



THE COLONG FOUNDATION FOR WILDERNESS LTD.

Wednesday November 29th, 2017

Mr Paul Forward
Chairperson
Planning Assessment Commission
Level 3, 201 Elizabeth Street
Sydney NSW 2000

Dear Mr Forward,

Submission as an Objection to the Invincible Extension Project 07_0127 MOD 5 (D490/17)

The Colong Foundation for Wilderness objects to the proposed Southern Extension Project as it will cause significant and disproportionately large environmental impacts to a sensitive area of woodland in return for a disproportionately small amount of coal product. The mine ceased operation in 2013 and it should not be allowed to recommence open-cut mining operations in grassy woodlands of the Gardens of Stone region.

On October 17, 2014 a Planning Assessment Commission chaired by Mr Gary West determined that the “highest and best use of the area is for conservation purposes” and that ruling was not challenged by the evidence that was used to justify the NSW Department of Planning and Environment's (the Department's) recent recommendation in relation to this modification. The Colong Foundation believes that PAC ruling applies to this modification area.

The proposed Southern Extension mining project area is located in an internationally significant pagoda landform complex of *special significance* that warrant the highest possible level of protection from mine-induced impacts¹. In a peer reviewed paper, Washington and Wray (2001) identified the international significance of this landscape. Pagodas with ironstone banding which are ‘distinct and significant’ on the world scale as explained in Washington, H. and Wray, R (2011). These pagodas are found in the project area along the edge of the Great Dividing Range, on the Ben Bullen Range and as nearby outliers of Triassic sedimentary rock.

There is no doubt that the pagodas found on the escarpment next to the proposed open cuts are platy pagodas, as Dr Washington has observed them.

¹ PAC Review, December 2012, Coalpac Consolidation Project, pg76 and the Department of Planning and Infrastructure in 2013 agreed with these findings in its assessment report.

The Department of Planning and Infrastructure (new DPE) when it previously recognised the importance of this land pagoda landform stated that "...the (former Consolidated Coalpac) project site is properly characterised as a 'pagoda landform complex'". "...this landform comprises a complex arrangement of habitats characterised by a convoluted line of towering rock faces that give way to rocky steep slopes and these in turn give way to forested slopes and valley floors dominated by various eucalypt vegetation communities". All components contribute to the overall significance of the pagoda landform complex and any impacts to components of the landform complex have the potential to compromise the significance of the land form complex as a whole." (emphasis added, page 36, Director-General's Environmental Assessment Report, June 2013).

The 2013 Department Assessment Report found that the pagoda landform complex holds '*special significance*' (page 3 and 36, Director General's report). Coalpac's consultant Cumberland Ecology had mapped the pagoda landform as three units - sandstone plateaus, pagodas, with undulating woodlands beneath these features (see map on following page). The mapping indicates that the Grassy Tableland Woodlands are predominantly confined to the surrounds of the Invincible mine, including proposed Southern Extension Area of modification 5. This mapping by Cumberland Ecology undermines the Castlereagh Coal's argument that the vegetation in the proposed Southern Extension mining area is well represented in the region (see page 37, Director-Generals report, 2013).

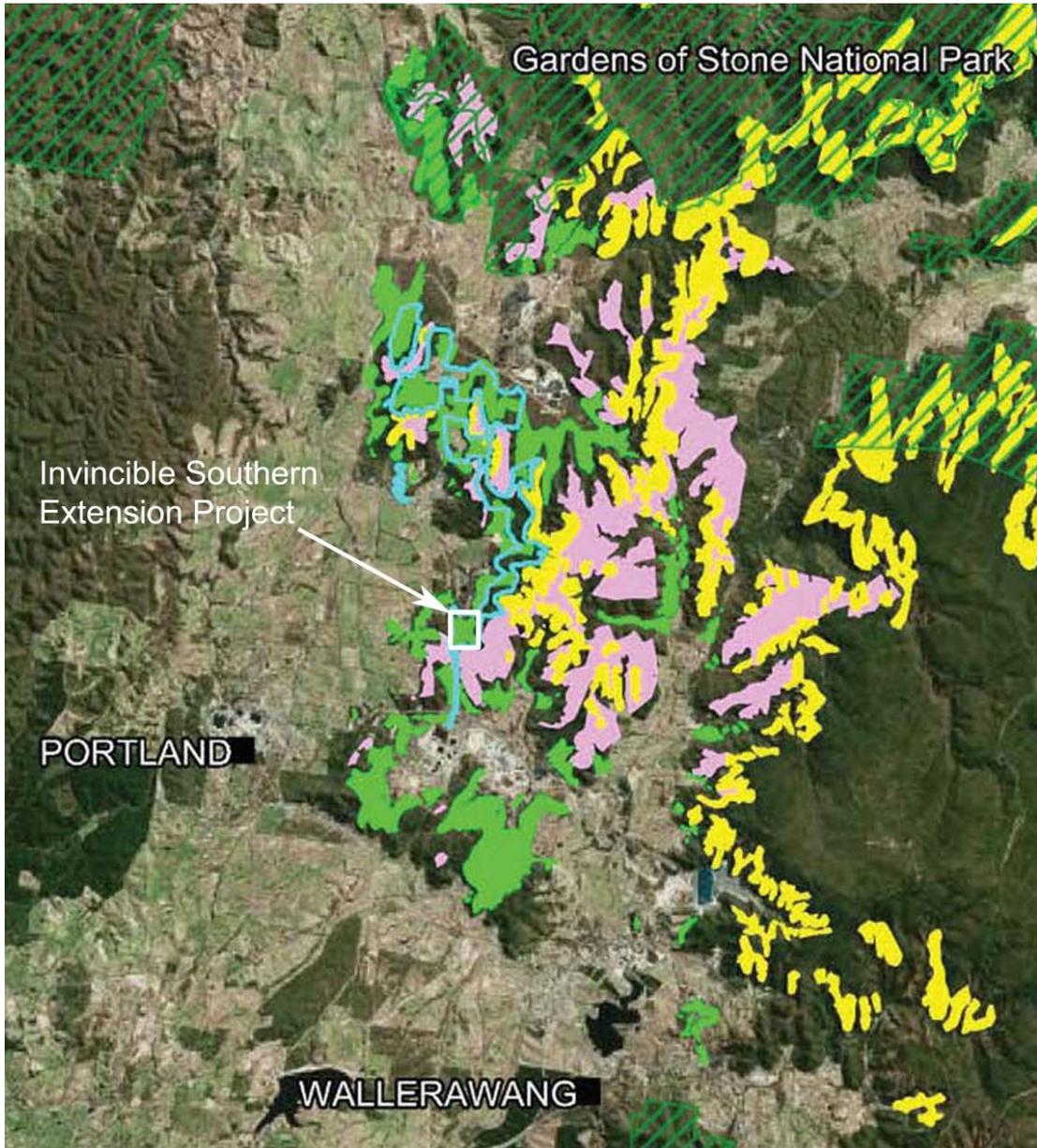
Very high biodiversity values

The Office of Environment and Heritage published in May 2014 a report that finds the area proposed for mining to be an area of very high value for biodiversity conservation (Map 31, page 111). The map is generated by the Biodiversity Forecasting Tool that identifies areas in the landscape of high conservation benefit (OEH page 113, May 2014). The section of the state forest affected by these proposed modification is comprised of vegetation communities that have been cleared to a great extent.

The Biodiversity Forecasting Tool assesses the rarity of the native vegetation, its connectedness to other vegetation, and its condition. The tool also has been applied in the Murray Catchment and in the NSW Biodiversity Strategy.

The Ben Bullen State Forest straddles the Great Dividing Range and links through Newnes Plateau to other areas of high biodiversity conservation. The very high biodiversity woodlands are found on soils developed upon the Permian Coal Measures. These woodlands were originally mapped as Tablelands Grassy Woodlands by Doug Benson and David Keith for the National Herbarium in 1990.

The importance of these very high biodiversity grassy woodlands is further enhanced by its association with an internationally significant pagoda landscape.



Cumberland Ecology Mapping of the Ben Bullen Pagoda Land System in the Region

Legend

 Contracted Project Disturbance Boundary

 National Parks and Reserves

Ben Bullen Pagoda Land System

 Ben Bullen Range Pagoda Unit

 Tablelands Grassy Woodland Complex Unit

 Cullen Plateau Unit

Open-cut coal mining at Invincible is high impact for a low nut coal yield

The Castlereagh Coal southern extension modification proposal is for a resource that seems marginal when compared with bituminous coal resources that are used and other that could for thermal purposes at Manildra's Bomaderry plant. Commissioner's should also note that the majority (65%) of the best coal has already been mined. The proposed restart of open-cut mining for this poor and depleted resource is in an area of public woodland in the Gardens of Stone region where such mining has been twice rejected due to the natural heritage values of the area.

If approved, Modification 5 will set precedent for open-cut coal mining in high conservation value areas of public forest that have been previously been mined by low intensity underground methods. Given the previous rulings, that were effectively rulings on the balance of coal production versus conservation, no strong additional argument or evidence has been presented that significantly strengthens the case for approval of this environmentally destructive re-mining proposal.

If this modification is approved it will indicate that this Planning Assessment Commission considers a proposal for low coal yield per unit area is superior to its alternative of retaining an important natural forest formerly found to be of 'special significance'.

The choice of balance point between conservation and mining should be influenced by climate change towards retention in the ground of thermal coal resources, for where else should coal first be retained in the ground but to keep intact areas of 'special significance'? Surely thermal coal of indifferent quality, depleted by past mining and in a small volume underlying values of special significance should be the first retained to curb climate change. Castlereagh Coal has not proven its case sufficiently to warrant overturning the previous PAC decision affecting mining in this area.

The Commissioners should consider that only 35% of the Lithgow Coal Seam remains the only source for nut coal production in the Invincible modification area. The two other inferior seams that overlie the Lithgow seam have 30% ash and are unsuitable. The Lidsdale and Irondale seams would require selective extraction of these seams and/or heavy processing to provide any nut coal. It will be more profitable to sell these low grade coal resources unimproved to EnergyAustralia for the Mt Piper Power Plant as doing so will lower costs for the overall nut coal mining operation. As a result, production up to 1.2 million tonnes of high ash coal per year may be mined with the 85,000 tonnes of nut coal annual required for operation at the Shoalhaven Starch plant at Bomaderry, 300 kilometres away.

The proponent's primary objective for the Invincible Southern Extension project is to produce a so-called specialty coal resource but it is special only in being a specific size class of bituminous thermal coal.

The security of nut coal supply argument is weak. For example, an alternative proposal of establishing a 20 kilotonne nut coal stockpile at Bomaderry would provide three months security from supply interruption.

The proposed Southern Extension project is small deposit that can only fully supply 3.5 years of nut coal at the required 85,000 tonnes/year rate. The proposal's 300 kilotonnes of nut coal is unlikely to supply Manildra's Bomaderry plant for up to eight years unless supplemented with coal from other mines. The proposed modification on its own is only an interim measure.

As the Commissioner's would also know, this 300,000 tonnes of the remnant coal deposit mined at this Invincible southern extension is only a tenth of 2.7 million tonnes of coal proposed to be mined. This is a small amount of nut coal relative to the 50 hectare area of public forest of 'special significance' that will be destroyed to obtain it.

Manildra's annual nut coal production shall be a minor by-product of supplying up to 1.2 million tonnes of high ash, low-energy value coal per year to Mt Piper Power Plant. As EnergyAustralia states in its submission to the modification, this is a relatively small amount of coal and that aspect of the proposal should not be a major consideration in the determination of the project.

To improve the diversity of coal supplies to the Mt Piper Power Plant would require either building the approved coal unloader or restarting Angus Place mine as it is connected to the power plant by a dedicated haul road. The Invincible mine, as proposed in this modification, can only add relatively small amounts of poor quality coal for a short period.

If, at a future date, the Invincible coal mine were sold to EnergyAustralia and further extended as previously proposed by Coalpac, then such mining will generate high volumes of fly ash and more carbon pollution relative to coal now supplied to that plant from the Springvale mine. The Invincible coal will make the power plant less carbon efficient and so it acts contrary to the draft NSW Government's Climate Change Fund draft strategic plan (contrary to Section 2.7, page 18). The operation will also support less jobs.

Given that 2.7 million tonnes of coal needs to be mined to obtain 300 kilotonnes of nut coal as the Lithgow seam has been previously mined, the Invincible mine is a poor source of nut coal. Open-cut mining elsewhere would produce THREE TIMES the nut coal per unit of area disturbed and alternatives sources that conduct underground coal mining would result in less damage to the land surface environment. Almost all other bituminous thermal coal deposits in NSW are a richer sources of nut coal, were it appropriately treated to produce the nut sized coal particles.

The balance of coal to impacted area is an important comparator. To put it the other way, THREE TIMES the area of high conservation value forest in an area where a PAC has determined "highest and best use of the area is for conservation purposes" must be mined at Invincible relative to an intact bituminous coal deposit when mined by open-cut methods. The balance must surely come towards conservation, and away from inefficient and destructive re-mining of depleted coal resources.

Coal from the Invincible mine is more expensive and unreasonable in terms of overall environmental costs, than coal provided from operating mines that currently meet the requirements of Manildra's Bomaderry plant. It is only by the proponent's discount of the intended rapid rate of significant environmental impacts per unit area that the apparently appears tolerable. In approved, public would carry the unreasonably large loss of its irreplaceable grassy woodland, not Manildra.

The Ben Bullen State Forest has done its part in providing coal from the Lithgow Seam for over a century and deserves to be 'retired' and reserved as a State Conservation Area where it can play another role in the community. It cannot play its part as an outstanding conservation area, if it is condemned to being subject to further open-cut mining.

The Commission also should note that NSW Department of Planning and Environment did not make a relative environmental impact to coal yield comparison, or otherwise consider the implications of re-mining an already depleted bituminous coal resource would have on future land use options for the forest.

It determining this proposal the Commission needs to make such a comparison for mine proposals are determined on benefits and costs. Indeed, if this mine is approved, then there will be difficult to conceive of a circumstance where a coal mine could be rejected on the merits. The case *against* re-mining an area of special significance is strong and the case *for* re-mining a depleted and indifferent thermal coal resource for nut coal is weak.

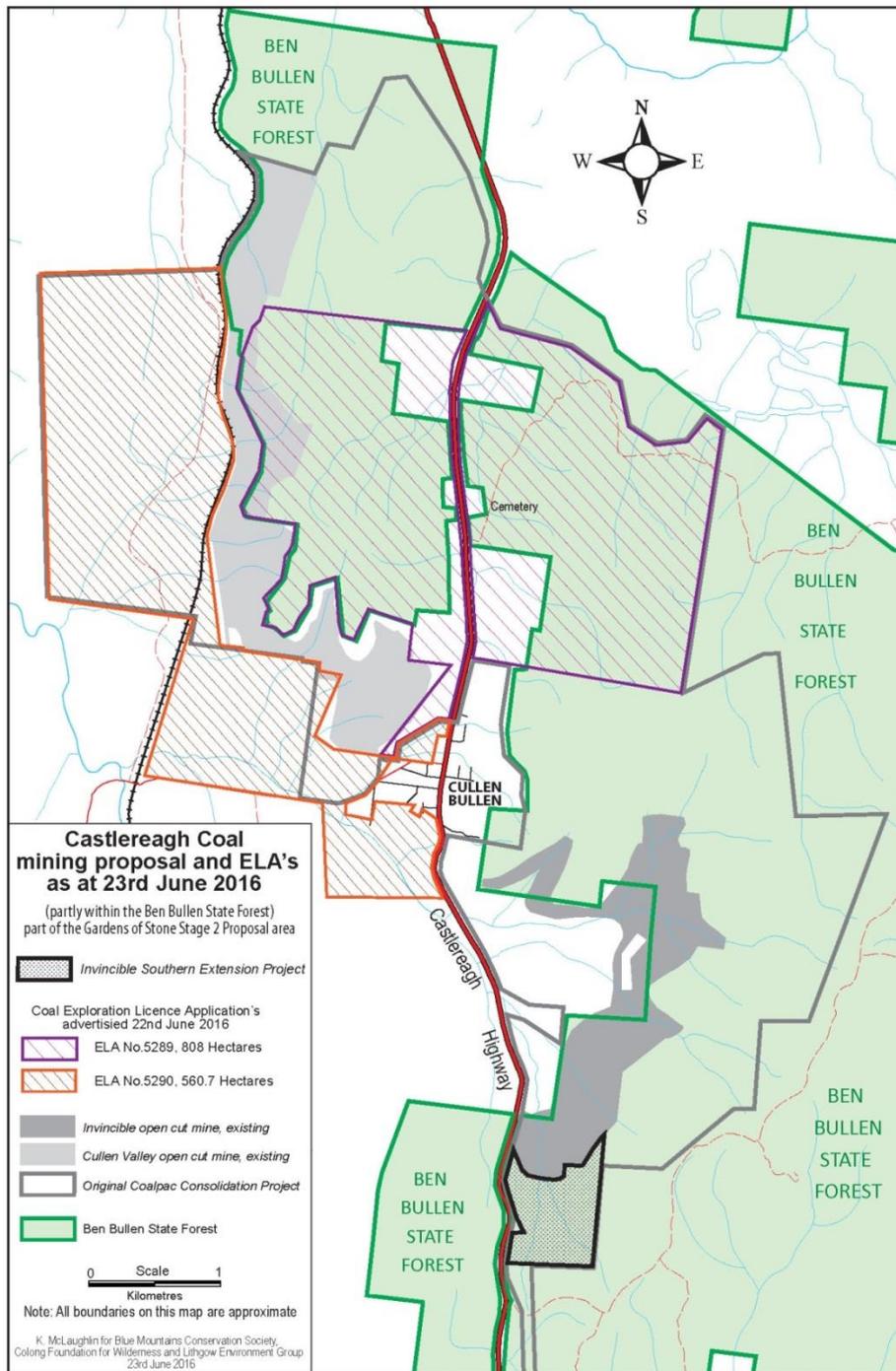
Incremental mine development

The Colong Foundation believes, approval of this modification is likely to lead to an incremental series of mine development applications. The Commission should note that the Department of Planning and Environment is opposed to a series of incremental increases in open-cut coal mining in the Ben Bullen State Forest (page 24, the Secretary report to Coalpac's Invincible mod 07_0127 MOD 4). Any future applications for re-mining shall also be 3X resource inefficient with 3X as much environmental impacts relative to open-cut mining of thermal coal deposits that are not depleted. Proposed modification 5 and any future modifications of the Invincible extending into other parts of this public forest are and will remain high impact, low-yield mining operations. This is an inappropriate fast for this forest of special significance.

The Commission should be aware that Manildra (Castlereagh Coal) has made the open-cut proposal small (50ha) while at the same time it has applied for exploration access to coal resources in 1,360 hectares around the proposed mine site. Manildra has been granted coal exploration licences No. 8618 and 8619 over much of the area of Ben Bullen State Forest previously identified by another PAC to be of high conservation value. When Modification 5 proposal is read in the context of potential future mine expansion it becomes apparent that this proposal is not significantly different from the other open-cut mine proposals previously rejected for this site (see map on following page).

The exploration licences are held by Shoalhaven Coal Pty Limited, which is the legal entity which owns Cullen Valley and Invincible mines. These exploration licences relate to areas that were previously subject to exploration licences held by Castlereagh Coal. Both current exploration licences are associated with the Cullen Valley mine. These legal circumstances do not discount the real consequences of these exploration licences that suggest the true intent of the proponent is to extend mining over the areas previously rejected by both the Commission and the Department of Planning and Environment. Clearly incremental mining is under consideration by the proponent.

While Castlereagh Coal may state it does not have any current plans for mining at Cullen Valley, these exploration licences are relevant following Shoalhaven Coal's acquisition of Cullen Valley in 2015. The renewal of the exploration licences at Cullen Valley are associated with Castlereagh Coal's plans for future mining as part of the Southern Extension Project at Invincible and are only separated by legal niceties from this proposal. These arguments tend toward sophistry, as did Shoalhaven Starches' previous assertion that it would mostly use waste materials in its ethanol plant expansion to 300ML/yr at Bomaderry made in a development application a few years ago. Now that the plant is expanded, large amounts of AGT wheat are used instead, yet a subsidy is collected for use of waste products.



Offsets do not compensate damage to this pagoda landscape

The full cost of damage to the natural environment cannot be compensated by offsets.

The Ben Bullen pagoda landscape is unique, irreplaceable and covers a small area of which the woodlands affected by the proposed Invincible open-cut modification is a key part. It has been found to be of special significance. The modification proposal is a part of the only area where grassy tableland woodlands in a valley bottom adjoins pagodas. This woodland is an integral part of this pagoda landscape and its loss will compromise this beautiful pagoda landscape.

The Planning Assessment Commission correctly observed in 2012 and confirmed 2014 that the pagoda landscape consists of the pagodas and woodlands below them. The pagoda rock features cannot be considered in isolation from the surrounding woodlands that are proposed to be mined. The buffer debate was part of the previous Coalpac PAC 2012 review and 2014 determination that refused consent.

The proposed biodiversity offsets do not replace the unique Ben Bullen pagoda landscape. The proposed offsets are irrelevant to conservation of this pagoda landscape as Triassic Narrabeen sandstone of the pagoda forming type is absent from the proposed offset area, along with the relatively high nutrient status soils derived from Permian coal measures. Further, highly significant ecosystems cannot be replanted after open-cut mining during mine rehabilitation.

Please uphold the previous decisions of the PAC. No new evidence or Departmental analysis has come forward that could overturn the last PAC determination. Refuse consent for the proposed Invincible mine, modification 5 as the applicant and Department of Planning and Environment have not provided any basis on which to overturn the past decisions regarding these matters.

Water Management

The Colong Foundation believes that failure to rehabilitate the two voids is explained by unstated future mining intentions and inappropriate disposal methods for untreated mine water from the Southern Extension project area.

Castlereagh Coal has no intention of rehabilitating the northern or eastern voids before mining of the proposed southern void is completed. These existing voids are intended to be used in the disposal of mine water. The retention of these voids may also benefit proponent as future access points to coal resources from the coal faces exposed by these voids (see for example project alternatives, figure 3.6, page 51 of the EA).

The northern and eastern voids are to be used to allow infiltration of mine water into the old Invincible mine workings after being pumped from Ivanhoe Number 2 workings in the proposed southern extension area. The infiltration rates into the Invincible workings shall be influenced by the head of pressure when the pits are filled with mine water, a factor which appears not to have been considered in the determination of groundwater infiltration estimates.

The volume of mine water discharged at Baal Bone mine licenced discharge point will then be partly due to the dewatering operations through workings associated with the old Invincible mine.

The groundwater salinity of Baal Bone Colliery dewatering discharged to a tributary of Baal Bone Creek measured at 1,125 $\mu\text{S}/\text{cm}$ (Invincible EA, pg 108). The Colong Foundation believes the proposed mine water transfer from the proposed Southern Extension Area requires the contingent perpetuation of the Baal Bone discharge. The importance of this contingent discharge has been understated by the proponent in its environmental assessment.

The project's water management strategy assumes that dewatering the neighbouring Baal Bone colliery shall continue, even though this mine is closed and decommissioned. This is not an appropriate assumption and poorly justified.

A stronger argument is that discharges from the decommissioned Baal Bone mine should cease to contaminate Baal Bone Creek as soon as possible. Continued pumping from the Southern Extension proposal to the Invincible's northern and eastern voids is a poor water management option to enable access to the remnants of Lithgow Seam in the proposed Southern expansion open-cut located over two kilometres away.

Terminating pumping at Baal Bone colliery will have significant environmental benefits. Baal Bone Creek and associated shrub swamps below the discharge point would slowly recover when relieved of the constant input of mine water pollution. It would allow groundwater levels to rise in the abandoned mine workings and that in turn may permit recovery of near-surface groundwater levels in Long Swamp, a large shrub swamp in the headwaters of the Coxs River that adjoins areas where Baal Bone longwall panels were extracted. This swamp suffers groundwater loss from when longwall mining operations passed adjacent to it and will further recover if these workings are allowed to flood and nearby ground water levels are permitted to rise.

The subterranean storages in the old Ivanhoe Number 2 workings would of course become a component of the water management problem at the Invincible mine if mining proceeds. Due to the shallow nature of these coal seams in Ben Bullen State Forest, the workings refill not only after rain but also with near-surface groundwater flows from the west under the Castlereagh Highway and from shallow aquifers the south up dip of the proposed void. The pumping estimates presented for Invincible Southern extension seem low given the area's relative high elevation near the Great Dividing Range and its annual rainfall (900mm) and the extent of old workings west and south.

The transfer of the southern extension mine water to Baal Bone Mine does not remove pollution, only imposes a continued mine water pollution discharge upon a closed mine that should be decommissioned to curtail such downstream environmental impacts from its licenced discharges.

Mine water from Invincible Southern Extension pit and associated former underground workings will be contaminated with metals and salts and should not be discharged to surface waters without treatment using reverse osmosis technology. Mine water would be improperly dealt if it continues to be transferred to Baal Bone Mine via the old Invincible underground workings for final discharge without treatment as proposed. A new water pollution licence should be required that specifies adequate treatment of all the toxic mine water in the old workings before discharge.

Employment

Employment will not decrease if the Manildra modification proposal is refused development consent. Several underground coal producers can supply nut coal to meet the needs of Manildra Starch's Bomaderry plant. The starch plant has never been closed but instead it obtained coal from underground mines that employ more miners than would be employed by the proposed open-cut mine.

Manildra has received ethanol production rebates for the use of flour in its plant (Auditor General 2015) so why should the proponent now receive a new subsidy for its coal in terms of uncompensated destruction public forest of special significance.

Refusing consent is likely to maintain higher levels of employment as the thermal 'nut coal' required will then continue at underground coal mines. Such alternative production would employ more miners, including those at Clarence Colliery, a local mine near Lithgow.

Carbon dioxide emissions would be reduced by continued use of dense coal from the Springvale mine in the Mt Piper Power Plant than its replacement with far lower grade coal resources from the proposed Invincible modification 5 southern extension area.

Refusal of Manildra's environmentally damaging mine will benefit workers, the terrestrial environment, the health and amenity of the Lithgow community as well as marginally reduce greenhouse gas emissions. In 2016 Manildra paid \$6.5M in company tax on \$1 billion in ethanol sales. The input quantity is very small (only 85,000 tonnes/year) so coal would not be a high relative input cost to the plants other inputs, such as wheat.

Manildra's long term future of its starch/ethanol plant is very little or nothing to do with "nut coal" production. No unique coal resources will be 'sterilised' and the security of its Bomaderry plant will not be affected if the Invincible modification is refused consent.

Thank you for allowing the Colong Foundation for Wilderness to present its objections to the Invincible Southern Extension Project.

Yours sincerely,

A solid black rectangular box used to redact the signature of Keith Muir.

Keith Muir
Director
The Colong Foundation for Wilderness Ltd

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