

APPENDIX 2

Austar Coal Mine Current Operations and Approvals

Appendix 2 – Current Austar Coal Mine Operations

1.0 Ellalong Drift and Pit Top Facilities

The location of the existing Ellalong Drift and Pit Top facility for the mine is shown on **Figure 1**. The layout of Ellalong Drift and Pit Top facilities is shown on **Figure 2**. This facility will be retained and continue to function as the main access point for large equipment and maintenance of the mine. The existing pit top facilities at this location include:

- administration buildings including amenities, training room, bathhouse, first aid room;
- ambulance access and helipad;
- car parks;
- explosive storage area;
- equipment compound;
- fuel and oil storages;
- bulk store;
- rescue station;
- electricity substation;
- coal handling facilities including bins, winder house, overland conveyor;
- sewage treatment facility;
- water storage tanks; and
- various sheds, equipment and materials storages.

1.1 Materials Access

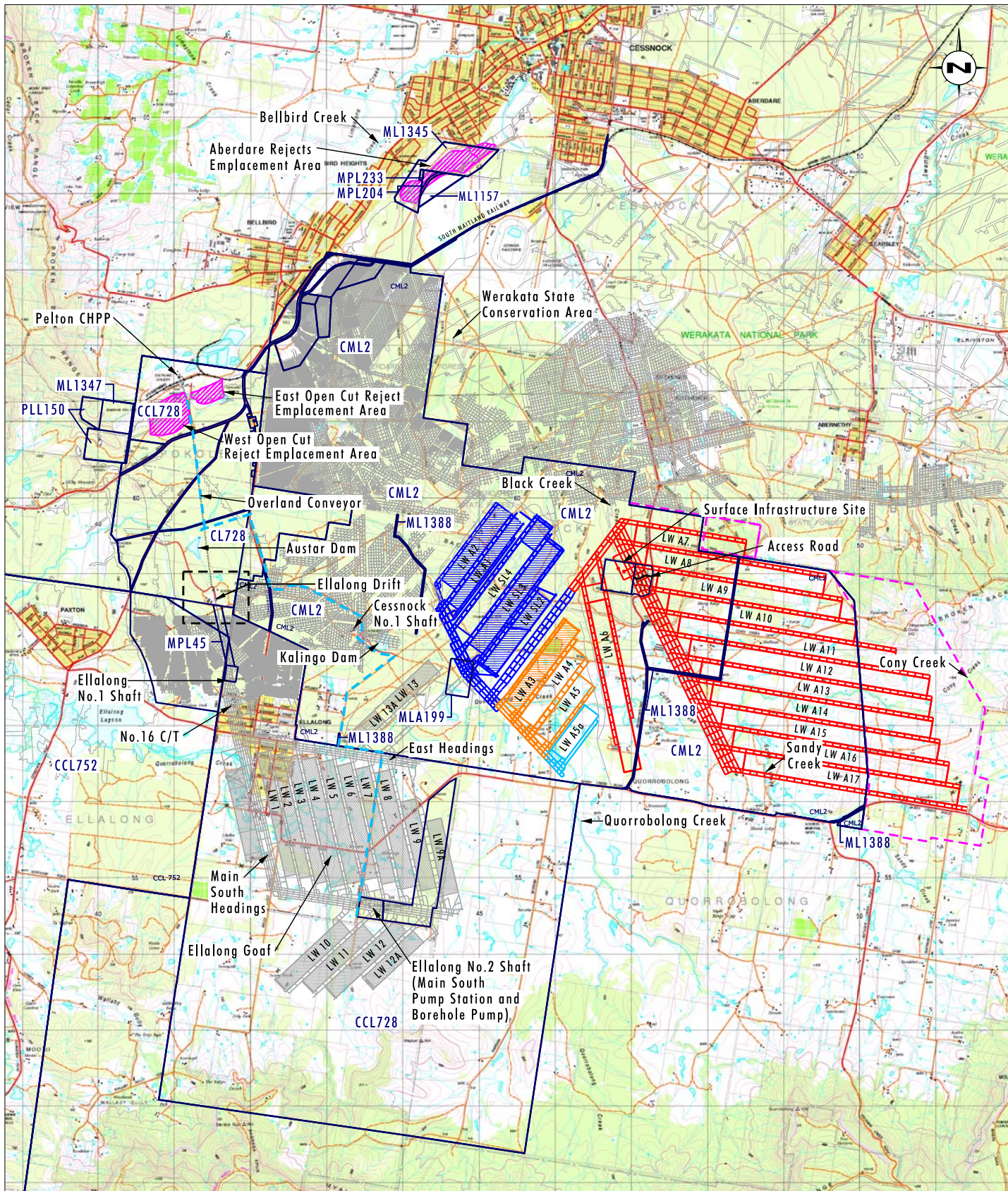
Access to the underground workings is via the Ellalong drift which is 1200 metres long at a grade of 1 in 3.5. The drift houses a conveyor that removes mined coal and a slope haulage system which provides man and materials access. The drift also contains a pumping station and rising main pump line.

1.2 Air Ventilation Systems

Air ventilation systems at the mine consist of the following:

1.2.1 Intakes

- The Ellalong drift which is 1200 metres long, 6.0 metres wide with a nominal 3.1 metre radius arched profile connects the surface to the pit bottom area;



Source: Topo Maps: LPI NSW, Longwall Layouts: Auster Coal Mine

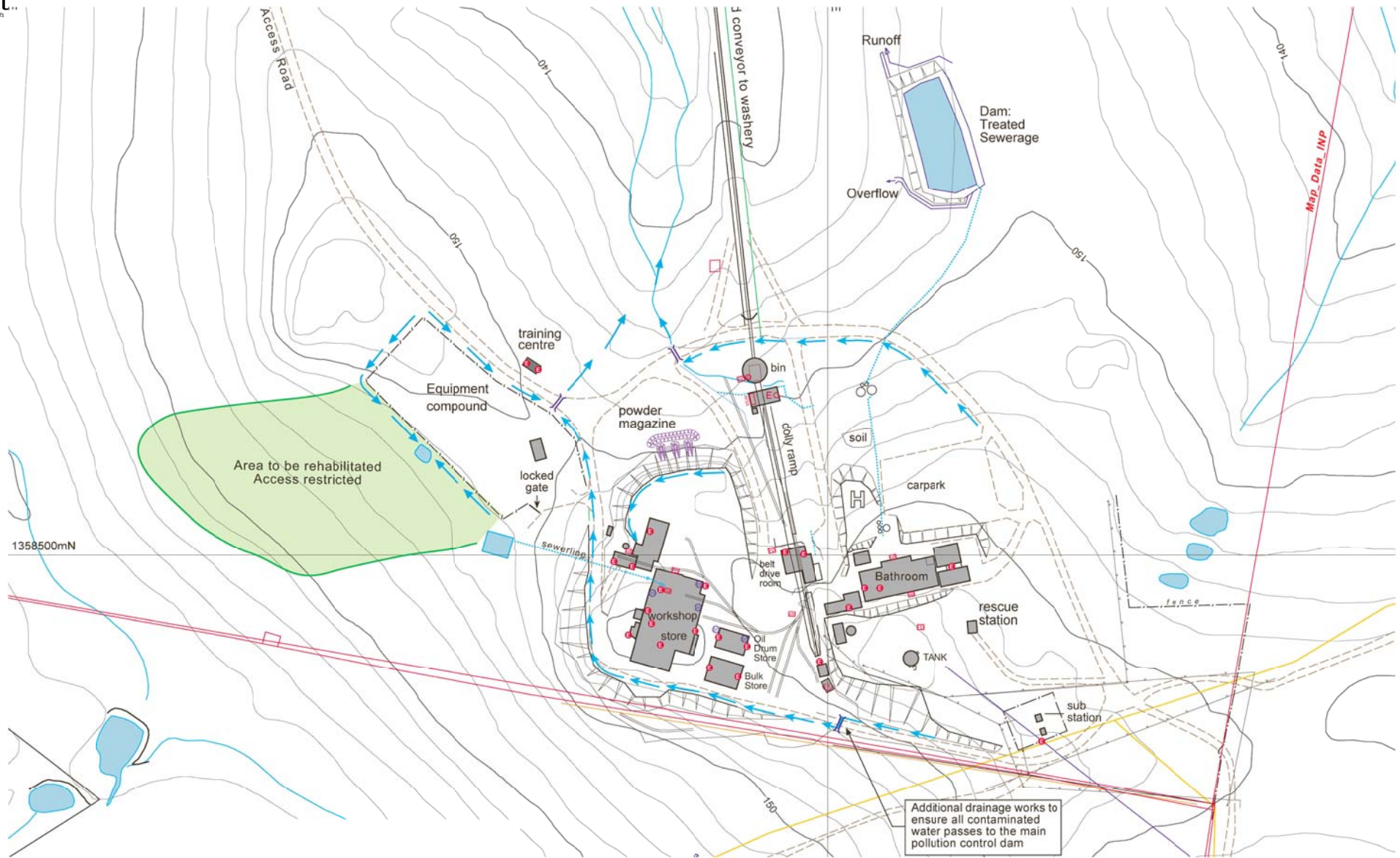
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Legend

- Layout for Stage 1 Longwall Panels
- Layout for Stage 2 Longwall Panels
- Layout for Stage 2 Extension Longwall Panel
- Conceptual Layout for Stage 3 Longwall Panels
- Proposed Stage 3 Extension Boundary
- Reject Emplacement Areas
- Old Workings
- Mining Leases
- Water Pipeline

FIGURE 1

Existing Auster Infrastructure



- Road / track
- Drain
- Fire fighting equipment
- Spill station
- Powerline
- Area to be rehabilitated Access restricted
- Dirty water flow direction
- ⌋ Culvert

February 2006

FIGURE 2

Existing Ellalong Drift and Pit Top Facilities

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- Ellalong No. 1 Shaft – Consists of a downcast shaft and second egress winder. The shaft is approximately 5.5 metres diameter and 270 metres deep and is located adjacent to the existing pit bottom area; and
 - The No. 4 Downcast shaft – consists of a 2.44 metre diameter shaft and is 453 metres deep. This shaft solely provides fresh air to the current mine workings area.

1.2.2 Return

- Upcast Ventilation Fan at No. 3 Shaft Site – The facility includes 2 x 750 kW centrifugal fans capable of each supplying 200 m³/s at 5 kPa.

The locations of each of the air ventilation systems are shown in **Figure 1**.

2.0 Coal Handling Preparation Plant

Coal from current underground mining operations (Stage 2) is loaded onto an underground conveyor system and transported along the Ellalong drift to the Ellalong Pit Top where it is transferred to an overland conveyor and transported to the Pelton Coal Handling and Preparation Plant (CHPP).

The existing Pelton CHPP is a single module design which utilises dense medium cyclones and spirals to treat the coal. The CHPP has a nameplate capacity to wash and handle 600 tonnes of coal per hour and currently processes up to 520 tonnes per hour of ROM coal making its maximum annual production capacity approximately 4.2 Mtpa of ROM coal or approximately 3.6 Mtpa to approximately 3.8 Mtpa of product coal. The CHPP can operate 24 hours per day, 7 days per week, 52 weeks per year with current operations restricted by export capacity at the Port of Newcastle.

Austar's ROM stockpile capacity consists of a primary and secondary stockpiles located immediately west of the Pelton CHPP. The ROM stockpile has a live capacity of 5000 tonnes and an overall capacity of 300,000 tonnes. Under normal conditions the maximum amount of coal that is stored in the stockpile is around 100,000 tonnes. All coal stored in excess of the live storage capacity of the system is handled using tracked bulldozers. Secondary products from the Pelton CHPP consist of specialty sized coal products which are collected in a 300 tonne coal bin located to the east of the CHPP.

The washed coal stockpile is located immediately north of the Pelton CHPP and has a maximum capacity of 250,000 tonnes. Under typical conditions, the washed coal stockpile is maintained at less than 100,000 tonnes. The conveyor system under the stockpile has a reclaim capacity of up to 1200 tonnes per hour.

3.0 Coal Transportation

Up to 3 Mtpa of product coal is transported by rail to the Port of Newcastle. The rail line begins at the Pelton CHPP site and extends 9.5 kilometres along the Austar Rail Line before joining the South Maitland Rail Line and then the Great Northern Line at Maitland Junction.

The rail system allows 4 x 48 Class diesel locomotives and 38 wagons, making a train unit of 2200 tonnes. Up to six trains per day can be loaded.

Coal loading capacity at the Port of Newcastle is currently restricting the amount of coal that is transported from Austar Coal Mine. It is expected that the current restrictions and the lack of capacity at the Port of Newcastle will be resolved in the near future. Once additional capacity is available at the Port, the mine will be able to move into full production, and transport up to 3 Mtpa. It is envisaged at that this may occur by late 2011.

Up to 60,000 tpa of specialty sized coal and other special coal product is loaded by front-end loader into 25 tonne road-trucks for transport to special use customers. A very small amount of coal is also transported to special use customers in small loads of between 1 to 2 tonnes.

4.0 Water Management

The water management system at Austar Coal Mine is detailed in the Site Water Management Plan (SWMP) (Austar March 2009) and comprises three main components being the underground, Pelton CHPP site and the surface water storage systems. The locations of the main components of Austar's infrastructure are shown on **Figure 1**.

An assessment of predicted future groundwater inflow into the mine has been undertaken by Connell Wagner (2007) and forms part of the SWMP (Austar March 2009) which concludes that existing water management infrastructure as described in the SWMP, has sufficient capacity to accommodate mine water from the Stage 2 Extension Project. During the Stage 2 Extension Project, water will continue to be managed in accordance with Austar's SWMP.

4.1 Underground Mine Water Management System

Austar workings are located downdip of the old Pelton, Bellbird, Aberdare Central and Kalingo workings and receive groundwater inflows directly from these workings. Water quality of the inflows is poor having low pH (2.5 – 3.5), high conductivity (10,000 to 15,000 $\mu\text{S}/\text{cm}^3$), high iron, manganese and sulphur concentrations.

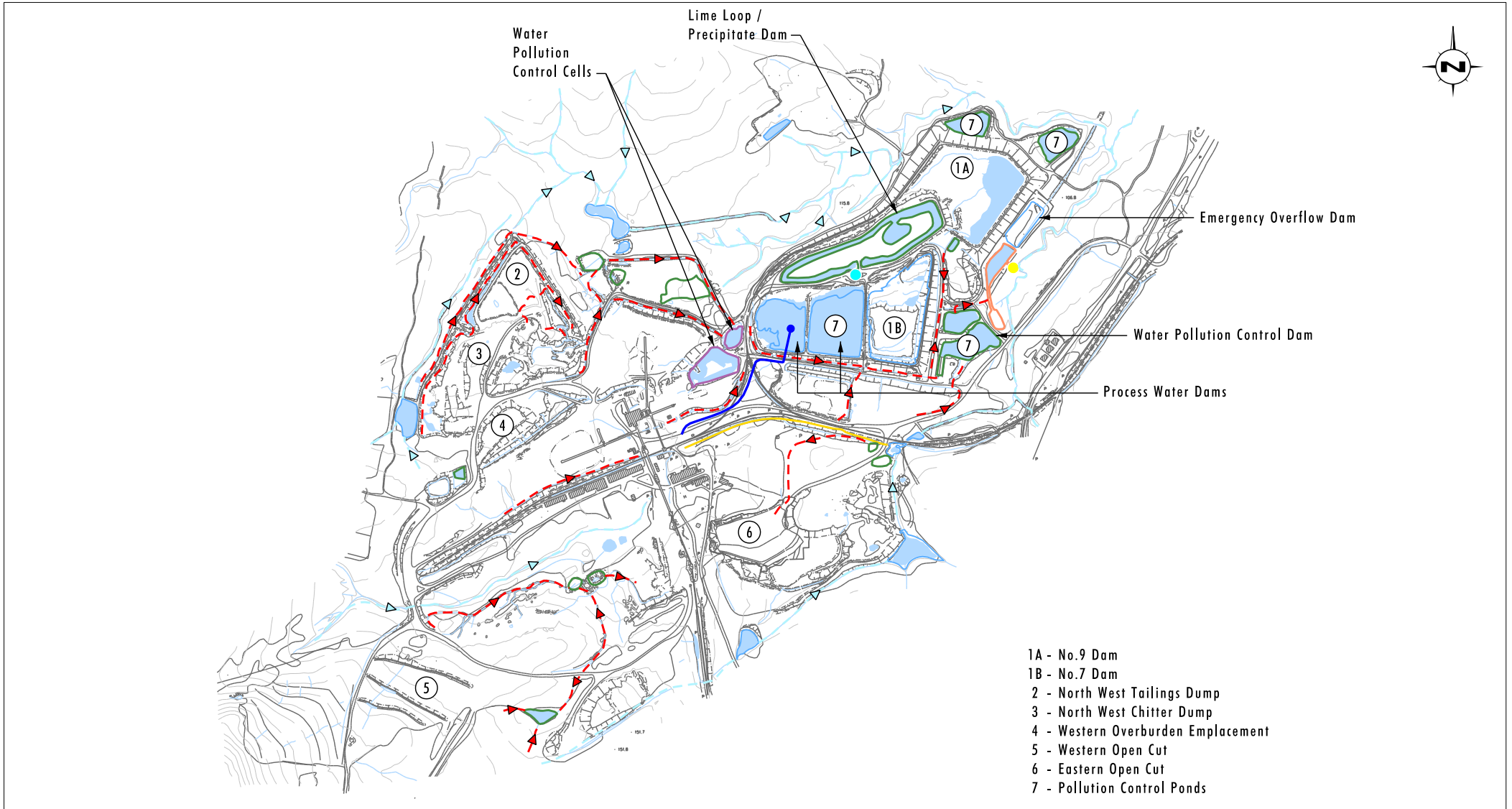
Austar's operations require that the underground workings be dewatered to prevent water flowing into the active mine area. Water is stored in various underground workings. Two underground pumping stations deliver mine water to the surface – No. 16 C/T Main South Pumping Station and the No. 2 Shaft Pumping Station (refer **Figure 1**).

4.2 Pelton CHPP Water Management System

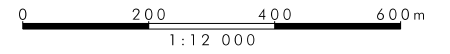
The water management system at Pelton CHPP (see **Figure 3**) consists of four interconnected systems being the water pre-treatment and lime dosing system, the reverse osmosis (RO) treatment plant, the coal washing and handling system and the stormwater runoff and management system. Treated clean water in excess of site needs is discharged into Bellbird Creek in accordance with Austar's Environmental Protection Licence (EPL No. 416) at a rate of up to 2 ML/day annual average.

4.3 Surface Water Storage and Management System

Austar's surface water management system is designed to match the capacity of the underground dewatering systems with additional provision to store and handle surface runoff



Source: Southland Colliery / Geospectrum 1998, Adapted from Figure 4, 2005 Austar MOP
 Note: Contour Interval 5m



- Legend**
- Licensed Discharge Point
 - Lime Dosing Plant
 - Clean Water Dam
 - Dirty Water Dam
 - ▶ Clean Water Flow
 - Pollution Control Dam
 - ▶ Contaminated Water Flow
 - Discharge Channel
 - Emergency Dam
 - Pipeline

- 1A - No.9 Dam
- 1B - No.7 Dam
- 2 - North West Tailings Dump
- 3 - North West Chitter Dump
- 4 - Western Overburden Emplacement
- 5 - Western Open Cut
- 6 - Eastern Open Cut
- 7 - Pollution Control Ponds

FIGURE 3

Current Water Management
System Pelton CHPP

during heavy rain events. The system is managed in accordance with the requirements of the SWMP (Austar March 2009). The two main surface water storages (apart from the water pollution control dams at the washery) are Kalingo Dam and Austar Dam which are shown in **Figure 1**.

5.0 Reject Disposal and Tailings Management

Austar has development approval to dispose of rejects and manage tailings at Pelton Colliery (both north and south of Wollombi Road), Pelton Open Cut, Aberdare Extended Open Cut and the areas identified under the 1996 Minister's Consent as Reject Emplacement Areas 1, 3 and 4. Reject emplacement will continue to be in areas previously approved for Ellalong Colliery (DA 74/75/79), Pelton Open Cut (DA 118/691/181) and the Bellbird South extension to Ellalong Colliery (DA 29/95). These areas have capacity for the emplacement of approximately 17.5 Mt of coarse reject. The locations of the approved reject emplacement areas are shown in **Figure 4**.

Coarse reject from the Pelton CHPP is delivered to an 80 tonne refuse bin and trucked via the private haul road to either the Aberdare Extended Open Cut refuse emplacement area or is emplaced in open cut voids at the Pelton Open Cut.

Tailings from the Pelton CHPP is presently discharged into underground mine workings. The return water from these tailings gravitates through the mine workings and is recovered into the Austar Mine via dewatering boreholes.

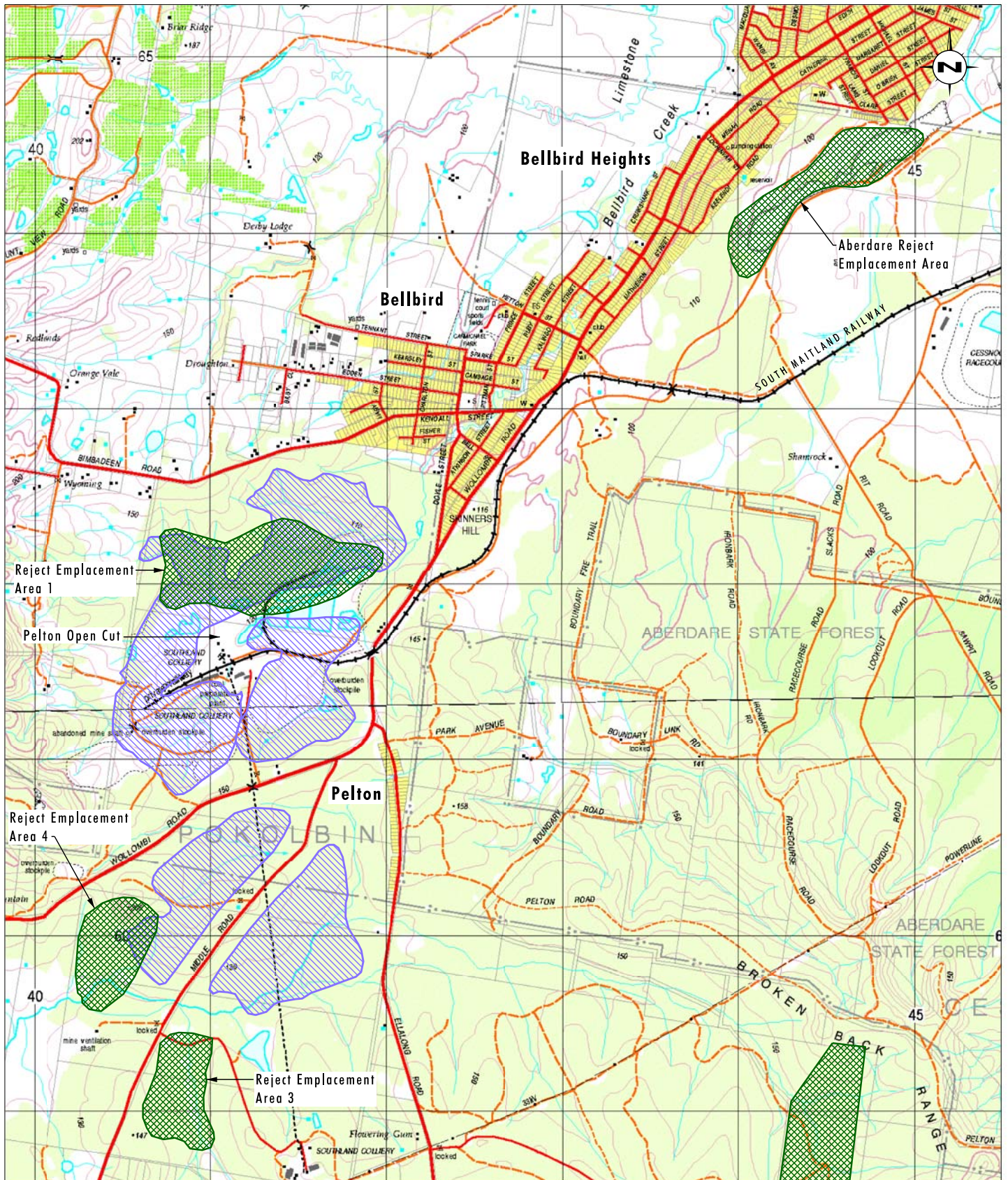
Reject emplacement and tailings disposal is undertaken in accordance with an approved Mining Operations Plan (MOP) (Austar 2008) as required by Mining Lease conditions issued under the *Mining Act 1992*.

The currently approved reject emplacement areas as defined in the MOP have capacity to readily emplace in excess of 5.5 Mt of coarse reject. Details of Austar's reject emplacement strategy are provided in the MOP (Austar 2008) which will continue to be revised and updated throughout the life of the mine.

Reject emplacement will continue to be undertaken in accordance with the provisions and controls set out in the MOP (Austar 2008). The MOP will continue to be revised and updated throughout the life of the mine.

6.0 Employment

Currently approximately 200 people are employed at Austar with the size of the workforce being limited by the fact that the mine cannot operate at full production due to export restrictions at the Port of Newcastle. At full production of 3 Mt per year, there will be employment for approximately 275 people in addition to a range of contractors. The existing equipment and workforce extracting coal from Stage 2 will be utilised in the Stage 2 Extension Project.



Source: LPI NSW

0 0.5 1.0 1.5 km
1:30 000

Legend

- Reject Emplacement Area (DA 29/95)
- Reject Emplacement Area (DA 74/75/79)

FIGURE 4

Reject Emplacement Areas
(DA 29/95 and DA 74/75/79)

7.0 Environmental Management of Existing Operations

The environmental management of existing operations at Austar mine is undertaken within the framework of the Austar MOP, a suite of environmental management and monitoring plans including the Site Water Management Plan, and the Environment Protection Licence for the mine (EPL 416). This section provides an overview of the environmental management framework at Austar mine and its current environmental performance.

7.1 Austar Mining Operations Plan

All aspects of current Austar operations, including environmental management and rehabilitation, are managed in accordance with the current Austar MOP, which was approved by the Department of Primary Industries (DPI) in May 2008. The current MOP covers all mining operations at Austar over a seven year period from 2008 to 2015. The MOP encompasses all mining activities within Austar's mining leases including:

- underground mining;
- activities at Ellalong Drift and Pit Top;
- overland transport of ROM coal from Ellalong Drift to Pelton CHPP;
- processing and handling of coal at Pelton CHPP;
- reject management and emplacement activities;
- water management;
- use and management of Austar's remote infrastructure sites (No. 1, 2, 3 and 4 shafts and the Kalingo site); and
- rehabilitation activities.

Review and reporting of Austar's performance against the MOP is provided through Annual Environmental Management Reports (AEMR) and DPI inspections.

7.1.1 Coal Reject Management

The Austar MOP provides the framework for the management of coal reject from Pelton CHPP for the life of Austar mine. In accordance with the MOP, fine coal tailings from Pelton CHPP are discharged into underground workings while coarse rejects are emplaced at three approved reject emplacement areas (refer to **Figure 1**). There is sufficient capacity within the existing reject emplacement areas shown on **Figure 1** to accommodate all coarse reject from Stage 1, Stage 2, the Stage 2 Extension Project and the Stage 3 Project.

In addition to the existing reject emplacement areas, Austar has planning consent to construct and use additional reject emplacement areas to the south of Wollombi Road and to the east of Middle Road (refer to **Figure 4**) under DA 74/75/79 and DA 29/95. The approved reject emplacement areas at Austar have a total capacity of approximately 17.5 Mt. While it is not proposed to utilise approved reject emplacement areas to the south of Wollombi Road or to the east of Middle Road, significant additional reject emplacement capacity is available should the need for additional reject emplacement areas arise. Analysis indicates that a life

of mine coarse reject capacity of approximately 3.6 Mt will be required. Analysis indicates that approximately 5.5 Mt of reject emplacement capacity is available within the existing three reject emplacement areas (see **Figure 1**).

7.1.2 Rehabilitation

Rehabilitation Activities

Rehabilitation activities at Austar mine are undertaken in accordance with the Austar MOP. The Austar MOP sets out rehabilitation activities to be undertaken during the seven year period from 2008 to 2015 and provides final rehabilitated landforms for Pelton CHPP, reject emplacement areas, Ellalong Drift and Pit Top and the remote infrastructure sites. Rehabilitation at the end of mine life will be undertaken in accordance with the provisions of the Austar MOP.

Final Land Use Strategy

The final land use plans for life of mine operations have been developed for the three reject emplacement areas and surface infrastructure areas shown on **Figure 1** as part of the MOP (Austar 2008). These plans have been developed to be consistent with land use strategies for the surrounding areas.

7.2 Environmental Management and Monitoring

Current environmental management and monitoring plans for Austar mine provide a methodical and integrated approach to fulfilling Austar's environmental objectives and ensure the ongoing management of the site in accordance with the principles of ecologically sustainable development. The existing plans include:

- Environmental Management Strategy;
- Environmental Monitoring Program;
- Subsidence Management Plans for the Stage 1 and Stage 2 areas including:
 - Property Subsidence Management Plans;
 - Public Safety Management Plan;
 - Infrastructure Management Plans.
- Vibration Monitoring Plan;
- Air Quality Monitoring Plan;
- Noise Monitoring Program ;
- Site Water Management Plan; and
- Stage 2 Ecology Monitoring Plan.

Austar's environmental management plans have been prepared in accordance with the conditions of DA 29/95 to the satisfaction of the Director-General of Planning.

A summary of environmental management and monitoring activities relating to air quality, noise and water undertaken at Austar mine is provided in **Sections 7.2.1 to 7.2.3** below.

7.2.1 Air Quality Management and Monitoring

In accordance with the Air Quality Management and Monitoring Plan, Austar operates five dust depositional dust gauges and two high volume air samplers (HVAS), which measure PM₁₀. Results from the dust gauges and HVAS during 2007 to 2009 demonstrate compliance with the ambient air quality goals set out in DA 29/95.

7.2.2 Noise Monitoring

Quarterly noise monitoring is undertaken at three locations surrounding Pelton CHPP in accordance with EPL 416 (refer to **Section 7.3**) and at two locations in proximity to No. 3 and 4 Shafts in accordance with DA 29/95. Noise monitoring is undertaken within the framework set out in Austar's approved Noise Monitoring Program.

Noise monitoring undertaken in 2007 to 2009 has indicated compliance with Austar's project specific criteria at monitoring locations near Pelton CHPP and No 3 and 4 Shafts. However, community complaints relating to noise from Pelton CHPP have indicated that further investigation of noise impacts from Pelton CHPP is warranted. A program of directed noise studies has been undertaken by Austar in response to community complaints, and more recently Austar has entered into a Noise Pollution Reduction Program for Pelton CHPP. These initiatives are a part of Austar's program of continuous environmental improvement.

7.2.3 Site Water Management

As discussed in **Section 4**, Austar has prepared a Site Water Management Plan (SWMP) for its current operations in accordance with the requirements of Conditions 11 to 16 of DA 29/95. The SWMP details the water management system in place at Austar mine with the aim of ensuring that the mining operation does not result in unacceptable impacts on water quality in the area. The water management system at Austar Coal Mine is detailed in the SWMP (Austar March 2009) and comprises three main components being the underground, Pelton CHPP site and the surface water storage systems. The SWMP has been instrumental in facilitating continuous environmental improvement in terms of water management at Austar mine.

An assessment of predicted future groundwater inflow into the mine has been undertaken by Connell Wagner (2007) and forms part of the SWMP (Austar, March 2009).

The locations of the main components of Austar's water management infrastructure are shown on **Figure 1**. The water management system at Pelton CHPP is shown in **Figure 2**.

Monthly monitoring of surface water quality is undertaken at five surface water monitoring locations at Pelton CHPP in accordance with EPL 416. Monitoring undertaken during 2007 and 2008 indicated two exceedences of water quality monitoring criteria at the clean water licensed discharge point into Bellbird Creek. An investigation undertaken by Austar personnel indicated that the permeate tank which received clean water from the water treatment system was undersized, meaning that the water treatment system did not produce a consistent quality of clean water for discharge to Bellbird Creek.

In response to the exceedences, the permeate system was upgraded in April 2008 to a two stage permeate tank system with a significantly larger storage and mixing capacity. Water

quality monitoring results from May 2008 to December 2009 indicate that the new permeate system is performing appropriately.

An unlicensed discharge event occurred at Austar mine during severe storms on the June 2007 long weekend. A total of 196 mm of rainfall was recorded at the site in a 36 hour period. This coincided with a power outage which stopped pumps used to manage water and as a result an unlicensed discharge from Austar Dam occurred. As a result of this discharge event Austar reviewed its site water management plan to ensure that additional capacity is available within storage dams to cope with runoff associated with severe storm events.

At the Pelton CHPP, tailings entered an onsite section of Bellbird Creek on 28 September 2009. This incident was reported to the Department of Environment, Climate Change and Water (DECCW) on the day of discovery. A pollution reduction program (PRP) was attached to EPL No 416 to clean up the affected creek section. The creek section was cleaned up in consultation with DECCW, to their satisfaction by December 2009. The PRP was subsequently removed from the EPL. The tailings had emerged from the ground some distance from the point where it was injected into old underground workings, rather than at the point of insertion, or at other openings to the mine which were at a lower level. A localised strata failure was the likely cause. The new tailings disposal point is located within the dirty water part of the CHPP site to prevent reoccurrence.

7.3 Environment Protection Licence

Austar holds an Environmental Protection Licence (EPL 416) for its operations. EPL 416 was granted on 7 May 2002 and is reviewed annually. The EPL includes provisions for the discharge of water from Pelton CHPP (refer to **Section 7.2.3**), surface water monitoring at Pelton CHPP (refer to **Section 7.2.3**) and noise limits surrounding Pelton CHPP (refer to **Section 7.2.2**). An annual return for EPL 416, including a statement of compliance and a summary of environmental monitoring and complaints is submitted to the DECCW at the end of each reporting period.

7.3.1 Community Complaints

In accordance with the requirements of EPL 416, Austar maintains a 24-hour telephone complaints line (number is 1800 701 986). Complaints received on the complaints line have been largely related to noise from Pelton CHPP and have been generally from residents to the north and west of the CHPP. Complaints are investigated and addressed by Austar as they are received.

Since acquiring the mine and associated surface infrastructure, Austar has been investigating the potential noise sources that have been the subject of community complaints through two directed noise studies and quarterly noise monitoring in accordance with EPL 416. These studies have formed a part of Austar's program of continuing environmental improvement. As a result of the first of these studies, Austar replaced a Caterpillar bulldozer which was found to have noisy tracks with a Komatsu to reduce track noise when the bulldozer is operating on coal stockpiles. This bulldozer was chosen following noise tests which demonstrated that track noise during operation was significantly quieter than the Caterpillar.

Austar has also implemented a Driving Policy to prevent excessive noise when operating the Komatsu bulldozer. The Policy includes the limiting of reversing speed and instructing operators to reverse in first gear only. Additionally, Austar has implemented a stockpile

management procedure in order to provide greater night time noise shielding between the bulldozer and residents to the west of Pelton CHPP.

7.3.2 Voluntary Noise Pollution Reduction Program

In response to noise complaints regarding Pelton CHPP and as a part of Austar's continuous environmental improvement program, Austar has voluntarily entered into a Noise Pollution Reduction Program (Noise PRP). The Noise PRP is a staged program aimed at progressively improving the noise performance of the CHPP. EPL 416 has been amended to include the first stages of the Noise PRP.

Austar commissioned a noise impact assessment titled *Austar Coal CHPP Assessment of Noise Impacts* (Global Acoustics, September 2008; the Noise Report), as the first stage in a voluntary noise pollution reduction program (PRP).

The Noise Report was prepared in accordance with Section 10 of the DECC *Industrial Noise Policy* (INP), which provides guidance on the application of the INP to existing premises, such as the Austar Coal CHPP. The method is essentially the same as for a new development, where project specific criteria are determined, and proposed (or current) operations are assessed against these criteria, with the exception that, should the predicted levels exceed any criterion, an assessment should be made of feasible and reasonable noise mitigation strategies, and negotiated achievable noise levels may be agreed upon between the noise source manager and the regulator.

Austar has implemented noise control in several areas in 2009, which included erecting noise barrier walls or enclosures around pumps and conveyor feeders; closing openings in the CHPP building; undertaking a trial upgrade of the walls and roof of the main overland conveyor drivehouse; and commencing an upgrade of the acoustic performance of the CHPP walls and roof. The program is ongoing, with progress and monitoring results communicated in six monthly status reports to the DECCW, at the Community Consultative Committee (CCC), and also summarised in the AEMR.