


RESPONSE TO SUBMISSIONS

Section 75W Modification Application
Moolarben Coal Project – Stage 1
(05_0117 MOD 7)
Northern Borefield

June 2010

Section 75W Modification Application
Moolarben Coal Project Stage 1 – MOD 7

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1. INTRODUCTION

On 5 March 2010, Moolarben Coal Mines Pty Limited (MCM) lodged an application to modify its existing project approval (05_0117) for Stage 1 of the Moolarben Coal Project, under Section 75W of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The modification application (05_0117 MOD 7) seeks to enable the construction of surface infrastructure associated with the development of a water supply and dewatering borefield, located in the area above the underground no 4 mine (UG 4), the northern borefield.

This report has been compiled to provide a response to the issues raised in submissions on the modification application. It also describes changes to the borefield layout which have been made to address concerns raised in submissions. These changes further reduce the impacts associated with the construction and operation of the borefield.

2. REVISED BOREFIELD LAYOUT

After careful review of the issues raised in submissions on the modification application, MCM has revised the borefield layout to reduce the extent of impacts associated with the construction and operation of the borefield. These changes include:

- Burying the pipelines and power supply cabling in a common trench.
- Reducing the width of the infrastructure easement from 20 m to 10 m.
- Removing above ground storage tanks.
- Removing transfer pumps.
- Reducing cleared areas around bore head works.
- Using a single generator to provide power to the borefield.
- Adjusting the pipeline route to further reduce clearing and ground disturbance impacts.

This will reduce the total amount of land disturbance and vegetation clearing; eliminate potential borefield noise emissions at privately-owned properties; and reduce the visual impact of borefield surface works. A more detailed description of the revised borefield layout follows:

2.1 Description of Borefield Layout

The borefield will generally comprise:

- Ten groundwater bores, bore pads and submersible bore pumps.
- About 10.4 km of inter-connecting pipelines and powerlines (previously 12 km).
- About 12 km of access tracks.
- Power supply switching gear at pipeline junctions.
- One power supply generator.

Pipelines and powerlines will be buried in a common trench up to 1 m wide, within a 10 m wide infrastructure easement. The easement will generally be established along existing cleared or disturbed areas (generally comprising unsealed roads and 4WD tracks) to minimise vegetation clearing and land disturbance. The general layout of the borefield is shown in Figure 1.

2.1.1 Groundwater Bores

Ten groundwater bores (M1, M6 to M12, TB103 and TB105) will be developed in the general locations indicated in Figure 1. This includes two existing test bores (i.e., TB103 and TB105, drilled during the Stage 1 groundwater assessment) and eight new bores, which will be developed into production and dewatering bores. The bores will be equipped with a submersible pump, which will deliver the extracted groundwater through the discharge pipe directly to the pipeline network.

A cleared area of about 11 x 15 m (i.e., 0.017 ha) (previously 20 x 27 m) will be established at each bore location. The cleared and levelled pad areas will be covered with an inert compacted road base material. A 3 x 5 m concrete slab will be established within the centre of each cleared bore pad. The concrete slab will contain the bore head works, a discharge pipe connected to the pipeline network, switch gear (automated valve and power switch), control cabinet and transformer (where required, indicatively M1, M8, M11, TB103 and TB105). The height of the control panel will be generally less than 2 m. The cleared pad areas will provide access for construction and maintenance and infrastructure protection in the event of fire.

Initially it is proposed to develop bores TB103, M9, M10, M11 and M12 (Figure 1). The remaining bores will be developed on an as needed basis, depending on water supply requirements in future years. Each bore will be pumped on an as needed basis.

2.1.2 Pipeline Network

About 10.4 km of pipeline (previously 12 km) will be established to transfer extracted groundwater directly from the bores to a water storage dam within the mine infrastructure area (Figure 1 and Figure 2). The pipeline will be constructed of high density polyethylene (HDPE) piping (90 to 250 mm in diameter), typical of that used for water supply and conveyance at other NSW coal mines.

The pipeline will be buried in a trench up to about 1 m wide and 1 m deep, and will only surface at each bore pad. The pipeline trench will be excavated using a backhoe or trench digger. Excavated spoil will be placed alongside the trench and used to backfill the void once the pipeline is laid. The disturbance footprint is expected to be about 5 m wide, sufficient to allow excavation and temporary placement of spoil, pipe lay-down, joint welding and construction and erosion and sediment control works. Once the pipe segments are welded and positioned in the trench, the trench will be backfilled and disturbed areas not required for ongoing access and maintenance will be rehabilitated. The completed pipeline will be pressure tested to ensure it meets relevant design and construction standards.

The borefield pipeline will report to an existing water transfer pipeline located within the road reserve on the western side of Ulan-Cassilis Road, south of and adjacent to the Ulan Underground Coal Mine access road (Figure 1). This existing pipeline was developed as part of an earlier modification to the Stage 1 approval (05_0117 MOD 5) (Coffey, 2009), which was made to facilitate water sharing with the Ulan Coal Mine and in anticipation of future borefield development needs.

To connect the northern borefield to the existing water sharing pipeline, a section of pipeline will be constructed under the Ulan-Cassilis Road. A horizontal boring rig will be used to under bore Ulan-Cassilis Road and the pipeline will be installed in a conduit minimising the surface disturbance and traffic disruption.

Pressure sensors and flow meters will be fitted at each bore and pipeline junction to enable detection and isolation of pipeline leaks. The pressure sensors and flow meters will be monitored remotely via a fibre optic cable buried in the pipeline trench.

The pipeline network has been designed to minimise pump duties and energy consumption.

2.1.3 Power Supply

Power to the borefield will be supplied by a single generator located to the east of Ulan-Cassilis Road and adjacent to the Ulan Underground Coal Mine access road. The generator site is located over 4 km from surrounding private land owners. The generator and fuel supply will be fully bunded and sited within a cleared area of about 15 x 15 m, which will be covered with an inert compacted road base material. The approximate location for the generator is shown in Figure 1.

Power will be delivered to each bore and pipeline junction switch gear via a high voltage cable, which will be buried within the pipeline trench. About six transformers will be located at strategic bore and pipeline junction locations. The indicative location for transformers is shown in Figure 2

Switch gear at pipeline junctions will be located within a cleared area of about 11 x 15 m (i.e., 0.017 ha). The cleared and levelled areas will be covered with an inert compacted road base material. A 3 x 2 m concrete slab will be established within the centre of the cleared area. The

concrete slab will contain the switch gear control cabinet and where required a transformer (Figure 2). The cleared pad areas will provide access for construction and maintenance and infrastructure protection in the event of fire.

In time, the generator may be replaced by a direct connection to an existing 22 kV powerline located within the road reserve on the western side of Ulan-Cassilis Road. The take off point will be in the vicinity of the junction of the Ulan Underground Coal Mine access road with Ulan-Cassilis Road, opposite the borefield pipeline and access track entry point and may require a second conduit to be established by the horizontal boring rig beneath Ulan-Cassilis Road.

2.1.4 Infrastructure Easement and Access Tracks

The pipeline, powerline and borefield access tracks will be established within a 10 m wide infrastructure easement (previously 20 m). The pipeline, powerline and fibre optic control cable (for pumps and switch gear) will be located in a single trench generally positioned alongside the pipeline access track. A typical configuration for the infrastructure easement is shown in Figure 3.

A 2 km segment of the pipeline route in the vicinity of bore TB103 has now been replaced with a more direct 800 m long segment. The infrastructure easement along this re-aligned section will be restricted to no more than 5 m in width, sufficient to enable the construction of the trench and to provide adequate erosion and sediment control. The final route of this pipeline segment will be positioned to avoid clearing mature trees. Long-term vehicle access to TB103 will be provided by existing tracks.

Ground disturbance will be kept to a minimum other than in areas requiring complete vegetation removal (i.e., access tracks, pipeline trench and bore, switch gear and generator pads). With the exception of the 800 m long segment in the vicinity of bore TB103, the borefield layout and infrastructure easement route (Figure 1) have been designed to take advantage of existing vehicle tracks (generally 3m wide) and cleared areas. This will minimise the amount of land disturbance and vegetation clearing required to construct the borefield pipeline network. It will also reduce the impacts on local biodiversity, EEC and Aboriginal cultural heritage values from that described in the modification application EA (Coffey, 2010).

Changes in design of the infrastructure easement have resulted in a reduction of the disturbance footprint from about 24 ha to about 10.3 ha. The disturbance footprint is made up of the following:

- Existing cleared tracks, secondary grasslands and shrublands – 3.5 ha.
- Non-EEC native vegetation – 6.3 ha.
- Blakely's Redgum - Yellow Box - Rough-barked Apple grassy woodland (EEC) – 0.5 ha.

2.2 Borefield Construction

Construction of the borefield will require:

- Backhoe or trench digger – to establish pipeline trench.
- Up to two dozers – to establish bore, switch and generator pads and easement.
- A drilling rig and support vehicle – to develop and complete the bores.
- A horizontal boring rig – to construct the pipeline under the Ulan-Cassilis Road.
- Delivery trucks – to bring pumps, piping, cabling, generator, concrete, etc to site.
- Light vehicles – to transport supplies and construction workers.

Construction of the borefield will be carried out generally between the hours of 7am and 6pm, Monday to Friday. No construction will be carried out on weekends or public holidays.

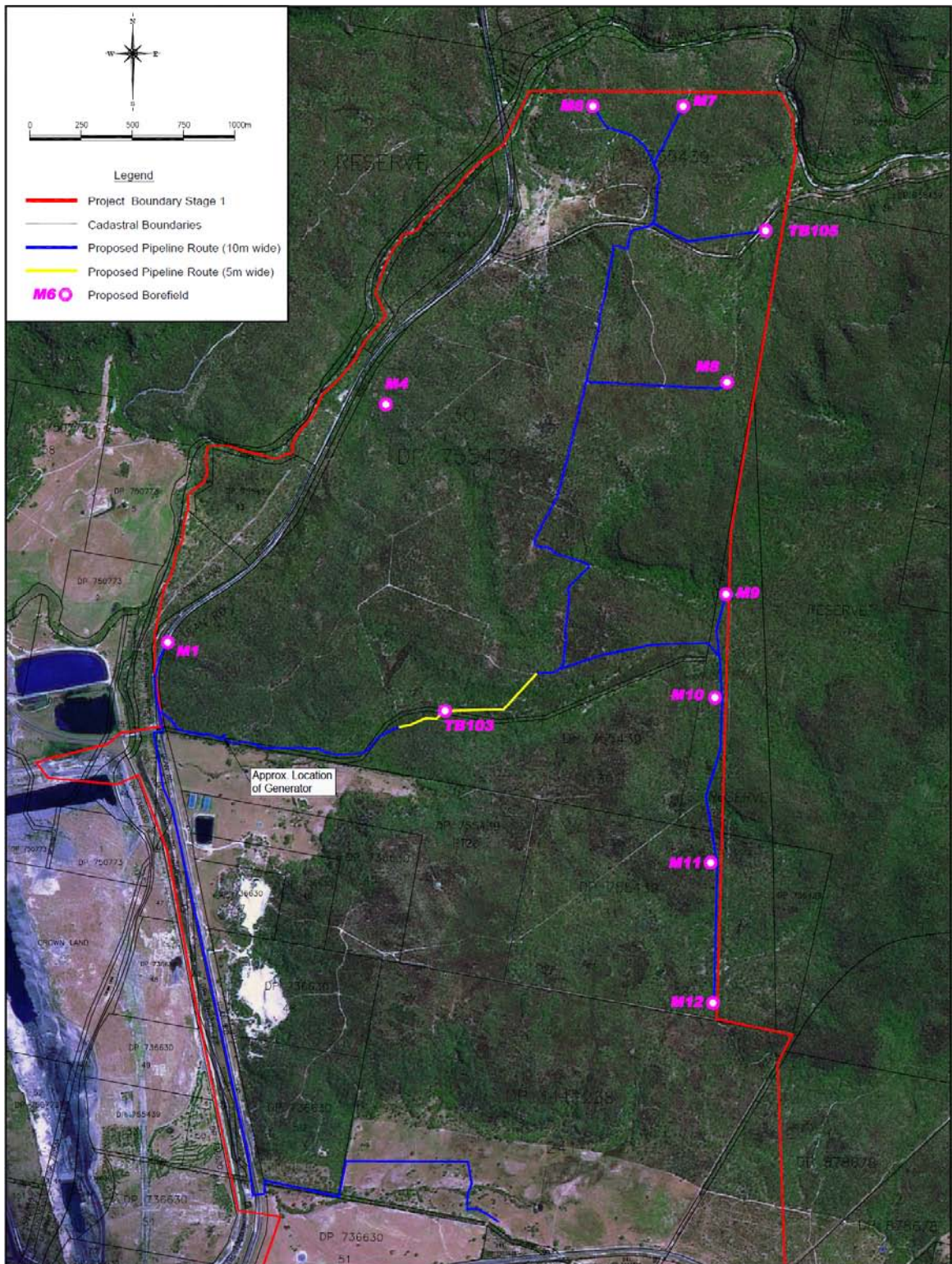


Figure 1 General borefield layout

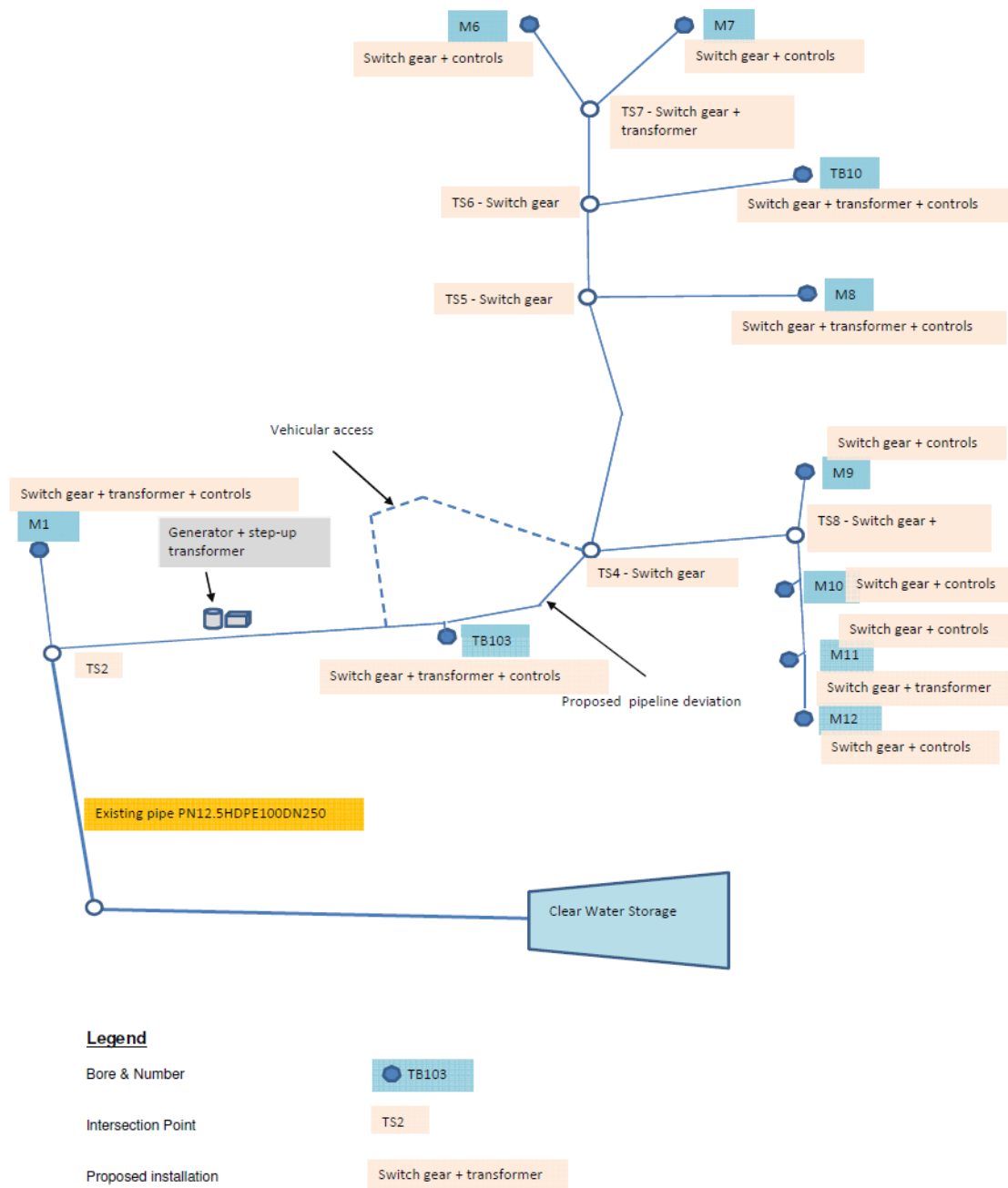


Figure 2 Pipeline network schematic layout

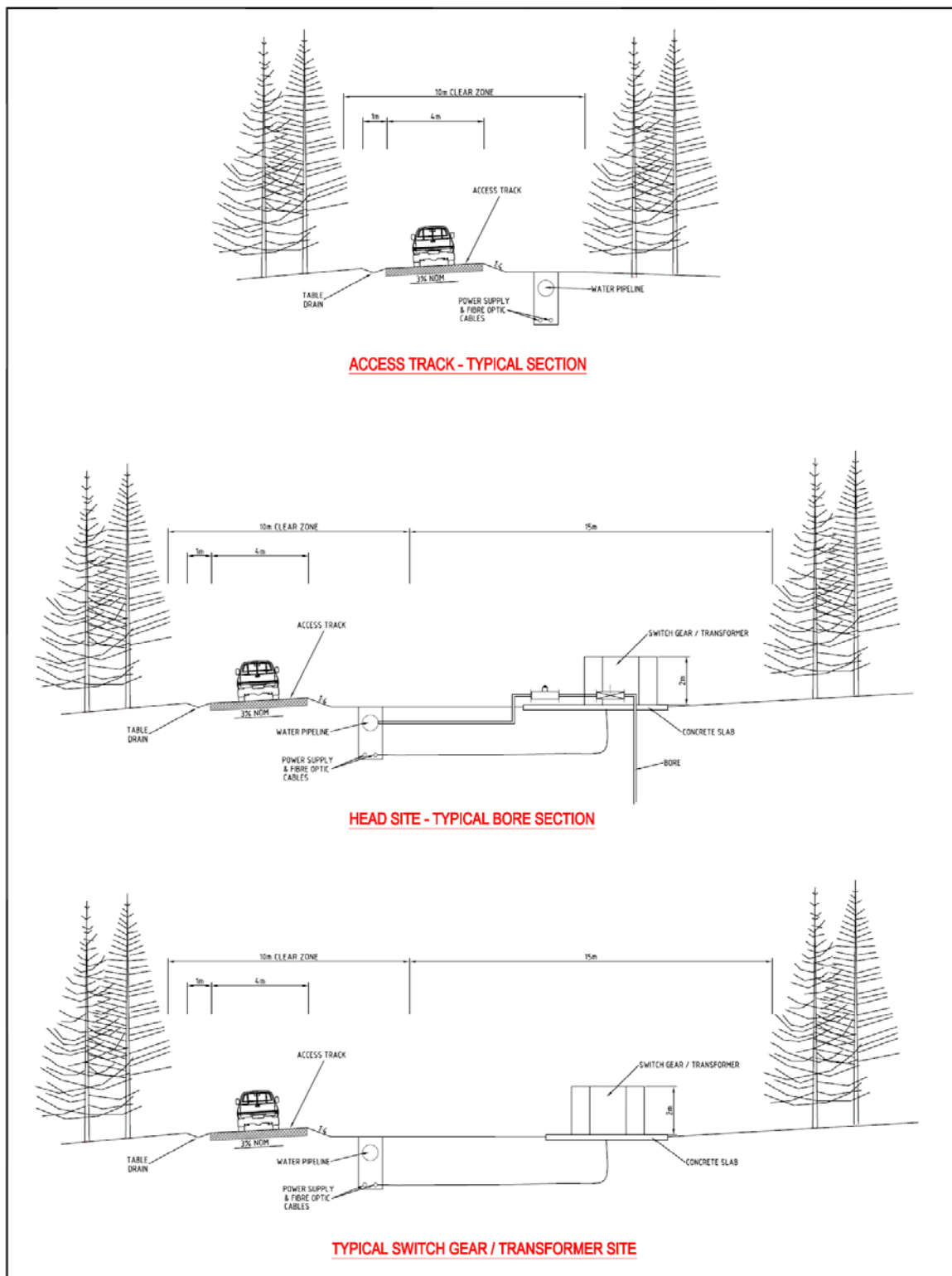


Figure 3 Indicative sections – infrastructure easement, bore and switch gear pads

3. REVISED IMPACTS AND MITIGATION

A comparison of potential construction and operational impacts between the originally proposed (i.e., as described in the EA to support the modification application) and revised borefield (i.e., as described in Section 2 above) layouts is summarised in Table 1. This table also summarises the measures that MCM will implement to manage and mitigate the potential impacts of the revised borefield layout.

Table 1 Revised borefield impacts and management and mitigation measures

Environmental / Amenity Descriptor	EA described borefield – activity and potential impacts	Revised borefield – activity and potential impacts	Environmental management and mitigation measures to be implemented for the revised borefield
<p>Biodiversity</p>	<p>The borefield disturbance footprint consists of:</p> <ul style="list-style-type: none"> • 0.54 ha for bore pads (10 x 0.054 ha bore pads); and • Approximately 24 ha for an infrastructure easement (20 m wide x 12 km long easement including 4 m wide unsealed access track, 1 m wide table drain and 2 m wide pipeline and powerline alignment). <p>This requires:</p> <ul style="list-style-type: none"> • Disturbing (slashing, thinning or clearing) about 0.5 ha of Blakely's Redgum - Yellow Box - Rough-barked Apple grassy woodland (EEC). • Disturbing (slashing, thinning or clearing) about 20.0 ha of non-EEC native vegetation. • Potential grading of 3.5 ha of existing cleared land (existing tracks, secondary grasslands and shrublands). <p>There is also the potential for indirect impacts on biodiversity values from weed infestation and sediment and water release into locally adjacent areas.</p>	<p>The revised disturbance footprint consists of about:</p> <ul style="list-style-type: none"> • 0.30 ha for bore, switch and generator pads (10 x 0.017 ha bore pads, 6 x 0.017 ha switch pads and 1 x 0.023 ha generator pad); and • Approximately 10 ha for an infrastructure easement (10 m wide x 9.5 km long easement including 4 m wide unsealed access track, 1 m wide table drain, 5 m wide pipeline and powerline trench alignment plus an additional 5 m wide x 800 m long pipeline and powerline trench alignment). <p>This requires:</p> <ul style="list-style-type: none"> • Disturbing (slashing, thinning or clearing) about 0.5 ha of Blakely's Redgum - Yellow Box - Rough-barked Apple grassy woodland (EEC). • Disturbing (slashing, thinning or clearing) about 6.3 ha of non-EEC native vegetation. • Potential grading of 3.5 ha of existing cleared land (existing tracks, secondary grasslands and shrublands). <p>There is also the potential for indirect impacts on biodiversity values from weed infestation and sediment and water release into locally adjacent areas.</p>	<ul style="list-style-type: none"> • Pre-clearing fauna surveys will be undertaken and arboreal fauna and nesting sites will be recovered and relocated. • Tree hollows, fallen logs and bush rock will be salvaged for use as compensatory habitat at the edges of the pipeline easement and in areas surrounding the bore pads. • Disturbance of 0.5 ha of EEC will be offset by enhancing and conserving 1.0 ha of EEC on property no. 24. This is additional to existing Stage 1 offset commitments for enhancing and conserving EEC on property no. 24. • Disturbance of 6.3 ha of non-EEC native vegetation will be offset by enhancing and conserving 6.3 ha of native vegetation on property no. 24. • Native vegetation offsets will be secured for long-term protection • Disturbed areas not required for ongoing access and maintenance will be rehabilitated. Endemic native grass and shrub species will be used to supplement natural regeneration, where required. • In areas not directly cleared (within easement but outside direct clearing areas) groundcover (i.e., grasses, herbs, low shrubs and bush rock where practicable) will be retained to provide habitat for ground dwelling fauna, minimise the risk of soil erosion and enable natural regrowth upon completion of mining. • Feral animals, weeds and pests will be controlled according to the monitoring, management and mitigation measures described in the approved Landscape Management Plan for Stage 1.

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Aboriginal Cultural Heritage	<p>Twelve previously unknown Aboriginal sites (comprising fifteen Aboriginal objects) and one known Aboriginal site (S1MC255, comprising four Aboriginal objects) were identified within the surveyed transects. The cultural record of these sites is made up of seven isolated finds and three artefact scatters (two – S1MC255 and S1MC314 – containing potential archaeological deposits). The archaeological evidence is presented as stone artefact material (flakes and quartz artefacts) that has been exposed by previous track clearing activities and through natural surface erosion processes.</p> <p>Ten of these sites (S1MC313, S1MC315-321 and S1MC323-324) are assessed as having low scientific significance. The remaining three sites (S1MC255, S1MC314 and S1MC322) are assessed as having medium scientific significance. None of the identified sites are of high scientific significance. Further, none of the sites are considered rare or contain Aboriginal cultural landscape values, and none of the sites or Aboriginal objects are considered to offer research or educational potential.</p>	No change.	<ul style="list-style-type: none"> • Pre-clearing surveys will be undertaken by a qualified archaeologist and members of the Stage 1 registered Aboriginal Stakeholder community groups. • Cultural heritage sites S1MC313-321 and S1MC323-324 will be salvaged and stored in the Keeping Place. • Cultural heritage sites S1MC255 and S1MC314 will undergo shallow subsurface testing and salvaging. • The infrastructure easement route will be positioned to avoid impacting sites S1MC271 and S1MC322, where practicable. • Cultural heritage sites adjacent to and outside construction areas will be fenced to prevent potential disturbance. • Cultural heritage monitoring and salvage will be undertaken by a qualified archaeologist and members of the Aboriginal Stakeholder groups. • Where additional cultural heritage sites are identified, further archaeological assessment will be carried out prior to continuing with construction. • Local Aboriginal community representatives will be involved in monitoring ground disturbance activities as deemed necessary; and in the recording, salvaging and storing of cultural heritage objects impacted by site works.
Noise	Without additional noise attenuation, worst case transfer pump (near TB105) noise levels at the Stone Cottages is predicted to be 34 dB(A).	<p>Transfer pumps are not required for the revised borefield layout.</p> <p>Generators will not be used at bore locations.</p> <p>There will be no audible borefield noise at the Stone Cottages or any other private residence in the vicinity of the borefield.</p>	<ul style="list-style-type: none"> • Borefield construction will be undertaken from 7am to 6pm Monday to Friday. • Bores will be equipped with submersible bore pumps. • A single power supply generator will be located near the borefield pipeline outlet, at least 4 km from the nearest private residence.
Soil and sediment	Clearing and earthwork activities required to construct the bore pads, access tracks and powerline and pipeline easements will potentially	No change.	<ul style="list-style-type: none"> • Standard industry (Blue Book) erosion and sediment control measures will be implemented during construction and operation of the borefield (including

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	increase the risk of erosion and sediment release into adjacent down slope areas and local drainage lines.		<p>use of silt fencing and temporary sediment ponds), as described in Appendix 4 of the EA (Coffey, 2010).</p> <ul style="list-style-type: none"> • Soils will be temporarily stockpiled adjacent to the pipeline trench and used to rehabilitate areas not required for ongoing operations. • Groundcover will be maintained to minimise the risk of soil erosion, wherever practicable.
Water	<p>A leak or rupture in the borefield pipeline or temporary water storage tanks will release water (average EC of about 720 µS/cm) into surrounding soils, naturally vegetated areas and local drainage lines, depending on the site of failure.</p> <p>However, potential adverse effects are considered minor as the quality (i.e., pH, salinity and dissolved ions) of the borefield groundwater is generally on par with the quality of the Goulburn River receiving waters. Further, the maximum total storage volume of all storage tanks (200 KL) and pipelines (0.5 KL) will be about 200.5 KL. Although only a small percentage of this would be expected to be released to the environment in the event of a pipeline leak or burst, or single tank leak or rupture.</p>	<p>Water storage tanks are not required for the revised borefield layout.</p> <p>No other change.</p>	<ul style="list-style-type: none"> • Pressure sensors and flow meters will be used to monitor water flow throughout the pipeline network. • In the event that a pipe leak or rupture is detected, pumping will cease and the resultant cause investigated and repaired, and any adverse impacts remediated.
Traffic	<p>Access to the borefield for construction and maintenance will be via existing crown roads and 4WD access tracks off the Ulan-Cassilis Road.</p> <p>Use of these access arrangements by dozers, drilling rigs and delivery trucks will generally be infrequent and for short periods of time during construction of the borefield. Access by light vehicles will be more frequent during construction and then less frequent during operation.</p> <p>Only small numbers of construction vehicles (earth moving equipment, drilling rigs, delivery trucks and support vehicles) will be required during the construction of the borefield.</p>	No change.	<ul style="list-style-type: none"> • Appropriate traffic management will be implemented for construction vehicles entering and leaving the borefield site to Ulan-Cassilis Road and along Saddlers Creek Road, where required.
Visual	The potentially visible aspects of the borefield will comprise about 600 m of 90 mm HDPE piping and	Pipelines and powerlines will be buried and there	<ul style="list-style-type: none"> • Trees and shrubs will be planted to provide a visual screen to the switch and bore pads located adjacent

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	<p>6 m overhead powerline, transfer pump, a cleared bore pad area, one bore head (bore TB105), 20,000 L water storage tank and erosion and sediment controls (i.e., table drains and temporary sediment fencing).</p> <p>These will be located on Moolarben owned land adjacent to the public access road to the Stone Cottages, and will only be visible to the owners and visitors of the Stone Cottages.</p> <p>These aspects of the development will not be incongruous with other existing farm infrastructure on other parts of this public access road.</p>	<p>will be no water storage tanks.</p> <p>One switch pad and one bore pad on MCM owned land will be potentially visible from the public access road to the Stone Cottages.</p>	<p>to Saddlers Creek Road, where required.</p>
<p>Dust</p>	<p>Dust generating activities will comprise minor earth works, vegetation clearing, bore drilling and a small number of vehicles travelling on unsealed access tracks.</p> <p>These activities will be undertaken in an area distant from residential dwellings and separated from main mine development and operational activities.</p> <p>Only minor dust generation will occur during construction of the borefield.</p>	<p>No change.</p>	<ul style="list-style-type: none"> • Water carts will be used to minimise potential dust generation from unsealed access tracks, and construction areas, where required.

4. RESPONSE TO SUBMISSIONS

Moolarben Coal Mines' response to the issues raised in submissions on the borefield EA is provided in Table 2. This includes the issues raised in individual submissions and in the provided pro-formers. However, only reference to individual submissions is provided in the response table.

Issues raised in submissions on the borefield EA that relate to the Stage 2 project have not been addressed in this response. The borefield modification is part of the Stage 1 project and not part of the Stage 2 project.

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Table 2 Response to issues raised in submissions

Issue	Response	Submission
Water		
<p>Monitoring locations and impact response trigger levels for bores TB105, M6 and M7 should be determined in consultation with NOW prior to development to determine drawdown interference to the Goulburn River and its connected alluvium and the Goulburn River Stone Cottages bore.</p>	<p>Moolarben Coal Mines has developed a groundwater management and groundwater response plan for Stage 1 in consultation with NOW, which includes monitoring and impact response trigger levels, including for potential drawdown interference from the borefield on Goulburn River and the Goulburn River Stone Cottages' bore.</p> <p>In licensing the groundwater bores for the borefield, NOW has prescribed conditions on the groundwater bore licences, which includes offset distances to third order streams, recording of extracted groundwater volumes, monitoring to determine impacts on surrounding groundwater users and pumping restrictions. Moolarben Coal Mines will comply with the conditions of its groundwater bore licences.</p>	<p>NOW</p>
<p>Bores TB105, PZ105a, PZ105b, M6, M7 and M8 should only be used for monitoring the impact of the mine on groundwater levels, aquifers and baseflows to the Goulburn River.</p> <p>There are many unresolved issues on groundwater impacts from mining in the vicinity of the UG4 mine.</p> <p>Monitoring of our domestic bore by MCM currently relies on inaccurate and incomplete data.</p>	<p>The impacts of the borefield and the UG4 mine on groundwater sources and baseflows to the Goulburn River were assessed in the Stage 1 EA and response to submissions report and were rigorously reviewed by the Independent Hearing and Assessment Panel.</p> <p>The borefield will be developed in aquifers within the Permian age coal measures. These aquifers are below the level of the Goulburn River and are not hydraulically connected to the river, to the Drip or to the shallow aquifer in which the Goulburn River Stone Cottages' bore is developed. The bores will be sealed to prevent the ingress of groundwater from higher level Triassic age sediment aquifers, where they exist.</p> <p>Moolarben Coal Mines has previously committed to mitigate impacts of Stage 1 on groundwater supplies to surrounding land owners, including Goulburn River Stone Cottages, and stands by this commitment. Where required, MCM will establish additional bores to monitor the impacts of the borefield on other groundwater users.</p> <p>Moolarben Coal Mines will develop the borefield in accordance with the conditions of its Stage 1 approval and groundwater bore licences.</p>	<p>Goulburn River Stone Cottages</p>
<p>Groundwater extraction will interfere with an environmentally sensitive and scenically significant area close to the Goulburn River. Already there is too much water being lost from the Goulburn river aquifer.</p> <p>The water table and groundwater aquifers are of utmost importance to landholders in</p>	<p>The borefield will be developed in aquifers within the Permian age coal measures. These aquifers are below the level of the Goulburn River and are not hydraulically connected to the river, to the Drip or to the shallow aquifer in which the Goulburn River Stone Cottages' bore is developed. The bores will be sealed</p>	<p>Barton & McPhee, Brown, Granger & Hannaford, Imrie, Jan, Jungehulsing, Lawson,</p>

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Issue	Response	Submission
the area.	to prevent the ingress of groundwater from higher level Triassic age sediment aquifers. To the best of MCM's knowledge, gained through regional groundwater investigations, there are no private land owners in the vicinity of the borefield that access and use groundwater from the deeper Permian age sediment aquifers.	Lewis, Lips, McIntyre, Mort, Oh, O'Hara, Ryan, Schofield, Wales, Washington, Watts, Wiggins
MCP Stage 1 Project Approval was conditional on extensive investigations and monitoring of groundwater systems to determine the impact of groundwater extraction on aquifers and their connectivity with the Goulburn River. The development of an advance dewatering borefield has not been justified.	The modification does not propose any changes to mining activities that could result in the loss of baseflow to the Goulburn River. Under the Stage 1 approval, MCM is required to offset the loss of groundwater baseflow to the Goulburn River caused by the mine. Moolarben Coal Mines will develop the borefield in accordance with the conditions of its Stage 1 approval and groundwater bore licences.	MDEG
Ecology (Flora and Fauna)		
DECCW requires that proposals must either avoid biodiversity impacts or meet maintain or improve outcomes, and where this cannot be achieved, an in perpetuity offset must be provided for the total loss of biodiversity (i.e., 24.04 ha of native vegetation and 0.5 ha of White Box Yellow Box Blakely's Red Gum Woodland).	In designing the borefield, MCM has made every attempt to avoid the need for clearing native vegetation, where at all practicable. In doing so, MCM has designed the borefield to maximise use of existing cleared and disturbed areas. Following consideration of the issues raised in submissions, MCM has further reduced the disturbance footprint from about 24 ha to about 10.3 ha. This will be achieved by burying the pipeline and poweline in a common trench, thereby reducing the width of the infrastructure easement. Further clearing reductions have been made through minor modification of the pipeline and powerline route and reducing the size of bore pad disturbance areas. Moolarben Coal Mines will offset the total loss of biodiversity through enhancing and conserving 1 ha of EEC and 6.3 ha of non-EEC native vegetation on property no. 24. This offset will be secured for long-term protection. The offset for EEC is consistent with the ratio approved in the Stage 1 approval for offsetting impacts on EEC. In addition, disturbed areas not required for ongoing access and maintenance will be rehabilitated, including replacement of habitat features..	DECCW
The clearing of Box Woodland EEC should be adequately offset.	Moolarben Coal Mines has committed to offset the clearing of 0.5 ha of EEC at a ratio of 2:1. This being the ratio approved in the Stage 1 approval for offsetting impacts on EEC. This offset will be secured for long-term protection.	MWRC
Grid clearing to establish access roads and powerlines will significantly impact on part	Moolarben Coal Mines has redesigned the borefield layout to reduce the	Goulburn River Stone

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Issue	Response	Submission
<p>of the mine's conservation area for Stage 1 and will result in loss of connectivity and biodiversity. Native fauna will be subject to significantly increased disturbance from constant noise, lights and mine traffic.</p> <p>Offsetting clearing of 0.5 ha of a critically endangered ecological community at a ratio of 2:1 is inconsistent with the DECCW's maintain and improve biodiversity principles. An offset of 1 ha is inadequate and there will be a net loss of native vegetation.</p> <p>The pipeline route to bore TB105 will involve broadscale clearing of mature native vegetation and impacts to creeks and native fauna.</p>	<p>disturbance footprint from 24 ha to about 10.3 ha. Notwithstanding, MCM will offset this impact by conserving and enhancing both EEC and non-EEC native vegetation on property no. 24.</p> <p>The design of the borefield maximises use of existing cleared and disturbed areas as much as practicable, and does not require grid or broadscale clearing. The construction of the borefield will be carried out using a small construction workforce. Once construction is complete, access to the borefield will be restricted to monitoring and maintenance vehicles only. There will be no constant noise, lights or mine traffic associated with the construction or operation of the borefield.</p> <p>Moolarben Coal Mines has committed to offset the clearing of 0.5 ha of EEC at a ratio of 2:1. This being the ratio approved in the Stage 1 approval for offsetting impacts on EEC. This offset will be secured for long-term protection.</p>	Cottages
<p>The borefield will result in considerable damage to the natural ecosystems and biodiversity along Saddlers Creek Road, the visual entrance to Goulburn River Stone Cottages.</p>	<p>The borefield pipeline and powerline route will be developed on MCM-owned and managed land. This does not require disturbance to Goulburn River Stone Cottages owned land. Saddlers Creek Road is a public road and some disturbance to this road will be required where the pipeline and powerline route crosses the road.</p> <p>In constructing the borefield, MCM will use its best endeavours to minimise the impacts on Saddlers Creek Road. Further, following construction, disturbed areas not required for ongoing borefield access will be rehabilitated.</p>	Barton & McPhee, Brown, Granger & Hannaford, Imrie, Jan, Jungehuelsing, Lawson, Lips, McIntyre, Mort, Oh, O'Hara, Ryan, Schofield, Washington, Watts, Wiggins
<p>Clearing of 24 ha of native vegetation, including 0.5 ha of a Critically Endangered Ecological Community, is within part of an existing conservation area for Stage 1. An offset of 1 ha is inadequate and there will be a net loss of native vegetation. The borefield will have an incremental impact on wildlife.</p>	<p>Moolarben Coal Mines has redesigned the borefield layout to reduce the disturbance footprint from about 24 ha to about 10.3 ha. Notwithstanding, MCM will offset this impact by conserving and enhancing both EEC and non-EEC native vegetation on property no. 24.</p> <p>Moolarben Coal Mines has committed to offset the clearing of 0.5 ha of EEC at a ratio of 2:1. This being the ratio approved in the Stage 1 approval for offsetting impacts on EEC. This offset will be secured for long-term protection.</p>	Barton & McPhee, Brown, Granger & Hannaford, Imrie, Jan, Jungehuelsing, MDEG, Lawson, Lips, McIntyre, Oh, Ryan, Schofield, Wales, Washington, Watts, Wiggins
Noise		
<p>The noise from generators at bores and transfer pumps has not been assessed.</p>	<p>The power supply requirements for the borefield have been reviewed and MCM now proposes to use a single generator located in the vicinity of Ulan-Cassilis Road near the outlet of the borefield pipeline network. This location is over 4 km from the nearest privately-owned property.</p> <p>Further, there is now no requirement for use of transfer pumps along the pipeline</p>	DECCW, MDEG

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Issue	Response	Submission
	<p>network.</p> <p>These borefield design changes have removed the noise generating sources from the borefield, with the only noise source now located remotely from any privately-owned property.</p>	
<p>To minimise the potential impact on the adjacent property, DECCW recommends that construction be limited to the hours of 7am to 6pm, Monday to Friday with no works to be undertaken on weekends and public holidays.</p>	<p>Moolarben Coal Mines commits to construct the borefield during the hours of 7am to 6pm, Monday to Friday, with no construction works to be undertaken on weekends and public holidays. Further, as far as practicable, MCM will also restrict borefield maintenance works to within these hours, unless undertaking emergency repair work.</p>	<p>DECCW</p>
<p>Noise from borefield pumps and generators will have a direct impact on the viability of the Goulburn River Stone Cottages' ecotourism business.</p> <p>A cumulative assessment of 10 pumps and 13 transfer pumps operating at one time has not been carried out, nor has the affect of temperature inversions or the potential funnelling affect of the river gorge been considered.</p> <p>The ability of a water tank to acoustically shield pump noise is unproven.</p> <p>There has been no consideration of borefield noise impacts on the quiet enjoyment of visitors to the Drip picnic area, the Drip or adjacent areas along the Goulburn River.</p>	<p>Changes in the borefield design remove the need for transfer pumps and generators to be located at or near each bore. Instead, a single generator located in the vicinity of Ulan-Cassilis Road near the outlet of the borefield pipeline network, will be used to provide power to the borefield. This location is over 4 km away from the nearest part of the Goulburn River Stone Cottages property, the Drip picnic area, the Drip and publicly accessible areas along the Goulburn River.</p> <p>In addition, each bore will be equipped with a submersible bore pump. These pumps will be installed below the groundwater level and will be encased and sealed within the bore.</p> <p>These borefield design changes effectively eliminate noise generating sources from the borefield, with the only noise source now located remotely from any privately-owned property or publicly accessible recreational area.</p>	<p>Goulburn River Stone Cottages</p>
<p>Noise from borefield pumps and generators will impact on the amenity of the Drip picnic area, Goulburn River gorge and the Goulburn River Stone Cottages</p> <p>Pump noise of 34 dB will be audible and intrusive and disrupt the peace and serenity of the Goulburn River Stone Cottages. Pump noise will diminish the sense of naturalness and remoteness of the Goulburn River Stone Cottages. This will impact on the Goulburn River Stone Cottages' ecotourism business and the ability of its visitors to enjoy the peace and quiet offered by this facility.</p> <p>Tanks will not prevent pump noise from impacting on the Goulburn River Stone Cottages.</p>	<p>Changes in the borefield design remove the need for transfer pumps and generators to be located at or near each bore. Instead, a single generator located in the vicinity of Ulan-Cassilis Road near the outlet of the borefield pipeline network, will be used to provide power to the borefield. This location is over 4 km away from the nearest part of the Goulburn River Stone Cottages property, the Drip picnic area, the Drip and publicly accessible areas along the Goulburn River.</p> <p>In addition, each bore will be equipped with a submersible bore pump. These pumps will be installed below the groundwater level and will be encased and sealed within the bore.</p> <p>These borefield design changes effectively eliminate noise generating sources from the borefield, with the only noise source now located remotely from any privately-owned property or publicly accessible recreational area.</p>	<p>Barton & McPhee, Brown, Granger & Hannaford, Hope, Jungehuelsing, Imrie, Jan, Lawson, Lewis, Lips, McIntyre, Mort, MWRC, Oh, O'Hara, Pattulo, Raines & Hornibrook, Ryan, Schofield, Wales, Washington, Watts, Wiggins</p>

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Issue	Response	Submission
Visual Amenity		
<p>The access to the Goulburn River Stone Cottages along Saddlers Creek Road is lined with natural woodland. Apart from old fencing near Ulan Road there is no infrastructure visible from Saddlers Creek Road.</p> <p>The company should commit to avoid clearing outside the minimum footprint, to leave trees and shrubs insitu and repair any damage.</p>	<p>The borefield pipeline and powerline route will be developed on MCM-owned and managed land. This does not require disturbance to Goulburn River Stone Cottages owned land.</p> <p>Saddlers Creek Road is a public road and some disturbance to this road will be required where the pipeline and powerline route crosses the road.</p> <p>In constructing the borefield, MCM will use its best endeavours to minimise the impacts on Saddlers Creek Road. Further, following construction, disturbed areas not required for ongoing borefield access will be rehabilitated.</p>	Goulburn River Stone Cottages
<p>The visual intrusiveness of the borefield will adversely affect the visual amenity of visitors to the Goulburn River Stone Cottages, along the Stone Cottages access road.</p>	<p>The borefield pipeline and powerline route will be developed on MCM-owned and managed land. This does not require disturbance to Goulburn River Stone Cottages owned land.</p> <p>Saddlers Creek Road is a public road and some disturbance to this road will be required where the pipeline and powerline route crosses the road.</p> <p>In constructing the borefield, MCM will use its best endeavours to minimise the impacts on Saddlers Creek Road. Further, following construction, disturbed areas not required for ongoing borefield access will be rehabilitated.</p> <p>Vegetation screens will be used to screen switch and bore pads in the vicinity of Saddlers Creek Road, where required.</p>	Barton & McPhee, Watts, Wiggins
Cultural Heritage		
<p>The borefield will affect the beauty and cultural and historical significance of the Goulburn River and the Drip.</p>	<p>The borefield is located on MCM-owned and managed land to the south of the Goulburn River. The northern two bores (i.e., M6 and M7) will be offset from the Goulburn River and the Drip by at least 260 m.</p> <p>These bores will be established on elevated land away from the Goulburn River gorge area and will not be visible or audible to visitors to the Drip picnic area, the Drip or adjacent publicly accessible recreational areas.</p> <p>Hence, the borefield will not affect the beauty and cultural and historical significance of the Goulburn River and the Drip, or impact on recreational visitors to this area.</p>	Mort
Community Consultation		
<p>There has been no consultation with the affected neighbours in the preparation of the MOD_7 EA.</p>	<p>A description of the borefield modification application, and the environmental assessment to support the application were presented at the mine's Community Consultative Committee (CCC) meeting held on 23 February 2010. The owner of</p>	Goulburn River Stone Cottages, MDEG, Mort

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Issue	Response	Submission
	<p>the Goulburn River Stone Cottages is a member of the CCC and was provided the opportunity to comment on the borefield proposal at that meeting.</p> <p>Notwithstanding, MCM has redesigned the borefield to minimise the impacts on the Goulburn River Stone Cottages as far as practicable.</p>	
Other		
<p>The potential impacts of the borefield on the adjoining Goulburn River National Park (GRNP), or measures to control impacts on the park (i.e., erosion and sediment, stormwater runoff, pests and boundary encroachment), have not been considered. The DECCW considers it appropriate for the adjoining boundary of the park to be fenced and that at least a 50 m buffer to be maintained between borefield infrastructure (including access tracks) and the boundary of the park.</p> <p>The DECCW also requires that:</p> <ul style="list-style-type: none"> • All asset protection mechanisms are within the development area, and there is no expectation for DECCW to change its fire management regime for the GRNP. • Pre-construction, construction and post-construction activities are not to occur on the GRNP. • There will be no diminution of amenity on the GRNP due to adjacent development. 	<p>The location of the closest bores (TB105 and M8) and borefield infrastructure to the Goulburn River National Park is 80 m. Moolarben Coal Mines will ensure that it maintains a buffer of at least 50 m between any part of the borefield and the park boundary.</p> <p>Moolarben Coal Mines considers that the impact of establishing a boundary fence will cause unnecessary further land disturbance and clearing impacts along the 4 km park boundary. At least 3 km of this boundary adjoins crown land on which MCM has a licence to construct the borefield. The Department of Lands, which administers the crown land licence, is opposed to further clearing impacts on this land beyond that required to establish the borefield.</p> <p>Notwithstanding, MCM will ensure that the construction and operation of the borefield will not:</p> <ul style="list-style-type: none"> • Adversely affect existing surface drainages, including stormwater flow regimes, entering the GRNP. • Increase erosion, sediment and runoff nutrient levels entering the GRNP. • Lead to increases in weeds or domestic pet access entering the GRNP. • Lead to development of informal tracks into the GRNP. • Adversely impact on cultural or natural heritage values or other impacts of higher visitation. • Compromise natural fire regimes • Lead to impacts associated with changes to the nature of the vegetation surrounding the GRNP. • Result in encroachments into the GRNP or inappropriate fencing. • Impede DECCW access to the GRNP for management purposes. 	DECCW
<p>The coal mines are affecting more and more of the secluded areas and impact on local tourism and other businesses, not just the Goulburn River Stone Cottages but the entire Mudgee area which is economically dependent on ecotourism.</p>	<p>The Moolarben coal mine is located about 40 km northeast of Mudgee and is generally removed from the main tourism areas of the town and surrounding vineyards.</p>	Jungehuelsing, McIntyre

5. REFERENCES

Coffey (2009). Environmental Assessment Section 75W Modification Application Moolarben Coal Project Stage 1 (05_0117 MOD 5). Report prepared for Felix Resources Ltd by Coffey Natural Systems.

Coffey (2010). Environmental Assessment Section 75W Modification Application Moolarben Coal Project – Stage 1 (05_0117 MOD 7). Report prepared for Moolarben Coal Mines Pty Ltd by Coffey Natural Systems.