Delta Electricity

Lamberts North Ash Placement Project
Construction Environmental Management Plan

CDM Smith

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10 December 2012

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Executive Summary

CDM Smith Australia Pty Ltd (CDM Smith) was engaged by Delta Electricity - Western (Delta) to develop a Construction Environmental Management Plan (CEMP) for the design and construction of Lamberts North Ash Placement Project (the Project), at Mount Piper Power Station near Lithgow, NSW.

The Project was approved under delegated authority by the Department of Planning and Infrastructure (DP&I) on 16 February 2012 with a number of Conditions of Approval (CoA) under the *Environmental Planning and Assessment Act 1979* (EP&A Act). Many of the CoA refer to the development of plans to manage various aspects of the construction and operation of the Project, and are required to be implemented prior to the initiation of its construction.

Accordingly, this CEMP has been developed in order to satisfy the CoA for the Project, and to provide guidance for the environmental management of the construction of Lamberts North. It has been prepared by CDM Smith for Delta in consultation with the relevant government agencies identified in the CoA.

Project Approval was granted for providing new ash placement facilities at both Lamberts North and Lamberts South. However, due to the proposed staging of ash placement, with Lamberts North to be developed first followed by Lamberts South, the CoA allowed for separate CEMPs to be prepared for each. Accordingly, this CEMP applies only to Lamberts North, (the Project site) and is intended to meet the requirements of Conditions B4 and B5 of the Project Approval.

The Project schedule requires construction works to start at Lamberts North no later than the last quarter (Q4) of 2012 and is estimated to take three months. Placement of ash is required to start in Lamberts North in the first quarter (Q1) of 2013 as identified in Delta's Submission Report (March 2011).

A review of the concept for ash placement at Lamberts North identified a more efficient design, incorporating Huon Void that would make better use of the existing former mining area at Lamberts North and allow an increase in capacity for ash placement. This will extend the life of Lamberts North by an estimated two years. As required by the EP&A Act, a Consistency Report for this Project change was prepared by SKM for Delta. The Consistency Report found that the potential impacts of the project change are consistent with the impacts described for the approved Project.

As indicated in Figure E.1 below, Lamberts North lies immediately to the east of the existing ash placement repository for Mount Piper Power Station, which is known as the Mount Piper Ash Repository. It is located in an area characterised by both rural and industrial influences, with a number of coal mines in relatively close proximity. The Project site is a highly disturbed area that can be described as a large void created from recent open-cut coal mining by Centennial Coal and which has been partly filled by mining spoil.

Lamberts North was acquired by Delta in February 2012 and will be filled with ash using the same dry placement technique as that has been used in Mount Piper Ash Repository for the last twenty years.

Lamberts North

Figure E-1 Project Site and Surrounds

Legend

- Road
- Watercourse
- Former Watercourse
- Project Area - Lamberts North
- Lamberts South
- Ben Bullen State Forest

0 125 250 500

Metres

N

Data Source:
Roads NSW Gvt, 2012, watercourse image ortho-traced, 2012;
DCDB by Land & Property Information NSW Govt, 2012;
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Date: 13/09/2012

Construction work at Lamberts North will include:

- Profiling and grading of the site involving the re-use of site-won material (this material consists of sand and rock mixed with variable amounts of clay fines and the occasional coal remnant) This may include 'overburden' material found on site which may be used for site preparation, or 'spoil' material from open-cut mining excavations. A geotechnical report for Lamberts North, by CDM Smith indicated this material was suitable for the construction of Lamberts North for ash placement.
- Using site won excavated material selectively to establish a foundation for the ash placement area . The ash placement area foundation layer will be thoroughly compacted at a level no less than 4 m above the Maximum Groundwater Level[1] (MGL).
- A fully lined sediment pond will be constructed on a thoroughly compacted base no less than 1m above MGL.
- Clearing and grubbing of approximately 5 ha of recent regrowth vegetation in the eastern section of the site in advance of construction.
- Constructing a perimeter embankment or bund with site-won material around the northern and eastern boundary, to create an edge for ash placement.
- Constructing a haul road, using bottom ash materials from the Power Station, along the southern edge of the existing ash repository.
- Initially constructing temporary placement roads within Lamberts North that will be modified as necessary during the operation phase in the same manner as done on the existing ash repository.
- Developing a WMS for Lamberts North that will enable the reuse of dirty water on site, while directing clean water away from site via newly constructed drainage systems, before it enters Lamberts North.
- Modifying existing drainage systems to divert clean off-site stormwater in a westerly direction, away from Lamberts North, to Mount Piper Power Station and its clean water system.
- Decommissioning Huon Void and drainage area to allow for more ash placement in Lamberts North and minimise the risk of contaminating groundwater.

Potential environmental impacts from the Project were outlined in an Environmental Assessment (EA) which was prepared for the Project Application (09_0186) for Lamberts North and Lamberts South. The identified impacts included those which may arise as a result of construction activities. The environmental requirements for the Project set out in the CoA for Lamberts North are addressed in this CEMP and associated Environmental Management Sub-Plans for noise, groundwater, soil and surface water, air quality, flora and fauna, Aboriginal heritage (Appendix 1). An Ash Transportation Plan has also been prepared as part of the CEMP (Appendix 2).

[1] The groundwater model identifies the southern, or sediment pond end, Maximum Groundwater Level (MGL) is RL912.5m AHD, 2.5m above the 'nominal' or 'normal' RL910m AHD groundwater level. Groundwater levels vary during periods of extended rain when groundwater levels naturally rise, or periods of drought when groundwater levels naturally fall. To guard against groundwater contamination the design uses MGL as the point of reference when calculating design levels.

The key components for environmental management during project construction include surface and groundwater, erosion and sediment control, air quality, and noise. Other issues which have been assessed in the EA as being of less significance are also addressed. As part of the preparation of this CEMP and designs for ash placement at the Project site, CDM Smith undertook a comprehensive groundwater modelling program. This demonstrated that the likelihood of the ash coming into contact with the two aquifers underlying Lamberts North would be highly unlikely. Based on the evidence found through the modelling program, CDM Smith has modified the Project design for Delta to prevent any contamination from occurring, including filling in the existing Huon Void.

In addition, designs for the Project site have been prepared to ensure that Neubecks Creek is not adversely affected by Lamberts North; by making sure that the construction design incorporates appropriate measures to restrict water leaving the site. Any water collected on site during construction will be utilised for dust suppression.

To ensure that the project sites is not creating any adverse impacts on the neighbouring Neubecks creek, Delta will continue to carry out monthly water quality testing and river health monitoring, prior to construction to achieve baseline data (in accordance with Delta's Ecological Monitoring Program (2012). Groundwater sampling will be take place on a monthly basis, using the allocated groundwater bores strategically placed around the site.

Noise will be maintained within the limits set in the CoA during the construction phase, with much of the work either taking place within the void or behind the existing embankment of the existing repository. Dust emissions will largely be contained by water carts.

Ecological impacts will be minimal due to the highly disturbed nature of the Project site and the small amount of recent regrowth that will be removed.

To cater for the contractors working on site, site compounds will be temporarily installed including a site safe modified shipping container and portable lavatory within the Lamberts North precinct. Other site compounds including offices will be located offsite, in the Mt Piper Power Station precinct.

In summary, it is anticipated that together with the reporting and monitoring regime, the environmental requirements outlined in the CoA will be met through the implementation of the mitigation measures set out in this CEMP and its associated Sub-Plans (Appendix 1).

Following the approval of this CEMP, an Operational Environmental Management Plan will be prepared and delivered to the DP&I for approval prior to the commencement of ash placement.

Section 1 Introduction and background

1.1 Introduction

Project Approval for the Mount Piper Ash Repository was granted under the delegated authority of the Minister for Planning and Infrastructure on 16 February 2012. Under the Minister's Conditions of Approval (CoA), Delta was required to produce a Construction Environment Management Plan (CEMP) for the construction and operation of a new ash placement area at Lamberts North.

This CEMP has been specifically designed to document construction activities and to identify and develop mitigation measures to reduce the likelihood of adverse environment impacts. in accordance with the *Department of Planning, Infrastructure and Natural Resources Guidelines for the preparation of Environmental Management Plans* (2004). Subsequently, the CEMP addresses Part B, parts 4 and 5 of the Minister's CoA, including:

- Noise Management
- Groundwater Management
- Soil and Surface Management
- Air Quality Management
- Flora and Fauna Management
- Aboriginal Heritage Management
- Ash Transportation Plan

A summary of environmental requirements and mitigation measures is also provided in Section 5 of this CEMP.

1.2 Background

Lamberts North represents the next stage to the expansion of the existing Mount Piper Ash Repository. It is located to the east of Delta Electricity's Mount Piper Power Station, approximately 17 km north-west of Lithgow (Figure 1-1).

This area is highly disturbed, having been subject to extensive mining activities in the past from underground working (from the 1950s to the early 1990s), with the most recent open-cut mining activities being carried out by Centennial Coal.

Delta has engaged a number of specialist contractors including engineers, hydrologists, scientists and planners to ensure that the new facility will be designed not only for its primary purpose as an ash repository, but also to reduce the likelihood of any future adverse environmental impacts.

To prepare Lamberts North for ash placement, it is estimated that construction will take approximately three months.

The following sub-sections explain more about the Project and its location.

1.3 Site setting and location

Figure 1.1 locates the Project site within the Lithgow Local Government Area (LGA). Figure 3-1 indicates the nearest settlements to Lamberts North, as well as surrounding infrastructure and natural features.

The Project site is mainly surrounded by Ben Bullen State Forest, which lies to the north-east and south-east of Mount Piper Power Station, together with open-cut coal mines and coal washeries which are characteristic of previously-mined areas. Wallerawang Power Station, which is also owned and operated by Delta, lies to the south east of the Project site, some 5 km away.

The nearest townships to the Project site are:

- Blackmans Flat, approximately 1 km from the eastern boundary of the Project site.
- Portland, approximately 4 km from the western boundary of the Project site.
- Lidsdale, approximately 4.5 km to the south east of the eastern boundary of the Project site.
- Wallerawang, approximately 5km south east of the eastern boundary of the Project site.

1.4 Project overview and scope

Construction activities for the Project have been designed in order to prepare the area for subsequent ash placement in Lamberts North. As Lamberts North is located immediately to the east of the existing ash repository (known as Mount Piper Ash Repository), this will enable the well-established construction and operation practices operated by Delta on Mount Piper Ash Repository to be readily adopted on the Project site.

Once placement of ash has commenced, further construction activities may need to be undertaken, for instance where temporary ash placement roads within Lamberts North or containment berms are required to be extended as placed ash volumes increase. However, such activities would only occur later in the ash placement process, and are therefore regarded as an operational activity. This CEMP therefore provides management guidance for initial construction activity at Lamberts North only, which is focused on the northern area of the Project site.

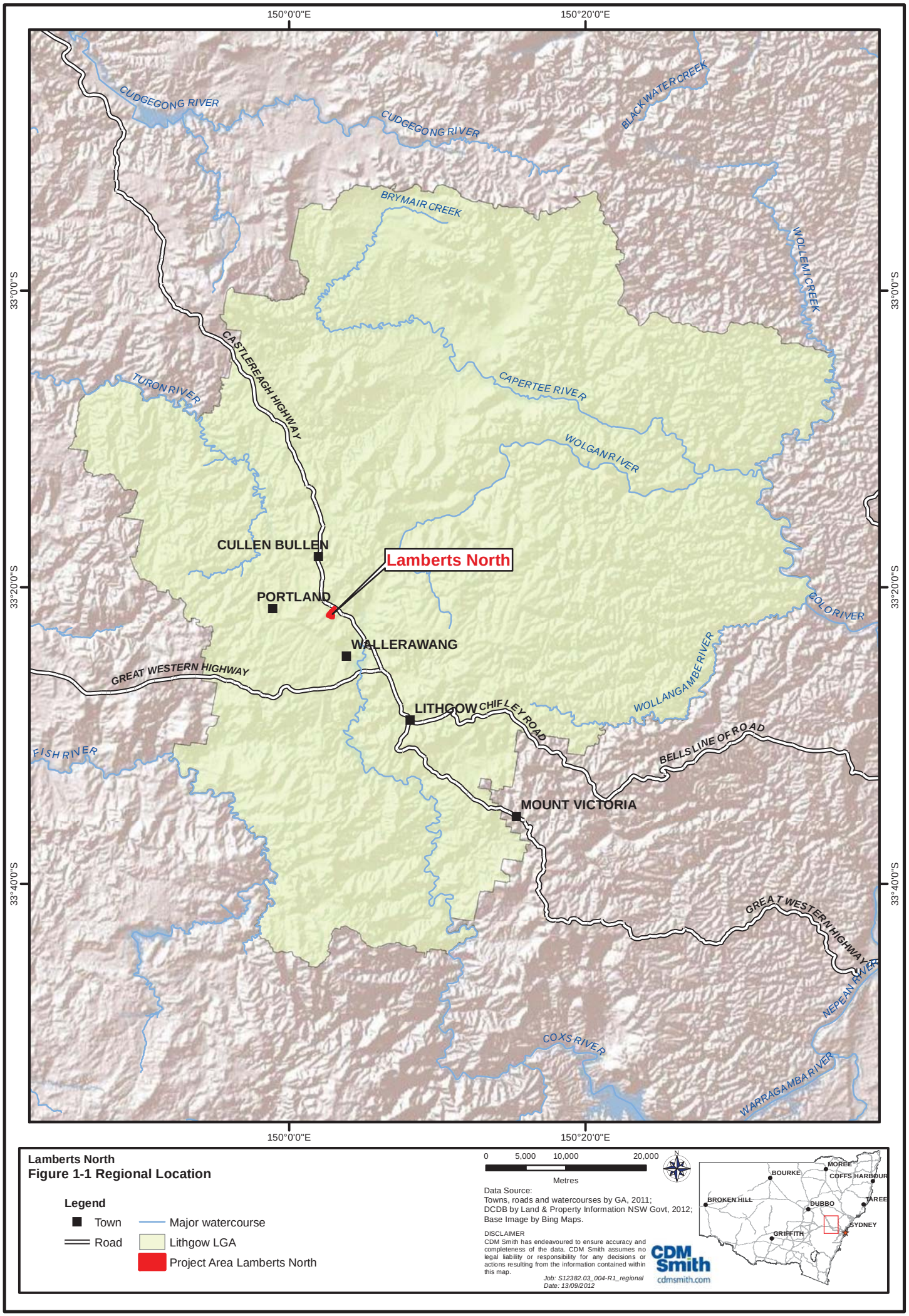
The construction of the Project can be summarised as:

- Constructing a haul road into Lamberts North, using bottom ash from the Mount Piper Power Station.
- Preparation of the Huon Void area at the north of Lamberts North (described as “Huons Dam” in the Consistency Report) for ash placement by placing fill material no less than 4 m above the Maximum Groundwater Level[2] (MGL).

[2] The groundwater model identifies the southern, or sediment pond end, Maximum Groundwater Level (MGL) is RL912.5m AHD, 2.5m above the ‘nominal’ or ‘normal’ RL910m AHD groundwater level. Groundwater levels vary during periods of extended rain when groundwater levels naturally rise, or periods of drought when groundwater levels naturally fall. To guard against groundwater contamination the design uses MGL as the point of reference when calculating design levels.

- Using site-won material from the previous mining activity to prepare foundation layers for placement of ash pads above, to construct bunds around the northern and eastern peripheries of Lamberts North to contain the ash, and for use as cover for completed ash disposal areas.
- Developing a new drainage regime as part of the WMS to manage surface and ground water.

Further details relating to the construction of the Project are provided Section 4.



Lamberts North

Figure 1-1 Regional Location

Legend

- Town
- Road
- Major watercourse
- Lithgow LGA
- Project Area Lamberts North

0 5,000 10,000 20,000

Metres

Data Source:
Towns, roads and watercourses by GA, 2011;
DCDB by Land & Property Information NSW Govt, 2012;
Base Image by Bing Maps.

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1.5 Planning approval for the Project

The Project Approval identifies a number of principal documents that are referred to in and which form the basis of the CoA. These include:

- Mt Piper Power Station Ash Placement Project Environmental Assessment (EA – in two volumes), August 2010 (SKM 2010).
- Mt Piper Power Station Ash Placement Project Submissions Report, March 2011 (SKM 2011).

Project Approval was granted under the delegated authority of the Minister for Planning and Infrastructure on 16 February 2012. The approval contained a number of CoA (see Appendix 3). Many of the CoA refer to the development of specific plans to manage various aspects of the construction and operation of the Project, including many that are required to be implemented prior to its construction.

Subsequent clarification and definition of the planning approval for the Project is provided in the Mt Piper Ash Placement Project Consistency Report – Project Approval 09_0186, June 2102 (SKM 2012). The Consistency Report was prepared to address two changes to the Project.

The first change improves the storage capacity of Lamberts North by more fully utilising the capacity of Huon Void, This will be achieved by draining and filling that area, located at the northern end of Lamberts North. This will increase the capacity for ash placement at Lamberts North by an estimated 1.4 million m^3 (SKM 2012). The water initially extracted from the Huon Void[3] will be used for dust control and revegetation at Mount Piper Ash Repository.

The second change is to the alignment of the drainage line proposed to take clean off-site storm water away from the south west boundary of Lamberts North, to feed into an existing clean water drain adjacent to Mount Piper Ash Repository. The original concept design had this draining to Lamberts Gully in the east.

The extent of the potential impacts implied by these changes to the approved Project was considered consistent with those provided in the EA (SKM 2012).

The Submissions Report indicated that Delta would need to start construction works at Lamberts North no later than the last quarter (Q4) of 2012 (SKM 2011).

This CEMP for Lamberts North (the Project) has been developed specifically to respond to both the Project Approval CoA and the Consistency Report design changes. It is also a vehicle with which to extend the consultation with those agencies that are specifically referred to in the conditions (see Section 8).

Full references for the documents referred to in this CEMP are provided in Section 9.

1.6 Agency Consultation

In accordance with CoA 4(e), Delta invited relevant government agencies to participate in a site inspection and meeting about the Lamberts North Project that was held on 17 July 2012.

[3] Huon Void is also referred to as “Huon Dam” and the “Groundwater Collection Basin (GCB)” in the Environmental Assessment, Submissions Report and Consistency Report.

Key findings of the emerging groundwater modelling being undertaken for Lamberts North, and key aspects of the CEMP were provided, including a description of the existing environmental conditions, construction management plans, and proposed environmental monitoring. Delta confirmed the change in the Project scope, as detailed in the Consistency Report, including incorporating Huon Void within the area of ash placement in order to increase the capacity of the site for that purpose, and revised arrangements for the capture and diversion of clean water away from the operational area.

Agency representatives provided various inputs relating to surface water and groundwater management and monitoring, and air quality monitoring.

Delta held a follow-up consultation meeting on 30 August 2012 with relevant government agencies selected from those which were invited during the July consultation and which had a specific interest in assessing progress with regard to groundwater modelling results. The findings of the groundwater modelling for the Project were presented and discussed, and opportunities for questions and answers were provided by Delta.

In addition, the CEMP was provided to Agencies for comment by 1 November 2012.

A more detailed description about agency consultation undertaken during preparation of the CEMP and groundwater modelling is provided in Section 8 of this Plan.

Section 2 Environmental management

2.1 Document overview and structure

This CEMP provides a framework that satisfies the relevant CoA for the Project, and facilitates the successful implementation of an Environmental Management System (EMS) during its construction.

The CEMP consists of two main elements, namely:

- EMS components for ISO14001 compliance.
- Environmental Sub-Plans.

The first part of the CEMP consists of elements that are based on the AS/NZS ISO 14001 EMS structure, including those adopted for the implementation and execution of the EMS for this Project. The structure of the CEMP has also been developed to comply with the general requirements and objectives stipulated within the Guideline for the Preparation of Environmental Management Plans (DIPNR 2004).

AS/NZS ISO14001 elements that have been integrated within the CEMP are:

- Monitoring
- Inspection and Audits
- Review and Improve

The CEMP also details how environmental concerns will be addressed during construction of the Project by outlining: the Project Environmental Framework (policy and objectives, project overview, regulatory framework and key risks); Management Approach; and Process Management. These sections outline key requirements of an EMS as required by AS/NZS ISO14001, including environmental risk factors, impacts and aspects, resources and training, monitoring, audit and reviews, reporting, non-conformances, complaints and incidents.

The Process Management section describes how the environmental management process will happen on the ground, including environmental planning, internal and external communication, execution and implementation of the CEMP, and documentation and records.

Those components of the CEMP are specifically detailed so that the Plan as a whole can be used as a reference document by both Delta and the Construction Contractor appointed to perform the works. Notwithstanding this, the contractor may be able to adopt its own EMS system (such as currently occurs in respect of Mount Piper Ash Repository).

Appendix 1 contains Sub-Plans that have been specifically designed to meet the terms of the relevant CoA (Appendix 3) and to demonstrate compliance with them. The Sub-Plans also provide a reference for the Construction Contractor for undertaking specific activities in accordance with the relevant CoA. The Sub-Plans include a description of environmental values, potential impacts and mitigation measures. In essence, each Sub-Plan describes the requirements for managing the specified environmental issue. Table 2-1 shows each Sub-Plan and the location in the document, and relevant CoA.

Table 2-1 Environment Sub-Plans included in this CEMP

Environment Sub-Plan	Appendix	Condition of Approval
Noise	1 (Section 2)	B5 (a), C6
Groundwater	1 (Section 3)	B5 (b)
Soil and Surface Water	1 (Section 4)	B5 (c), C10 - 13
Air Quality	1 (Section 5)	B5 (d), C7
Flora and Fauna	1 (Section 6)	B5 (e)
Aboriginal Heritage Plan	1 (Section 7)	B5 (f), C8, C9
Ash Transportation Plan	2	B5 (6)

2.2 Purpose and application of the CEMP

The purpose of this CEMP is to:

- Satisfy the CoA and to ensure legislative compliance obligations for the Project.
- Identify the environmental issues associated with Project construction.
- Identify environmental management measures to be implemented in order to mitigate potential impacts associated with the construction phase of the Project.
- Describe the management and control of construction works so that the Construction Contractor is aware of its environmental obligations.
- Incorporate the environmental mitigation measures into the relevant Sub-Plans, and ensure their appropriate implementation throughout the construction stage of the Project.
- Ensure that all environmental aspects and impacts for the construction phase of the Project are addressed to the satisfaction of relevant agencies.

The CEMP provides an overarching context and framework for its associated Sub-Plans (Appendix 1) and procedures. Taken together, the CEMP and its Sub-Plans form the overall environmental project management system for the construction phase of the Project.

2.3 Ownership of and responsibility for the CEMP

The implementation of this CEMP is the responsibility of Delta. The CEMP and the relevant conditions in the CoA will be written into future contracts associated with Project to ensure that the conditions are met.

Delta is the proponent for and Owner of the Project. Delta will manage the construction process, including reviewing any performance reports, reviewing all environmental documents, and ensuring implementation of all statutory conditions and CEMP commitments. Any contractors engaged on the Project will implement the required mitigation measures to ensure the delivery of the necessary outcomes for its construction, including implementation of the approved CEMP and its Sub-Plans.

In accordance with CoA B1, Delta will nominate a suitably qualified and experienced Environmental Representative (ER), for the approval by the Director-General of the DP&I.

The appointed ER will provide support and direction relating to environmental impacts during the construction phase of the Project. The role of the ER will include, but not be limited to the following:

- Overseeing the implementation of all environmental management plans and monitoring programs, and advise Delta upon the achievement of these plans/programs.
- Consider and advise Delta on its compliance obligations against the CoA and Statement of Commitments.
- Liaising with the Construction Contractor's Site Manager (CSM).
- Have the authority and independence to recommend to Delta reasonable steps to be taken to avoid or minimise unintended or adverse environmental impacts and, failing the effectiveness of such steps, to recommend to Delta that relevant activities are to be ceased as soon as reasonably practicable if there is significant risk that an adverse impact on the environment will be likely to occur.
- Liaising with Government authorities, landholders and consulting groups as required.

The processes and procedures provided in this document outline the environmental management requirements to be implemented by the Construction Contractor. As described in the CEMP, all personnel, sub-contractors and consultants will be required to be familiar with the CEMP environmental objectives through inductions and ongoing training throughout the construction of the Project. Audits of the Construction Contractor will be conducted against the approved CEMP.

2.4 Delta's Environmental Policy

As the project Owner, Delta is committed to delivering the Project in an environmentally responsible manner. Delta will seek to ensure that this policy, environmental procedures and construction methods are understood, implemented, and maintained by personnel at all levels involved in the Project.

The Construction Contractor will ensure that it meets the obligations established in Delta's Environmental Policy (DEP EN 001 version 1.4). Delta's Environmental Policy is available upon request.

2.5 Environmental Management System

Delta Electricity works under an ISO 140001 Environmental Management System (EMS) which comprises of 17 EMS administrative procedures (EMSAPs). A number of these EMSAPs are administered via two of Delta's Work Management System- Ellipse and Lawlex. Ellipse is used to record and track all environmental incidents and arising actions, while Lawlex is a compliance management software system, which identifies routine based legislation requirements which need to be actioned by certain dates.

Delta will use these EMSAPs during the construction phase of Lamberts North, via their Ellipse and Lawlex Systems.

Table 2-2 identifies the how Delta's EMS complies with the Projects Condition of Approval B8- Compliance Monitoring and Tracking.

Table 2.2 Deltas EMS Administrative procedures

EMSAP ID	EMSAP Name	Description	CoA Reference
EMSAP 16	Internal Auditing	Stipulates the requirements for an internal auditing scheme. This annual schedule will be updated to include (at least quarterly) auditing of compliance on the project.	B8 (a)
EMSAP13	Evaluation of Compliance	Details how Delta's Corporate Environment Group schedule third party audits against regulatory requirements. In regards to this project, the external auditor will be the Environmental Representative.	B8 (c)
EMSAP14	Non- conformity, Corrective and Preventative Actions	Details how Delta handles its investigations in regards to non-conformance, how it implements controls or mitigation measures and reviews results. Delta's Work Management System – Ellipse – is used to track all Environmental incidents and arising actions	B8 (e)
DES BM 016	Complaints handling Standard	Sets a standard for Delta to ensure complaints are handled efficiently and effectively as part of improving our operations and recognise the interests and values of local and regional communities in which we operate	B4 (i) & B8 (e)
EMSAP7	Communication	Details how Delta communicates its EMS System internally and with interested parties.	B8 (f)
EMSAP 5	Roles, Responsibilities:	Details how Delta communicates its environmental roles and responsibilities and authorities.	B8 (g)
EMSAP 6	Competence, training and awareness	Identifies environmental training needs associated with environmental aspects and Environmental Management System. In addition, it details Environmental training procedures and how to retain training records	B8 (g)

Section 3 Project description

3.1 The Project site

Lamberts North is some 53 ha in extent. Figure 3-1 shows its location in the context of Mount Piper Power Station and the Mount Piper Ash Repository (the existing ash placement area). It also shows the Lot numbers for each of the parcels of land to which this CEMP and its Sub-Plans apply, together with Lot numbers for adjoining parcels of land, including Lamberts South, adjoining land owned by Lithgow City Council and other Lots owned by Delta and used for the operation of Mount Piper Power Station.

Lamberts North is located on land within Lot 9 DP804929 and Lot 15 DP804929. It comprises former coal workings, and has a history of both underground and open-cut coal mining (see Section 3.2 below). Centennial Coal undertook coal mining and washing operations within the Lamberts North site until early 2012. Significant quantities of residual spoil and overburden material remain within the former coal mining void. This material will be re-used in the construction and operation phases of Lamberts North.

Delta owns the whole of the Lamberts North site. However the southern part of Lamberts North is still being occupied and worked by Centennial Coal. The current agreement is that Centennial Coal will vacate the southern part of Lamberts North by 2015, after which point Delta may be able to operate this area for the placement of ash, in accordance with the Project Approval.

Construction at Lamberts North is currently anticipated to commence in November 2012, with ash placement expected to start in April 2013 after the three month construction period and the Christmas and New Year holidays.

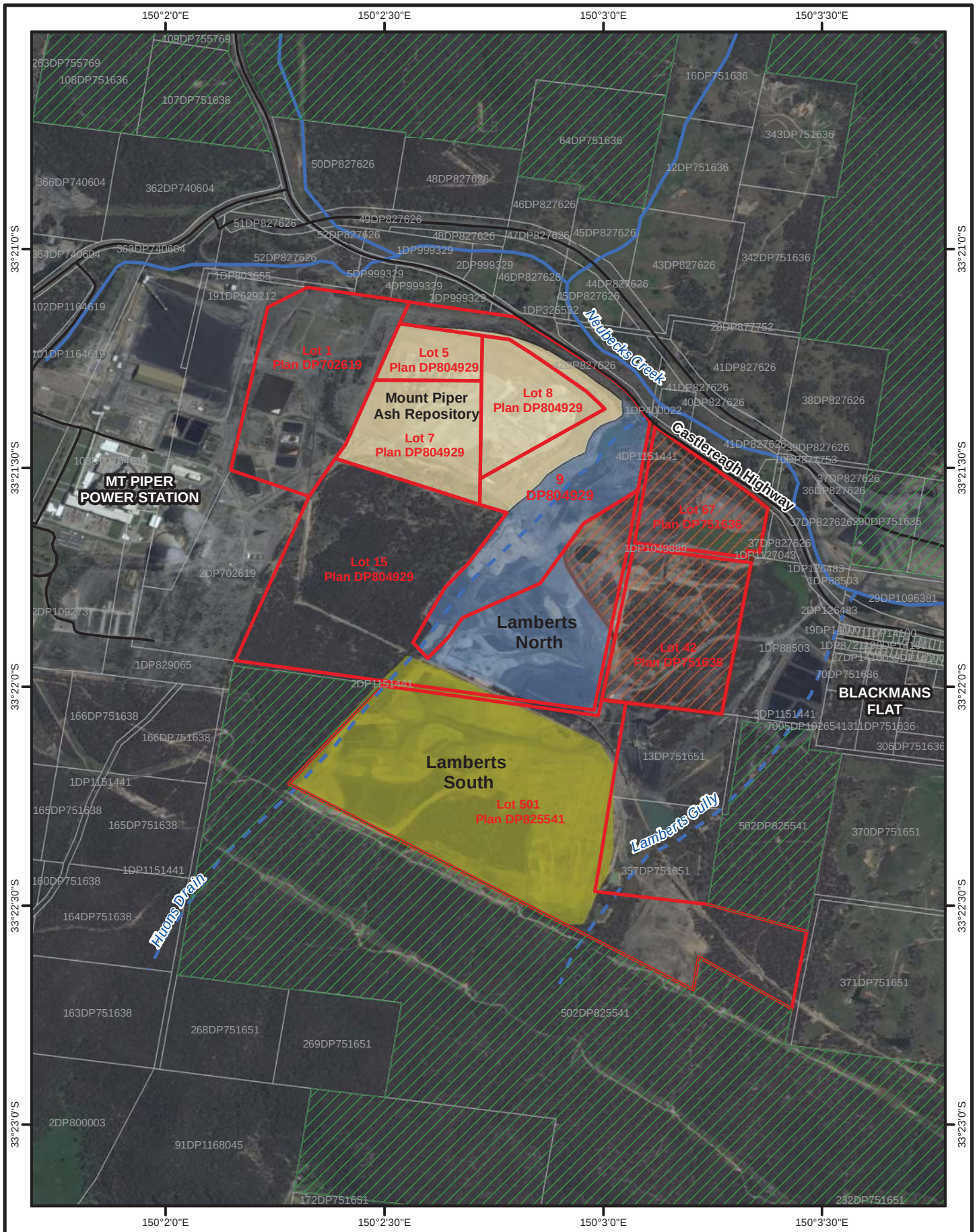
3.2 Site history and the mining legacy

The Lithgow and Lidsdale Coal Seam underly the Project site, including the Huon Gully area (Lot 9). Since the 1940s, that seam was worked by shallow underground 'bord and pillar' methods, and subsequently by open-cut mining, the latter being generally 'roof lifting' exercises to extract coal pillar remnants. Open-cut mining has generally focused on removing the remnants of the Lithgow Coal Seam, as well as on extracting coal from the Lidsdale Coal Seam which runs beneath it (SKM 2010).

Underground mining ceased in the 1990s, with the most extensive period of open-cut mining occurring between 1992 and 1998. The Huon Gully area lies within the former Western Main Colliery holding (SKM 2010). This mining lease was held until early 2012 by Centennial Coal when it was acquired by Delta.

Lamberts North is extensively covered by large and variable mounds of overburden (largely granular soil and boulders derived from the mining of the sedimentary overburden) resulting from the open-cut coal mining practices, together with a number of drainage ponds (Figure 3-2).

The extensive area of overburden (mullock heap) on the west side of Huon Gully has revegetated Acacia species up to approximately five years in age, which will be cleared (Plates 3-1 and 3-2). Plate 3-1 comprises a typical view of overburden, stockpiles and voids in Lamberts North.



Lamberts North

Figure 3-1 Lamberts North, Mount PiperPower Station and Surrounding Land uses

Legend

- Road
- Watercourse
- Former Watercourse
- Cadastre
- Project Site - Lamberts North
- Lamberts South
- Ben Bullen State Forest
- Proposed Lithgow City Council landfill site

0 120 240 480

Metres

Data Source:
Roads NSW Gvt, 2012, watercourse image ortho-traced, 2012;
DCDB by Land & Property Information NSW Govt, 2012;
Base Image by Bing Maps.

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Date: 14/09/2012

Plate 3-1: Lamberts North viewed from Mount Piper ash repository showing mining spoil and Huon Gully

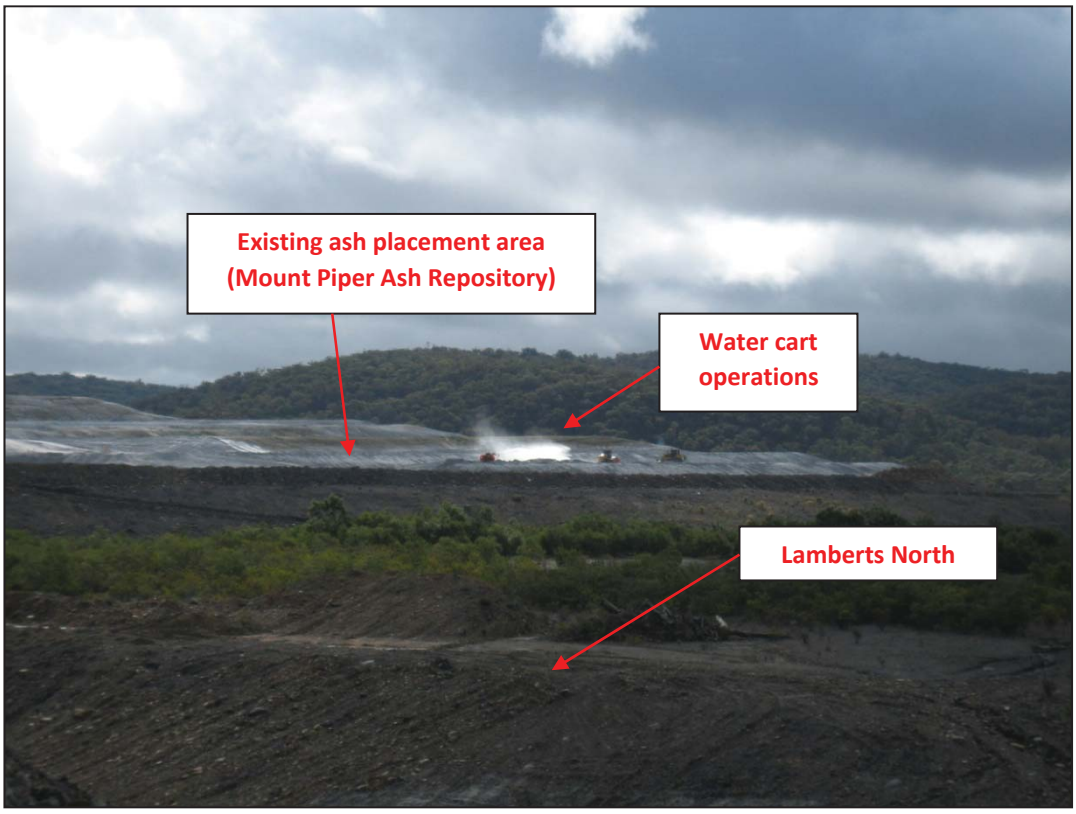
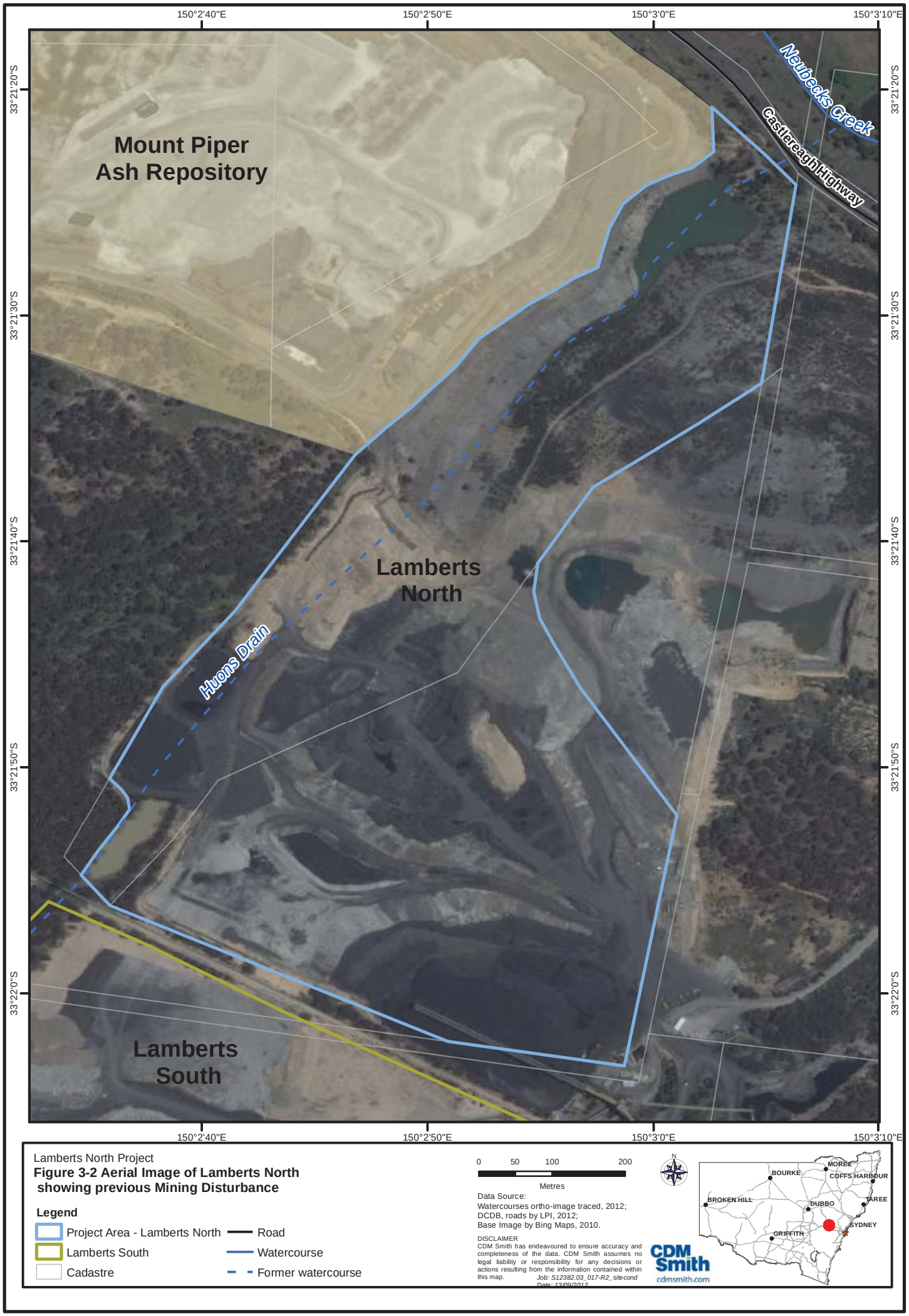


Plate 3-2: View from Lamberts North looking north-west across the revegetated mullock heap to the existing Mount Piper Ash Repository, showing water cart operations



Lamberts North Project

Figure 3-2 Aerial Image of Lamberts North showing previous Mining Disturbance

Legend

- Project Area - Lamberts North
- Lamberts South
- Cadastre
- Road
- Watercourse
- Former watercourse

0 50 100 200

Metres

Data Source:
Watercourses ortho-image traced, 2012;
DCDB, roads by LPI, 2012;
Base Image by Bing Maps, 2010.

DISCLAIMER
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3.3 Drainage within and around the site

The small valley that comprises a large part of Lamberts North, known as Huon Gully (also known as Huon Drain), is a drainage gully located adjacent to the existing Mount Piper Ash Repository (Plate 3-3).

Historically, a creek traversed the former Huon Gully. Subsequently, as a result of historical underground and more recent open-cut coal mining activities, the creek was totally removed. The resulting Gully and Void have since primarily acted as a groundwater collection basin.

The groundwater modelling works conducted by CDM Smith have provided the following findings:

- There is a shallow and a deep aquifer under Lamberts North. The shallow aquifer flows in a north easterly direction and is located approximately 5 m below the base of the proposed ash repository area. The deep aquifer is located approximately 35 m below the base of the proposed repository. The two aquifers are not connected to each other.
- The grade of the shallow aquifer is essentially opposite to the designed finished base level of the ash placement area. Consequently, ash placement area surface water flow is in an opposite direction to aquifer flow. Ash placement area surface water flows do not leave the site, being directed into a lined sediment pond for ensuing operational site use.
- Historic groundwater levels have fluctuated by up to 5 m since 2004. However, this has been due to the wet and dry cycles experienced across Australia during this period. Wet weather groundwater fluctuations are currently at maximum levels and are predicted not to increase. Therefore, the design provides for the base of the ash placement area at the northern end of the site to be at least 4 m above MGL; while the southern end (lined sediment pond) to be at least 1m above MGL.
- The groundwater model developed by CDM Smith predicts maximum 2.5 m groundwater level rises under extreme 100 year ARI events. However as previously stated, groundwater levels are at their maximum level and are not likely to rise any further.
- Construction of Lamberts North will not affect groundwater flow or levels. Designed profiling below the ash repository will provide at least 4 m base cover above MGL in the northern side of the site. The placement of foundation layers beneath the ash at Lamberts North will ensure that there will be at least 4 m of cover above the shallow aquifer MGL, with the exception of the proposed lined sediment pond to the south east of the existing pond which will be 1m above MGL. However, this pond will be lined with an impervious layer to minimise the likelihood of future contamination.
- Groundwater monitoring and modelling indicates that recent high chloride concentrations detected in a borehole (bore D10) are likely to be due to upstream coal reject ponds (now abandoned) in the south-west corner of Lamberts North.
- The model also confirmed that there is no evidence of chloride contamination in the groundwater from the existing Mount Piper Ash and/or Lamberts construction area.
- The model predicts that once additions to the chlorine source have been halted, chloride contamination in groundwater is likely to decline rapidly over time. As indicated above, the upstream coal reject ponds that are likely to have caused the contamination are now under Delta control and no further coal rejects will be added. However these reject ponds are outside the scope of this CEMP.

- The model predicts that filling Huon void with ash will have no impact on groundwater given the cover planned from site-won material.
- Given that the groundwater in the area is significantly deep (5m and 35m) it can be considered that construction activities will not affect the root system of existing floral species.

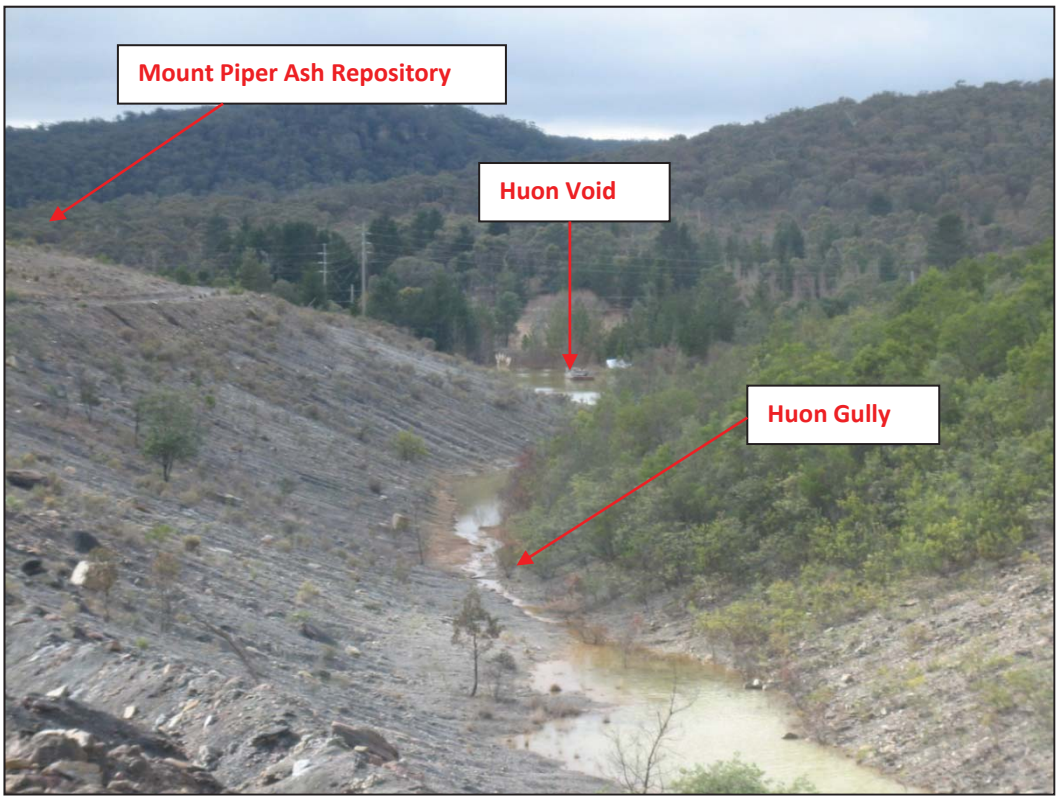


Plate 3-3: The division between Mount Piper Ash Repository and Lamberts North, looking north along Huon Gully to Huon Void

In accordance with the Consistency Report (SKM, 2012), a drain will be created on the southern side of the existing Mt Piper Ash repository and Lamberts North site to direct clean water[4] offsite. This 1.6km drain flows into Mt Piper's existing drainage system west of Mt Piper's existing ash repository, and will be lined in accordance with the lining specified in the Project Erosion Control and Sediment Plan.

[4] The term "clean water" is used to describe water that has not come in contact with ash and includes off-site stormwater that is diverted away from Lamberts North.

Section 4 Scope of construction works

4.1 Scope of works

This section of the CEMP provides a description of the construction works needed to establish Lamberts North as a location suitable to receive ash from Mount Piper Power Station.

The works associated with the construction of Lamberts North are to prepare the area for subsequent ash placement. They involve activities including excavation and site shaping, constructing a sediment pond, excavating a clean water diversion, creating a haul road, and stockpiling site-won material to manage the final ash repository land form in preparation of eventual capping, revegetation and site rehabilitation (to be included in the OEMP).

Construction and preparatory works and construction at Lamberts North prior to placement of ash will be undertaken in a manner which will facilitate continual placement of ash, as Lamberts North successively replaces Mount Piper Ash Repository as the principal location for ash placement.

A summary of construction works is provided in Table 4-1, with key features of the Water Management System (WMS) shown in Figure 4-1 below and the initial haul road alignment indicated in Figure 4-2.

Table 4-1 Scope of construction works for Lamberts North

Item	Description
1	**Haul road** A 12 m wide haul road from the Power Station into the Lamberts North void will be constructed. This will follow a south westerly alignment, for ease of construction access and subsequent ash placement purposes. It will be built at a gradient not exceeding 1:10, and will use bottom ash from the Power Station boilers.
2	**Clearing and grubbing** The site will be cleared of approximately 5 ha of regrowth vegetation and other material which is unsuitable for foundation purposes, using dozers and/or excavators.
3	**Perimeter bund** An elevated bund around the northern and eastern perimeters of Lamberts North will be constructed with site-won spoil. It will be constructed with typically 1(V):3(H) side slopes to a finished level of EL 928m. A 5% slope falling towards a swale on the inside of the bench will be constructed to capture run-off, which will be diverted to a sediment pond (see below). All ash placement will take place within this perimeter bund, which will also define the Project site footprint.

Item	Description
4	**Water Management System** **Clean water diversion drain** A clean water diversion drain will be constructed around the base of the existing hillside south west of Lamberts North. The drain will divert clean water away from the existing ash repository placement areas and will be directed to the west and into stormwater drains within Mount Piper Power Station. This water will report to a reed bed to the north-west corner of the Mount Piper Ash Repository, discharging downstream of LDP01 at Neubecks Creek. It will be approximately 1.6km long in total, including a new section of drain designed in accordance with the Consistency Report (SKM, 2012). **Sediment pond (for stormwater containing sediment)** A lined sediment pond will be constructed at the south eastern edge of Lamberts North, with an outlet weir and channel. Located approximately 1m above maximal water table, the base of the pond will be lined with an impervious layer with an approximate volume of storage of 10,000 m^3. Any overflow from this first sediment pond will be routed via the weir and captured in an existing basin east of the first pond, which has a capacity of approximately 14,700 m^3. Water contained in these ponds will be used for dust mitigation purposes during the ensuring ash placement phase of Lamberts North. **Ash water storage pond** A 'dirty water' (ash) pond will be constructed within the excavation area as required for use during operation, to capture water that has come into contact with ash. This is an operational activity which is outside the scope of this CEMP and which will be covered by requirements set in the OEMP.
5	**Huon Gully drainage** Earthworks to re-grade/re-profile the existing landform will be undertaken within Huon Gully to provide the foundation for subsequent ash placement. Site-won spoil placed into e Huon Void will be graded, shaped and compacted at a level no less than 4m above MGL. The regraded profile will drain surface water away from the Huon Void to the south-east, into the new lined sediment pond. Dewatering of existing water within the Huon Void will occur prior to construction.
6	**Temporary rehabilitation and stockpile remediation** Excess material will be stockpiled in an agreed area on Delta land. This material will eventually be used for permanent capping of all finished areas of exposed ash, during revegetation and rehabilitation activities (in accordance with the OEMP). Temporary rehabilitation will be undertaken on stockpiles to be used for capping to ensure stabilisation during the operational period in accordance with the Soil and Surface Water Management Plan (Appendix 1).

Although not relevant to this CEMP, it is helpful to understand the nature of the ash placement that will occur after construction has been completed. Ash placement in Lamberts North will be constructed in the same manner as the Mount Piper Ash Repository, with typically 1(V):4(H) side slopes, and approximately 10 m wide benches constructed for each 10 m vertical height. The finished surface of Lamberts North is anticipated to vary from RL960 to RL982 m AHD, with the exposed ash areas progressively capped as areas reach their eventual design elevations.

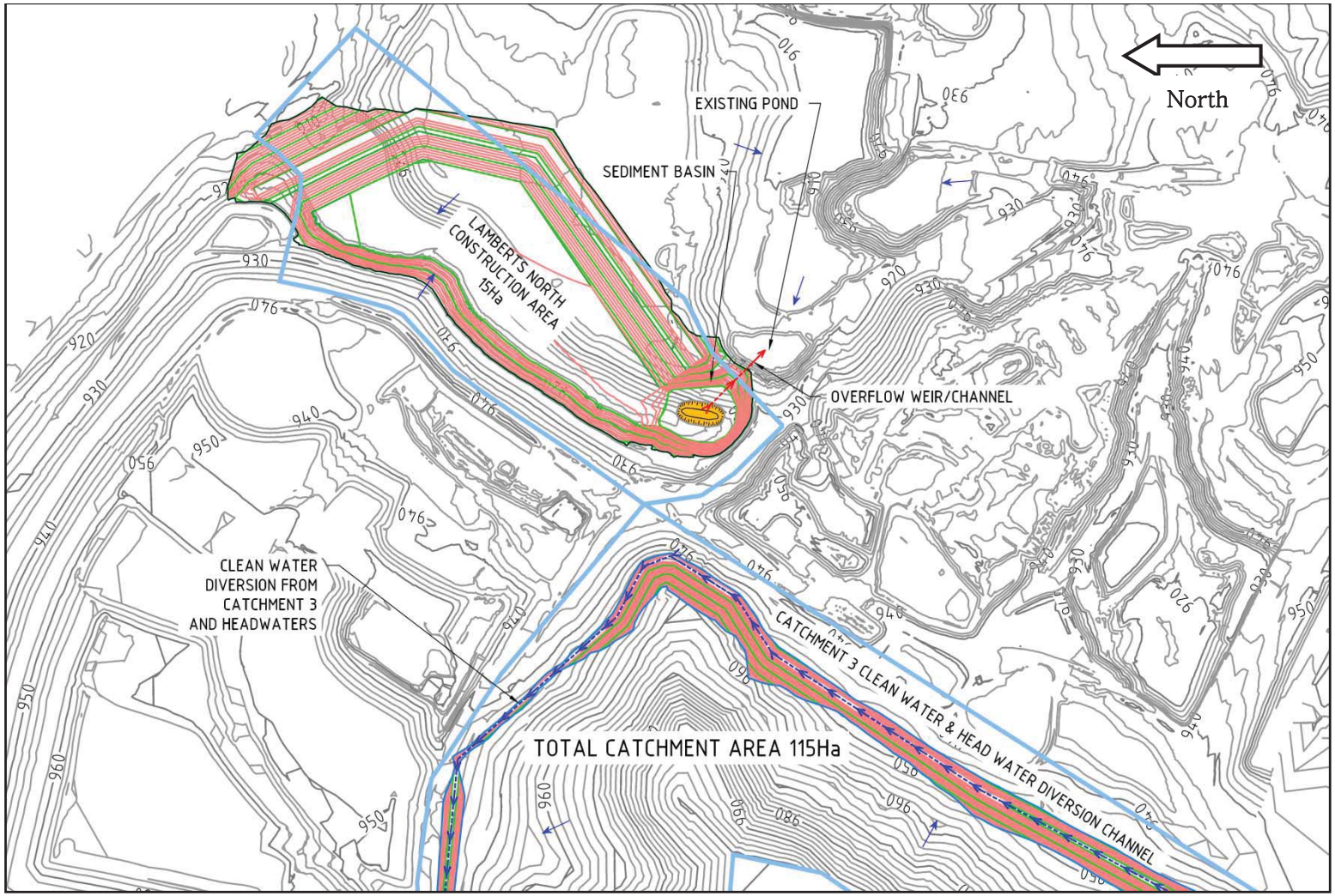


Figure 4-1 Concept Water Management System at Lamberts North

4.2 Construction activities

A geotechnical report[5], compiled by CDM Smith for Delta, indicated that the spoil and overburden material on site consists of sand/rock mix with a variable amount of silt and clay fines and occasional coal remanent. It will be used for construction of bunds and foundation layers, and will be stockpiled for reuse for capping of final ash layers. No materials will be removed from the site or are required to be transported to the site for construction purposes.

At this stage it is estimated that approximately 430,000 m^3 of materials within Lamberts North will need to be excavated or used during construction, of which about 420,000 m^3 will be required for fill and capping purposes. There will therefore generally be a cut-and-fill balance within the Project site, to the effect that a similar volume of material will be allocated for construction and operational purposes as is available on site.

The approximate quantities are as follows:

- Fill for Huon Void and preparation of the base layer: 195,000 m^3
- Fill for creation of perimeter bunds: 35,000 m^3
- Fill set aside for capping: 190,000 m^3
- Excess cut: 10,000 m^3
- Total: 430,000 m^3

Earthwork re-grading will be undertaken with suitable earth moving plant. Stockpiling and/or hauling of materials will be undertaken across the site, graded to required surface levels and compacted using compaction equipment or dozer tracked equipment. The Stockpiles will be located in the Lamberts North precinct within the boundaries of Lot 9 DP804929 (centred at N 150°2'48' E 33°21'47"S.

Stockpiles will be regularly compacted (particularly on weather exposed faces) using machinery to minimise soil becoming water charged leading to collapse or erosion (refer to sub plan Table 4-6 Item 7) and treading the stockpile face to mitigate face erosion (refer to Sub Plan Table 4-6 item 19). Any excess water from stockpiles will be directed towards the existing sediment pond located onsite. Refer to Appendix 1, Section 4 Soil and surface water management plan (Table 4-6) for more mitigation measures.

The engineered perimeter bund will be constructed by hauling suitable materials to proposed fill areas. These will initially be spreading them with dozers and/or graders and compacted using suitable compaction equipment to the required fill density. Subsequent layers of fill will then be spread and compacted in the same manner to achieve the required design levels.

The haul road into the Lamberts North site will be created in the same manner as that undertaken for existing ash placement activities at Mount Piper Ash Repository. This haul road will be approximately 12 m wide or three times the width of the largest vehicle, with road grades of less than 10%. Bottom ash from the boilers at Mount Piper Power Station will be used for construction of the haul road, thereby re-using material and removing the need for the use and transport of off-

[5] The Geotechnical Report will be submitted to DP&I prior to commencement of operations in accordance with Condition D4.

site materials for road construction. The haul road for ash transportation to Lamberts North is further discussed in the Ash Transportation Plan (Appendix 2) and identified in Figure 4-2.

To cater for the contractors working on site, site compounds will be temporarily installed including a site-safe modified shipping container and portable lavatory within the Lamberts North precinct. Other site compounds including offices will be located offsite, in the Mt Piper Power Station precinct.

Lamberts North Project

Figure 4-2 Proposed Haul Road

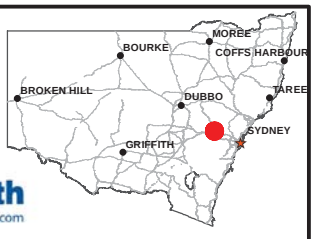
Legend

- Road
- Watercourse
- Former Watercourse
- Proposed Haul Road
- Ben Bullen State Forest
- Project Site - Lamberts North
- Lamberts South

0 50 100 200

Metres

N



Data Source:
Roads and watercourses by GA, 2011;
DCDB & forest by Land & Property Information NSW Govt, 2012;
Base Image by Bing Maps.

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Job: S12382.01_010-R7_haulrd
Date: 30/11/2012

4.3 Hours of construction

CoA C3 restricts the hours of hours of construction activities at the Project site to:

- 7:00 am to 6:00 pm Monday to Friday, inclusive.
- 8:00 am to 1:00 pm Saturday.

No construction is to occur on Sundays or Public Holidays.

Under Condition C4, construction activities outside these times are permitted in the following circumstances:

- Where construction activities do not cause audible noise at any sensitive receiver.
- For the delivery of materials required outside these hours by the Police or other authorities for safety reasons.
- Where it is requested in an emergency to avoid the loss of lives, property and or/prevent environmental harm.

On occasion, works outside these hours may be required. The hours of construction provided above may be varied with written permission of the Director General. Any request to alter the normal construction hours (as specified above and in Condition C3) would have to be accompanied by details of the nature of and need for activities to be conducted during the varied construction hours, and include the information necessary for the Director-General to reasonably determine that activities undertaken during the varied construction hours will not adversely impact on the acoustic amenity of sensitive receivers in the vicinity of the site.

Any works undertaken outside normal hours of operation will require community notification. Under those circumstances, the Construction Contractor will provide the scope of the activities to be undertaken and details of the measures to be taken to mitigate potential noise impacts. Delta will advise the community of these activities in accordance with its Community Information Plan.

4.4 Waste Management

During construction two types of waste will be generated, namely Domestic and Construction. These have been explained in more detail below.

Domestic Waste

The project will generate a small quantity of domestic waste, through use of the site compounds such as rest breaks and people using the office for administration purposes. A toilet will also be available to construction workers inside the compound and/or as separate individual laboratory and will generate sewerage which will be pumped out when required and taken offsite

All domestic waste that is generated onsite will be removed from the site and disposed through Delta's NSW Government Waste Reduction and Purchasing Policy (WRAPP) program. This program has 28 waste streams which are sub-divided into two waste areas including recyclable materials and waste processed under the EPA guidelines and Delta's Environmental Protection Licenses.

As well as abiding by the EPLs, Delta is also required to provide progress reports to the NSW Office of Environment and Heritage in accordance with the NSW Government Waste Reduction and Purchasing Policy (WRAPP) every year (Sustainability report, 2011).

Delta's WRAPP report complements its Corporate Standards and Regional Waste Management Plans that include a significant waste reduction and purchasing strategies. The plan applies to all employees and contractors employed at Delta sites and facilities and sets out the requirements for the management of waste and the purchase of materials (Sustainability report, 2011).

In addition, WRAPP finds ways to reduce waste and make more sustainable purchasing decisions. To achieve this, Delta and is contractors are required under the WRAPP program to find ways to identify and implement waste avoidance, minimisation, reuse and recycling strategies in line with the NSW Governments Waste Reduction and purchasing policy Guide (1997).

By following the WRAPP program Delta has been able to recycle a number of items which are not limited to but include:

- Cardboard & Paper recycling
- Waste Oil
- Grease
- Oil Filters
- Toner Cartridges'
- Waste timber
- Ferrous Metal
- Non Ferrous Metal
- 200 Litre drums
- Lead Acid Batteries
- Grease trap
- Florescent lights
- Document disposal
- Cooking oil
- Oily water
- Plastic Drums
- E-Waste

Subsequently, hazardous substances are disposed of in accordance with Delta's standards, procedures and legislative requirements.

Construction waste

A small quantity of waste material generated from construction activities will be taken offsite and deposed of in accordance with Delta's WRAPP program. The most likely materials of waste that would be generated include but are not limited to the following:

- Pond liner wrapping
- Packaging materials
- Scrap metal
- Formwork, pallets
- Plastic wrapping and cardboard.

The mitigation measures for construction works have been outlined throughout the sub-plans, as waste generally has an impact to all areas. However, sub-plan Table 6-5 refers to vegetation chipping reuse on batters and permitter bund and Table 4-6 outlines stockpile mitigation measures.

Section 5 Environmental aspects

The CoA requires several environmental aspects to be managed throughout the construction phase of the Project. These aspects include noise, groundwater, soil and surface water, air quality, aboriginal heritage and flora and fauna.

This section of the CEMP provides a brief description of the existing environment and mitigation measures and monitoring regimes for each environmental aspect. It is based on Sub-Plans relating to each of these subjects, which have been developed to respond specifically to the environmental requirements contained in the CoA (see Appendix 1).

Cumulative impacts for each environmental aspect are included in the section of the Sub-Plans relevant to each.

5.1 Noise management

The Project Approval requires the preparation of a Construction Noise Management Plan (CNMP) to protect and minimise noise impacts as a result of construction of the Project. Relevant CoA include B5(a) and C6. The CNMP is provided in Appendix 1 (Section 2).

As Section 4 identifies, construction in anticipation of ash placement will involve the use of various items of heavy machinery. However, most activities will be undertaken within the former mining void, including Huon Void and Huon Gully, which will considerably reduce the noise travel to sensitive receivers (residential properties).

The nearest sensitive receivers to the site are Blackmans Flat (approximately 1.1 km east of Lamberts North) and Wallerawang (approximately 3.3 km east). Noise monitoring undertaken for the EA identified the greatest influence on background noise was road traffic on Castlereagh Highway (SKM 2010 and SKM 2011). Noise modelling was also undertaken to determine potential construction impacts.

The noise objective specified in CoA C6 for the project is designed to manage noise for construction activities, which should not exceed 46 dB(A) at private residences at Blackmans Flat and 43 dB(A) at all other private receivers, as measured by $L_{Aeq\ (15\ minute)}$ descriptor. Noise modelling predicted that the ambient noise levels, distances from the site to the identified sensitive receivers, and topographic shielding from works predominantly being undertaken in the void of Huon Void, would result in noise levels below the project noise goals at receivers (SKM 2010).

Notwithstanding this outcome from the noise modelling predictions, additional mitigation measures are proposed. These include:

- All construction activities will be undertaken in accordance with the hours of operation specified in the CoA.
- Rubber tyred equipment will be used where possible.
- Proper maintenance and operation procedures to minimise nuisance noise emissions from equipment will be put into effect, including maintenance of exhaust systems on equipment.
- Plant reversing alarms will be maintained at the minimum safe level.
- Speed limits will be imposed for heavy vehicle traffic on the haul road.

Operator-attended noise monitoring will be undertaken to test noise levels of key plant and equipment upon commencement of the Project, and at least one monthly, as detailed in the CNMP. Formal external complaints will be recorded and investigated; and noise monitoring will be conducted if deemed necessary.

5.2 Groundwater management

Groundwater modelling and monitoring commenced at Lamberts North in July 2012. Results to date have shown that the groundwater in the spoil in the Huon Void area of the site flows in a north easterly direction (the shallow aquifer is at least 4m below ash placement); whereas at the south end of the site, groundwater has been identified in an unconfined perched aquifer, flowing through a sandstone formation in a south easterly direction (the deep aquifer is 35m below ash placement). The groundwater model identified the shallow aquifer level varies across the construction site and does not run parallel to the existing or design surface levels. The aquifer on the northern end of the site is at a nominal height[6] of RL910m AHD with the southern end of the site being at a nominal height of RL912.5m AHD. Refer to section 3.3 regarding the conclusions identified in the groundwater modelling report.

Huons Void will be dewatered prior to construction by pumping the water onto the existing Mt Piper Ash repository for dust suppression purposes. On this basis, the following measures will be undertaken:

- Capture all site dewatering for re-use on the Mount Piper Ash Repository.
- Dewater progressively to minimise drawdown.
- Dewater to a level that will permit earthworks to proceed.
- Direct surface runoff away from excavations in order to minimise the need to dewater them.

Once constructed, Huons Void, will be at a level well above groundwater levels, even under extreme weather events. As groundwater and the ash placement area will be vertically separated groundwater is not anticipated to be affected by ash placement.

A geotechnical report (2012) for Lamberts North confirms that compacted site-won material will be suitable for foundations for the ash placement and will not have any adverse impacts on groundwater, as it has a low impermeable rate and groundwater is at least 4m below the ash placements surface.

The site-won material used for the foundation layer was tested by a geologist that recommended that any spoil and overburden soils that are placed during site regrading and berm construction be placed in lifts of no more than 400 to 500mm and that each lift be compacted using heavy (approximately 15 tonne) vibratory roller.

In accordance with CoA B5 (b) (iii) and B3, a groundwater monitoring network has been initiated for the Project, with two rounds of monitoring to be undertaken prior to construction as described in the Construction Groundwater Management Plan (CGMP in Appendix 1). Nine groundwater wells (four existing wells plus five new wells), known as the MPGM4 series, have been established

[6] Groundwater levels vary during periods of extended rain when groundwater levels naturally rise, or periods of drought when groundwater levels fall. The groundwater model identifies the Maximum Groundwater Level to be 2.5m above the 'nominal' or 'normal' groundwater level.

to enable the long term monitoring of groundwater levels and quality to determine seasonal groundwater fluctuations and potential impacts from construction and longer term operation of the Project.

In addition, there are 3 private bores located within 3km radius from Lamberts North which are primarily used for stock and domestic purposes. Based on the groundwater model, it has been predicted that construction works will have no impacts on groundwater, thereby having no influence or impacts on neighbouring bores.

5.3 Soil and surface water management

The Project Approval requires the preparation of a Construction Soil and Surface Water Management Plan (CSSWMP) to minimise impacts on the surface water environment resulting from the construction of the Project. Relevant CoA include B5(c) and C10 to C13. The CSSWMP is provided in Appendix 1 (Section 3).

Waterways in the vicinity of the Project site include Neubecks Creek, which is the nearest watercourse to Lamberts North, and Coxs River. The hydrology of the Project site itself has been greatly disturbed by past mining activities with physical changes to its landform and geology. As a result, the former Lamberts Gully and Huon Gully consequently no longer represent 'natural' hydrological systems.

Potential impacts arising from construction activities as described in Table 4-1 include soil erosion and sediment transport, increased nutrient, sediment, salt and other contaminant concentrations in receiving waters, and modification of overland flow paths. These impacts will be managed by implementation of the measures detailed in the CSSWMP.

Management measures to minimise erosion and control sedimentation during construction will be put into place by the contractor and undertaken in accordance with the CoA.

A concept Erosion and Sedimentation Control Plan (ESCP) has been developed as part of the Water Management System (WMS) for the Project. It will ensure that appropriate controls will keep clean stormwater separate from water that has come into contact with sediment on site during the construction period. Clean water is runoff from the surrounding catchment that has not come into contact with the Lamberts North Project area. Sediment ponds and diversion drains have been designed to minimise water being discharged from the site and which has been in contact with construction materials within the site perimeter.

The ESCP is included in the CSSWMP (Appendix 1). Mitigation measures such as erosion and sediment controls and implementation of the WMS will be implemented in accordance with CSSWMP.

Surface water management

Water management CoA will be met by implementation of the WMS, which has been designed to keep clean and sediment-laden water separate during the construction period and subsequently operation. In accordance with the CoA, the water management for the Project will be undertaken using the following general principles and shown in Figure 4-1:

- Stormwater runoff from undisturbed (un-mined) areas surrounding the Project site will be diverted away from disturbed areas (mined and/or ash placement areas) via a new clean water diversion drain to the south-west of Lamberts North.

- Sediment-containing stormwater will be directed to a sediment pond located at the south eastern edge of the site, and kept separate from other sources of polluted water on the site such as the ash placement areas (after the commencement of operational activities).
- Water from the sediment pond will be re-used to meet demands for water supply during construction and for dust suppression during the construction period (and subsequently).

The filling in of Huons Void will have no impact on water availability onsite, as the water from this void has never been used for Delta's operation. Delta only acquired Lamberts North in February 2012 which includes Huons Void. Delta believes that the previous owner may have historically used the void as part of its own water balance systems, but Delta has never required this water for its operations since acquiring the land. .

In regards to availability of water supply for the Lamberts North, Delta has ample amounts of water available, even in time of severe dry periods. These include:

- Delta maintains three major dams providing 65,800 Ml of water for Mt Piper and Wallerawang Power Stations. Thompsons Creek Dam, Lake Lyell and Lake Wallace are the primary source of water, with a supplementary supply available from Springvale Mine.

- Delta's two western power stations require 50 ML of water daily to operate; 46 ML is evaporated via the cooling towers, with the remaining 4 ML of water being received as blown down available for power station purposes, including providing a supplementary water supply during extreme dry periods.

In summary, Delta has sufficient water to run both western power stations, and has adequate supplementary water supply available for operational use at Mt Piper and Wallerawang ash repositories. It is worth noting that over the last 60 years of continual power generation Delta has never run out water and continues to successfully produce electricity for NSW residents.

As required by CoA B5 (c) (x) and as described in the CSSWMP, a Stormwater Management Model (SWMM) flood model was undertaken to model rainfall events for up to a 1-in-100 Annual Exceedance Probability (AEP). The clean water diversion channel has been designed to transport water during an event up to 1 in-100 AEP, and will be maintained throughout operation. As water is being diverted north and west away from Lamberts North, rather than being diverted via Lamberts Gully as indicated in the EA, a geomorphic assessment of Lambert's Gully is not required to be undertaken.

The sediment pond located in Lamberts North will have an estimated 10,000m^3 (10ML) capacity. It has been designed in accordance with the Managing Urban Stormwater: Soils and Construction Guidelines (Landcom, 2004) and Best Practice Guidelines for Erosion and Sediment Control Guidelines (IECA, 2008) for the construction phase. The drainage at the base of the ash placement area will be graded to the south east towards the pond, which will capture sediment laden water running off the catchment area. An existing sediment pond, located directly adjacent to the pond described above, will be used to capture any overflow and prevent discharge from the site onto adjoining (Delta-owned) land. Any sediment pond water that comes in direct contact with ash, will be considered dirty water and will be reused on site. In addition these ponds will be lined with a material of low permeability, to reduce the likelihood of any future groundwater contamination.

The perimeter bund which will be constructed around the northern and eastern perimeter of the site will also act as a water diversion structure. The embankment will be typically constructed with 1V:3H bank to EL 928 m. A swale will be placed on the inside top edge of the bank, with the outside bank 5% higher than the inside to ensure that water drains inwards towards the site, and

is ultimately directed to the sediment pond. This will ensure that sediment-laden water is not discharged into the environment.

In accordance with CoA B5 (c) (xi), a monthly surface water quality monitoring program has been developed for three locations in Neubecks Creek as detailed in the CSSWMP, including:

- LDP01. This is the most upstream location from the Project site. LDP01 is the Delta's licensed discharge point which is the power station site runoff holding pond constructed on Neubecks Creek.
- NC01. Downstream of the confluence of the northern and western branches of Neubecks Creek (between LDP01 and WX22).
- WX22. This located downstream of the existing ash placement facility and Huon Gully.

Delta has monitored the water quality of Neubecks Creek at LDP01 and WX22 for over ten years. Baseline values as determined from median of the water quality results obtained during this period are provided in the CSSWP. Water quality results obtained during the construction period will be compared against these long-term baseline values and ANZECC guidelines (2000).

Erosion and sediment controls will be monitored daily by site personnel, and during weekly environmental inspections and following rain events, to ensure effectiveness of the mitigation measures.

5.4 Air quality management

The Project Approval requires the preparation of a Construction Air Quality Management Plan (CAQMP) to minimise air quality impacts as a result of construction of the Project. Relevant CoA include B5 (d) and C7. The CAQMP is provided in Appendix 1 (Section 5).

The nearest sensitive receivers to the Project site are residential, Sensitive Receiver No.1 and No.2, located at Blackmans Flat approximately 1.1 km to the east of the Project site. Receiver 8 is located approximately 1.8km to the south west, on the Castlereagh Highway, Wallerawang.

The EA found that the existing air quality around the Project site has the potential to be influenced by many sources including local construction and agricultural activities, vehicles on unsealed roads, operations at Mount Piper Power Station, the nearby Wallerawang Power Station and the existing coal mining operations. Particulate emissions are currently controlled at Mount Piper Power Station by highly efficient fabric filter bag houses with dust effectively controlled through compaction and treatment processes (SKM, 2010).

Air quality during the construction period dust and vehicle fumes, will be managed to reduce and mitigate any environmental and health impacts. Potential air quality impacts during the construction phase may arise from dust generated by clearing and grubbing, excavation activities, disturbance of exposed surfaces, wind erosion and dry weather conditions, as well as emissions from vehicle movements on the haul roads and machinery.

Delta operates all of its assets under the relevant Environment Protection Licences (EPLs). Specifically, Mount Piper Power Station is required to meet the conditions of EPL 13007. The conditions within the EPLs, including the implementation of appropriate controls and requirement for monitoring, require the premises to be maintained in a condition which minimises dust or prevents emissions of dust from premises.

The implementation of appropriate controls and mitigation measures during the construction of the Project, combined with existing mitigation measures undertaken at Mount Piper Ash Repository under the EPL, will ensure that dust concentration and deposition levels are minimised.

The following mitigation measure will be implemented to reduce the likelihood of air quality complaints.

- Exposed areas (particularly haul roads) will be watered during construction as required.
- Speed limits for light vehicles on unsealed roads will be limited to a maximum speed of 40 km/hr on haul roads or as sign posted.
- Land disturbance will be restricted to clearly defined work areas.
- Diesel fuelled equipment will be regularly serviced and maintained to ensure compliance with design emission standards.
- There will be no burning of cleared vegetation.
- All complaints about dust will be logged in a register and promptly investigated.

Dust suppression using water collected from, initially, Huon Void and subsequently from water storage ponds, will reduce air quality impacts on nearby receptors. Long-term stockpiles (to be used for capping) will be stabilised with mulch, seeding, or other organic materials as specified in the CSSWMP.

For the current operations at the Mount Piper Ash Repository, the contractor (Lend Lease) has installed six dust deposition gauges. These are located around the perimeter of the power station, and at sensitive receptors at Blackmans Flat. One Tapered Element Oscillating Microbalance (TEOM) automated continuous particle monitor, used to measure PM_{10} particulate data, is located at Mount Piper, and one ambient monitor (high volume) is located at Blackmans Flat to measure PM_{10} and $PM_{2.5}$. Delta uses data from these units to analyse and measure these results against the EPL criteria. As part of the due diligence programme, this data will be available to the contractor undertaking construction at Lamberts North for use in the CEMP compliance program.

A weather monitoring station is also located at Mount Piper, which will be used during construction of Lamberts North to determine potential air quality impacts at nearby receptors, and for incident investigation in the event of an air quality complaint being received. All monitoring is reported monthly and will be made available to those engaged in the Project.

The location of the air quality and meteorology monitoring stations is shown in Figure 5-1 of the Sub Plans (Appendix 1, Section 5).

5.5 Flora and fauna management

The flora assessment identified that the site is almost completely devoid of all vegetation due to past mining activities. However, there is a regrowth area of some 5 ha within Lamberts North, on the mullock heap near Huon Void. Some of this vegetation may be up to only five years old.

Construction of the Project will require the removal of the regrowth area. Delta will not require a permit under the *Native Vegetation Act 2003* to clear regrowth vegetation within the construction area boundary, as the regrowth on mined surfaces and mullock heaps was established after the specified date of 1 January 1990. Some non-native vegetation may require removal for the

construction of the clean water diversion drain. Should vegetation be required to be removed, measures are provided in the Construction Flora and Fauna Management Plan (CFFMP) to ensure vegetation is surveyed and quantified prior to removal. There will be no clearing of established or boundary vegetation outside the project boundary. Management of flora and fauna will be undertaken under the in CFFMP (Appendix 1, Section 6).

No threatened or listed fauna were identified within or immediately adjacent to the Project site during the fauna survey undertaken during the EA investigations (SKM, 2010).

5.6 Aboriginal heritage

There are no Aboriginal Heritage sites located within the Lamberts North project area.

Intensive archaeological surveys were conducted in and around the Lamberts North site prior to the commencement of open-cut mining over twenty years ago (OzArk 2010). A number of previously recorded sites have been destroyed (under permit) through mining or other land uses, or were permitted to be destroyed at the time of the EA development.

Complete disturbance of previously recorded sites within the Lamberts North Project boundary was confirmed through a site visit by an archaeologist and a representative of the Bathurst Local Aboriginal Land Council (BLALC) in March 2010 (OzArk 2010). No new sites were found during this visit.

The two remaining identified extant sites do not fall within the Project boundary, and have been assessed in the EA as being not likely to be affected by activities within the Project boundary at Lamberts North. Delta recently carried out an Aboriginal Heritage Information and Management System (AHIMS) survey as part of its Land Management Plan. The survey concluded that there were no Aboriginal areas of significance in the Lamberts North area.

In the event that matters of heritage significance or human remains are found, the measures described in the Project Aboriginal Heritage Management Plan (AHMP – Appendix 1, Section 7) will be implemented.

5.7 Ash transportation

The alignment of the initial haul road into the Project site and extending from Mount Piper Ash Repository is shown on Figure 4-1. An Ash Transportation Plan has been prepared and is provided at Appendix 2.

Section 6 Environmental management approach

6.1 Management structure

All staff, sub-contractors and suppliers for the Project will display a commitment to managing the environment whilst engaged in working on the Project. The Construction Contractor (CC) will be responsible for implementing and managing the CEMP on the Project.

The following roles and responsibilities will be further refined in consultation with the successful contractor, prior to construction.

The specific areas of responsibility of environment personnel are summarised as follows:

- Delta is the Owner of the Project.
- Delta will appoint a Project Superintendent.
- The verification function will be performed by the ER appointed in accordance with CoA B1.
- The Contractor's Project Manager (CPM) and Site Manager (CSM) are responsible for all aspects of construction in accordance with the CEMP.

Compliance checking by the Project Superintendent and CSM will be a feature of the EMS. The CSM will prepare and submit a monthly report detailing compliance with the CEMP, and will identify corrective actions for any deviation from the CEMP. This process is intended to allocate suitable responsibility for the achievement of environmental objectives during the construction of the Project, and lead to greater accountability at all levels.

6.2 Responsibilities and authorities

There are several roles and responsibilities relevant to the implementation of the CEMP, as described in Table 6-1.

Table 6-1 Project roles and responsibilities

Roles and Responsibilities
1. Owner (Delta)
Delta is ultimately responsible for all Project environmental outcomes including: ▪ Liaising with government and regulatory agencies in regard to statutory requirements and contracts. ▪ Ensuring environmental risk management is incorporated into all project processes. ▪ Establishing lines of control and assigning environmental responsibilities and accountabilities to Delta project personnel. ▪ Ensuring overarching systems are provided for risk management, health, safety and emergency measures. ▪ Ensuring Environmental Management aspects are incorporated into Project design, procurement, contracts management, planning/ scheduling and construction. ▪ Ensuring environmental requirements are acknowledged and implemented for all relevant Project operations. ▪ Ensuring audits are carried out and outcomes are reviewed and actioned where required.
2. Project Superintendent (PS)
The PS will be responsible for administering the Contract. In doing so the PS will act fairly and be impartial when interpreting the Contract. In consultation with ER, the PS will assess Construction Contractor claims for payment in relation to achievement of Project environmental outcomes. PS responsibilities include: ▪ Assessment of Construction Contractor environmental workmanship quality. ▪ Assessment of Construction Contractor environmental performance to ensure compatibility and continued compliance with CEMP. ▪ Assessing compliance with project environmental requirements in accordance with CEMP for all relevant Project actions. ▪ Receiving and assessing Construction Contractor environmental audits, and requiring Construction Contractor corrective action if necessary.
3. Environmental Representative (ER)
The ER will be appointed by Delta and approved by DP&I as required by CoA B1. The ER's responsibilities include: ▪ Overseeing the implementation of all environmental management plans and monitoring programs required under the Project Approval. ▪ Advising Delta and the CPM (see below) about how to achieve these implementation outcomes during construction. ▪ Having the authority and independence to recommend to Delta reasonable steps to be taken to avoid or minimise unintended or adverse environmental impacts. ▪ Failing the effectiveness of such steps, recommending to Delta that relevant activities are to be ceased as soon as practicable, so that controls can be put in place to minimise environmental risk. ▪ Considering and advising when appropriate on Delta's compliance obligations relating to the CoA and Statement of Commitments.
4. Construction Contractor (CC)
The Construction Contractor has the responsibility of undertaking specific works for the Project and for ensuring that work is undertaken in accordance with this CEMP and Sub-Plans. The Construction Contractor reports to the PS on environmental matters. The Construction Contractor is responsible for: ▪ Undertaking all work in an environmentally responsible manner, in accordance with the CEMP and its Sub-Plans and legislative requirements. ▪ Informing and training its employees and sub-contractors appropriately to ensure compliance with this CEMP. ▪ Obtaining relevant approvals as required, which are related to specific methods of construction, and providing up to date copies to the PS. ▪ Undertaking environmental monitoring and reporting to the PS, and undertaking corrective actions as necessary. ▪ Maintaining environmental controls. ▪ Undertaking continual monitoring of environment performance to ensure compliance with the CEMP and Sub-Plans. ▪ Complying with Delta's policies, procedures and requirements during construction. ▪ Complying with directions and instructions issued by the PS. Ensuring that any suppliers or sub-contractors they utilise on the Project site are aware of, and comply with, the requirements of this CEMP.
4.1. Contractor Project Manager (CPM)
The CPM is responsible for executing contractual responsibilities including: ▪ Authorising and distributing this CEMP to all direct reports. ▪ Establishing the necessary policies, procedures and resources for implementing effective environmental

Roles and Responsibilities
management processes to meet the needs of the Project. ▪ Reporting to the PS regarding environmental or community incidents.
4.2. Contractor Site Manager (CSM)
The CSM will have overall responsibility and authority for the construction effort, and for determining all matters affecting the implementation of this CEMP, including: ▪ Supervising crew personnel and communication of the CEMP to site personnel. ▪ Performing surveillance and monitoring of environmental controls to ensure that they are established and maintained with requirements. ▪ Identifying and reporting actual and potential environmental non-conformance, and notifying the PS of the suspected actual or potential non-conformance. ▪ Carrying out the agreed rectification works after identification of non-conformance. ▪ Completing environmental surveillance activities in the Site Diary as required. The CSM may also fill the role of the Construction Compliance Officer (CCO) and reports to the CPM. In this capacity, the CSM's responsibilities include: ▪ Ensuring that the CEMP is correctly implemented to meet the requirements of the Project. ▪ Liaising with Project staff in the monitoring of environmental controls. ▪ Preparing environmental procedures if required. ▪ Undertaking environmental monitoring and reporting. ▪ Ensuring that non-conforming environmental controls and practices are undertaken and reported. ▪ Identifying and documenting environment system problems. ▪ Reviewing environmental activities in Plans, Project Forms and Checklists. ▪ Registering and investigating environmental complaints. ▪ Assisting in external audits. ▪ Leading or assisting in the auditing and/ assessment of suppliers and sub-contractors. ▪ Ensuring appropriate environmental training is provided to all Project personnel during inductions, tool box sessions, pre-start meetings etc.

It should be noted that the roles of the Construction Contractor, CPM and CSM/CCO may be combined into one, and therefore that there may be only one person responsible for the activities required.

6.3 Resources and training

Prior to commencing construction works, Delta will induct all personnel working on Lamberts North. The Construction Contractor will be required to implement its own approved Occupational Health and Safety (OH&S) Management Systems whilst on site, as part of its contractor management conditions.

The Construction Contractor will be required to record all incidents, mishaps and hazards, and to report to Delta on these matters during a monthly compliance meeting.

The CPM will identify resources for the following environment activities:

- Monitoring and inspecting site environmental controls.
- Developing any site-specific environmental procedures and plans (such as erosion and sediment control plans), work instructions, inspection and test plans (ITPs) and checklists.
- Controlling and filing documents relating to legislation, standards and environmental records.
- Auditing environmental practices and controls.

In the event of any revisions to the CEMP, the changes would be communicated to all staff. Induction program or toolbox topics will relate to tasks or activities being carried out in the relevant work areas associated with the CEMP and its revisions.

6.4 Inspections and monitoring

Authorised personnel, for example the CSM, will perform monitoring and testing during the site establishment, construction and site demobilisation phases, in accordance with the relevant Sub-Plan. When carrying out monitoring or testing, the nominated staff member will ensure that the specific operation or construction functions are being performed in accordance with the referenced Sub-Plan, instruction, regulation and/or specification.

Monitoring of environmental impacts will be carried out in accordance with this CEMP and relevant environmental guidelines and legislation, and as detailed in the monitoring section of each of the Sub-Plans. Any non-compliance will be recorded and reported to Delta's Project Superintendent and the CPM.

All monitoring will be sampled by qualified personnel and analysis undertaken in a NATA accredited laboratory. Monitoring requirements for the various environmental aspects of the Project are detailed in the applicable Sub-Plans (Appendix 1).

Daily observational monitoring of site environmental conditions and impact control measures will be undertaken by the Construction Contractor. The Construction Contractor will record these and take action in accordance with the requirements set out in this CEMP.

Environmental site inspections, using a Weekly Environmental Inspection Checklist will be undertaken in accordance with the program outlined in Table 6-2 below and as outlined in the Sub-Plans. These measures will be implemented to ensure that construction is undertaken in compliance with the regulatory requirements outlined in the CEMP. The inspections may also identify areas where improvements to the environmental performance of Project construction can be achieved.

Any non-conformances identified following environmental inspections will be recorded on the Checklist, with follow-up action taken as specified in Section 6.6. Completed Checklists will be placed on the Project file and kept for auditing purposes and may be used in preparation of the Contractor weekly progress report.

Table 6-2 Environmental inspection programme

Potential impact	Parameters	Frequency	Reporting	Responsibility
General environmental impacts	Potential impacts listed in environmental Sub-Plans and the Environmental Risk Assessment	Daily	Daily Diary	Construction Contractor
		Weekly	Weekly Environmental Inspection Checklist and Monthly Reports	Construction Contractor
Erosion and sedimentation	Potential erosion, surface water pollution	After a significant rainfall event (e.g. >25mm in 24 hours)	Daily Diary	Construction Contractor
Air, noise and water	Various	As specified in Sub-Plans	Weekly Environmental Inspection Checklist and Monthly Reports Periodic Monitoring Reports	Construction Contractor Delta

All environmental inspection, measuring and testing equipment (including newly acquired test equipment) used for monitoring and inspection purposes will be controlled, calibrated and maintained in accordance with manufacturers' guidelines. A list of all environmental equipment and calibration used by the Construction Contractor will be kept on an Equipment Register.

6.5 Audits and reviews

In accordance with CoA B8 and as part of the EMS, an audit will be conducted at an appropriate time during the three month construction period. It will review Construction Contractor compliance with project environmental commitments specified in this CEMP and Sub-Plans. The audit will be conducted by an independent and suitably qualified person in accordance with Delta's ISO 140001 certified Environmental Management System (refer to table 2-2).

The audit will incorporate procedures for rectifying any non-compliance issues, and will provide a mechanism for recording environmental incidents and the subsequent actions taken. Audit findings will be provided in a report to the CPM and Project Superintendent, and corrective actions and verification will be undertaken within the specified timeframes. Results of the audit will also be discussed in management review meetings (see below) and communicated to appropriate personnel for action.

Results of the audit will be incorporated into the Monthly Environmental Compliance Report, and will also be incorporated into Compliance Reports provided to the Director-General (see Section 6.7). The ER will establish a reporting system with the Director-General in relation to reporting requirements stipulated in the CoA and general operational compliance at an appropriate time during the three month construction period. It will examine the effectiveness of the implementation of the EMS for the Project. This review meeting will address the following matters:

- Performance against Project aims and objectives.
- Results of audits, inspections, environmental monitoring and incidents, including any trends.
- Identification of requirements for any further mitigation measures.
- Review of mitigation measures in response to monitoring results (where non-compliance is identified).
- Resources and budgets.
- Outcomes of community consultation.
- New objectives and targets to promote continual improvement, where required.

Meeting attendees will include (as a minimum) Delta (Environmental Department representative or Project Superintendent), the CPM and CSM and/or their nominated representatives. A record of the meeting will be documented as minutes and maintained by the Construction Contractor.

6.6 Non-conformances and incidents

Non-conformances may occur when required management activities identified in this CEMP or in the CoA and other relevant legislation are not adhered to and could subsequently cause adverse environmental impacts. All potential or actual non-compliant activities (non-conformances) must be brought to the attention of the CSM and the Project Superintendent. The CSM is responsible for ensuring that the necessary corrective actions are satisfactorily completed.

In the event of non-conformance, the ER will be informed by the Project Superintendent, who has the authority to recommend to Delta reasonable steps to avoid or minimise unintended or adverse environmental impacts. Delta may be consulted as to whether to works should cease to avoid or minimise environmental impacts until the situation is rectified. Non-conformances must be documented and recorded, and, where required, corrective action must also be implemented. Tracking of environmental non-conformances and associated corrective actions will be the responsibility of the CSM or as otherwise delegated. This process will be tracked through Delta's Works Management System – Ellipse (refer to Table 2-2 for more information)

In accordance with CoA C1 and C2, any environmental incident at the workplace will be reported to and assessed by the Project Superintendent and CPM in conjunction with the ER. A detailed incident report shall be prepared.

Appropriate environmental management and timely identification of non-compliances will reduce the likelihood of the occurrence of incidents which could affect human health and safety, or environmental values. In the event of an incident, the general procedure to follow is:

- Depending on the severity of the incident, scale back or cease activity and inform the CPM who will advise on the required incident management approach.
- Control the incident.
- Remediate following the incident.

The Construction Contractor will immediately inform the Project Superintendent who will provide further instruction. All incidents will be documented, investigations conducted and action plans established in order that the event does not occur again.

An environmental investigation includes the following basic elements:

- Identifying the cause, extent and responsibility of the incident;
- Identifying and implementing the necessary corrective action;
- Identifying the personnel responsible for carrying out the corrective action;
- Implementing or modifying controls necessary to avoid a repeat occurrence of the incident;
- Recording any changes in written procedures required; and
- Advising Delta if any substantial pollution has occurred.

All personnel are required to report all incidents, as it is regarded as a valuable method of addressing shortcomings in procedures, training or equipment, and is an opportunity for improvement.

In case of an emergency the Construction Contractor is required to phone 555 or 6354 8316 in accordance with the Emergency response procedures (Section 6.9). However, if the environmental incident is not considered an emergency the first point of contact is the Contract Administrator, who will then provide further instructions on how to proceed.

6.7 Reporting

Three types of environmental reporting are required to be undertaken throughout construction, as summarised in Table 6-3 (relating to the environmental inspection program) and Table 6-3 (cyclical reporting).

Table 6-3 Reporting to be undertaken during the construction phase

Report Type	Responsibility	Inclusions
Monthly Environmental Compliance Report	CPM	A Monthly Environmental Compliance Report will form part of the Contractor's overall monthly Project Status and Compliance progress report. The report will include: ▪ Status of environmental activities such as monitoring and surveillance of controls, inspections and testing and incidents associated with the work during the preceding month. ▪ Complaints, infringements and penalties incurred. ▪ Status of environment implementation and document preparation / approval. ▪ Status of all non-conformances and corrective actions. ▪ Results of environment reviews and audits undertaken during the preceding month. ▪ Approvals status.
Weekly Report	CPM	A general project and progress report providing an update on project activities, status and events of importance. This report may include results of the Weekly Environmental Inspection Checklist.
Daily Diary	CPM	General site activities, including information about environmental issues, will be written into a Daily Diary. Priority environmental issues will be elevated to the ER via correspondence with the Project Superintendent, CSM and site personnel, which may be included in the monthly Environmental Reports.

Appropriate environmental management and timely identification of non-compliances will reduce the likelihood of the occurrence of incidents which could affect human health and safety, or environmental values.

In the event of a release of contaminant, spill or leak of hazardous material the general procedure is provided in Section 6.6. Emergency response procedures are listed in Section 0.

In the event of an environmental incident, the Director-General shall be notified within 12 hours of becoming aware of the incident (in accordance with CoA C1).

A full report to address the cause or impact of any environmental incident will be provided to the Director-General by Delta within seven days of the date on which the incident occurred.

All incidents will be documented, investigations conducted and action plans established in order that the event does not occur again. Any environmental investigation will include the following basic elements:

- Identifying the cause, extent and responsibility of the incident.
- Identifying and implementing the necessary corrective action.
- Identifying the personnel responsible for carrying out the corrective action.
- Implementing or modifying controls necessary to avoid a repeat occurrence of the incident.
- Recording any changes in written procedures required.

- Advising Delta of the incident.

All personnel are required to report all incidents, as it is regarded as a valuable method of addressing shortcomings in procedures, training or equipment, and is an opportunity for improvement.

It is their responsibility of the CPM and the CSM and to ensure that all environmental incidents are provided to the Project Superintendent, and are reported and documented on an Incident Report Form.

6.8 Complaints management and community information

In accordance with CoA B4 (i), Delta is required to provide and implement a complaints handling procedure during construction. Delta has an existing complaints handling procedure as part of its EMS, which it will implement during both construction and operation of the Project in accordance with the terms of CoA B11 and B12 (refer to section 2 for EMS information).

Similarly, Delta has prepared and will implement a Community Information Plan in accordance with the terms of CoA B13. Delta will also comply with the terms of CoA B10 in respect of community information and complaints management. The Plan identifies key stakeholders, communication tools, channels and timetable for provision of information.

In addition to the Communication Plan, Delta's Management Team regularly meet on a quarterly basis, with a group of people from the local community commonly referred to as the Western Community Reference Group. This group of people consists of members of local organisations including Rotarians, environmental groups, Bush care, volunteers and interested parties. Delta management are able to provide the community with information regarding new and upcoming projects. In addition they are also able to provide any feedback that may be of concern to the community. Delta has consulted with the group regarding Lamberts North and no discrepancies have arose.

Delta has a project webpage available on their website www.de.com.au regarding the Mt Piper Ash repository Extension, which will be updated prior to construction with suitable phone numbers, including afterhours numbers and addresses. This provides an additional avenue for community members to make a formal complaint.

6.9 Emergency management measures

CoA B4 (j) requires that emergency management measures are provided in the CEMP. Potential environmental emergency situations could arise from a variety of causes, directly or indirectly related to project works. Possible project hazards/emergency situations include events such as bushfires, floods, hazardous material spill, explosion, medical emergency/industrial accident, or storm and tempest.

Delta has an established Environmental Emergency Response Plan for Mount Piper and Wallerawang Power Stations. This overarching plan will be followed in case of an emergency at Mt Piper. The Emergency Response Plan will be included in all Project inductions, specifying the steps to be taken and the parties/persons to contact will be highlighted in the site induction. Any personnel identifying an emergency should dial 555 or 6354 8316 for a mobile phone to alert the Delta Emergency Response team.

In the event that contaminants are released, the Project Superintendent should be called in the first instance. The Project Superintendent will be responsible for calling the EPA if deemed necessary.

Access to Materials Safety Data Sheet (MSDS) information will be made available at the main site office: and, where appropriate, at specific locations where specified substances are being used.

Delta's Bushfire Procedure is the overarching document for bushfire management, and should be referred to by the Construction Contractor to ensure procedures are followed to minimise risk of a bushfire event. In accordance with CoA B4 (j), as a minimum, the following measures will be employed to help ensure that bushfires are effectively controlled and managed:

- Fire extinguishers to be present in all site vehicles.
- Hot work will not be undertaken on extremely hot days (for example, more than 40 degrees Celsius).
- Excess rubbish will not be stored on site, with any waste contained in appropriately labelled receptacles.
- Mulch piles should be watered during hot weather to minimise potential fires.
- Water carts used for dust suppression will be used to extinguish fires.

Muster points

If any emergency services are required on site the requirements of Delta's Emergency Plan will be followed. This will include mustering at a designated area.

- The Evacuation Muster Points for the Project are the Mount Piper Ash Repository site shed. On arrival at the Muster Point, Team Leaders will account for all their team members and inform the Site Recorder.
- No site personnel will leave the site without permission.
- The Emergency Controller will coordinate the Emergency Response in accordance with Delta's procedures.

Section 7 Process management

7.1 Process planning and project risks

A list of environmental issues relating to the execution of the Project was identified during the Project planning stages. This was based on a combination of EA studies (SKM 2012a), risk assessments and approval requirements. The identified issues have been prioritised and evaluated, and suitable controls have been developed to mitigate the potential issues. These controls are outlined in the Sub-Plans (Appendix 1).

In order to calculate and assess the likelihood, consequences and risks relating to these environmental issues, and others that may emerge as the Project progresses, Delta will use its internal management system called "Know risk". This will allow mitigation of environmental risks in a practical manner.

In addition, the environmental Sub-Plans have been developed to address the planning and execution of specific environmental aspects on the Project. Each Sub-Plan includes sections detailing objectives, legislation and guidelines, performance criteria, mitigation measures, monitoring, corrective actions and reporting.

Environmental risk assessment processes have been developed by Delta, and are applicable to the Project. These are available from Delta as required.

7.2 Project Team communications

Effective Project communications are essential to the transfer of information between Delta, the Construction Contractor, Project Superintendent, ER, key stakeholders and agencies, and the community in general.

A Project Team will be formed, comprising all Delta staff involved in the Project's construction and the site staff working under the Construction Contractor. Although the ER is independent from the Project Team, that person is still considered to be part of the Project Team in terms of project communications, as the this person will need to be present during schedule activities (e.g. periodic audits) or as required by the Project Team and agencies.

Communications and interfaces between key internal stakeholders (Owner, sub-contractors and suppliers, employee representatives etc) in relation to environmental performance, incidents, project information, contractual matters, procurement, design queries, and customer feedback are detailed in Table 7-1.

Weekly Project meetings will be convened by the CPM to communicate the current status of the Project to Project Team staff, including the opportunity to discuss specific issues and concerns about the Project and forthcoming activities.

Table 7-1 Methods of internal communication

Method/ Medium	Frequency	Participants	Record
Tool Box meeting and/or Daily Work Team Briefing	Where relevant to a particular work activity.	Relevant project personnel and sub-contractors	Toolbox Meetings and/or Site Diary
Site meeting	Generally weekly	CPM /PS/ER/staff	Minutes
Monthly Environmental Compliance Report	Monthly	CPM/CSM	Report
Management Review	Monthly	CPM/PS/ER/staff	Minutes

External communications will be managed by Delta in line with the complaints management and community information procedures (Section 6.8).

Consultation with specified government agencies has been required for the development of this CEMP. Details of consultations conducted with relevant agencies are summarised in Section 8.

Community consultation will be undertaken if works are to be conducted outside the standard working times specified for the Project. There will be one-to-one communication with landholders and local residents, and distribution of project fact sheets within the vicinity of the Project. Continued communication will be maintained with the broader community as outlined in Section 8. Complaints will be handled in accordance with the procedures outlined in Section 6.8**.**

7.3 Execution and implementation of the CEMP

Project commencement

At the commencement of the Project, the CPM and CSM will establish a programme or schedule to address the systematic implementation of the activities and tasks set out in the CEMP, such as:

- Finalising Management System Procedures, forms and checklists.
- Acquiring or confirming relevant Licences, Permits and Approvals (if any).
- Establishing and implementing regulated work hours, including no working on Sundays and Public Holidays.
- Establishing a filing system for environment records.
- Defining the environmental requirements for sub-contracts and supplies.
- Establishing a training program for environment awareness and induction.
- Establishing communication with interested parties and inspection services.
- Establishing an environmental audit programme.
- Establishing environment reporting mechanisms with field personnel.

All works performed on the Project will be subject to verification to ensure conformance to contractual and legislative requirements. All sub-contractors working on the Project site will ensure they operate under the CEMP. The Construction Contractor will be responsible for ensuring that sub-contractors are inducted into the contents of this CEMP and operate within the CEMP framework.

On arrival at site all mobile plant and equipment will be checked for serviceability using pre-start checklists. Ongoing inspections of plant will be documented in Daily Inspection Log or Plant Maintenance Log books.

Electrical tools and machineries will be tagged and tested as required. The status of inspection of plant and equipment will be verified during safety audits. The Project Safety Officer, plant users or hirers of plant will be responsible for their control.

Project completion and demobilisation

Following commissioning and prior to demobilisation from site, the CSM or a Project staff member will identify the environmental issues associated with the finalisation of works such as waste disposal, air or dust contamination, noise, and contamination arising from storage of fuel and chemicals, as well as site stabilisation.

Prior to the scheduled demobilisation date, the CSM or nominated staff member will inspect the site to ensure that environmental controls are established and note any issues highlighted for action. Following that inspection, the nominated staff member shall coordinate with the relevant parties to rectify the issues prior to demobilisation.

Documents and records

The Management System for the Project consists of a hierarchy of documents and a matrix of policies, plans, and appendices. The CEMP, Sub-Plans and Appendices to this CEMP together form part of the Management System.

A hard copy of each issued document will be maintained at the main Project site to assist those personnel who have a preference for working from hard copy.

Project records, including Construction Contractor records, will be maintained to provide evidence of the effective operation of this CEMP. The records will be identifiable as to the item/area concerned. Records will be filed, stored and maintained in accordance with the Construction Contractor's quality assurance procedures and made available to Delta if required. Project environment records will be maintained by the ER and/or CSM to demonstrate conformance to requirements.

All changes to Management System documents/data will be in accordance with a Project document control procedure, and will be reviewed and approved by the same person who performed the original review and approval where possible.

The CSM will ensure that any Regulations, Codes or Legislation referred to are of current issue/revision status.

Section 8 Agency consultation

Delta invited the following government agencies to participate in a site inspection and meeting about the Lamberts North Project on 17 July 2012:

- DP&I
- Department of Primary Industries (Fisheries) (DPI Fisheries)
- Environmental Protection Authority (EPA)
- Office of Environment and Heritage (OEH)
- NSW Office of Water (NOW)
- NSW Health
- Sydney Catchment Authority (SCA)
- Lithgow City Council (LCC)

All agencies attended except DP&I, DPI Fisheries and OEH.

At that consultation, Delta's consultant CDM Smith presented the initial findings of its emerging groundwater modelling, and on key aspects of the CEMP (which had begun to be developed at that time), including existing environmental conditions, construction management plans, and proposed environmental monitoring. Delta confirmed the change in the Project scope, as detailed in the Consistency Report (SKM 2012), including incorporating Huon Void within the area of ash placement in order to increase the capacity of the site for that purpose, and revised arrangements for the capture and diversion of clean water away from the operational area.

Delta facilitated group discussion and fielded questions on potential environmental impacts and management measures. Amongst other matters, agency representatives provided various inputs relating to surface water and groundwater management and monitoring, and air quality monitoring.

Delta held a follow up consultation meeting on 30 August 2012 with relevant government agencies selected from those which were invited during the July consultation and which had a specific interest in assessing progress with regard to groundwater modelling results. The findings of the groundwater modelling for the Project were presented and discussed, and opportunities for questions and answers were provided by Delta and CDM Smith.

Table 8-1 provides a summary of the agency consultation undertaken, and the relevant contacts for each agency.

In addition, following advice from DP&I, the CEMP was sent to all Agencies on 24 October 2012 with a request for comment by 1 November 2012.

Table 8-1 Summary of stakeholder consultation and relevant contacts

Stakeholder	Nature of involvement	Condition of approval	Relevant stakeholder contact	When consulted	Person(s) responsible for consultation	Comments Received
Department of Planning and Infrastructure (DP&I)	Overall approval of plans (CEMP, Sub-Plans and monitoring programs) Environmental management performance monitoring Compliance monitoring Incident management	Various	(02) 9228 6337	Prior to submission of CEMP for approval as the Administering Authority. Invited to the July and August consultations but did not attend.	Neville Osborne Jahangir Alam	
Department of Primary Industries (Fisheries) (DPI Fisheries)	Soil and Surface Water, Ecological Management Plan	B5c, B7, D3c, E16, E17,	(02) 6763 1255	Prior to submission of CEMP. Invited to the July and August consultations but did not attend. Submitted CEMP and sub Plans on 25/10/2012 for comment via email and post. Submitted Ecological monitoring program on 5/11/2012	David Ward	CEMP no reply received by 2 November 2012 David Ward response on 8/11/2012 see comments below.
NSW Office of Water (NOW)	Groundwater, Surface Water, Ecological Management Plan	B5b, B5c, B7, D3b, D3c	(02) 4904 2571	Prior to submission of CEMP. Attended the July and August consultations. Submitted CEMP and Sub-plans on 25/10/2012 for comment via email and post	Jodie Dabovic	CEMP no reply received by 2 November 2012
Environmental Protection Authority (EPA)	Noise, Air Quality, Flora & Fauna, Biodiversity (Offsets)	B5a, B5d, B5e, B5f, B6, D3a, D3d, E11, E12, E18	(02) 6332 7603 (02) 6332 7601 (02) 6332 7604	Prior to submission of CEMP. Attended the July and August consultations. Submitted the CEMP and Sub Plans to EPA for comment 25/10/2012 via email and post	Matthew Corradin Richard Whyte Darryl Clift Andrew Helms	See Below.

Stakeholder	Nature of involvement	Condition of approval	Relevant stakeholder contact	When consulted	Person(s) responsible for consultation	Comments Received
Office of Environment and Heritage (OEH)	Heritage	C8, C9,	(02) 6883 5354	Prior to submission of CEMP. Invited to the July and August consultations but did not attend.	Robert Taylor	CEMP no reply received by 2 November 2012
Lithgow City Council (LCC)	CEMP, OEMP	B4, D2	0409 025 862	Prior to submission of CEMP. Attended the July consultation. Submitted CEMP and Sub-plans on 25/10/2012 for comment via email and post	Peta Lette	CEMP no reply received by 2 November 2012
Sydney Catchment Authority (SCA)	Groundwater & modeling & Surface Water, Site Rehabilitation	B2, B3, B5b, B5c,D3b, D3c, D3f, F1	(02) 4724-2458 (02) 4724 2459 (02) 4724-2452	Prior to submission of CEMP. Attended the July and August consultations. August consultation included information about groundwater results Submitted CEMP and Sub-plans on 25/10/2012 for comment via email and post Submitted Groundwater model to SCA 26/10/2012	Dr Bob Banens Girja Sharma Malcolm Hughes	See below
NSW Health	Air Quality	D3d, E18	(02) 9840 3603	Prior to submission of CEMP. Attended the July consultation Submitted CEMP and Sub-plans on 25/10/2012 for comment via email and post.	Helen Ptolemy	
Bathurst Local Aboriginal Land Council (BLALC)	Aboriginal Heritage	B5(f), C8, C9	(02) 6332 6835	During preparation of the EA		

EPA:

Comment Received:

At the July site inspection and meeting, the EPA advised that it was not obligated to comment on any of the results of the CEMP and its sub-plans unless it was in its direct interest to do so. In the case of this project, EPA advised that it would more than likely comment on the water components.

No other comments and/or feedback have been received from the EPA regarding any of the CEMP and its sub-plans.

Delta's Response:

No response necessary.

SCA:

Comment Received:

In addition to attending both site meetings on 17 July and 30 August, 2012 and participating in discussion on the Project, the SCA provided the following comments in an email dated 2 November 2012:

"Thank you for providing CEMP for Lamberts North Ash Placement Project. The SCA has reviewed the CEMP and associated Groundwater Management Plan (GMP) and Soil and Surface Water Management Plan (SSWMP). The SCA considers that overall CEMP and associated GMP and SSWMP have addressed requirements of the Conditions of Approval for the construction activities of the site.

The SCA notes that the CEMP inconsistently reports the requirement for a foundation layer (2 m, 4-5m or 5m) above shallow groundwater levels whilst the groundwater modelling report prepared by CDM Smith (dated 25 October 2012) has recommended a 5m foundation layer above shallow groundwater for the site.

The SCA notes that emptying of Huon Dam and using that area for ash placement was not part of original environmental assessment (EA). The SCA understands that the EA of the Huon Dam inclusion for ash placement and associated impacts of emptying Huon Dam has been consideration in the Consistency Report prepared by SKM (dated June 2012). However, the Consistency Report has neither been provided to the SCA nor is it available on the DP&I website. The SCA requests Delta to provide the Consistency Report.

The SCA also request Delta to give a minimum of two weeks for the review of specialist reports of the project, not a week as in this case."

Delta's Response:

The base height of ash above groundwater levels has been clarified in the CEMP to avoid confusion. The base height will be no less than 4 m above the Maximum Groundwater Level (MGL) except as noted in the CEMP for the sediment pond.

Delta will send a copy of the Consistency Report to the SCA and other agencies requesting it. It will also place a copy of the Report on its website for the Project. Delta will request Agency comment on its Operational Environmental Management Plan (OEMP) within two weeks of its issue.

SCA regarding Groundwater model

Comment and answers

1. Question SCA

The SCA notes that the groundwater modelling report provides assessment on the groundwater flow and levels for average and 100 year rainfall events. Clarification is required regarding the rainfall data period used in the modelling and any other rainfall events used for the impact assessment.

Answer Delta

Rainfall data was obtained from the weather monitoring station at Mount Piper Power Station and corresponded to the period January 1995 to January 2012. Rainfall departure was calculated from this data set as shown in Figure 4-4 of the report. The rainfall data indicates that rainfall varies through the year, with wetter summers and dryer winters. The mean rainfall over the period measured is 65 mm/month (780 mm/year). The highest rainfall on record occurred through March 1997, when 890 mm of rain was reported.

2. Question: SCA

The report states that to simulate the likely infiltration rates during a 1:100 year ARI event, the recharge in the model was increased by 500mm/year above the normal infiltration rates. Clarification is required if this increased recharge rate for 1:100 year ARI event is representative of the Lamberts North site and local rainfall and what is the basis for this assumption.

Answer Delta

It is noted that using a value of 500 mm/year above normal infiltrations rates is common industry practice when assessing 1 in 100 year ARI events across Australia. This value was considered representative of the Lamberts North site and local rainfall events based on the following rationale:

1. Normal infiltration rates were obtained from site specific studies conducted by the University of NSW in 1989 (Coffey, 1989) on infiltration rates of rainfall through exposed ash, capping layers and a fully vegetated system. These are summarised as follows:
   a. The average annual drainage through a thick uncovered bed of flyash is approximately 470 mm/year with negligible runoff except during very high precipitation events. This infiltration rate may potentially increase to 700 mm/year in wet years with negligible runoff except during very high precipitation events.
   b. Infiltration through a soil capping layer (not engineered to control recharge) will likely be approximately 330 mm/year with runoff of 140 mm/year.
   c. Following vegetation of the capping layer, infiltration will be approximately 45 mm/year, with runoff of 70 to 100 mm/year.

2. Recharge in the model was increased by 500 mm/year above the normal infiltration rates provided for each recharge zone above as follows:

d. A recharge value of 700 + 500 = 1200 mm/year was used to simulate the effect of a 1 in 100 year ARI event on the ash.
e. A recharge value of 330 + 500 = 830 mm/year was used to simulate the effect of a 1 in 100 year ARI event on the soil capping layer.
f. A recharge value of 45 + 500 = 545 mm/year was used to simulate the effect of a 1 in 100 year ARI event on the vegetated soil capping layer.

3. Question: SCA

The report does not provide assessment on ground and surface water quality impacts under a range of rainfall events of differing duration and intensities (including up to a 100 year ARI event) and the predictions of the long term behaviour, fate and impacts of ash placement, in particular for water quality parameters such as sulphates, boron, manganese, nickel, zinc, molybdenum copper, arsenic and barium as required by Conditions of Approval B2 (b &C).

Answer: Delta

Since the predicted groundwater level will remain below the ash placement area under a 1 in 100 year ARI event, the groundwater model indicates that there will be no impact on normal ground and surface water quality parameters under other rainfall scenarios.

Predicted groundwater levels will remain below the ash placement area under steady state normal conditions. Preliminary predictions on sulphate and TDS indicated that it is doubtful that there will be predicted impacts on compounds such as sulphates, boron, manganese, nickel, zinc, molybdenum copper, arsenic and barium.

4. SCA Question

The report also does not provide sensitivity analysis as requested during Delta's recent consultancy forums and presentation on the groundwater modelling.

Answer: Delta

Given the model has been extensively tested and proven to see if groundwater would be affected by ash during an extreme rainfall event (based on 15 years of rainfall data and historical bore logs between start of operation until now) Delta believes that additional sensitivity analysis is not required.

The 15 years of data that was used in the groundwater model has recorded some extreme weather events including years of drought followed by heavy rainfall and flooding. Delta believes that these extreme weather conditions are more than sufficient in satisfying the accuracy and sensitively of the model itself without needing further clarification.

Office of Water- Ecological Monitoring program

Comments received

The Ecological Monitoring Program appears quite comprehensive.

My only comments are regarding the use of a downstream site on the Coxs River as a “control” site. Firstly, I question whether the control site is independent from the impacted site on Neubecks Creek because if there are impacts to Neubecks Creek, then the extent of such impacts are likely to extend downstream to the Coxs River, even if the magnitude of the impact is not as strong

downstream. The upshot of this will be that no statistical impact is likely to be detected in the analysis.

Secondly, I presume the Coxs River downstream is likely to be a larger watercourse than Neubecks Creek and may not be an appropriate choice as a control site because it is likely to have different habitat features due to its size and nature.

My preference is that the “additional control” site referred to on page 17 that may be utilized after 1 year may be more appropriately used as your initial “control” site from the start of the project, alternatively a small stream of a similar nature (in terms of stream order, altitude, etc) adjacent to Neubecks Creek in the catchment is used as the "control" site.

Deltas response:

We have taken your comments on-board and we will revise our plan once we have received our initial results of Neubecks Creek which took place only last week. If the results raise a concern about the current control site, will envisage including additional reference and control sites where practicable.

Section 9 References

ANZECC (2000). Australia and New Zealand Guidelines for Fresh and Marine Water Quality. Australian and New Zealand Environment and Conservation Council, Agriculture and Resource Management Council of Australia and New Zealand. Canberra, Australia.

AS/NZS ISO 14001:2004, *Environmental Management Standard – Specifications with Guidance for Use*.

Delta Electricity, 2011. *Letter to the DP&I – Submissions Report Response to the Department and Agency Issues* (22 June 2011).

DIPNR, 2004. *Guideline for the Preparation of Environmental Management Plans*. Prepared by the Department of Infrastructure, Planning and Natural Resources.

Environmental Protection Licence (EPL) No. 13007, provided under Section 55 of the *Protection of the Environment Operations Act 1997*.

Delta Electricity, 2010. *Major Project Application 09_0186*, Delta Electricity.

DP&I, 2012. *Project Approval under Section 75J of the EP&A Act for the Mount Piper Ash Placement*, 16 February 2012 (Application no. 09_0186).

IECA, 2008. *Best Practice Guidelines for Erosion and Sediment Control*. International Erosion Control Association (IECA).

Landcom, 2004. Managing Stormwater: Soils and Construction, 4th Edition, New South Wales Government.

Lendlease, 2012. *MP-PL-702 – Ash and Dust Repository Management Plan – Mt Piper Power Station (Rev 7)*, 6 March 2012.

OzArk 2010. *Mt Piper Power Station Ash Placement Environmental Assessment, Appendix F – Aboriginal and Non-Indigenous Cultural Heritage Assessment*. Prepared for Delta Electricity, 2010.

SKM, 2010. *Mt Piper Ash Placement (two volumes) – Environmental Assessment (EA)*, prepared by Sinclair Knight Merz, August 2010.

SKM, 2011. *Mt Piper Ash Placement Submissions Report*, prepared by Sinclair Knight Merz, March 2011 for Delta Electricity.

SKM, 2012, Mt *Piper Power Station Ash Placement Project Consistency Report: Project Approval 09_0186*, prepared by Sinclair Knight Merz, June 2012 for Delta Electricity.

SKM, 2012a. Lamberts North – Interim Management Plan. Prepared in February 2012 for Delta Electricity.

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Appendix 1 – Environmental Sub-Plans

1. Noise Management
2. Groundwater Management
3. Soils and Surface Water Management
4. Air Quality Management
5. Flora and Fauna Management
6. Aboriginal Heritage

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Delta Electricity

Lamberts North Ash Placement Project Construction Environmental Management Plan: Sub Plans

CDM Smith

Delta Electricity

Lamberts North Ash Placement Project Construction Environmental Management Plan: Sub Plans

10 December 2012

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Document History and Status

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Section 1 Introduction

These Construction Environmental Management Plan (CEMP) Sub-Plans have been developed specifically for the Lamberts North Ash Placement Project (the Project), in accordance with the Conditions of Approval (CoA) for the Mount Piper Power Station, and from information contained in the Environmental Assessment (SKM, 2010), Submissions Report (SKM, 2011), and Consistency Report (SKM, 2012).

The Sub-Plans address the aspects listed in the CoA, condition B5, C1 to C16. Table 1-1 below details the environmental aspect, and into which Sub-Plan that aspect has been incorporated within the CEMP.

Each Sub-Plan contains objectives, performance criteria, statutory requirements, mitigation measures, monitoring, reporting and a response plan/corrective action sections. A column titled 'Source Reference' identifies the relevant CoA that is being addressed in that row, and any other relevant documents to that item.

The Sub-Plans also provide a description of the existing environment and potential cumulative impacts associated with each aspect, together with relevant context and background information. They therefore satisfy CoA B4 (b) which requires that cumulative impacts be described.

Table 1-1 Where to find responses for the CoA for each environmental aspect

CoA	Environmental Aspect	Appendix 1 Section	CEMP Section
B5 (a)	Noise	2	5.1
B5 (b)	Groundwater	3	5.2
B5 (c)	Soil and Surface Water	4	5.2
B5 (d)	Air Quality	5	5.3
B5 (e)	Flora and Fauna	6	5.4
B5 (f)	Aboriginal Heritage	7	5.6

The roles and responsibilities for implementing the Sub-Plans are set out in more detail in the CEMP (Section 6.2) for the Project. The key roles regarding the implementation of the Sub-Plans include:

- Owner: Delta is the Owner of the Project.
- Project Superintendent (PS): Delta has appointed a Superintendent for the project.
- Environmental Representative (ER): The verification function will be performed by the ER.
- Construction Contractor (CC): Delta will appoint a Contractor to undertake the works.
- Contractor's Project Manager (CPM).
- Contractor Site Manager (CSM)/Construction Compliance Office (CCO).

It should be noted that the roles of the Construction Contractor, CPM and CSM may be combined into one, and therefore that there may be only one person responsible for the activities required.

For the purpose of allocating key responsibilities identified within the CEMP to one role, the day to day implementation of the CEMP has been tasked to the CSM. The designation of roles and responsibilities will be confirmed prior to commencement of works, once the Construction Contractor has been engaged.

Section 2 Noise Management Plan

2.1 Introduction

This Construction Noise Management Plan (CNMP) is a Sub-Plan of the CEMP. It seeks to address the specific requirements of the CoA attached to the Project Approval for Lamberts North, insofar as they relate to noise and vibration during construction. These conditions include CoA B5 (a) and C6. It also seeks to provide a framework for Delta, its Contractors and vendors to manage construction noise emissions and to minimise the potential for adverse impacts to sensitive receivers during the construction of the Project.

In particular, this CNMP aims to:

- Avoid potential nuisance and/or loss of amenity for local residents or any other noise sensitive receivers resulting from construction related noise impacts;
- Ensure that appropriate mitigation measures are developed and implemented to address the relevant CoA; and
- Ensure that appropriate measures are implemented to comply with all relevant legislation and noise control guidelines.

2.2 Scope and objectives

This CNMP addresses noise requirements pertaining to construction related activities associated with the Project and which are relevant to the CoA relating to noise.

It has been prepared to meet CoA B5 (a) of the Project Approval for Lamberts North, and provide procedures for controlling, monitoring and addressing noise levels due to construction activities.

2.3 Conditions of Approval relating to Noise

The Project Approval requires the preparation of a Noise Management Plan (this CNMP) to maintain noise levels as a result of construction of the Project within the defined limits. Table 2-1 below outlines the individual conditions associated with the Project Approval.

Table 2-1 CoA for Noise: Conditions B5 (a) and C6

Reference	Requirement
Condition B5 (a) As part of the CEMP for the project, the Proponent shall prepare and implement a Noise Management Plan, to detail how construction noise impacts would be minimised and managed. The Plan shall be developed in consultation with the EPA and shall include but not necessarily be limited to:	
i.	Details of construction activities and an indicative schedule for construction works.
ii.	Identification of construction activities that have the potential to generate noise impacts on sensitive receivers.
iii.	Identification of noise criteria and procedures for assessing noise levels at sensitive receivers.
iv.	Details of reasonable and feasible actions and measures to be implemented to minimise noise impacts.
v.	Details of noise monitoring and if any noise exceedance is detected, how any non compliance would be rectified.
vi.	Procedures for notifying sensitive receivers of construction activities that are likely to affect their noise amenity.

<table>
<tr><th>Reference</th><th>Requirement</th></tr>
<tr><td colspan="2">Condition C6
The construction noise objective for the project is to manage noise from construction activities (as measured by $L_{Aeq\ (15\ minute)}$ descriptor) so as not to exceed:
<table>
<tr><th>Location</th><th>Day ($L_{Aeq\ (15\ minute)}$) dB(A)</th></tr>
<tr><td>All private receivers within the township of Blackmans Flat</td><td>46</td></tr>
<tr><td>All other residences</td><td>43</td></tr>
</table>
The Proponent shall implement reasonable and feasible noise mitigation measures with the aim of achieving the construction noise objectives consistent with the requirements of the Interim Construction Noise Guidelines (DECC, July 2009), including noise generated by heavy vehicle haulage and other construction traffic associated with the project. Any activities that have the potential for noise emissions that exceed the objective must be identified and managed in accordance with the Construction Noise Management Plan)as referred to under condition B5(a) of the approval.</td></tr>
</table>

2.4 Noise monitoring and modelling

For the purposes of setting appropriate noise criteria for the Project, SKM conducted background noise monitoring and modelling at nearby sensitive receivers in 2009. The monitoring was conducted at two key residential dwellings that represent the nearest sensitive receiver locations to the Project. The locations of sensitive receivers identified for noise impacts within the vicinity of the Project were identified in the EA and are presented in Figure 2-1. The two sensitive receivers identified as being the closest to the site are located within 3.3 km of Lamberts North, at Blackmans Flat and Wallerawang (Table 2-2).

Table 2-2 Sensitive Receivers nearest to Lamberts North

Location	Location Description	Noise Monitoring Location	Distance from Mount Piper Power Station
1	Blackmans Flat	Located at the western end of Noon Street on the southern side of the road. Positioned at the rear of the property approximately 100 metres from the Castlereagh Highway.	Approximately 1.0 km east
2	Wallerawang	Located on a rural property west of the Castlereagh Highway. The dwelling is located approximately 1100 m from the Castlereagh Highway	Approximately 3.3 km east

Noise monitoring was undertaken at these sensitive receivers to determine potential noise impacts arising from construction and operation of the Project. The noise monitoring at both locations indicated low background noise levels are present during the day, evening and night time periods, and the dominant noise influence at the Blackmans Flat area is from road traffic on the Castlereagh Highway. Noise influences from mining operations at the Lamberts Gully site were also noted at Location 1 and 2. There were no observed noise emissions from either Mount Piper or Wallerawang Power Stations during the monitoring period.

The EA modelling predictions indicated that:

"the noise levels from construction activities would be below the project noise goals at the receiver locations" (SKM, 2010).

2.5 Construction activities and potential impacts

Construction of the ash emplacement will be undertaken within a three month period. Heavy machinery, including bulldozers, diggers, and trucks, will be used to construct the base, drainage works, perimeter berms, and the haul road. The construction activities are further described in the CEMP (Section 4). Most activities will be undertaken within the former mining void, including Huon Void and Huon Gully, which will considerably minimise the noise travel to sensitive receivers.

The potential for cumulative noise impacts due to proposed projects and existing industrial noise sources within the vicinity of the Mount Piper Power Station was described in the EA and the Submissions Report (SKM, 2011). The findings are summarised below:

- Based on the attended noise monitoring survey and the measured LA_{eq} noise levels for day, evening and night, intermittent operational noise from the Lamberts Gully mine (i.e. the area that now corresponds to the area of Lamberts North) is audible during the daytime at both locations (Location 1 and Location 2), but the dominant daytime noise at Blackmans Flat is the influence of road traffic noise. Road traffic noise also influences the noise levels at the Wallerawang receiver (i.e. Location 2).

- The Wallerawang and Mount Piper Power Stations are located approximately 3.3 km from the receiver at Location 2. It is expected that these distances are significant in making both the sound from these power stations inaudible during the attended monitoring survey and as such there is no cumulative impact from these sources at this location.

Pine Dale mine also operates in the area, 5km north of Wallerawang, Initial coal reserves were depleted in 2010 and an extension of existing operations was proposed, incorporating the former Yarraboldy open-pit coal mine, to the north of Pine Dale. The extension was approved in 2011 and the mine is currently operating. The noise from the operation of Pine Dale will be the dominant source of background noise at the receiver, due to its proximity.

Most activities will be undertaken within the void of Huon Void and Huon Gully, which will further reduce the noise travel to sensitive receivers.

Lamberts North

Figure 2-1 Sensitive Receiver Locations for Noise

Legend

- Sensitive Receptors
- Road
- Former Watercourse
- Ben Bullen State Forest
- Project Site - Lamberts North
- Lamberts South
- Cadastre

0 180 360 720

Metres

Data Source:
SR from SKM Consisteny Report, 2012;
Roads and watercourses by GA, 2011;
DCDB by Land & Property Information NSW Govt, 2012;
Base Image by Bing Maps.

DISCLAIMER
CDM Smith has endeavoured to ensure accuracy and completeness of the data. CDM Smith assumes no legal liability or responsibility for any decisions or actions resulting from the information contained within this map.

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Date: 18/09/2012

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2.6 Management, mitigation and monitoring measures

The management and mitigation measures, monitoring, corrective actions and reporting requirements for noise are detailed in the tables below.

Table 2-3 Objectives, References and Performance Criteria

Objectives		
To manage noise from construction activities as measured by the $L_{Aeq\ (15\ minute)}$ descriptor so as not to exceed day time noise levels of 46 dB(A) at private residences at Blackmans Flat, and 43 dB(A) at all other private receivers, as a consequence of construction activities at Lamberts North.		
Performance Criteria		
No exceedance of maximum day time noise levels of 46 dB(A) at private residences at Blackmans Flat, and 43 dB(A) at all other private receivers. No justified noise complaints resulting from construction activities.		
References		
State legislation	**Standards /Codes**	**Other documentation**
▪ *Environmental Planning and Assessment Act 1979* (EP&A Act). ▪ *Protection of the Environment Operations Act 1997* (POEO Act). ▪ Project Conditions of Approval – B5(a) and C7	▪ Australian Standard 1055:1997: Acoustics - Description and Measurement of Environmental Noise (AS, 1997). ▪ Environmental Criteria for Road Traffic Noise (EPA 1999). ▪ Industrial Noise Policy (EPA, 2000). ▪ Environmental Noise Control Manual (EPA 1994). ▪ Interim Construction Noise Guidelines (DECC 2009).	▪ Mount Piper Power Station Ash Placement Environmental Assessment Report, Chapter 6 – Noise (SKM, 2010). ▪ Mount Piper Station Ash Placement Project Environmental Assessment, Appendix C – Noise Report (SKM, 2010). ▪ Mount Piper Ash Placement Project, Submissions Report (SKM, 2011).

Table 2-4 Mitigation measures

No.	Mitigation measures	Responsibility	Timing	Source/ Reference
General construction noise				
1.	All reasonable and feasible noise mitigation measures with the aim of achieving the construction noise objective consistent with the requirements of the Interim Construction Noise Guidelines (DEC, 2005), including noise generated from heavy vehicle haulage and other construction-related traffic.	CSM	At all times	C6 B5(a) (iv)
2.	Construction activities associated with the project shall only be undertaken during the following hours (unless otherwise approved by the Director General): ▪ 7.00 am to 6.00 pm, Mondays to Fridays, inclusive ▪ 8.00 am to 1.00 pm on Saturdays ▪ At no time on Sundays or public holidays	CSM	At all times	B5(a) (iv) C3, C4, C5 CEMP Section 4.4
3.	Prior to the commencement of site works, the local residents will be informed of the upcoming activities and likely duration. This will be conducted as per Delta's Project Communication Plan.	Delta	Prior to commencement of works	B5(a) (vi) CEMP Section 6.8
4.	A site activity log will be maintained by the contractor. It will record the type of activities occurring during various times of the day to assist with any retrospective investigation of community complaints relating to noise (or dust) complaints.	Contractor and Delta	Daily	B5(a) (v)
Screening				
5.	Construction activities will be screened by: ▪ Materials stockpiles, berms, or existing pit walls. ▪ Natural topographical barriers.	CSM	When necessary and practicable	B5(a) (iv)
Plant and equipment				
6.	Selected use and maintenance of function of low noise emission mufflers as applicable.	CSM	At all times	B5(a) (iv)
7.	All equipment shall be adequately maintained and kept in good operating order	CSM	At all times	B5(a) (iv)
8.	No onsite activities or engines shall be started before the prescribed start time of 7:00am.	CSM	At all times	B5(a) (iv)
9.	Use of rubber-tyred equipment where appropriate.	CSM	At all times	B5(a) (iv)
10.	Maintenance of plant reversing alarms at the minimum safe level.	CSM	At all times	B5(a) (iv)

Table 2-5 Monitoring measures

No.	Monitoring measures	Responsibility	Timing	Source/ Reference
1.	Operator-attended and unattended noise monitoring will be conducted in accordance with AS 1055: 1997 *Acoustics – Description and Measurement of Environmental Noise.*	CSM/Delta	Upon commencement, then monthly	B5(a) (iii) B5(a) (v)

No.	Monitoring measures	Responsibility	Timing	Source/ Reference
2.	Monitoring of noise emissions from plant and equipment will be undertaken upon commencement of activities to ensure compliance with manufacturer's standards. Equipment noise monitoring will be undertaken as follows: **Frequency:** When key plant and equipment are first brought onto site to establish baseline noise levels. **Duration and Parameters:** Equipment noise levels will be monitored at a distance of 7m and compared to the noise levels identified in the technical specifications that relate to the plant and equipment being used on site.	Delta	Upon commencement of works and if new equipment is brought onto site	B5 (a) (iii) B5 (a) (v) Environmental Noise Control Manual Industrial Noise Policy AS1055
3.	Noise monitoring will be undertaken at sensitive receivers at two representative private residences at Blackmans Flat during construction of the Project. Figure 2-1 shows the location of monitoring locations.	Delta	Once during construction	B5(a)(v) Figure 2-1
4.	Operator-attended monitoring at sensitive receiver after receiving a noise complaint shall be undertaken.	Delta	Following a noise relating incident or receipt of a complaint	B5(a)(v) Environmental Noise Control Manual Industrial Noise Policy AS1055
5.	If noise from construction activities are tonal or impulsive in nature, 5 dB(A) must be added to the measured construction level when comparing the measured noise with the construction noise objectives.	Delta	As required	B5(a)(v)

Table 2-6 Response Plan and Corrective Actions

No.	Corrective Actions	Responsibility	Timing	Source/ Reference
1.	Where non-compliance with the noise goals are identified through noise monitoring, a further assessment of feasible noise management and mitigation measure shall be undertaken and implemented.	Delta	As required	B5 (a)(v)
2.	Any unusually noisy equipment will be investigated and rectified as soon as possible.	Delta	As required and practicable	B5 (a)(v)
3.	Maintain equipment, including mufflers, if noise levels exceed manufacturer's standards.	CSM	As required	B5 (a)(v)
4.	Adjust reversing alarms to a compliant dB level.	CSM	As required	B5 (a)(v)

No.	Corrective Actions	Responsibility	Timing	Source/ Reference
5.	Noise issues shall be discussed as part of routine tool box talks to keep staff aware of construction activities and potential issues.	CSM	As required	B5 (a)(v)

Table 2-7 Reporting requirements

No.	Reporting requirements	Responsibility	Timing	Source/ Reference
1.	Noisy activities and observations will be recorded in the daily diaries and Weekly Environmental Inspection Checklist.	CSM	Weekly	B5 (a)(v)
2.	All complaints/incidents regarding noise will be reported to the PS.	Delta	As required	B5 (a)(iv) B5 (a)(v) CEMP section 6.6
3.	Environmental Incident Report forms will be completed and forwarded to the PS.	Staff who witnessed or reported the environmental incident	Following an incident	B5 (a)(iv) B5 (a)(v)
4.	Monitoring results and management actions regarding construction noise will be included in the Monthly Environment Compliance Report, including any incidents and corrective actions taken to mitigate and manage the impacts.	CSM	Monthly	B5 (a)(iv) B5 (a)(v) B8 CEMP Section 6.7 Monthly Environment Compliance Report,
5.	Results of any noise monitoring will be included in an Environmental Monitoring Report and be made available to the Administering Authority as requested.	Delta	At least annually included in AMER	

Section 3 Groundwater Management Plan

3.1 Introduction

This Construction Groundwater Management Plan (CGMP) is a Sub-Plan of the CEMP. It seeks to address the specific requirements of the CoA attached to the Project Approval for Lamberts North, insofar as they relate to groundwater quality. It also seeks to provide a framework for Delta Electricity (Delta), its Contractors and vendors to manage construction groundwater quality and to minimise the potential for adverse impacts to sensitive receivers during the construction of the Project.

In particular, this CGMP aims to:

- Provide the requirements for groundwater management and monitoring to be met while undertaking construction, to ensure that the data collected meets the objectives of the groundwater modelling and groundwater monitoring plan (required by CoA B2 and B3 respectively).
- Reduce potential nuisance and/or loss of amenity for local residents and any other sensitive place within the zone of influence resulting from groundwater contamination, sedimentation or dewatering caused by construction related activities.
- Ensure appropriate measures are implemented to address the relevant CoA outlined in Table 3-1Table 5-1, and to comply with all relevant legislation/criteria below in Table 3-2.

3.2 Scope and objectives

This CGMP addresses groundwater requirements pertaining to construction related activities associated with the Project and which are relevant to the CoA for groundwater management. This plan also incorporates groundwater monitoring requirements, in accordance with CoA B3.

It has been prepared to meet CoA B5 (b) of the Project Approval for Lamberts North, and to achieve the following objectives:

- To guide the contractor undertaking groundwater management and monitoring works.
- To document specific field operating procedures and quality assurance/quality control (QA/QC) procedures to ensure that appropriate and reliable data are collected during the groundwater management and monitoring works.
- To allow the contractor undertaking groundwater management and monitoring works to monitor performance criteria and quality control procedures against the CGMP.

3.3 Conditions of Approval relating to Groundwater

The Project Approval for the Project requires the preparation of a CGMP to protect and detail measures to manage groundwater impacts as a result of construction of the Project. Table 3-1 below outlines the individual conditions associated with the Project Approval.

Table 3-1 CoA for Groundwater: Condition B5 (b)

Reference	Requirement
As part of the CEMP for the project, the Proponent shall prepare and implement a Groundwater Management Plan to detail measures to manage groundwater impacts. The Plan shall be prepared in consultation with the NOW and SCA and shall include, but not necessarily be limited to:	
i.	Identification of the construction activities that could affect groundwater at the site, including groundwater interference and impacts to groundwater users and dependent species.
ii.	A description of the management controls to minimise impacts to groundwater during construction.
iii.	Methods for monitoring groundwater during construction including a program to monitor groundwater flows and groundwater quality in the project area.
iv.	A response program to address indentified exceedances of existing groundwater quality criteria approved for Area 1 (the existing ash placement area).
v.	Provisions for periodic reporting of results to SCA during construction.

3.4 Existing environment

Potential receiving waters within the site as identified in the EA include:

1. Neubecks Creek located north east of the Project site.
2. Three private bores (GW101146, GW53071 and GW50996) located within a 3 km radius from the Project site, which are used for stock and domestic purposes.

The groundwater modelling works conducted by CDM Smith have provided the following findings:

- There is a shallow and a deep aquifer beneath the site. The shallow aquifer flows in a north easterly direction and the deep aquifer flowing through a sandstone formation in a south easterly direction is located approximately 35 m below the base of the proposed repository. The two aquifers are not connected to each other.
- Historic groundwater levels have fluctuated by up to 5 m since 2004. However, this has been due to the wet and dry cycles experienced across Australia during this period. Wet weather groundwater fluctuations are currently at maximum levels and are predicted not to increase. Therefore, the design provides for the base of the ash placement area to be at least 4m above Maximum Groundwater Level (MGL); while a lined sediment pond will be at least 1m above MGL. To prevent groundwater contamination the sediment pond will be lined with an impervious material.
- The groundwater model developed by CDM Smith predicts maximum 2.5 m groundwater level rises under extreme 100 year ARI events. This is still below the designed base of the ash placement area.
- As a consequence of adopted design levels and lining of the sediment pond there will be no impact on groundwater level, flow or contaminates in Lamberts North post construction. However, pre-construction groundwater monitoring and modelling indicates that recent high

chloride concentrations detected in a borehole (Bore D10) are likely to be due to upstream coal reject ponds (now abandoned) in the south-west corner of Lamberts North.

- The model also confirmed that there is no evidence of chloride contamination in the groundwater from either Mount Piper Ash Repository or from the site of the ash placement area at Lamberts North.
- The model predicts that once the chloride source has been halted, chloride contamination in groundwater is likely to decline rapidly over time.

3.5 Construction activities and potential impacts

As indicated above in the groundwater modelling findings, in "Construction of Lamberts North will not affect groundwater flow or levels." Construction activities are described in detail in the CEMP (Section 4).

Groundwater modelling and monitoring commenced at Lamberts North in July 2012 as part of the Project. An additional five groundwater bores were added to the existing network of four bores, bringing the total number of monitoring bores to nine. Information collected from the new bore holes include water levels and water quality. Over the long term, information on seasonal fluctuations will also be provided. The monitoring network is known as the MPGM4-series bore network.

This information will ensure potential impacts to other water users due to potential groundwater contamination, and any changes in water quality and levels, are detected. The groundwater monitoring program will last for a period of at least five years following completion of capping.

Results from pre-construction monitoring have shown that groundwater in Huon Void spoil area flows in a north-easterly direction. The groundwater model identified the shallow aquifer level varies across the construction site and does not run parallel to the existing or design surface levels (the shallow aquifer will be least 4m below ash placement). This aquifer on the northern end of the site is at a nominal[1] RL910m AHD with the southern end of the site being at a nominal RL912.5m AHD. At the south end of the site, groundwater has been identified in an unconfined perched aquifer, flowing through a sandstone formation in a south easterly direction (the deep aquifer is 35m below ash placement).

The use of monitoring locations up and down-stream of the construction area, both before and during construction, will allow a spatial and temporal comparison of groundwater quality; it will help to determine whether construction is potentially having any impact at those locations. The monitoring will allow mitigation measures to be implemented before significant impacts can be felt. A specialist consultant has established the new groundwater monitoring bores and will undertake the prescribed monitoring and analysis of groundwater results of the bore network.

[1] Groundwater levels vary during periods of extended rain when groundwater levels naturally rise, or periods of drought when groundwater levels fall. The groundwater model identifies the Maximum Groundwater Level to be 2.5m above the 'nominal' or 'normal' groundwater level.

Lamberts North Project

Figure 3-1 Groundwater Monitoring Locations (MPGM4 Series)

Legend

- New groundwater bore
- Existing groundwater bore
- Project Site - Lamberts North
- Road
- Watercourse
- Former Watercourse

0 100 200 400

Metres

Data Source:
Watercourses ortho-image traced, 2012;
DCDB, roads & forest by Land & Property Information NSW Govt, 2012;
Base Image by Bing Maps.

DISCLAIMER
CDM Smith has endeavoured to ensure accuracy and completeness of the data. CDM Smith assumes no legal liability or responsibility for any decisions or actions resulting from the information contained within this map.

Job: S12382.01_014-R3_groundwater
Date: 13/09/2012

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3.6 Management, mitigation and monitoring measures

The following management strategies and mitigation measures have been designed to ensure that potential impacts to groundwater are maintained within ANZECC guidelines. This section also includes the objectives, performance criteria, monitoring, reporting and a response plan/corrective actions that relate to this CGMP.

Table 3-2 Objectives, References and Performance Criteria

Objectives
▪ To maintain existing groundwater quality underlying the project site Lamberts North ▪ Maintain existing water quality in Neubecks Creek and in private bores in the area ▪ To ensure any groundwater incidents or non-compliance are reported ▪ To maximise the re-use of collected water onsite
Performance Criteria

Objectives

Groundwater monitoring results indicate no exceedances against the existing groundwater quality criteria approved for the existing Mount Piper Ash Repository. This criteria is based on the following locally derived and ANZECC (2000) guideline trigger values, and apply as assessment criteria to the receiving waters:

Table 3-3 Groundwater monitoring criteria

Element (mg/L)	Groundwater Collection Basin Pre-placement 90th Percentile	Groundwater ANZECC or Local Guidelines	Neubecks Creek at WX22 Pre-placement 90th Percentile	Surface Water ANZECC or Local Guidelines
General Water Quality				
pH		6.5 – 8.0	6.7-7.8	6.5 – 8.0
Cond/ (uS/cm)	1576	2600^	894	2200
TDS	1306	2000	580	1500^
Cl	31.5	350	22	350+
SO4	824	1000	332	1000 ++
Trace Metals				
As	0.001	0.024	<0.001	0.024
Ag	<0.001	0.00005	-	0.00005
Ba	0.037	0.7	0.029	0.7+++
Be	0.001	0.1	<0.001	0.1
B	0.244	0.37	0.09	0.37
Cd	0.002	0.002	<0.001	0.00085
Cr	0.001	0.005	<0.001	0.002
Cu	0.001	0.005	<0.001	0.0035
F	0.435	1.5	0.338	1.5+++
Fe	0.664	0.664	0.281	0.3+++
Hg	<0.0001	0.00006	-	0.00006
Mn	5.704	5.704	0.72	1.9
Mo	0.001	0.01	<0.001	0.01+
Ni	0.5509	0.5509	0.005	0.017
Pb	0.001	0.005	<0.001	0.005
Se	0.002	0.005	<0.001	0.005
Zn	0.908	0.908	0.116	0.116

Notes:

- * High detection limits used when determining the baseline concentrations.
- ^ 2000 mg/L TDS/0.77 for groundwater; 0.68 x 2200 uS/cm low land river conductivity protection of aquatic life.
- # ANZECC (2000) guidelines for protection of freshwaters, livestock, irrigation water or drinking water. Local guideline based upon 90th percentile pre-brine placement (shown in bold).
- Cadmium, Chromium, Copper, lead, nickel and zinc adjusted for effects of hardness: Current Ca, Mg in GCB 147, 113 mg/L: in Neubecks Creek 19.7, 11.8 mg/L, respectively.
- + Irrigation water moderately tolerant crops; irrigation. Note: Molybdenum drinking is 0.05 mg/L ++ Livestock +++ drinking water.

References

State legislation	Standards /Codes	Other Documentation
▪ *Environmental Planning and Assessment Act 1979 (EP&A Act).*	▪ Australian Standard 1726-1993. Geotechnical Site Investigations Australian Standard (AS, 1993).	▪ Delta Electricity Water Management Licence. Issued under Part 9 of the Water Act 1912.

Objectives		
▪ *Protection of the Environment Operations Act 1997* (POEO Act). ▪ Water Act 1912. ▪ *Water Management Act 2000.* ▪ *Water Management (General) Regulation 2011.* ▪ CoA B3 and B5(b)	▪ Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC, 2000). ▪ Australian Drinking Water Guidelines (NHMRC, 2011). ▪ Guidelines for the Assessment and Management of Groundwater Contamination (DEC, 2007).	▪ Mount Piper Power Station Ash Placement Environmental Assessment, Chapter 7 – Water Management (August, 2010). ▪ Mount Piper Station Ash Placement Project Environmental Assessment, Appendix D – Hydrology and Water Quality (August 2010).

Table 3-4 Mitigation measures

No.	Mitigation measures	Role/Responsibility	Timing	Source/ Reference
1.	Groundwater flows will be inferred from groundwater model, and from groundwater monitoring (water levels and contours).	Delta/Groundwater Contractor	Prior to and during construction	CoA B5 (b) (iii)
2.	Establish baseline groundwater conditions and mitigation measures through: ▪ Hydrogeological conceptualisation and prediction of groundwater conditions using numerical modelling. ▪ Site investigation and monitoring to determine contaminants of concern, contaminant concentrations, contaminant sources and hydraulic properties of key aquifers. ▪ Groundwater quality data collected to be of sufficient quality such that it can be relied on for interpretation and numerical modelling.	Delta/Groundwater Contractor	Pre-construction	CoA B2, B3 and B4 CoA D3 (b) a) ii) CoA D3 (b) a) iii)
3.	During dewatering of Huon Void or other areas on site e required, the following measures will be undertaken. ▪). ▪ Dewater progressively to minimise drawdown. ▪ Only dewater to a level that will permit earthworks to proceed. ▪ Direct surface runoff away from excavation to minimise the need to dewater. ▪ Site dewatering will occur prior to construction.	Delta	Pre- construction	CoA D3 (b) a) ii)
4.	Control surface water flows, drainage and erosion by the implementation of the Construction Soil and Surface Water Management Plan (CSSWMP).	CSM	At all times during construction	CoA D3 (b) a) ii) CSSWMP (Section 3)
5.	Vehicular access within designated access roads.	CSM	At all times during construction	CoA B5 (b) a) i) CoA B5 (b) a) ii)
6.	Regular watering of site roads will be carried during construction works for dust suppression.	CSM	At all times during construction	CoA B5 (b) a) i) CoA B5 (b) a) ii)
7.	Fuels and chemicals are stored adequately (e.g. bunds and shelter) and MSDS for each chemical is maintained onsite.	CSM	At all times during construction	CoA B5 (b) a) i) CoA B5 (b) a) ii)

No.	Mitigation measures	Role/Responsibility	Timing	Source/ Reference
8.	Sediment ponds will be lined with an impermeable layer.	CSM	At all times during construction	CoA B5 (b) a) iv)

Table 3-5 Monitoring measures

No.	Monitoring measures	Role/Responsibility	Timing	Source/ Reference
1.	Groundwater quality will be monitoring using a network of nine MPGM4-series groundwater wells, as shown in Figure 3-1. These wells include: 1. MPGM4 / D1 2. MPGM4 / D8 3. MPGM4 / D10 4. MPGM4 / D11 5. MPGM4 / D15 6. MPGM4 /D16 7. MPGM4 / D17 8. MPGM4 / D18 9. MPGM4 /D19	Delta's Groundwater contractor	Two monitoring rounds, prior to construction, followed by two monitoring rounds after completion of construction works.	CoA B2 CoA B5 (b) a) iii) CoA E15 CoA D3 (b) vi) Groundwater monitoring wells shown on Figure 3-1

<table>
<tr><th>No.</th><th>Monitoring measures</th><th>Role/Responsibility</th><th>Timing</th><th>Source/ Reference</th></tr>
<tr><td>10.</td><td>The groundwater monitoring shall include parameters listed in Table 3-6:

Table 3-6 Analytical suite for groundwater monitoring
<table><tr><th>Description</th><th>Parameters</th></tr><tr><td>Nutrients</td><td>Ammonia as N
Nitrate and Nitrite
Total Kjeldhal Nitrogen
Total Nitrogen
Total Dissolved Solids
Salinity</td></tr><tr><td>Field parameters</td><td>pH, EC, temperature, Dissolved Oxygen and gauging of bores</td></tr><tr><td>Major cations</td><td>Ca, K, Na, Mg</td></tr><tr><td>Major anions</td><td>Cl, SO4, CO3, HCO3</td></tr><tr><td>Metals</td><td>As, Ba, Cd, Cu, Pb, Mn, Mo, Ni, Zn</td></tr><tr><td>Other potential contaminants</td><td>TPH/BTEX</td></tr></table></td><td>Delta/Groundwater contractor</td><td>Two monitoring rounds, prior to construction, followed by two monitoring rounds after completion of construction works.</td><td>CoA D3 (b) vi)</td></tr>
<tr><td>11.</td><td>Water quality monitoring results shall be assessed in conjunction with the baseline data presented in Table 3-3.</td><td>Delta /Groundwater contractor</td><td>After monitoring when results are received</td><td>CoA D3 (b) a) vi)</td></tr>
</table>

Table 3-7 Response Plan and Corrective Actions

No.	Corrective Actions	Role/Responsibility	Timing	Source/ Reference
1.	Should water quality results reveal adverse trends in baseline data, an investigation should be undertaken which includes the following actions: ▪ Review of construction activities to determine source of contamination ▪ Review of water drainage system. ▪ Improvement in surface water controls if required. ▪ Removal of contaminated water from the aquifer (see Action 2 below)	Delta	During construction, as required	CoA B5 (b) a) iv) CoA D3 (b) a) vii) CoA B5 (b) a) v)

No.	Corrective Actions	Role/Responsibility	Timing	Source/ Reference
2.	After Huon Void has been decommissioned, groundwater quality monitoring will continue as per the groundwater monitoring plan. If results show that groundwater is contaminated, Delta will undertake measures to remove the contamination by pumping contaminated groundwater and return contaminated groundwater to an area within the site for treatment as necessary. No contaminated water will be discharged from site.	Delta	During construction, as required	CoA B5 (c)
3.	Should an event with the potential to pollute or contaminate groundwater occur, or exceedances in baseline water quality values are identified, nearby bore users will be notified in accordance with the Delta's Community Information Plan.	Delta	As required	CoA B5 (b) a) v) Community Information Plan

Table 3-8 Reporting requirements

No.	Reporting Requirements	Role/Responsibility	Timing	Source/ Reference
1.	Results from groundwater monitoring will be provided in a report to Delta.	Groundwater Contractor	Prior and during construction, as required	CoA D3 (b) (a) i
2.	Should groundwater quality exceed background levels, an incident report will be completed. All groundwater incident reports shall be provided to the PS	Delta	As required	CoA D3 (b) (iv)
3.	Incidents relating to groundwater shall be reported to the Director-General as per the incident reporting procedure in the CEMP.	Delta	Prior and during construction, as required	CoA D3 (b) (a) vii CEMP
4.	Delta shall issue the groundwater data to the SCA following the completion of groundwater monitoring.	Delta	Within one month of Delta obtaining validated results	CoA 5 (b) v
5.	Where groundwater quality criteria are exceeded or an incident occurs, details regarding the incident and corrective actions taken to mitigate and manage the impacts will be included in the Construction Compliance Report.	Delta	After construction	CoA B5 (b) a) v CoA B5 (b) a) viii B8(b)

Section 4 Soil and Surface Water Management Plan

4.1 Introduction

This Construction Soil and Surface Water Management Plan (CSSWMP) seeks to address the specific requirements of the CoA attached to the Project Approval for Lamberts North, insofar as they relate to soil and surface water.

In particular, this CSSWMP aims to avoid or minimise to acceptable levels any environmental impact arising from soil or water movement within or from the Project site. It also aims to ensure that appropriate mitigation measures are developed and implemented to address the relevant CoA outlined in Table 4-1 below; and to comply with all relevant legislation/criteria listed in Table 4-4.

4.2 Scope and objectives

This CSSWMP has been prepared to meet CoA B5c, C10, C11, C12, and C13 of the Project Approval for Lamberts North, and provides procedures for controlling and monitoring soil and water aspects during construction. It also describes the water management system and flood modelling undertaken for the Project.

4.3 Conditions of Approval relating to Soil and Surface Water

The Project Approval requires the preparation of a Soil and Surface Water Management Plan (this Plan) to minimise any adverse impacts on water flow and quality downstream of the Project site, and prevent erosion and sedimentation outside the site boundary as a result of construction of the Project. Table 4-1 below lists the individual conditions associated with the Project Approval.

Table 4-1 CoA for Soil and Surface Water: Condition B5 (c)

Reference	Requirement
Condition B5 (c) As part of the CEMP for the project, the Proponent shall prepare and implement a Soil and Surface Water Management Plan, to outline measures that will be employed to manage water on the site, to minimise soil erosion and the discharge of sediments and other pollutants to lands and/or waters throughout the construction period. The Plan shall be based on best environmental practice and shall be prepared in consultation with the SCA and NOW and any other relevant agency. The Plan shall include, but not necessarily be limited to:	
i.	Baseline data on the water quality and available flow data in Huon Creek, Lamberts Gully Creek and Neubecks Creek;
ii.	Water quality objectives and impact assessment criteria for Huon Gully Creek, Lamberts Gully Creek and Neubecks Creek;
iii.	A geomorphic assessment of the capacity of Lamberts Gully Creek to address additional flow under a range of rainfall events and duration, prior to the commencement of construction works;
iv.	Identification of the construction activities that could cause soil erosion or discharge sediment or water pollutants from the site;
v.	Description of stockpile locations and disposal methods;
vi.	A description of the management methods to minimise soil erosion or discharge of sediment or water pollutants from the site, including a strategy to minimise the area of bare surfaces, stabilize disturbed areas and minimise bank erosion;
vii.	Demonstration that the proposed erosion and sediment control measures will conform with or exceed the relevant requirements of *Managing Urban Stormwater: Soils and Construction* (Landcom, 2004);

Reference	Requirement
viii.	A site water management strategy identifying drainage design including the separation of clean and dirty water areas for the Project, details of the lining of surface water collection ponds and the associated water management measures including erosion and sediment controls, provision for the recycling / reuse of water, procedures for decommissioning water management structures on the site, and consideration to the treatment of water prior to discharge to the environment;
ix.	Measures to monitor and manage soil and water impacts in consultation with NOW and DPI (Fisheries) including: control measures for works close to or involving waterway crossings (including rehabilitation measures following disturbance and monitoring measures and completion criteria to determine rehabilitation success);
x.	Measures to monitor and manage flood impacts in consultation with NOW and shall include, but not be limited to a flood model for predicted water levels and contingency measures for the site during potential floods;
xi.	A program to monitor surface water quality, including Lamberts Gully Creek and Neubecks Creek;
xii.	A protocol for the investigation of identified exceedances in the impact assessment criteria;
xiii.	A response plan to address potential adverse surface water quality exceedances; and
xiv.	Provisions for periodic reporting of results to the DPI (Fisheries), NOW and the SCA as per Condition B8.
Condition C10 - The proponent shall comply with section 120 of the *Protection of the Environment Operations Act 1997* (POEO Act) which prohibits the pollution of waters.	
Condition C11 - Soil and water management controls shall be employed to minimise soil erosion and the discharge of sediment and other pollutants to lands and/or waters during construction activities, in accordance with: ▪ Managing Urban Stormwater: Soils and Conservation (Landcom, 2004); ▪ Managing Stormwater: Urban Soils and Construction 2A Installation of Services (DECC 2008); and ▪ Managing Stormwater: Urban Soils and Construction Vol 2C Unsealed Roads (DECC, 2008)	
Condition C12 - During construction, the Proponent shall maintain a buffer of 50 m from the construction to Neubecks Creek.	
Condition C13 - Surface water drainage must be appropriately engineered and stabilised to convey run off without collapse or erosion. Surface water runoff collection ponds are to be lined.	

Note that CoA C10 to C13 will be the responsibility of Delta and its contractors at the time of construction of the ash placement facility. These environmental controls are included in this CSSWMP as required where it and the CEMP provide suitable guidance for their implementation.

4.4 Existing environment

Waterways and gullies

The Project area sits within the Cox River catchment, which flows into Lake Burragorang (Warragamba Dam). No water will be diverted from the Coxs River system for use at the site.

One former watercourse, (that was practically diverted by previous mining activities) is present within Lamberts North. Huons Gully runs along the western perimeter of the site, draining into a large artificial pond known as Huons Void (SKM, 2010). This void has very little surface water and in mainly fed by groundwater. Previous reports completed on Lamberts North have commonly referred this as being a groundwater collection basin and/or Huons Dam.

The pond is an offline storage that is not structurally connected to Neubecks Creek (SKM, 2010). Water collected in the Huons Void has never been used for Delta's operations for generating electricity, with the exception of using some water in dry periods, for supplementary washeries areas within the Mt Piper Power Station precinct.

Huons Gully is referred to in the CoA as Huons Creek, for which baseline water quality and flow data is required if available (CoA B5 (c)(i)). However, as it is no longer a natural hydrologic system, there is no long term water quality data, or flow data, available for this area.

Lamberts Gully lies close to the south eastern part of the Project site, which is the site of the former watercourse, Lamberts Gully Creek. At its closest point, it is approximately 500 m from the

Lamberts North eastern perimeter. Before the area was mined out, Lamberts Gully Creek which previously ran through the coal mine area and discharged to Neubecks Creek.

Disturbance to the former Lamberts Gully Creek from open-cut mining activities that have continued in the gully area since the 1940s, now prevents any recognisable watercourse flowing into Neubecks Creek and the area no longer represents a natural hydrologic system (SKM, 2010). Various surface water ponds now align the area where the previous Lamberts Gully watercourse was once located.

Beyond the perimeter of Lamberts North, the nearest watercourse to the site is Neubecks Creek, which has been disturbed by previous mining activities in the catchment. The EA identified that existing metal concentrations can be high both upstream and downstream of the site. This is considered to be due to ground water inflows to the creek during dry weather, rather than overland flow from the catchment (SKM, 2010).

The project has been designed so that off-site storm water will be diverted west of Lamberts North and away from Lamberts Gully, thereby negating the risk that flows from the Project site will reach Neubecks Creek via Lamberts Gully. This is indicated in the Consistency Report (SKM, 2012).

As indicated in the Consistency Report, no water will be diverted to Lamberts Creek as part of the Project. Accordingly, a geomorphology assessment of Lamberts Creek will not be required (see CoA B5 (c) (iii)).

Water quality

The Project site's hydrology has been greatly disturbed by past open-cut mining activities, as described above, with physical changes to the landform and geology of the Project site.

Delta and Springvale Coal have monitored the water quality of Neubecks Creek at two locations for over ten years, and the median water quality results are summarised in Table 4-2.
Table 4-2 The locations are:

- LDP01 is the Delta's licensed discharge point which is the power station site runoff holding pond constructed on Neubecks Creek.
- WX22.

The water quality parameters monitored at these sites represent the indicators that detect adverse impacts resulting from the ash placement facilities, including electrical conductivity (EC), total dissolved solids (TDS), chloride, and trace metals. The results represent the baseline values against which construction water quality monitoring results will be compared (in addition to the ANZECC guideline threshold values for the protection of upland river aquatic systems) (SKM, 2010).

LDP01 and WX22 will continue to be monitored during construction. In addition, a new surface water quality monitoring site has been established at Neubecks Creek, located just below the confluence of the northern tributary of Neubecks Creek. This site is called NC01. The surface water quality monitoring program therefore comprises the following three sites in Neubecks Creek (Figure 4-4):

- LDP01
- WX22
- NC01

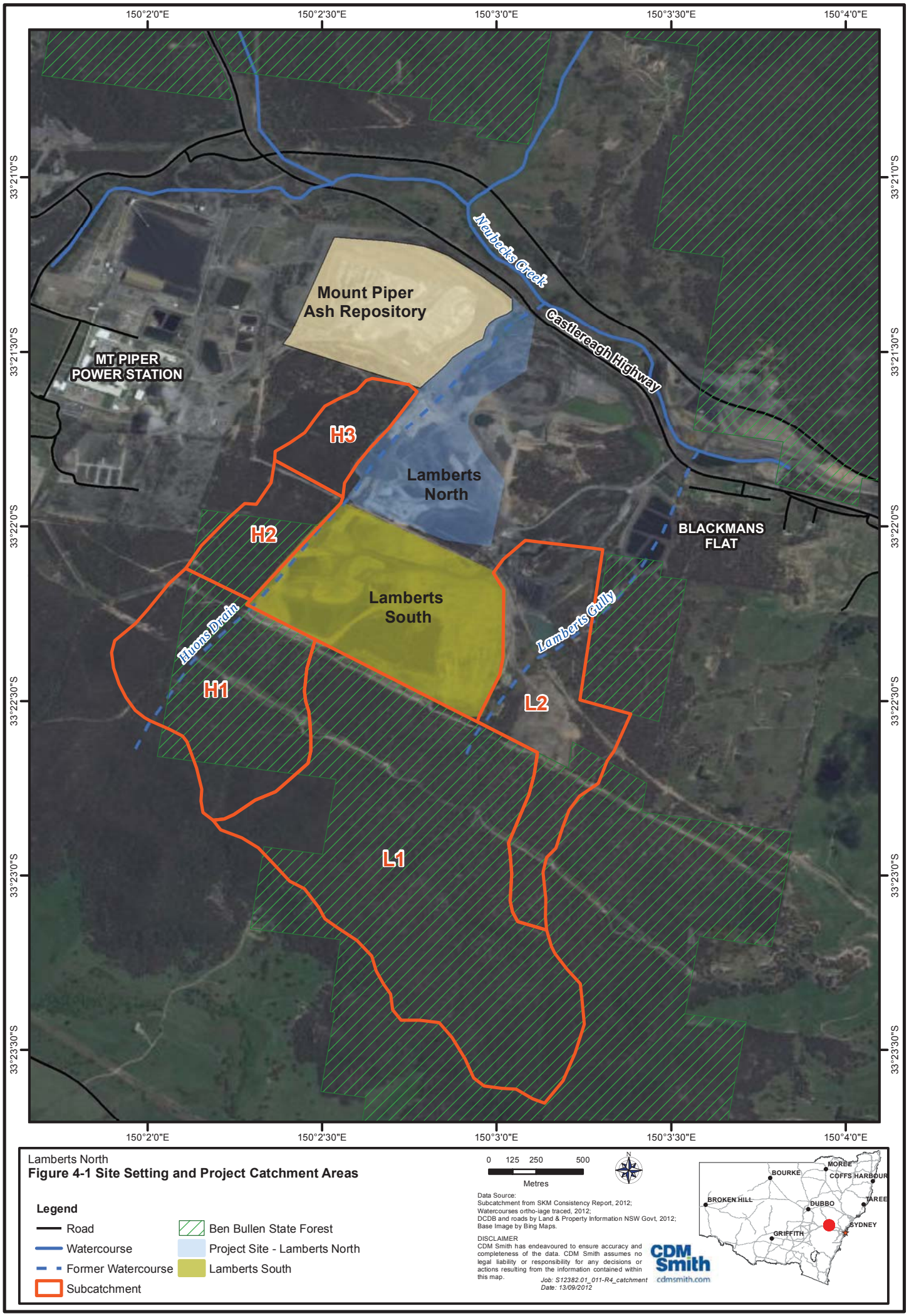
The surface water quality monitoring program is further described in Table 4-7 of this Sub-Plan.

The former Lamberts Gully and Huon Gully consequently have no water flow and no gauge data available to characterise the hydrology of Huon Gully or Lamberts Gully.

Table 4-2 Long-term baseline Neubecks Creek water quality results as measured by Delta at LDP01 and Site 1

Indicator	ANZECC / ARMCANZ trigger value	LDP01 (Delta Licensed Discharge location)	Site 1 (Downstream of Mt Piper Ash Repository and Huon Gully)
pH	6.5 – 8.0	7.39	7.26
Conductivity (µS.cm-1)	30 - 350	404.56	333.86
Alkalinity (as CaCO3 mg/L)		70.71	47.55
Chloride (mg/L)		17.51	12.78
Sulphate (mg/L)		106.40	90.02
Fluoride (mg/L)		0.220	0.22
Sodium (mg/L)		21.30	19.37
Potassium (mg/L)		6.61	5.42
Calcium (mg/L)		30.35	24.08
Magnesium (mg/L)		16.38	13.40
Arsenic (mg/L)	0.0013	0.008	0.006
Silver (mg/L)	0.00005	0.002	0.002
Barium (mg/L)		0.032	0.030
Boron (mg/L)	0.37	0.066	0.080
Cadmium (mg/L)	0.0002	0.001	0.001
Chromium (mg/L)	0.001	0.003	0.007
Copper (mg/L)	0.0014	0.008	0.004
Iron (mg/L)		0.105	0.117
Mercury (mg/L)	0.00006	0.000	0.001
Manganese (mg/L)	1.9	0.102	0.513
Molybdenum (mg/L)		0.004	0.001
Nickel (mg/L)	0.011	0.005	0.004
Lead (mg/L)	0.0034	0.002	0.002
Selenium (mg/L)	0.005	0.001	0.001
Zinc (mg/L)	0.008	0.039	0.042

[1]: Data obtained from Hydrology and Water Quality technical report, (SKM 2010b),
[a]:Delta monthly monitoring results [b]: Data derived from GHD (2006)



Lamberts North

Figure 4-1 Site Setting and Project Catchment Areas

Legend

- Road
- Watercourse
- Former Watercourse
- Subcatchment
- Ben Bullen State Forest
- Project Site - Lamberts North
- Lamberts South

0 125 250 500

Metres

Data Source:
Subcatchment from SKM Consistency Report, 2012;
Watercourses ortho-iage traced, 2012;
DCDB and roads by Land & Property Information NSW Govt, 2012;
Base Image by Bing Maps.

DISCLAIMER
CDM Smith has endeavoured to ensure accuracy and completeness of the data. CDM Smith assumes no legal liability or responsibility for any decisions or actions resulting from the information contained within this map.

Job: S12382.01_011-R4_catchment
Date: 13/09/2012

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4.5 Construction activities and potential impacts

Construction involves the extension of the existing Mount Piper Ash Repository into the Lamberts North area, with construction of a capped ash emplacement facility. The construction activities include earthworks for excavation, re-profiling, regrading, stockpiling, drainage and water storage structures, and haul roads. These activities are detailed in the CEMP (Section 4).

Final design of the ash placement area in the Huon Void will be at least 4m above the Maximum Groundwater Level, and the perimeter embankment at RL 928m AHD.

The base of Lamberts North will be shaped to direct water flow to the southern end of the excavation area, into a 72m (average) diameter by 3m deep lined sediment pond which is designed for a 1 in 100 ARI rain event (approximately 10,000m^3-capacity). Water collected in this sediment pond, will be used on site for dust suppression during construction and subsequent ash placement operations. Additionally, this water will be used on the existing Mt Piper Ash repository area for operational purposes.

To assist with water quality in this sediment pond, sediment control ponds will be incrementally created as required by operational requirements and in accordance with the Operational Environmental Management Plan once ash disposal commences in Lamberts North.

Construction works have the potential to increase sedimentation, salinity, turbidity, nutrients and metals in waterways through the generation of sediments and pollutants entering waterways resulting from earthworks if appropriate water management systems and erosion and sediment controls are not in place (SKM, 2010). Potential impacts from site activities include:

- Exposure of soil to erosive forces (wind and rain) during earthworks and site preparation activities.
- Increased nutrient, sediment, salt and other contaminant concentrations in receiving waters.
- Deterioration of water quality and of aquatic environmental health.
- Modification of natural overland flow paths as a result of site preparation and site construction activities.

CoA B4 (b) requires identification of the potential for cumulative impacts to be considered in relation to other construction activities occurring in the vicinity and how the impacts will be managed.

Cumulative impacts will be minimal. As the proposed ash placement facility at Lamberts North has previously been disturbed by mining, the area has already been removed from contributing runoff to the Upper Cox River Catchment and there will be no further reduction in runoff. In addition, the catchment areas of the Neubecks Creek are very small relative to the Upper Coxs River catchment (SKM, 2010).

The ash placement facility will not require water allocations or licences to operate, as water will be sourced from on site from the water harvested from the disturbed areas. Therefore, the development of the proposed ash placement facilities will not affect the water availability of the Upper Coxs River Catchment (SKM, 2012).

The decommissioning of the Huons Void will include the following:

- Progressively dewatering the existing Huons Void by pumping it out-for dust suppression use (via sprinklers and water carts) directly onto the existing Mt Piper Ash repository prior to construction works.
- Once water in the void reaches a suitable level, the void will be filled using select excavated material from Lamberts North.

4.6 Management, mitigation and monitoring measures

The management strategies and mitigation measures in this section have been designed to ensure that potential impacts on soils and surface water are within ANZECC (2000) threshold values for the protection of upland river aquatic systems (or are aligned with the background median values as provided in Table 4-2, and the Best Practice Guidelines for Erosion and Sediment Control (IECA, 2008). This Section also includes the objectives, performance criteria, monitoring, corrective actions and reporting specific to this CSSWMP.

Landcom Guidelines (2004) are referred to in CoA B5 (c). However these guidelines are mostly relevant to urban environments. In this situation it is considered that the IECA Guidelines (2008), in which the minimum standards exceed Landcom, have been applied for erosion and sediment control. Landcom Guideline parameters were used in the Stormwater Management Model (SWMM) for design of the drainage system.

The final design and location of the sediment control ponds for use during Project construction (and later for Project operation) will be confirmed in the construction design and sequencing process.

Water Management System

The site Water Management System (WMS) will provide adequate water during construction while minimising environmental impacts by collecting and managing dirty run-off water. The WMS has been developed with the following key principles:

- Clean rainwater runoff from undisturbed areas surrounding the Project site will be diverted away from ash placement operational areas via a new clean water diversion drain to the west of Lamberts North, draining towards the Mount Piper Power Station. To mitigate erosion potential the base of the 1.6km diversion drain will have a grade of approximately 0.4% and will connect to the Mt. Piper's existing drainage system.
- Sediment-contained water in the ash placement area will be directed to a lined sediment pond at the south eastern end of the site. Overflow from this pond will flow into an adjacent existing sediment pond.
- Water collected in sediment ponds will be used as part of the overall water management strategy for the Project to meet the demands for construction dust suppression, as well as dust mitigation purposes during the ensuring ash placement phase of Lamberts North.

The drainage and water storage ponds for construction have been designed for a 1 in 100 year Annual Exceedance Probability (AEP), 10-day flood event as described below.

The site water management strategy, erosion and sediment control principals and surface water monitoring programs are summarised below, with mitigation and management measures presented in Table 4-6. A figure showing the key features of the WMS is provided at Figure 4-3.

Flood modelling and resulting drainage design

In accordance with CoA B2 (c) and B5 (c) (x), flood modelling (groundwater modelling) was undertaken to predict water levels and inform the design of stormwater conveyance and management systems associated with the Lamberts North site. The SWMM was applied and a summary of the analyses is presented below. The clean water diversion drain and the sediment basin have been designed based on the results of the model.

The Groundwater model was sent to the NSW Office of Water (NOW) and Sydney Catchment Authority in October 2012. The comments from these departments has been summarised in table 8-1 main document.

SWMM was applied to evaluate the flows from three sub-basins identified as H1, H2 and H3 in the SKM report (SKM, 2010). These catchment areas are quantified in Table 4-3 and shown in Figure 4-1. Catchment sub-basins as modelled in the EA, L1 and L2, are also shown in Figure 4-1, however these areas were not required for Lamberts North drainage and are included only for completeness of showing the sub-catchment areas surrounding the project.

Table 4-3 Hydrologic model parameters*

Catchment	Area (km2)
H1	0.74
H2	0.23
H3	0.18
Total	1.15 (or 115 ha)

*adapted from Table 2-4 (SKM, 2010)

The model was run for the 100-year, 24-hour design storm, with the 24-hour rainfall depth (173 mm) and hourly rainfall distribution obtained from *Australian Rainfall and Runoff; A Guide to Flood Estimation, Volume 2*. Sub-basin characteristics (e.g. sub-basin area, slope and width) were based on available topographic data and/or data from the EA (SKM, 2010). The sub-basin runoff flows from the H1 and H2 sub-basins were routed through the existing channels to the point at which the flow currently enters the Lamberts North site.

The model included a clean water diversion channel that receives the channel outflow from sub-basins H1 and H2 plus the runoff from sub-basin H3 and routes that flow along the west side of the Lamberts North site, and then west along the south side of Mount Piper Ash Repository.

The diversion channel characteristics in the model (e.g., cross-section dimensions, length, slope) were taken from the SKM drainage options report (23 April 2012) figure "Clean Water Drain – Option 2" (Figure 4-2). Model results suggest that the diversion channel is sufficient to convey peak flows from the 100-year event without overtopping. Flatter side slopes (3:1 or 4:1) may be more appropriate to minimise potential for erosion, to be determined prior to finalising the detailed design.

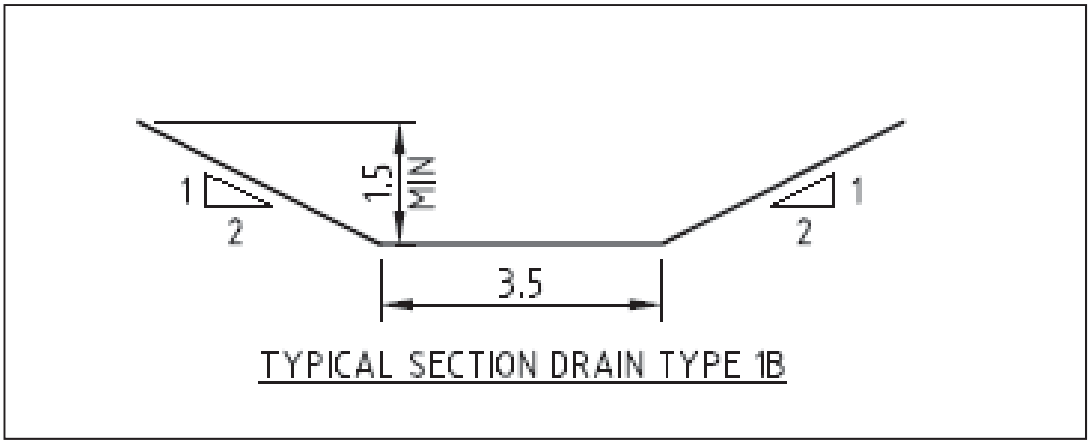


Figure 4-2 Typical cross-section of the clean water diversion drain (adapted from SKM Option 2)

The sediment basin has a capacity of approximately 10,000m³ (10 ML) and has been designed based on the SWMM model results outlined below, and is shown in the concept Erosion and Sediment Control Plan (ESCP) (Figure 4-3).

SWMM was applied to evaluate the capture and treatment of stormwater runoff, and frequency and quantity of basin overflow, for a sediment basin serving Lamberts North. The model was run for a 50-year period using daily rainfall data from Lidsdale (station 063132). Site characteristics (e.g. sub-basin area, slope, width) were based on the grading plan for the site and/or data from the SKM report, and the site was represented as a single sub-basin. Modelled runoff from the site was routed to the conceptual sediment pond, which was characterised as a rectangular basin with length-to-width ratio of 3 and side slope of 3:1 (H:V). Potential outflow processes considered for the basin included evaporation, pumping for land application on the site, and spillway overflow for more extreme events or wet periods.

The recommended basin size from the model was able to capture and treat 80-90% of the site runoff and resulted in less than one overflow event per year in the 50-year simulation. The size was roughly equivalent to that which would be established using the Landcom Guidelines (2004) for a 95th percentile, 10-day rainfall. Any overflow from the sediment basin will be directed to the east, to an existing pond with a capacity14,700m³ or 14.7 ML.

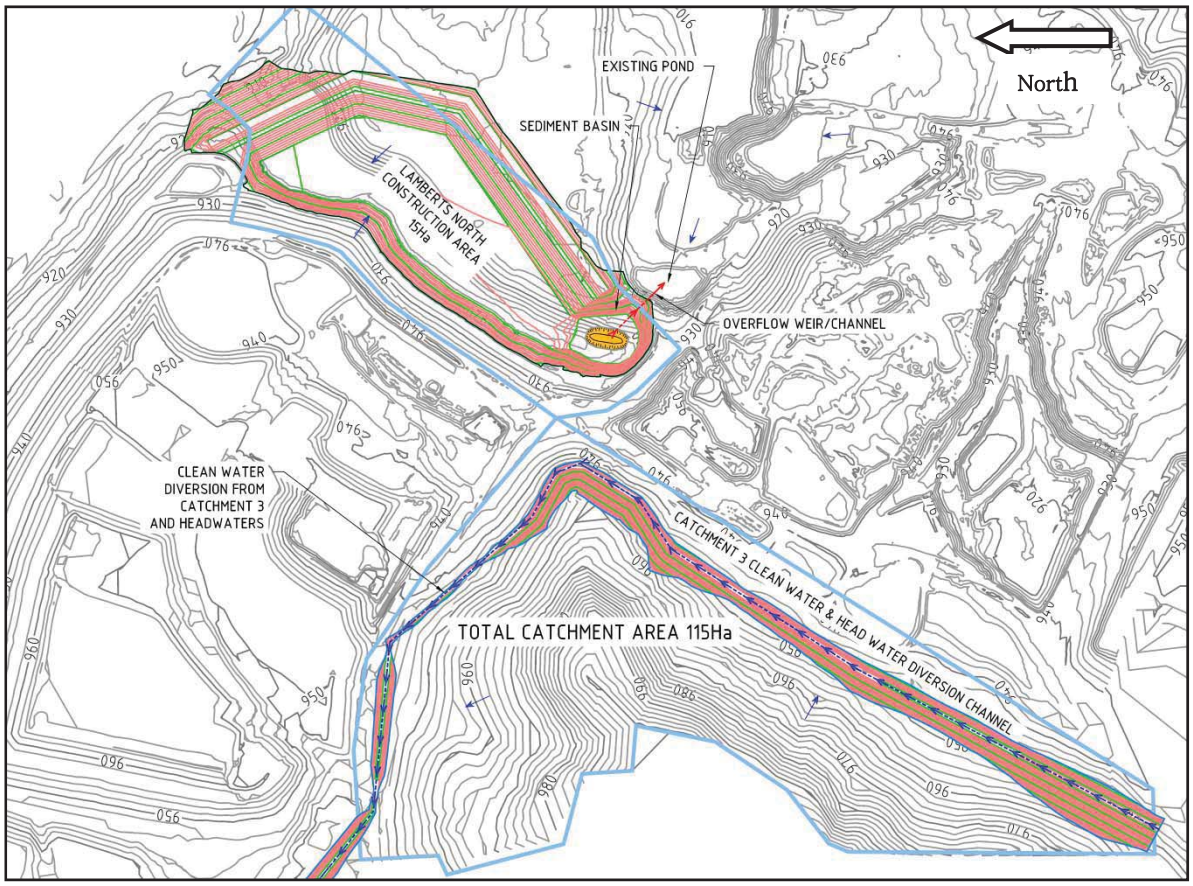


Figure 4-3 Concept erosion and sediment control plan, showing the key features of the WMS.

Table 4-4 Objectives, References, and Performance Criteria

Objectives
▪ To have no impact on receiving surface water quality in Neubecks Creek. ▪ To keep clean water separate from dirty (sediment laden) water. ▪ To provide dirty water storage areas to allow for water reuse on site. ▪ To minimise erosion on site and in the immediate surroundings of the site. ▪ To ensure on site sediment controls are effectively maintained. ▪ To comply with State policies relating to water quality, and other relevant legislation.
Performance Criteria
The IECA guidelines provide a comprehensive framework and criteria that generally exceeds the Landcom (2004) guidelines (refer CoA, B5 (c)(vii)). Where appropriate, the most conservative water quality criteria are applied (Table 4-5).

Table 4-5 Performance criteria

Performance Criteria
There will be no significant variation in surface water quality from background surface water quality values in Neubecks Creek.
Zero incident reports for soil erosion on site and immediate surroundings.
Sediment basin water should meet following discharge criteria before being discharged off site (if required). 6.5< pH <8.5* TSS (mg/L) = <50* DO (% sat) = 90-110** Turbidity (NTU) = <60* Oil and Grease Visual Assessment*
Sediment basins will be emptied when sediment content reaches 50% of basin design capacity.
Sediment will be removed from sediment fences regularly.

*Based upon objectives from the Landcom Series '*Managing Urban Stormwater, Soils and Construction*' Volume C Mines and Quarries (DECCW 2008)** ANZECC / ARMCANZ (2000) threshold values for the protection of upland river aquatic systems

References		
State legislation	**Standards /Codes**	**Other Documentation**
▪ *Contaminated Land Management Act 1997;* ▪ *Environmental Planning and Assessment Act 1979 (EP&A Act);* ▪ *Fisheries Management Act 1984;* ▪ *Hazardous Wastes (Regulation of Exports and Imports) Act 1989;* ▪ *National Parks and Wildlife Act 1974;* ▪ *Native Vegetation Act 2000;* ▪ *Protection of the Environment Operations Act 1997 (POEO Act);*	▪ The Australian and New Zealand Environment Conservation Council (ANZECC) / Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ) (2000) threshold values for the protection of upland river aquatic systems. ▪ Best Practice Guidelines for Erosion and Sediment Control, published by the International Erosion Control	▪ Water Management, Chapter 7 of the Mount Piper Power Station Ash Placement Environmental Assessment Report, August 2010 (SKM, 2010). ▪ *Mount Piper Station Ash Placement Project Hydrology and Water Quality Report*, Appendix D to the Mount Piper Station Ash

▪ *Threatened Species Conservation Act 2003 (*TSC Act); ▪ *Soil Conservation Act 1938;* ▪ *Waste Avoidance and Resource Recovery Act 2000; and* ▪ *Water Management Act 2000.* ▪ CoA B5c, C10, C11, C12, and C13	Association (IECA – 2008). ▪ Managing Urban Stormwater: Soils and Construction (Landcom 2004). ▪ Methods of Soils and Construction, Volume 1 (Landcom, 2004)	Placement Project Environmental Assessment Report, August 2010 (SKM, 2010) ▪ Project Construction Design Drawings (CDM Smith, 2012)

Table 4-6 Mitigation and management measures

No.	Environmental measure	Responsibility	Timing	Source/Reference
Pre-construction				
1.	The Project site will be delineated prior to works commencing and construction activities will not occur outside of the designated work area.	CSM	Prior to works commencing	B (5) (c) vi
2.	No works will be undertaken within 50 m of Neubecks Creek.	CSM	At all times	C12
3.	An erosion assessment will be undertaken to identify flow paths, suitable stockpile locations, soil cover type, and soil stability.	CSM	Prior to works commencing	B (5) (c) vii
4.	All erosion and sediment controls (ESC) will be designed and implemented in accordance with the IECA (2008) guidelines.	CSM	Prior to works commencing	B (5) (c) Vii IECA Guidelines (2008) ESCP drawings (Figure 4-3)
5.	Any ESC deemed to be required in addition to the ESC Plan (Figure 4-3) shall be incorporated into a Site Environmental Plan. The concept ESCP drawings will be updated to cover any deviations from the concept drawings.	CSM	Prior to works commencing	B (5) (c) ix ESCP drawings (Figure 4-3)
6.	The 1.6km clean water diversion drain to be constructed to the west of the site should be lined in accordance with the lining specified on the Erosion and Sediment Control Plan (ESCP) (Figure 4-3) – coconut jutte fibre matting with 50mm mulch .	CSM	Prior to and during works	ESCP (Figure 4-3)
7.	Stockpiles (consisting of excavated fill) will be placed for future capping (for operational phase) in the Lamberts North **precinct** GPS location 150°2'48 E33° 21'47"S. Approximately 191,000 m^3 will be placed at this location. Any remaining fill (approximately 9000$m^{3)}$ will be used as capping for the existing Mt Piper Ash Repository and as otherwise required on site. Stockpiles will be thoroughly compacted using machinery to minimise soil becoming water charged. Any excess water from the stockpiles will be directed towards the existing sediment ponds located onsite.	CSM	Prior to works commencing	B (5) (c) vii
8.	Silt fences may be installed as needed to ensure against off-site runoff until all diversion structures are constructed and operational.	CSM	As required	B (5) (c) vi
9.	An awareness program relating to ESC will be implemented as part of Project induction, site induction and ongoing site toolbox talks. All relevant personnel will be trained in ESC requirements, and their personal obligations to ESC incidents, which will be reported to their supervisor.	CSM	Prior to commencement of and during works	CEMP section 4.3

During construction				
10.	All ESC will be maintained in accordance with this plan and the IECA (2008) guidelines.	CSM	During works	B (5) (c) vii C11 IECA (2008) ESCP drawings (Figure 4-3)
11.	Sediment storage height gauges will be installed in each sediment basin and will be emptied when sediment content reaches the basin design capacity in accordance with the IECA (2008) guidelines.	CSM	During works	IECA (2008) ESCP drawings (Figure4-3) Construction drawings
12.	Clean water shall be diverted around exposed surfaces with a diversion drain, and channelled towards the clean water pond at LPD01 and Neubecks Creek.	CSM	During works	B (5) (c) viii ESCP drawing (Figure 4-3) Project design drawings
13.	The site will be graded to the south-east of the site, and sediment laden stormwater will be diverted to the 10ML sediment pond.	CSM	During works	B (5) (c) viii ESCP drawings (Figure 4-3) Construction drawings
14.	Any overflows from the 10ML sediment pond shall discharge via a weir into an adjacent existing sediment pond.	CSM	During works	B (5) (c) viii ESCP drawings (Figure 4-3) Construction drawings
15.	Water from sediment ponds will be used for dust suppression and other construction needs.	CSM	During works	B (5) (c) viii ESCP drawings (Figure 4-3) Project design drawings
16.	Surface water controls will be based on the maintenance of a negative grade back to the sediment basins.	CSM	During works	B (5) (c) viii Construction drawings
17.	Silt fences will be emptied regularly or when at or below 50% capacity.	CSM	During works	B (5) (c) vii
18.	Sediment fences shall be erected down-gradient of disturbed areas and at the toe of batters down slope of stockpiled material.	CSM	During works	B (5) (c) vii
19.	Long term stockpiles, including top soil, may be seeded or mulched in accordance with the IECA (2008) guidelines in the event that air quality monitoring detects exceedances. Short-term these stockpiles will be supressed by using water delivery by water carts.	CSM	During works	B (5) (c) vii IECA (2008) ESCP drawings (Figure 4-3)
20.	A minimum buffer distance of 30 m between stockpiles and water bodies/drainage lines will be maintained.	CSM	During works	B (5) (c) viii
21.	ESC will not be removed from their respective locations without the prior consent of the CSM.	All project personnel	During works	B (5) (c) vi

22.	In the event that surface water discharges from the site during a large rainfall event which exceeds the Landcom sediment basin capacity design are anticipated, flocculating agent will be used to ensure that turbidity and suspended solid concentrations in sediment basin/excavation pit water achieve water quality discharge criteria. Flocculating rates will be determined in accordance with the manufacturer's instructions.	CSM	During works	B (5) (c) viii
23.	During periods of low water availability, the following measures will be considered: ▪ Work areas will be minimised. ▪ DUSTEX or similar will be used instead of water to control dust. ▪ Minimal or no water will be used for rehabilitation. ▪ Less water allocated for management of roads and work areas (120kL/day – or less than half of the nominated daily volume of water required).	CSM	During works	B (5) (c) viii
Water re-use and recycling				
24.	Dirty surface water will be contained on site for: ▪ Dust suppression, via water truck ▪ Use of water in compaction for construction of haul roads.	CSM	At all times	B (5) (c) viii
Hazardous substance management				
25.	Any hazardous chemicals stored on site will be stored in designated storage areas and appropriately bunded or contained in accordance with AS 1940-2004 Storage and handling of flammable and combustible liquids.	CSM	At all times	C10
26.	All hazardous chemicals will be managed in compliance with the *Environmentally Hazardous Chemicals Act 1985* and associated chemical control orders.	CSM	During works	C10
27.	Loading of chemicals and refuelling will be undertaken outside drainage paths. Project site design will prevent stormwater runoff entering chemical storage areas.	CSM	During works	C10
28.	All spills of hazardous substances will be contained and cleaned up immediately using appropriate equipment. Spill containment equipment, personal protective equipment, instructions / emergency procedure guides for the management of wastes and hazardous substances will be kept on site and maintained in serviceable condition.	CSM	During works	C10
29.	All relevant personnel will be trained in the requirements of hazardous substances management and their personal obligations/reporting requirements of chemical spill incidents to their supervisor.	CSM	During works	C10
30.	All hazardous substances kept at the Project site will have relevant safety controls, including appropriate labelling, safety material data sheets, a register of chemicals used/stored, and emergency procedures.	CSM	During works	C10

Post-construction				
31.	It is unlikely that temporary water management structures will need to be decommissioned as they will be filled to prepare for ash placement however if dewatering is required the following measures should be undertaken: ▪ If dewatering is required, water should be re-used on site. ▪ Levelling of earth bunds/banks consistent with surrounding contours to maintain surface water flows and minimise surface ponding; ▪ Backfilling and compaction of basins consistent with surrounding contours to maintain surface water flows and minimise ponding; and ▪ Stabilising disturbed area to minimise erosion risk and sediment loss (if area will not be covered during ash placement).	CSM	As required	B (5) (c) vii
32.	The external faces on the bunds located around the permitter of the site will be mulched (no less than 50mm)in order to supress dust in accordance with the ICEA (2008) guidelines. . . .	CSM	During works or Post Construction	B (5) (c) vii IECA (2008)

Table 4-7 Monitoring measures

No.	Monitoring measures	Responsibility	Timing	Source/Reference
Erosion and sediment controls				
1.	ESC devices will be inspected during construction and within 24 hours after a rainfall event (>25mm in 24 hours) to ensure they are in good working order and to perform maintenance (e.g. sediment removal) if required.	CSM	Daily and following rainfall events (>25mm in 24 hours)	B (5) (c) viii and xiii
2.	Site inspections will be undertaken using the Weekly Environmental Inspection Checklist to identify areas of concern. Areas of concern will be recorded, appropriately actioned and a completion date recorded.	CSM	Weekly	B (5) (c) ix
3.	Visual monitoring of the Project site will be undertaken for evidence of soil erosion. Indicators include: ▪ Degradation of surface water quality on site. ▪ Scouring in drains. ▪ Build up of sediment in sediment and erosion control devices. ▪ Uncontrolled discharge from the site. ▪ Damaged or failed erosion control devices.	CSM	Daily	B (5) (c) ix, xi
Surface Water Quality Monitoring				
4.	Water quality monitoring will be undertaken at the three monitoring locations: at LDP01, WX22, and NC01 (see Figure 4-4). The following parameters will be monitored and the results shall be assessed against the existing baseline data and against the baseline condition (as per the EA) while the ANZECC 2000 – for upland river aquatic ecosystems should be used as a reference point:	Delta	Monthly	B (5) (c) ix Surface water monitoring report Figure 4-4 showing

No.	Monitoring measures	Responsibility	Timing	Source/Reference
	▪ pH ▪ Conductivity ▪ Turbidity ▪ Alkalinity (CaCO3) ▪ Total Dissolved Solids ▪ Chloride ▪ Fluoride ▪ Sulfate ▪ Sodium ▪ Potassium ▪ Barium ▪ Boron ▪ Cadmium ▪ Chromium ▪ Copper ▪ Iron ▪ Mercury ▪ Manganese ▪ Calcium ▪ Silica ▪ Zinc ▪ Magnesium ▪ Aluminium ▪ Arsenic ▪ Silver ▪ Lead ▪ Selenium			three water quality monitoring sites
5.	Additional surface water monitoring will be undertaken at Neubecks Creek within 24 hours following a >25mm rainfall event where possible, with a minimum of one event recorded within the three months of construction, to ensure that the implemented water quality management controls are operating effectively and preventing impacts during wet weather events. The following parameters will be measured: ▪ pH ▪ Electrical conductivity ▪ Dissolved oxygen ▪ Temperature ▪ Turbidity ▪ Total Suspended Solids	Delta	Within 24 hours of a rainfall event (>25mm in 24hrs)	B (5) (c) ix

Table 4-8 Response Plan and Corrective Actions

No.	Corrective Actions	Responsibility	Timing	Source/ Reference
1.	Where sediment problems are identified through monitoring, settling in siltation ponds may be aided by dosing with flocculation agents such as gypsum.	CSM	As required	B (5) (c) vi B (5) (c) viii
2.	Additional devices will be installed if a need is identified to prevent future breaches of the suspended solids criteria.	CSM	As required	B (5) (c) viii
3.	The placement of stockpiles and management of disturbed areas will be reviewed with regard to sediment and silt control.	CSM	Quarterly, or after storm events	B (5) (c) vi
4.	Existing sediment and erosion measures will be reviewed, rectification/rehabilitation of controls/site will be put into effect as soon as practicable.	CSM	As required	B (5) (c) ix B (5) (c) x B (5) (c) xiii
5.	If pH of surface water does not comply with the release criteria range, then such waters will be contained, and the pH adjusted to within the range prior to release.	CSM	As required	B (5) (c) ix
6.	If soil erosion is evident on long-term stockpiles, exposed surfaces at the affected area will be stabilized with mulched vegetation, dust suppressants or slope-stabilisation products.	CSM	As required	B (5) (c) vi
7.	The source of any incident or failure will be identified and reported as per incident reporting procedures.	CSM	As required	B (5) (c) xii CEMP
8.	Should results reveal that construction is having an adverse impact on surface water quality (results outside the baseline parameters), an investigation will be undertaken to determine the source of the exceedances and review the surface water quality controls within this plan, which may include: ▪ Reviewing surface water quality monitoring locations to ensure potential impacts from activities outside the Lamberts North site are not contributing to exceedances (for example a fourth monitoring site may be added on Neubecks Creek, above LDP01); ▪ Reducing the maximum allowable disturbed area at any one time; ▪ Increasing capacity of collection pond review diversion bunds and drains and rectify as required.	Delta	As required	B (5) (c) xii

Table 4-9 Reporting requirements

No.	Reporting requirements	Responsibility	Timing	Source/ Reference
1.	Monitoring results will be included in the Contractors Monthly Environmental Compliance Report. In the case of exceedance the response taken must be documented within the report. Any deviations from the proposed monitoring program will also be justified.	CSM	Monthly	Monthly Environmental Compliance Reports Surface water monitoring report
2.	All sediment, erosion and surface water quality incidents will be reported to the PS within 24 hours. Examples of incidents to report include: ▪ Scouring in drains. ▪ Build up of sediment in sediment and erosion control devices. ▪ Uncontrolled discharge from the site. ▪ Damaged or failed erosion control devices.	CSM	As required	B (5) (c) xii
3.	Surface water quality and ecological monitoring results for Neubecks Creek will be included in a monitoring report and provided to relevant regulators such as but not limited to the Director General, SCA, and NOW. The report will contain the results and analysis of monitoring data, location, frequency, rationale, and the procedures and protocols for collecting creek water samples as well as the parameters analysed and methods of analysis. This report may be part of the annual monitoring report prepared by Delta.	Delta	Annually	EPL 13007 B (5) (c) xiv B8
4.	The DPI Regional Fisheries Office will be contacted in the event of a fish kill in the vicinity of the operations. The incident will be investigated; however the department will be contacted regardless of the cause.	Delta	As required	B (5) (c) xiv

Lamberts North

Figure 4-4 Surface Water Quality Monitoring Sites

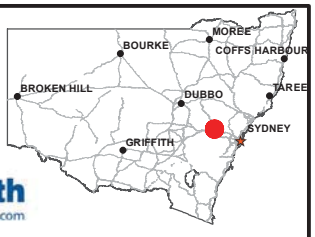
Legend

- Surface water sampling site
- Watercourse
- Former Watercourse
- Ben Bullen State Forest
- Project Site - Lamberts North
- Cadastre
- Road

0 100 200 400

Metres

N



Data Source:
Watercourses image-ortho traced, 2012;;
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Date: 17/09/2012

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Section 5 Air Quality Management Plan

5.1 Introduction

This Construction Air Quality Management Plan (CAQMP) is a Sub-Plan of the CEMP. It seeks to address the specific requirements of the CoA attached to the Project Approval for the Lamberts North Ash Placement Project (the Project), insofar as they relate to air quality. It also seeks to provide a framework for Delta Electricity (Delta), its Contractors and vendors to manage construction air quality and to minimise the potential for adverse impacts to sensitive receivers during the construction of the Project.

In particular, this CAQMP aims to:

- Minimise potential impacts on local residents and any other sensitive place within the zone of influence resulting from air quality emissions caused by construction related activities, and maintain air quality within regulatory limits..
- Ensure appropriate measures are implemented to address the relevant CoA outlined in Table 5-1 below, and to ensure compliance with and all relevant legislation/criteria as described in Table 5-2.

5.2 Scope and objectives

This CAQMP addresses air quality requirements pertaining to all construction related activities associated with the Project. It has been prepared to meet the requirements of CoA B5 (d) and C7of the Project Approval for Lamberts North. It provides a description of construction activities, potential dust sources, air quality criteria, and management measures to minimise air quality impacts. The CAQMP also describes the air quality monitoring regime and procedures for detailing how and when construction operations are to be modified to minimise the potential for dust emissions should they exceed the relevant criteria.

Other aspects relating to this plan which may be common to this and other Sub-Plans are outlined in the CEMP, and cross-referenced in the CAQMP as required.

5.3 Conditions of Approval relating to Air Quality

The Project Approval requires the preparation of an Air Quality Management Plan (this CAQMP) to protect and minimise air quality impacts as a result of construction of the Project. Table 5-1 below outlines the individual conditions associated with the Project Approval.

Table 5-1 CoA for Air Quality: ConditionsB5 (d) and C7

Reference	Requirement
Condition B5 (d) Air Quality Management Plan As part of the CEMP for the Project, the Proponent shall prepare an AQMP to provide details of dust control measures to be implemented during the construction of the Project. The Plan shall be prepared in consultation with the EPA and should include but not necessarily be limited to:	
i.	Identification of sources of dust deposition including truck movements, regrading, backfilling, stockpiles and other exposed surfaces.
ii.	Identification of criteria, monitoring and mitigation measures for the above sources.
iii.	A reactive management program detailing how and when construction operations are to be modified to minimise the potential for dust emissions, should emissions exceed the relevant criteria.

Reference	Requirement
Condition C7 Dust Generation The Proponent shall construct the project in a manner that minimizes dust emissions from the site, including wind-blown from earth works and stockpiles and traffic generated dust. All activities on the site shall be undertaken with the objective of preventing visible emissions of dust from the site. Should such visible dust emissions occur at any time, the Proponent shall identify and implement all practicable dust mitigation measures, including cessation of relevant works, as appropriate, such that emissions of visible dust cease.	

5.4 Existing environment

As described in the CEMP, the area immediately surrounding the Project area is predominantly industrial. Ben Bullen State Forest, which lies to the north east and south east of Mount Piper Power Station, together with coal mines and further power generation facilities, surround the Project site. Wallerawang Power Station, which is also owned and operated by Delta, lies to the south east of the Project site.

The term 'sensitive receiver' in this context refers to all nearby receivers, such as residents and businesses that may potentially be affected by dust emissions, both now and in the future. Land use surrounding the Project site is predominantly industrial, with some residential properties lying to the east and south of the site.

The nearest sensitive receivers, Sensitive Receiver No.1 and No.2, are located at Blackmans Flat, approximately 1.1 km to the east of the site (Figure 5-1).

Available data sourced from the former DECCW air quality monitoring station was used to assess the existing air quality environment at residential locations around the Project site. The assessment led to the following conclusions which were stated in the EA:

- *"Annual average PM_{10} and TSP concentrations are in compliance with the DECCW air quality assessment criteria;*
- *Short term (24-hour average) PM_{10} concentrations are highly variable and are likely to have exceeded the 50µg/m^3 criterion on occasions; and*
- *Average dust deposition levels are in compliance with the DECCW's air quality assessment criteria."*

Given that the dust dispersion modelling was based on a worst case scenario (i.e. assuming no controls or mitigation measure to minimise onsite dust emissions), the EA considered that the onsite dust concentrations and deposition levels generated during the construction phase will be low. This was due to the implementation of appropriate mitigation measures such as those currently used at the existing Mount Piper Ash Repository such as the application of water by water trucks and irrigation systems to exposed surfaces and water trucks on unpaved haul roads.

5.5 Construction Activities & Potential Impacts

Air quality, including dust and particulate matter will be managed to minimise and mitigate any environmental and health impacts. Construction of the Project will require bulk earthworks as detailed in the CEMP (Section 4), which have the potential to result in nuisance dust emissions. The major potential dust sources during construction activities are anticipated to include:

- Vegetation clearing and grubbing activities.

- Bulk earthworks including excavations re-grading/re-profiling and backfilling activities.
- Topsoil/material handling including stockpiling, material loading and material haulage.
- Vehicular movements over unpaved surfaces.
- Wind erosion of exposed areas and temporary stockpiles.
- Arid weather conditions.

The EA describes the potential for cumulative impacts due to other projects within the vicinity of Mount Piper Power Station (SKM, 2010). The findings are summarised below:

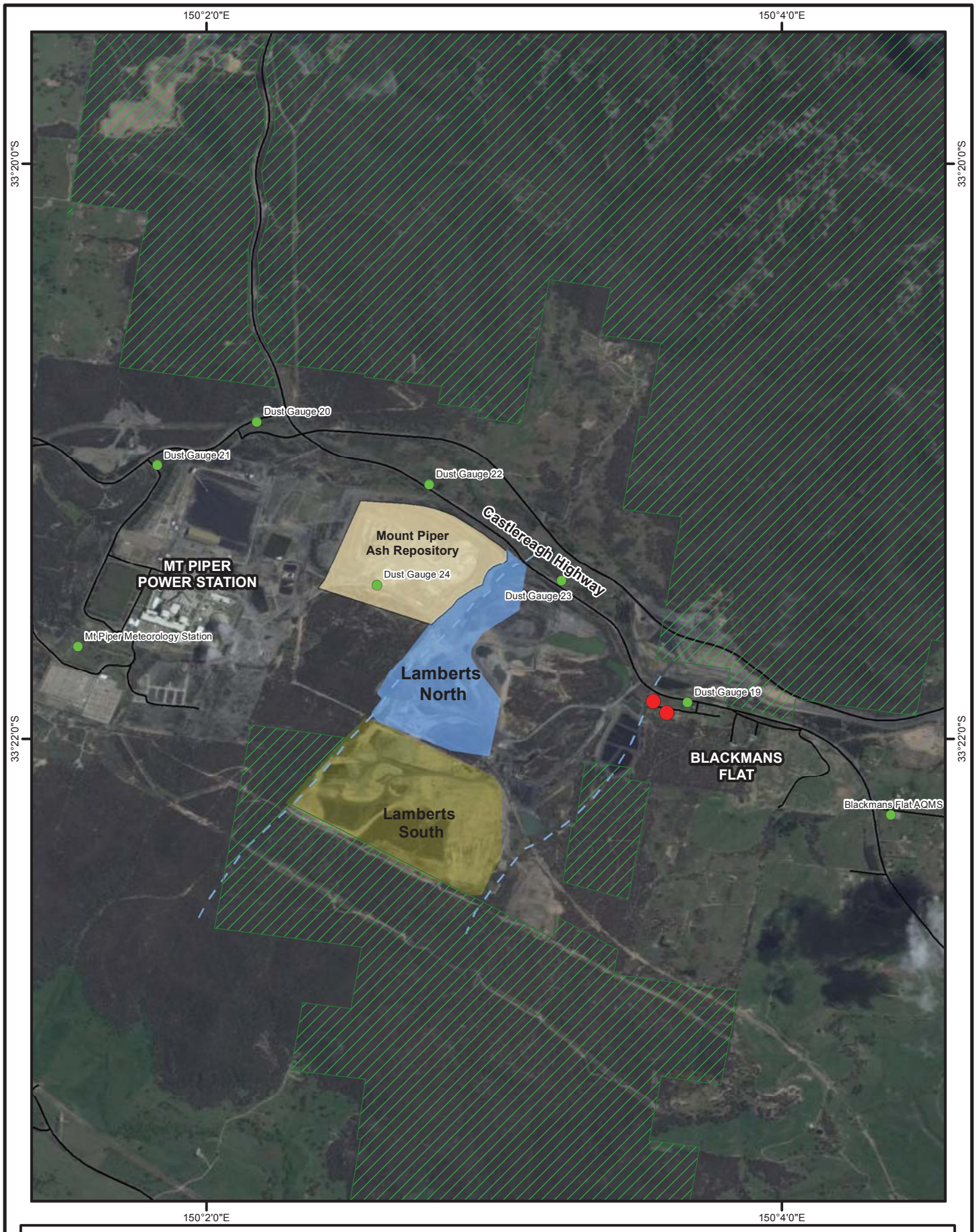
- A cumulative air quality impact assessment for TSP, PM_{10} and deposited dust levels was undertaken on the receivers closest to Mount Piper and Wallerawang projects. The results show that the cumulative impact for annual TSP and PM_{10} do not exceed the DECCW criteria of 90 $\mu g/m^3$ and 30$\mu g/m^3$ respectively. Predicted annual average deposited dust is also within the DECCW criteria of 4g/m^2/month.
- Maximum concentrations for TSP and PM_{10} were not included within the cumulative impact assessment as it is expected that the maximum impacts from the Mount Piper Ash Repository area will not occur at the same time as the maximum impacts from Wallerawang.

Pine Dale mine also operates in the area, 5km north of Wallerawang, Initial coal reserves were depleted in 2010 and an extension of existing operations was proposed, incorporating the former Yarraboldy open-pit coal mine, to the north of Pine Dale. The extension was approved in 2011 and the mine is currently operating. The TSP, PM_{10} and deposited dust levels generated from operation of this project is likely be the dominant source of background noise at the receivers located at Blackman's Flat, due to its proximity.

Dust dispersion modelling undertaken for the Project was based on a worst case scenario (i.e. assuming no controls or mitigation measure to minimise onsite dust emissions). The EA concluded that the onsite dust concentrations and deposition levels generated during the construction phase will be low. This was due to consideration of the appropriate mitigation measures such water trucks and irrigation systems for exposed surfaces, and water trucks on unpaved haul roads that will be implemented during construction.

Air quality assessment criteria for particulate matter, TSP and deposited dust is set by the DEC in the Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales (DEC, 2005), and is used to compared ambient monitoring results recorded at Mount Piper. The DEC amenity-based criteria for dust fallout is a maximum total dust deposition of 4 g/m^2/month (annual). The construction of the project shall aim to achieve compliance with this limit.

See Section 8 of CEMP for information on consultation with the EPA and other agencies.



Lamberts North

Figure 5-1 Sensitive Receiver Locations for Air Quality, and Monitoring Locations

Legend

- Air Quality Monitoring Sites
- Sensitive Receiver
- Road
- Former Watercourse
- Ben Bullen State Forest
- Project Site- Lamberts North
- Lamberts South

0 310 620 1,240

Metres

Data Source:
SR from SKM Consistency Report, 2012;
Monitoring sites by Delta, 2012;
Watercourses ortho-image traced, 2012;
DCDB and roads by Land & Property Information NSW Govt, 2012;
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5.6 Management, mitigation and monitoring measures

The following management strategies and mitigation measures have been designed to ensure that potential impacts from air are minimised. Management actions and mitigation measures have been developed to prevent or minimise environmental harm. This section also includes the objectives, performance criteria, monitoring, reporting, and response plan/corrective actions specific to this CAQMP.

Table 5-2 Objectives, References, and Performance Criteria

Objectives		
To manage air quality to ensure the prevention of conditions that may lead to visible dust emissions and complaints generated during the construction phase.		
Performance Criteria		
Minimise complaints from the community by adherence to management principles.		
No environmental nuisance infringements as a result of emission producing activities.		
To not exceed the historical air quality data as measured at the Mount Piper Ash Repository.		
References		
State legislation	**Standards /Codes**	**Other Documentation**
▪ *Environmental Planning and Assessment Act 1979 (EP&A Act);* ▪ *Protection of the Environment Operations Act 1997 (POEO Act); and* ▪ *Protection of the Environment Operations (Clean Air) Regulations 2001.* ▪ Conditions of Approval B5 (d) and C7	▪ NSW Department of Environment, Climate Change & Water (DECCW) Approved Methods for the Modelling and Assessment of Air Pollution in NSW, 2005.	▪ SKM 2010. Mount Piper Power Station Ash Placement Environmental Assessment, Chapter 5 – Air Quality (August, 2010). ▪ SKM 2010. Mount Piper Station Ash Placement Project Environmental Assessment, Appendix B – Air Quality Report (August 2010).

Table 5-3 Mitigation measures

No.	Mitigation measures	Responsibility	Timing	Source/ Reference
General work practices				
1.	Lamberts North construction activities shall be conducted in a manner that minimises dust impacts generated by activities, including wind-blown and traffic generated dust. All activities on the site shall be undertaken with the objective of preventing visible emissions of dust from the site.	CSM	At all times	C7
2.	A water truck will be utilised at the site to facilitate regular watering when required.	CSM	At all times	B5 (d) (ii) & C7
3.	There will be no burning of materials on site at any time.	CSM	At all times	B5 (d) (ii) & C7

No.	Mitigation measures	Responsibility	Timing	Source/ Reference
4.	The construction program will be developed to minimise the size of exposed areas susceptible to wind erosion at any one time, where possible.	CSM	At all times	B5 (d) (ii) & C7
5.	Long standing stockpiles to be used for capping of ash piles in the operational phases will be stabilised after earthworks have been completed; with mulch.	CSM	Following works	B5 (d) (ii) & C7
6.	In the event of visible dust emissions, personnel shall notify the CSM immediately, who will direct the water cart to spray the area and review the location	All staff	At all times	B5 (d) (ii) & C7
7.	A site activity log will be kept to assist with the retrospective investigation of community complaints. The log would record the type of activities occurring during work hours. All dust complaints will be reported to the CSM so mitigation measures can be implemented if required.	CSM	As required	B5 (d) (ii) & C7
8.	Materials will be loaded and unloaded as far as practical from dust sensitive areas.	CSM	As required	B5 (d) (ii) & C7
9.	Elevated air quality at sensitive receivers will be assessed by implementing the air quality monitoring program in this plan.	CSM	At all times	B5 (d) (ii)
Vehicle and machinery operations				
6.	Vehicles will be restricted to haul roads and speeds will be limited to 40km/hr on unsealed roads (including haul roads) to minimise dust.	CSM	At all times	B5 (d) (ii) & C7
7.	Dust suppression techniques such as watering exposed areas and haul roads using water trucks and irrigation system will be used during the construction period to minimise dust.	CSM	At all times	B5 (d) (ii) & C7
8.	Mud will be removed from wheels and bodies of all equipment before entering public roads (e.g Castlereagh Highway).	CSM	At all times	B5 (d) (ii) & C7
9.	On use on-site materials and no materials will be transported off site, minimising impacts from truck loads/materials transported to and from site.	CSM	As required	B5 (d) (ii) & C7
Excavation and stockpiles				
10.	Ad hoc/ unplanned/uncontrolled stockpiles will be developed for construction purposed and will be removed prior to the end of construction.	CSM	Prior to construction	B5 (d) (ii) & C7
11.	Water sprays (e.g. water trucks) will be used during excavation/earthwork activities to control visible dust.	CSM	At all times	B5 (d) (ii) & C7
12.	Stockpiles or material stores will be kept damp by water sprays and/or covered, and will be located as far from residences as possible where necessary to control visible dust.	CSM	As required	B5 (d) (ii) & C7
13.	Stockpile heights will be minimised to minimise wind borne dust being generated from the stockpiles.	CSM	At all times	B5 (d) (ii)
Diesel exhaust emissions				
14.	Diesel fuelled equipment will be regularly serviced and cleaned to ensure compliance with appropriate design emission standards for in-service vehicles.	CSM	As required	B5 (d) (ii) & C7
15.	Diesel powered stationary plant will be maintained to ensure appropriate levels of air emissions are not exceeded.	CSM	As required	B5 (d) (ii) & C7

Table 5-4 Monitoring measures

No.	Monitoring measures	Responsibility	Timing	Source/ Reference
1.	Visual monitoring of the site, haul roads and stockpiles for dust generation will be undertaken during general construction activities to identify excessive dust generation.	CSM All staff	Daily	B5 (d) (ii) & C7
2.	Air quality monitoring will be undertaken during construction of the project, in line with existing monitoring undertaken at the Mount Piper Ash Repository. Monitoring stations are shown in Figure 5-1. ▪ A total of six existing dust deposition gauges are established around the perimeter of Lamberts North and the Mount Piper Power Station, and at key locations adjacent to residential properties at Blackmans Flat (dust gauge 19, 20, 21, 22, 23 and 24). The results from these gauges will be used during the construction phase to monitor dust emissions (TSP and dust deposition). ▪ One Tapered Element Oscillating Microbalance (TEOM) automated continuous particle monitor, used to measure PM10, is located at Mount Piper, and one Ambient monitor (high volume) is located at Blackmans Flat to measure PM10 and PM2.5. ▪ TSP will be calculated from dust deposition bottles. The locations and frequency of air quality monitoring are as follows. **Locations** At sensitive receiver locations at Blackmans Flat (refer to Figure 5-1), and six existing locations around the perimeter of the Mount Piper Power Station as per existing Delta air quality monitoring procedures. **Frequency** Dust bottles will be used during construction and measured monthly. PM10 and PM2.5 will be reported monthly. **Adopted Air Quality Criteria** These will be compared to historical data.	Delta	Monthly	B5 (d) (ii) & C7 Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales (DEC, 2005) Air quality and meteorology stations shown in Figure 5-1.
3.	Seasonal weather monitoring (particularly wind speed and direction) will continue to be carried out at Mount Piper as a means to verify project related air quality impacts.	Delta	Monthly	B5 (d) (iii)
4.	Samples from the dust deposition gauges shall be analysed on a monthly basis by a NATA approved laboratory and assessed for compliance with historical air quality as recorded at Mount Piper Ash Repository by Delta	Delta	Monthly	B5 (d) (iii)

Table 5-5 Response Plan and Corrective Actions

No.	Corrective Actions	Responsibility	Timing	Source/ Reference
1.	If air quality-related complaints are received, or if elevated levels of measured parameters are identified, an investigation will be undertaken to determine to source of the dust. Mitigation measures will be undertaken to minimise dust sources.	CSM	Ongoing	Air quality monitoring report
2.	If 4g/m2/month is exceeded by more than 2g/m2/month, a review of the effectiveness of the dust suppression regime and further mitigation measures shall be undertaken, such as additional control measures (e.g. increased watering), and/or varied site operations.	CSM	Ongoing	B5 (d) (iii) Air quality monitoring report
3.	If all practical mitigation measures have been employed but monitoring indicates that air quality criteria are being exceeded, a short term scaling back of work may be considered to ensure goals are being met.	CSM	As required	B5 (d) (iii)
4.	In the event of an air quality-related complaint, the Complaints Management procedure outlined in the CEMP will be implemented.	Delta	In response to community complaints	B5 (d) (ii) B5(d)(iii) CEMP Section 4.8
5.	In the event of an incident, the Incident Response and Reporting procedure will be implemented.	CSM	In the event of an incident	CEMP Section 4.6 and 4.7

Table 5-6 Reporting Requirements

No.	Reporting Requirements	Responsibility	Timing	Source/ Reference
1.	Air quality observations will be recorded in the Weekly Environmental Checklist.	CSM	Weekly	B5 (d) (ii) & C7
2.	Environmental Incidents report forms will be completed and forwarded to the PS	CSM	As required	B5 (d) (ii) & C7 CEMP Section 4.6
3.	Details of any air quality/dust management, monitoring and any complaints will be provided in a Monthly Environmental Compliance Report.	CSM	Monthly	B5 (d) (ii) & C7 Monthly Environmental Compliance Reports
4.	Results of air quality monitoring will be included in Environmental Monitoring Reports in accordance with existing procedures undertaken by Delta.	Delta	Monthly	
5.	Results will be made available to the Administering Authority as requested.	Delta	As required	

Section 6 Flora and Fauna Management Plan

6.1 Introduction

This Construction Flora and Fauna Management Plan (CFFMP) is a Sub-Plan of the CEMP. It seeks to address the specific requirements of the CoA attached to the Project Approval for Lamberts North, insofar as they relate to flora and fauna. It also seeks to provide a framework for Delta, its contractors and vendors to manage flora and fauna, and to minimise the potential for adverse impacts to the environment during the construction of the Project.

In particular, this CFFMP aims to:

- Describe current terrestrial vegetation communities, important flora and fauna habitat areas and the locations of important flora and fauna areas to be cleared.
- Identify areas adjoining the site where important habitat, threatened species or ecological communities occur.
- Detail methods to manage impacts on flora and fauna and their habitat which may be directly or indirectly impacted by the Project.
- Outline procedures for vegetation clearing or soil removal/stockpiling and managing weeds.
- Outline a procedure to review management methods when they are found to be ineffective.

6.2 Scope and objectives

This CFFMP addresses flora and fauna requirements pertaining to all construction related activities associated with the Project which are relevant to the CoA relating to flora and fauna.

It has been prepared to meet CoA B5 (e) of the Project Approval for Lamberts North (Table 6-1). It provides a description of the existing environment, and construction activities and schedule of construction works; and it provides management measures to minimise impacts on fauna and flora. The CFFMP also describes the monitoring regime and procedures for flora and fauna during the construction period.

Other aspects relating to this CFFMP which may be common to this and other Sub-Plans are outlined in the CEMP, and cross-referenced in the CFFMP as required.

6.3 Conditions of Approval relating to Flora and Fauna

The Project Approval requires the preparation of a Flora and Fauna Management Plan to protect and minimise loss of flora and fauna as a result of construction of the Project. Table 6-1 below outlines the individual conditions associated with the Project Approval.

Table 6-1 CoA for Flora and Fauna: Condition B5 (e)

Reference	Requirement
As part of the CEMP for the project, the Proponent shall prepare and implement a Flora and Fauna Management Plan, to outline measures to protect and minimise loss to native vegetation and native fauna habitat as a result of construction of the project. The Plan shall be prepared in consultation with the EPA and shall include, but not necessarily be limited to:	
i.	Plans showing terrestrial vegetation communities; important flora and fauna habitat areas; locations of threatened flora and fauna and areas to be cleared. The plans shall also identify vegetation adjoining the site where this contains important habitat areas and/or threatened species, populations or ecological communities;
ii.	Procedures to accurately determine the total area, type and condition of vegetation community to be cleared;
iii.	Habitat which may be directly or indirectly affected by the project, procedures for vegetation clearing or soil removal/stockpiling and procedures for identifying and re-locating hollows, installing nesting boxes and managing weeds; and
iv.	A procedure to review management methods where they are found to be ineffective.

6.4 Existing environment

The EA for the Project was prepared in accordance with the Director General's requirements for the Project's assessment. Chapter 8 and Appendix E of the EA provide a description of the relevant environmental values and potential impacts at the Project site relating to ecology (including flora and fauna – SKM 2010). This CFFMP relates to the information contained within those reports.

Flora and fauna field surveys were conducted within the Project site. The flora survey involved identification of the floristics and structure of the vegetation within the proposed ash placement areas and the type and distribution of plant communities (Figure 6-1). The flora assessment identified that the site is almost completely devoid of all vegetation due to past mining activities. One small regrowth area exhibiting little ecological value exists on a mullock heap (mining spoil and overburden stockpile) within Lamberts North, near Huon Void. This vegetation is only up to five years old.

Overall, due to the past disturbances from open-cut mining, the site is devoid of any ecological attributes. The field surveys did not identify any threatened or listed fauna within or immediately adjacent to the project site. Figure 6-1 provides an indication of the absence of vegetation in the Project area.

Only the south western corner of Lamberts North abuts relatively undisturbed vegetation. The likelihood of the adjacent vegetation being anything more than marginal habitat, or providing an important wildlife corridor, for threatened or listed fauna is non-existent. A small section of adjacent vegetation may be required to be removed for the construction of the diversion drain to the west of the site. However this is currently mapped as non-native vegetation (Figure 6-1).

In terms of regional ecological values, a field survey and a review of the NSW Bionet identified two plant species listed as Vulnerable under the *Threatened Species Conservation Act* (TSC Act) and the EPBC Act outside property boundary. These are the Capertree Stringybark (*Eucalyptus cannonii*) and the Silver leaved Mountain Gum (*E. pulverulenta*). Grey leafed gum was recorded to the south of the Project area (Figure 6-1). This species is locally common throughout the Mount Piper

perimeter lands and has limited potential threats other than land clearing. Neither species was found within the Lamberts North boundary. Note that Figure 6-1 shows vegetation type, not condition.

No endangered ecological communities (EECs) were identified within or close to the Lamberts North project site. The EA did identify three patches of remnant vegetation in the southern most proposed ash placement area (Lamberts South) which included Brittle Gum, Red Stringybark Woodland, Scribbly Woodland and Ribbon Gum Woodland. This remanent vegetation does not need to be considered in this CEMP as it is in Lamberts South and therefore outside the scope of the construction area. .

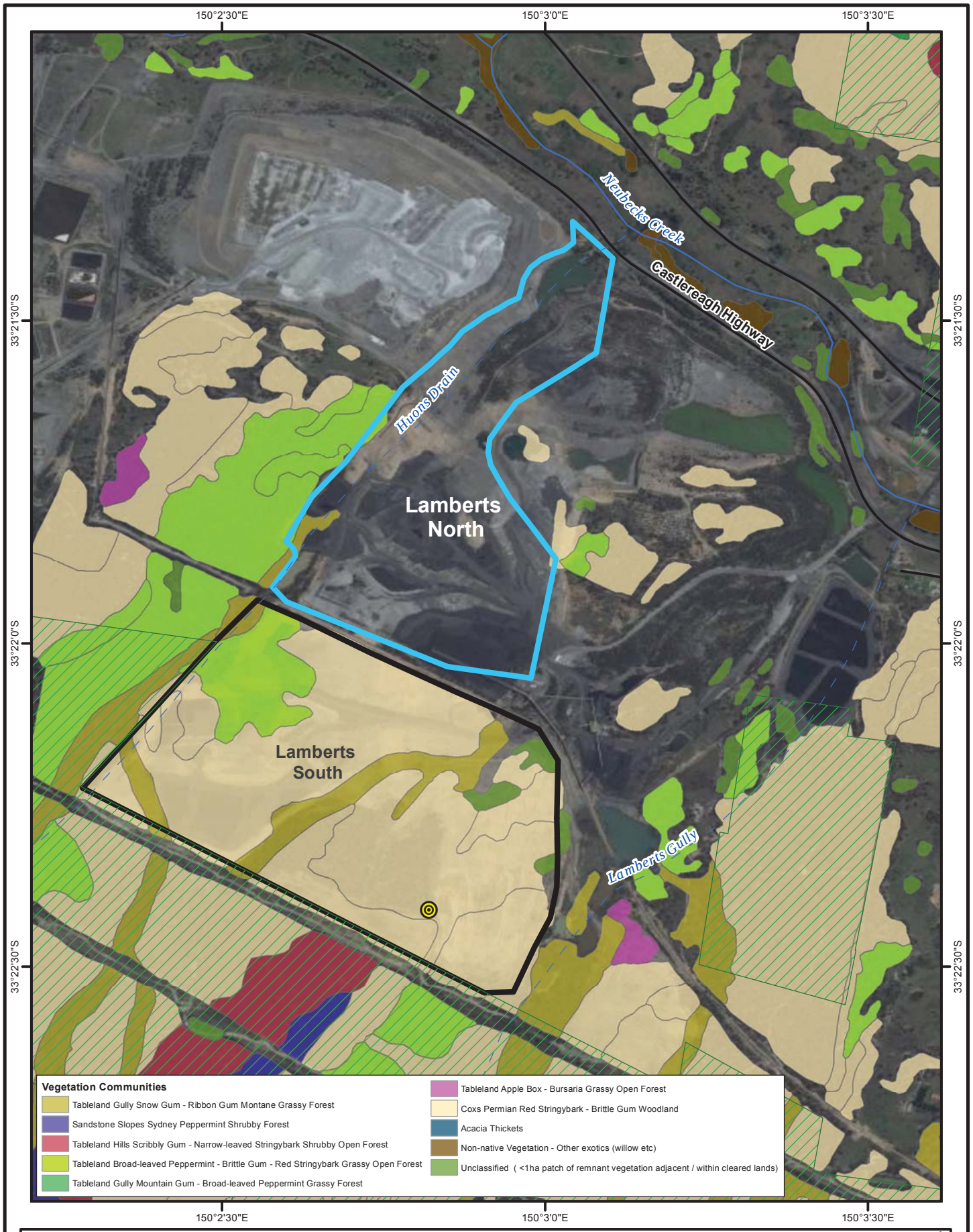
There is an existing mullock heap on Lamberts North which contains some regrowth that is less than five years old. It consists of acacia species including silver wattle, red stemmed wattle, box wattle, black wattle, sifton bush, green wattle and fine-leaf green wattle.

Prior to Lithgow recently encountering an above average rainfall, this vegetation area was in a moderately poor condition, The wattles that dominate the mid to higher levels of the eastern side of the void are now in fairly good condition, however the wattles that lie on the lower parts of the eastern batter just above the water level are dead. In addition, the sparse vegetation located to the north of Huons Void, that consist of mainly pine trees and non-native vegetation vary from poor to moderate condition.

Vegetation located in the flatter areas of Lamberts North, heading in an easterly direction away from Huons Void are considered in a moderate to poor condition. Since the flora and fauna survey was completed in 2010 by SKM, this area has a very sparse understory consisting of mainly non-native vegetation and weeds. Although this area is about 7.4 hectares in size, only 5 hectare of it is actually vegetated.

During the development of the Environmental Assessment by SKM, this area was considered to have no ecological significance with very little wildlife observed in the area. Acacias do not produce hollows, so it is not considered necessary to provide any alternative nesting boxes nearby.

This CEMP and its associated sub plans were submitted to the Environmental Protection Authority (EPA) and the Office of Environment and Heritage (OEH) on the 24 October 2012. Comments were requested within the week, Delta did not receive any comments regarding this CEMP or its sub plans. See Section 8 of the CEMP for a summary of the consultation process undertaken by Delta.



Lamberts North

Figure 6-1 Vegetation and Threatened Flora Species

Legend

- *Eucalyptus Cannonii*
- Road
- Watercourse
- Former Watercourse
- Ben Bullen State Forest
- Project Area - Lamberts North
- Lamberts South

0 125 250 500

Metres

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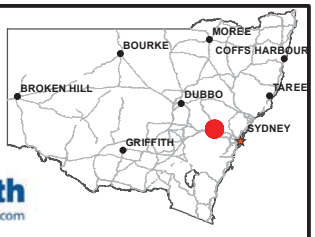

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6.5 Construction activities and potential impacts

The construction of the Project will require the removal of the small 5 ha section of regrowth located on a mullock heap. Delta will not require a permit under the *Native Vegetation Act 2003* to clear regrowth vegetation within the construction area boundary, as the regrowth on mined surfaces and mullock heaps was established after 1 January 1990. In addition, a section of vegetation may require removal to accommodate the extension and realignment of the western diversion drain, however as shown on Figure 6-1, this vegetation is predominantly non-native with no threatened species. New weed species could potentially be spread into the surrounding vegetation through vehicles bringing seeds in from off site, although there is likely to be limited movement into land off site by the same vehicles, and a full weed complement representative of the surrounding landscape already exists on and adjacent to the site.

Construction activities will not affect faunal habitat, as the vegetation that does occur within the project site is recent regrowth or non-native vegetation.

There may be vehicle strikes on wildlife, e.g. of dingoes or wallabies crossing the haul roads, or of reptiles sunning themselves on the roads. These are unlikely to have any impact on population viability in the area, and will be managed by the implementation of speed limits on haul roads.

Hydrocarbon spills would have a localized impact on plant or animal health if they were to occur in an area of habitat, and a more distributed but dispersed impact on aquatic ecosystem health if spills managed to flow into a waterway. This would only be an issue if it occurred while working on the perimeter bund and mitigation measures for these aspects are included in the CSSWMP in this Appendix.

The EA identified no ecological values at Lamberts North. Existing regrowth vegetation will therefore not be quantified prior to removal.

6.6 Management, mitigation and monitoring measures

The management and mitigation measures, monitoring, reporting requirements, and a response plan/corrective actions for this Sub-Plan are outlined in the tables below.

Table 6-2 Objectives, References, and Performance Criteria

Objectives			
▪ To avoid, where possible, construction – related impacts on native flora and fauna and their habitat. ▪ To minimise impacts of Class 1 – 3 noxious weeds and Weeds of National Significance in and around the site.			
Performance Criteria			
▪ No construction impacts on trees or other native vegetation outside the construction area. ▪ No construction induced erosion outside of property or construction area boundary. ▪ No harm to native mammal or birds. ▪ No new noxious weed infestations within the Project area.			
References			
Commonwealth legislation	**State legislation**	**Standards /Codes**	**Other Documentation**
▪ *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act).* ▪ Condition of Approval B5 (e)	▪ *Threatened Species Conservation Act 1995 (TSC Act).* ▪ *Environment Planning and Assessment Act 1979 (EP&A Act).* ▪ *National Parks and Wildlife Act 1974 (NPW Act)* ▪ *Noxious Weeds Act 1993 (NW Act).* ▪ *Native Vegetation Act 2003 (NV Act).* ▪ *Water Management Act 2000.*	▪ N/A	▪ Mount Piper Power Station Ash Placement Project Environmental Assessment, Chapter 8 – Ecology (August 2010). ▪ Mount Piper Station Ash Placement Project Environmental Assessment, Appendix E – Ecology Report (August 2010). ▪ SKM, 2011. Mount Piper Power Station Ash Placement Project Submissions Report, March 2011. ▪ SKM 2012. Mount Piper Power Station Ash Placement Project Consistency Report: Project Approval 09_0186 (June, 2012).

Table 6-3 Mitigation measures

No.	Mitigation measures	Responsibility	Timing	Source/ Reference
1.	Should native vegetation be required to be removed for construction of the diversion drain, the area of vegetation will be subject to a pre-clearing survey by the Contractor to determine the total area, type and condition of vegetation to be removed. Clearing will be minimised to the area required for the drain.	CSM	Prior to and during construction	B5(e) (ii) and (iii)
2.	Control of Class 1 – 3 environmental weeds and Weeds of National Significance in and around property boundary as necessary	Delta	Pre construction	Erosion and Sediment Control Plan (Appendix A) CoA B5 (e) (iii)
3.	Contractors will walk the site prior to construction to determine whether large mammals, such as wombats, are present.	CSM	Pre- construction	CoA B5 (e)(iii)
4.	Rapid reconnaissance weed surveys will be undertaken, and findings noted in the Monthly Environmental Compliance Report.	CSM	Monthly	CoA B5 (e) (iii)
5.	Noxious weeds and invasive species will be removed and controlled as necessary.	CSM	During construction	CoA B5 (e) (iii)
6.	Speed limits will be established and enforced on all haul roads to minimise the risk of animal strikes and the generation of dust.	CSM	During construction	CoA B5 (e) (iii)
7.	The species and location of any animal strikes on project haul roads will be recorded.	CSM	During construction	CoA B5 (e) (iii)
8.	The Contractor will contact the local WIRES officer in the event of non fatal wildlife injuries due to vehicle strike.	CSM	During construction	CoA B5 (e) (iii)
9.	Delta will consider pest control in surrounding habitat as part of its existing routine Land Management practices.	Delta	During construction	CoA B5 (e) (iii)

Table 6-4 Monitoring Measures

No.	Monitoring Measures	Responsibility	Timing	Source/ Reference
1.	The following will be monitored during construction and recorded on the Weekly Environmental Inspection Checklist: ▪ Pest animal activity. ▪ Injury to native animals. ▪ Erosion and sedimentation. ▪ The occurrence of weed species.	CSM	Weekly during construction	CoA B5 (e) (iv)

Table 6-5 Response Plan and Corrective Actions

No.	Corrective Actions	Responsibility	Timing	Source/ Reference
1.	Contractors will be reminded during tool box talks of the need to be vigilant and ensure speed limits are adhered to in the event of wildlife strikes.	CSM	During construction	CoA B5 (e) (iii)
2.	Fencing of vegetation on the boundary will occur if wildlife strike hot spots are identified.	CSM	During construction	CoA B5 (e) (iii)
3.	Weed management processes will be reviewed in the event of a listed weed outbreak.	Delta	During construction	CoA B5 (e) (iii)
4.	Review frequency and effectiveness of dust suppression; and refine dust suppression procedures as required.	CSM	During construction	Air Quality Management Plan
5.	Hydrocarbon spills will be attended to quickly and reported to the CSM	Plant operator, CSM	During construction	CoA B5 (e) (iii)
6.	Any cleared vegetation will be chipped and reused on the batter and perimeter bunds onsite to reduce erosion and prepare the area for future revegetation	CSM	During construction	CoA B5 (e) (iii)
7.	Construction waste (ie. packing material, scrap metal, formwork, pallets, plastic wrapping) will be disposed off or reused in accordance with Delta's WRAPP program for waste management.	CSM/ Delta	During Construction	CoA B5 (e) (iii)

Table 6-6 Reporting

No.	Reporting Requirements	Responsibility	Timing	Source/ Reference
1.	Results of the pre-clearing surveys will include a brief report of the activities and any findings during the survey.	CSM	Monthly	CoA B5 (e) (iv) Monitoring Report
2.	Any incidents or non-compliances relating the flora and fauna will be recorded in the Monthly Environmental Compliance Report.	CSM	Monthly	CoA B5 (e) (iv) Monthly Environmental Compliance Reports
3.	The effectiveness of mitigation measures in avoiding environmental impacts will be reviewed if monitoring shows an increasing trend over a three month period, in the occurrence of impacts. Corrective actions will be initiated as required.	Delta	As required and/or three monthly	CoA B5 (e) (iv) Monitoring Report

6.7 Vegetation Clearing Procedures

In accordance with CoA B5 (e) (iii), Table 6-7 includes the vegetation clearing procedures to be implemented during construction.

Table 6-7 Vegetation Clearing Procedures

No.	Mitigation measures	Responsibility	Timing	Source/ Reference
1.	All personnel involved in clearing operations will have training through toolbox talks and inductions on environmental requirements.	CSM	Pre clearing	CoA B5 (e, ii)
2.	Photographs will be taken of the trees located on site, prior to construction as a reference for a future biodiversity offset plan as appropriate.	CSM	Pre clearing	CoA B5 (e, ii)
3.	Prior to construction, the site to be cleared shall be surveyed to identify any native animals that may require relocation.	Delta	Pre clearing	CoA B5 (e, ii)
4.	Should Delta or its appointed Contractor find any native animals that require relocation, Delta must consult with DECCW to find out its legal obligations to relocate the animal/s to a more suitable habitat.	Delta	Pre clearing	CoA B5 (e, ii)
5.	The Environmental Assessment carried out in 2010 identified that most of the animals located on Lamberts North and South being transient such as kangaroos, birds, bats and possums. These animals tend to migrate between areas and relocate naturally in the event of noise caused by construction. However should Delta or its contractors find any non-transient native animals or their habitats such as wombats, they will refer to item #4 of this table to relocate the animal/s.	Delta	As required	CoA B5 (e, ii)

No.	Mitigation measures	Responsibility	Timing	Source/ Reference
6.	Cleared vegetation shall be stockpiled in a manner that facilitates respreading or salvaging. The general procedure for the clearing, mulching and stockpiling of vegetation is as follows: ▪ progressive clearing of vegetation; ▪ a suitable mulcher will be used to mulch vegetation after clearing; and ▪ mulched and cleared vegetation will be stockpiled in a designated stockpile area for landscape rehabilitation.	CSM	Post clearing	CoA B5 (e)(iii)
7.	The area will be surveyed by a qualified surveyor prior to clearing the site, to define boundaries and what areas are to be cleared for construction.	CSM + Delta	Pre clearing	CoA B5 (e, ii)
8.	Seasonal conditions will be taken into consideration prior to clearing to minimize the likelihood of major soil disturbance resulting in erosion. This can include recent rainfall events, stability of the land etc, which may cause machinery to be bogged or buried.	CSM	Pre clearing	CoA B5 (e, ii)
9.	Prior to clearing soil and sediment controls will be set up around the site.	CSM	Pre clearing	CoA B5 (e)(iii)
10.	Selective clearing is to be used, using appropriate plant and equipment.	CSM	As required	CoA B5 (e)(iii)
11.	If needed practicable felling or chaining can be used to clear larger wattles.	CSM	As required	CoA B5 (e)(iii)
12.	Windrows concentrate water and increase the potential for erosion, to avoid channelling and concentration run off, contractor should work along contours and remove windrows immediately following clearing	CSM	As required	CoA B5 (e)(iii)
13.	Windrows that cannot be removed should be aligned down the contour in a manner appropriate for safe disposal of runoff.	CSM	As required	CoA B5 (e)(iii)
14.	Any debris will not be piled close to the native vegetation or site compounds in case of a fire outbreak	CSM	As required	CoA B5 (e)(iii)
15.	No clearing is to be carried out in extremely hot weather condition, or when a total fire ban prevails in the district unless a risk assessment in accordance with Delta's procedures determines that it is safe to do so.	CSM	As required	CoA B5 (e)(iii)
16.	Extreme care shall be taken when working along step batters, near Huons Void. Appropriate mitigation measures shall be implemented which may include but not limited to the following: ▪ contour banks ▪ cross drains ▪ drop structures ▪ sediment traps ▪ basins and buffer strips	CSM	As required	CoA B5 (e, ii) and (iii)
17.	All contractors must strictly follow OH&S safe workplace procedure whilst clearing vegetation	CSM	At all times	CoA B5 (e)(iii)

Section 7 Aboriginal Heritage Management Plan

7.1 Introduction

This Construction Aboriginal Heritage Management Plan (CAHMP) is a Sub-Plan of the CEMP. It seeks to address the specific requirements of the CoA attached to the Project Approval for Lamberts North, insofar as they relate to Aboriginal heritage. It also provides a framework for Delta, its Contractors and vendors to manage aboriginal heritage and to minimise the potential for adverse impacts to on Aboriginal heritage values during the construction of the Project.

In particular, this CAHMP aims to:

- Provide procedures for the management of potential heritage objects and/or human remains.
- Provide for Aboriginal cultural heritage matters to be included in induction processes for construction personnel.
- Provide procedures for ongoing Aboriginal consultation and involvement should Aboriginal heritage sites or objects be found during construction.
- Ensure that appropriate mitigation measures are developed and implemented to address the relevant CoA outlined in Table 7-1 below.
- Ensure that appropriate measures are implemented to comply with all relevant legislation/criteria as described in Table 7-2 below.

7.2 Scope and objectives

This CAHMP addresses Aboriginal heritage requirements pertaining to all construction related activities associated with the Project.

It has been prepared to meet the CoA B5 (f) of the Project Approval for Lamberts North, and provides procedures to ensure Aboriginal heritage artefacts and human remains are identified and reported and other actions taken if encountered.

7.3 Conditions of Approval relating to Aboriginal Heritage

Condition B5 (f), C8 and C9 of the CoA requires the preparation of an Aboriginal Heritage Management Plan (this AHMP) to protect and minimise loss of Aboriginal heritage as a result of construction of the Project. Table 7-1 below outlines the individual conditions associated with the Project Approval.

Table 7-1 CoA for Aboriginal Heritage: Conditions B5 (f), C8 and C9

Reference	Requirement
Condition B5 (f) As part of the CEMP for the project, the Proponent shall prepare and implement an Aboriginal Heritage Management Plan, to outline measures to protect and minimise loss to native vegetation and native fauna habitat as a result of construction of the project. The Plan shall be prepared in consultation with the EPA and shall include, but not necessarily be limited to:	
i.	An updated Cultural Heritage Management Plan to cover the protection of sites previously recorded in the 2005 Aboriginal Heritage assessment.
ii.	Procedures for the management of unidentified objects and/or human remains, including ceasing work.
iii.	Aboriginal cultural heritage induction processes for construction personnel.
iv.	Procedures for ongoing Aboriginal consultation and involvement should Aboriginal heritage sites or objects be found during construction.
C8	If during the course of construction the Proponent becomes aware of any previously unidentified Aboriginal object(s), all work likely to affect the object(s) shall cease immediately and the EPA (OEH) informed in accordance with the National Parks and Wildlife Act 1974. In addition, registered Aboriginal stakeholders shall be informed of the finds. Works shall not recommence until an appropriate strategy for managing the objects has been determined in consultation with the EPA (OEH) and the registered Aboriginal stakeholders and written authorisation from the EPA (OEH) is received by the Proponent.
C9	If during the course of construction the Proponent becomes aware of any unexpected historical relic(s), all work likely to affect the relic(s) shall cease immediately and the EPA (OEH (Heritage Branch)) notified in accordance with the Heritage Act 1977. Works shall not recommence until the Proponent receives written authorisation from the EPA (OEH (Heritage Branch)).

7.4 Existing environment

There currently are no Aboriginal heritage sites located at Lamberts North, however this Sub-Plan has been prepared to meet CoA and to ensure management and reporting measures are in place in the unlikely event that new sites are identified during construction.

The EA for the project was prepared in accordance with the Director General's Requirements for the Project's assessment. Chapter 9 and Appendix F of the EA provide a description of the relevant environmental values and potential impacts at the Project site relating to Aboriginal heritage, including a technical heritage assessment. This Sub-Plan relates to the information contained within those reports.

Intensive archaeological surveys were conducted in and around the Lamberts North a prior to the commencement of open cut mining over twenty years ago (OzArk, 2010). A number of previously recorded sites have been destroyed (under permit) through mining or other land uses, or were permitted to be destroyed at the time of the EA development.

Two remaining extant sites do not fall within the Project boundary, and have been assessed in the EA as being unlikely to be affected by activities within the Project boundary at Lamberts North (Figure 7-1). Complete disturbance of previously recorded sites within the Lamberts North Project boundary was confirmed through a site visit by an archaeologist and a representative of the

Bathurst Local Aboriginal Land Council (BLALC) in March 2010 (OzArk, 2010). No new sites were found during this visit.

Delta recently carried out an Aboriginal Heritage Information and Management System (AHIMS) survey as part of their Land Management Plan. The survey concluded that there were no aboriginal areas of significance in the Lamberts North Area.

Therefore the requirement to develop an updated Cultural Heritage Management Plan (CHMP) to cover the protection of sites previously recorded in the 2005 Aboriginal heritage assessment, as recommended by OzArk (2010) and required as Condition B5 (f) (Table 7-1) is superfluous. Nevertheless, this CAHMP establishes the processes and practices required to protect artefacts of Aboriginal significance, as required by law (NPW Act 1974).

This CEMP and its associated sub plans were submitted to the OEH on the 24 October 2012. Comments were requested within the week, Delta did not receive any comments regarding this CEMP or its sub plans. See Section 8 of the CEMP for a summary of the consultation process undertaken by Delta.

7.5 Construction activities and potential impacts

The Project site is in a highly disturbed condition with no aboriginal areas of significance identified in the Lamberts North project area. It is therefore anticipated there will be no Project impact on Aboriginal heritage at Lamberts North.

Lambert's North

Figure 7-1 Aboriginal Heritage Site

Legend

- Aboriginal Heritage Site
- Former Aboriginal Heritage Site
- Road
- Watercourse
- Former watercourse
- Project Site - Lamberts North

0 125 250 500

Metres

Data Source:
Roads and watercourses by GA, 2011;
DCDB by Land & Property Information NSW Govt, 2012;
Base Image by Bing Maps.

DISCLAIMER
CDM Smith has endeavoured to ensure accuracy and completeness of the data. CDM Smith assumes no legal liability or responsibility for any decisions or actions resulting from the information contained within this map.

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Date: 13/09/2012

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7.6 Management, mitigation and monitoring measures

The following management strategies and mitigation measures have been designed to ensure that potential impacts to Aboriginal heritage are avoided where possible. This section also includes the objectives, performance criteria, monitoring, reporting, and corrective actions specific to this Sub-Plan.

Table 7-2 Objectives, References, and Performance Criteria

Objective		
To protect objects of significance to Aboriginal people and which are protected under the National Parks and Wildlife Act 1974.		
Performance Criteria		
Contractor and project staff advised of their obligations regarding Aboriginal Heritage. Work immediately halted upon the discovery of potential Aboriginal artefacts/relics/objects or human remains within the construction area. Bathurst Local Aboriginal Land Council (BLALC) and the Office of Environment and Heritage – Heritage Branch (OEH) (Western Region Office) immediately notified upon discovery of potential Aboriginal artefacts or human remains.		
References		
State legislation	**Standards /Codes**	**Other Documentation**
▪ *Environmental Planning and Assessment Act 1979 (EP&A Act)* ▪ *Parks and Wildlife Act 1974 (NPW Act 1974)* ▪ CoA B5(f), C8 and C9	▪ N/A	▪ Mount Piper Power Station Ash Placement Environmental Assessment, Appendix F – Aboriginal and Non-Indigenous Cultural Heritage Assessment. Prepared for Delta Electricity, 2010 (OzArk 2010). ▪ Mount Piper Power Station Ash Placement Environmental Assessment, Chapter 9 – Aboriginal Heritage Assessment (August 2010). Prepared for Delta Electricity 2010. (SKM, 2010) ▪ Mount Piper Power Station Ash Placement Project Consistency Report: Project Approval 09_0186 (May 2012). Prepared for Delta Electricity 2012 (SKM 2012). ▪ Delta Electricity (2012) Draft Land Management Plan' Aboriginal Natural and Cultural Heritage Section.

Table 7-3 Mitigation measures

No.	Mitigation measures	Responsibility	Timing	Source/ Reference
1.	Awareness of obligations relating to Aboriginal Heritage by contractors and staff will be included in all project inductions.	CSM	As required	CEMP 4.3.2
2.	Should a potential Aboriginal artefact/relic/object or human remains be identified, work will be immediately halted.	CSM	As required	C8
3.	The area where a potential find is located will be isolated from work continuing elsewhere on site. The CSM and CPM will be notified immediately.	All staff	As required	C8 and C9
4.	In the event that an Aboriginal artefact/relic/object or human remains, the PS will be notified immediately	CSM	As required	CEMP 4.7
5.	BLALC and OEH will be notified and accordance with the NPWS Act 1974	PS/Delta	As required	C8 and C9

Table 7-4 Monitoring measures

No.	Monitoring measures	Responsibility	Timing	Source/ Reference
1.	General visual observations of potential Aboriginal artefact/relic/object or human remains will be made during construction	Contractor	At all times	

Table 7-5 Reporting

No.	Reporting requirements	Responsibility	Timing	Source/ Reference
1.	Environmental Incidents report forms will be completed and forwarded to the PS.	CSM	As required	CEMP section 4.7
2.	Aboriginal Heritage finds (including ay human remains) will be notified to BLALC and OEH (Heritage Branch) immediately as per NPWS Act 1974	PS/Delta	As required	C8
3.	Aboriginal Heritage finds (including ay human remains) will be included in the Monthly Environmental Compliance Report.	CSM	Monthly	B8 Monthly Environmental Compliance Reports
4.	Records will be maintained at all times and be available for inspection by the relevant agency.	Contractor and Delta	At all times	CEMP s7.3

Table 7-6 Response Plan and Corrective Actions

No.	Corrective Actions	Responsibility	Timing	Source/ Reference
1.	Upon discovery of potential Aboriginal artefact/relic/object or human remains, works will cease in that area and the PS will be consulted. BLALC and OEH will be notified and consulted regarding required management actions and protection measures.	PS	As required	C8
2.	Works shall not recommence until Delta receives written authorisation from the EPA (OEH (Heritage Branch)).	PS	As required	C9
3.	Additional training on statutory obligations and procedures will be provided to all relevant staff and personnel as required.	CSM	If required	Table 5.2

Section 8 Glossary of Terms and Acronyms

8.1 Terms

Table 8-1 Glossary of Terms

Term	Definition
Aquifer	A saturated geologic formation (rock or sediment) capable of storing, transmitting and yielding reasonable amounts of groundwater to wells and springs.
Contaminant (pollutant)	Any substance that makes water unfit for a given use.
Dispersion Modelling	Modelling by computer to mathematically simulate the effect on plume dispersion under varying atmospheric conditions; used to calculate spatial temporal fields of concentrations and particle deposition due to emissions from various source types.
Groundwater Basin	The underground area from which groundwater drains. The basins could be separated by geologic or hydrologic boundaries.
Leachate	A liquid formed by water percolating through soil or soluble waste as in a landfill.
LAeq (15 minute)	The noise level having the same energy as the time varying noise level over a 15 minute interval.
Lamax	The maximum noise level measured at a given location over a 15 minute interval.
Sound Power (pW)	The sound power level of a source is expressed in decibels (dB) and is equal to 10 times the logarithm to the base 10 of the ratio of the sound power of the source to a reference sound power. The reference sound power in air is normally taken to be 10-12 watt.
PM10	Particulate matter less than 10 µm in aerodynamic equivalent diameter.
PM2.5	Particulate matter less than 2.5 µm in aerodynamic equivalent diameter.
Sensitive Receiver	A place where people are likely to work or reside. This may include a dwelling, school, hospital, office or public recreational area.
Water Table	The water surface in an unconfined aquifer; the level below which the pore spaces in the soil or rock are saturated with water; the upper surface of the zone of saturation.

8.2 Acronyms

Table 8-2 Acronyms

Acronym	Description
AHIMS	Aboriginal Heritage Information and Management System
ANZECC	Australian and New Zealand Environment and Conservation Council
ARMCANZ	Agriculture and Resource Management Council of Australia and New Zealand
BLALC	Bathurst Local Aboriginal Land Council
CAHMP	Construction Aboriginal Heritage Management Plan
CAQMP	Construction Air Quality Management Plan
CEMP	Construction Environmental Management Plan
CFFMP	Construction Flora and Fauna Management Plan
CGMP	Construction Groundwater Management Plan
CHMP	Cultural Heritage Management Plan
CSSWMP	Construction Soil and Surface Water Management Plan
CNMP	Construction Noise Management Plan
CoA	Conditions of Approval
CPM	Contractor Project Manager
DP&I	Department of Planning and Infrastructure
dB	Decibel
dB(A)	Measure of A-weighted sound; approximation of response of human ear
DEC	Former Department of Environment and Conservation
DECC	Former Department of Environment and Climate Change

Acronym	Description
DECCW	Former Department of Environment and Climate Change and Water
DP&I	Department of Planning and Infrastructure
EA	Environmental Assessment (SKM August 2010)
EECs	Endangered Ecological Communities
EPA	Environment Protection Authority
EP&A Act	Environmental Planning and Assessment Act 1979
ER	Environmental Representative
ESC	Erosion and Sediment Control
ESCMP	Erosion and Sediment Control Management Plan
IECA	International Erosion Control Association
LCC	Lithgow City Council
NOW	NSW Office of Water
NPW Act	National Parks and Wildlife Act 1973
OEH	Office of Environment and Heritage
PS	Project Superintendent
SCA	Sydney Catchment Authority
TEOM	Tapered Element Oscillating Microbalance
TSP	Total Suspended Particulates

Section 9 References

ANZECC (2000). Australia and New Zealand Guidelines for Fresh and Marine Water Quality. Australian and New Zealand Environment and Conservation Council, Agriculture and Resource Management Council of Australia and New Zealand. Canberra, Australia.

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Appendix 2 – Ash Transportation Plan

Delta Electricity

Lamberts North Ash Placement Project
Ash Transportation Plan

CDM Smith

Delta Electricity

Lamberts North Ash Placement Project
Ash Transportation Plan

27 August 2012

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Section 1 Introduction

1.1 Background

This Ash Transportation Plan (ATP) has been prepared to meet the requirements of condition B5(g) of the Conditions of Approval (CoA) for the Lamberts North Ash Placement Project (the "Project"). The ATP is an Appendix to the Construction Environmental Management Plan (CEMP), prepared in accordance with CoA B5.

Delta Electricity (Delta) received Project Approval in February 2012 to construct a new ash placement area at Lamberts North, located at Mt Piper Power Station, 17km North West of Lithgow. The Project will provide a facility for the placement of ash produced from the combustion of coal used in the generation of electricity at Mt Piper Power Station. The facility is to be operational from first quarter 2013.

Ash from Mt Piper Power Station is currently transported by a covered conveyor to a silo in the south-west corner of the Mount Piper Ash Repository. From here it is taken by truck along temporary ash placement roads over the ash repository for final placement.

At the time the Environmental Assessment (SKM, 2010) and Submission Report (SKM, 2011) were prepared for the Project, the Project proponent, Delta had identified a number of options for transporting the ash to Lamberts North and Lamberts South. It was indicated that the choice of option would be made as part of the current design phase of the Project when more information was available.

Project approval was provided for both Lamberts North and Lamberts South to cater for ash generated from the existing Mount Piper Power Station and proposed Mount Piper Power Station Extension. Due to a delay in transfer of Lamberts South by Centennial Coal until at least 2015, and existing ash placement areas at Mount Piper reaching capacity by 2013, Delta needs to start construction works at Lamberts North no later than the last quarter (Q4) of 2012.

This change in availability of land at Lamberts South initiated a requirement to increase the extent of ash placement capacity within the Lamberts North site, and has also helped to guide the decision on the preferred option for ash transport.

The plan has been prepared to confirm the preferred option to meet the ash transportation needs for Lamberts North.

1.2 Purpose and Scope

This plan is an Appendix to the CEMP for the Project, and addresses the requirements pertaining to the selection of the preferred option for the transportation of ash from the Mt Piper Station. The purpose of the ATP is to:

- Identify options for transporting ash from Mt Piper power station to Lamberts North ash repository;
- Describe the preferred option and provide justification of the chosen option for ash transportation; and
- Provide details of its construction including the impacts and mitigation measures of these impacts.

The mitigation measures associated with construction of the ash transportation option are associated with the construction phase of the Project. This plan should therefore be read in conjunction with the CEMP.

Section 2 Conditions of Approval Relating to Ash Transportation

The Project Approval requires the preparation of an ATP to provide details on the preferred option for the transportation of ash from the Mt Piper Power stations to Lamberts North ash placement area. **Table 2-1** outlines the individual conditions associated with the Project Approval.

Table 2-1 Project approval conditions for Ash Transportation

Reference	Requirement
Condition B5 (g) As part of the CEMP for the project, the Proponent shall prepare an Ash Transportation Plan to outline provide details on the preferred option for the transportation of ash from the Mt piper Power Station to the ash placement areas. The Plan shall include but not necessarily be limited to:	
i.	Justification of the proposed option for ash transportation (either haulage access roads and/or conveyor)
ii.	Details of the proposed option, including construction requirements, impacts and mitigation measures
iii.	Plans showing the location of the chosen option
iv.	Provision of mitigation measures should the conveyor breakdown

Section 3 Ash Transport Options

Three options for transporting ash to Lamberts North have now been considered by Delta and one selected. The options considered were:

- Option 1 (Truck Transport): Truck ash from the existing silo at Mt Piper to Lamberts North for final placement.
- Option 2 (Extended Conveyor): Extend the existing conveyor from the south corner of Mount Piper Ash Repository to a new silo on the western edge of Lamberts North with final ash placement by truck.
- Option 3 (New Conveyor): Build a new ash conveyor from the power station along the alignment of the existing overland conveyor to a silo to be located at the boundary of Lamberts North and Lamberts South to service both areas.

Within Lamberts North, all the options involve the use of temporary "placement" roads as currently used in Mount Piper Ash Repository to truck ash to its final deposition point, starting in the north and working south (see CEMP Section 4.2 for further details about construction of the haul road).

These options are shown in Figure 2-1.

3.1 Option 1 Truck Transport

Option 1 involves trucking ash from the existing silo Mt Piper to Lamberts North for final placement. A haul road would be built along the southern bank of Mount Piper Ash Repository from the existing silo to the western edge of Lamberts North. From this point a temporary road would run to the north of Lamberts North to allow initial ash placement at the northern end of Lamberts North, gradually working south. Over the life of Lamberts North this temporary road would gradually swing to the south as Lamberts North fills from the north.

The haul road from the silo to Lamberts North would largely be constructed from recycled bottom ash placed on the top of the first ash batter in Mount Piper Ash Repository and be screened from public view by the Mount Piper Ash Repository ash repository above it. Bottom ash has a proven record for construction of temporary ash placement. The haul road would serve the life of Lamberts North.

Existing operations at Mount Piper Ash Repository requires two trucks to be used for the transport of ash, with brine-conditioned ash being transported from the silo's at Mt Piper in the summer months, and water-conditioned ash being transported during with winter months. These activities will be extended into Lamberts North for just six months of the year during the winter period, with ash transportation requiring just one additional truck during operations

The remaining six months ("summer") would require only two- truck operation to place brine-conditioned ash in the existing Mount Piper Ash Repository repository. The third truck would be free to be used surface and dust management during the drier summer months at both Lamberts North and Lamberts South.

3.2 Option 2 Extended conveyor

Option 2 involves extending the existing conveyor from the south-east corner of Mount Piper Ash Repository to a new silo to be built on the western edge of Lamberts North. From here the ash

would be trucked over temporary placement roads for final placement in Lamberts North. The conveyor would be built high on the slope of the hill behind Mount Piper Ash Repository, running east-west and parallel to that area.

A transfer station would be required at the cut-in to the existing conveyor to allow brine-conditioned ash to continue to be conveyed to the Mount Piper Ash Repository silo so that this ash can to be placed in the area above RL 940 in Mount Piper Ash Repository until it is filled.

A parallel haul road, such as that proposed for Option 1, would be required to allow ash placement to continue should the conveyor fail. This feature is included in the existing arrangements for emergency trucking of ash to Mount Piper Ash Repository should the existing conveyor fail or be out-of-service for maintenance.

3.3 Option 3 New conveyor

Option 3 involves building a new ash conveyor from the power station along the eastern and then northern side of the existing overland conveyor to a silo to be located at the boundary of Lamberts North and Lamberts South (Figure 2-1). From this silo, ash would be trucked north into Lamberts North and when this was filled, south into Lamberts South (when available).

As with Option 2, a separate emergency haul road would also be required to allow ash placement to continue during downtimes of the ash conveyor. The haul road would be built adjacent to the conveyor. As with Option 2, the existing conveyor and silo would need to be retained to allow brine-conditioned ash to be placed in the area above RL 940 in Mount Piper Ash Repository until it is filled.

For the operation of Lamberts North, ash placement would start in the north-east corner from either the new conveying system, or the original, and require three-truck operation during the "winter" months and two-truck operation during the "summer" period as for Option 1. This arrangement would be required for approximately 50% of the life of Lamberts North, reverting to two-truck operation as the placement moved south towards the new conveyor.

Lamberts North Project

Figure 2.1 Proposed Ash Transportation Route Options

Legend

- Road
- Watercourse
- State Forest
- Project Area - Lamberts North
- Proposed Haul Road
- Existing Conveyor
- Conveyor Option

0 125 250 500

Metres

Data Source:
Roads and watercourses by GA, 2011;
DCDB & forest by Land & Property Information NSW Govt, 2012;
Base Image by Bing Maps.

DISCLAIMER
CDM Smith has endeavoured to ensure accuracy and completeness of the data. CDM Smith assumes no legal liability or responsibility for any decisions or actions resulting from the information contained within this map.

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3.4 Assessment of options

An assessment of the relative merits of each ash transport option has been conducted by Delta and the results summarized in Table 3-1.

Table 3-1 Assessment of the relative merits of the ash transport options

Parameter	Option 1	Option 2	Option 3
Operating Expenditure (OPEX)	Slightly higher fuel and vehicle maintenance costs than Options 2 & 3.	Conveyor maintenance lower than Option 3 because of shorter run. Both conveyor options involve transfer tower and silo maintenance.	Higher operating and maintenance (O&M) cost than option 2 because of longer conveyor and more energy needed to operate it. Also required third truck to be operating for part of the Lamberts North repository life
Operations	Relatively straight forward with one extra truck required compared with Option 2 for six months of the year.	Relatively straight forward. Downtime for maintenance or breakdown will require use of back-up haul road.	As for Option 2 but north-east corner of Lamberts North would need a third truck for at least part of the operation of the site.
Risk	Relatively low risk because it is a simple operation and a failed truck can usually be repaired quickly or another brought in. One failure in three trucks can be managed for short periods.	Higher risk than Option 1 because more complex & greater chance of conveyor failure.	Higher risk than Option 2 because conveyor longer and more complex. Failure would require immediate mobilisation of one or two extra trucks.
Noise	Truck noise on haul road reduced at Project boundaries because contained by Mount Piper Ash Repository ash mound to the north and hill to the south.	Likely to be highest noise option because of conveyor height and closer to Project boundaries than Option 3.	Conveyor noise should be lower than for Option 2 because the conveyor is largely contained behind hills.

Parameter	Option 1	Option 2	Option 3
Air Quality - Dust	Potentially higher than covered conveyors but reduced by water carts and contained by Mount Piper Ash Repository ash mound to the north and hill to the south. Drivers of third truck redeployed to manage sprinklers and dust suppression over the drier summer months	Potentially lower than Option 1 because conveyor is covered. Extra casual employees required over the summer months to manage dust suppression.	As for Option 2.
Risk	Relatively low risk because it is a simple operation and a failed truck can usually be repaired quickly or another brought in. One failure in three trucks can be managed for short periods.	Higher risk than Option 1 because more complex & greater chance of conveyor failure.	Higher risk than Option 2 because conveyor longer and more complex. Failure would require immediate mobilisation of one or two extra trucks.

3.5 Option selection

Option 1 has been selected by Delta as the basis of design for ash transportation to Lamberts North for the following reasons:

- It has a significantly lower Capital Expenditure (CAPEX) than Options 2 & 3.
- It has a lower environmental impact in terms of noise and use of materials. Its potential for higher dust emissions can be mitigated by water spraying and containment between two hills, using the practical measures already employed at Mount Piper Ash Repository.
- It is lower risk with relatively simple operations and easy mitigation of vehicle failures.

Section 4 Construction requirements and potential impacts

The preferred ash transportation option for Lambert North includes the use of articulated trucks and internal haul roads rather than enclosed conveyors. The use of conveyors has not been entirely discounted, but due to the restricted operational hours applying to Lambert North compared to the existing operations, it is expected that conveyors will be implemented at a later date when the Lambert South emplacement area is also operational.

The existing haul road extends across the southern boundary of Mount Piper Ash Repository and it is expected that it would be extended to provide access to the Lambert North repository. While the final footprint of the new internal haul road is yet to be finalised, a general layout is shown on Figure 4-1. In the short term, the ash placement to Lambert North will be serviced by haulage trucks from the existing Mount Piper Ash Repository loading point which will require vehicle access along the existing Mount Piper Ash Repository haul road from the Mt Piper Power Station.

4.1 Construction requirements

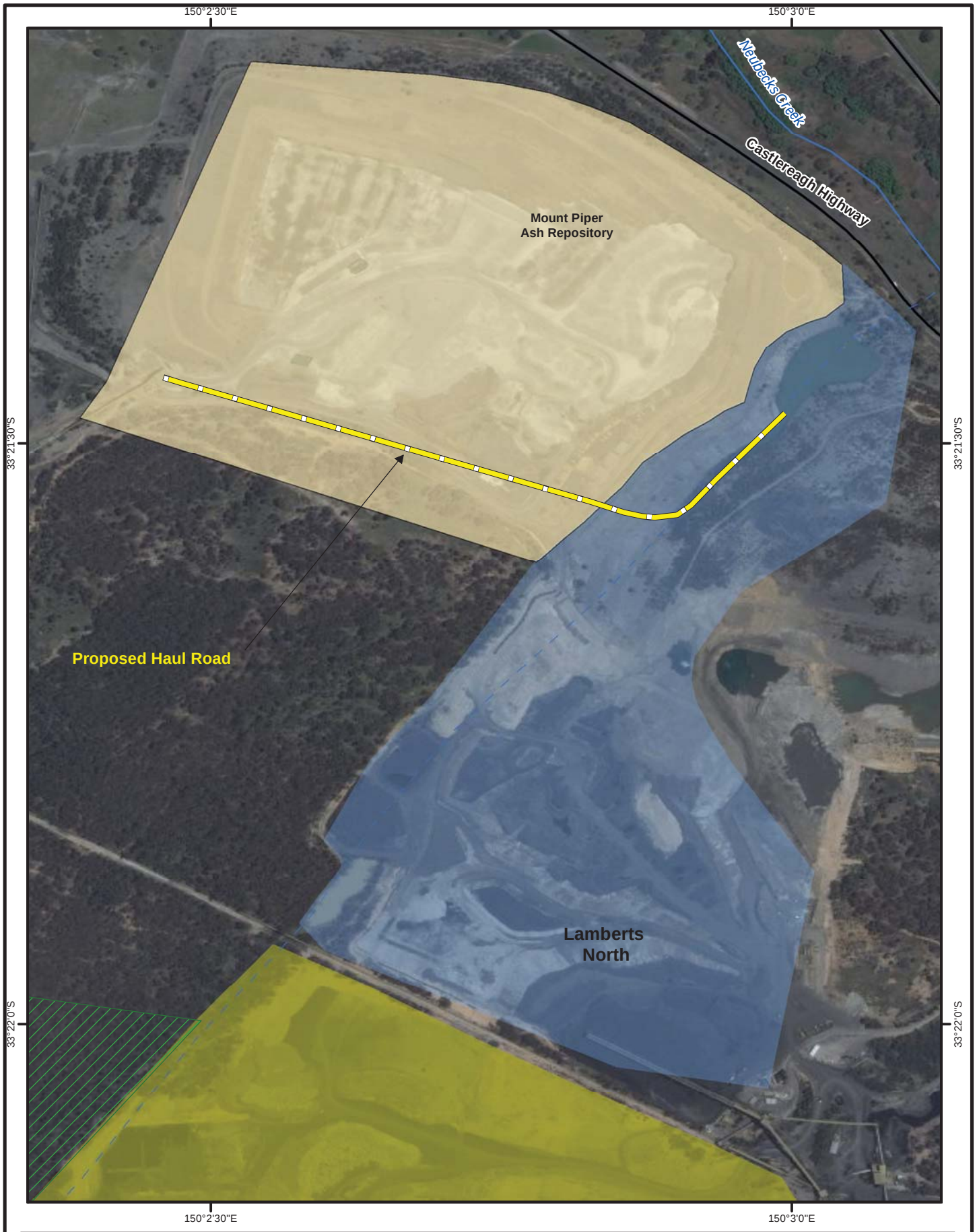
As the repository is filled, the internal haul road will progressively be extended in conjunction with the active face. Given that the internal haul roads will essentially include an extension of the current haul road infrastructure, construction (of the new haul road) will be consistent with that undertaken for the existing ash emplacement activities. The existing haul roads are typically in the order of 12 metres (m) wide or three times the width of the largest vehicle.

During the engineering design, the footprint of the internal haul roads will be finalised and the engineering specification prepared. The specification will detail the engineering limits and preferred construction materials to ensure that the "strength" of the internal haul roads can cope with the imposed loads over the entire road design life without the need for excessive maintenance.

The haul road will be constructed using bottom ash generated from the Mt Piper Power Station. Up to fifty percent (50%) of bottom ash generated will be used for road construction rather than simply being disposed to the repository. This reuse management option provides a sustainable solution which minimises the volume of imported fill required to be procured for the Project. The properties of bottom ash provide for its use as a suitable medium for subsurface reticulation and haul road construction. The bottom ash will be required for the ongoing maintenance and construction of the roads to enable continued access to the working face as it progresses and bench level heights continue to increase.

The placement of the sub-base and stabilised surface material will be undertaken such that grades of less than 10% are maintained. Batters will typically be constructed at a maximum of 1(V):3(H).

Dust suppression is a primary performance objective for ash placement activities. Dust suppression concerns all aspects of exposed ash and ancillary activities including vehicle movements. Sprinklers will be established along either side of the haul roads as the primary dust suppression method, with the water sourced from the wash down ponds and blow down towers. Management measures for air quality is included in the Construction Air Quality Management Plan in the CEMP (Appendix 1, Section 5), and will also be Operational Environmental Management Plan (OEMP).



Lamberts North Project

Figure 4-7 Proposed Haul Road

Legend

- Road
- Watercourse
- Former Watercourse
- haulrd_v6
- Ben Bullen State Forest
- Project Site - Lamberts North
- Lamberts South

0 45 90 180

Metres

Data Source:
Roads and watercourses by GA, 2011;
DCDB & forest by Land & Property Information NSW Govt, 2012;
Base Image by Bing Maps.

DISCLAIMER
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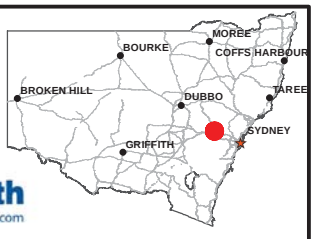

4.1.1 Vehicle Movements for Ash Placement

Under existing operations, fly ash is conveyed in the fly ash collection plant by means of a dense phase system to a silo for transfer to conveyor. The bottom ash is transferred from the boilers to a conveyor which then passes to a hopper and is transferred by heavy vehicle haulage to the Mount Piper Ash Repository.

Given that the primary mode of transport to relocate the ash from the Mt Piper Power Station to the Lambert North ash emplacement area also includes the use of articulated trucks, vehicle movements are expected to generally be consistent with the current operations at the site. The vehicle movements will continue to be confined to the internal roads within the site boundary and are not expected to impact on the public road network. Only one additional truck when compared to existing operations at Mount Piper Ash Repository will be required for six months of the year to transport ash to Lamberts North. When not being used for transport of ash, the truck will be used for additional dust suppression activities.

It is expected that a fleet of articulated trucks with a carrying capacity of approximately 20-25 tonnes per trailer will convey the coal from the Mt Piper Power Station to the Lambert North emplacement area. Transport operations will be restricted to the operational hours (which will be detailed in the OEMP), however there may be up to four truck movements per hour (assuming two trucks are operational at any one time), inclusive of both directions to and from the Mt Piper Power Station loading facility.

The details of the ash transportation including a more accurate estimate of truck movements and trips per day will be outlined in the OEMP to be prepared prior to the operation of the Lambert North ash emplacement area.

4.2 Potential Impacts and Mitigation Measures

Ash will be transported to the Lambert North emplacement area via the internal haul road. Activities that may impact on the surrounding environment include:

- Vehicle exhaust emissions associated with the repeated use of articulated trucks;
- Dust generation associated with the repeated use of articulated trucks along the haul road;
- Fugitive ash emissions inadvertently released from loaded haulage vehicles during transportation;
- Increased storm water and sediment runoff due to ongoing exposed surface of haul road;
- Noise emissions generated from the repeated truck haulage movements; and
- Maintenance works to the haul road which may result in dust and/or noise emissions.

However, with the haulage of ash being undertaken within the existing project area, and no additional truck movements on public roads, any impacts associated with the construction and use of the haul road option are anticipated to be mitigated by the implementation of measures outlined in the management plans prepared for both the CEMP and OEMP.

The construction activities, potential impacts and mitigation measures relating to the construction phase are outlined in the following documents for the Lamberts North project:

- CEMP
- CEMP Environmental Sub Plans (Appendix 1):

- Section 2 Construction Noise Management Plan (CNMP)
- Section 3- Construction Groundwater Management Plan (CGMP)
- Section 4 Construction Soil and Surface Water Management Plan (CSSWMP)
- Section 5 - Construction Air Quality Management Plan (CAQMP)
- Section 6- Construction Flora and Fauna Management Plan (CFFMP)
- Section 7- Construction Aboriginal Heritage Management Plan (CAHMP)

Section 5 Glossary of Terms and Acronyms

5.1 Terms

Table 6-1 Terms

Term	Definition
Furnace or Bottom Ash	Bottom ash consists of larger particles which fall to the bottom of the boiler and are collected.
Fly Ash	Fly ash is the finer particles that are carried up through a fly ash collection plant by the hot exhaust gases. Fly ash is generally collected and conditioned with water, although fly ash may also be conditioned with brine. The brine alters the ash chemical composition and required that brine ash be placed separately within the ash emplacement area.

5.2 Acronyms

Table 6-2 Acronyms

Term	Definition
ATP	Ash Transportation Plan
CEMP	Construction Environmental Management Plan
CPM	Contractor's Project Manager
EPA	Environment Protection Authority
ER	Owner Environmental Representative
LCC	Lithgow City Council
MPPS	Mt Piper Power Station
SKM	Sinclair Knight Mertz

Section 6 References

SKM, 2010. *Mt Piper Ash Placement (two volumes) – Environmental Assessment (EA)*, prepared by Sinclair Knight Merz, August 2010.

SKM, 2011. *Mt Piper Ash Placement Submissions Report*, prepared by Sinclair Knight Merz, March 2011 for Delta Electricity.

SKM, 2012, Mt *Piper Power Station Ash Placement Project Consistency Report: Project Approval 09_0186*, prepared by Sinclair Knight Merz, May June 2012 for Delta Electricity.

Appendix 3 –Project Conditions of Approval

Project Approval

Section 75J of the *Environmental Planning & Assessment Act 1979*

As delegate of the Minister for Planning and Infrastructure under delegation from the Minister enforced from 1 October 2011, I approve the project application referred to in Schedule 1, subject to the conditions in Schedule 2.

These conditions are required to:

- prevent, minimise, and/or offset adverse environmental impacts;
- set standards and performance measures for acceptable environmental performance;
- require regular monitoring and reporting; and
- provide for the ongoing environmental management of the project.

Richard Pearson
Deputy Director-General
Development Assessment and Systems Performance

Sydney 16 February 2012

SCHEDULE 1

Application No.:	09_0186
Proponent:	Delta Electricity
Approval Authority:	Minister for Planning and Infrastructure
Land:	The project site is located in the central-west of NSW, at 350 Boulder Road, Portland and located within Lot 9 DP804929, Lot 15 DP804929, Lot 501 DP 825541, Lot 13 DP 751651, Lot 357 DP751651.
Project:	The construction and operation of new ash placement areas at the Lamberts South and Lamberts North sites to cater for the ash generated from the existing Mt Piper Power Station and the proposed Mt Piper Power Station Extension.

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DEFINITIONS

Act	Environmental Planning and Assessment Act 1979
Ancillary Facility	Temporary facility for construction. Examples may include an office and amenities compound, construction compound, batch plant, materials storage compound and stockpile areas.
Conditions of Approval	The Minister's Conditions of Approval for the project.
Construction	Includes all work in respect of the project other than survey, acquisitions, fencing, investigative drilling or excavation, building, road dilapidation surveys, minor clearing (except where threatened species, populations or ecological communities would be affected), establishing ancillary facilities, or other activities determined by the Environmental Representative to have minimal environmental impact (e.g. minor adjustments to utilities).
Department	NSW Department of Planning and Infrastructure
Director-General	Director-General of the NSW Department of Planning and Infrastructure, or delegate.
Director-General's Approval	A written approval from the Director-General, or delegate. Where the Director-General's approval is required by a condition, the Director-General will endeavour to provide a response within one month of receiving an approval request. The Director-General may ask for additional information if the approval request is considered incomplete. When further information is requested the time taken for the Proponent to respond in writing will be added to the one month period.
DPI	Department of Primary Industries
EA	Environmental Assessment
EPA	Environment Protection Authority
Environment Protection Licence	An Environment Protection Licence issued by the NSW Environment Protection Authority pursuant to the Protection of the Environment Operations Act 1997.
Environmental Incident	Any incident with actual or potential significant impacts on the biophysical environment and/or off-site impacts on people.
Minister	Minister for Planning and Infrastructure
NOW	NSW Office of Water
OEH	The Office of Environment and Heritage

O	Means the Operation of the Project including ash haulage ash truck movements ash placement and management operation of on-site water management systems landscaping and revegetation rehailitation of the site ut does not include commissioning trials of equipment or temporary use of parts of the project during construction
	The project that is the su ject of Major Project Application 0 01 6
A	Lam erts North and Lam erts South ash disposal areas as identified in the Proponent s Environmental Assessment August 2010
	Delta Electricity
A	Availa le for inspection y a mem er of the general pu lic for e ample availa le on an internet site
F	Consideration of est practice taking into account the enefit of proposed measures and their technological and associated operational application in the NSW and Australian conte t Feasi le relates to engineering considerations and what is practical to uild Reasona le relates to the application of judgement in arriving at a decision taking into account mitigation enefits cost of mitigation versus enefits provided community views and nature and e tent of potential improvements
SCA	Sydney Catchment Authority
S	Residence educational institution e g school TAFE college health care facility e g nursing home hospital religious facility e g church or child care facility
	For the purpose of this project ash and rine are not considered waste

SCHEDULE 2
PART A - ADMINISTRATIVE CONDITIONS

Terms of Approval

A1. The Proponent shall carry out the project generally in accordance with the:
   (a) Major Project Application 09_0186;
   (b) Mt Piper Ash Placement (two volumes) – Environmental Assessment (EA), prepared by Sinclair Knight Merz, August 2010;
   (c) Mt Piper Ash Placement – Submissions Report, prepared by Sinclair Knight Merz, March 2011;
   (d) Delta's Letter to the Department – Submissions Report Response to the Department and Agency Issues (dated 22 June 2011); and
   (e) the conditions of this approval.

A2. In the event of an inconsistency between:
   (a) the conditions of this approval and any document listed from condition A1a) to A1(d) inclusive, the conditions of this approval shall prevail to the extent of the inconsistency; and
   (b) any of the documents listed from conditions A1a) to A1(d) inclusive, the most recent document shall prevail to the extent of inconsistency.

A3. The Proponent shall comply with the reasonable requirements of the Director-General arising from the Department's assessment of:
   (a) any reports, plans or correspondence that are submitted in accordance with this approval; and
   (b) the implementation of any actions or measures contained in these reports, plans or correspondence.

A4. The Proponent shall meet the requirements of the Director-General in respect of the implementation of any measure necessary to ensure compliance with the conditions of this approval, and general consistency with the documents listed under condition A1 of this approval.

Limits of Approval

A5. This approval shall lapse five years after the date on which it is granted, unless the works that are the subject of this approval are physically commenced on or before that time.

Statutory Requirements

A6. The Proponent shall ensure that all licences, permits and approvals are updated and/or obtained as required by law and maintained as required with respect to the project. No condition of this approval removes the obligation for the Proponent to obtain, renew or comply with such licences, permits or approvals.

Staging

A7. Where the Proponent intends to construct and operate the project in discrete stages (i.e Lamberts North and Lamberts South) it may comply with the requirements in conditions B4, B5, D2, D3 and D4 separately for each stage.

PART □ □PRIOR TO CONSTRUCTION

Environmental Representative

B1. Prior to the commencement of any construction activities, or as otherwise agreed by the Director-General, the Proponent shall nominate for the approval of the Director-General a suitably qualified and experienced Environmental Representative(s). The Proponent shall engage the Environmental Representative(s) during any construction activities, and throughout the life of the project, or as otherwise agreed by the Director-General. The Environmental Representative(s) shall:

(a) oversee the implementation of all environmental management plans and monitoring programs required under this approval, and advise the Proponent upon the achievement of these plans/programs;

(b) consider and advise the Proponent on its compliance obligations against all matters specified in the conditions of this approval and the Statement of □ommitments; and

(c) have the authority and independence to recommend to the Proponent reasonable steps to be taken to avoid or minimise unintended or adverse environmental impacts and, failing the effectiveness of such steps, to recommend to the Proponent that relevant activities are to be ceased as soon as reasonably practicable if there is a significant risk that an adverse impact on the environment will be likely to occur.

□roun□□ater Mo□elling

B2. The Proponent shall undertake groundwater modelling by either adapting the existing □TS (2007) groundwater model to Lamberts North or developing a new groundwater model for Lamberts North. The updated model should be calibrated to site-specific data. In either case, the model shall incorporate the findings of groundwater monitoring of the existing ash placement areas. The Proponent shall consult with the S□A in the preparation of the groundwater model and the model shall be provided to the S□A within five months of project approval, unless otherwise agreed by the Director-General. The model shall address but not necessarily be limited to the following:

(a) the findings of the groundwater monitoring of existing ash placement areas and be based on average groundwater quality data;

(b) updated predictions of the long term behaviour, fate and impacts of ash placement, in particular for water quality parameters such as sulphates, chlorides, boron, manganese, nickel, zinc, molybdenum copper, arsenic and barium;

(c) updated risk assessment for ground and surface water quality impacts under a range of rainfall events of differing duration and intensities (including up to a 100 year ARI event);

(d) calibration to site-specific data; and

(e) identification of appropriate surface and groundwater management measures required in order to achieve a neutral or beneficial effect on water quality.

Prior to construction of Lamberts South, the Lamberts North groundwater model is to be updated as set out above in items (a) - (e) in consultation with the S□A, to apply to Lamberts South.

□roun□□ater Monitoring

B3. Baseline groundwater monitoring data, including groundwater quality, location of groundwater monitoring wells, depth and flow of groundwater in the project area should be obtained for a minimum of two sampling events prior to construction and a minimum of two sampling events after construction and prior to ash placement commencing. The baseline monitoring data along with the modelling predictions in B2 should be used in the consideration of the design of the ash placement facilities. The location of groundwater monitoring wells and parameters to be monitored should be undertaken in consultation with the S□A.

Prior to construction of Lamberts South the Proponent shall conduct baseline groundwater data collection as set out above, and use the results and the modelling predictions in B2 in the consideration of the design of the ash placement facilities.

Construction Environmental Management Plan

B4. The Proponent shall prepare and implement a Construction Environmental Management Plan (CEMP) to outline environmental management practices and procedures to be followed during construction of the project. The Plan shall be prepared in consultation with Lithgow City Council and relevant government agencies, and be consistent with the Guideline for the Preparation of Environmental Management Plans (DIPNR, 2004 or its latest revision) and shall include, but not necessarily be limited to:

(a) a description of all relevant activities to be undertaken on the site during construction including an indication of stages of construction, where relevant;
(b) identification of the potential for cumulative impacts with other construction activities occurring in the vicinity and how such impacts would be managed;
(c) details of any site compounds and mitigation, monitoring, management and rehabilitation measures specific to the site compound(s) that would be implemented;
(d) statutory and other obligations that the Proponent is required to fulfil during construction including all relevant approvals, consultations and agreements required from authorities and other stakeholders, and key legislation and policies;
(e) evidence of consultation with relevant government agencies required under this condition and how issues raised by the agencies have been addressed in the plan;
(f) a description of the roles and responsibilities for all relevant employees involved in the construction of the project including relevant training and induction provisions for ensuring that all employees, contractors and sub-contractors are aware of their environmental and compliance obligations under these conditions of approval;
(g) details of how the environmental performance of construction will be managed and monitored, and what actions will be taken to address identified potential adverse environmental impacts;
(h) specific consideration of relevant measures to address any requirements identified in the documents referred to under conditions A1(b) and A1(d);
(i) a complaints handling procedure during construction;
(j) emergency management measures including measures to control bushfires;
(k) details of waste management including reuse and/or recycling of waste material, to minimise the need for treatment or disposal of those materials outside the site; and
(l) the additional requirements of this approval.

The CEMP for the project (or any stage of the project) shall be submitted to the Director-General for approval at least four weeks prior to the commencement of any construction work associated with the project (or stage as relevant), unless otherwise agreed by the Director-General. Construction shall not commence until written approval has been received from the Director-General.

B5. As part of the CEMP for the project, the Proponent shall prepare and implement the following plans:

a) a **Construction Noise Management Plan** to detail how construction noise impacts would be minimised and managed. The Plan shall be developed in consultation with the EPA and shall include, but not necessarily be limited to:
   i) details of construction activities and an indicative schedule for construction works;

ii) identification of construction activities that have the potential to generate noise impacts on sensitive receivers;
iii) identification of noise criteria and procedures for assessing noise levels at sensitive receivers;
iv) details of reasonable and feasible actions and measures to be implemented to minimise noise impacts;
v) details of noise monitoring and if any noise exceedance is detected, how any non-compliance would be rectified; and
vi) procedures for notifying sensitive receivers of construction activities that are likely to affect their noise amenity.

b) a **roun ater Management Plan** to detail measures to manage groundwater impacts. The Plan shall be prepared in consultation with the N W and the S A and include, but not necessarily be limited to:
i) identification of the construction activities that could affect groundwater at the site, including groundwater interference and impacts to groundwater users and dependent species;
ii) a description of the management controls to minimise impacts to groundwater during construction;
iii) methods for monitoring groundwater during construction including a program to monitor groundwater flows and groundwater quality in the project area;
iv) a response program to address indentified exceedances of existing groundwater quality criteria approved for Area 1 (the existing ash placement area); and
v) provisions for periodic reporting of results to the S A during construction.

c) a **Soil an Surfa e ater Management Plan** to outline measures that will be employed to manage water on the site, to minimise soil erosion and the discharge of sediments and other pollutants to lands and/or waters throughout the construction period. The Plan shall be based on best environmental practice and shall be prepared in consultation with the S A and the N W and any other relevant government agency. The Plan shall include, but not necessarily be limited to:
i) baseline data on the water quality and available flow data in uons reek, Lamberts Gully reek and Neubecks reek;
ii) water quality objectives and impact assessment criteria for uons reek, Lamberts Gully reek and Neubecks reek;
iii) a geomorphic assessment of the capacity of Lamberts Gully reek to accommodate additional flow under a range of rainfall events and duration, prior to commencement of construction works;
iv) identification of the construction activities that could cause soil erosion or discharge sediment or water pollutants from the site;
v) description of stockpile locations and disposal methods;
vi) a description of the management methods to minimise soil erosion or discharge of sediment or water pollutants from the site, including a strategy to minimise the area of bare surfaces, stabilise disturbed areas, and minimise bank erosion;
vii) demonstration that the proposed erosion and sediment control measures will conform with, or exceed, the relevant requirements of Managing rban Stormwater: Soils and onstruction (Landcom, 2004);
viii) a site water management strategy identifying drainage design including the separation of clean and dirty water areas for the project, details of the lining of surface water collection ponds and the associated water management measures including erosion and sediment controls and provisions for recycling/reuse of water and the procedures for decommissioning water management structures on the site and

consideration to the treatment of water prior to discharge to the environment;

ix) measures to monitor and manage soil and water impacts in consultation with N□W and DPI (□isheries) including: control measures for works close to or involving waterway crossings (including rehabilitation measures following disturbance and monitoring measures and completion criteria to determine rehabilitation success);

x) measures to monitor and manage flood impacts in consultation with N□W and shall include, but not necessarily be limited to a flood model for predicted water levels and contingency measures for the site during potential floods;

xi) a program to monitor surface water quality, including Lamberts Gully □reek and Neubecks □reek;

xii) a protocol for the investigation of identified exceedances in the impact assessment criteria;

xiii) a response plan to address potential adverse surface water quality exceedances; and

xiv) provisions for periodic reporting of results to the DPI (□isheries), N□W and the S□A as per condition B8.

d) a **Air □uality Management Plan**, to provide details of dust control measures to be implemented during the construction of the project. The Plan shall be prepared in consultation with the EPA and should include, but not necessarily be limited to:

i) identification of sources of dust deposition including, truck movements, regrading, backfilling, stockpiles and other exposed surfaces;

ii) identification of criteria, monitoring and mitigation measures for the above sources; and

iii) a reactive management programme detailing how and when construction operations are to be modified to minimise the potential for dust emissions, should emissions exceed the relevant criteria.

e) a **□lora an□ □auna Management Plan**, to outline measures to protect and minimise loss of native vegetation and native fauna habitat as a result of construction of the project. The Plan shall be prepared in consultation with the EPA and shall include, but not necessarily be limited to:

i) plans showing terrestrial vegetation communities; important flora and fauna habitat areas; locations of threatened flora and fauna and areas to be cleared. The plans shall also identify vegetation adjoining the site where this contains important habitat areas and/or threatened species, populations or ecological communities;

ii) procedures to accurately determine the total area, type and condition of vegetation community to be cleared;

iii) methods to manage impacts on flora and fauna species and their habitat which may be directly or indirectly affected by the project, procedures for vegetation clearing or soil removal/stockpiling and procedures for identifying and re-locating hollows, installing nesting boxes and managing weeds; and

iv) a procedure to review management methods where they are found to be ineffective.

f) an **A□original Heritage Plan** to monitor and manage Aboriginal heritage impacts in consultation with registered Aboriginal stakeholders and prepared in consultation with the EPA. The plan should include but not necessarily limited to:

i) an updated □ultural □eritage Management Plan to cover the protection of sites previously recorded in the 2005 Aboriginal heritage assessment;
ii) procedures for the management of unidentified objects and/or human remains, including ceasing work;
iii) Aboriginal cultural heritage induction processes for construction personnel; and
iv) procedures for ongoing Aboriginal consultation and involvement should Aboriginal heritage sites or objects be found during construction.

g) an **As□ Transportation Plan** to provide details on the preferred option for the transportation of ash from the Mt Piper Power Station to the ash placement areas. The Plan shall include but not necessarily limited to:
i) justification of the proposed option for ash transportation (either haulage access roads and/or conveyor) for ash transportation;
ii) details of the proposed option, including construction requirements, impacts and mitigation measures;
iii) plans showing the location of the chosen option; and
iv) provision of mitigation measures should the conveyor breakdown.

□io□iversity Offsets

B6. The Proponent shall develop and submit for the approval of the Director-General, a Biodiversity □ffset Management Plan. The Biodiversity □ffset Management Plan is to be submitted within 12 months of the project approval, unless otherwise agreed to by the Director-General. The Plan shall be developed in consultation with the EPA and shall:
a) identify the objectives and outcomes to be met by the Biodiversity □ffset Management Plan;
b) describe the size and quality of the habitat/vegetation communities of the offset;
c) identify biodiversity impacts, including impacts related to the loss of impacted flora and fauna including threatened □apertee Stringybark (□□□*al□pt*□□ □*annonii*), nine (9) hectares of remnant vegetation (including, Red Stringy Bark Woodland, Scribbly Gum Woodland, Ribbon Gum Woodland), habitat for microbat and woodland bird species and the 31 ha of rehabilitated vegetation to be removed;
d) describe the decision-making framework used in selecting the priority ranking of compensatory habitat options available in the region. Where possible, this should include purchase of land, development of agreements with identified land management authorities (e.g EPA, local □ouncil) for long term management and funding of offsets and mitigation measures, and installation of identified mitigation measures;
e) include an offset for direct and indirect impacts of the proposal which maintains or improves biodiversity values;
f) identify the mechanisms for securing the biodiversity values of the offset measures in perpetuity and identify a monitoring regime, responsibilities, timeframes and performance criteria; and
g) detail contingency measures to be undertaken should monitoring against performance criteria indicate that the offset/ rehabilitation measures have not achieved performance outcomes. Rehabilitation measures are required to be implemented to ensure that the biodiversity impacts are consistent with a maintain or improve biodiversity outcome.

E□ologi□al Monitoring Program

B7. The Proponent shall prepare and implement an **E□ologi□al Monitoring Program** prior to construction, in consultation with the N□W and the DPI (□isheries), to monitor and quantify the impacts on the ecology of Neubecks □reek and the

associated riparian environment. The Program shall include, but not necessarily be limited to:

a) a sampling, data collection and assessment regime to establish baseline ecological health and for ongoing monitoring of ecological health of the in-stream environment during construction and throughout the life of the project (including operation);
b) at least one in-stream sampling period prior to ash placement at Neubecks □reek and at least two (2) sampling periods following ash placement at each of Lamberts North and Lamberts South;
c) an assessment regime for monitoring the ecological health of the riparian environment for a period of at least five (5) years after final capping; and
d) management measures to address any adverse ecological impacts.

Complian□e Monitoring an□ Tra□□ing

B8. The Proponent shall develop and implement a □ompliance Tracking Program for the project, prior to commencing construction, to track compliance with the requirements of this approval and shall include, but not necessarily be limited to:

a) provisions for periodic review of the compliance status of the project against the requirements of this approval and the Statement of □ommitments detailed in the document referred to in condition A1c) of this approval;
b) provisions for periodic reporting of the compliance status to the Director-General;
c) a program for independent environmental auditing in accordance with AS/N□ IS□ 19011:2003 - Guidelines for □uality and/or Environmental Management Systems Auditing;
d) procedures for rectifying any non-compliance identified during environmental auditing or review of compliance;
e) mechanisms for recording environmental incidents and actions taken in response to those incidents;
f) provisions for reporting environmental incidents to the Director-General during construction and operation; and
g) provisions for ensuring all employees, contractors and sub-contractors are aware of, and comply with, the conditions of this approval relevant to their respective activities.

The □ompliance Tracking Program shall be implemented prior to construction of the project with a copy submitted to the Director-General for approval at least four weeks prior to the commencement of the project, unless otherwise agreed by the Director-General.

B9. Nothing in this approval restricts the Proponent from utilising any existing compliance tracking programs administrated by the Proponent to satisfy the requirements of condition B8. In doing so, the Proponent must demonstrate to the Director-General how these systems address the requirements and/or have been amended to comply with the requirements of the condition.

Community Information an□ Complaints Management Provision of Information

B10. Prior to the construction of the project, the Proponent shall establish and maintain a website for the provision of electronic information associated with the project. The Proponent shall, subject to confidentiality, publish and maintain up-to-date information on this website or dedicated pages including, but not necessarily limited to:

a) the documents referred to under condition A1 of this approval;
b) this project approval, Environment Protection Licence and any other relevant environmental approval, licence or permit required and obtained in relation to the project;
c) all strategies, plans and programs required under this project approval, or details of where this information can be viewed;

d) information on construction and operational progress; and
e) the outcomes of compliance tracking in accordance with the requirements of this project approval.

Complaints an□ Enquiries Pro□e□ure

B11. Prior to the construction of the project, the Proponent shall ensure that the following are available for community complaints and enquiries during construction and operation:

a) a 24 hour contact number(s) on which complaints and enquiries about construction and operational activities may be registered;
b) a postal address to which written complaints and enquiries may be sent; and
c) an email address to which electronic complaints and enquiries may be transmitted.

The telephone number, postal address and email address shall be published in a newspaper circulating in the local area prior to the commencement of the project. The above details shall also be provided on the website required by condition B11 of this approval.

B12. The Proponent shall record the details of complaints received through the means listed under condition B11 of this approval in a □omplaints Register. The Register shall record, but not necessarily be limited to:

a) the date and time of the complaint;
b) the means by which the complaint was made (e.g. telephone, email, mail, in person);
c) any personal details of the complainant that were provided, or if no details were provided a note to that effect;
d) the nature of the complaint;
e) the time taken to respond to the complaint;
f) any investigations and actions taken by the Proponent in relation to the complaint;
g) any follow-up contact with, and feedback from, the complainant; and
h) if no action was taken by the Proponent in relation to the complaint, the reason(s) why no action was taken.

The □omplaints Register shall be made available for inspection by the Director-General upon request.

Community Information Plan

B13. Prior to the commencement of construction of the project, the Proponent shall prepare and implement a □ommunity Information Plan which sets out the community communications and consultation processes to be undertaken during construction and operation of the project. The Plan shall include but not be limited to:

a) measures for disseminating information on the development status of the project and methods for actively engaging with surrounding landowners, including □orests NSW and affected stakeholders regarding issues that would be of interest/ concern to them during the construction and operation of the project; and
b) procedures to inform the community where work has been approved to be undertaken outside the normal □onstruction hours, in particular noisy activities.

A copy of the Plan shall be provided to the Director-General one month prior to the commencement of construction.

Design

B14. The ash placement areas shall be designed by a suitably qualified expert to ensure structural stability of the ash placement areas.

PART C □DURIN□ CONSTRUCTION

Environmental In□i□ent Reporting

□1. The Proponent shall notify the Director-General of any environmental incident within 12 hours of becoming aware of the incident. The Proponent shall provide full written details of the incident to the Director-General within seven days of the date on which the incident occurred.

□2. The Proponent shall meet the requirements of the Director-General to address the cause or impact of any environmental incident, as it relates to this approval, reported in accordance with condition □1 of this approval, within such period as the Director-General may require.

Constru□tion Hours

□3. □onstruction activities associated with the project shall only be undertaken during the following hours:

a) 7:00 am to 6:00 pm, Mondays to □ridays, inclusive;
b) 8:00 am to 1:00 pm on Saturdays; and
c) at no time on Sundays or public holidays.

□4. □onstruction outside the hours stipulated in condition □3 of this approval is permitted in the following circumstances:

a) where construction works do not cause audible noise at any sensitive receiver; or
b) for the delivery of materials required outside these hours by the Police or other authorities for safety reasons; or
c) where it is required in an emergency to avoid the loss of lives, property and/or to prevent environmental harm.

□5. The hours of construction activities specified under condition □3 of this approval may be varied with the prior written approval of the Director-General. Any request to alter the hours of construction specified under condition □3 shall be:

a) considered on a case-by-case basis;
b) accompanied by details of the nature and need for activities to be conducted during the varied construction hours; and
c) accompanied by information necessary for the Director-General to reasonably determine that activities undertaken during the varied construction hours will not adversely impact on the acoustic amenity of sensitive receivers in the vicinity of the site.

Constru□tion Noise

□6. The construction noise objective for the project is to manage noise from construction activities (as measured by $L_{Aeq\ (15\ minute)}$ descriptor) so as not to exceed:

Lo□ation	Day □$L_{Aeq\ (15\ minute)}$□□□A□
All private receivers within the township of Blackmans □lat	46
All other residences	43

The Proponent shall implement reasonable and feasible noise mitigation measures with the aim of achieving the construction noise objective consistent with the requirements of the Interim □onstruction Noise Guideline (DE□□, July 2009), including noise generated by heavy vehicle haulage and other construction traffic associated with the project. Any activities that have the potential for noise emissions that exceed the objective must be identified and managed in accordance with the

□onstruction Noise Management Plan (as referred to under condition B5a) of this approval).

Dust □eneration

□7. The Proponent shall construct the project in a manner that minimises dust emissions from the site, including wind-blown from earth works and stockpiles and traffic-generated dust. All activities on the site shall be undertaken with the objective of preventing visible emissions of dust from the site. Should such visible dust emissions occur at any time, the Proponent shall identify and implement all practicable dust mitigation measures, including cessation of relevant works, as appropriate, such that emissions of visible dust cease.

Heritage Impa□ts

□8. If during the course of construction the Proponent becomes aware of any previously unidentified Aboriginal object(s), all work likely to affect the object(s) shall cease immediately and the EPA (□E□) informed in accordance with the *National Par□□an□ Wil□life □□t □□□□*. In addition, registered Aboriginal stakeholders shall be informed of the finds. Works shall not recommence until an appropriate strategy for managing the objects has been determined in consultation with the EPA (□E□) and the registered Aboriginal stakeholders and written authorisation from the EPA (□E□) is received by the Proponent.

□9. If during the course of construction the Proponent becomes aware of any unexpected historical relic(s), all work likely to affect the relic(s) shall cease immediately and the EPA (□E□ (□eritage Branch)) notified in accordance with the □*eritage □□t □□□□*. Works shall not recommence until the Proponent receives written authorisation from the EPA (□E□ (□eritage Branch)).

Soil an□ □ ater □uality Impa□ts

□10. The Proponent shall comply with section 120 of the Protection of the Environment □perations Act 1997 which prohibits the pollution of waters.

□11. Soil and water management controls shall be employed to minimise soil erosion and the discharge of sediment and other pollutants to lands and/or waters during construction activities, in accordance with:

(a) Managing □rban Stormwater: Soils and □onservation (Landcom, 2004);
(b) Managing Stormwater: □rban Soils and □onstruction 2A Installation of Services (DE□□ 2008); and
(c) Managing Stormwater: □rban Soils and □onstruction □ol 2□ □nsealed Roads (DE□□ 2008).

□12. During construction, the Proponent shall maintain a buffer of 50 metres from the construction work to Neubecks □reek.

□13. Surface water drainage must be appropriately engineered and stabilised to convey run off without collapse or erosion. Surface water run off collection ponds are to be lined.

□ aste □eneration an□ Management

□14. All waste materials removed from the site shall only be directed to a waste management facility lawfully permitted to accept the materials.

□15. The Proponent shall not cause, permit or allow any waste generated outside the site to be received at the site for storage, treatment, processing, reprocessing, or disposal on the site, except as expressly permitted by a licence under the Protection of the Environment □perations Act 1997, if such a licence is required in relation to that waste.

□16. The Proponent shall ensure that all liquid and / or non-liquid waste generated and / or stored on the site is assessed and classified in accordance with the Waste □lassification Guidelines (DE□□, 2008), or any future guideline that may supersede that document.

PART D □ PRIOR TO OPERATION

As□ Management

D1. The Proponent shall prepare a long-term ash management strategy including a program for investigation and assessment of alternative ash management measures with a goal of 40□ reuse of ash by 31 December 2020. The report shall be submitted to the Director-General six months prior to the commencement of operations. The Proponent shall report on the status and outcomes of its investigations to the Director-General every two years from the commencement of the operation of the project, unless otherwise agreed by the Director-General.

Operational Environmental Management Plan

D2. The Proponent shall prepare and implement an □perational Environmental Management Plan (□EMP) to detail an environmental management framework, practices and procedures to be followed during operation of the project. The Plan shall be prepared in consultation with Lithgow □ity □ouncil and relevant government agencies, and shall be consistent with the Guideline for the Preparation of Environmental Management Plans (DIPNR 2004) and shall include, but not necessarily be limited to:

a) identification of all statutory and other obligations that the Proponent is required to fulfil in relation to operation of the project, including all approvals, licences, approvals and consultations;
b) a description of the roles and responsibilities for all relevant employees (including contractors) involved in the operation of the project;
c) overall environmental policies and principles to be applied to the operation of the project;
d) standards and performance measures to be applied to the project, and a means by which environmental performance can be periodically reviewed and improved, where appropriate;
e) management policies to ensure that environmental performance goals are met and to comply with the conditions of this approval;
f) the environmental monitoring requirements outlined under conditions E12 to E18 inclusive;
g) details of waste management including reuse and/or recycling of waste material, to minimise the need for treatment or disposal of those materials outside the site;
h) specific consideration of relevant measures to address any requirements identified in the documents referred to under conditions A1(b) and A1(d) of this approval; and
i) the additional requirements of this approval.

The Plan shall be submitted for the approval of the Director-General no later than four weeks prior to the commencement of operation of the project, unless otherwise agreed by the Director-General. □peration shall not commence until written approval has been received from the Director-General.

Nothing in this approval precludes the Proponent from incorporating the requirements of the □perational Environmental Management Plan into existing environmental management systems and plans administered by the Proponent.

D3. As part of the □EMP for the project, required under condition D2 of this approval, the Proponent shall prepare and implement the following Management Plans:

a) an **Operational Noise Management Plan** to detail measures to mitigate and manage noise during operation of the project. The Plan shall be prepared in consultation with the EPA and include, but not necessarily be limited to:
    i) identification of activities that will be carried out in relation to the project and the associated noise sources;

ii) identification of all relevant sensitive receivers and the applicable criteria at those receivers commensurate with the noise limit specified under condition E7 of this approval;
iii) noise monitoring procedures (as referred to in condition E12 of this approval) for periodic assessment of noise impacts at the relevant receivers against the noise limits specified under this approval and the predicted noise levels as detailed in the EA;
iv) details of all management methods and procedures that will be implemented to control individual and overall noise emissions from the site during operation, including the feasibility of noise reducing benching;
v) procedures to ensure that all reasonable and feasible noise mitigation measures are applied during operation of the project and procedures and corrective actions to be undertaken if non-compliance against the operational noise criteria as detailed in condition E7 is detected at the sensitive receivers; and
vi) provisions for periodic reporting of results to the EPA as per condition B8.

b) a **roun ater Management Plan** to detail measures to mitigate and manage groundwater impacts. The Plan shall be prepared in consultation with the N W and the S A and include, but not necessarily be limited to:
i) consideration of the revised updated groundwater model as per condition B2;
ii) baseline data on groundwater quality (including uons reek), location of groundwater monitoring wells, depth and available flow of groundwater in the project area;
iii) identification of potential sources of water pollutants and management measures;
iv) groundwater assessment criteria including trigger levels for remedial measures;
v) a contingency plan for events that have the potential to pollute or contaminate groundwater sources of water. The plan shall include remediation actions and communication strategies (including notification of potentially affected nearby bore users) for the effective management of such an event to prevent discharge of these pollutants from all sources within the project area;
vi) a monitoring program as per condition E15 for groundwater connectivity, water levels, groundwater flow and water quality over the short and long term that includes upstream and downstream locations. The program shall continue for a minimum of five years following final capping and landscaping;
vii) a protocol for the investigation of identified exceedances of the groundwater impact assessment criteria; and
viii) provisions for periodic reporting of results to the S A as per condition B8.

c) a **Soil an Surfa e ater Management Plan** to outline measures that will be employed to manage water on the site, to minimise soil erosion and the discharge of sediments and other pollutants to lands and/or waters throughout the life of the project. The Plan shall be based on best environmental practice and shall be prepared in consultation with the N W and the S A and DPI (isheries). The Plan shall include, but not necessarily be limited to:
i) baseline data on the surface water quality and available flow in Neubecks reek and Lamberts Gully reek;
ii) water quality objectives and impact assessment criteria for Neubecks reek and Lamberts Gully reek;

iii) identification of the operation activities that could cause soil erosion or discharge sediment or water pollutants from the site;
iv) a description of the management controls to minimise soil erosion or discharge of sediment or water pollutants from the site, including a strategy to minimise the area of bare surfaces, stabilise disturbed areas and minimise bank erosion;
v) demonstration that the proposed erosion and sediment control measures will conform with, or exceed, the relevant requirements of Managing □rban Stormwater: Soils and □onstruction (Landcom, 2004);
vi) details of the water management system including separation of clean and contaminated/polluted water flows, provisions for the treatment, recycling/reuse and/or discharge of flows;
vii) site water balance including water usage for ash placement, sources of water and quantity of run-off generated;
viii) details of the lining for the surface water collection ponds;
ix) measures to minimise potential surface water infiltration;;
x) a flow and water quality monitoring program for Neubecks □reek and Lamberts Gully □reek that includes discharge points, upstream and downstream locations as per condition E16 and limits for identified pollutants;
xi) specified remedial actions and contingency plans to mitigate any water quality exceedances on receiving waters including identified trigger levels for remedial measures or the activation of contingency plans; and
xii) provisions for periodic reporting of results to the DPI (□isheries) and the S□A as per condition B8.

d) a **Air □uality Management Plan** to outline measures to minimise impacts from the project on local air quality. The Plan shall be prepared in consultation with NSW □ealth and the EPA and include, but not necessarily be limited to:
i) baseline data on dust deposition levels;
ii) air quality objectives and impact assessment criteria;
iii) an assessment of alternative methods of ash placement to minimise the exposure of active placement areas to prevailing winds;
iv) mitigation measures to be incorporated during ash placement activities, haulage, etc;
v) an operating protocol for the ash placement irrigation system including activation rates, application rates and area of coverage and means of dealing with water shortages;
vi) detail how ash placement moisture levels will be maintained;
vii) a contingency plan to deal with high winds and dust suppression;
viii) a protocol for the investigation of visible emissions from the ash placement area;
ix) a response plan to address exceedances in visible emissions including $PM_{10,}$ TSP and deposited dust from the ash placement areas; and
x) an air quality monitoring program as referred to in condition E18 of this approval including identified air quality monitoring locations (including monitoring at sensitive receivers) and meteorological monitoring to predict high wind speed events;
xi) provisions for periodic reporting of results to the EPA as per condition B8; and
xii) a protocol for suppressing dust emissions within licence limits under normal and adverse weather conditions at all stages of the ash placement process.

e) a **Lan□s□ape□Revegetation Plan** to outline measures to minimise the visual impacts of the ash placement areas and ensure the long-term stabilisation of

the site and compatibility with the surrounding landscape and land use. The Plan shall include, but not necessarily be limited to:

i) identification of design objectives and standards based on local environmental values, vistas, and land uses;
ii) identification of the timing and progressive implementation of revegetation works for ash placement areas as they are completed, including short-term and long term goals including landscape plans;
iii) a schedule of species to be used in revegetation, including the use of local native species in revegetation works selected by a qualified expert to ensure the rehabilitation works do not compromise the long term integrity of the capping; and
iv) procedures and methods to monitor and maintain revegetated areas during the establishment phase and long-term.

f) a **Site Re□a□ilitation Management Plan** to outline measures to stabilise and rehabilitate the site following project completion. The Plan shall be prepared in consultation with the S□A. The Plan shall include, but not necessarily be limited to:

i) reinstatement of geomorphologic stable drainage lines on the rehabilitated areas and a timeframe for rehabilitation;
ii) restoration, rehabilitation and revegetation of the project's site;
iii) measures to control water pollutants from rehabilitated areas; and
iv) a program and timeframe for monitoring rehabilitated areas.

□roun□□ater □uality an□ □eote□□ni□al Impa□ts

D4. Prior to commencement of operation the Proponent shall submit a geotechnical report prepared by a suitably qualified expert that demonstrates the site has been engineered as being suitable for ash placement. The report must also provide an evaluation of groundwater levels once re-profiling has been completed.

PART E □DURIN□ OPERATIONS

Operational Hours

E1. □perational activities associated with the project shall only be undertaken from 6.00 am to 8.00 pm Monday to □riday and 6.00am to 5.00pm Saturday and Sunday.

E2. □perations outside the hours stipulated in condition E1 of this approval are only permitted in the following emergency situations:

a) where it is required to avoid the loss of lives, property and/or to prevent environmental harm; or
b) breakdown of plant and/or equipment at the ash placement areas or the Mt Piper Power Station and the proposed Mt Piper Power Station Extension project with the effect of limiting or preventing ash storage at the power station outside the operating hours defined in condition E1; or
c) a breakdown of an ash haulage truck(s) or the conveyor preventing haulage during the operating hours stipulated in condition E1 combined with insufficient storage capacity at the Mt Piper Power Station including the proposed Mt Piper Power Station Extension to store ash outside of the project operating hours; or
d) in the event that the Australian Energy Market □perator (AEM□), or a person authorised by AEM□, directs the Proponent (as a licensee) under the National Electricity Rules to maintain, increase or be available to increase power generation for system security and there is insufficient ash storage capacity at the Mt Piper Power Station to allow for the ash to be stored.

In the event of conditions E2b) or E2c) arising, the Proponent is to take all reasonable and feasible measures to repair the breakdown in the shortest time possible.

E3. In the event that an emergency situation as referred to under condition E2b) or E2c) occurs more than once in any two month period, the Proponent shall prepare and submit to the Director-General for approval a report including, but not limited to:

a) the dates and a description of the emergency situations;
b) an assessment of all reasonable and feasible mitigation measures to avoid recurrence of the emergency situations;
c) identification of a preferred mitigation measure(s); and
d) timing and responsibility for implementation of the mitigation measure(s).

The report is to be submitted to the Director-General within 60 days of the second emergency situation occurring. The Proponent shall implement all reasonable and feasible mitigation measures in accordance with the requirements of the Director-General.

E4. The Proponent shall notify the EPA prior to undertaking any emergency ash haulage or placement operations outside of the hours of operation stipulated in condition E1 of this approval and keep a log of such operations.

E5. The Proponent shall notify the Director-General in writing within seven days of undertaking any emergency ash haulage or placement operations outside of the hours of operation stipulated in condition E1 of this approval.

E6. The Proponent shall notify nearby sensitive receivers (as defined in the □perational Noise Management Plan required under condition D3(a) of this approval) prior to 8.00 pm where it is known that emergency ash haulage or placement operations will be required outside of the hours of operation stipulated in condition E1 of this approval.

Operational Noise

E7. The cumulative operational noise from the ash placement area and ash haulage activity shall not exceed the following $L_{Aeq(15\ minute)}$ dB(A):

Location	Day (7am to 6pm)	Evening (6pm to 10pm)	Night (10pm to 7am)
All private sensitive receivers within the township of Blackmans lat	42	38	35
All other sensitive receivers	42	38	35

This noise criteria set out above applies under all meteorological conditions except for any of the following:

(a) wind speed greater than 3 metres/second at 10 metres above ground level;
(b) stability category temperature inversion conditions and wind speed greater than 2 metres/second at 10 metres above ground level; and
(c) stability category G temperature inversion conditions.

This criteria does not apply where the Proponent and an affected landowner have reached a negotiated agreement in regard to noise, and a copy of the agreement has been forwarded to the Director-General and the EPA.

E8. To determine compliance with the $L_{Aeq(15\ minute)}$ noise limits, the noise monitoring equipment must be located at the most affected point:

a) within 30 metres of a dwelling fa ade where any dwelling on the property is situated more than 30 metres from the property boundary that is closest to the premises; or
b) approximately on the boundary where any dwelling is situated 30 metres or less from the property boundary that is closest to the premises.

E9. or the purposes of monitoring noise from the premises to determine compliance with the noise limits:

a) lass 1 or 2 noise monitoring equipment as defined by AS IE 61672.1-2004 and ASIE 61672.2-2004, or other noise monitoring equipment accepted by the EPA in writing, must be used;
b) the modification factors in Section 4 of the NSW Industrial Noise Policy must be applied, as appropriate, to the noise levels measured by the noise monitoring equipment;
c) the meteorological data to be used for determining meteorological conditions is the data recorded by the meteorological weather station at the premises; and
d) stability category temperature inversion conditions are to be determined by the sigmatheta method referred to in Part E4 of Appendix E to the NSW Industrial Noise Policy.

E10. The Proponent shall implement measures to ensure noise attenuation of trucks. These measures may include, but are not necessarily limited to, installation of residential class mufflers, engine shrouds, body dampening, speed limiting, fitting of rubber stoppers to tail gates, limiting the use of compression braking, and ensuring trucks operate in a one-way system at the ash placement areas where feasible.

Operational Noise Revie

E11. Within 60 days of the commencement of operation of the project, unless otherwise agreed to by the Director-General, the Proponent shall submit to the Director-

General an **Operational Noise Revie** to confirm the operational noise impacts of the project. The perational Noise Review shall be prepared in consultation with the EPA. The Review shall:

a) identify the appropriate operational noise objectives and levels for sensitive receivers;
b) describe the methodologies for noise monitoring, including the frequency of measurements and location of monitoring sites;
c) document the operational noise levels at sensitive receivers as ascertained by the noise monitoring program;
d) assess the noise performance of the project against the noise criteria specified in condition E7 of this approval and the predicted noise levels as detailed in the report referred to under condition A1(b) of this approval; and
e) provide details of any entries in the omplaints Register relating to noise impacts.

Where monitoring indicates noise levels in excess of the operational noise criteria specified in condition E7 of this approval, the Proponent shall prepare a report as required by condition E13 of this approval.

Ongoing Operational Noise Monitoring

E12. The Proponent shall prepare and implement an **Operational Noise Monitoring Program** to assess compliance against the operational noise criteria stipulated in condition E7 of this approval, throughout the life of the project. The noise monitoring program shall be prepared in consultation with the EPA and must include the proposed frequency of monitoring and as a minimum must include monitoring when there are any significant changes in work locations or processes.

The noise monitoring program shall be prepared in accordance with the requirements of the *Ne So t Wale n trial Noi e Poli* (EPA, 2000) and shall include, but not be limited to:

a) monitoring at Lamberts North, Lamberts South and Blackmans lat during ash placement activities; and
b) monitoring of the effectiveness of any noise mitigation measures implemented under condition D3(a) of this approval, against the noise criteria specified in condition E7 of this approval.

The Proponent shall forward to the EPA and the Director-General a report containing the results of any non-compliance within 14 days of conducting a noise assessment. The monitoring program shall form part of the perational Noise Management Plan referred to in condition D3 (a) of this approval.

E13. Where noise monitoring including as required by condition E11 and E12 of this approval identifies any non-compliance with the operational noise criteria specified under condition E7 of this approval the Proponent shall prepare and submit to the Director-General a report including, but not limited to:

a) an assessment of all reasonable and feasible physical and other mitigation measures for reducing noise at the source;
b) identification of the preferred measure(s) for reducing noise at the source;
c) feedback from directly affected property owners and the EPA on the proposed noise mitigation measures; and
d) location, type, timing and responsibility for implementation of the noise mitigation measure(s).

The report is to be submitted to the Director-General within 60 days of undertaking the noise monitoring which has identified exceedances of the operational noise criteria specified under condition E7, unless otherwise agreed to by the Director-

General. The Proponent shall implement all reasonable and feasible mitigation measures in accordance with the requirements of the Director-General.

E14. If after the implementation of all reasonable and feasible source controls, as identified in the report required by condition E13, the noise generated by the project continues to exceed the criteria stipulated in condition E7 the Proponent shall implement at the receiver reasonable and feasible noise mitigation measures, such as double glazing, insulation, air conditioning and or other building acoustic treatments, in consultation with and with the agreement of the affected landowner.

□roun□□ater Monitoring

E15. The Proponent shall prepare and implement a **□roun□□ater Monitoring Program** to monitor the impacts of ash placement activities on local groundwater quality and hydrology. The Program shall be developed in consultation with the S□A, and shall describe the location, frequency, rationale and procedures and protocols for collecting groundwater samples as well as the parameters analysed and methods of analysis. The monitoring program shall be ongoing for the operation of the project and for a minimum of 5 years following project completion and include, but not be limited to:

a) monitoring at established bore sites (or replacement bore sites in the event that existing sites are damaged or lost) as described in the Groundwater Management Plan as per condition D3(b); and
b) a schedule for periodic monitoring of groundwater quality, depth and flow at all monitoring sites, at an initial frequency of no less than once every month for the first 12 months of operation.

The monitoring program shall form part of the Groundwater Management Plan referred to in condition D3(b) of this approval.

Surfa□e □ ater □uality Monitoring

E16. The Proponent shall prepare and implement a surface water quality monitoring program to monitor the impacts of the ash placement activities on Neubecks □reek and Lamberts Gully. The Program shall be developed in consultation with the DPI (□isheries) and the S□A, and shall describe the location, frequency, rationale and the procedures and protocols for collecting water samples as well as the parameters analysed and methods of analysis. The program shall include, but not necessarily be limited to:

a) monitoring at the existing water quality monitoring sites as described in the document referred to under condition A1b);
b) monitoring at surface water discharge points from Lamberts Gully □reek;
c) monitoring at surface water discharge points into Neubecks □reek;
d) wet weather monitoring with a minimum of two events recorded within the first 12 months operation of the project; and
e) a schedule for periodic monitoring of surface quality at all sites throughout the life of the project, at an initial frequency of no less than once every month for the first 12 months and must include, but not be limited to, monitoring of dissolved oxygen, turbidity, sulphates, salinity, boron, manganese, iron chloride, total phosphorus and total nitrogen.

Hy□rologi□al Monitoring Program

E17. A □ydrological Monitoring Program to assess and quantify the impacts and effectiveness of the transformed section of □uons □reek into a sub-surface drainage line in consultation with the DPI (□isheries). Monitoring is to be undertaken for a period of five (5) years upon completion of the creek transformation. The program must include sampling for identified pollutants before and after the transformation works and include a sampling site downstream of the sub-surface section of □uons □reek. In the first 12 months following completion of the transformation, monitoring

is to be undertaken at least every three (3) months upon completion of the creek transformation and after any heavy wet weather event.

The monitoring program shall form part of the Soil and Surface Water Management Plan referred to in condition D3(c) of this approval.

Air □uality Monitoring

E18. The Proponent shall prepare an Air □uality Monitoring Program, in consultation with the EPA and NSW □ealth. The Program shall include, but not necessarily be limited to, monitoring for dust. Monitoring sites shall be identified as per condition D3 (d). The air quality monitoring program shall be ongoing for the life of the project, and during final rehabilitation and stabilisation of the site.

The monitoring program shall form part of the Air □uality Management Plan referred to in condition D3(d) of this approval.

Environmental In□i□ent Reporting

E19. The Proponent shall notify the Director-General of any environmental incident within 12 hours of becoming aware of the incident. The Proponent shall provide full written details of the incident to the Director-General within seven days of the date on which the incident occurred.

E20. The Proponent shall meet the requirements of the Director-General to address the cause or impact of any environmental incident, as it relates to this approval, reported in accordance with condition E19 of this approval, within such period as the Director-General may require.

Annual Performan□e Reporting

E21. The Proponent shall, throughout the life of the project, prepare and submit to the Director-General, an Annual Environmental Management Report (AEMR). The AEMR shall review the performance of the project against the □peration Environmental Management Plan (refer to condition D2 of this approval) and the conditions of this approval. The AEMR shall include, but not necessarily be limited to:

a) details of compliance with the conditions of this approval;
b) a copy of the □omplaints Register (refer to condition B11 of this approval) for the preceding twelve-month period (exclusive of personal details), and details of how these complaints were addressed and resolved;
c) identification of any circumstances in which the environmental impacts and performance of the project during the twelve month period have not been generally consistent with the environmental impacts and performance predicted in the documents listed under condition A1 of this approval, with details of additional mitigation measures applied to the project to address recurrence of these circumstances;
d) results of all environmental monitoring required under conditions of this approval, including interpretations and discussion by a suitably qualified person; and
e) a list of occasions in the twelve month period when environmental goals/objectives/impact assessment criteria for the project have not been achieved, indicating the reason for failure to meet the criteria and the action taken to prevent recurrence of that type of failure.

The Proponent shall submit a copy of the AEMR to the Director-General every year, with the first AEMR to be submitted no later than fourteen months after the commencement of operation of the project unless otherwise agreed by the Director-General. The Director-General may require the Proponent to address certain matters in relation to the environmental performance of the project in response to the Director-General's review of the Annual Environmental Management Report. Any action

required to be undertaken shall be completed within such period as the Director-General may require. The Proponent shall make copies of each AEMR available for public inspection on request. □opies of the AEMR shall be sent to the EPA and the S□A.

In□epen□ent Environmental Au□iting

E22. Within 12 months of commencement of operation of Lamberts North and Lamberts South and then as may be directed by the Director-General, the Proponent shall commission an independent person or team to undertake an Environmental Audit of the project. The independent person or team shall be approved by the Director-General prior to the commencement of the Audit. The Audit shall:

a) be carried out in accordance with IS□ 19011:2002 - Guidelines for □uality and or Environmental Management Systems Auditing;
b) assess compliance with the requirements of this approval, and other licences and approvals that apply to the project;
c) assess the environmental performance of the project against the predictions made and conclusions drawn in the documents referred to under condition A1 of this approval;
d) review the effectiveness of the environmental management of the project, including any environmental impact mitigation works; and
e) review the adequacy of the Proponent's response to any complaints made about the project identified in the □omplaints Register.

The Environmental Audit Report shall be submitted to the Director-General within two months of the completion of the Audit, detailing the findings and recommendations of the Audit and including a detailed response from the Proponent to any of the recommendations contained in the Report.

□ aste □eneration an□ Management

E23. All waste materials removed from the site shall only be directed to a waste management facility lawfully permitted to accept the materials.

E24. The Proponent shall not cause, permit or allow any waste generated outside the site to be received at the site for storage, treatment, processing, reprocessing, or disposal on the site, except as expressly permitted by a licence under the Protection of the Environment □perations Act 1997, if such a licence is required in relation to that waste.

E25. The Proponent shall ensure that all liquid and / or non-liquid waste generated and / or stored on the site is assessed and classified in accordance with the Waste □lassification Guidelines (DE□□, 2008), or any future guideline that may supersede that document.

PART □ □ POST OPERATIONS

Pro□e□t Completion Management Plan

□1. No later than one month prior to the decommissioning of the project, or as otherwise agreed by the Director-General, the Proponent is to prepare a Project □ompletion Management Plan, in consultation with the S□A, for the approval of the Director-General. The Plan is to include but not necessarily be limited to:

(a) identification of structures to be removed and how they will be removed;

(b) measures to reduce impacts on the environment and surrounding sensitive land uses;

(c) details of components to be recycled;

(d) details of rehabilitation and revegetation with reference to the biodiversity offset required under condition B6;

(e) groundwater assessment criteria including trigger levels for remedial measures;

(f) a groundwater monitoring program as per condition E15 for groundwater connectivity, water levels, groundwater flow and water quality over the short and long term that includes upstream and downstream locations. The program shall continue for a minimum of five years following final capping and landscaping;

(g) a contingency plan to address potential exceedances and mitigation measures in groundwater and groundwater quality impacts and if exceedances continue, implementation of further measures and groundwater monitoring to demonstrate compliance;

(h) surface water assessment criteria including trigger levels for remedial measures;

(i) available flow and water quality monitoring program for Neubecks □reek and Lamberts Gully □reek that includes discharge points, upstream and downstream locations as per condition E16 and limits for identified pollutants. The program shall continue for a minimum of five years following final capping and landscaping; and

(j) a contingency plan to address potential exceedances and mitigation measures in surface water and surface water quality impacts and if exceedances continue, implementation of further measures and surface water monitoring to demonstrate compliance.
