

Appendix 3

Noise Assessment

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21 December 2009

Ref: 04098/3379

Mr Steve Peart
Moolarben Coal Operations Pty Ltd
4250 Ulan Road
ULAN NSW 2850

RE: NORTHERN BOREFIELD NOISE ASSESSMENT

This letter presents the results of an assessment of potential noise impacts from the proposed layout of de-watering pumps for the MCO Northern Borefield. Figure 1 shows components in the northern section of the borefield (yellow) and the nearest potentially impacts receivers (blue).

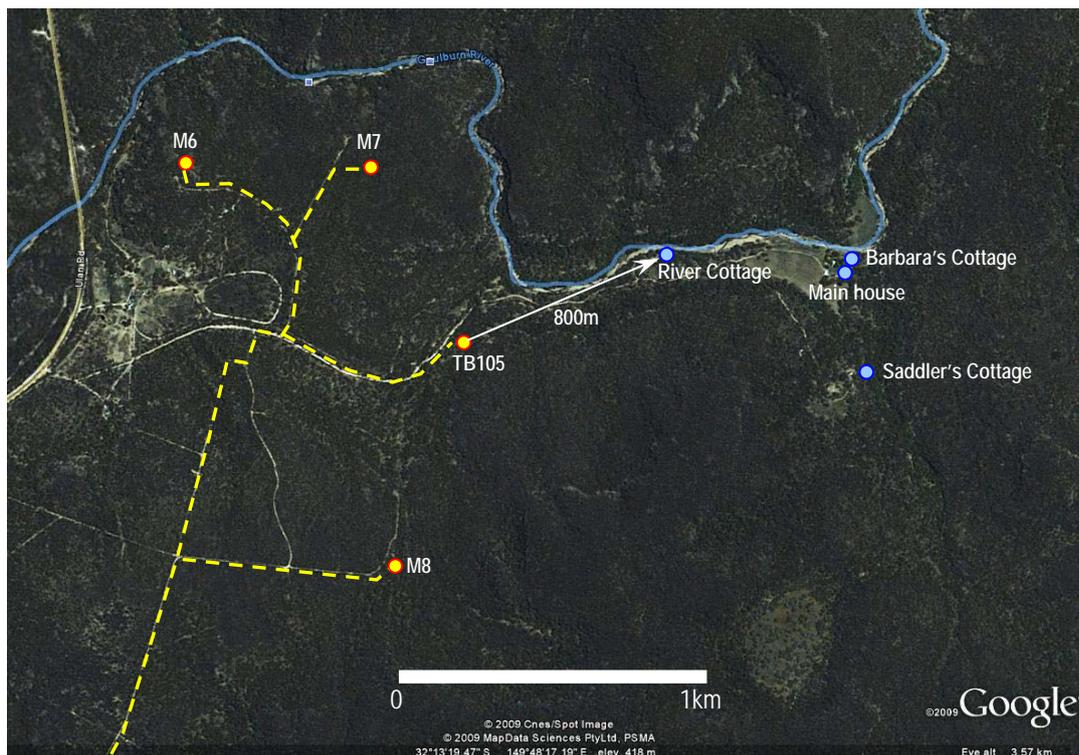


Figure 1. Borefield noise sources and nearest receivers (source: Google Earth)

Submersible bore pumps at each site in Figure 1 will be below ground level and will not present a noise problem. Above ground transfer pumps will each have a sound power level of up to 90 dB(A), based on the power of electric drive motors in the hydraulic consultants' report, which requires assessment.

The nearest receivers are associated with the Goulburn River Stone Cottages eco-tourism destination as illustrated in Figure 1. Based on hand calculations using accepted algorithms for distance and barrier losses, a cumulative noise level of 22 dB(A) has been predicted at River Cottage under neutral conditions, with levels <15 dB(A) predicted at the more distant receivers. The dominant noise source is TB105 due to its proximity and elevation (almost line-of-sight to River cottage).

A 12 dB increase could occur under inversions or light westerly wind conditions, resulting in 34 dB(A) at River Cottage. This is below the MCO operational noise criterion of 35 dB(A) but would be audible to guests at River cottage.

The proposed 20kl water storage tank at each site would measure approximately 4.4m wide by 3.5m high. In the interests of minimising noise levels at Goulburn River Stone Cottages, the tanks may be used as noise barriers. A barrier insertion loss calculation suggests that if the transfer pump at TB105 was located adjacent to, and to the west of, the water storage tank, the cumulative worst case noise level at River Cottage would be reduced from 34 dB(A) to 26 dB(A). This level of bland, non-tonal pump noise would generally not be audible.

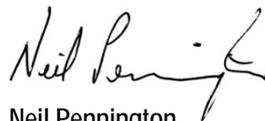
In summary, the worst case noise level from the borefield pumps is expected to be marginally below the MCO noise criterion of 35 dB(A) at the nearest receiver. It is recommended that the above ground water tank at TB105 be positioned as a noise barrier to reduce worst case levels to a virtually inaudible 26 dB(A) at this receiver.

We trust this letter fulfils your requirements at this time, however, should you require additional information or assistance please contact the undersigned on 4954 2276 or 0409 181888.

Yours faithfully,

SPECTRUM ACOUSTICS PTY LIMITED

Author:



Neil Pennington
Acoustical Consultant

Appendix 4

Erosion and Sediment Control Plan

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Erosion and Sediment Control Plan

Installation of Dewatering Pipeline, Moolarben Coal Mine

On Behalf of Moolarben Coal Pty Ltd

structural engineering
project management
residential design
civil engineering
registered surveyors
commercial design
geotechnical engineering
town planning
graphic representations
environmental drilling
construction management
mechanical engineering
industrial design
environmental consulting
nata accredited
testing laboratory
electrical engineering
interior design



Dubbo . Mudgee . Bathurst . Parkes

Feb-10
(Our Reference: 14057-E01a.doc)

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1.0 INTRODUCTION

1.1 Project Background

Barnson was engaged by Moolarben Coal Pty Ltd to prepare an Erosion and Sediment Control Plan for the installation of approximately 10km of above-ground pipeline at the Moolarben Coal Mine, Ulan, NSW. The pipeline is being installed for the purposes of dewatering for long wall mining at the site.

The pipeline will be installed in conjunction with overhead powerlines, which require a 20m clear zone consisting of 10m of clear zone each side of the line. The pipeline will be installed within the clear zone of the powerline to minimise disturbance to the site.

This erosion and sediment control plan must be read in conjunction with Drawings 14057-E01 to E07 and 14057-C01. Refer Appendix A for Drawings. Control measures outlined in this document have been designed to minimise damage caused by erosion and sedimentation during and after construction of the pipeline.

1.2 Limitations

This plan has been prepared based on information available to Barnson at the time. The plan has been prepared based on survey data provided, although ground truthing has not been undertaken by Barnson Pty Ltd. The plan assumes that no watercourses will be disturbed by the pipeline. If watercourses will be disturbed, further measures will need to be implemented to protect the water resources.

3.0 PROJECT BACKGROUND

3.1 Details

Table 1: Asset Owner Details

Contact Details	
Asset Owner	Moolarben Coal Pty Ltd
Contact Person	Mr Jim McGeachie, Design Project Manager
Address	Locked Bag 2003, Mudgee NSW 2850
Telephone	(02) 6373 4860

3.2 Project Description

The proposal involves clearing a 20m wide tract to install approximately 10km of overhead powerlines and above-ground dewatering pipeline to service Moolarben Coal Mine. The route has been determined by Moolarben coal following environmental assessment carried out by others.

Following clearing, all activities will occur within the easement; therefore this ESCP pertains only to the easement.

5.0 EROSION & SEDIMENT CONTROL ROLES AND RESPONSIBILITIES

5.1 Project Manager

The Project Manager is responsible for overseeing erosion and sediment control during the project, and must ensure the following:

- Best practise environmental procedures are followed at all times;
- This ESCP is followed and complied with at all times;
- Other site staff and contractors understand their obligations and responsibilities under this plan;
- Site inductions/briefings are provided to all staff/site visitors and contractors;
- Job Safety Analyses (JSAs) are completed prior to onsite works commencing. JSAs not only detail physical OH&S issues, but the handling of materials and works that could impact erosion and sediment control;
- All staff and contractors fully understand their obligations under this plan and are held accountable for the environment during the project;
- Erosion and Sediment Control devices and practices are regularly monitored and reviewed to ensure devices are maintained and operating to full capacity, and further measures are taken immediately if required;
- Erosion and sedimentation incidents are promptly reported, investigated and appropriate mitigation strategies are implemented to prevent further damage of the possibility of reoccurrence;
- All erosion and sediment control complaints and community liaison activities are recorded and handled within an acceptable time frame;
- Regularly inspect the site to assess the risk of any new erosion and sediment control risks;
- Records of installation, maintenance and removal of erosion and sediment control structures must be kept by the site manager.

5.2 Site Personnel

- Comply with the details set out in the ESCP;
- Ensure that activities are restricted to the designated easement, and further environmental harm is minimised;
- Report any erosion and sediment control incidents to the project manager;

6.0 EROSION & SEDIMENT CONTROL AWARENESS AND TRAINING

6.1 Site Induction

All Site Personnel must undertake a site induction where the requirements of this ESCP must be explained and discussed. Document copies are to be made available to all parties, and records are to be maintained in the Environment folder.

All contractors must receive a briefing in relation to the environmental expectations and obligations associated with the site. The expectations and controls outlined in this ESCP must be acknowledged and understood.

No specialist erosion and sediment control training has been identified for staff or contractors to undertake the tasks associated with this plan. Contractors engaged in the works will be supervised under agreed contractual arrangements and requirements of this ESCP and other environmental management documentation.

6.2 Community Consultation

In the event of an environmental complaint from the public being received in regards to erosion and sedimentation, the Project Manager must be advised. The project manager will investigate the grounds of the complaint and determine a subsequent course of action. All complaints, and any associated actions, must be recorded appropriately.

7.2 Meteorology

The Australian Bureau of Meteorology records indicate that Mudgee experiences a range of temperatures and weather conditions, with average summer highs of 31.7°C and average winter lows of 1.3°C. There is substantial potential variation in temperatures for the area. The average yearly rainfall for Mudgee is 674mm (BOM, 2009).

The subject site is not located within a high wind area, nor is it significantly susceptible to fog pockets. Rainfall patterns tend towards summer-dominant trends with higher rainfall recorded in the summer months. However it is noted that the winter months have a higher number of rainfall days, indicating that rain events in the summer months deposit more water than those in the winter months. Despite these observations, the variation in rainfall patterns between the summer and winter months is not significant. Therefore there is little apparent need to restrict the proposed works to a certain season.

This information is based on the long term average data sourced from site number 062021 (George Street, Mudgee). The site has been actively collecting rainfall data since 1870.

7.3 Water Resources

The proposed line will not cross any permanently flowing rivers, however given the undulating landscape, the line may cross gullies and drainage lines along its course. Suitable measures must be implemented to ensure erosion and sedimentation of drainage lines and receiving waterways does not occur.

7.4 Erosion Hazard

Erosion hazard has been assessed based on the methodology provided in The Blue Book (Landcom, 2004).

The following data has been used in the Erosion Hazard assessment:

- R-Factor (rainfall erosivity)
- Typical upper slope gradient

Rainfall erosivity data was gained from the maps provided in Appendix B of The Blue Book. An R-factor of 1500 has been adopted for the site. Gradient was calculated for the proposed pipeline in sections, due to a high variability in slope along the proposed line. The maximum gradient calculated for the line was 9%, in one section of the line between M9 and TB103. Based on this maximum gradient, and the adopted R-factor, the erosion hazard of the site is considered to be low, based on figure 4.6 in the Blue Book. The site therefore has low erosion hazard.

8.0 SITE PREPARATION

Site preparation will be undertaken to allow safe vehicle access to the site. Site preparation will include the following:

- Relocation of logs and fallen branches (including hollow-bearing logs) to adjacent areas that will not be disturbed during the project;
- Plants and branches to be removed should be mulched and spread, or if that is not economically viable, plants should be spread in nearby areas in an environmentally sensitive manner to maintain seed bank and provide harbour for ground-dwelling native animals;
- Unstable areas where vehicle access will occur should be suitably prepared and stabilised. This may include grading and/or compaction to minimise soil erosion; and
- Designated access areas should be identified and marked, including identification of any drainage line crossings that will be required.

8.1 Site Access Restrictions

All vehicle and machinery access is to remain within the 20m wide easement at all times. Vehicle movement outside the easement must be avoided to minimise impacts on adjoining habitat.

8.2 Stockpile Areas

Stockpile areas have not been nominated on this plan, and can be placed at the discretion of the site manager, providing the following rules are adhered to:

- Stockpile areas must be contained completely within the 20m wide easement;
- Stockpiles to be protected on the downslope side with sediment fencing;
- Stockpiles to be constructed as per details in The Blue Book.
- Long term stockpiles must be suitably stabilised (seeded) and protected by an upslope berm.

10.0 SITE REHABILITATION

The aim of rehabilitation within the easement following the line upgrade is to provide a landform in which natural processes can occur, whilst maintaining the easement in the knowledge that future vehicle access will be required for maintenance and upgrades of the line. With this in mind, it is not feasible to rehabilitate the site to a heavily vegetated state, as vegetation will only be removed in future years when maintenance of the line is required.

The strategies in this rehabilitation plan therefore aim to reach the optimum balance between environmental processes and functionality of the easement.

Rehabilitation will be undertaken once site works are complete. The following works will be undertaken to rehabilitate the easement:

- Stabilisation of soils, including repair of any badly eroded areas;
- Seeding with appropriate native grass and groundcover species, including (but not limited to) Kangaroo Grass *Themeda australis*, *Lomandra spp.* and other appropriate ground covers and grasses;
- Re-spreading of large rocks, fallen logs and branches and hollow logs (relocated during site preparation), to reinstaate cover and refuge for ground-dwelling animals, and to reduce soil erosion; and
- Removal of invasive weeds.

Planting of trees and shrubs is not recommended given that access to the easement will be required in future years to allow for maintenance of the line.

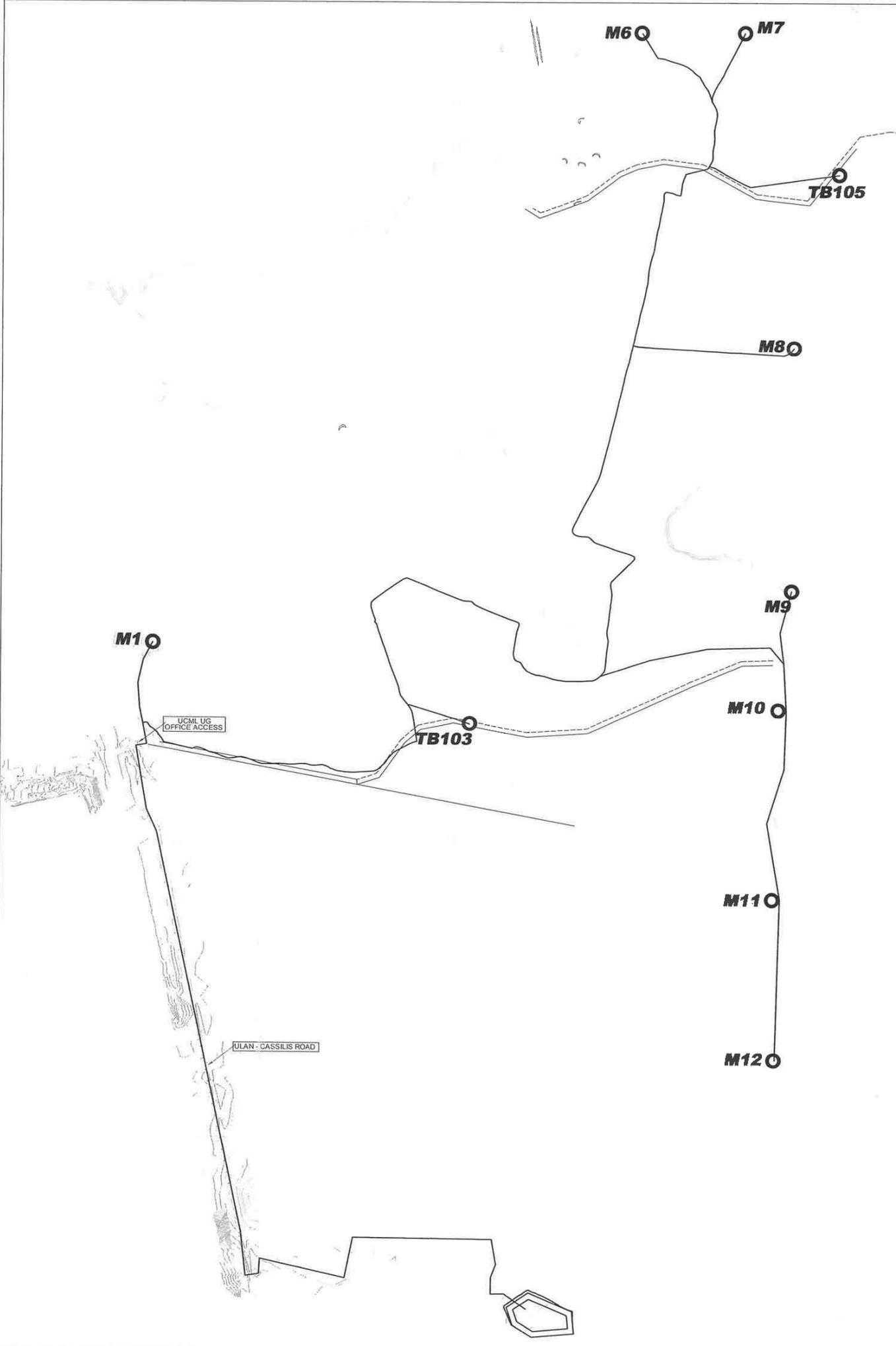
12.0 CONCLUSIONS

This Erosion & Sediment Control Plan has been prepared by Barnson Pty Ltd on behalf of Moolarben Coal Pty Ltd. The report relates to the construction of an approximate 10km easement for the installation of an overhead power line and an above-ground dewatering pipeline.

This plan is to be read in conjunction with the plans provided in Appendix A, and construction notes in Appendix C. Management recommendations within this report should be incorporated into the overall project planning for the easement to ensure that environmental values are not compromised by the impacts of erosion and sedimentation.



Appendix A - Site Plans



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Office Head Office
 Dubbo - Head Office

Projects
 DEWATERING PIPELINE
 MOOLARBEN COAL MINE,
 ULAN, NSW

Clients MOOLARBEN COAL PTY LTD

Drawing Title
 PROPOSED PIPE ALIGNMENT

Drawing Status
 Design LM
 Drawn LM
 Check R.N.
 QA R.N.

Rev	Date	Appr/Drawn	Appr/Drawn
G	20/11/09	PIPELINE ROUTE MARKED	R.N.
F	24/11/09	PIPELINE ROUTE MARKED	R.N.
E	23/11/09	PIPELINE ROUTE MARKED	R.N.
D	17/11/09	PIPELINE ROUTE MARKED	R.N.
C		ADDITIONAL PIPELINE	R.N.
B		ADDITIONAL PIPELINE	R.N.
A		PIPELINE MARKED	R.N.

Certification
 A1 - Original Issued - Scale as noted
 A2 - Information - Not to scale

Drawing Number
 14057-C01

Date

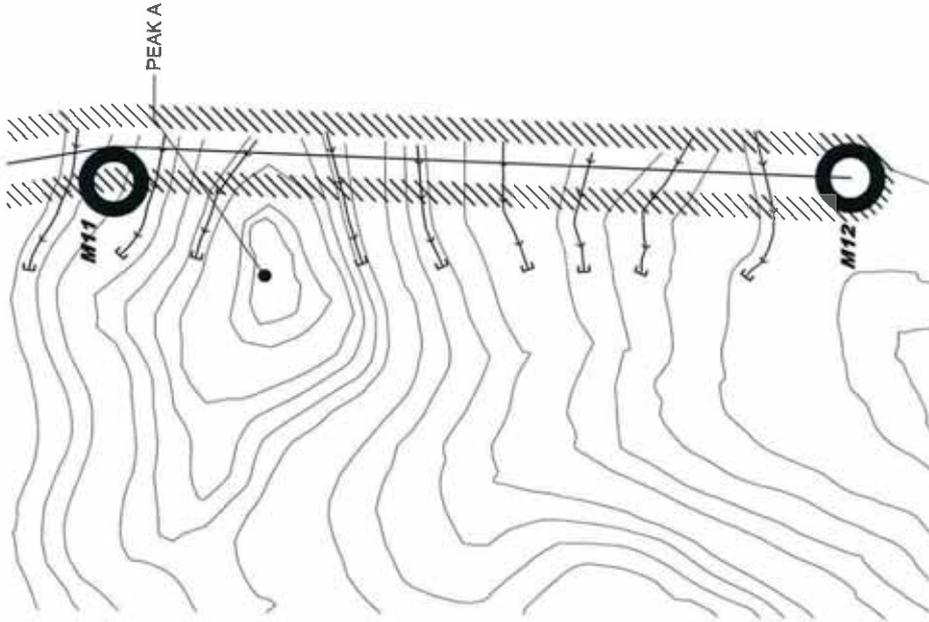


EROSION SEDIMENT CONTROL NOTES:

- 1) ALL EROSION AND SEDIMENT CONTROL STRUCTURES ARE TO BE INSTALLED PRIOR TO SITE DISTURBANCE.
- 2) ALL SEDIMENT CONTROL STRUCTURES TO BE INSPECTED & MAINTAINED BY THE SITE MANAGER AT LEAST WEEKLY IF STRUCTURES ARE TO BE REMOVED, THEY ARE TO BE REINSTALLED AND INSPECTED BY THE SITE MANAGER.
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- 8) NO STORAGE OF MATERIALS OR VEHICLE MOVEMENTS ARE TO OCCUR OUTSIDE THE SITE BOUNDARIES.
- 9) TEMPORARY EROSION CONTROL MEASURES ARE SHOWN IN THIS PLAN.

NOTE: THESE DRAWINGS TO BE READ IN CONJUNCTION WITH 14057-E01- EROSION & SEDIMENT CONTROL REPORT

NOTE: CONTOUR BANKS NOT SHOWN IN TRUE LOCATION. TO BE CONSTRUCTED AT 80m INTERVALS.

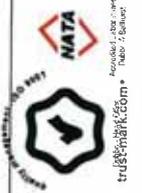


EROSION SEDIMENT CONTROL PLAN - SECTION A
SCALE 1:5000 @ A3

- LEGEND**
- VEGETATION BUFFER
 - LEVEL SPREADER
 - CONTOUR BANK & CHANNEL AT 80m INTERVALS

Offices Located
Dubbo, Sydney, Parkes & Bathurst

Contact Us
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e generalenquiries@barnson.com.au
w www.barnson.com.au



Client: MOOLARBEN COAL PTY LTD
Project: DEWATERING PIPELINE
MOOLARBEN COAL MINE,
ULAN, NSW

Drawing Title:
EROSION SEDIMENT CONTROL PLAN
SECTION A

Design AH MJ
Check RJM
Drawn MJ
QA RJM
Rev A
Date 2.02.2010
Amendment
Drawing Sheet A3, Scale: as noted

Certification

Drawing Number
14057-E01

Revision
A

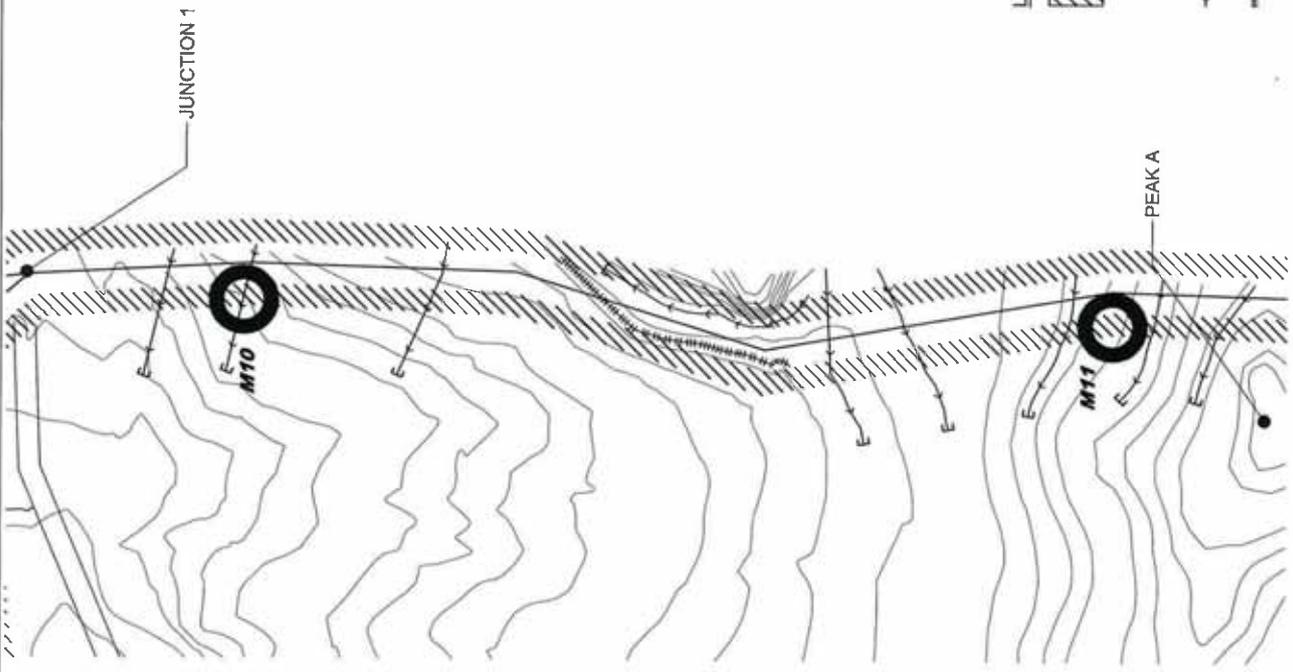


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NOTE: CONTOUR BANKS NOT SHOWN IN TRUE LOCATION. TO BE CONSTRUCTED AT 80m INTERVALS.



- LEGEND**
- VEGETATION BUFFER
 - LEVEL SPREADER
 - CONTOUR BANK & CHANNEL AT 80m INTERVALS
 - GRASSED SWALE

EROSION SEDIMENT CONTROL PLAN - SECTION B
SCALE 1:5000 @ A3

Offices Located Dubbo, Wagga, Parkes & Bathurst Contact Us t 1300 738 057 e generalenquiry@barnson.com.au w www.barnson.com.au		Client: MOOLARBEN COAL PTY LTD Project: DEWATERING PIPELINE MOOLARBEN COAL MINE, ULAN, NSW	Drawing Title: EROSION SEDIMENT CONTROL PLAN SECTION B	Design AH Check RUM Drawing Sheet A3 A3 Scales as shown	Drawn IU QA RUM	Rev Date Amendment	Certification	Revision A
								Drawing Number 14057-E02

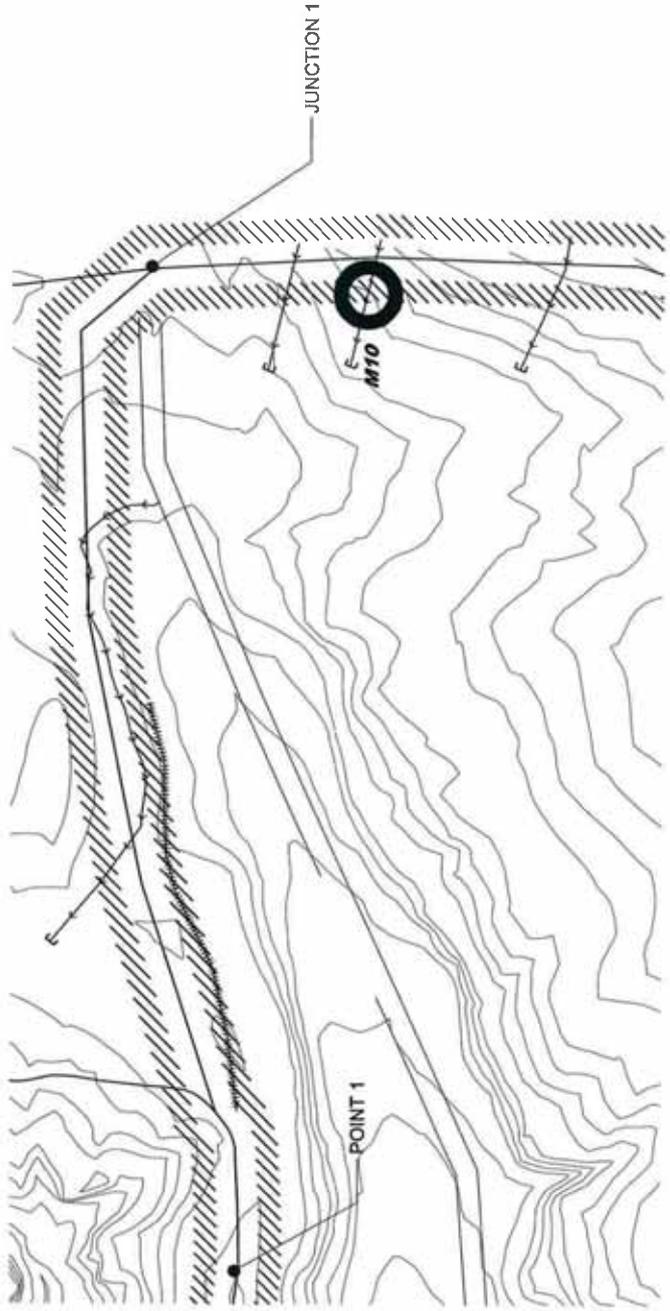


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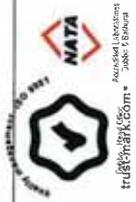
EROSION SEDIMENT CONTROL PLAN - SECTION C
SCALE 1:5000 @ A3

LEGEND

-  VEGETATION BUFFER
-  M10
-  LEVEL SPREADER
-  CONTOUR BANK & CHANNEL AT 80m INTERVALS
-  GRASSED SWALE



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Client: MOOLARBEN COAL PTY LTD
Project: DEWATERING PIPELINE
MOOLARBEN COAL MINE,
ULAM, NSW

Drawing Title:
EROSION SEDIMENT CONTROL PLAN
SECTION C

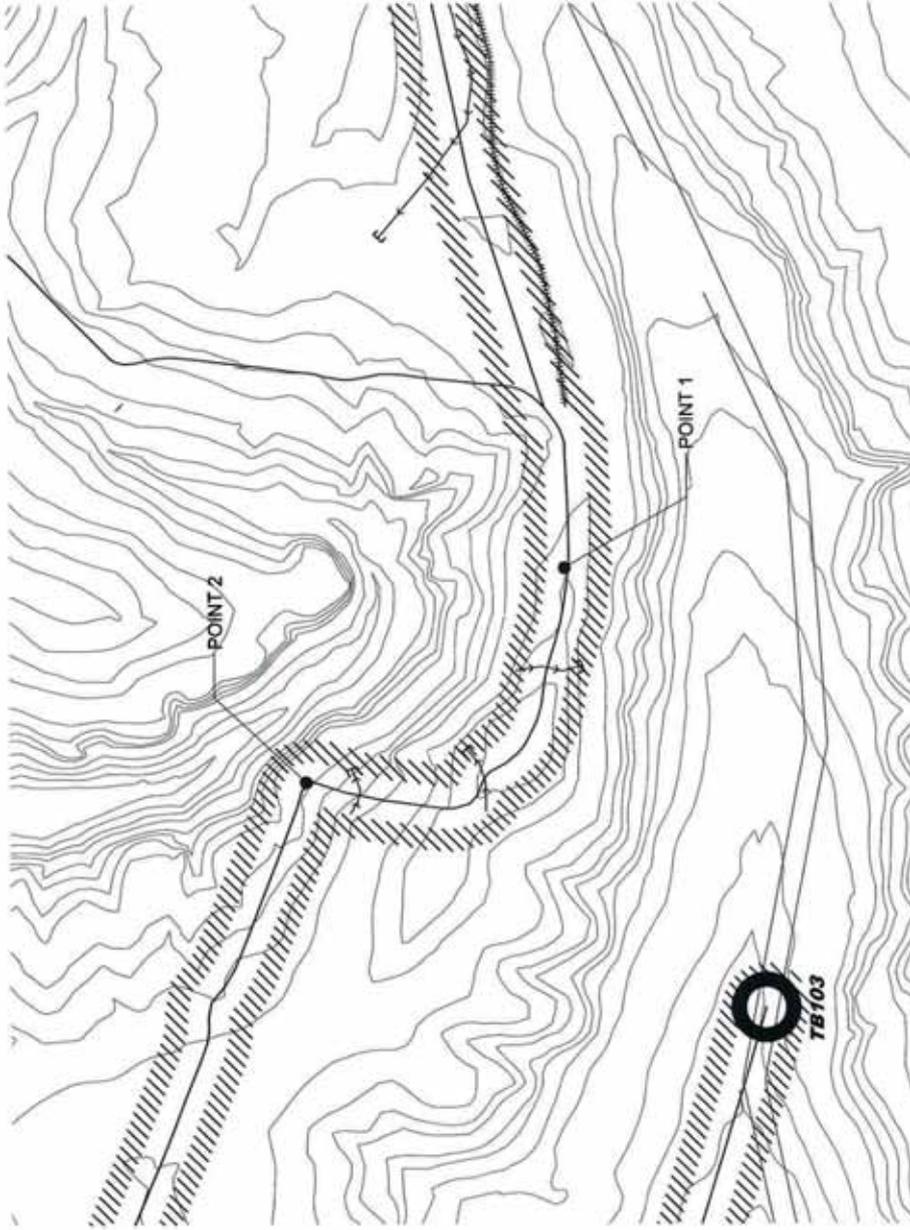
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Check	QA				
RJM	RJR	A	1.02.2010		
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EROSION SEDIMENT CONTROL NOTES:

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EROSION SEDIMENT CONTROL PLAN - SECTION D
SCALE 1:5000 @ A3

LEGEND



VEGETATION BUFFER



LEVEL SPREADER



CONTOUR BANK & CHANNEL AT 80m INTERVALS

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Client: MOOLARBEN COAL PTY LTD
Project: DEWATERING PIPELINE
MOOLARBEN COAL MINE,
ULAH, NSW

Drawing Title:
EROSION SEDIMENT CONTROL PLAN
SECTION D

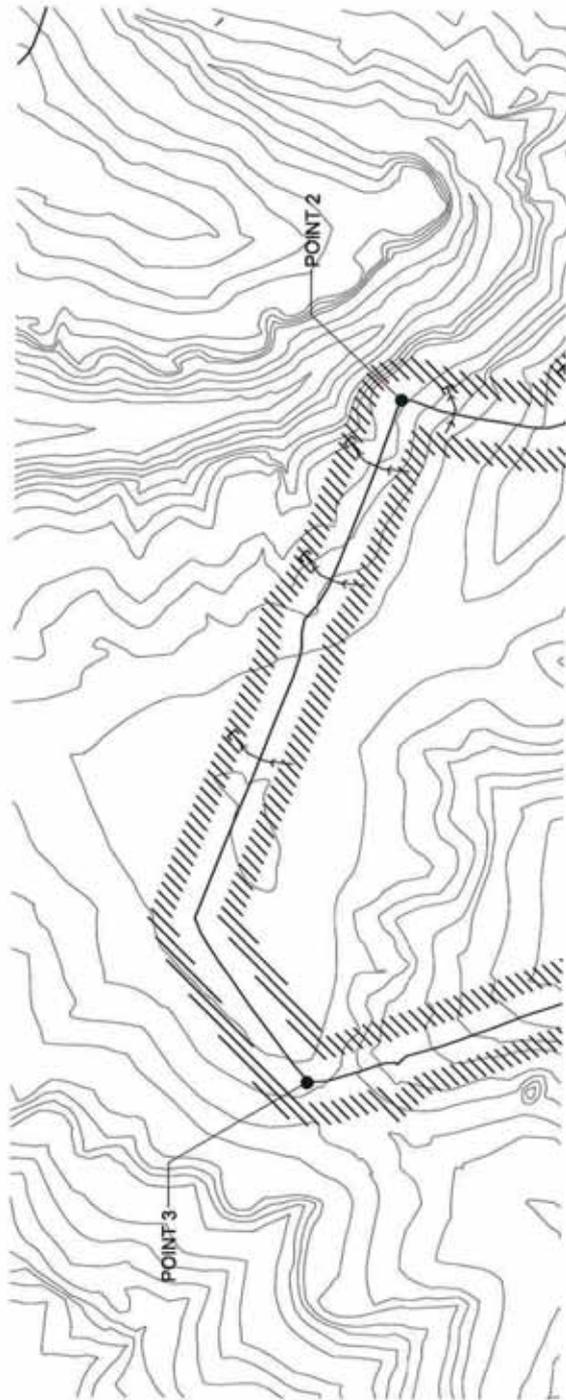
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AH	MJ				
Check	QA				
RAJ	RJN	A	2/02/2010		
Drawing Sheet					Drawing Number
A3, Scale as noted					14057-E04

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- 6) THE SITE MANAGER IS TO INFORM ALL CONTRACTORS OF THEIR OBLIGATIONS UNDER THIS PLAN.
- 7) STOCKPILES OF ERODIBLE BUILDING MATERIALS INCLUDING SAND & SOIL MUST BE LOCATED WITHIN THE DESIGNATED MATERIAL STOCKPILE AREA (MSA) AS SPECIFIED BY THE SITE MANAGER AND PROTECTED WITH SEDIMENT FENCE OR STRAW BALE SEDIMENT FILTERS. THE SITE MANAGER MAY NOMINATE FURTHER STORAGE AREAS WITHIN THE SITE.
- 8) NO STORAGE OF MATERIALS OR VEHICLE MOVEMENTS ARE TO OCCUR OUTSIDE THE SITE BOUNDARIES.
- 9) TEMPORARY EROSION CONTROL MEASURES ARE SHOWN IN THIS PLAN.

NOTE: THESE DRAWINGS TO BE READ IN CONJUNCTION WITH 14057-E01- EROSION & SEDIMENT CONTROL REPORT

NOTE: CONTOUR BANKS NOT SHOWN IN TRUE LOCATION. TO BE CONSTRUCTED AT 80m INTERVALS.



EROSION SEDIMENT CONTROL PLAN - SECTION E
SCALE 1:5000 @ A3

- LEGEND**
-  VEGETATION BUFFER
 -  LEVEL SPREADER
 -  CONTOUR BANK & CHANNEL AT 80m INTERVALS

Appendix B - Construction Notes

