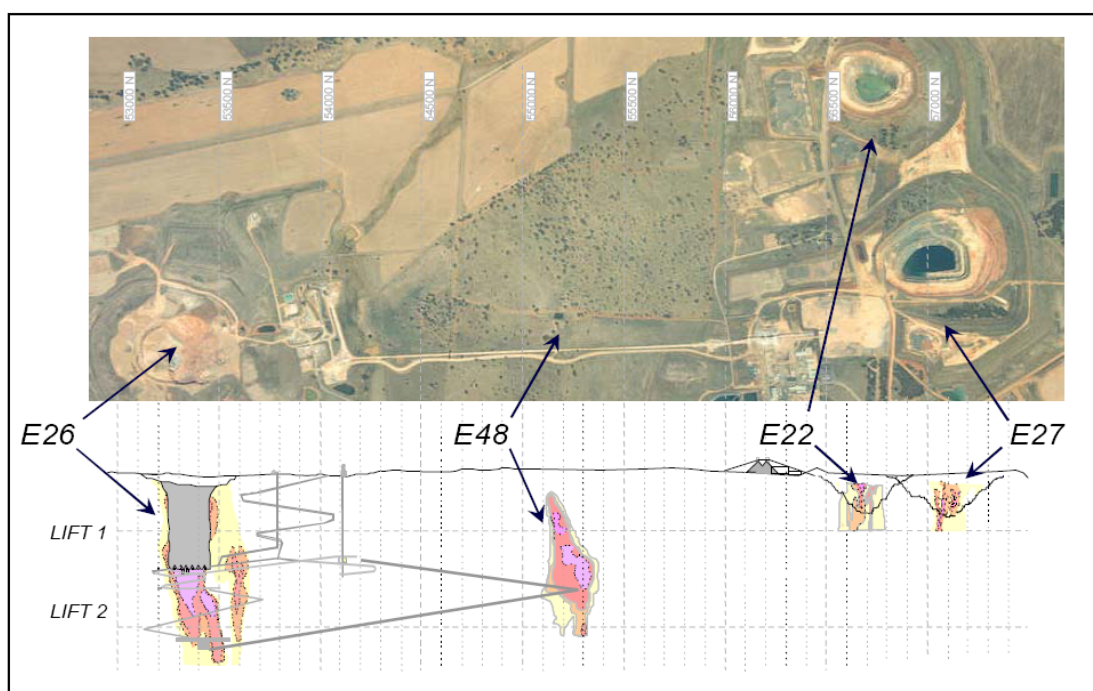




MAJOR PROJECT ASSESSMENT: *Northparkes Mines – Continuation and Underground E48 Extension*



Director-General's
Environmental Assessment Report
Section 75I of the
Environmental Planning and Assessment Act 1979

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1 EXECUTIVE SUMMARY

North Mining Limited is proposing to extend its existing Northparkes Mines gold and copper mine, located 27 kilometres north-northwest of Parkes in western New South Wales.

The proposal revolves around the construction and operation of a new underground mine (to be known as the E48 mine) and associated facilities. However, the project application also seeks approval for continued operation of all existing operations at Northparkes Mines, including continued underground mining at the E26 mine, processing and transport of ore and the potential resumption of open cut mining in the E22 pit. The overall project is therefore called the Northparkes Mines – Continuation and Underground E48 Extension Project.

Mining in E48 would be undertaken using the same block caving method used at the E26 mine and would commence following the completion of mining at E26 in 2009. Ore from E48 would sustain the current production levels of Northparkes Mines (between 5.5 and 6.5 million tonnes of ore per year) for a further seven years until 2016 and use the existing processing facilities.

A surface subsidence zone of 24.4 hectares would be created by the new E48 mine in an area of Limestone National Forest managed by the Department of Primary Industries (Forests). This subsidence-affected land would be offset by the Proponent giving a 45 hectare parcel of adjacent land to DPI, for addition to the Forest. The Proponent would revegetate the offset land with woodland species similar to those within the existing Forest and maintain the land for three years.

The E48 extension has a capital investment value of \$72.6 million and would extend employment for the 350 current employees for approximately seven years until 2016. Approximately 150 additional personnel would be employed during the anticipated 32 months construction period for the E48 underground mine.

The proposal constitutes a 'major project' under Part 3A of the *Environmental Planning and Assessment Act 1979*, and consequently the Minister is the approval authority for the project. In August 2006 Northparkes Mines lodged an Environmental Assessment (EA) for the project, and the Department has publicly exhibited the project application and EA. In response, the Department received ten submissions on the proposal: four from State government authorities, one from the Parkes Shire Council and five from the general public. None of the submissions raised objections to the Project.

The Department has assessed the project application, EA, submissions and the Proponent's response to submissions and is satisfied that there is sufficient information available to determine the application.

The Department recommends approval of the Project, subject to recommended conditions which cover all current and proposed operations at Northparkes Mines. The recommended conditions address mining operations, on-going environmental monitoring and management, progressive rehabilitation and review of the existing Rehabilitation and Landscape Management Plan, compliance mechanisms, independent reviews, community consultation and complaints management and performance audits.

A new project approval for the Project would extinguish the individual consents that have been previously issued for Northparkes Mines and consolidate the management of all existing and proposed mining activities under a single approval.

2 BACKGROUND

Northparkes Mines (NPM) is located 27 kilometres (km) north-northwest of Parkes in the western Region of New South Wales (see Figure 1). The Project Site covers 2,500 hectares (ha), of which approximately 930 ha has been disturbed by 14 years of previous mining activities.

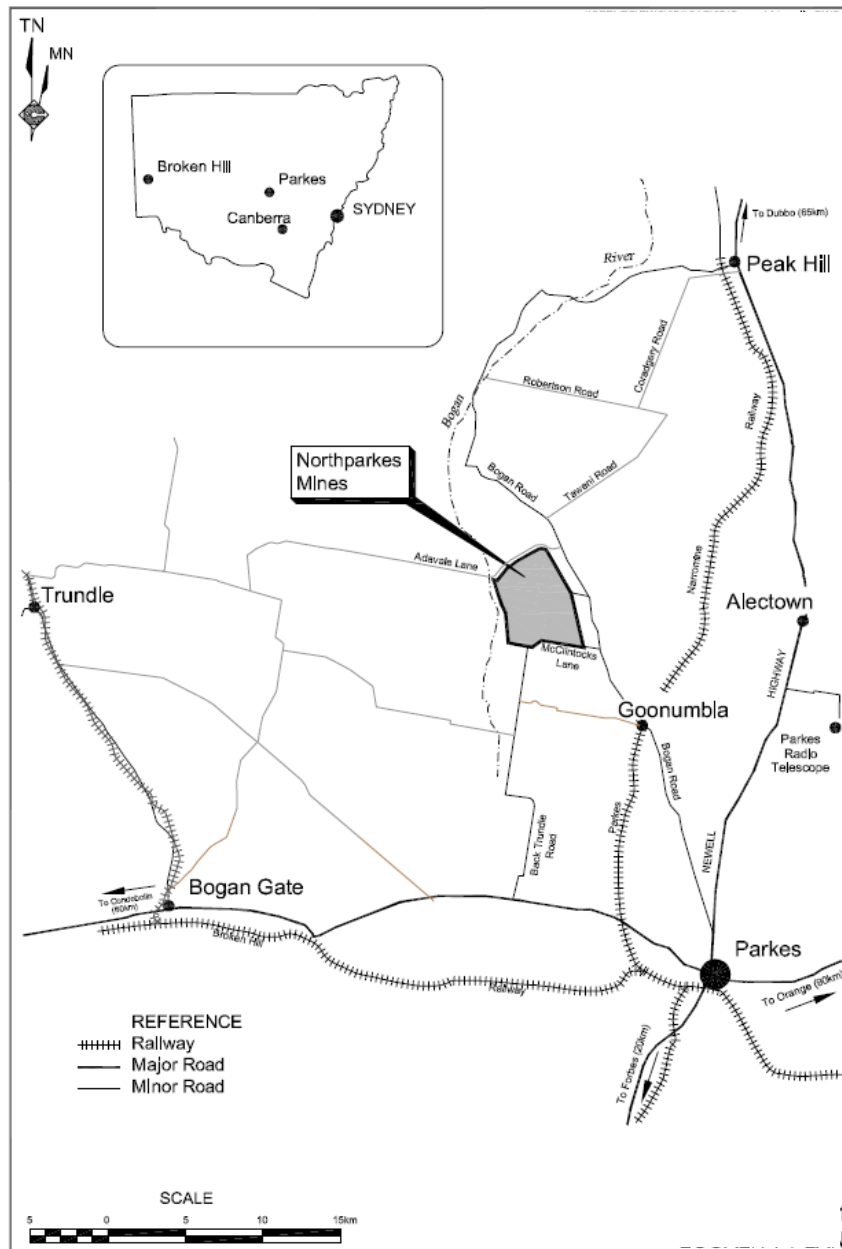


Figure 1: Location Map

Northparkes Mines comprises four primary areas of sulphide ore mineralisation containing copper, gold and silver (see Figure 2). These are:

- **Two Open cut mines (E22 and E27)** – surrounded by ore stockpiles, waste rock dumps and a sound bund. Mining commenced in 1993 and initially ceased in 1998. Since then, both pits have been re-opened and subject to cutback mining. This has been completed for E27 and suspended for E22. Mining at E22 may resume if the remaining resource is demonstrated to be economically viable to mine;

- **Underground block cave mine (E26)** – a block cave mine and resultant surface subsidence crater. The block caving mining method involves undercutting a large vertical ore zone to the point where the overlying ore begin to fail and break up without the requirement for further drilling and blasting. The ore continues to fail and cave in as the broken rock beneath is removed for processing, with the subsidence zone eventually breaking through to the surface to form a crater. Development work at E26 commenced in mid-1995. The mine is currently operating at full production of 4.1 million tonnes per annum (Mtpa) and is expected to be exhausted in December 2009.; and
- **Proposed underground block cave mine E48** – proposed to be located approximately mid-way between the open cut mines and the underground mine.

3 PROPOSED PROJECT

On 29 December 2005, North Mining Limited (the Proponent) lodged a project application (MP 06_0026) seeking a single, consolidated project approval to cover both on-going operation of all existing NPM mine components and the establishment of its proposed E48 underground block cave mine.

The existing mine site components are set out in Table 1 and shown in Figure 2 below. The key components of the proposed E48 mine are set out in Table 2 and shown in Figure 3 below.

Table 1: Major Existing Site Components of the Project

Existing Site Components	Description
Summary	All activities currently underway including underground block cave mining in E26, ore processing and road transport to the Goonumbla Rail Siding would continue for the remaining life of the mine.
<i>Mining and Reserves</i>	Continued mining from E26 at a rate of up to 4.1 Mtpa is anticipated to cease in late 2009. E22 cut back mining, previously approved by Council, is planned to then resume, subject to demonstration that the resource is economically viable to mine.
<i>E26 Underground Mine and associated surface subsidence zone</i>	This has been the main source of ore throughout the life of the mine. There is an associated surface subsidence crater, which is surrounded by waste rock and clay dumps to the north-east and north-west.
<i>E26 Underground Mine Portal, Hoisting Shaft and Exhaust Fan</i>	Access to the underground operations is a portal at the surface and decline for person and materials access, with mined ore being transported to the surface via a dedicated hoisting shaft.
<i>NPM Surface Infrastructure and Services</i>	Including administration building and change rooms; core shed; laboratory; mines rescue shed; warehouse; workshop; surface contractor laydown area; various compounds for equipment storage and servicing; 132kV and 11kV electricity substation; two sewage treatment plants; and associated roads and electrical infrastructure.
<i>Overland Conveyor and E26 Service Road</i>	An overland conveyor to transport ore from the E26 hoisting shaft to the ore processing plant stockpiles and associated service road.
<i>Ore Processing Plant</i>	Copper flotation processing plant with tertiary mill surface crusher, crushed ore stockpiles, non-operational carbon in pulp plant, active grinding mills, froth flotation area and concentrate storage.
<i>Rill Tower Stockpile and Run of Mine Pad</i>	For underground ore and open cut ore, respectively.
<i>Tailings Storage Facilities 1 and 2</i>	All tailings from the ore processing plant currently discharge into two tailings storage facilities (TSF). Existing approvals also allow for the deposition of tailings into the two open cut mines approximately to

Existing Site Components	Description
	natural surface level and potentially to the level of the sound bund surrounding the two open cut mines. This would require installation of internal drainage and pumping systems in the open cuts.
<i>Return Water Dam</i>	Collects decant water from the two tailings storage facilities for reuse through the processing plant.
<i>E22 Open Cut Mine</i>	Initially cut back mining completed in 2002 but expected to continue, following further resource assessment.
<i>E27 Open Cut Mine</i>	Mining completed. Now used for water storage.
<i>Water Demand and Supply</i>	NPM consumes approximately 3,000 MLpa of water. This is made up of fresh water supplied by Parkes Shire Council via pipeline, water recovered from the tailings storage facilities and stored surface runoff.
<i>Water Storages</i>	Includes some 35 surface water storages, with capacities ranging from 120 m ³ to 650,000 m ³ including drinking water tank, process water dam, raw water tank, return water dam, tailings storage facilities 1 & 2, pit voids etc.
<i>Various open cut waste rock/clay stockpiles and dumps</i>	Two open cut mines, E22 and E27, surrounded by ore stockpiles, waste rock dumps and the sound bund. Marginal ore stockpiles and waste rock dumps and stockpiles of clay and oxide material are also located around the E26 surface crater outside the predicted final subsidence limits.
<i>Mine Access Road</i>	All traffic approaches the mine site from Bogan Road via Northparkes Lane also referred to as the "mine access road", comprising 1.2 km of public road and 2.3 km of private road within the Project Site.
<i>Various internal roads and tracks</i>	Roads around the administration offices and processing plant and between the E26 surface facilities and the processing plant are sealed, while the remainder are maintained gravel roads.
<i>Hours of Operation</i>	Mining and construction operations would take place 24 hours a day, 7 days a week. Train and product road train transportation occurs 24 hours a day, 7 days a week, but excluding peak school traffic times - ie not between 7:30 am to 9:00 am and 3:00 pm to 5:00 pm on school days.
<i>Product Transportation</i>	On average, 60 loads/week of copper-gold concentrate product are trucked from the processing plant in closed containers on road trains to the Goonumbla Rail Siding, 13.5 km along Bogan Road towards Parkes. Two trains per week, on average, carry concentrate to Port Kembla.
<i>Caloola and Estcourt Borrow Pits</i>	The borrow pits (previously used as a source of clay for the tailings dams) are now used as dams to contain any excess process water.
<i>Sound Bund</i>	Waste rock from the E22 and E27 open cut mines was placed in an arc to the north of these open cut voids forming a noise and dust barrier (referred to as the "sound bund").
<i>Site Rehabilitation</i>	The site rehabilitation plan is designed for erosion control, aesthetic improvement and ecosystem regeneration. Rehabilitation works are undertaken on constructed landforms such as waste rock dumps, tailings storage facilities, topsoil stockpiles and other disturbed areas. Revegetation is also undertaken to create wildlife corridors between the site and the Bogan River and for screening and landscaping purposes.
<i>Numerous tree lots</i>	Approximately 150,000 trees have been planted across the NPM operations landholdings since 1993, with a survival rate of approximately 70%. An additional 10,000 trees are planted annually as part of the rehabilitation strategy to establish wildlife corridors.

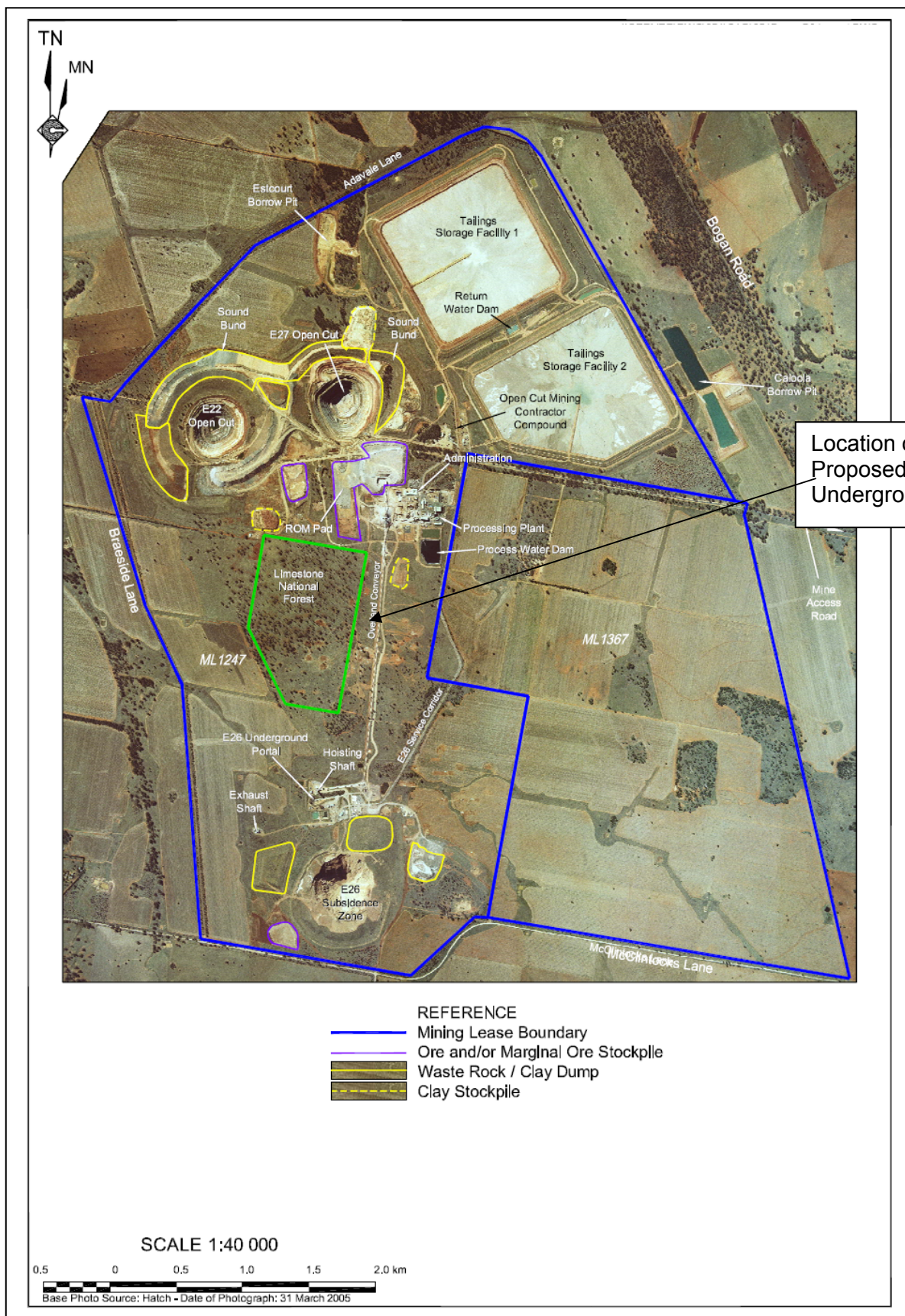


Figure 2: Existing Northparkes Mines Layout

Table 2: Major New Site Components of the Project

Proposed New Site Components	Description
Summary	Development and operation of underground block cave mining of the E48 ore body, extracting a total resource 33.9 Mt over 7 years, until 2016. Construction and operation of associated infrastructure and facilities, including a paddock style tailings storage facility and a primary crusher located on the extraction level of the E48 mine.
<i>E48 Underground Mine and associated surface subsidence zone</i>	E48 will use the existing E26 mine portal. Block caving creates a surface subsidence crater. 24 ha of Limestone National Forest would be affected by subsidence and the relocation of the existing overland conveyor.
<i>Mining and Reserves</i>	The E48 ore body mining reserve is currently estimated at 33.9 Mt, with a proposed extraction rate of up to 6.5 Mtpa and a mine life until 2016.
<i>E48 Underground Mine Surface Infrastructure and Services</i>	Existing surface facilities. Ore crushed in a new underground primary crusher in E 48 would be hoisted to the surface via the existing hoisting shaft.
<i>Ore Processing</i>	Between 5.5 and 6.5 Mtpa (as per the existing rate).
<i>E48 Overland Conveyor/Service Corridor</i>	The proposed E48 subsidence zone would require the relocation of the existing surface overland conveyor. It is proposed to relocate the 1,800 m long conveyor west of the subsidence zone. The new conveyor and adjacent associated access road would occupy approximately 3.5 ha of the Limestone National Forest. A 20 m wide corridor would be required for the conveyor and access road. The new conveyor would be constructed prior to decommissioning the existing E26 conveyor.
<i>Tailings Management</i>	There is an anticipated 33.6 Mt of tailings from ore processing. A new 240 ha stand-alone paddock-style tailings containment (Tailings Storage Facility 3) and additional return water dam would be constructed. Also the area between the two existing TSFs would also be infilled.
<i>Waste rock</i>	Waste rock would be temporarily stockpiled in the stacker conveyor area or E26 Lift 2 waste rock stockpile until it is required for construction or roadbase. Waste rock will be used in: - the initial construction of TSF 3; - the construction of subsequent lifts of TSF 3 cells or on TSFs 1 and 2; - capping and subsequent rehabilitation of tailings storage facilities; and - production of aggregates for use underground as roadbase or for concrete /shotcrete production
<i>Rosedale Borrow Pit</i>	A 30 ha pit to provide clay construction material for TSF 3.
<i>Water Demand and Supply</i>	No increases in water demand or changes to the current water management practices are anticipated with the E48 mine.
<i>Employment</i>	Peak construction workforce of 150 employees and an operational workforce of 200 full-time employees.
<i>Capital Investment Value</i>	E48 component costs are \$72.6 million.
<i>Construction</i>	Construction of the underground mine (extension of the existing E26 decline, excavation of the undercut and extraction levels beneath the undercut, establishment of drawbells and drawpoints and extension of services), waste stockpile areas and TSF 3 would be undertaken over approximately 32 months.
<i>Road Maintenance and Capital Contributions</i>	The Proponent and Council have reached an agreement where the Proponent will share in the funding for road works on Bogan Road and make annual contributions for the maintenance of Bogan, Taweni, Robertson and Coradgery Roads.
<i>Offset Areas</i>	The Proponent proposes to swap an adjacent 45 ha parcel of land for the subsided 24 ha of the Limestone National Forest, to establish on the 45 ha characteristic woodland vegetation and to maintain it for three years.

Proposed New Site Components	Description
Site Rehabilitation	Rehabilitation is undertaken on constructed landforms such as waste rock dumps, tailings storage facilities, topsoil stockpiles and other disturbed areas. The site rehabilitation management plan would be updated for erosion control, aesthetic improvement and ecosystem regeneration. Revegetation would also be undertaken to create wildlife corridors between the site and the Bogan River, to increase connectivity with the Limestone National Forest swap land and for screening and landscaping purposes. The E26 subsidence void would not be left as a water-filled void as originally proposed. Closure options for the void are still being considered, including the potential for tailings disposal.
Consolidation of Planning Approvals	A consolidated planning approval would cover the ongoing operation of the existing components and all new activities associated with the E48 extension.

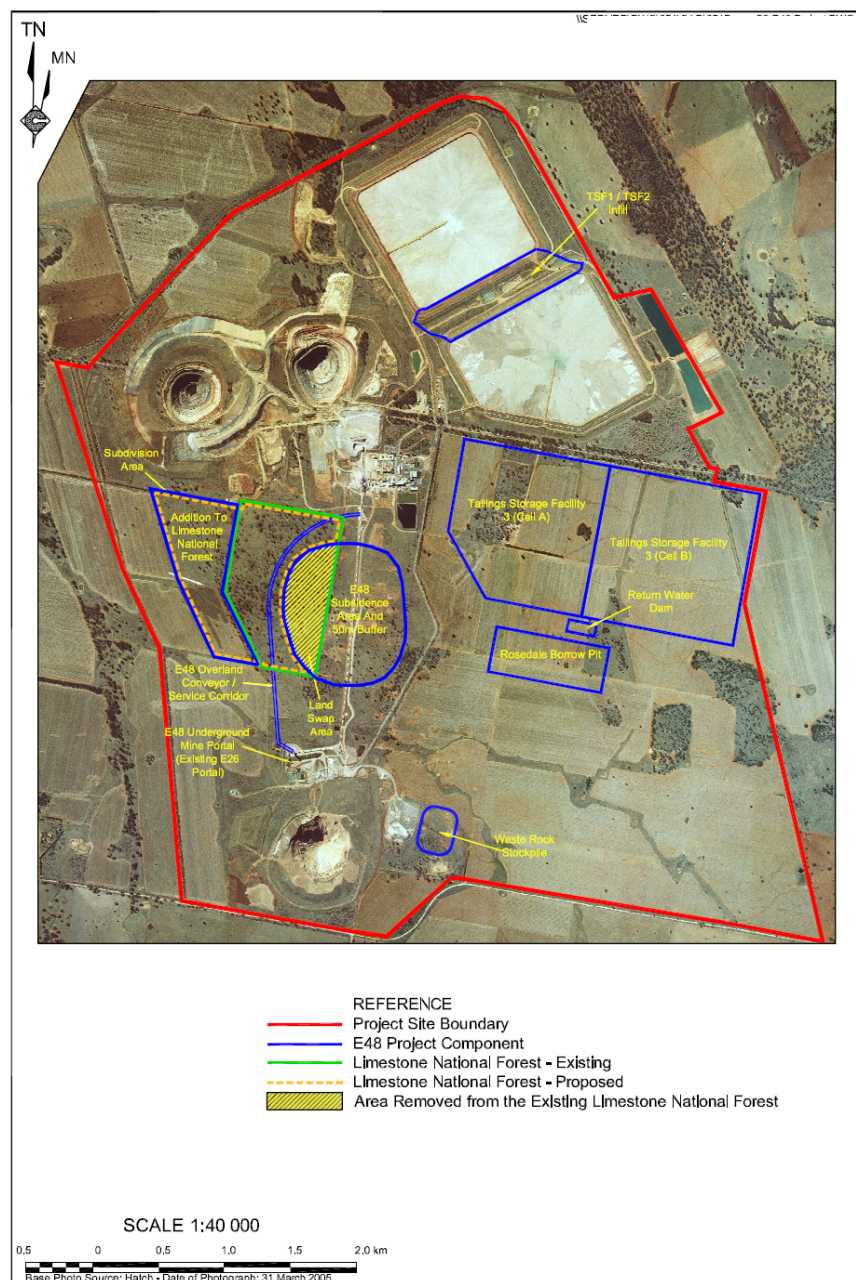


Figure 3: Proposed E48 Extension – Layout of Components

4 STATUTORY CONTEXT

4.1 Major Project

The proposal is classified as a major project under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act), because it meets the criteria in clause 5(c) of Schedule 1 of *State Environmental Planning Policy (Major Projects) 2005*, being development for the purpose of mining that has a capital investment value of more than \$30 million or employs 100 or more people.

Consequently, the Minister for Planning is the approval authority for the project.

4.2 Permissibility

Under Section 75J of the EP&A Act, the Minister cannot approve the carrying out of a project that would be wholly prohibited under an environmental planning instrument.

The project is located in an area zoned "Rural" under *Parkes Local Environmental Plan 1990*. Mining is a permissible land use in that zone. Consequently, the Department is satisfied that the proposal as presented is permissible with consent.

4.3 Exhibition

Under Section 75H(3) of the EP&A Act, the Director-General is required to make the environmental assessment (EA) of a project publicly available for at least 30 days.

After accepting the EA for the project, the Department:

- made it publicly available from 4 September 2006 until 6 October 2006:
 - o on the Department's website, and
 - o at the Department's Information Centre, Parkes Shire Council, and the Nature Conservation Council in Sydney;
- notified landowners in the vicinity of the site by letter about the exhibition period;
- notified relevant State government authorities and Parkes Shire Council by letter; and
- advertised the exhibition in the Parkes Champion Post.

This satisfies the requirements in Section 75H(3) of the EP&A Act.

4.4 Environmental Planning Instruments

Under Section 75I of the EP&A Act, the Director-General's report is required to include a copy of or reference to the provisions of any State Environmental Planning Policy (SEPP) that substantially governs the carrying out of the project.

The Department has considered the proposal against the relevant provisions of SEPPs 11, 33, 44 and 55 and is satisfied that none of these SEPPs substantially govern the carrying out of this project (see Appendix C).

4.5 Statement of Compliance

Under Section 75I of the EP&A Act, the Director-General's report is required to include a statement relating to compliance with the environmental assessment requirements with respect to the project. The Department is satisfied that, subject to the additional information provided in the Proponent's response to submissions, the environmental assessment requirements have been complied with.

5 ISSUES RAISED IN SUBMISSIONS

The Department received five submissions from public authorities and five submissions from the general public following exhibition of the Project EA. A summary of the issues raised in submissions is provided below.

5.1 Public Authorities

Section 75I(2)(b) of the EP&A Act requires that the Director-General's assessment report include advice provided by public authorities on the project. The advice received from public authorities is attached in **Appendix E**, and the key issues raised by the authorities are summarised below.

The **Department of Primary Industries** (DPI) did not object to the Project and suggested that the Proponent should either obtain mining leases for those Project areas which are outside of the existing mining lease, or else to consolidate the entire operations within a single new mining lease.

The **Department of Environment and Conservation** identified the need for the Proponent to obtain an environment protection licence (EPL) under the *Protection of the Environment Operations Act 1997*. It also proposed amendments to the Proponent's draft Statement of Commitments in relation to pre-clearing fauna surveys, dust monitoring and control, and developing groundwater and surface water contingency plans to prevent contamination. The Proponent has made these amendments.

The DEC also identified specific actions the Proponent should follow to maintain or improve biodiversity values on the land it proposes to transfer to DPI as an offset for the subsidence that will occur in the Limestone National Forest. The Proponent has included these in its revised Statement of Commitments.

The **Roads and Traffic Authority** and the associated **Western Region Development Committee** (WRDC), both representing road interests, raised no concerns. However, the WRDC recommended the installation of certain road signs on the mine access road.

The **Department of Natural Resources** supported the Proponent's commitment to prepare a groundwater management plan, to implement surface water management controls and to maintain groundcover to reduce erosion potential. It also recognised the need for the Proponent to separately seek modifications to its existing licences for any increased dewatering volumes in accordance with the provisions of the *Water Act 1912*.

Parkes Shire Council proposed that road works suggested in the EA's traffic assessment report should be directly addressed via approval conditions. A new agreement has been negotiated between Council and the Proponent to address the road works. The terms of this agreement would be part of any approval for the Project.

Council was also concerned that there could be socio-economic impacts on the Parkes community as a result of eventual mine closure. This matter has been addressed in the revised Statement of Commitments.

5.2 Public Submissions

None of the four public submissions objected to the Project. However concerns were raised about:

- health and safety impacts for livestock and humans from wind blown dust from ore stockpiles, toxic gases potentially generated by mild acidification of the tailings, radon gas and silica in dust; and
- traffic, road maintenance and road safety issues, particularly for public roads used by mine contractors and workers.

6 ASSESSMENT

6.1 Flora and Fauna

The EA contains a flora and fauna assessment (FFA), which identified that the Project would clear an additional 354 ha of land, comprising 247 ha cropped farm land, 78 ha partly cleared forest and 24.4 ha of the Limestone National Forest.

Limestone National Forest

The most significant impact of the proposed E48 underground mine on native vegetation is the destruction of 24.4 ha of the Limestone National Forest (a State forest reserved under the *Forestry Act 1916*). This area has previously been subject to recurrent logging and grazing. The floral community is largely dominated by mature White Cypress Pines along with some Poplar Box and Grey Box. The understorey is almost entirely introduced weed species. The Forest provides habitat mainly for common and robust woodland-agricultural species but is remote from and unconnected with more diverse woodland areas (such as the Bogan River communities). The Forest does not contain any Endangered Ecological Communities and, according to the FFA, does not appear to be important ecologically.

However, within the subsidence zone, the Forest contains a number of mature hollow bearing trees. The FFA identified that the destruction of these trees would lead to a loss in potential roosting and refuge sites for microchiropteran bat species, marsupials and birds.

The Proponent is proposing to offset the loss of the 24.4 ha of Forest land. It has negotiated with DPI, the owners of the Forest, to swap the subsided 24 ha with an adjacent 45 ha parcel of land owned by the Proponent, and establish and maintain for three years on that swapped land, woodland vegetation characteristic of the national forest. It is intended that this land be added to the national forest by DPI.

This level of revegetation would be much greater than the area of vegetation removed for the proposal, and over time would result in a net gain in the area of native vegetation and an improvement in the number of linkages and quality of the corridor network in the locality.

The DEC has recommended that revegetation plans for the swapped land include that locally sourced native species are used and that pre-clearing surveys are undertaken.

Other Flora and Fauna Impacts

Four vegetation communities were identified in the general study area. One of these, the White Box - White Cypress Pine Woodland, is considered analogous with Grassy White Box Woodlands, which are listed as an Endangered Ecological Community (EEC) under the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999*. Although this community was recorded on the site, it would not be impacted by the Project.

Field investigations undertaken as part of the EA report identified one threatened species listed as vulnerable under *Threatened Species Conservation Act 1995*, the Yellow-bellied Sheath-tail-bat. Targeted field surveys did not observe any additional threatened species potentially occurring within the surface disturbance area.

The proposed clearing would reduce the areas of foraging habitat available to both common species and threatened species. However, the area of habitat affected by the E48 underground mining proposal was regarded as minor in a regional and local context. The current revegetation programs would ultimately expand the areas adjoining the existing and proposed mining operations and create more corridor linkages to assist fauna movements and enhance habitats.

The FFA identified a number of other mitigation measures to address likely affects of the land disturbance activities associated with the E48 proposal. These include:

- re-siting and re-erecting hollow bearing trees into the areas identified for revegetation including the Limestone National Forest swap land;
- pre-clearing surveys in the presence of an ecologist;
- minimising clearing and construction activities by clearly marking boundaries for machinery operators;
- enhancing the existing revegetation program to increase the connectivity of habitats in the area; and
- feral baiting and trapping.

These measures appear generally as commitments in the Proponent's Statement of Commitments. As such, they should become part of the revised Rehabilitation and Landscape Management Plan proposed to be required under conditions of approval for the Project (see Section 6.2 below).

6.2 Rehabilitation and Landscape Management

The initial rehabilitation concept plan for the Northparkes Mines was developed over 17 years ago and based on strategies which included:

- establishing a forest of local native tree and shrub species on the faces of all waste rock dumps and the top of the E26 clay dump;
- initially vegetating the faces of the tailings storage facility with shallow rooting grasses to provide erosion protection, with consideration to be given to subsequent afforestation;
- re-establishing woodland habitat to provide feeding and movement routes for wildlife corridors and provide shelter and a food source for selected bird species;
- configuring all waste rock dumps and the tailings storage facilities so that there is no toxic runoff or leachate during the operation of the Project and in the long term; and
- containing tailings surface water and accumulated rainfall within the processing plant water circuit for extreme rainfall events up to the 1 in 100 year 72 hour storm or sustained periods.

Although the concept plan has been updated to incorporate the E48 subsidence void and tailing storage facilities (see Figure 4), it is considered that modern management practices and experience gained from on-site rehabilitation are likely to lead to further improvements and refinements in rehabilitation plans and strategies. To achieve this, the Department believes the Proponent should be required to revise its Rehabilitation and Landscape Management Plan to bring the rehabilitation strategies for NPM up to date. The Rehabilitation and Landscape Management Plan should incorporate a strategic description of how the rehabilitation of the site would be integrated with the 4,400 ha of land owned by the Proponent surrounding the NPM operations, with a view to improving or enhancing the regional landscape, and flora and fauna habitat values.

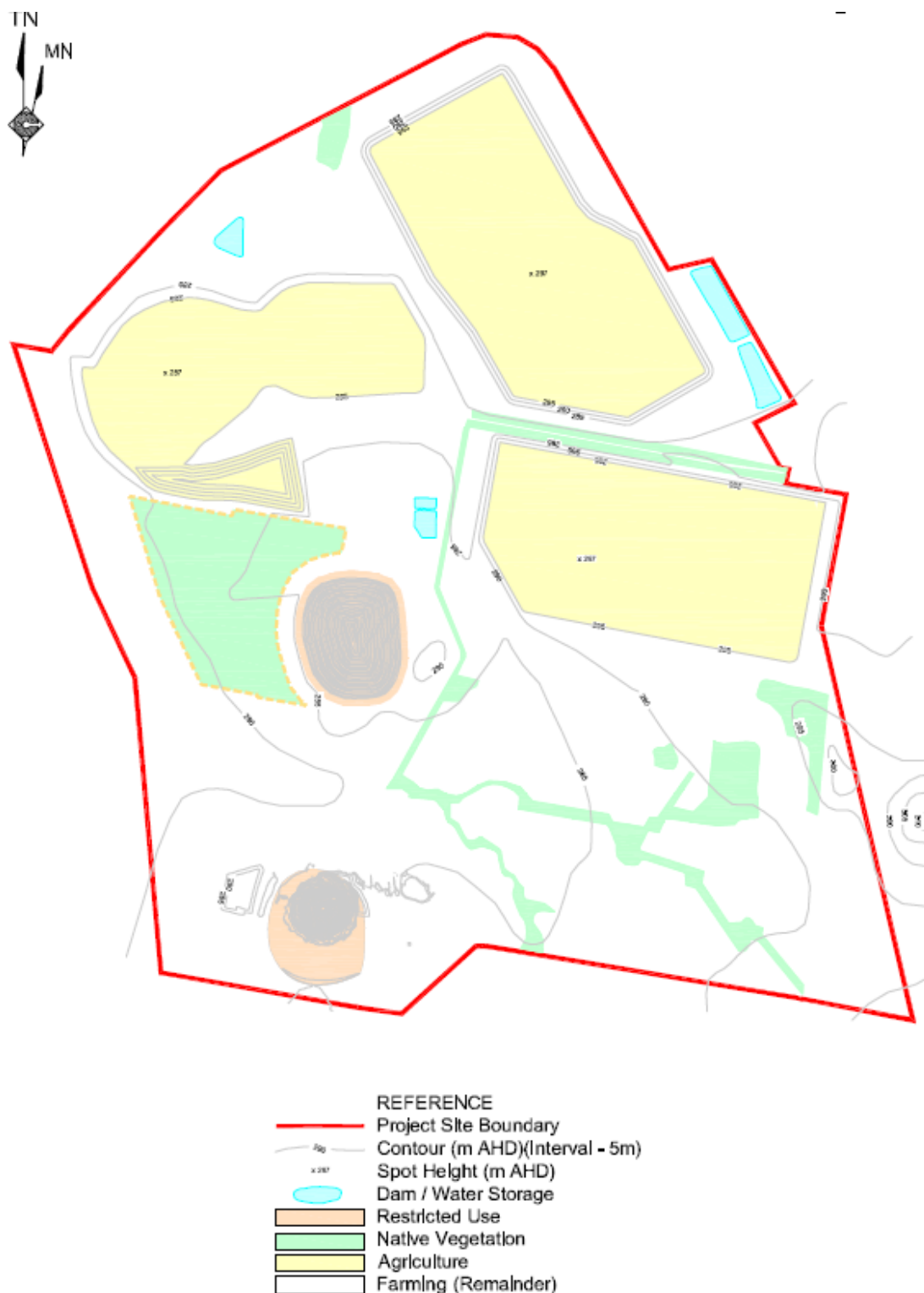


Figure 4: Current NPM Final Landform and Land Use Conceptual Plan

6.3 Surface and Groundwater

Groundwater

The E48 extension could influence groundwaters through:

- the placement of tailings within the Tailings Storage Facility No 3 (Cells A and B); and
- the void or subsidence zone created by the block caving within the E48 ore body.

The tailings storage facility floor and walls would be compacted to have a permeability rating equivalent to the criteria adopted by the DEC (ie $<1 \times 10^{-9}$ m/s). Based on the seepage rates from the existing two tailings storage facilities, travel rates are expected to be in the order of 1 km per 1000 years.

Seepage into the E48 underground operations is predicted to vary from 0.05 ML/day to 0.3 ML/day. The groundwater inflow would also be supplemented by rainfall falling within the subsidence zone above the E48 ore body. This is predicted to be approximately 1.3 ML/day.

Model simulations beyond the end of the life of the mine show the groundwater level would slowly rise to within 80% of its current level within 150 years. By that time, a lake would be formed within the subsidence crater covering an area of approximately 18 ha. A similar situation is also predicted for the E26 subsidence zone.

The impacts of the reductions in groundwater levels around the E48 subsidence zone would be comparatively minor in a regional sense in that the groundwater levels would remain below existing levels for 1 km to 2 km around the zone. A cumulative reduction would also occur to the south of the E48 zone as it interacts within a similar zone of depression around the E26 subsidence zone.

There is negligible private use of groundwater in the area around the NPM site. Consultant studies undertaken for the EA indicate that the cones of depression created by the E26 and E48 subsidence zones would not impact in a measurable way upon the private bores around or more distant from NPM.

The EA indicates that the nearest groundwater dependent ecosystem is the tree-lined lower reach of Cookapie Creek and the Wombin State Forest, approximately 5 km north of NPM. This area is too distant to be influenced by any drawdown attributable to the E48 extension. The consultant studies also noted the widespread presence of clays beneath the tailings storage facilities and within the regional regolith. This provides a substantive medium for ion exchange processes and retardation of the migration of metals, etc. The studies concluded that such processes would result in zero impacts on the groundwater dependent ecosystems to the north of the Project site.

Groundwater is currently monitored by the Proponent. Monitoring includes water level measurements in local and regional piezometers, water quality sampling and monitoring of underground dewatering within E26 for site water management purposes.

The Department considers that a Groundwater Monitoring Program should be prepared for the Project as part of the overall mine environmental monitoring.

Surface Water

The Proponent already has in place a robust surface water management system which aims to have a zero surface water discharge from the site. The water management system implements a range of standard mitigation measures to manage water, including the diversion of clean runoff around disturbed areas, retention ponds for storage of dirty water, perimeter catch drains, and contingency plans to handle extreme events including rainfall and processing rates. This system controls potential runoff which could otherwise introduce pollutants to nearby watercourses.

The E48 extension would have very little impact on the flow regimes of nearby creeks with a marginal reduction in the area (0.9 ha or 0.05% of the catchment area) draining directly into Goonumbla Creek. There would be no impact on the catchment area draining to Cookapie or Tenandra Creeks.

The E48 extension would not involve the storage or harvesting of 'clean' water for mine site use above the harvesting and storage that are already in place. Hence, the Project would have no impact on downstream harvestable water rights in the catchments affected by mining operations.

Water Balance

Water is used at NPM for.

- ore processing;
- dust suppression;
- underground mining activities;
- construction activities;
- in contractor's yards and wash down facilities; and
- as potable water.

Water for these uses is obtained from a number of different sources including:

- town water supply – provided by Parkes Shire Council under agreement for 2680 MLpa, with additional water supplied by negotiation. This water originates at the Lachlan Valley bore fields and is used for domestic use and processing;
- high and low security river water – the Proponent has purchased a high security Lachlan River water allocation licence as a contingency against the continuing drawdown of the Lachlan Valley bore fields and also purchases low security water when available;
- recycled water – this is primarily water recycled from the tailings storage facilities, with approximately 25% of tailings slurry water recovered and recycled through the process;
- harvested surface water – including rainfall and surface water runoff captured by the various water storage facilities on site. The volume of this water available is dependent on rainfall; and
- groundwater – the volume of groundwater available for use from seepage into the underground or open cut mining operations is insignificant.

The E48 extension will not result in an increase in the volume of water used at NPM because the extension would begin operation after the existing E26 block cave mining is completed.

The Council and the Proponent investigated the use of recycled waste water from the Council's sewage treatment facility located on the south side of Parkes. These investigations concluded that the cost of the construction of a pipeline to the mine site (a distance of over 27 km) was uneconomic. However, the Department believes that the Proponent should continue to explore opportunities to lessen its dependence on town water and high security river water by reviewing other opportunities to improve water recovery, including additional recovery of water from the tailings slurry, and conditions to this effect have been proposed.

The Department is satisfied that NPM can be managed so that it would not have a significant impact on water resources. The Department believes that water resources can be effectively managed through a comprehensive Site Water Management Plan which includes:

- a Site Water Balance Report;
- an Erosion and Sediment Control Plan;
- a Surface Water Management and Monitoring Plan;
- a Groundwater Management and Monitoring Program; and
- a Surface and Groundwater Response Plan.

6.4 Traffic and Road Maintenance

Access to the NPM for site workers and contractors is predominantly from Parkes via Bogan Road. The total number of vehicles per day currently recorded for Bogan Road is 478, of which up to 396 (83%) are estimated to be mine related traffic. A small amount of local traffic, estimated to average 52 vehicles per day, also uses the surrounding local road

network (including Coradgery, Robertson, and Taweni Roads) to travel from around Peak Hill to either NPM or Parkes (see Figure 5).

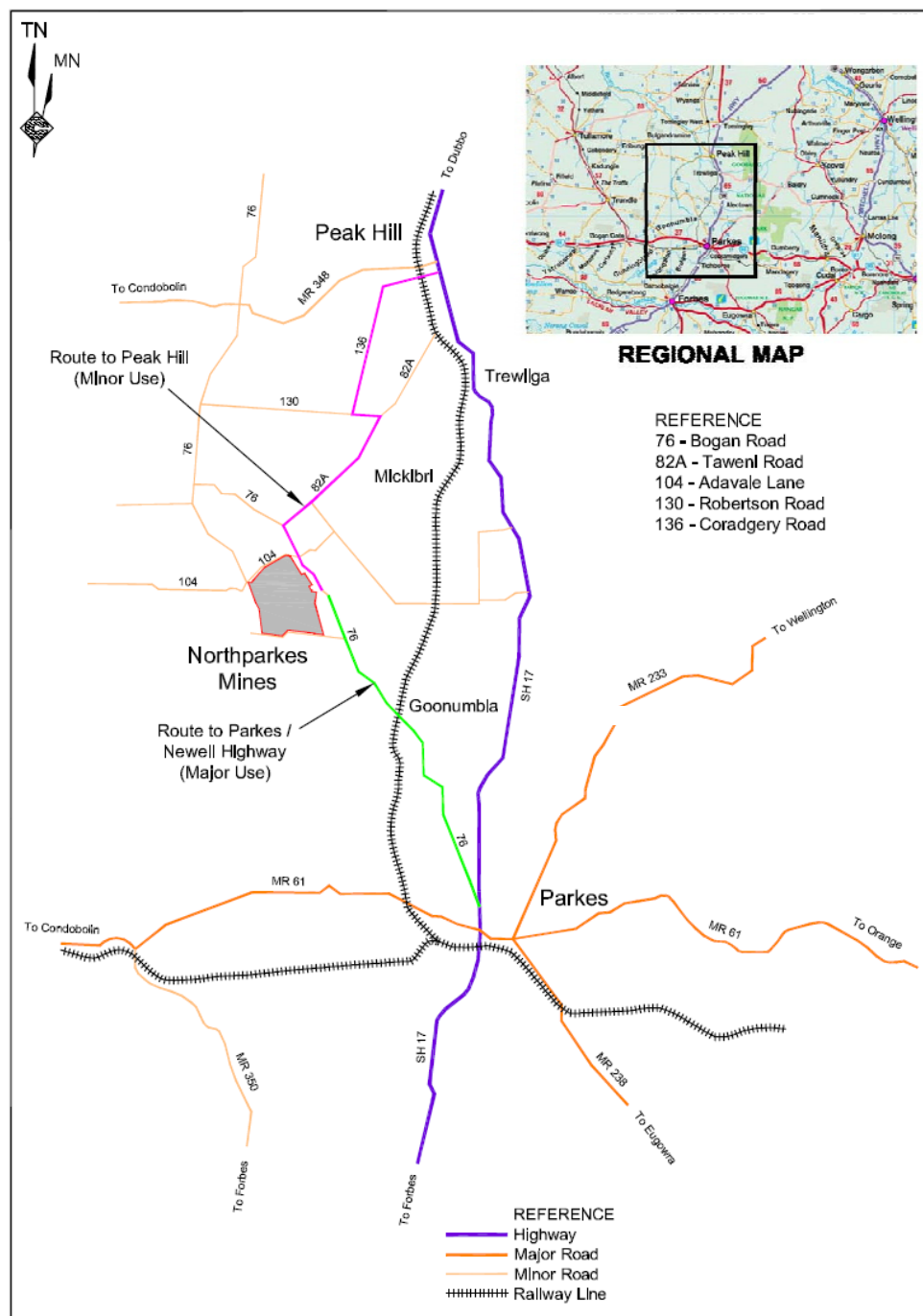


Figure 5: Local and Regional Road Network

The standard of the local road network was assessed in a road safety audit (RSA) for the Proponent. The E48 extension is expected to increase mine-related light vehicle traffic on Bogan Road by up to 40% (to 454 vehicles per day) and by 48% (to 74 vehicles per day) in the case of mine-related heavy vehicles. The most likely impact would be increased road pavement wear on Bogan Road.

The Proponent currently pays Parkes Shire Council \$50,000 per year (indexed to CPI) as a contribution towards the maintenance of the overall local road network, in accordance with an agreement with Council. Council has indicated that this agreement has recently expired and that a new arrangement has been negotiated with the Proponent which should be

reflected in any conditions of approval for the Project. The new arrangement would better reflect the actual road usage attributable to the Proponent's operations and provide for fairer contributions towards the funding of repairs.

The new arrangement would provide funding for ongoing road maintenance (per annum cost to the Proponent in current year dollars to be indexed annually, in a cumulative fashion, by the RTA Road Maintenance Index) as follows:

- **Bogan Road (Newell Highway to Mine Access Road):** \$43,267 pa contribution, to be applied towards centre line-marking (to be done every three years), shoulder maintenance and routine maintenance such as guide post replacement and pothole repair (as required). This annual contribution would not be applied to heavy patching on Bogan Road for the section between Goonumbla rail siding and the mine access road;
- **Taweni/Robertson Road/Coradgery Roads:** \$9,000 pa contribution to general road maintenance including periodic re-sheeting; and
- **Mine Access Road (Bogan Road to NPM entrance):** to be maintained by NPM on a needs basis.

However, there are deficiencies in Bogan Road which cannot adequately be addressed simply through maintenance. Road pavement testing on Bogan Road undertaken for the Proponent has shown that the structural capacity of the subgrade is inadequate for its heavy traffic. This is particularly acute for the segment between the rail siding and mine access road where it was estimated that 10% would fail in less than one year and the entire segment would structurally fail within 11 years. The Proponent and Council have therefore included a *capital* contribution by the Proponent for works on Bogan Road in the new arrangement. This provides for:

- **Bogan Road (Newell Highway to Mine Access Road):** 80% contribution by NPM to the actual resealing cost. The Council will advise the timing based on Parkes Shire Council's engineering assessment;
- **Bogan Road (Goonumbla rail siding to Mine Access Road):** 80% contribution by NPM to actual cost of reconstruction. The Council will advise the timing, reconstruction method based on Parkes Shire Council's engineering assessment; and
- **Mine Access Road (Bogan Road to NPM entrance):** To be 100% maintained by NPM on a needs basis.

The RSA generally found the pavement alignment of all local roads to be satisfactory and estimated that future traffic service levels on the local road network (including Coradgery, Robertson, and Taweni Roads and adjoining intersections) would remain at Level of Service A¹, due to low existing and future daily and peak hour traffic volumes. However, thirteen additional road safety measures were proposed in the RSA (such as the erection of barrier fences, guideposts, advance warning signs or speed signs in particular locations). These road safety works are the duty of the Council, as the local roads authority, rather than the Proponent. The Department believes that they can be adequately provided for within the maintenance and capital contributions agreed between the Proponent and the Council.

Approximately 9 km of Taweni and Coradgery Roads is unsealed. Certain submissions identified a persistent dust problem associated with vehicle use on the unsealed sections. These submissions felt that the Proponent should seal the unsealed sections, in the light of an anticipated 41% increase in traffic (from 52 to 74 vehicles per day). Overall, the Department believes that, while the anticipated increase in traffic volumes on the local roads would be noticeable, they are unlikely to lead to any significant impacts, since the overall traffic volumes would remain light. It is therefore not possible to justify requiring the Proponent to meet the cost for sealing the 9 km section of unsealed road between the mine site and Peak Hill.

¹ Level of Service A is defined by Austroads as a condition of free flow in which individual drivers are virtually unaffected by the presence of others in the traffic stream.

It should also be noted that the Proponent requires that contractors using heavy vehicles always use Bogan Road when travelling to and from the mines. Nonetheless, it appears that some contractors' heavy vehicles travel to NPM via Coradgery, Robertson and Taweni Roads and that this exacerbates dust problems for road users and residents.

It is likely that the Proponent's policy position that heavy vehicles always use Bogan Road cannot be strictly enforced. However, the Proponent can adopt a proactive role to emphasise its preferred mine access arrangements to its contractors and strongly encourage them to avoid unsealed roads.

6.5 Noise

The Proponent owns approximately 4,400 ha of land surrounding the NPM operations, which is actively managed as farm land (see Figure 6). This company-owned land is an important noise and dust buffer for the mines. The residence known as Avondale is the closest sensitive receiver and is approximately 1 km from any mine related activity. The next three closest residences include Lone Pine, 3.2 km, Hubberstone, 3.3 km, and Milpose, 3.9 km.

Unattended and attended noise monitoring undertaken by consultants for the Proponent derived a background level (L_{A90}) of 30 dB(A) for all periods of the day, evening and night at all surrounding residences. Under the Industrial Noise Policy (INP), the operational noise criterion for the existing operations and the E48 proposal is that the $L_{Aeq(15 \text{ minute})}$ sound level not exceed the L_{A90} noise level by more than 5 dB(A), ie 35 dB(A) at all residences for both neutral and adverse meteorological conditions. It is unlikely the criterion relevant to sleep disturbance (ie the L_{A1} noise level not to exceed the L_{A90} noise level by more than 15 dB(A)) would be exceeded by the Project.

The Department considers that the noise criterion of 35 dB(A) at all surrounding residences for both neutral and adverse meteorological conditions is appropriate for continued mining activities, for the proposed new tailings construction activities and for any future mining in the proposed E48 underground mine. It should also be noted that the greater part of the anticipated 32 month construction period for the E48 underground mine would need to comply with these operational noise criteria since the INP does not address construction time frames beyond six months.

Modelling undertaken for this Project identified that the operational noise criteria of 35 dB(A) at all four residences for both neutral and adverse meteorological conditions would generally be met. The exception is for Avondale where, under inversion weather conditions, a 10 dB(A) exceedance was forecast during construction of the new tailings storage facility (TSF 3).

Avondale is currently unoccupied and is leased from the owners by the Proponent under an arrangement negotiated by the Proponent to mitigate any noise exceedances. However, the lease expires at the end of mining of E26. If the Proponent cannot arrange a new lease with the owners of Avondale and Avondale is re-occupied during the construction of TSF 3, then the Proponent should be required to seek the further approval of the Director-General for any exceedance of the noise criteria. In seeking this approval, the Proponent should be required to submit a Construction Noise Management Plan to the Director-General. This plan would be prepared in consultation with the owners of the property, and describe the measures that would be implemented during the construction of the tailings facility to minimise noise impacts on the residence.

Noise generated from the development and operation of the Project would need to comply with environment protection licence (EPL) under the *Protection of the Environment Operations Act*.



NOISE ASSESSMENT REPORT FOR THE NEW TAILINGS STORAGE FACILITY NO 3

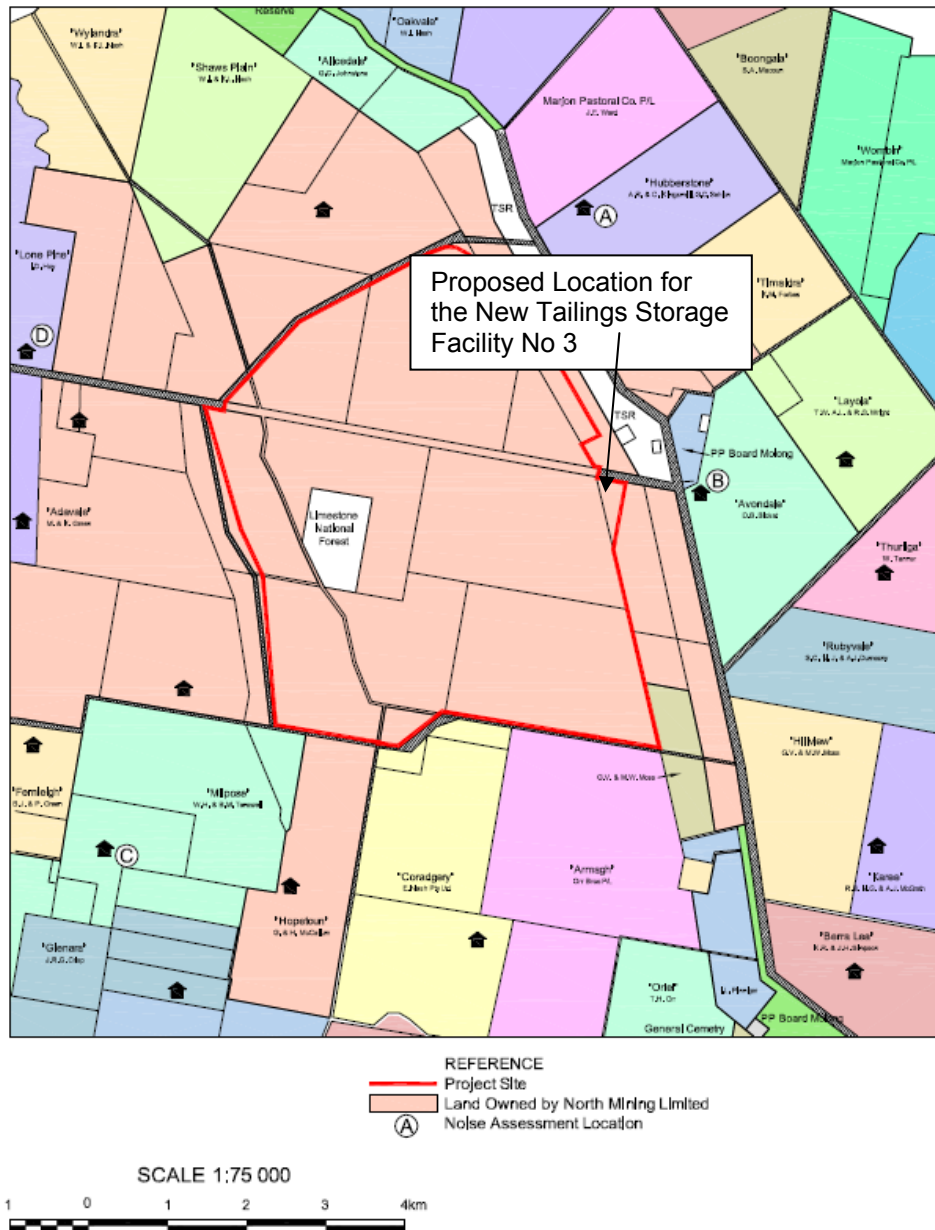


Figure 6: Project Site and Nearest Residences

It is also unlikely that road noise would be a problem because of the comparatively low traffic levels (and dominance of light vehicles) travelling to and from NPM operations coupled with the considerable setback distances between the local road network and the rural residences fronting the roads.

6.6 Blasting

Blasting at the Project will take place both underground (E26 and the proposed E48) and potentially in open cut operations (if mining at E22 is resumed). The effects of underground mine blasts are rarely experienced on the surface and have never attracted complaints at NPM. The EA calculated comparatively low potential airblast and ground vibration levels for

underground blasts of ≤ 105 dB linear and ≤ 0.9 mm/s respectively. These are well below relevant criteria.

The potential impacts of renewed open cut blasting are best described by the actual monitored measurements made for the blast-related impacts for the E22 open cut mine at the Hubberstone residence over a period of almost four years until December 2004. During this period, airblast overpressure levels varied from <104.7 dB linear to 113.9 dB linear, and ground vibration levels varied from 0.2 mm/sec to 0.44 mm/sec. In all cases, the monitored effects complied with the criteria.

Consequently, the Department has no concerns over potential blast impacts at the Project.

6.7 Other Impacts

<i>Issue</i>	<i>Impacts</i>	<i>Mitigating Factors</i>
Consolidated Approval	- The approval being sought for NPM is a consolidation of the existing six approvals provided by the Land and Environment Court and Council over the years. - The new project approval would extinguish the existing consents and cover the on-going operation of the existing components and all new activities associated with the E48 extension.	- A consolidated project approval for NPM will: - establish one unified, modern consent; - rationalise environmental management; - incorporate new works into a revised Environmental Management Strategy; and - provide a consistent and integrated monitoring and reporting framework proposed and existing operations. - A revised version of the Environmental Management Strategy would need to be prepared. The existing MOP would be revised to include the relevant E48 extension operations and submitted to DPI.
Economic Effects of Mine Closure	- Eventual closure of NPM may impact significantly on the region. - NPM is an important regional employer (about 350 employees including 150 contractors). It spends approximately \$104 million pa on supplies and services, of which 15.5% is spent in regional NSW. There is substantial infrastructure associated with the mine including water supply pipelines and the railway siding.	- The E48 underground mine proposal would extend the life of NPM a further seven years until 2016. NPM is projected to close in 2018 after a two year decommissioning period. - Ultimately, the significance of the economic impacts of NPM closure would depend on its relative regional significance in 2016. - The Proponent should develop a mine closure strategy, at least five years before the mine closes, in consultation with regulatory agencies, the Council and the public to minimise potential impacts, particularly loss of employment.
Air Quality including Dust	- Airborne and deposited dust from unsealed surfaces and storage dumps can become a nuisance for surrounding residents. - Arsenic present in the ore could be liberated, radon may be elevated and silica dust could be elevated.	- The issues regarding air quality were addressed in the Proponent's Response to Submissions which identified that arsenic would be bound up in the copper concentrates which would be subject to dust control measures. Radon gas monitoring has not detected any elevated levels. - The Proponent and the DEC have agreed that 24 hour suspended particulates (TSP) should be monitored at Milpose and Hubberstone. If TSP is consistently found to be elevated then the Proponent must change from monitoring TSP to PM_{10}. - The Proponent would prepare a Dust Control Strategy and has committed to comply with all relevant DEC criteria.

<i>Issue</i>	<i>Impacts</i>	<i>Mitigating Factors</i>
Aboriginal Cultural Heritage	Up to 13 Aboriginal archaeological sites have been identified. In addition, several potential sites may be disturbed in the Goonumbla Creek area.	- The Proponent would have to either protect or salvage archaeological material. These sites would require subsurface sampling to determine their nature and significance. - The Proponent should prepare an Aboriginal Cultural Heritage Management Plan.
Non-Indigenous Heritage	Two early 20th century heritage buildings of rammed earth (<i>pisé</i>) construction will be destroyed. A weatherboard shearing shed will also be destroyed.	- Due to their structural composition and present condition the <i>pise</i> structures cannot be relocated. - The weatherboard building is in relatively good condition. However, the significance of the shearing shed is largely related to its setting. It could not be moved without losing the environmental context of the site and, therefore, its heritage value. - The structures have been comprehensively recorded by the Proponent and the Proponent would retain parts of structures for display in the local museum. - The Proponent has committed that archival records would be made prior to any disturbance, in accordance with the requirements of the NSW Heritage Office.
Soils	Soils would need to be carefully managed when disturbed because of the combination of high pH, relatively high dispersability and salinity.	The Proponent has committed to prepare a comprehensive Erosion and Sediment Control Plan.
Discharge Limits	Contaminated, salty, or 'dirty' water can impact on the quality of natural water sources.	The Proponent should ensure that any discharges do not cause or permit water pollution as defined by the <i>Protection of the Environment Operations Act</i>.
Visual	The altered Project Site topography, particularly sections of the sound bund, tailings storage facilities, processing plant and ROM Pad, are visible from the majority of the surrounding residences due to the lack of intervening topography.	- The Proponent maintains a buffer zone around the Project Site to maximise distance between the residences and the Project Site. This buffer zone is managed as a mixture of farm land and revegetation areas, with the revegetation areas providing some minimisation of visual impact. - The E48 components would not significantly alter existing visual impacts. - Final site rehabilitation will enhance the surrounding landscape from a visual perspective.
Greenhouse Gases	The use of mining machinery and clearing of vegetation would contribute to climate change through release of greenhouse gases from stored carbon in vegetation and use of fossil fuels.	- Continued tree planting will offset some greenhouse gas emissions. - The Proponent should prepare an Energy Saving Action Plan in accordance with the requirements of the DEUS.
Lighting	NPM is in the Siding Springs Observatory Dark Skies Region, where any upward light affects the view of the stars.	No lights to shine above the horizontal.

7 RECOMMENDED CONDITIONS

The Department has prepared recommended conditions of approval for the Project. These conditions are required to:

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

The recommended conditions address mining operations, on-going environmental monitoring and management, progressive rehabilitation and review of the existing Rehabilitation and Landscape Management Plan, compliance mechanisms, independent reviews, community consultation and complaints management and performance audits. A summary of the conditions of approval is provided in Appendix A and a full set of the recommended conditions appears in Appendix B.

The Department has discussed the draft conditions of approval for the Project with relevant Government authorities, and has incorporated their comments into the conditions of approval where appropriate. The Proponent has reviewed the recommended conditions and has indicated that it accepts them.

8 CONCLUSION

The Department has assessed the project application, EA, submissions and the Proponent's response to submissions and is satisfied that there is sufficient information available to determine the application. The key issues identified in the Department's assessment or raised in submissions concern road maintenance and renewal and associated contributions to council, flora and fauna, rehabilitation and landscape management, noise and water management.

A surface subsidence zone of 24.4 ha would be created by the proposed E48 mine in an area of the Limestone National Forest managed by the Department of Primary Industries (Forests). However, this subsidence-affected land would be offset by the Proponent giving a 45 ha parcel of adjacent land to DPI, for addition to the Forest. The Proponent would revegetate the offset land with woodland species similar to those within the existing Forest and maintain the land for three years.

Road maintenance and capital works issues have also been resolved to the satisfaction of the Department, the Council and the Proponent. There are no other outstanding issues or impacts which would prevent approval of the Project.

The E48 extension has a capital investment value of \$72.6 million and would extend employment for the 350 current employees for approximately seven years until 2016. Approximately 150 additional personnel would be employed during the anticipated 32 months construction period for the E48 underground mine.

The Department recommends approval of the Project, subject to recommended conditions which cover all current and proposed operations at Northparkes Mines. A new project approval for the Project would extinguish the individual consents that have been previously issued for Northparkes Mines and consolidate the management of all existing and proposed mining activities under a single approval.

9 RECOMMENDATION

It is RECOMMENDED that the Minister:

- consider the findings and recommendations of this report;
- approve the project application, subject to conditions, under section 75J of the *Environmental Planning and Assessment Act 1979*; and
- sign the attached project approval (Tagged B).

David Kitto
Director
Major Development Assessment

Chris Wilson
Executive Director
Major Project Assessment

Sam Haddad
Director-General

APPENDIX A. SUMMARY OF THE CONDITIONS OF APPROVAL

The Department has recommended a number of conditions of approval, including requirements to:

- limit mining operations under the approval to 11 years, being the anticipated four years remaining to complete mining in E26 and the anticipated seven years to complete mining in the E48 extension;
- limit processing of ore at the processing plant to 6.5 million tonnes a year;
- surrender all existing consents for Northparkes Mines as the recommended approval covers all existing mining operations and the proposed E48 extension;
- contribute funding to Council of \$52,267 per annum (indexed) toward the maintenance of local roads, and contribute 80% of the actual cost of resealing sections of Bogan Road (Newell Highway) used extensively by the mining operation;
- prepare and implement a comprehensive Site Water Management Plan for the Project to monitor and manage surface and groundwater impacts. The components of the Plan include a:
 - Site Water Balance;
 - Erosion and Sediment Control Plan;
 - Surface Water Management Plan; and
 - Groundwater Monitoring Program and Management Plan.
- offset the 24.4 ha of Limestone National Forest land subject to subsidence by swapping 45.14 ha of adjacent land and revegetating it to a forest similar in character to the adjacent National Forest;
- prepare and implement a detailed Landscape Management Plan. The components of the Plan include :
 - Rehabilitation Management Plan;
 - Final Void Management Plan; and
 - Mine Closure Plan.
- comply with strict criteria and develop monitoring programs for noise, blasting and vibration, and air quality; and
- prepare and implement an Aboriginal Heritage Management Plan and prepare an archival record for items of non-indigenous heritage that will be destroyed.

APPENDIX B. RECOMMENDED CONDITIONS OF APPROVAL

APPENDIX C. CONSIDERATION OF ENVIRONMENTAL PLANNING INSTRUMENTS

State Environmental Planning Policy (Major Projects)

See discussion in Section 4.

State Environmental Planning Policy (SEPP) No.11 – Traffic Generating Development

The proposal is affected by the provisions of SEPP 11, as an 'extractive industry or mining' (Schedule 1 paragraph 'm'). As such, the application was referred to the RTA, who subsequently confirmed that it had no objection to the proposal.

SEPP No.33 – Hazardous and Offensive Development

The Environmental Assessment report examined the storage and transport of hazardous materials according to the relevant guideline². These materials consisted of diesel fuel, lubricants, LPG, and explosives.

Environmental Assessment report concluded, on the basis of the quantities and storage locations, none of the materials met the guidelines thresholds which would require further consideration in a Preliminary Hazard Analysis. As such, the Department is satisfied that the proposal is generally consistent with the aims, objectives, and requirements of SEPP 33.

SEPP No.44 – Koala Habitat Protection

The Environmental Assessment identified that the project site does not contain 'core' or 'potential' Koala habitat and does not have a resident population of Koalas. As such, the Department is satisfied that the proposal is generally consistent with the aims, objectives, and requirements of SEPP 44.

SEPP 55 – Remediation of Land

SEPP 55 aims to promote the remediation of contaminated land for the purpose of reducing the risk of harm to human health or any other aspect of the environment. In particular, this policy requires consideration of whether a development requires a consent for remediation works or not and requires that remediation works meet certain standards and notification requirements.

The existing and proposed tailings storage facilities on the Project Site could be considered contaminated land. This SEPP requires the consent authority to consider whether, if land is contaminated, it is suitable in this contaminated state for the proposed development.

Tailings Storage Facilities (TSF1 and TSF2) exist and provide tailings containment to the satisfaction of the NSW Dam Safety Committee. The only works to be conducted on these structures is continued use and final rehabilitation. The proposed Tailings Storage Facility (TSF3) would also be constructed to the satisfaction of the NSW Dam Safety Committee and would be constructed on uncontaminated land. As such, the land is considered suitable for the proposed development.

² See DUAP (1997) *Applying SEPP 33 2nd edition*.

APPENDIX D. PROPONENT'S RESPONSE TO THE SUBMISSIONS

See attached CD-ROM containing a file entitled *Northparkes Mines – Response to Submissions relating to the E48 Project*.

APPENDIX E. SUBMISSIONS

See the attached CD-ROM containing a file entitled *Submissions*.

APPENDIX F. ENVIRONMENTAL ASSESSMENT REPORT

See the attached CD-ROM entitled *Northparkes Mines – E48 Project, Environmental Assessment and Specialist Consultant Studies Compendium* dated August 2006.