plan states that although the magnitude, timing and duration of environmental releases after augmentation is not prescribed, the ECA is likely to be used as a stimulus flow over seven days with a peak on day 2 of 1,200 ML/day.

OEH considers that stimulus flows should, where possible, reflect natural rates of rise and fall.

Recommendation

OEH recommends that any stimulus flows should, unless advised otherwise by the Environmental Water Manager, be released to reflect the natural rates of the rise and fall for the Peel River system.

References

North West Ecological Services (2009). Review of the conservation status of the Booroolong Frog (*Litoria booroolongensis*) within the Namoi River Catchment. Report to Namoi CMA.

ATTACHMENT B

Aboriginal Cultural Heritage

Issue 1

Buffer zones around sites.

Background

Recommendation 2 of the Aboriginal Cultural Heritage Assessment states that:

Sites which fall on the border of the proposed inundation level (CD!F7 and CDIF9) should be fenced off during any construction works associated with the Tamworth-Nundle and Western Foreshore Roads and associated bridge realignments to avoid indirect impacts during construction.

OEH considers that these sites will also require buffer zones to ensure their protection.

Recommendation

That appropriate buffer zones be applied around the sites to ensure their protection.

Issue 2

Sites not included on the Aboriginal Heritage Information Management System (AHIMS)

Background

Site identification cards has not been provided for the following sites. It appears that they have not been registered on the Aboriginal Heritage Information Management System (AHIMS):

- Chaffey A1
- Chaffey A2
- Chaffey A3
- Chaffey A4

Recommendation

Supply OEH with copies of site cards for the above sites so they can be registered onto the AHIMS.

Issue 3:

Aboriginal consultation

Background

In section 4.1 Aboriginal consultation (page 12, 2nd paragraph) of the Aboriginal Cultural Heritage Assessment, the Report states that consultation has complied with the OEH 2010 Aboriginal consultation requirement. OEH considers that the report has not fully complied with these requirements, in particular stages 2 and 3.

4.2 Stage 2 – Presentation of information about the proposed project

Aim: To provide registered Aboriginal parties with information about the scope of the proposed project and the proposed cultural heritage assessment process.

According to the report, stage 2 did not occur.

4.3 Stage 3 – Gathering information about cultural significance

Aim: To facilitate a process whereby registered Aboriginal parties can:

(a) contribute to culturally appropriate information gathering and the research methodology

(b) provide information that will enable the cultural significance of Aboriginal objects and/or places on the proposed project area to be determined

(c) have input into the development of any cultural heritage management options

According to the report, the Representative Aboriginal Parties were not given an opportunity to contribute to culturally appropriate information gathering and the research methodology.

Recommendation

The proponent should either provide further information or remove/amend the statement about complying with the OEH 2010 Aboriginal consultation requirement as the proponent has not complied with these requirements and the statement is therefore misleading.

File No: NTH11/00171; CR2012/011806
Your Ref: SSI_5039
Matt Adams

The Director
Major Projects
Department of Planning & Infrastructure
GPO Box 39
SYDNEY NSW 2001

Attn: Ms Lisa Mitchell, Manager Water – Infrastructure Assessments

Tamworth – Nundle Road [MR105]: Exhibition of Environmental Assessment for Chaffey Dam Augmentation and Safety Upgrade (SSI_5039), Tamworth-Nundle Road, Tamworth LGA

Dear Ms Mitchell,

I refer to your letter dated 11 December 2012 inviting submissions in relation to the exhibition of the abovementioned Environmental Assessment and forwarded to Roads and Maritime Services (RMS) for consideration.

RMS Roles & Responsibilities

The key interests for RMS are the safety and efficiency of the classified road network. In particular, traffic management, the integrity of infrastructure assets and the integration of land use and transport.

In accordance with the *Roads Act 1993*, RMS has powers in relation to road works, traffic control facilities, connections to roads and other works on the classified road network. The New England Highway (HW9) and the Tamworth-Nundle Road (MR105) are classified roads. RMS concurrence is required for works on the classified road network with Council consent, under Section 138 of the Act. Tamworth Regional Council is the Roads Authority for MR105 and all other public roads in the area.

RMS Response

RMS has undertaken a review of the information provided and raises no objections to the proposed development. The developer will need to liaise with Tamworth Regional Council, as the Roads Authority for those roads impacted by the development. All road infrastructure upgrades shall be in accordance with the current Austroads Guidelines and relevant Australian Standards.

The nominated haulage route includes the New England Highway, which is a classified (state) road. RMS notes that the submitted Traffic Study has not identified the source of concrete to be used in construction works, but has indicated the potential for 22 heavy vehicle movements per hour over a four day period. Should the source be located remotely from the construction site it would result in a significant impact to the local road network and its connections to the New England Highway.

A 'Construction Traffic Management Plan' (CTMP) will need to be prepared and include a Vehicle Movement Plan and Traffic Control Plan. It shall be prepared with the intention of causing minimal impact to the operation of the road network and road infrastructure assets during the construction process. The CTMP shall be submitted to RMS and Council for approval prior to any construction activities occurring onsite.

RMS notes that the project will require the transport of loads. It is the Operator's responsibility to obtain all necessary permits prior to the transport of materials by Over-size/Over-mass vehicles.

Should you have any further enquiries regarding the above comments please do not hesitate to contact Matt Adams of RMS Development Northern on 6640 1344 or via email at: development.northern@rms.nsw.gov.au

Yours sincerely,

John Alexander
A / Regional Manager, Northern Region
13/2/13

NSW GOVERNMENT | Department of Primary Industries

OUT13/4160

28 FEB 2013

Mr Alexander Scott
Infrastructure Assessments -Water
NSW Department of Planning and Infrastructure
GPO Box 39
SYDNEY NSW 2001

Alexander.Scott@planning.nsw.gov.au

Dear Mr Scott,

Chaffey Dam augmentation and safety upgrade (SSI-5039)
Response to exhibition of Environmental Impact Statement

I refer to your letter of 11 December 2012 requesting advice from the Department of Primary Industries (DPI) in respect to the above matter, and to the referral by email of additional drawings on 23 January 2013.

Fisheries NSW comment
Fisheries NSW advise the comments detailed in Attachment A.

For further information please contact Matthew Gordos, Senior Conservation Manager (Tamworth office) on 6626 1395, or at: matthew.gordos@dpi.nsw.gov.au.

NSW Office of Water comment
The NSW Office of Water advise the comments recommended conditions should the application be approved, detailed in Attachment B.

For further information please contact Mark Simons, A/Manager, Major Projects and Mine Assessments (Newcastle office) on 4904 2572, or at: Mark.Simons@water.nsw.gov.au.

Crown Lands comment
The proposals have direct impact on the Bowling Alley Point Recreation Area, a Crown reserve. Crown Lands advise:

(i) Crown Lands is agreeable to the proposal to relocate the facilities contained within the reserve, including boat ramp, picnic tables and chairs, barbeques, toilet facilities and camping areas.
(ii) it is noted that the State Water Corporation, as the proponent, is to engage a consultant to prepare a Recreation Continuance Plan for Bowling Alley Point. The preparation of this Plan and the future planning of the recreation ground generally should be noted in the assessment of this application and included as a condition should the proposal be approved.

(iii) it should also be recorded that the Bowling Alley Point Recreation Area is important to the local economies of the villages of Woolomin, Nundle and the city of Tamworth. A reduction in the capacity of the campground may negatively impact the businesses within these areas. The proposed Recreation Continuance Plan should ensure that the standard of the current facilities is maintained.

For further information please contact Leanne Dunstan, Senior Natural Resource Management Officer (Tamworth office) on 6764 5146, or at: leanne.dunstan@lands.nsw.gov.au.

Other advices
There are no agricultural or forestry issues.

For further information in relation to forestry matters please contact Jude Parr, Land Administration Officer (Wauchope office) on 6586 9718, or at: judep@sf.nsw.gov.au.

For further information in relation to agriculture matters please contact Andrew Scott, Resource Management Officer (Tamworth office) on 6763 1142, or at: andrew.scott@industry.nsw.gov.au.

Yours sincerely

Phil Anquetil
Executive Director Business Services

Attachment A

Chaffey Dam augmentation and safety upgrade (SSI-5039)
Response to exhibition of Environmental Impact Statement (EIS)
Comment by Fisheries NSW

Fisheries NSW is responsible for ensuring that fish stocks are conserved and that there is "no net loss" of key fish habitats upon which they depend. To achieve this, Fisheries NSW assesses activities in accordance with the objectives of the *Fisheries Management Act* 1994, the aquatic habitat protection and threatened species conservation provisions in Parts 7 and 7A of the Act, and the associated *Policy and Guidelines for Aquatic Habitat Management and Fish Conservation*. In addition Fisheries NSW is responsible for ensuring the sustainable management of commercial fishing and quality recreational fishing opportunities within NSW.

General Comment

The primary potential impacts of the proposed project on aquatic biodiversity and health are changes to the Peel River flow regimes, cold water pollution, loss of upstream lotic habitat, and decreased water quality through pollution. Fisheries NSW has reviewed the EIS and believes that it adequately addresses these issues with regards to potential impacts on soil, water, and biodiversity, provided the comments below are incorporated into the final assessment of the application.

Specific Comments

- Fisheries NSW notes that two of the proposed borrow areas for core material located downstream of Chaffey Dam are within close proximity (less than 30m) to the Peel River. Fisheries NSW recommends that material taken from borrow areas be limited to land located above the 1:20 flood level and at a distance greater than 30 m from the waterway and requests confirmation that the borrow pits will be backfilled with suitable material to natural bed levels and subsequently revegetated. The justification for this recommendation is to limit future erosion and scouring during high flow events and to limit the potential for channel realignment.
- Referring to Page 67 of the EIS (listing stakeholder consultations), it should be noted that Fisheries NSW provided advice to the Department of Planning and Infrastructure on the adequacy of the draft EIS, by letter dated 23rd November 2012.
- Cold Water Pollution (CWP) has a significant negative impact upon downstream aquatic environments of large dams. Fisheries NSW supports the recommendations of the NSW CWP Interagency Group (2012) to meet the requirements of the *Water Management Act 2000* in regards to CWP releases from Chaffey Dam (p. 157). Monitoring of water temperatures downstream of Chaffey Dam relative to nearby control tributaries is requested in order to determine the extent of CWP with regards to temperature depression and the distance downstream CWP extends. The extent of water quality / temperature monitoring should be detailed in a monitoring plan for review by respective agencies including Fisheries NSW and NSW Office of Water. Selective withdrawal of water from the hypolimnion should be discouraged where possible.
- The proposed waterway crossing designs at Bowling Alley Point Bridge, Hydes Creek Bridge, and Silver Gully should be provided to Fisheries NSW for assessment. Bridges proposed for Hydes Creek and Bowling Alley Point are consistent with the waterway classifications as presented within the EIS.
- Fisheries NSW should be afforded the opportunity to review the draft Construction Environmental Management Plan prior to finalisation.

- Removal of large woody debris (LWD) is listed as a Key Threatening Process within NSW. Fisheries NSW should be notified a minimum of 3 days prior to any removal of LWD. Fisheries NSW supports the LWD mitigation measures listed on p. 173 of the EIS.
- Fisheries NSW supports the EIS recommendations for revegetation of riparian zones above the FSL where possible. Fisheries NSW recommends that where stock are present, riparian plantings be protected by fencing.
- Fisheries NSW welcomes the development of a Water Release Management Plan and operational plan for the use of the Environmental Contingency Allowance and requests that it be consulted regarding the process.
- Fisheries NSW supports the review of the Chaffey Dam Variable Offtake Management Protocol and requests that it be consulted during the process.
- The proposed mitigation measures in Section 8.13 Hazards and Risks should indicate that fuels, lubricants, and chemicals should be stored no closer than 30 m to waterways and be adequately bunded at all times.

End Attachment A

Attachment B

Chaffey Dam augmentation and safety upgrade (SSI-5039)
Response to exhibition of Environmental Impact Statement (EIS)
Comment and recommended conditions by NSW Office of Water

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1. Growth in Use

The EIS suggests the project will decrease the percentage of time that Tamworth may experience water restrictions, and increase the probability of water allocations for General Security users. Both of these actions could trigger a growth-in-use response strategy within the Peel River system under the rules established by the *Water Sharing Plan for the Peel Valley Regulated, Unregulated, Alluvium and Fractured Rock Water Sources 2010* (Peel WSP) and within the Namoi River system under the rules established in the *Water Sharing Plan for Upper Namoi and Lower Namoi Regulated River Water Sources 2003* (Namoi WSP). This would require either:

- the introduction of a growth-in-use response strategy within the Peel System;
- the introduction of a growth-in-use response strategy in the combined Namoi/Peel system; or
- a reduction in flow volumes reaching the Namoi Regulated River system, resulting in a reduction in reliability of supply for users in this system.

Both the Peel WSP and the Namoi WSP contain a growth-in-use response strategy. Both of these plans are constrained by a Long Term Average Annual Extraction Limit (LTAAEL), which was established to meet NSW's commitment to compliance with the Murray Darling Basin Cap. In the case of the Peel Valley, the LTAAEL corresponds to the use of water under 2007/2008 levels of development, while for the Upper and Lower Namoi systems, the 1999/2000 levels of development are used to determine the LTAAEL. Both plans recognise that the current level of water use by the City of Tamworth for urban water supply may increase. To ensure compliance with the LTAAEL for each plan, any growth in use by the City of Tamworth will result in a corresponding reduction in water allocations for other users, with 95% of this impact being borne by water users in the Upper and Lower Namoi, and 5% being borne by water users in the Peel.

The impacts on these users are not quantified in the EIS, but Tamworth City Council holds 16,400ML/yr of entitlement, and its average annual use is about 5000ML. This means that growth within the urban water entitlement of up to 11,000ML is possible. This amount of growth could result in an impact on Supplementary Water Access Licences in the Lower Namoi of approximately 9%, and an impact on general security water use in the Peel Regulated system of approximately 8% of the current average use.

2. Construction Phase Water Allocation Impacts

The EIS suggests that a 2 metre drawdown may be required during the project construction.

First, such a drawdown is not written into the provisions of the Peel WSP. Therefore, to operate the storage in a manner inconsistent with the provisions of the WSP may require the plan to be suspended. NOW is seeking legal advice on this issue.

Second, this drawdown may result in a decrease in availability of water to downstream users, depending on subsequent dam filling and spilling cycles.

Given these two reasons, the Office of Water is concerned that this action may trigger compensation under the Peel WSP, and the consequences of this action have not been adequately explored within the EIS. The EIS suggests that this drawdown may commence in May 2014. To ensure the allocated water can be delivered, the Office of Water would be required

to take into account this release in making allocation announcements at the start of the 2013/2014 water year, and the storage would still be drawn down at the commencement of the 2014/2015 water year. As a result significant restrictions for General Security Licence Holders (reductions in allocation of up to 28%) may be expected for a period of at least two years. Although Chaffey Dam is considered to have reliable inflows, there still exists a risk that climatic conditions may result in an extended period of storage drawdown, with water allocations being reduced until the next storage spill.

The Office of Water recommends that further information regarding the risk to users as well as a detailed consultation with water users within the Peel System be undertaken prior to commencement of this part of the project. In addition, it is recommended that alternatives to requiring a two metre drawdown, including engineering solutions (such as a coffer dam around the spillway) and reducing the drawdown (and hence time to prepare in the event of a significant rainfall event). Finally, consideration should be given to requiring a bond to cover the likelihood of any compensation claims.

3. Upstream Inundation Impacts

The likelihood of increased algal blooms, as a result of breakdown of organic matter during the submergence and infilling stage, and the potential for impact on water supply for the City of Tamworth and for downstream environments has been discussed in the EIS. Consideration should be given to a regular sampling program for algal blooms. Algal management downstream should also be addressed through appropriate offtake levels and operational protocols.

The EIS discusses the loss of riparian zone vegetation as a result of the project. The Office of Water recommends a condition requiring a plan for the establishment of new riparian zone vegetation above the new full supply level for the storage.

4. Recommended Conditions for any approval

1. Prior to commencement, the proponent should consult with licence holders within the Peel Valley regarding the requirement for drawdown of the storage during construction. This consultation should clearly explain:
   - the need for the drawdown of water, including other options available
   - the likely reductions in water availability as a result of the drawdown
   - the length of time such reductions in availability are likely to occur
   - the risk of ongoing drought following the drawdown, and likelihood of ongoing impacts on water availability.

   Following consultation, the proponent should seek agreement from affected licence holders that they accept the potential for drawdown impact and waive future claims for compensation as a result of the drawdown impacts.
2. Algal management procedures associated with the storage should be reviewed and updated to deal with the additional capacity of the storage and changes to the storage offtake. These procedures should include:
   - a water quality sampling strategy, including monthly sampling throughout the year, increasing to fortnightly sampling during summer
   - an increase in sampling frequency to weekly if a "red alert" level is detected for blue green algae
   - a strategy for management of downstream water quality, through the use of the variable offtake structure. The strategy should address both water temperature and water quality management
3. Prior to commencement, a plan should be developed to re-establish riparian zone vegetation, to replace that submerged by the augmentation

End Attachment B