North Mining Limited

ABN: 78 000 081 434

Northparkes Mines

Response to Submissions relating to the E48 Project

25 October 2006

Compiled by:

R.W. CORKERY & CO. PTY. LIMITED

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FOREWORD

This document has been compiled to respond to a range of issues relating to the proposed E48 Project raised in:

- four submissions from local and district landholders and the Peak Hill Business and Tourism Association Inc: and
- five local and State Government Agencies.

These submissions were forwarded to the Department of Planning during the exhibition period for the Major Projects Application and Environmental Assessment for the E48 Project.

A response is provided for each individual issue. Where appropriate, a commentary is provided in italics.

This document concludes with the incorporation of an updated finalised Statement of Commitments. Figures relevant to the Final Statement of Comments are included at the rear of this document (Pages 31 and 33).

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ATTACHMENT 1: E.J. NASH - "CORADGERY"

Issues Raised:

(1) Expression of Support for Project

The Proponent acknowledges and agrees with Mr Nash's comment that "I doubt that we will notice much difference".

(2) Shoulders on Bogan Road

Bogan Road is a public road under the jurisdiction of the Parkes Shire Council (PSC). Requests for the enhancement of this road should be directed towards the PSC and are not an issue for E48 Project approvals process. The Proponent already contributes funds to the PSC for the maintenance of Bogan Road and is committed that such contributions will continue throughout the life of the E48 Project. The program of re-enforcing safe driving practices for all employees and contractors is discussed in Part E6.2 of the *Environmental Assessment*.

(3) Standard of Braeside Lane, particularly at Tenandra Creek Crossing

The proposed E48 Project will not impact upon Braeside Lane and therefore is not an issue for the E48 Project approvals process. The maintenance of the Tenandra Creek Crossing of Braeside Lane and other roads not affected by this Project should be directed to the Parkes Shire Council.

(4) Maintenance of Product Trucks and Responsibilities of Contractor

North Mining Limited has systems in place for vehicle maintenance, pre-start checks, monitoring and reporting to ensure correct maintenance of vehicles and shift working hours. The Logistics contract for the road transport of copper concentrate to the Goonumbla Railway Siding is currently being retendered. The re-issued Logistics contract will address the issues raised (maintenance and working hours).

ATTACHMENT 2: S.A. & P.L. MACOUN - "BOONGALA"

It is noted at the outset of this response that the issues raised by Messrs Macoun have been raised on previous occasions and have likewise been addressed on previous occasions. This response is therefore succinct to provide the Department of Planning with an understanding of the previous responses.

Issues Raised:

(1) E26 Cave-in

Following the tragic E26 airblast incident in December 2000, an extensive Cave Management Plan was implemented for the Northparkes Mines underground operation. The Cave Management Plan which is based on a detailed risk assessment specifically addresses the issue of airblast and surface subsidence. The Plan, which was developed in partnership with the Mines Inspectorate, includes an extensive 'cave' and seismic activity monitoring system and incorporates all recommendations from the coronial inquest and internal investigations.

(2) Waterbird Kills

The use of cyanide at Northparkes Mines ceased in 1995 following the transition from processing gold ore to copper ore and is not required as a reagent for the existing process, a process that will also be used to process the ore from the E48 underground mine. Monitoring of the process water system for cyanide continued until 2001 to ensure there was no residual cyanide present. There are no other process reagents (in the concentrations used for processing on site) that are toxic to birds or animals.

(3) Cattle Deaths

Extensive internal and external investigations in 1996 dealt with the cattle death issue. The Department of Agriculture commissioned an independent investigation that concurred with the opinion of the Department of NSW Agriculture that the cattle deaths were not due to dust emissions from Northparkes Mines – please refer to the correspondence from the Minister for Agriculture included as **Annexure 1** (Pages 26 to 30).

(4) Air Quality Claims

Arsenic
The arsenic present in the E48 ore is bound up in the mineral tennantite ($(Cu,Fe,Zn,Ag)_{12}As_4S_{13}$), and would not be liberated in the copper flotation process and would report principally to the copper concentrate. Normal dust control measures are adequate. The copper concentrate is produced to contain 8-10% moisture to minimise dust emissions and is transported from site in covered containers. The copper concentrate loading area is managed to minimise fugitive dust emissions. The residual tennantite reports to the tailings storage facilities and will be eventually covered / rehabilitated.

Radon
Radon gas surveys have been conducted in the underground mine as part of the current mining operation. No elevated levels of radon gas have been recorded underground and are unlikely to occur on the surface.

Nitrogen Oxides
Northparkes Mines' farming activities are not within the scope of the environmental assessment. For information, urea, the major nitrogen based fertiliser, has not been applied to Northparkes Mines' farming land for two years. In the past, urea has been applied to meet optimum fertiliser levels for cereal plant growth and soil improvement following leaf and soil tests. Northparkes Mines' farming practices are aimed at being best practice conservation farming.

Ammonium Nitrate
Ammonium nitrate will be used for the blasting of the face of the development drives (tunnels) during the underground development of the E48 Project. Operational use of ammonium nitrate explosives will be limited to the occasional use of small packaged explosives to remove large rocks that block the draw points. The nearest occupied residence is 3km from the underground air exhaust (vent fans).

It is noted that the resumption of mining within the E22 open cut mine will involve the use of ammonium nitrate in large quantities.

Silica
Air quality modelling for the E48 Project included Deposited Dust, PM_{10} and $PM_{2.5.}$ Air quality modelling, based on a combination of predictive computer modelling and monitoring data accumulated at the mine site over the last 13 years, concluded that there would be no substantial change to air quality and these would be within the project goals based on DEC and NHMRC guidelines.

(5) Environment, Safety and Health (ESH) Policy

Northparkes Mines consistently operates to a high ESH standard, and has been monitored by Government Regulators via site inspections, reviews and the AEMR process over the 13 year life of the operation to date. Northparkes Mines is accredited for ISO 14001 Environmental Management Systems.

Northparkes Mines undertakes continual review and improvement of its ESH performance to meet regulatory, industry and Rio Tinto standards stakeholder expectations for Environmental, Safety and Health.

In reference to the findings from the Cattle Death (Dust) investigation refer to the correspondence from the Minister for Agriculture (**Annexure 1**) that states that dust from the mining operation was not responsible for the death of the cattle referred to in the submission.

ATTACHMENT 3: DEPARTMENT OF ENVIRONMENT AND CONSERVATION

The focus within the issues raised by the DEC is upon adding or modifying commitments in Part F – "Draft Statement of Commitments". The response set out below invariably acknowledges support for the suggested comments or provides an alternative approach to the subject issue. In some cases, the suggested actions have been re-arranged to maintain a consistent format with the remainder of **Table F1** (see Pages 15 to 24).

Issues Raised:

(1) Air Quality

North Mining Limited supports the addition of the following action to the Final Statement of Commitments.

- "Prepare and implement a dust control strategy" (**Action 5.6**).

North Mining Limited supports the modification of Action 13.3 to read as follows.

- "Monitor 24 hour total suspended particulates (TSP) at "Milpose" and "Hubberstone".

This issue has been discussed with DEC. It was agreed that the Company would continue to monitor TSP as it has in the past, however, in the event that TSP concentrations are consistently found to be elevated, the Company would change from monitoring TSP to PM_{10}.

(2) Flora and Fauna

North Mining Limited supports the addition of the following outcome and actions to the final Statement of Commitments in regards to "Ecology Management and Biodiversity Offset Strategy". Biodiversity values are maintained or improved.

- Swap an area of 45ha (as identified in Figure F1 of the *Environmental Assessment* in agreement with the Department of Primary Industries (DPI Forests) for 24ha located within the E48 subsidence zone (**Action 9.17**).
- Prepare, seed, plant, monitor and maintain (including weed control) in order to revegetate the offset area (**Action 9.18**).
- Ensure revegetation of the offset area involves the use of local native species, sourced locally (**Action 9.19**).

It is noted that each of the requested actions are consistent with the measures already proposed by North Mining Limited listed in Part E8.4 of the Environmental Assessment.

North Mining Limited supports the addition of the following actions in relation to the Outcome to "Minimise long term impacts on flora and fauna on and around the Project Site".

- Undertake pre-clearing surveys to target Threatened species known to potentially occur in the vicinity of the Project Site. Undertake appropriate measures for the relevant species in the event any of the targeted species are located in an area to be cleared (**Action 9.14**).
- Ensure that during all operations involving the clearing of mature trees, an ecologist or appropriately trained personnel is present to check any tree felled for wildlife inhabiting these trees (**Action 9.15**).
- Undertake a small scale vegetation survey across the 6 000ha of surrounding properties owned by the Proponent to provide guidance on a suite of species appropriate for rehabilitation (**Action 9.16**).

North Mining Limited supports that **Action 9.2** identified under the outcome "Ecology Management and Biodiversity Offset Strategy" in the draft Statement of Commitments is altered to read:

- "Where practicable, clearing within woodland communities would be timed to avoid more sensitive breeding, torpor and dispersal periods of the year. Where it is not practicable to clear during these times, any fauna species identified during the pre-clearing survey will be relocated" (**Action 9.2**).

(3) Groundwater

North Mining Limited supports the alteration of Action 8.4 identified under "Groundwater" in the draft Statement of Commitments to read.

- "Prepare a Groundwater Management Plan (including a contingency plan for possible leaks in the TSF3 floor and walls) for the entire Project Site in consultation with and to the satisfaction of the Department of Natural Resources" (**Action 8.4**).

It is noted whilst this amendment is supported, the testing conducted for the management of TSF indicate that with standard compaction techniques and the proposed design, leaks would not occur in the TSF floor or walls.

(4) Noise and Vibration

North Mining Limited supports that Action 3.3 identified under "Noise and Vibration" in the draft Statement of Commitments is altered to read:

- "Determine a sequenced construction program to minimise tailings storage facility construction at night during gentle winds towards "Avondale" and temperature inversions.

The DEC wording provided has been adjusted to more accurately reflect the intent of the action.

(5) Soils

North Mining Limited supports the addition of the following actions into the draft Statement of Commitments.

- "Take reasonable measures to protect natural or stockpiled soils from any spills or contaminating activities" (**Action 4.9**).
- "Ensure Soil Mapping Unit SMU2 subsoils >70cm in depth are mixed with overburden before being stockpiled" (**Action 4.10**).

North Mining Limited also supports that **Action 4.7** identified under "Soils and Land Capability" is altered to read:

- "Implement appropriate downslope sedimentation controls on all soil stockpiles."

The DEC wording has been marginally adjusted to provide flexibility for the Proponent given the on-site experience to date with soil stockpiling.

(6) Surface Water

North Mining Limited supports that the first outcome identified under "Surface Water and Water Supplies" in the draft Statement of Commitments is altered to read:

- "A surface water management system, including a contingency plan, for the Project Site and the E48 Project is developed and implemented".

North Mining Limited supports the addition of the following action in relation to the outcome "Ensure no dirty or contaminated water leaves the Project Site as a result of the E48 Project surface disturbance".

- "Undertake activities at the premises in a manner that does not cause or permit water pollution as defined in the Protection of the Environment Operations Act 1997" (**Action 6.9**).

North Mining Limited supports the addition of the following action in relation to the outcome referring to containing "dirty" or "contaminated" water on site.

- "Conduct inspections of the TSF3 dam walls" (**Action 6.8**).

ATTACHMENT 4: WESTERN REGION DEVELOPMENT COMMITTEE (RE: ROADS)

Issues Raised:

(1) Road Signs

North Mining Limited accepts that a condition to the following effect is included in a Project Approval.

- "North Mining Limited shall review and monitor the intersection of Bogan Road and Northparkes Lane in consultation with the Western Region Development Committee to determine the need for any further modifications to improve safety. All agreed modifications shall be installed within 3 months of reaching an agreement."

North Mining Limited recognises that the subject intersection has been problematic in the past. However, recent modifications, including a central dividing island on Northparkes Lane and a slip lane on Bogan Road, have significantly improved traffic safety at the intersection. The intersection itself is otherwise well signposted.

North Mining Limited would much prefer to work in consultation with the Western Region Development Committee to continue to improve the intersection's safety rather than committing to the suggested Stop / Prepare to Stop signs.

ATTACHMENT 5: PARKES SHIRE COUNCIL

Discussions are being held between North Mining Limited and Parkes Shire Council regarding the issues raised by Council. The outcome(s) from these discussions will be conveyed to the Department of Planning as soon as they are finalised.

ATTACHMENT 6: DEPARTMENT OF PRIMARY INDUSTRIES

The contents of the undated correspondence is noted.

Issues Raised:

(1) Appendix 1: Mining Titles

North Mining Limited is separately discussing the required mining titles for the E48 Project with the Department.

(2) Appendix 2: Environmental Matters

Closure Planning

Mine closure plans and mine closure cost estimates are reviewed annually or when significant changes to the operation occur. The approval of the E48 Project would trigger such a review of the Mine Closure Plan and the Closure Cost estimate would be reviewed using the DPI – Mineral 'Security Workbook Estimate Tool".

Tailings Management

The opportunity for enhanced tailings disposal methods is being explored as technology develops. Northparkes Mines continues to conduct research into alternatives such as in-pit tailings disposal and thickened tailings. Approval for the implementation of alternative tailings disposal methods would be sought, as necessary.

MREMP Process

A revised Mining Operations Plan is planned to be submitted to the DPI (MR) within one month of the issue of the Project Approval for the E48 Project. It will be important that all relevant requirements arising from the Project Approval are reflected in the Mining Operations Plan. It is intended that all future Annual Environmental Management Reports include all relevant information relating to the E48 Project.

ATTACHMENT 7: DEPARTMENT OF NATURAL RESOURCES

Issues Raised:

(1) Groundwater Assessment

Groundwater Management Plan

North Mining Limited supports the following recommendation.

- "Prepare a Groundwater Management Plan (including a contingency plan for possible leaks in the TSF3 floor and walls) for the entire Project Site in consultation with and to the satisfaction of the Department of Natural Resources" (**Action 8.4**).

It is noted that Action 8.4 in the Final Table of Commitments is consistent with the above recommendation.

Groundwater Licencing

North Mining Limited has contacted the Department of Natural Resources regarding groundwater licensing requirements and appropriate applications are to be made in the near future. The grant of groundwater-related licences will not influence the determination of the Project Approval for the E48 Project.

(2) Surface Water Assessment

Comments noted.

(3) Rehabilitation

Comments noted.

ATTACHMENT 8: PEAK HILL BUSINESS AND TOURISM ASSOCIATION INC.

Coradgery, Robertson and Taweni Roads are public roads under the jurisdiction of the Parkes Shire Council (PSC). Requests for sealing of these roads should be directed towards the PSC and are not an issue for the E48 approvals process.

North Mining Limited acknowledges that some mine employees and potentially contractors involved in the E48 construction activities, travel and/or would travel to the Northparkes Mines via Coradgery, Robertson and Taweni Roads. It remains the Company's stated intention as recorded in Section E6.2 of the *Environment Assessment* that:

> "(i) The Proponent would continue to require the use of Bogan Road from the Newell Highway for heavy vehicles travelling to and from the NPM operations, rather than via local roads".

ATTACHMENT 9: PETER GREEN (AND 12 ADDITIONAL PROPERTY OWNERS)

The response provided for Attachment 8 is equally applicable for this attachment.

It is noted that the submission claims that "There have been five accidents on this road in the past five years", however, reference to official RTA crash statistics by Transport and Urban Planning established that "No crashes were recorded on Robertson Road or Coradgery Road for the 5 year period to end 2005" - Section 3.4.1 – Part 5 Traffic Assessment.

It is also noted that the average daily traffic level along Taweni Road recorded in 2006 was 52. This is a very low level of usage and is consistent with its comparatively low level of use by persons travelling to and from Northparkes Mines.

Final Statement of Commitments

Preamble

This final Statement of Commitments has been prepared in accordance with the provisions of Part 3A of the Environmental Planning and Assessment Act 1979 and presents a compilation of the actions and initiatives the Proponent commits to implement when undertaking the E48 Project. The commitments are designed to effectively manage, mitigate, guide and monitor the Project through its construction and operation.

All parties involved in the design, establishment and operational phases of the Project will be required to undertake their work in accordance with the nominated commitments and any relevant conditions included in the project approval for the Project.

For each commitment, the desired outcomes are provided together with the intended actions and timing for the implementation of the nominated actions.

***Figure F1** presents the existing and proposed site components and activities and **Figure F2** records the locations of surrounding residences and monitoring locations relevant to these commitments.*

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Table F1
Final Statement of Commitments

Desired Outcome	Action	Timing
1. PROJECT COMPONENTS AND ENVIRONMENTAL MANAGEMENT		
Continue operation of existing activities	1.1 Undertake all activities as described in Part B (and summarised on Figure F1).	Ongoing for life of mine
Construct and operate the E48 mine and related components	1.2 Undertake all activities as described in Part C (and summarised on Figure F1).	Ongoing for life of mine
Comply with all conditional requirements in all approvals, licences and leases.	1.3 Comply with all commitments recorded in Table F1. 1.4 Comply with all conditional requirements included in the: • Project Approval; • Environment Protection Licence; • Mining Leases; and • any other approvals.	Continuous and as required.
Conduct all operations in accordance with all relevant documentation.	1.5 Undertake all activities in accordance with any current Mining Operations Plan, environmental procedures, safety management plan or site-specific documentation.	Continuous and as required.
2. OPERATING HOURS		
Construction and operating hours are managed in accordance with the approved project approval conditions.	2.1 Blasting (underground): 24 hours per day, 7 days per week. 2.2 Blasting (open cut): 9.00am to 5.00pm, Monday to Saturday 2.3 Underground Mine Development: 24 hours per day, 7 days per week. 2.4 Underground Mining: 24 hours per day, 7 days per week 2.5 Tailings Storage Facility Construction: 24 hours per day, 7 days per week 2.6 Maintenance: 24 hours per day, 7 days per week 2.7 Processing: 24 hours per day, 7 days per week 2.8 Product Transport – Trucks: 24 hours per day, 7 days per week (but timed to avoid school buses) – Trains: 24 hours per day, 7 days per week	Continuous during project construction and operations

Table F1 (Cont'd)
Final Statement of Commitments

Desired Outcome	Action		Timing
3. NOISE AND VIBRATION			
Noise impacts attributable to the Project are minimised at all surrounding residences and comply with DEC criteria.	3.1	Regularly service major earthmoving equipment to ensure equipment sound power levels are within nominated range.	Standard servicing schedules.
	3.2	Avoid unnecessary clustering of earthmoving equipment.	During all above ground construction activities.
	3.3	Determine and implement a sequenced construction program to minimise tailings storage facility construction at night during gentle winds towards "Avondale" and temperature inversions.	During adverse weather conditions when "Avondale" residence is occupied.
All open cut blasts meet DEC airblast overpressure and ground vibration criteria at all surrounding residences.	3.4	Ensure all blasting contractors adopt appropriate blasting controls to minimise air blast overpressure and vibration.	All open cut blasts.
	3.5	Monitor open cut blasts at "Hubberstone".	All open cut blasts.
4. SOILS AND LAND CAPABILITY			
Maintain soil value for rehabilitation and minimise soil loss through erosion.	4.1	Minimise handling of soils.	During soil stripping operations
	4.2	Select soil stockpile locations to minimise subsequent movement.	During soil stripping operations
	4.3	Minimise handling of soils during periods of high soil moisture.	During soil stripping operations
	4.4	Topsoil stockpiles will be created between 1m and 2m in height while subsoil stockpiles will not normally exceed 3m in height.	Continuous
	4.5	Prevent mobile equipment, including light vehicles, from accessing soil stockpiles once created.	Continuous
	4.6	Install well maintained upslope water diversion banks or swales where overland surface water flow has the potential to impact on the soil stockpiles.	Continuous
	4.7	Implement appropriate downslope sedimentation controls.	Until the surface of the soil stockpile is stabilised
	4.8	Sow surfaces of soil stockpiles with appropriate groundcover.	As soon as practicable following construction
	4.9	Take reasonable measures to protect natural or stockpiled soils from any spills or contaminating activities.	Continuous
	4.10	Ensure Soil Mapping Unit SMU2 subsoils >70cm in depth are mixed with overburden before being stockpiled.	During soil stripping campaigns.

Table F1 (Cont'd)
Final Statement of Commitments

Desired Outcome	Action	Timing
5. AIR QUALITY		
Undertake site activities without exceeding DEC air quality criteria or goals.	5.1 Avoid disturbing areas outside approved footprints of disturbance (including tracks).	During construction periods
	5.2 Keep unsealed roads damp when in use by off-road trucks.	As required
	5.3 Tailings storage facilities operated to minimise dust and capped as early as practicable.	Continuous
	5.4 Erect and maintain partial cover on above ground conveyors.	Continuous during operations
	5.5 Progressively rehabilitate areas no longer required for operational purposes.	As required
	5.6 Prepare and implement a dust control strategy.	
6. SURFACE WATER AND WATER SUPPLIES		
A surface water management system including a contingency plan, is developed and implemented for the entire Project Site and the E48 Project.	6.1 Construct appropriate catch drains and diversion banks around the margins of TSF3 (Cell A).	Prior to construction of TSF 3 (Cell A)
	6.2 Construct necessary sediment ponds to contain sediment-laden water on site.	Prior to construction of TSF3 (Cell A).
	6.3 Maintain the existing drainage systems for Farm Dams south of the mine access road.	Until TSF 3 (Cell B) works commence
	6.4 Construct catch drains and diversion banks around the margins of TSF 3 (Cell B).	Prior to construction of TSF 3 (Cell B)
Ensure that there is a secure water supply to the E48 Project.	6.5 To work with the Parkes Shire Council and other relevant authorities to put in place a formal agreement to secure adequate water supply to the E48 Project.	Commencing immediately with a view to completion by 2006 year end.
Ensure no 'dirty' or 'contaminated' water leaves the Project Site as a result of the E48 Project surface disturbance.	6.6 Vegetate the embankments of TSF 3 to provide erosion protection, with consideration to be given to subsequent afforestation of these areas or rock armour the embankments to minimise erosion.	On completion of each period of TSF 3 embankment construction
	6.7 Contain tailings supernatant and accumulated rainfall within the processing plant water circuit for extreme rainfall events up to 1 in 100 year 72 hour storm or sustained wet periods.	Continuous
	6.8 Conduct and report upon regular inspections of the TSF3 dam walls.	
	6.9 Undertake activities at the premises in a manner that does not cause or permit water pollution as defined in the Protection of the Environment Operations Act 1997.	

Table F1 (Cont'd)
Final Statement of Commitments

Desired Outcome	Action	Timing
6. SURFACE WATER AND WATER SUPPLIES (CONT'D)		
Ensure the NPM operations water usage from off-site sources do not cause unacceptable short falls for other users.	6.10 Continue to negotiate and reach agreement with Parkes Shire Council regarding the supply of water during the operational phase of the NPM operations.	As required
7. TRAFFIC		
All motorists travel safely to and from the NPM operations.	7.1 Ensure all employees and contractors are regularly informed about the safe driving requirements to and from the NPM operations.	Continuous
	7.2 Transport all oversize loads with all necessary permits.	As required
Interaction between the road train and school bus is avoided.	7.3 Avoid despatch of road train (with concentrate) between 7:30am/9:30am and 3:00pm/5:00pm.	School days
The standard of road pavement is maintained at an appropriate level for the type and volume of traffic.	7.4 Continue to work collaboratively with the Parkes Shire Council on road pavement and traffic issues. An ex gracia annual road maintenance contribution of $50 000, index linked will be made in order to help maintain Bogan Road in good repair.	Annually or as agreed
8. GROUNDWATER		
Protect the groundwater resources from contamination.	8.1 Ensure the floor and walls of TSF 3 have a permeability satisfying the standard required by the DEC (ie. <1 x 10-9m/s).	During construction program
	8.2 Conduct testing to ensure required permeability levels are achieved.	During construction program
	8.3 Ensure all programs for managing hydrocarbons and chemicals are fully implemented.	Ongoing
	8.4 Prepare a Groundwater Management Plan, for the entire Project Site in consultation with and to the satisfaction of the Department of Natural Resources.	Within 6 months of the grant of project approval.
9. ECOLOGY MANAGEMENT AND BIODIVERSITY OFFSET STRATEGY		
Minimise long term impacts on flora and fauna on and around the Project Site.	9.1 Clearly identify the boundaries of all construction areas. No clearing will occur outside these boundaries.	Prior to clearing
	9.2 Where practicable, clearing within woodland communities would be timed to avoid more sensitive breeding, torpor and dispersal periods of the year. Where it is not practicable to clear during these times, any fauna species identified during the pre-clearing survey will be relocated.	During clearing

Table F1 (Cont'd)
Final Statement of Commitments

Desired Outcome	Action	Timing
9. ECOLOGY MANAGEMENT AND BIODIVERSITY OFFSET STRATEGY (CONT'D)		
Minimise long term impacts on flora and fauna on and around the Project Site.	9.3 Implement a feral baiting and/ or trapping program, consistent with the existing feral animal control strategy.	Prior to clearing
	9.4 Spread all cleared native vegetation in revegetation areas.	Following clearing if areas available, otherwise when revegetation area available
	9.5 Re-site hollow-bearing trees removed where practicable.	During clearing
	9.6 Continue the existing feral animal management program.	Continuous
	9.7 Inspect TSF 3 and the Rosedale Borrow Pit daily for fauna during the course of daily maintenance and operation inspections.	Daily
	9.8 Progressive and final rehabilitation will occur across the Project Site to recreate a final land use of agriculture and native vegetation.	As required
	9.9 Continue current programs of habitat enhancement and revegetation across the Proponent's land.	Ongoing
	9.10 Review the revegetation program to ensure it remains relevant.	Annually
	9.11 Ensure all native trees and shrubs planted on the Project Site are local endemic species.	Ongoing
	9.12 Prepare and implement a detailed revegetation plan for the Limestone National Forest offset area.	Within 6 months of the grant of a project approval.
	9.13 Incorporate in the Mine Closure Plan details of the mechanisms to achieve long term security of both remnant and planted native vegetation across the Proponent's landholding.	No later than 3 years prior to the scheduled closure of the mine.
	9.14 Undertake pre-clearing surveys to target Threatened species known to potentially occur in the vicinity of the Project Site. Undertake appropriate measures for the relevant species in the event any of the targeted species are located in an area to be cleared.	Prior to each tree clearing campaign.

Table F1 (Cont'd)
Final Statement of Commitments

<table>
<tr><th>Desired Outcome</th><th>Action</th><th>Timing</th></tr>
<tr><td colspan="3">9. ECOLOGY MANAGEMENT AND BIODIVERSITY OFFSET STRATEGY (CONT'D)</td></tr>
<tr><td rowspan="5">Minimise long term impacts on flora and fauna on and around the Project Site.</td><td>9.15 Ensure that during all operations involving the clearing of mature trees, an ecologist or appropriately trained personnel is present to check any tree felled for wildlife inhabiting these trees.</td><td>During each tree felling campaign.</td></tr>
<tr><td>9.16 Undertake a small scale vegetation survey across the 6 000ha of surrounding properties owned by the Proponent to provide guidance on a suite of species appropriate for rehabilitation.</td><td>Within 2 years of E48 Approval.</td></tr>
<tr><td>9.17 Swap an area of 45ha (as identified in Figure F1 of the Environmental Assessment in agreement with the Department of Primary Industries (DPI Forests) for 24ha located within the E48 subsidence zone.</td><td></td></tr>
<tr><td>9.18 Prepare, seed, plant, monitor and maintain (including weed control) in order to revegetate the offset area.</td><td>Ongoing</td></tr>
<tr><td>9.19 Ensure revegetation of offset area involves the use of local native species, sourced locally.</td><td>Ongoing</td></tr>
<tr><td colspan="3">10. INDIGENOUS HERITAGE</td></tr>
<tr><td>Employees who are sensitive to, and respectful of, possible Aboriginal heritage on the Project Site.</td><td>10.1 Inform relevant staff and contractors of their responsibilities under the National Parks and Wildlife Act 1974.</td><td>During site induction</td></tr>
<tr><td>Appropriate salvage or protection provided for archaeological sensitive sites.</td><td>10.2 Implement the following proposed actions.
<table>
<tr><th>Site Id</th><th>Type</th><th>Impact</th><th>Proposed Action</th></tr>
<tr><td>2</td><td>Campsite</td><td>None</td><td>Protect</td></tr>
<tr><td>8</td><td>Campsite</td><td>Farming</td><td>Salvage</td></tr>
<tr><td>9</td><td>Campsite</td><td>Farming</td><td>Salvage</td></tr>
<tr><td>10</td><td>Campsite</td><td>Farming</td><td>Salvage</td></tr>
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<tr><td>12</td><td>Campsite</td><td>Farming</td><td>Salvage</td></tr>
<tr><td>P1</td><td>Scarred Tree?</td><td>E48 Project</td><td>Salvage</td></tr>
<tr><td>P2</td><td>Isolated Find</td><td>E48 Project</td><td>Salvage</td></tr>
<tr><td>P3</td><td>Isolated Find</td><td>E48 Project</td><td>Salvage</td></tr>
<tr><td>P4</td><td>Isolated Find</td><td>E48 Project</td><td>Salvage</td></tr>
<tr><td>A1</td><td>Campsite</td><td>Farming</td><td>Salvage</td></tr>
<tr><td>A2</td><td>Isolated Find</td><td>E48 Project</td><td>Salvage</td></tr>
<tr><td>A3</td><td>Isolated Find</td><td>E48 Project</td><td>Salvage</td></tr>
</table></td><td>Salvage prior to surface disturbance in that area. Protect continually</td></tr>
</table>

Table F1 (Cont'd)
Final Statement of Commitments

Desired Outcome	Action	Timing
10. INDIGENOUS HERITAGE (CONT'D)		
	10.3 For those sites that require salvaging, the artefacts will be recovered as part of a salvage project that will be undertaken with the Peak Hill Local Aboriginal Land Council. The salvage work will be undertaken by a qualified archaeologist and members of the Land Council.	When programmed
Minimise disturbance to potential unidentified sites.	10.4 Conduct a program of test pitting in Zone 1 (Goonumbla Creek).	Prior to any disturbance in Zone 1.
11. EUROPEAN HERITAGE		
Ensure appropriate records of the heritage buildings are made prior to their demolition.	11.1 A site plan of the heritage area be recorded to include: – detailed recording of historic landscaping features; and – location of structures within the Project Site and in relation to one another.	Prior to disturbance
	11.2 Record elevations of: – Blacksmith's shed; and – Workman's Hut.	Prior to disturbance
	11.3 Compilation of the above details with the documentation and recordings provided by Jolly (2005).	Prior to disturbance
12. VISUAL		
Limit adverse visual impacts	12.1 Progressively revegetate all project-related components.	As areas are finalised
	12.2 Maintain site in clean and tidy manner.	Continuous
13. ENVIRONMENTAL MONITORING		
Identification of the level of impact(s) (if any) the NPM operations is having on the surrounding environment. Note: All environmental monitoring locations are shown on **Figure F2**.	13.1 Monitor noise at the principal residence (if occupied) on "Hubberstone", "Avondale", "Milpose" and "Lone Pine".	Within 2 weeks of the start of each TSF construction program
	13.2 Monitor blasts at "Hubberstone".	Every blast in E22 Open Cut
	13.3 Monitor 24 hour total suspended particulates (TSP) at "Milpose" and "Hubberstone".	6 day cycle
	13.4 Monitor deposited dust levels at 11 sites.	Monthly
	13.5 Monitor surface water quality at existing sites and all new structures associated with E48 Project activities.	Separate schedule

Table F1 (Cont'd)
Final Statement of Commitments

Desired Outcome	Action	Timing
13. ENVIRONMENTAL MONITORING (CONT'D)		
	13.6 Monitor groundwater levels and quality in monitoring bore network.	Separate schedule
	13.7 Monitor pH / EC of water pumped from E48 mine.	Daily
	13.8 Review monitoring parameters and frequency to ensure meaningful data is collected.	Annually
14. COMMUNITY RELATIONSHIPS		
Minimise impact on surrounding land users.	14.1 Maintain a substantial buffer zone (beyond the Project Site) surrounding the current and proposed mining operations.	Continuous while surface operations take place.
Keep surrounding land owners and land users informed about site activities.	14.2 Continue current practice of regular meetings and one-to-one liaison.	Ongoing
Continue to enhance community communication.	14.3 Continue to participate in a community consultative committee comprising mine management and local community representatives in order to enhance feedback between the mine and the local community on matters of community significance.	Up to two meetings per year.
15. DOCUMENTATION		
A systematic set of documents are in place to guide the planning and implementation of all environmental management strategies.	15.1 Incorporate the E48 Project management measures into the existing EMS.	Prior to commencement of the E48 Project and continuous review
	15.2 Update the Mining Operations Plan for the mine site.	Prior to commencement of E48 construction activities
	15.3 Incorporate relevant data/information regarding the E48 Project in Annual Environmental Management Reports.	Annually
16. MINE DECOMMISSIONING		
Decommission the mine and related infrastructure with least impact on the local environment and Parkes and district community.	16.1 Undertake all mine decommissioning in accordance with an approved Mine Closure Plan	Complete the mine closure plan no later than 3 years prior to scheduled closure of the mine
	16.2 Prepare a memorandum of understanding with Parkes Shire Council regarding water allocations currently used by the NPM operations.	As required but prior to mine closure
	16.3 Negotiate with Parkes Shire Council regarding programs for retraining personnel and social impacts following mine closure.	Prior to mine closure

Annexure 1

Correspondence from the Minister for Agriculture (and attachment from the University of Queensland)

(No. of pages excluding this page = 5)

Minister for Agriculture

Mr C Johnstone
General Manager
North Ltd (North Parkes Mine)
PO Box 995
PARKES NSW 2870

26 JUL 1996

Dear Mr Johnstone,

Re: Cattle Deaths at North Parkes

I refer to the controversy earlier this year surrounding allegations that deaths of cattle belonging to Mr Stuart Macoun, North Parkes had been caused by exposure to dust escaping from the mining operations at the North Parkes Mine.

My Department has submitted a comprehensive package of information relating to the incident to an independent veterinary toxicologist, Professor Alan Seawright.

I am happy to inform you that Professor Seawright concurs with NSW Agriculture's opinion that dust from the mine was not responsible for the deaths of Mr Macoun's cattle. He suggests that fluorosis and/or osteomalacia caused by calcium/phosphorus imbalance, both caused by supplementary feeding during the drought, are the most likely contributors to the severe mortality experienced on Mr Macoun's property. A copy of Professor Seawright's report is attached for your information.

I would like to thank you and your staff for your cooperation with staff of NSW Agriculture who investigated this difficult problem.

Yours sincerely,

RICHARD AMERY MP
MINISTER FOR AGRICULTURE

LEVEL 17 'PARKVIEW' 157 LIVERPOOL STREET SYDNEY NSW 2000 TELEPHONE (02) 372 0123 FACSIMILE (02) 372 0199

NATIONAL RESEARCH CENTRE FOR ENVIRONMENTAL TOXICOLOGY

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6 June, 1996

Dr Helen Scott-Orr
Chief
Division of Animal Industries
NSW Agriculture
161 Kite Street
Locked Bag 21
ORANGE NSW 2800

24 JUN 1996
ANIMAL
INDUSTRIES

Dear Dr Scott-Orr,

Re: Cattle Deaths at North Parkes

In relation to your request of 15th May last for advice concerning the cattle deaths at North Parkes, I wish to acknowledge receipt of the following documents:

(1) "Results of Analyses of Soil, Sediment and Water Samples from three properties in the Goonumbla Area" prepared by K. Brooks and S. Gillan for the NSW Department of Mineral Resources (March 1996).

(2) "Investigation into heavy metal content of soil and dust within the Goonumbla region" prepared for North Parkes Mines (February 1996).

(3) Copies of some 10 laboratory reports produced by the Regional Veterinary Laboratory of NSW Agriculture at Orange in relation to specimens derived from sick or dead cattle supplied on behalf of Mr Stuart Macoun of "Boongala", Peak Hill from 27th July 1994 to 3rd October 1995.

(4) Sundry documents including copies of Ministerial briefing notes, letters by Mr Stuart Macoun and others and recent reports by Dr. C.A. Bourke, Senior Research Scientist at the Orange Regional Veterinary Laboratory and Dr S.J. Ottaway, Senior Field Veterinary Officer at Orange.

In his letter of 16th January 1996 to the chairman of the Molong Rural Lands Protection Board, Mr Stuart Macoun has claimed that some 226 cattle out of 613 that were present on his farm at June 1994 have died. Dead animals have included cows, growing cattle, weaners and suckling calves. He has attributed these losses to fugutive dust contamination of his pastures and animals

A Research Unit funded by the Australian National Health and Medical Research Council, Queensland Health, Griffith University and The University of Queensland.

from the North Parkes mine 5 km to the north. These cattle mortalilities appeared to coincide with the start of the mine operations round June 1994. During this period the various veterinary investigations did not establish a cause of death with respect to any of the specimens submitted although a meningoencephalitis was diagnosed in one 20-month old steer in July 1994.

Mr Macoun claims to have submitted soil samples, presumably from his property for metals analysis to Reme Soils of Goulburn and advises that elevated levels of copper and manganese were found. Although some liver damage was detected in some of the cattle subjected to necropsy there were no pathological or toxicological manifestations of copper toxicity. Chronic copper poisoning in any case does not occur easily in cattle. The condition is characterised by liver damage and haemolytic disease. By applying the Prussian Blue stain to paraffin sections of liver, even autolysed liver, it should still be possible to show if a haemolytic episode was responsible for any terminal jaundice condition that may have been present.

There are no reports of naturally occurring manganese toxicity in cattle but in experimental studies soluble salts of manganese were well tolerated in the diet of young and adult cattle. At between 3000 and 5000 ppm in the diet, some studies showed a decreased growth and feed intake and some decreased haemoglobin formation. No blood dyscrasias weres reported affecting any of the blood samples investigated at Orange RVL, suggestive of such a possible manganese toxicity. Failure to thrive generally in the herd was largely put down to the prevailing drought conditions.

It should be said also that where chronic mineral element intoxication of livestock is associated with mining, smelting or other industrial operations, it has not been too difficult to establish the diagnosis because of the presence of characteristic ciinicopathological and/or toxicological features in affected animals and/or the identification of high (and established toxic levels) of the element involved in the relevant environment. Mr Macoun has not provided evidence of such abnormally high (and possibly toxic levels) of any element in soils sampled from his property which could account for the cattle morbidity.

On the other hand, very comprehensive, relevant and recent investigations of the composition of soil, dust, sediment and water samples have been described in reports provided by the mining company itself and/or the NSW Department of Mineral Resources. Both investigations failed to show that there was any abnormally high levels of any of the possibly toxic soil elements in the soils or dusts from Mr. Macoun's property and also that fugutive dust from the mining operation was making no significant contribution to the surface dust to be found on the farm in question. In addition, as early as April 1995 and reported in May 1996, Dr Ottaway accompanied by the district veterinarian at Molong visited each of the farms bordering on Mr. Macoun's paddocks in which cattle mortalities had occurred. Although cattle were run on only 4 of the 10 farms involved, no disease problems of the type affecting Mr. Macoun's herd were reported and certainly there was no disease incidence out of the ordinary in sheep, the more usual domestic species in this area. Losses where they occurred were mainly attributed to the undernutrition resulting from the adverse seasonal conditions.

These various investigations then strongly pointed to the operation of conditions affecting livestock which were confined to Mr. Macoun's paddocks. Dr. Bourke reports that supplementary feeding of Mr. Macoun's cattle began in April 1994 and continued until January 1995. The history listed in the first Orange RVL report indicated that the supplementary feed supplied to

the cattle included "hand fed rolled wheat, lupin grain and rye-grass hay". Possible intoxications which come to mind include lupinosis and annual rye-grass toxicity. Lupinosis was subsequently considered to be a possible diagnosis in relation to later mortalities where liver damage was identified but could not be confirmed. Annual rye-grass toxicity, if this was the rye-grass species grown on Mr. Macoun's farm is not known to occur in this region of southern Australia. Other possible components of the supplementary diet include sorghum and barley as well as wheat, urea and molasses, mineral supplements including lime, two sources of gypsum (AFL & VIC), bentonite, M.A.P. Fertilizer formulation and proprietary vitamin and mineral premix and "dairy mix". Palatable urea supplements fed *ad lib* have been known to be responsible for ammonia toxicity in livestock. Molasses included in a drought feeding diet has been known to cause the conversion of the rumen flora from a thiamine synthesising population to a thiamine destroying population with the consequent development of polioencephalomalacia.

Mineral supplements such as those derived from rock phosphate processed for superphosphate are, as Dr Bourke says, likely to be contaminated with fluoride. The AFL gypsum was subsequently found to be so contaminated with a fluoride level of some 4100 ppm. The fluoride concentration of a diet formulated with 3% of this gypsum gave a fluoride level of 130 ppm.

The possibility of excessive fluoride intake being implicated in the cattle morbidity seems to have been considered by Dr. Hindmarsh of the Condobolin RLPB at the conclusion of the supplementary feeding on Mr. Macoun's farm early in 1995 as he sent urine samples for analysis to the Yeerongpilly Veterinary Laboratory. The urine of normal cattle not having excessive amounts of fluoride in the diet usually contains from 0 to 6 ppm fluoride while that from cattle affected with the fluorosis usually contains from 15 to 20 ppm. All these samples contained less than 6ppm fluoride and were regarded as normal. This laboratory report contains no information as to the origin of the urine samples submitted and Dr. Hindmarsh should be consulted as to their origin. The present presumption is that they were from Mr. Macoun's cattle, collected early in 1995.

More recent investigations by Dr. Bourke have revealed that fluoride levels of up to 2000 ppm have been found in the mandible and a vertebra derived from bovine skeletons on Mr. Macoun's farm and that in general, the fluoride levels in cortical bone of skeletons of Mr. Macoun's cattle are up to 4 times as high as in skeletons of normal cattle of comparable age.

The recommended maximum tolerance level for fluoride in the diet of dairy cattle is 40 to 80 ppm depending on the biological availability of the fluoride, the age of the cattle and the standard of nutrition. It is suspected that the form of fluoride in the gypsum product is calcium fluoride, in which fluoride is relatively poorly available to the animals. Soluble forms of fluoride such as sodium fluoride is readily available for absorption and consequently is the more toxic form and can give rise to acute fluoride intoxication. This is characterised mainly by acute gastroentoritis. It would be helpful in sorting out the contribution of fluoride to the cattle disease to know the form of fluoride in the gypsum product. In general though, if cattle under poor nutritional conditions were being continuously and intermittently fed fluoride in the diet, even as calcium flouride at this level, fluorosis would be expected to occur.

Considering the fact that the possibility of fluorosis was under consideration since early in 1995 it is surprising that there apparently has been no attempt to establish if dental fluorosis is present. Cattle in the age group 6 months to 3 years if fed a diet containing 130 ppm of fluoride could be

expected to show lesions of dental fluorosis during the 9 month period of exposure and subsequently. In Mr. Macoun's present herd of 400 cattle, there should be many animals in this age range and they should be examined. In addition, cattle with osteofluorosis could still be passing abnormally high levels of fluoride in their urine, even though exposure ceased early in 1995. This also needs to be investigated. The samples collected by Dr. Hindmarsh in February 1995 may not have been representative of the main exposure group.

A further feature that may warrant further investigation is the persistent faecal pats which were said not to be degraded by dung beetles. If at the time the levels of fluoride in the diet were high, the faeces of the cattle may have been high in fluoride (calcium fluoride) and possibly potentially toxic for dung beetles. The report that these old pats were quite white suggests that the calcium levels in them may have been high. It may be also that calcium in the diet in a poorly absorbable form could have lead to sufficient calcium/phosphorus imbalance so as to lead to mild osteomalacia in young growing animals. Dr. Bourke mentioned that some of the bones he inspected appeared lighter than expected and that there was sub periosteal roughening at the point of insertion of muscles.

The fact that some 226 cattle out of a herd of 613 died on Mr. Macoun's farm in just 9 months warranted a much more intensive veterinary investigation than appeared to have occurred. No evidence has been produced that fugutive dust from the North Parkes mine was the cause of the problem and in fact, evidence to the contrary was produced. The most common source of potential toxicity problems for animals in poor nutritional condition given supplementary feeding, is the supplementary feed itself. While a number of possibilities are suggested by way of examples, the mineral component is the most likely source of this particular problem. There is evidence that there was opportunity for excessive dietary fluoride exposure and lesions of osteofluorosis could well have been identified. The form of the fluoride and its potential toxicity would determine if this could have accounted for the more acute forms of the disease which occurred as postulated by Dr. Bourke. A survey of the existing herd for indications of dental fluorosis is warranted as are further surveys of urinary fluoride levels in animals with any indication of osteofluorosis. The most likely site of such lesions is the proximal, medial aspect of the metatarsus.

Yours sincerely,

Alan Seawright

Alan A. Seawright
Professor of Toxicology

EXISTING AND PROPOSED SITE COMPONENTS AND ACTIVITIES AT NORTHPARKES MINES

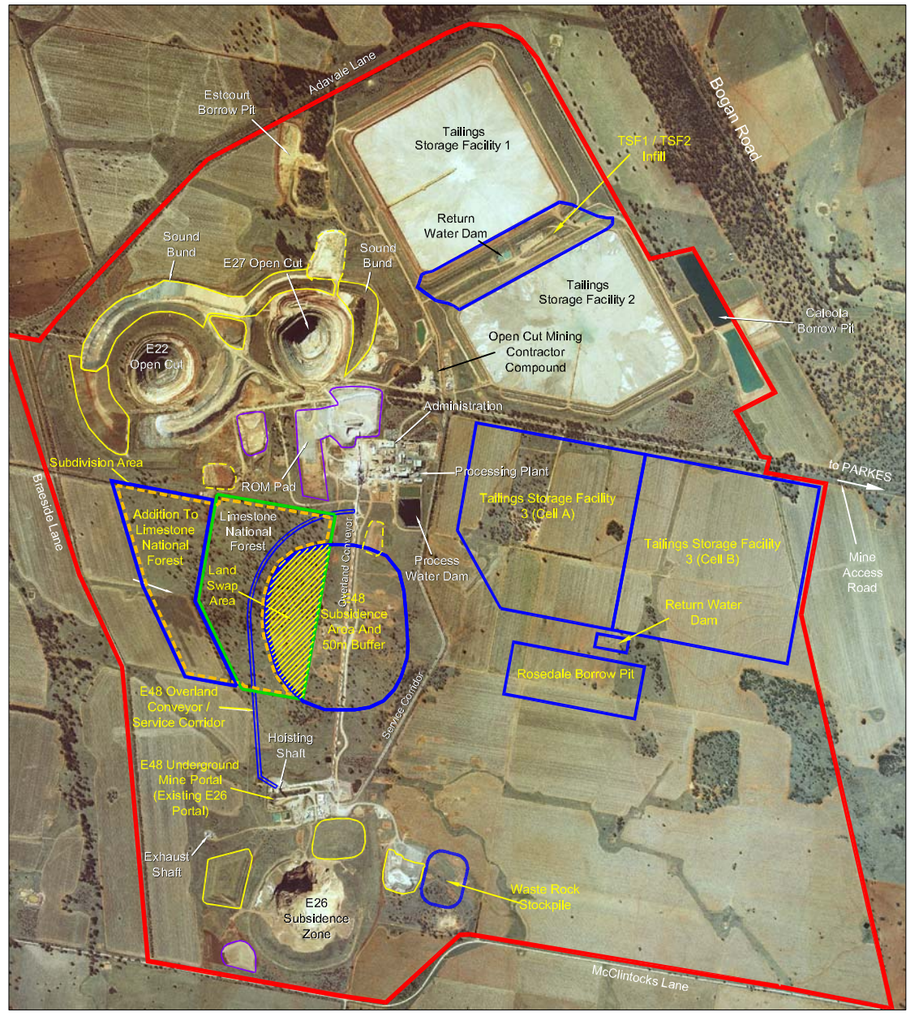
Existing Site Components and Activities (to continue for the remainder of the mine life)

- E26 Underground Mine, associated subsidence zone and waste rock / clay dumps.
- E26 Underground Mine Portal, Hoisting Shaft and Exhaust Fan.
- E26 Underground Mine Surface Infrastructure and Services (see Figure B10 for details).
- Overland Conveyor and E26 Service Road.
- Processing Plant and Rill Tower Stockpile (for underground ore) and ROM Pad (for open cut ore).
- Tailings Storage Facilities 1 and 2 and Return Water Dam.
- Administration and Training Buildings, Car Parks and various infrastructure and services.
- Process Water Dam, Caloola and Estcourt Borrow Pits and Water Storages.
- Various open cut waste rock / clay stockpiles and dumps.
- Mine Access Road and various internal roads and tracks.
- E22 Open Cut Mine (continued mining envisaged - and subsequent tailings disposal - approved for tailings disposal).
- E27 Open Cut Mine (mining completed - used for water storage and approved for tailings disposal).
- Various components for equipment storage and maintenance.
- Sound Bund and numerous tree lots (see Figure B12).
- Various ancillary components and activities to the above components.

Proposed E48 Project Components and Activities

- E48 Underground Mine, associated subsidence zone and waste rock stockpile.
- E48 Underground Mine Portal (Existing E26 Mine Portal).
- E48 Underground Mine Surface Infrastructure and Services (same as for E26).
- E48 Overland Conveyor / Service Corridor.
- Tailings Storage Facility 3 (Cells A and B) and Return Water Dam.
- Infill between Tailings Storage Facilities 1 and 2.
- Rosedale Borrow Pit.
- Various internal roads and tracks.
- A 45ha addition to Limestone National Forest.
- Various ancillary components and activities to the above components.

\\SERVER\RWC\651\CAD\651Base_F1 Components.DWG



REFERENCE
- Project Site Boundary
- E48 Project Component
- Limestone National Forest - Existing
- Limestone National Forest - Proposed
- Area Removed from the Existing Limestone National Forest
- Ore and/or Marginal Ore Stockpile
- Waste Rock / Clay Dump
- Clay Stockpile

SCALE 1:40 000

0.5 0 0.5 1.0 1.5 2.0 km

Base Photo Source: Hatch - Date of Photograph: 31 March 2005

Figure F1
EXISTING AND PROPOSED SITE COMPONENTS AND ACTIVITIES

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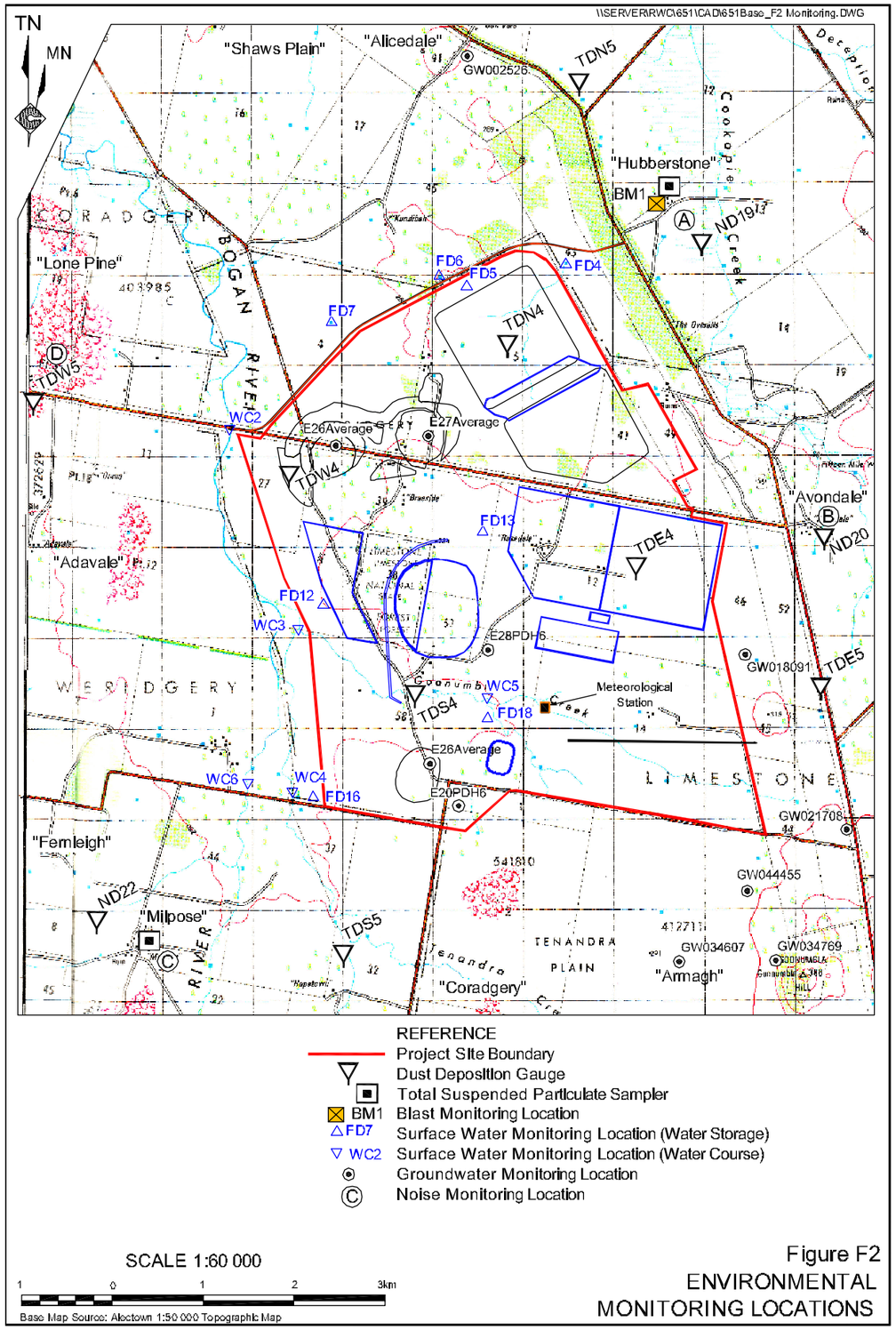
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TN
MN
"Shaws Plain"
"Alicedale"
GW002526
TDN5
"Hubberstone"
BM1
ND19
Cookopie Creek
CORADGERY
BOGAN RIVER
"Lone Pine"
FD6
FD5
FD4
FD7
TDN4
TDW5
WC2
E26Average
E27Average
TDW4
"Avondale"
ND20
FD13
TDE4
"Adavale"
FD12
WC3
E28PDH6
GW018091
TDE5
WERIDGERY
Goonumbla
WC5
FD18
TDS4
Meteorological Station
E26Average
WC6
WC4
FD16
E20PDH6
LIMESTONE
GW021708
"Fernleigh"
GW044455
ND22
"Milpose"
TDS5
TENANDRA PLAIN
GW034607
GW034769
"Coradgery"
"Armagh"
REFERENCE
Project Site Boundary
Dust Deposition Gauge
Total Suspended Particulate Sampler
BM1 Blast Monitoring Location
FD7 Surface Water Monitoring Location (Water Storage)
WC2 Surface Water Monitoring Location (Water Course)
Groundwater Monitoring Location
Noise Monitoring Location
SCALE 1:60 000
1 0 1 2 3km
Base Map Source: Alectown 1:50 000 Topographic Map
Figure F2
ENVIRONMENTAL
MONITORING LOCATIONS