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Delta Electricity

Proposed Gas Power Facility at Bamarang Stage Two

Submissions Report

August 2008

INFRASTRUCTURE | MINING & INDUSTRY | DEFENCE | PROPERTY & BUILDINGS | ENVIRONMENT

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1. Introduction

1.1 Overview

An environmental assessment for the proposal to construct and operate a gas turbine facility at Bamarang, near Nowra in NSW, was prepared in 2006. The environmental assessment was prepared to support Delta Electricity's (Delta's) application for approval of the facility under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The Minister for Planning was the approval authority.

The proposed gas turbine facility consists of two stages. Stage one involves development of a gas turbine peaking facility, a gas pipeline and an electricity transmission line. The second stage involves converting the proposed facility to a base load facility, by adding two heat recovery steam generators and a steam turbine.

On 27 February 2007, the NSW Minister for Planning granted approval to Delta Electricity for the proposed gas power facility at Bamarang, near Nowra. The following approvals were granted:

» Concept approval for the Bamarang gas turbine facility (comprising both stages one and two); and

» Project approval for the construction and operation of stage one, an open cycle gas-fired power station.

Delta is now seeking project approval for the works described as stage two in the 2006 environmental assessment, so that stages one and two can be built concurrently and the facility can operate as a base load facility. An environmental assessment for stage two of the facility was prepared in April 2008 by GHD Pty Ltd (GHD) to support the project application.

The environmental assessment was placed on public exhibition by the Department of Planning (DoP) between 16 April 2008 and 19 May 2008. Following exhibition, the DoP provided Delta with a copy of submissions received.

The letter stated that in accordance with clause 75H(6) of the Act, the Director General of DoP requires Delta to respond to issues raised in the submissions.

This report provides Delta's responses to this requirement.

No modifications to the proposal described in the Environmental Assessment are proposed by this report.

1.2 Background to the proposal

Delta is an electricity generation company owned by the NSW Government (a State owned corporation). Delta produces around 12% of the electricity consumed in the national electricity market, which covers consumers in NSW, South Australia, Queensland, Victoria, the ACT and Tasmania.

Electricity is currently produced by Delta using a range of fuels including coal, water and biomass materials. Delta currently operates four major power stations in NSW: Vales Point, Munmorah, Mt Piper and Wallerawang, which have a combined generating capacity of 4,240

megawatts. In order to secure NSW's future electricity supply, Delta is developing a number of other power facilities' projects, of which this project is one.

The strategic justification for development of the gas power facility at Bamarang was provided in the 2006 environmental assessment. The National Electricity Market Management Company (NEMMCO) in its annual assessment of the National Electricity Market indicated that New South Wales needs future investment in generation capacity to maintain the State's electricity supply. In response, the NSW Government has acted to secure the medium term peak supply. Delta has project approvals to construct two gas peaking power stations, including the facility at Bamarang.

Gas peaking facilities supplement electricity supply during times of peak demand, such as on hot summer days. The 2006 environmental assessment noted that when the overall level of demand increases further, Delta would seek project approval to convert the facility to a combined cycle facility (stage two), allowing the Bamarang gas power facility to operate efficiently full time, producing a constant supply of electricity.

The NSW Government has identified that the level of electricity demand is now such that suppliers need to focus on securing future base load supply of electricity.

In May 2007, the NSW Government commissioned the Owen Inquiry into Electricity Supply in NSW. The Owen Inquiry report was released on 11 September 2007. The key findings of the Inquiry, as relevant to this project, are as follows:

» With a risk-averse approach, New South Wales needs to be in a position where new baseload generation can be operational by 2013-14 if necessary, in order to avoid potential energy shortfalls.

» To be ready for 2013-14 baseload supply needs, preparation should start now.

» Most of NSW extra baseload energy needs are likely to be met by coal-fired and/or gas-fired generation as other technologies can only contribute on a relatively small scale or will not mature until 2020 at the earliest.

» Combined cycle gas turbines (CCGTs) may be able to meet emerging generation needs. CCGTs are capable of running efficiently at high capacity factors. They are cheaper to build than coal-fired generators, but have higher fuel costs, and it is this that reduces their attractiveness for baseload power.

» Though not as firm as coal supply, adequate domestic gas is likely to be available for electricity generation until at least 2020 and possibly well beyond.

Delta's proposal to construct stage two of the Bamarang facility is consistent with the findings of the Owen Inquiry.

1.3 Proposal summary

Delta is seeking project approval for the construction and operation of infrastructure required to enable the Bamarang gas turbine power facility to operate as a base load facility (in combined cycle configuration) and provide a constant supply of electricity. These works and infrastructure are referred to as 'the project' for the purposes of this environmental assessment and were described as 'stage two – base load facility' by the 2006 environmental assessment.

It should be noted that following investigation of water supply options for water cooling of the facility, Delta has decided to implement dry cooling of the facility as it requires significantly less water than wet cooling. This has resulted in a modification of the layout of the proposed facility.

Approval is sought for the construction and operation of the following equipment and infrastructure:

» Combined cycle equipment:
  – Two heat recovery steam generators which would be connected to the approved gas turbines; and
  – A steam turbine.
» A cooling system including an air cooled condenser proposed as the cooling medium.
» Other facilities:
  – Water treatment plant (to treat the small amount of process water to be used in the dry cooled facility);
  – Piping;
  – Steam generator step-up transformers;
  – Additional electrical equipment in the switchyard; and
  – Water storage tanks – above ground tanks would be used to store sufficient water on site for at least two continuous days of operation.
» A pipeline from the rising main that runs along the western boundary of the site (approximately 140m in length within the Delta site) to provide the water supply to meet process water requirements.

The 2006 environmental assessment indicated that the proposed gas power facility would be constructed in a staged manner, with stage one (previously approved) being constructed first and the facility operating in open cycle configuration, producing electricity during peak periods only. Stage two was expected to be constructed at a later time, with the facility then operating in combined cycle configuration, producing constant (base load) electricity.

However, as the recent Owen Inquiry found that new base load electricity generation is required in order to avoid potential energy shortfalls, it is possible that the two stages of the proposed gas power facility may be constructed concurrently. Should this occur, the infrastructure required for both stage one and stage two would be constructed at the same time, and the facility would operate as a base load facility from the commencement of operation.

It is also possible, however, depending on the future electricity demand and other developments, the facility would be constructed in a staged manner as originally proposed.

1.4 Contents of the report

The report provides a summary of submissions and presents Delta's responses to these submissions. The report also includes (as Appendix B) a revised noise impact assessment that was undertaken to address some of the issues raised in the submissions. Finally, it presents mitigation measures that Delta agrees to undertake should the proposal be granted approval (the statement of commitments).

2. Consultation activities

2.1 Consultation during the environmental assessment process

Consultation activities are described in Chapter 3 of the environmental assessment.

Since the commencement of the stage two environmental assessment, a number of consultation activities have been undertaken, as outlined in Table 2.1 below. The objective of these activities has been to raise awareness of the project and provide an opportunity for statutory authority and community input.

Table 2.1 Consultation activities undertaken as part of the Environmental Assessment

Activity	Date
Operation of a project information line (1800 810 680)	Ongoing
Meetings with landowners potential affected by property acquisition	Ongoing
Distribution of newsletter 4 to local residents and community groups	April 2008
Project website	Updated in April 2008 with newsletter 4 and stage two environmental assessment
Advertisements in the Nowra Shoalhaven News and Wollongong Illawarra Mercury	Wednesday 16 April 2008 Wednesday 30 April 2008
Public exhibition of the environmental assessment	16 April 2008 – 19 May 2008

2.2 Consultation during exhibition

The exhibition of the environmental assessment, including receipt of submissions, was coordinated and managed by DoP. To supplement this, Delta carried out the following consultation activities:

» Provided updated information on the project website (www.bamaranggasturbines.com.au), including an electronic copy of the environmental assessment;

» Distributed a newsletter announcing the public exhibition (newsletter 4).

2.3 Advertisement

DoP placed advertisements in Nowra Shoalhaven News and Wollongong Illawarra Mercury on 16 April 2008 and 30 April 2008. The advertisement announced the public exhibition and provided details on how to view a copy of the environmental assessment and make a submission. It also provided contact details for members of the community who required more information on the project or the exhibition and approvals process.

2.4 Newsletter 4

Delta prepared and distributed over 700 copies of a newsletter in April 2008 to all households within a 2km radius from the site, as well as those that were registered on the project mailing list

from the stage one environmental assessment. In addition, copies of the newsletter were left in the Shoalhaven City Council foyer.

The newsletter announced the public exhibition of the environmental assessment and provided a brief outline of the structure of the environmental assessment. It also provided details on how members of the community could view a copy of the environmental assessment, make a submission and obtain more information.

2.5 Website

The project website (www.bamaranggasturbines.com.au) was updated at the beginning of the exhibition period to provide updated information on the status of the environmental assessment, and the next steps in the approvals process.

An electronic copy of the environmental assessment was uploaded onto the website to enable internet users to view a copy of the report. An electronic copy of newsletter 4 was also made available on the website. The website also provided details on how to make a submission and obtain more information and included a link to the DoP website.

2.6 Public exhibition of the environmental assessment

The environmental assessment was exhibited from 16 April to 19 May 2008 at the following locations:

- Shoalhaven City Council
  City Administrative Centre, 36 Bridge Road
  Nowra
- Department of Planning
  Information Centre, 22-33 Bridge Street
  Sydney
- Nature Conservation Council of NSW
  Level 5, 362 Kent Street
  Sydney
- Department of Planning website - www.planning.nsw.gov.au/asp/major_projects.asp
- Project website - www.bamaranggasturbines.com.au

2.7 Submissions received

In total, 17 submissions were received, which comprised:

- 7 written submissions from government bodies; and
- 10 written submissions from the public.

Delta considered all submissions received by 19 May 2008.

2.7.1 Processing of submissions

Each submission was given a unique identification number by the Department of Planning. The comments raised were classified against issues headings and entered into a submissions

database. GHD has sorted the comments under the issues headings and then analysed the issues raised and assisted Delta to prepare a response.

A list of all submissions, with the submission identification number and the classification of issues raised is provided in Appendix A. Where a firm opinion of the proposal has been expressed, this has been recorded. For privacy reasons, personal details of public have been withheld.

3. Responses to issues raised in submissions

3.1 General

Generally agree with the proposal to build such a power station providing all the relevant environmental matters are complied with and the local community suffers no hard ship due to its presence.

(Submission 7)

Support for the project is noted.

Shoalhaven City Council supports the proposal subject to the comments, issues and recommendations contained within the submission.

(SCC)

Shoalhaven City Council's support of the proposal is noted. All comments, issues and recommendations made by Shoalhaven City Council are addressed in the following sections.

3.2 Air quality

3.2.1 Emissions

Concerned that any change to the air quality may be significant to health and may impact on the ozone layer.

(Submission 1)

Concerned about the impact of emissions, particularly in the river valley.

(Submission 6)

The potential air quality impacts of the proposal were assessed in the environmental assessment. Dispersion modelling was used to assess the impacts on local air quality during operation. Equipment specifications provided to prospective equipment suppliers would dictate the technical and environmental performance the units would be expected to meet.

The results of the assessment indicate that ground level concentrations of all pollutants would not exceed their respective criteria at sensitive receptors. The existing air environment in the Bamarang area is consistent with a rural environment, and the proposal is not expected to impact significantly on the existing air quality environment.

The air quality impact assessment for the revised dry cooling option for stage two also included assessment of the greenhouse gas impacts of the proposal. This assessment shows that the greenhouse gas impacts of the proposed gas power facility are unchanged from that assessed in the 2006 environmental assessment.

It is noted that a major attraction of gas is its relative greenhouse efficiency compared to coal fired generation. Combined cycle gas generation emits approximately 0.4 tonnes of CO_2 per megawatt hour of electricity produced. This is less than half the level set for the NSW pool

coefficient (0.913 tonnes of CO_2 per megawatt hour of electricity in 2005). Open cycle gas generation emits approximately 0.6 tonnes of CO_2 per megawatt hour.

The DoP will set air quality emission limits for the facility in the consent conditions, and an Environment Protection Licence will be sought from the Department of Environment and Climate Change. Emissions from the facility will be continually monitored and reporting would be undertaken against the set emission limits.

The operation of the facility must comply with the emission standards set out in the Protection of the Environment Operations (Clean Air) Amendment (Industrial and Commercial Activities and Plant) Regulations 2005.

(SCC)

The current emission limit for in-stack concentrations of nitrogen oxides for gas turbines of capacity >30 MW, as defined by the *Protection of the Environment Operations (Clean Air) Regulation 2002*, is 70 mg/m^3.

DECC has recommended an emission concentration limit for nitrogen oxides from the gas turbines of 50 mg/m^3.

It is noted that the DECC recommendation is below the limits set out within the *Protection of the Environment Operations (Clean Air) Regulation 2002*, the in-stack concentration of nitrogen oxides is designed to be 46 mg/m^3 during conventional operation (excluding start-up and shut-down).

Therefore, while the proposed DECC in-stack concentration is below that of current NSW Air Quality Regulations, the proposed facility is expected to satisfy the DECC's recommendation.

It is anticipated that a Continuous Emission Monitoring System (CEMS) would be incorporated within the detailed stack design to ensure that emission levels meet relevant pollutant criteria.

The project air quality goals must be reduced to match the existing ground level concentrations at each receptor and that mitigation measures be incorporated into the design of the plant to meet these goals.

(SCC)

The NSW DECC has established ground level air quality criteria for key air pollutants to achieve appropriate environmental outcomes and to minimise associated risks to human health. The criteria specified by DECC, as expressed in their document "*Approved Methods and Guidance for Modelling and Assessment of Air Pollutants in New South Wales*" 2005, were adopted as the ambient air quality goals for the air quality assessment. These goals are considered to be appropriate.

The impact on air quality must be considered/assessed at the proposed new living areas as identified in the Nowra Bomaderry Structure Plan.

(SCC)

The Nowra Bomaderry Structure Plan identifies the Cabbage Tree Lane Future Living Area approximately 1.25km to the east of the Bamarang power facility site. Receiver R5 in the air quality impact assessment is located in the north-western corner of this Future Living Area. The

environmental assessment has therefore considered the potential air quality impacts at this Future Living Area.

The Nowra Bomaderry Structure Plan also identifies the Bamarang Future Long Term Living Area approximately 250m to the east of the Bamarang power facility site when measured from the property boundary. The edge of this Future Long Term Living Area is approximately 500m from the proposed gas power facility structure.

The Structure Plan states that the Bamarang Future Long Term Living Area *"may have potential for future residential use, subject to further investigation and staging of development"* (Shoalhaven Council, 2006, p. 25). As such, development of this Future Long Term Living Area is not certain.

Table 8.1 of the Structure Plan illustrates the likely staging of development of the Future Living Areas and Future Long Term Living Areas. The Bamarang Future Long Term Living Area is scheduled for Phase 6. From the Structure Plan documents and the dwelling growth projections, on the assumption that it would appear that the Bamarang Future Long Term Living Area would not be required for approximately 35 years.

In any case, the air quality impact assessment included contour plots of the modelled concentrations for particulate matter, nitrogen dioxide and sulphur dioxide. These contour plots illustrate the following:

» Particulate matter – even at the maximum increment of approximately 3.0 um/m^3, the maximum 24 hour concentration would be less than the project goal;

» Nitrogen dioxide – the maximum 1-hour and annual average concentrations would be well below the project goal; and

» Sulphur dioxide – the maximum 1-hour average concentration would be well below the project goal.

3.2.2 Odour

Would like to know if there will odour coming from the site. Haven't been able to locate the area of the document that addresses this issue.

(Submission 1)

Gas fired power stations do not generally generate offensive odour. In addition, Delta has made a commitment (in the Statement of Commitments) that all activities at the premises would be undertaken in a manner that does not cause or permit the emission of offensive odour beyond the boundary of the premises.

3.2.3 Methodology

Believe that the air quality study was done on mean temperatures not high temperatures. Unsure if this will make a difference to the outcome of the "worse case" scenarios.

(Submission 1)

The air quality impact assessment was undertaken in accordance with the DECC "*Approved Methods and Guidance for Modelling and Assessment of Air Pollutants in New South Wales*" 2005.

Modelling in Appendix D3 does not extend down the valley towards Riversdale. Concentration of pollutants will increase on windless nights and will affect riverside residents.

(Submission 6)

The figures included in Appendix D show only those nearest receptors, however the modelling itself considered areas further from the site, including the valley towards Riversdale. Receptors that are located further from the site would logically be subject to lesser impact than the nearest receptors.

The air quality impact assessment included consideration of a range of meteorological conditions, including stability class, and included assessment during Stability Class "F", which is low winds, clear skies and cold night-time conditions. As such, the air quality impacts during windless nights were assessed.

Permanent pollution measuring devices should be installed in the river valley to monitor air pollution.

(Submission 6)

Delta has established an ambient air quality monitoring station to record local meteorological conditions and concentrations of nitrogen oxides within the region of the project site. It is anticipated that this monitoring station would be used to assess ambient air quality both before and after commissioning of the proposal.

3.2.4 Plume rise

Defence has no objection to approval of Stage 2 of the Bamarang Gas-Fired Power Station subject to Delta providing accurate plume rise modelling to ensure the Danger Area has the appropriate vertical and horizontal dimensions and the location is correctly positioned over the power station site. The notification would be required up to one year prior to the commissioning of the power station.

The Department of Defence preference is that the power station design will encompass plant and operating procedures, which will ensure that the exhaust plume dimensions are kept to a minimum to try and limit the impact on aircraft operations.

(Department of Defence)

Delta Electricity would provide accurate plume rise modelling to the Department of Defence in order for a Danger Area to be correctly located over the power facility site. This information would be provided up to one year prior to the commissioning of the power facility.

The best case scenario appears to be that the Stage 1 facility is not constructed, so that from the outset a combined cycle base load plant with heat Recovery Steam Generator and without a bypass stack is installed which should ensure that the plume dimensions stay at the modelled Stage 2 plume size.

(Department of Defence)

This comment is acknowledged. However it is possible that the power facility may be constructed in two stages, which may require the construction of a bypass stack.

Our review of the plume rise study has also concluded that, given the size and location of the facility, there is little risk to aviation activity.

(CASA)

The Civil Aviation Safety Authority's assessment of the proposal is noted.

3.3 Noise and vibration

To clarify the noise issues raised in the submissions a revised noise impact assessment has been prepared and is included as **Appendix B**. The revised noise impact assessment addresses the following issues:

» Clarifies the closest noise receivers to the proposed facility and the associated noise goals for these receivers.

» Outlines industry standard mitigation measures that would need to be implemented so that the proposed facility can meet the required noise goals.

» Provides noise level contours that includes the required level of mitigation to show the extent of the noise impact of the proposed facility.

Responses to specific issues using the revised noise impact assessment are provided in the following sections. The statement of commitments provided in Section 4 has been amended to reflect the revised noise assessment.

3.3.1 Noise levels

Noise levels of between 35 dB(A) and 40 dB(A) are unacceptable.

(Submission 1)

As part of the Stage 1 Project Approval an ambient noise study was conducted to determine design criteria in accordance with the NSW Department of Environment and Climate Change's Industrial Noise Policy (INP). Given the facility may operate 24 hours per day it was determined that the more stringent night-time criteria apply for residential receivers in the vicinity of the facility. This criteria is:

» L_{Aeq} of 35 dBA for all residential receivers.

A noise impact assessment has been undertaken for Stage 2 of the proposed facility in accordance with the INP (refer Appendix B). The findings of this assessment suggest that the noise criteria can be achieved for residential receivers provided the recommended mitigation measures are incorporated into the design.

The new proposal would greatly increase noise levels in the Bamarang Valley

(Submission 3)

Noise modelling has been undertaken for a number of different meteorological scenarios, including temperature inversions, which, as specified in the Noise Impact Assessment, would be considered a worst case Assessment (refer Appendix B). The results of this noise modelling

indicate that if the proposed moderate noise mitigation measures are implemented, it is predicted that noise levels in the Bamarang Valley would meet the noise criteria and be acceptable with consideration to the INP.

The noise contours, including mitigation, that are included in the revised noise impact assessment (Appendix B) show that with mitigation noise levels within the Bamarang Valley would fall below background levels at distance greater than approximately 1 kilometre from the site.

The noise levels generated by the air-cooled plant are considerably higher than those approved under the previous Stage 2 submission.

(Submission 10)

As part of the 2006 Environmental Assessment, a Noise Impact Assessment was undertaken by GHD. This initial assessment included consideration of the noise impacts generated from the use of wet cooling processes in stage two. In order to assess the change to the use of dry cooling processes in stage two, an updated noise impact assessment has been undertaken by Heggies Pty Ltd (refer Appendix D of the 2008 Environmental Assessment). When all meteorological conditions are considered, a comparison between the water cooled and air cooled options indicates that noise levels at the receivers are relatively similar (within 1 dBA to 2 dBA).

The residence at 245 Bamarang Road is in excess, under all scenarios, of the 35 dB noise goal as outlined on the noise contour maps in Appendix B of the noise report.

(Submission 4)

190 Bamarang Road was used as a “representative” location for residences along Bamarang Road. Analysis of the predicted noise levels at this receiver location (without mitigation) indicates that the noise goal of 35 dBA would be exceeded by 3 dBA under neutral conditions and by up to 7 dBA for meteorologically enhanced conditions, if no noise mitigation is used. The noise contour maps presented in Appendix B of the noise report reflect this level of exceedance as they present the predicted unmitigated noise levels at this location.

To address the predicted noise exceedance, mitigation that would result in compliance of the design criterion would be required. Mitigation of noise from gas turbine power stations is common on similar developments throughout Australia. For the proposed Bamarang development moderate, industry standard, mitigation measure are proposed that would reduce the predicted noise levels at along Bamarang Road to below the noise goal of 35 dBA and would therefore be acceptable with consideration to the INP.

The predicted noise levels surrounding the proposed facility that incorporate the required level of mitigation are included in the revised noise impact assessment (Appendix B). The noise contours show that with mitigation noise levels within the Bamarang Valley would fall below background levels at distance greater than approximately 1 kilometre from the site.

The type of noise and its impact in terms of intrusiveness and rural amenity needs to be considered.

(Submission 4)

The INP considers both amenity and intrusiveness in developing criteria. Noise modelling has undertaken modelling under a number of different meteorological scenarios, including temperature inversions, which would be considered worst case Assessment (Appendix B). The results of this noise modelling indicate that with the implementation of proposed noise mitigation measures, such as those detailed in the report, it is anticipated that noise sensitive receivers would not be adversely impacted and that noise levels would fall below background levels at distance greater than approximately 1 kilometre from the site.

The Bamarang area is very quiet and background noise levels are typically around 20 dBA. Any noise above these levels can be heard. Very sceptical that the predicted noise levels of below 35 dBA can be met.

(Submission 6)

The noise criteria of 35 dBA has been developed within the framework of the INP. This criteria is the more stringent night-time criteria that would apply for residential receivers in the vicinity of the facility.

The proponent Delta Electricity has committed to meet the noise goals set by the INP. Delta will be obliged, under the Minister's Approval, should it be received, to meet noise goals for the life of the project. It is expected that monitoring and reporting of performance will form a part of the Minister's approval should it be received.

No assessment of noise impact could be found in relation to the proposed new living areas identified within the Nowra Bomaderry Structure Plan (SCC)

The proposed future living area under the Nowra Bomaderry Structure Plan will be sited within an area where the 35 dBA noise goal will be exceeded (Submission 4)

Concerned that the proposal with air cooling will cause noise problems for future neighbours located in the future living area under the Nowra Bomaderry Structure Plan, as air cooled equipment is noisier than water cooled. (Submission 7)

The Nowra Bomaderry Structure Plan identifies the boundary of the Cabbage Tree Lane Future Living Area approximately 1.25km to the east of the Bamarang power facility site. This area is within the area considered by the noise impact assessment. The northern end of Gannet Road, which was used as a background monitoring location and a representative receiver is immediately to the south of this area.

As noted previously in this report, the Nowra Bomaderry Structure Plan also identifies the Bamarang Future Long Term Living Area approximately 250m to the east of the Bamarang power facility site when measured from the property boundary. The edge of this Future Long Term Living Area is approximately 500m from the proposed gas power facility structure.

The Structure Plan states that the Bamarang Future Long Term Living Area *"may have potential for future residential use, subject to further investigation and staging of development"* (Shoalhaven Council, 2006, p. 25). As such, development of this Future Long Term Living Area is not certain.

Table 8.1 of the Structure Plan illustrates the likely staging of development of the Future Living Areas and Future Long Term Living Areas. The Bamarang Future Long Term Living Area is scheduled for Phase 6. From the Structure Plan documents and the dwelling growth projections, on the assumption that it would appear that the Bamarang Future Long Term Living Area would not be required for approximately 35 years.

Analysis of the predicted noise levels at the Gannet Road receiver (without mitigation) indicate that the noise goal of 35 dBA are likely to be exceeded under certain meteorologically enhanced conditions. To address the potential for noise exceedance at this location, mitigation that would result in compliance of the 35 dBA criterion would be implemented. This is expected to be a requirement of the consent conditions.

The predicted noise levels surrounding the proposed facility that incorporate the required level of mitigation are included in the revised noise impact assessment (Appendix B). The noise contours show that with mitigation noise levels would fall below background levels (35 dBA) prior to the boundary of the Cabbage Tree Lane Future Living Area.

How can we be assured that the predicted noise levels will not be much greater when operations commence?

(Submission 2)

The proponent Delta Electricity has committed to meet the predicted noise goals. Delta will be obliged, under the Minister's Approval, should it be received, to meet noise goals for the life of the project. It is expected that monitoring and reporting of performance will form a part of the Minister's approval should it be received.

How do we know what a 17 dBA or 35 dBA noise level sounds like?

(Submission 2)

A scale of different sound pressure levels are provided in the Noise Impact Report (Appendix B). As an example normal conversation at a distance of 2 metres has a sound pressure level of approximately 50 dBA, a quiet fan or air conditioner has a sound pressure level of approximately 40 dBA.

Unable to locate the frequency at which the cooling fans will operate, however 50 Hz to 400 Hz sound will be extremely annoying to many residents.

(Submission 6)

Fan noise is generally broadband in nature and has no dominant tonal frequencies. If no tonality is present in the fan noise sources then the INP does not consider it annoying.

Request additional analysis relating to the frequency distribution of the noise generated.

(Submission 8)

The noise sources present at the proposed site do not generally have tonal characteristics therefore individual frequencies do not need to be assessed.

Request details of the statistical exceedance levels, specifically L_{Amax}, L_{A1}, L_{A10}, L_{A90}, L_{Aeq}.

(Submission 8)

The INP noise goals are assessed against the LAeq noise levels for the amenity and intrusive criteria. Therefore, the LAeq noise level has been presented in the Environmental Assessment with consideration to the INP.

The site is one of the highest geographical points in the area and noise will propagate considerable distances, beyond that shown in the noise contours.

(Submission 9, 10)

The noise model used in the noise impact assessment incorporates the topography and height of the noise source in the noise predictions. Noise levels beyond the 35 dB(A) contour line will be below the INP noise goals and therefore do not need to be shown on the noise maps.

3.3.2 Noise mitigation and monitoring

The recommendations in relation to Lot 22 should be further investigated.

(SCC)

At the time of the Concept Approval and preparation of the Project Application for Stage 2, a development application was lodged with Shoalhaven City Council for a mud brick training centre, subdivision and construction of a residential dwelling (manager's residence) at the property referred to as Lot 22. It is noted that the correct title of Lot 22 is Part Lot 2 DP 1040676.

This application was determined in January 2008, with approval granted to the mud brick training centre and deferred commencement granted to the subdivision. The construction of a residential dwelling was withdrawn prior to determination, as Council advised that it could not grant approval for a dwelling as the 3.25 ha parcel was less than the minimum of 40 ha required for subdivision for rural residential blocks.

This property is therefore no considered as a residential receiver as it is operates as a commercial facility (mud brick making), and erection of a dwelling is not permitted under the Council's current minimum lot size provisions. In this case the INP amenity criterion of 65 dBA applies. The predicted noise levels at this location are within this criterion (refer Appendix B).

The Noise Impact Assessment provides no assessment of specific mitigation measures strategies to demonstrate that the project specific noise levels can be achieved. Additional information is required from original equipments manufacturers, that clearly demonstrates the proposed noise performance levels (i.e. standard package sound power levels minus the nominated performance reductions) are both feasible and reasonable within the scope of the proposal. (DECC)

Consideration should be given to implementing major noise mitigation measures.

Insist that Delta achieve the operational noise goal of 35dBA through the adoption of major noise mitigation measures, irrespective of any agreement reached between Delta and owners.

A conservative approach should be taken and major noise mitigation should be the goal. An approach that allows moderate mitigation should be prohibited.

Insist that Delta meet the noise goal of 35 dBA at each of the three receiver locations.

(Submission 4, 5, 6, 8, 9, 10, SCC)

The Standard packaged combustion turbine generator sound power levels used in the Noise Impact Assessment are based on a GE9171E gas turbine. As demonstrated by the noise modelling noise mitigation is required to meet the noise goal of 35 dBA at the nearest residential receivers (refer Appendix B). The INP amenity criterion of 65 dBA can be achieved at Part Lot 2 DP 1040676 without mitigation.

The major contributors to the received noise levels are produced at the distant receivers by the by the stack exits, followed by the 36 Hudson fans and transition ductwork, boiler section and pumps. Providing a noise reduction of 15 dBA to the stack exits, 10 dBA to the 36 Hudson fans, transition ductwork, and boiler section, and 5 dBA to the pumps is expected to result in compliance of the design criterion at all residential receivers. The revised Noise Impact Assessment incorporates noise contour plans based on reductions that can be achieved using industry standard mitigation measures (refer Section 3.3.1Appendix B). The noise contours show that the distance where noise levels are predicted to fall below 35 dBA is approximately 1 kilometre from the site.

The types of noise attenuation measures proposed in the noise impact assessment (Appendix B) are proven technology in the gas fired power generation industry. However, ultimately major components of the proposed CCGT facility at Bamarang such as the combustion gas turbines, heat recovery steam generators, steam turbine and cooling towers would be selected from prospective Original Equipment Manufacturers (OEMs) following competitive tendering processes, which would occur as part of the detailed design development of the project. Therefore, exact noise outputs, and therefore the necessary features that would need to be incorporated in the design to ensure that noise criteria will be achieved, can only be determined once the tendering processes are finalized.

The specification provided to prospective OEMs would dictate the acoustic performance and are recommended to be based on the conditions of consent derived this Noise Impact Assessment. The OEMs would develop feasible and reasonable mitigation measures based on the best practice such that the noise attenuation is maximised and impacts are minimised. The usual industrial practice, is to provide a performance-based specification approach involving a sound level specification seeking best practice outcomes, rather than a prescriptive requirement to

include specific mitigation measures. This will promote design flexibility for the OEMs and to enhance their ability to achieve the optimum outcome in an efficient and effective way.

In consideration of the above, Delta Electricity has committed to meet the predicted noise goals, which are the most stringent noise goal that can be applied. Delta will be obliged, under the Minister's Approval, should it be received, to meet noise goals for the life of the project. It is expected that monitoring and reporting of performance will form a part of the Minister's approval should it be received. In the unlikely event that noise goals are exceeded, the proponent will be in breach of the Conditions of Approval.

Object to Delta being able to negotiate an agreement with the owner of Lot 22 to minimise the degree of mitigation required.

(Submission 9, 10)

This practice of negotiating a noise agreement with potentially affected landholders is not uncommon for many industrial and mining developments throughout NSW.

Additionally the property at Part Lot 2 DP 1040676 (formally referred to as Lot 22) is not a residential receiver (as the lot size is too small for a residential dwelling). This property operates as a commercial facility (mud brick making). In this case the INP amenity criterion of 65 dBA applies. The predicted noise levels at this location are well within this criterion.

Even with the noise abatement measurements in place, doubt whether the modelled reductions will be achieved, particularly as the plant ages.

(Submission 6)

There is considerable risk as to whether the noise goals can be achieved. The proposal should include more specific details of how this risk will be eliminated.

The plant should not be allowed to operate unless the noise goals are achieved from the outset.

A more formal approach to continuous quality monitoring and specific details of what is proposed is requested.

(Submission 8)

The INP noise goals are predicted to be met when mitigation measures are implemented. The amount of noise attenuation required can be achieved using industry standard mitigation measures that have been considered in the noise impact assessment. Delta Electricity has committed to meet the predicted noise goals. Delta will be obliged, under the Minister's Approval, should it be received, to meet noise goals for the life of the project. As is normally the case for similar types of developments, it is expected that monitoring and reporting of performance will form a part of the Minister's approval should it be received. The monitoring and reporting requirements would be detailed in an operational environmental management plan, which would be subject to regular periodic audits. In the unlikely event that noise goals are exceeded, the proponent will be in breach of the Conditions of Approval.

Sound power level performance requirements presented in the Noise Impact Assessment appear to significantly exceed current best practice for this type of development.

(DECC)

The Standard packaged combustion turbine generator sound power levels used in the Noise Impact Assessment are based on a GE9171E gas turbine. This package was used as a base case scenario. It is expected that the OEMs following the competitive tendering processes (which would occur as part of the detailed design development of the project) would select major components of the proposed CCGT facility to meet the design specifications, which incorporate the requirements of any conditions of consent for the project.

Noise monitoring should have been conducted at the Bamarang Bush Retreat guest house, and not that part of the property leased to Make It Mudbricks, where background noise is higher due to semi-industrial activity. Would like an explanation as why Make It Mudbricks was deemed the most appropriate location for noise monitoring.

(Submission 3)

The noise criteria has been set at 35 dB(A) which is the minimum noise goal that can be set with consideration to the INP. The property at Part Lot 2 DP 1040676 (formally referred to as Lot 22) is not a residential receiver (as the lot size is too small for a residential dwelling). This property operates as a commercial facility (mud brick making). In this case the INP amenity criterion of 65 dBA applies. The predicted noise levels at this location are well within this criterion. Therefore, background monitoring at the Bamarang Bush Retreat guest house would not alter the noise goal or noise assessment.

Concerned that 190 Bamarang Road is not representative of receivers along Bamarang Road and the adjacent area, due to the cliff line which provides a high degree of noise abatement. Residences located further away from the cliff would expect noise levels higher than at 190 Bamarang Road.

(Submission 4)

The noise criteria has been set at 35 dB(A) which is the minimum noise goal that can be set with consideration to the INP. Therefore, the noise goals set for the residence along Bamarang Road cannot be set any lower. Additional background noise monitoring at these residence would not alter the noise goals or noise assessment. To demonstrate that other residences along Bamarang Road would not be impact, 145 Bamarang Road has been included in the revised noise impact assessment (Appendix B). The predicted noise levels for this site are well within the 35 dBA noise goal (refer Table 4 Appendix B for predicted unmitigated power station noise levels).

The Revised Noise Impact Statement fails to show the noise impact (greater than the noise goal of 35 dB) for Bundanon and those residences located north of the coverage of the photomap along Longreach and Wogamia Roads.

(Submission 4)

Noise modelling should be extended to a radius of 6 kilometres.

(Submission 8, 9,)

Noise modelling has been extended to a distance of approximately 1.2 to 2 km. This is considered appropriate given that noise levels at this point are predicted to be less than the

noise goal of 35 dBA, which is the minimum noise goal that can be set with consideration to the INP.

The ISO model should be used, not CONCAWE.

(Submission 8)

The CONCAWE algorithm implemented in SoundPlan is accepted by the DECC for noise predictions. CONCAWE takes into account meteorological conditions such as temperature inversions. CONCAWE evaluate air absorption in accordance to ISO 9613 Part 1.

3.3.3 Vibration

The new proposed would greatly increase ground vibration through the soft stone structure of which we have an 80 metre cliff behind our retreat. (Submission 3)

Concerned that the proposal with air-cooling will cause vibration problems for future neighbours located in the future living area under the Nowra Bomaderry Structure Plan.

(Submission 7)

Ground vibration in nature diminishes in strength with distance and is only an issue when activities such as pile driving or blasting are undertaken in close proximity to a receptor. Based on separation distance to the cliff face, the nearest existing structures (over 500 metres) and vibration levels of the proposed equipment it is considered the risk of vibration impact is extremely low.

3.4 Water

3.4.1 Water supply

A dry cooled plant configuration has been chosen, which decreases the total water supply demands compared to that of a wet cooling process, water supply options other than potable water should be utilised. The plant should be designed so that it does not rely completely upon potable water for its operation as this is not a sustainable option when other sources of water supply are available.

(SCC)

Due to the reduced quantity of water required for the dry cooling process (~0.5 ML/d), water supply options close to the Delta Electricity site were seen to be the most viable. The closest water source options to the site are potable and raw water pipelines, which are operated by Shoalhaven Water.

The required water demand of the proposed facility represents less than 1% of the water demand for the Shoalhaven LGA based on both current and future water demands. Furthermore, this water demand fits well within the licensed extractions to which Shoalhaven Water is entitled. Thus, Shoalhaven Water have indicated that Delta's water demand can comfortably be accommodated within its water supply system.

Shoalhaven Water has agreed to provide the water from either their raw water or treated (potable) water supplies. The treated water option was selected as the preferred option, as it involved a shorter pipeline length.

3.4.2 Wastewater and effluent disposal

The Water Cycle Management Report does not address Council requirements. Specifically, the submission of an effluent disposal report to address the needs of providing for effluent disposal on-site. The effluent disposal report needs to comply with the requirements as outlined in Shoalhaven City Council's DCP No.78 – Effluent Disposal for Unsewered Areas.

(SCC)

From the facility, due to the limited number of staff, only a small amount of domestic wastewater would be generated (approximately 1 kL/day).

Sewage would be directed to an on-site septic system or pump out storage facility for removal to the Nowra wastewater treatment plant (WWTP). The system would comply with council requirements. This would be confirmed during detailed design of the facility.

The Water Cycle Management Report does not address Council requirements. Specifically, the submission of a process wastewater disposal report to address the needs of providing for wastewater disposal on-site. Pump-out is not a environmentally sustainable solution for this property. A report should be provided of details of where any above ground or sub-surface disposal areas will be in accordance with NSW DECC Guidelines.

(SCC)

Section 5.5 of the environmental assessment considers process wastewater disposal options.

Concentrated wastewater from the reverse osmosis process (brine) would be pumped to a holding tank prior to offsite disposal during stage two. Offsite disposal is likely to be via an ocean outfall, potentially in conjunction with effluent outfall from a sewage treatment plant (to assist in dilution and dispersion). In the event that such an option is not available, then disposal via onsite evaporation or brine crystallisation would need to be investigated. If evaporation pans only were used, then areas of up to 2.5 ha may be required and hence it is more likely that brine crystallisers (or other mechanical equipment), which occupy a significantly smaller area, would be used. Crystallisers can be skid mounted and hence are likely to fit within the existing process area. This would be addressed as part of the detailed design process.

3.4.3 Stormwater

Measures for the control of stormwater have not been outlined in any detail. This needed to address how the adjoining lands (in particular the nature reserve and water catchment area) are to be protected from any pollution and runoff during the construction and operation of the plant.

A water management plan that includes, but is not limited to water management that minimises potable water usage and maximises reuse of waste water addressing rainwater collection, stormwater retention and treatment be prepared.

(SCC)

In the Statement of Commitments, Delta has committed to the preparation of a construction phase soil and water management plan as part of the construction environmental management plan, detailing control mechanisms to be implemented during the construction phase to minimise pollution and runoff during construction.

In terms of operation, Delta has committed to maximising the recycling of stormwater through:

» Provision of stormwater retention strategies and infiltration;

» Rainwater harvesting; and

» Management and monitoring of onsite water related activities and infrastructure.

These would be investigated and addressed in the detailed design phase.

3.4.4 Catchment issues

The Environmental Assessment does not address the issues raised by Department of Water and Energy in relation to the two top of catchment waterways on the subject site.

(DWE)

Figure 1 shows the location of the waterways (as identified by the 1:25,000 topographic map) on the subject site. The proposed air cooled condenser impacts on approximately 80 metres of the top of one of these waterways.

The air cooled condenser is required to be located close to the gas turbines to minimise the steam duct length. The proposed location of the air cooled condenser also takes into account wind direction, as this has a direct impact on its thermal performance.

The impacts of the location of the air cooled condenser on vegetation were addressed in the environmental assessment. As detailed in the statement of commitments, all activities at the premises would be undertaken in a manner that does not cause or permit water pollution as defined in the *Protection of the Environment Operations Act 1997*.

Figure 1 Bamarang Layout and Waterways

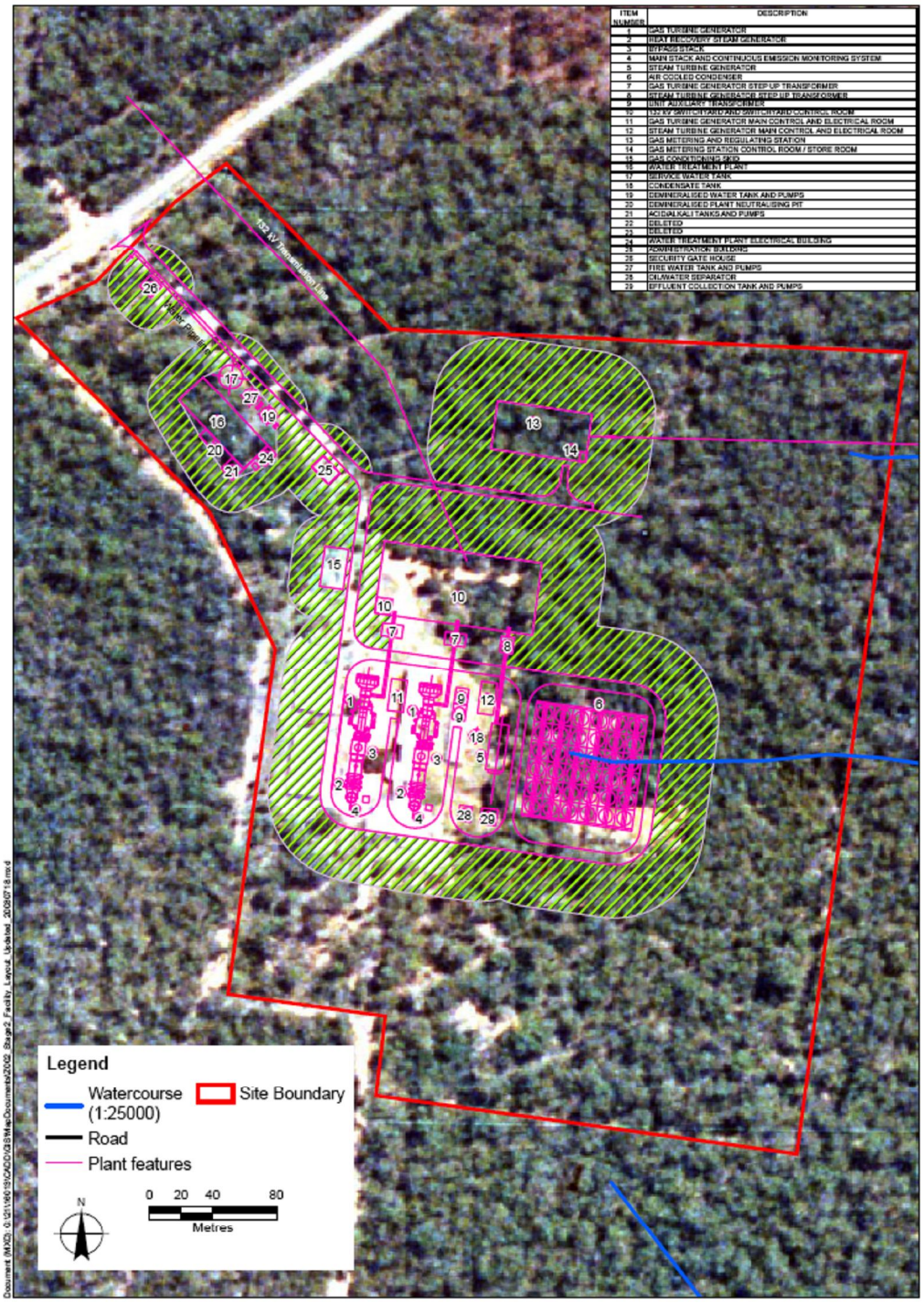

Figure 1 Bamarang Layout and Waterways

3.4.5 Groundwater

Potential impact of groundwater contamination on Bamarang Reservoir needs to be reconsidered given the site's proximity to the Reservoir. This would involve detailed analysis of the depth, quality, direction and flow of groundwater beneath the site. A risk assessment needs to be conducted on the effects of a hazardous spill contaminating groundwater and of what potential effects there might be from hazardous materials stored on site as the infrastructure ages or the plant is decommissioned.

(Submission 4)

The proposed facility was considered to be low risk in terms of the potential for groundwater impacts, and a groundwater impact assessment was not identified as a key assessment requirement for the proposal.

Although groundwater flow directions were not directly measured, it is likely that Bamarang Reservoir acts as a local groundwater recharge zone given the large volume of water held in the reservoir, the surrounding topography, and the dominance of low permeability fractured siltstones, sandstones and shales in the underlying geology. Hence groundwater is unlikely to be moving from the site towards the Bamarang Reservoir, but is more likely to be flowing away from the Reservoir.

Pile driving would not likely affect the overall groundwater flow given these conditions. Additionally, as stated in the 2006 Environmental Assessment, engineered drainage systems combined with appropriately bunded enclosures would be used to contain potential hazardous materials. Regular inspections and integrity testing of the systems would be undertaken to ensure that these systems comply with Australian Standards 1940-1993 to ensure they continue to provide adequate protection against fuel and oil spills. Given these management procedures and the overall hydrogeologic conditions, groundwater is not anticipated to be impacted by the proposed facility.

3.5 Flora and Fauna

A list of proponent's commitments in relation to mitigating the impact of the proposal on the ecological values of the area should be included in any issued approval. However it should be noted that these lack detail and may be difficult to ensure compliance with if left in their current form.

(SCC)

In the Statement of Commitments, Delta commits to continuing discussions with DECC on habitat offsets. Consistent with the requirements of the project approval for stage one, Delta will provide a compensatory habitat package in accordance with DECC requirements, for the total area of vegetation removed by stages one and two.

It is noted that DECC has advised that this approach is consistent with the stage one consent and no further comment is provided.

Suggest that, further to talks between Delta Electricity and the DECC regarding habitat offsets, the proponent negotiates with the with the relevant owner or authority to incorporate that land occupying the upper catchment of Sandy (Mundamia) Creek, between the proposed power station site and where Sandy (Mundamia) Creek crosses Yalwal Road, and incorporate such land in a nature reserve, perhaps as an extension to this existing Bamarang Nature Reserve.

(Submission 4)

Delta is considering options for habitat offsets and further discussions with DECC will occur, in accordance with the Statement of Commitments. The suggestion of this specific site is noted.

3.6 Traffic

Any large vehicles servicing the Power Station development should be required to use Flinders Road/Albatross Road/Yalwal Road instead of Kalandar Street/Albatross Road/Yalwal Road to access the site.

(SCC)

According to RTA's B-Double route maps, Kalandar Street and Albatross Road have been designed to accommodate B-Double type vehicles. As such, they are considered to be suitable for heavy vehicle access.

The most appropriate construction access route will be determined by the construction contractor, in consultation with Council and RTA.

A 42.5 tonne load limit currently applies to Yalwal Road. Special Applications will need to be made for any loads greater than this limit. Strengthening bridge crossings is likely to be the main requirement.

(SCC)

This requirement is noted.

An application to Council under section 138 of the Roads Act is required for any works within the road reserve.

(SCC)

The proposed stage two works do not involve any work within the road reserve.

Applications for a work zone speed limit should be initiated by an application to the RTA with a Traffic Control Plan prepared by a suitably qualified person.

(SCC)

This requirement is noted.

3.7 Bushfire

Based upon an assessment of the plans and documentation received for the proposal, the NSW Rural Fire Service raises no concerns or special consideration in relation to bushfire matters for the proposed development.

(NSW RFS)

The NSW Rural Fire Service assessment of the proposal is noted.

The development should demonstrate compliance with the requirements of Planning for Bushfire Protection 2006 and then deemed to satisfy provisions of the Building Code of Australia through AS 3959-1999.

(SCC)

The facility would be designed in compliance to the requirements of Planning for Bushfire Protection 2006 and the Building Code of Australia through AS 3959-1999.

Concerns raised in relation to the stage one application relating to bushfire were not adequately addressed. The environmental assessment needs to address: measures to manage embers and spot fires; how fire-fighting authorities will access the site if Yalwal Road is blocked by fire; and how authorities will fight fires if aerial water bombardment is not possible due to smoke haze.

(Submission 4)

The Asset Protection Zones included as part of the proposal were identified using the NSW Guidelines, 'Planning for Bushfire Protection' (NSW Planning 2006). The guidelines took into account the behaviour of fires and have been developed to enable adequate protection of buildings from airborne embers, spot fires, radiant heat and direct flame contact. The guidelines assume maximum fuel load for the vegetation type and a Fire Danger Rating of 80 – Extreme, which on most days would see a total fire ban proclaimed. There are no measures that can be put in place to completely prevent airborne embers, which have been recorded up to tens of kilometres from a main bushfire front, nor the potential for spot fires. The planning approach taken in NSW is to identify Asset Protection Zones based on the relevant state guidelines in consultation with the NSW Rural Fire Service. The Asset Protection Zone is not intended to stop or control airborne embers but to provide a space in and from which fire prevention can be carried out and fire suppression can be undertaken. Fire suppression involves putting out spot fires in the Asset Protection Zone and adjacent to the facility and establishing a fire edge.

The response to the issue relating to evacuation is provided below.

Consideration should be given to establishing an alternative, bushfire-free road access to the site.

(Submission 4)

The emphasis in all bushfire management is on safety. Roads are temporarily closed to the public and to bushfire fighters from time to time. The closing of roads and the management of traffic, including fire-fighting appliances near or adjacent to the proposed facility, would always be at the discretion of the NSW Rural Fire Service or its appointee. There are no alternative road access options for the site. In addition, there is no way of making a road 'bushfire-free'.

No staff would reside at the site on a permanent basis. It is the policy of the NSW Bush Fire Coordinating Committee that capable persons should generally not be evacuated from properly prepared dwellings likely to be impacted upon by bush fires in accordance with the Australasian Fire Authorities Council Position Paper on Community Safety and Evacuation During Bush Fires. The design and construction of the proposed facility would include an appropriate location of refuge for staff and others that may be present should a bushfire threaten.

The procedures for requiring people to take shelter would also be developed as part of standard processes for the management of the proposed facility. The procedures would include

scheduling maintenance at the proposed facility so as not to coincide with high fire danger periods or when fires are actively occurring in the district.

3.8 Structures

In relation to the Illawarra Regional Environmental Plan, from the information provided it appears that the proposed structures will exceed the requirements of part 17 of the IREP (11 metres height limit). Concurrence, from the Director be obtained in relation to exceeding the requirements of the IREP.

(SCC)

The provisions of the IREP apply only to development applications under Part 4, not major project applications under Part 3A.

3.9 Staging

Delta should operate the plant under stage one conditions in order to substantiate that the plant can be operated within the agreed design parameters.

Delta should operate the plant under Stage 1 conditions first in order to substantiate that the plant can be successfully operated within the agreed design parameters for noise, air quality, etc, before moving to Stage 2.

(Submission 9, 10)

The environmental assessment and this submissions report demonstrates that the noise and air quality goals can be met. Delta has committed to the establishment of a monitoring program to ensure that any conditions of approval are complied with.

3.10 Land use

A detailed analysis needs to be undertaken of the impact of the proposed power station and associated infrastructure on the proposed New Living Area and the proposed Long Term Living Area at Cabbage Tree Lane as identified in the Nowra Bomaderry Structure Plan.

(SCC)

The stage one Environmental Assessment and Submissions Report both acknowledge the preparation of the Nowra Bomaderry Structure Plan.

Concept approval for the whole facility and project approval for stage one was granted in February 2007. This authorises the construction of the proposed gas fired power facility. Project approval is now sought for stage two, and does not alter the location of the facility.

The impacts on these future living areas in terms of noise and air quality can be ascertained from the contour mapping provided in the environmental assessment and specialist studies.

As discussed in Section 3.2.1, it is also noted that the Future Long Term Living Area at Bamarang is not certain and further studies are required to confirm its suitability, and that it is not expected to be required to meet dwelling demand for approximately 35 years.

3.11 Contributions

Appropriate Section 64 contributions relating to water supply charges should be levied.

(SCC)

The request for monetary contributions for water supply charges is noted.

Council's Section 94 Contribution Plan seeks monetary contributions for the following project that are applicable to the subject development: Yalwal Roadworks, Citywide Fire and Emergency Services, Shoalhaven Fire Control Centre and Section 94 Administration. Discussions/negotiations should be had with Council prior to the application's determination so as to identify what works are required, their cost, how much each party might need to contribute and then the best way to impose these as conditions of consent.

(SCC)

The request for section 94 contributions is noted. It is also noted that no section 94 contributions were imposed on the stage one project approval.

3.12 Other issues

3.12.1 Site location

Do not understand why the facility could not be built a few kilometres further out into the bush, where it would not affect anyone.

(Submission 1)

Delta's site selection was guided by a set of selection criteria, which related to both key criteria and desirable characteristics of a potential site. The site at Bamarang was considered to have the following advantages:

- Proximity to the Eastern Gas Pipeline (located 600m to the east of the site);
- Proximity to high voltage transmission lines (the 132 kilovolts lines are located approximately 6 kilometres to the east of the site, 330 kilovolts lines are located 4 kilometres to the west of the site, with an existing substation located near the intersection of Albatross and Yalwal Roads 6 kilometres from the site);
- The gas supply tariff is competitive as the site is located closer to the gas pipeline that other available sites;
- The site was available for purchase. It had been developed for use as an abattoir and was considered appropriate for the proposed facility;
- With approximately 2.5 hectares already cleared for the abattoir development, the need for large scale clearing was reduced;
- The land use zoning permits the proposed facility; and
- The site is surrounded by bushland, which minimises the visibility of the facility, and the potential for impacts on surrounding land uses.

Concept approval for the entire power facility (both stages one and two) and project approval for stage one were granted by the Minister for Planning in February 2007. The location of the

power facility has been set through this approval. Stage two will not alter the location of the power facility.

3.12.2 Visual impacts

The "Potential Visual Issues" addressed in the Environmental Assessment did not include any visual issues that may affect properties situated on top of a cliff overlooking the Shoalhaven River. Concerned that may see the stacks and there will not be significant screening provided.

(Submission 1)

The visual impact on properties across the Shoalhaven River and atop the escarpment was addressed in Table 9.6 of the environmental assessment, under the heading of "Bundanon". The number of viewers in this area was identified as low.

Given the site's distance from this plateau, and the heavily forested landscape in the area, the environmental assessment concluded that the proposal is not expected to be visible from this area.

3.12.3 Transmission line

Council prefers that any new transmission line infrastructure is located underground (in particular in the vicinity of the future living areas identified in the Nowra Bomaderry Structure Plan). The location of the proposed transmission line must allow for future road upgrading (i.e. duplication) required to service the residential expansion zones near Cabbage Tree Lane. Furthermore a nine (9) metre clearance of the transmission line poles from any existing or future traffic lanes (i.e. Yalwal Road) should be allowed for. In this regard a design must be submitted to Council for approval prior to the placement of any infrastructure.

(SCC)

The transmission line that runs from the site along Yalwal Road to the substation at West Nowra, has already received approval under stage one. Therefore the transmission line is not assessed under the stage two Environmental Assessment.

3.12.4 Natural gas supply

Concern as to availability of natural gas supply for the facility. No mentioned is made in this environmental assessment as to what fuels will be used should the natural gas supply diminish or become prohibitively expensive. The environmental assessment should consider the impacts of use of alternative fuels.

The applicant should be requested to confirm that only natural gas will be used to fuel the facility.

In the Statement of Commitments, Delta has committed to the use of natural gas only.

Should the supply of natural gas diminish or become prohibitively expensive, Delta would need to apply to modify the approval. Environmental assessment of the impacts of the proposed alternative fuel would be undertaken at that time.

3.12.5 Property Value

Purchased our property (at a higher cost than in town) for the following reasons: peace and quiet, rural area, increased property value in the future, air quality and the outlook and view. These reasons will be compromised when the power station is built (especially Stage 2) resulting loss of value to our property.

(Submission 1)

An assessment of impacts on property values did not form part of the requirements for the environmental assessment.

It is difficult to assess the impact of a proposal on property values, as it is difficult to isolate the effect of proposal on property values alone, since several other factors (interest rates, local economy, population trends, etc) also have significant effects. However, the proposal is not anticipated to result in a severe impact on property values in the surrounding area.

As noted in the environmental assessment and in the responses to submissions given above, no significant air quality or visual impacts are predicted. Noise impacts will be mitigated to an appropriate level. As a result, the amenity for residents and visitors to the surrounding area is not predicted to decline.

3.12.6 Sediment and erosion control

An erosion and sediment control plan relating to the works proposed as part of this application has not been submitted as part of this application. A plan is therefore required and should be based on the Landcom manual – "Soils and Construction, Managing Urban Stormwater, Vol 1 4th Edition, March 204 having regard for the size of the site and works/disturbance proposed.

(SCC)

In the Statement of Commitments, Delta has committed to the preparation of a construction phase soil and water management plan as part of the construction environmental management plan, detailing control mechanisms to be implemented during the construction phase to minimise pollution and runoff during construction.

3.12.7 Waste management

Limited information has been provided as part of the Environmental Assessment in terms of waste management either for the construction phase or ongoing operation of the facility. The applicant should therefore be required to prepare a waste minimisation and management plan for this development in accordance with the requirements of Council's DCP 93.

(SCC)

A construction environmental management plan would be prepared prior to the commencement of construction works. This would detail all necessary waste management requirements.

A dedicated operation environmental management plan would be developed for the operation of the gas turbine facility, and would include all necessary waste management requirements.

4. Statement of commitments

The commitments listed in this section are consistent with the statement of commitments prepared for the gas turbine facility.

Issue	Commitment	Timing
Overall commitments		
Obligation to minimise harm to the environment	Delta confirms its commitment to ensuring that all practicable measures are implemented to prevent or minimise any impacts to the environment that may arise form the construction, commissioning and operation and where relevant, the decommissioning of the proposal.	-
Staging of development	Delta confirms its intention to construct the proposal either in two separate stages, or concurrently. Should staged construction occur, prior to the construction of stage two of the proposal, Delta would submit to the Director-General: A demonstration that, based on extrapolation of relevant monitoring data established during the operation of stage one of the proposal, that the progression to stage two would not cause any air quality impacts above those predicted; and An updated construction environmental management plan to reflect the inclusion of stage two works. Should staged construction occur, construction of stage two would not proceed until Delta has received written approval of the above documents and addressed any further requirements that may form part of the approval. Should concurrent construction occur, prior to construction commencing, Delta would submit to the Director-General a construction environmental management plan to reflect the concurrent construction of both stage one (as approved on 27 February 2007) and stage two works.	-
Restriction to fuel consumption	Delta would only operate the proposal on natural gas for routine firing in the power station turbines. Delta would not use liquid fuels to fire the proposal without written the approval of the Director-General.	-
Mitigation measures		
Air quality	*Operating conditions* Natural gas is the only fuel to be used for firing the power station turbines. All activities at the premises would be undertaken in a manner that does not cause or permit the emission of offensive odour beyond the boundary of the premises. All plant and equipment installed at the premises or used in conjunction with the construction or operation of the facility activity would be maintained in a proper and efficient condition and would be operated in a proper and efficient manner.	Operation

Issue	Commitment	Timing
	Discharge limits The project air quality goals specified by the project approval for stage two are achieved. The proposal would be designed and operated to ensure that the concentration of each pollutant listed in Table 7.4 of this environmental assessment (GHD, March 2008) would not be exceeded for each discharge point.	Design, operation
	Dust emissions All activities undertaken would be carried out in a manner that minimises the generation of dust, or emission of dust from the site, including wind-blown and traffic-generated dust. Measures proposed to minimise dust would be specified in the construction and operation environmental management plans.	Construction, operation
Greenhouse	*Delta's greenhouse commitments* Delta would continue to meet its commitments under the Commonwealth Government's Generator Efficiency Standards and Greenhouse Challenge (Plus) Program. Under these agreements, Delta is committed to achieving greenhouse gas emissions abatement through diversification of its generation portfolio, reflecting community and government expectations of a sustainable future for electricity generation. Delta's approach to greenhouse gas abatement includes: » Minimising impacts of existing coal-fired plants » Investigating transitional, combined technologies » Developing new renewable energy technologies for the future	Construction, operation
Flora and fauna	*Physical works to prevent off-site impacts* Fencing of proposed development areas to ensure construction works do not breach the boundaries or enter the adjacent vegetation and National Parks and Reserves. Sediment and erosion control measures to be implemented. Placement of stockpiles away from vegetated areas. Piling of soil that may contain seed of exotic species away from adjacent vegetation or drainage lines where they could be spread during rainfall events. Maintenance of a vegetated buffer between any development and the adjacent reserve.	Construction
	Protection measures Retention of mature, hollow bearing trees within the study area (where possible).	Pre-construction
	Offsets Delta commits to continuing discussions with DECC on habitat offsets. Consistent with the requirements of the project approval for stage one, Delta will provide a compensatory habitat package in accordance with DECC requirements, for the total area of vegetation removed by stages one and two.	Design

Issue	Commitment	Timing
Bushfire hazard	*Fire management measures* Asset protection zones to be implemented in accordance with the provisions outlined in Section 7.4 of this environmental assessment (GHD, March 2008).	Constructio n, operation
	Building standards Level 2 (AS 3959 – 1999) Construction Standards to apply where relevant. Combustible materials likely to be impacted by radiant heat would not used in the construction of the gas fired power facility.	Design
	Operation environmental management plan The operation environmental management plan would include fire prevention measures to be implemented during construction, including but not limited to: » Work involving risk of ignition would not be carried out during periods of total fire ban; » Fire suppression equipment would be available on site; » Appropriate storage and maintenance of fuels and other flammable materials. » Evacuation procedures would also be detailed for any persons located at the gas fired power facility during a bushfire; and » The local Rural Fire Service control centre would be notified of the dates of construction, dates during which 'hot works' are to be conducted would be highlighted.	Operation
Water	*Water quality* All activities at the premises must be undertaken in a manner that does not cause or permit water pollution as defined in the *Protection of the Environment Operations Act 1997*.	Design, construction , operation
	Recycling The recycling of stormwater during operation (for ancillary use), as described in the 2006 environmental assessment, is maximised through: » Provision of stormwater retention strategies and infiltration; » Rainwater harvesting; and » Management and monitoring of onsite water related activities and infrastructure.	Operation

Issue	Commitment	Timing
Noise and vibration	*Noise emission limits* The proposal would be designed, constructed and operated to ensure that noise criteria are not exceeded. The contractor responsible for the design and management of the facility would be required to meet the noise criteria. Construction Noise » 190 Bamarang Road, 35 dBA (background + 5dbA) » Gannet Road (at the modeled receiver), 37 dBA (background + 5dbA) » Part Lot 2 DP 1040676, 65 dBA (INP amenity criteria Operational noise The operation noise criteria specified in Section 2 of the revised Noise Assessment Report (Appendix B) are achieved. .	Design, construction , operation
	Construction time restrictions » Monday to Friday – 7am - 6pm; » Saturday – 7am to 1pm if inaudible at a residential premises; otherwise 8am to 1pm; and » No work on Sundays or Public Holidays.	Constructio n
	Noise attenuation on machinery All practical measures would be used to silence construction equipment, particularly in instances where extended hours of operation are required.	Constructio n
	Noise management strategy to be prepared A noise management strategy would be prepared as part of the construction environmental management plan, detailing the methodology proposed by the construction contractor and the relative phasing of different construction activities in different areas. This would also outline a program of operational noise monitoring.	Constructio n
Soils, contamination	*Removal of wastes* All dumped and buried wastes are removed from the site, either prior to, or as part of the development process.	Constructio n
	Evidence of oily or putrescible wastes If evidence of putrescible or oily / liquid wastes are noted during removal, then these materials would be sampled and analysed, to permit classification for off-site treatment and disposal, in accordance with the Environmental Guideline Assessment, Classification and Management of Liquid and Non-Liquid Wastes (NSW EPA, May 1999).	Constructio n
Soils	*Prepare a management plan* A construction phase soil and water management plan would be prepared as part of the construction environmental management plan, detailing control mechanisms to be implemented during the construction phase.	Constructio n

Issue	Commitment	Timing
	Ensure appropriate environmental controls During the construction phase (including site construction, plus pipeline / transmission line installation), soil and groundwater would be protected from contamination via the installation of appropriate bunds, drainage networks and (if required) lined detention basins.	Construction
	Contingency planning A contingency plan would be developed, documenting procedures to be adopted in the event that potentially contaminated soils or uncontrolled fill is encountered during excavation works.	Pre-Construction
Hazards and risk	*Design features* The following design features would be implemented: Undertaking a detailed HAZOP during design and incorporate recommended measures; Installation of a fire protection system in accordance with the requirements of the Building Code of Australia; Compliance with dangerous goods storage and transport codes, regular inspections and maintenance of critical components; Bunding of chemical storage tanks; and Standard operating procedures for activities, which could have the potential to cause hazards or risks.	Design
	Undertake risk and hazard assessments Prepare (if concurrent construction) or update from stage one (if staged construction) and implement the following as part of the operation environmental management plan: Construction safety study; Fire safety study; HAZOP; Emergency plan; Safety management system; and Hazard auditing.	Design, operation
	Management procedures to be implemented Management procedures would be implemented incorporating practices to prevent risk scenarios occurring: » Minimising build-up of combustible materials on-site; and » Installing bollards/protective barriers around gas metering station.	Design, construction, operation
	Emergency management procedures to be developed Emergency management procedures would be developed (if concurrent construction) or updated from stage one (if staged construction) for response to fire and explosion that may be initiated from either on-site or off-site sources.	Construction
Visual amenity and landscape	*Retain vegetation* Retention of existing vegetation outside the areas required to be cleared (for fire protection, facility footprint).	Design/ Construction

Issue	Commitment	Timing
	Maintain existing understorey Maintaining the existing understorey beneath the transmission line where possible.	Design/ Construction
	Additional tree planting Additional tree planting at the site entrance.	Operation
	Appropriate building materials Appropriate choice of building materials and treatments, including: Minimal use of reflective elements, and use of textual cladding where practicable. Use of darker green/brown colour tones on the buildings and plant to minimise the potential for contrast with surrounding bushland. Use of a lighter green colour on the upper portion of built elements (including stacks) to minimise the potential for contrast with the sky and treetops.	Design
	Navigation lighting The need for obstruction warning lighting at the top of the proposed stacks would be determined during the detailed design phase in consultation with the Civil Aviation Safety Authority and the Department of Defence.	
Traffic	*Recommended management measures* » Temporary reduction to the signposted speed limit on Yalwal Road. » Installation and operation of traffic control devices provided in AS 1742.3-1996 Traffic Control Devices for Works on Roads. » Additional advanced warning signage on both approaches to the bridge on Yalwal Road to the east of the site. » Limit heavy vehicle movement during peak commuter periods and encourage movement during the off peak period. » Adequate area and management controls would be introduced at the site entry to safely control the movement of vehicle into and from the site, including excavation materials need to be covered before trucks leaving the site. » Loading, unloading and manoeuvring of vehicles would always occur on-site and must be in accordance to AS2890.1 and AS2890.2. » All construction worker parking spaces would be provided off road/ on-site during the entire construction period.	Construction
Environmental management and monitoring		
Environmental representative	If staged construction, prior to the commencement of construction of stage two, Delta would appoint a qualified and experienced environmental management representative on a full-time basis during the construction, commissioning and operation of the development. If concurrent construction, a single Environmental Management Representative would be appointed for construction of both stages one and two.	

Issue	Commitment	Timing
Construction environmental management plan	If staged construction, a construction environmental management plan would be prepared prior to the commencement of stage two and implemented. If concurrent construction, a single construction environmental management plan would be prepared and implemented. The construction environmental management plan would outline environmental management practices and procedures to be followed during site preparation, construction and commissioning of the gas turbine facility as a whole.	
Operation environmental management plan	Delta would update its existing Environmental Management System to incorporate the operation of the proposal. A dedicated operation environmental management plan would be developed for the operation of the gas turbine facility as a whole. The management plan would incorporate monitoring measures in accordance with the conditions of approval for the project	
Auditing	Twelve months after the commencement of operation of stage two of the project, Delta would commission and independent, suitably qualified person or team to prepare, to the satisfaction of the Director-General, the following: Hazard audit report; and Environmental audit report.	

Appendix A

Summary of submissions

Table A1 Summary of Submissions

Submission ID	Type	Organisation	Date Received	Position	Issue Category	Issue	Where addressed in EA
1	Public		19/05/2008	Object	Noise	» Noise tests not extended up until property boundary. » Noise levels would be unacceptable.	» Section 3.3.1
					Air Quality (Pollution)	» Any change in air quality may significantly effect their health. » Would odours be emitted from the site? » Time of year for testing	» Section 3.2.1 » Section 3.2.2
					Visual Impact	» Visual impacts on property not addressed. » Due to level of property stacks may be visible from property.	» Section 3.12.2
					Property Value	» Bought property for peace and quiet, rural area, increased property value in future, air quality and outlook/view. » These would be compromised when power station built and would result in loss of value to our property.	» Section 3.12.5 » Section 3.3
					Location	» Why couldn't station not be built a few kilometres further into the bush where it would affect nobody.	» Section 3.12.1
2	Public		19/05/2008	Object	Noise	» Operational noise impacts on property. » Unclear whether the predicted noise increase would actually create a significant change to the existing environment.	» Section 3.3.1

Submission ID	Type	Organisation	Date Received	Position	Issue Category		Issue		Where addressed in EA
3	Public		19/05/2008	Object	Noise	»	Increase in noise levels within Bamarang Valley.	»	Section 3.3
						»	Poor selection for the location of the monitoring site should be at the closest, quietest and most affected residential property and not at a semi-industrial site.	»	Section 3.3.2
					Vibration	»	Increase in ground vibration through the soft stone structure of the area.	»	Section 3.3.3
					Consultation	»	Bamarang Bush Retreat/Guest House was not contacted during the study.	»	Section 2.1 and Section 2.2
4	Public		19/05/2008	Concerns	Noise	»	Revised Noise Impact Assessment inadequately addresses the potential for the proposal to exceed intrusiveness and rural amenity criterion.	»	Section 3.3.
						»	Reasoning behind selection of 190 Bamarang Road as a representation of all receivers along Bamarang Road.	»	Section 3.3.1
						»	Map in the noise report fails to show noise impact (greater than 35dB) in scenario 2.	»	Section 3.3 and Appendix B
					Natural Gas Supply	»	The power station has a minimum life span of 8 years if natural gas supplies are not secured beyond 2020. Does this make the plant an expensive option?	»	Section 3.12.4
						»	What fuels can be used if the natural gas supply diminishes.		

Submission ID	Type	Organisation	Date Received	Position	Issue Category	Issue	Where addressed in EA
					Flora and Fauna	» To include land between the power station site and where Sandy Creek crosses Yalwal Road into a nature reserve to prevent impacts on the endangered Nowra myrtle heath located down stream and form a natural buffer between the site and Yalwal Road.	» Section 3.5
5	Public		No date. Fax dated 14th Jan 2000 and letter dated 13 May 2008	Concerns	Noise	» Noise levels unacceptable. » Operational noise goals of 35 dBA should be meet at all three receiver locations.	» Section 3.3.2
6	Public		13/05/2008	Concerns	Noise	» Increase in noise pollution. » Due to background levels of 20 dBA in the surrounding area, any increase is noticeable. » Conditions can alter the noise levels encountered (temperature inversion layers on windless days).	» Section 3.3 and Appendix B » Section 3.3.2 » Section 3.3.1 and Appendix B
					Air Quality	» Increase in air pollution and the distribution of this pollution throughout the Bamarang Valley.	» Section 3.2.1
7	Public		21/04/2008	Concerns	Land Use	» The Nowra-Bomaderry Structure Plan (under review by DoP) highlights land only a few hundred metres from the site as a future location of up to 5,450 people with the possibility of an additional 2,500 people in the more distant future.	» Section 3.10

Submission ID	Type	Organisation	Date Received	Position	Issue Category		Issue		Where addressed in EA
					Noise	»	Increase in noise for nearby neighbours as air cooling equipment will be noisier than water cooling equipment.	»	Section 3.3.1
					Vibration	»	Increase in vibration for nearby neighbours.	»	Section 3.3.3
8	Public		9/05/2008	Object	Noise Modelling	»	The ISO model is more appropriate and should be used for noise modelling.	»	Section 3.3.2
					Noise	»	Increase in noise from the operation of the facility.	»	Section 3.3.1 and Appendix B
						»	Additional analysis required in respect to noise contours relating specifically to the frequency distribution of the noise generated.		
						»	Details of the Statistical Exceedance Levels needed to fully understand the potential noise impact.		
						»	A conservative approach should be taken with mitigation goals as the figures used are 'concept mitigation'.		
						»	More details of how the risk of exceeding noise goals is to be eliminated.		
					Statement of Commitments	»	A more rigorous approach to noise control in the Statement of Commitments.	»	Section 3.3
						»	More formal approach required for continuous quality monitoring and specific details of what is proposed.		

Submission ID	Type	Organisation	Date Received	Position	Issue Category	Issue	Where addressed in EA
9	Public		9/05/2008	Object	Noise	» Increase in noise as a result of the air cooling system.	» Section 3.3.1
						» Noise would be heard beyond the noise contours due to the sites location on a geographical high point.	
						» That noise goals be meet at all 3 receivers as opposed to Delta acquiring receivers where noise goals are exceeded (Lot 22).	» Section 3.3.2
						» Residents up to 6km away will experience an increase in noise to what is experienced now, even if the levels are below the noise goals.	
10	Public		16/05/2008		Noise	» Increase in noise as a result of the air cooling system.	» Section 3.3 1, Section 3.3.2 and Appendix B
						» Noise would be heard beyond the noise contours due to the sites location on a geographical high point.	
						» That noise goals be meet at all 3 receivers as opposed to Delta acquiring receivers where noise goals are exceeded (Lot 22).	
						» Residents up to 6km away will experience an increase in noise to what is experienced now, even if the levels are below the noise goals.	» Section 3.3.1
	Govt	DECC	23/05/2008	Concerns	Noise	» Noise Impact Assessment provides no assessment of specific mitigation strategies to demonstrate that the project specific noise levels can be achieved.	» Section 3.3 and Appendix B
						» Sound power level performance exceed best practice for this type of development.	

Submission ID	Type	Organisation	Date Received	Position	Issue Category		Issue		Where addressed in EA
	Govt	Civil Aviation Safety Authority	14/05/2008	Support	No issues	»	No issues		
	Govt	Department of Defence	22/05/2008	Support	No issues	»	No issues, subject to Delta providing plume modelling 1 year prior to commissioning of the facility, to initiate work to proclaim a Danger Area around the station.	»	Section 3.2.4
	Govt	NSW Rural Fire Service	8/05/2008	Support	No issues	»	No issues	»	Section 3.7
	Govt	Department of Water and Energy		Concerns	Water/Waterways	»	The EA does not address the two top-of-catchment waterways on the subject site.	»	Section 3.4.5
	Govt	Shoalhaven City Council	29/05/2008	Concerns	Land Use	»	Need to assess the impact of the proposed on the New Living Area and the proposed Long term Living Area located only few hundred metres away.	»	Section 3.10
					Flora and Fauna	»	Current commitments in their current form may be difficult to ensure compliance.	»	Section 3.5
					Noise	»	Increase in noise from facility.	»	Section 3.3
						»	Impact of noise should be assessed at the proposed new living area.		
						»	DECC to comment on air cooling option.		
						»	Noise from site must comply with NSW Industrial Noise Policy and project noise goals at all receivers.		
						»	Further investigation into Lot 22.		

Submission ID	Type	Organisation	Date Received	Position	Issue Category	Issue	Where addressed in EA
					Air Quality	» DECC to comment on air quality assessment. » Confirmation that natural gas will be the only fuel used to operate the plant. » Operation of the facility must comply with the emission standards set out in the Protection of the Environment Operations (Clean Air) Amendment (Industrial and Commercial Activities and Plant) Regulations 2005. » Project air quality goals must be reduced to match the existing ground level concentrations at each receptor. » Air quality must be assed at the proposed new living area as identified under the Nowra Bomaderry Structure Plan.	» Section 3.2
					Traffic and Access	» New transmission line should allow for future road upgrading. » Load limits along Yalwal road. » Access for large vehicles to site. » Application to Council under section 138 of the Roads Act is required for any works in the road reserve. » Work zone speed limit should be initiated by an application to the RTA.	» Section 3.12.3 and Section 3.6

Submission ID	Type	Organisation	Date Received	Position	Issue Category	Issue	Where addressed in EA
					Water Supply, Effluent Disposal and Wastewater	» An effluent disposal report that complies with requirements of DCP 78 - Effluent Disposal for Unsewered Areas needs to be prepared. » Report to provide details for the on-site wastewater system to be used. » A waste management plan.	» Section 3.4.2 and Section 3.4.1
					Stormwater	» Preparation of a Stormwater Management Plan.	» Section 3.4.3
					Bushfire	» Rural Fire Service to provide comment on the project. » Development to demonstrate compliance with the requirements of Planning for Bushfire Protection 2006.	» Section 3.7
					Height of Buildings/ Structures	» Concurrence from the Director be obtained in relation to exceeding the requirements of the Illawarra REP. » Department of Defence to comment on the proposal.	» Section 3.8

Submission ID	Type	Organisation	Date Received	Position	Issue Category	Issue	Where addressed in EA
					Water and Sewerage	» Provision of a pressure reducing value to control pressure fluctuations in the 600mm Hobas main as a result of pumping. » Plans and calculations for the necessary metered service to support the development to Shoalhaven Water. » Appropriate Section 64 contributions relating to water supply charges should be levied. » Application to comply with the requirements of Council's Tradewater Policy and Backflow Prevention Policy. » Applicant to enter into agreement for the usage of 0.5 Ml/day prior to issues of construction certificate. » Full unobstructed access to flow meter by Council provided. » Application is to be made for pump out service prior to operation of the facility.	» Section 3.4 and Section 3.11
					Sediment and Erosion Control	» Erosion and sediment control plan to be prepared and implemented prior to works commencing.	» Section 3.12.6
					Waste	» Waste minimisation and management plan should be prepared in accordance with the requirements of DCP 93 - Controls for Waste Minimisation and Management.	» Section 3.12.7
					Building Code of Australia	» All work to be carried out in accordance with the code.	» Section 3.7 (Bushfire only).

Submission ID	Type	Organisation	Date Received	Position	Issue Category	Issue	Where addressed in EA
	Govt	Shoalhaven Water	23/05/2008		Water	» Provision of a pressure reducing value to control pressure fluctuations in the 600mm Hobas main as a result of pumping. » Applicant to enter into agreement for the usage of 0.5 Ml/day prior to issues of construction certificate.	» Noted
					Access	» Location and size of metering to satisfy the development and Shoalhaven Water. Access to this meter must be unobstructed and available to Council 24 hours a day 7 days a week.	» Noted
					Contributions	» Appropriate Section 64 contributions relating to water supply charges should be levied	» Section 3.11
					Compliance	» Application to comply with the requirements of Council's Tradewater Policy Backflow Prevention Policy and Pump out Policy.	» Noted

Appendix B

Revised Noise Impact Assessment

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Document Status

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