THE COLONG FOUNDATION FOR WILDERNESS LTD.

Monday November 7th, 2016

Mining and Industry Projects
NSW Department of Environment and Planning
GPO Box 39
Sydney NSW 2001

Dear Sir/Madam,

Re: Submission Opposing the Invincible Extension Project 07_0127 MOD 1

The Colong Foundation for Wilderness Ltd objects to the proposed extension of the Invincible mine that has exhausted its coal resources within its current mine approval area and seeks to further extend the mine to access marginal coal resources in Ben Bullen State Forest.

The Colong Foundation has been seeking protection of the Gardens of Stone region since 1984, including Ben Bullen State Forest. In association with the Blue Mountains Conservation Society and the Lithgow Environment Group we have recently published a heritage report of the Gardens of Stone region and a new visitors map to encourage visitation to the region.

Over the last thirty years the Colong Foundation has developed a good understanding of local coal mining issues through its engagement with the democratic processes associated with land management and development control within the Gardens of Stone region.

The Colong Foundation believes that open-cut coal mining in the Gardens of Stone region has a much higher and unacceptable overall cost in terms of impacts on the natural environment and community welfare than underground coal mining.

This proposal is a downsized version of earlier rejected Coalpac proposals. Its assessment should consider cumulative losses of significant environmental values. If this were done then the proposal would be rejected for the reasons the Coalpac proposal was withdrawn in 2013, and then modified, reduced and rejected in 2014.

The Colong Foundation does not consider the proposed recommencement of the Invincible Coal Mine by its new owner Castlereagh Coal should be a modification, as it is really a start-up proposal for new major project. The proponent's subsidiary company, Shoalhaven Coal, is investigating further coal resources around the Invincible mine by applying for coal exploration licences (ELAs) No. 5289 and 5290 over areas of high conservation value in Ben Bullen State Forest. These ELAs cover a total of 1,369 hectares, an area almost 300 hectares larger than the integrated Coalpac open-cut mining proposal (1088 hectares).

The determining authority must consider this modification as potentially a small component of a much larger proposal which is intended to be presented in piecemeal fashion. Any proponent when

lodging a development application is required to present the entire project, not a small element of it. Unless Manildra is prepared to give a written undertaking that it gives up all interest in future expansion of the Invincible mine, the Department of Planning and Environment should require Manildra to resubmit a new proposal for the entire project so that this may be determined.

The Colong Foundation believes this proposal is a 'foot in the door' to establish a larger mine. The proponent will continue to seek sequential approvals for what would never be approved if presented as one large project. The Department of Planning and Environment has previously made the observation that a modification should not be construed to support a series of incremental increases to this mine or other mines.

Unacceptable impact on the Ben Bullen Pagoda Land System

The international environmental significance of the Ben Bullen pagoda land system has been recognised by successive Planning Assessment Commissions (PAC).

> The PAC found that "The [Coalpac] modifications will destroy and impact on the area recognised by the Department of Planning and Environment (DPE) and the 2012 PAC Review as having a unique landscape (termed the Ben Bullen Pagoda Land System (BBPLS)) and significant levels of biodiversity. 'The pagodas are considered to be internationally significant geological features some 250 million years old and worthy of total protection'" [PAC Review Report, 2012].
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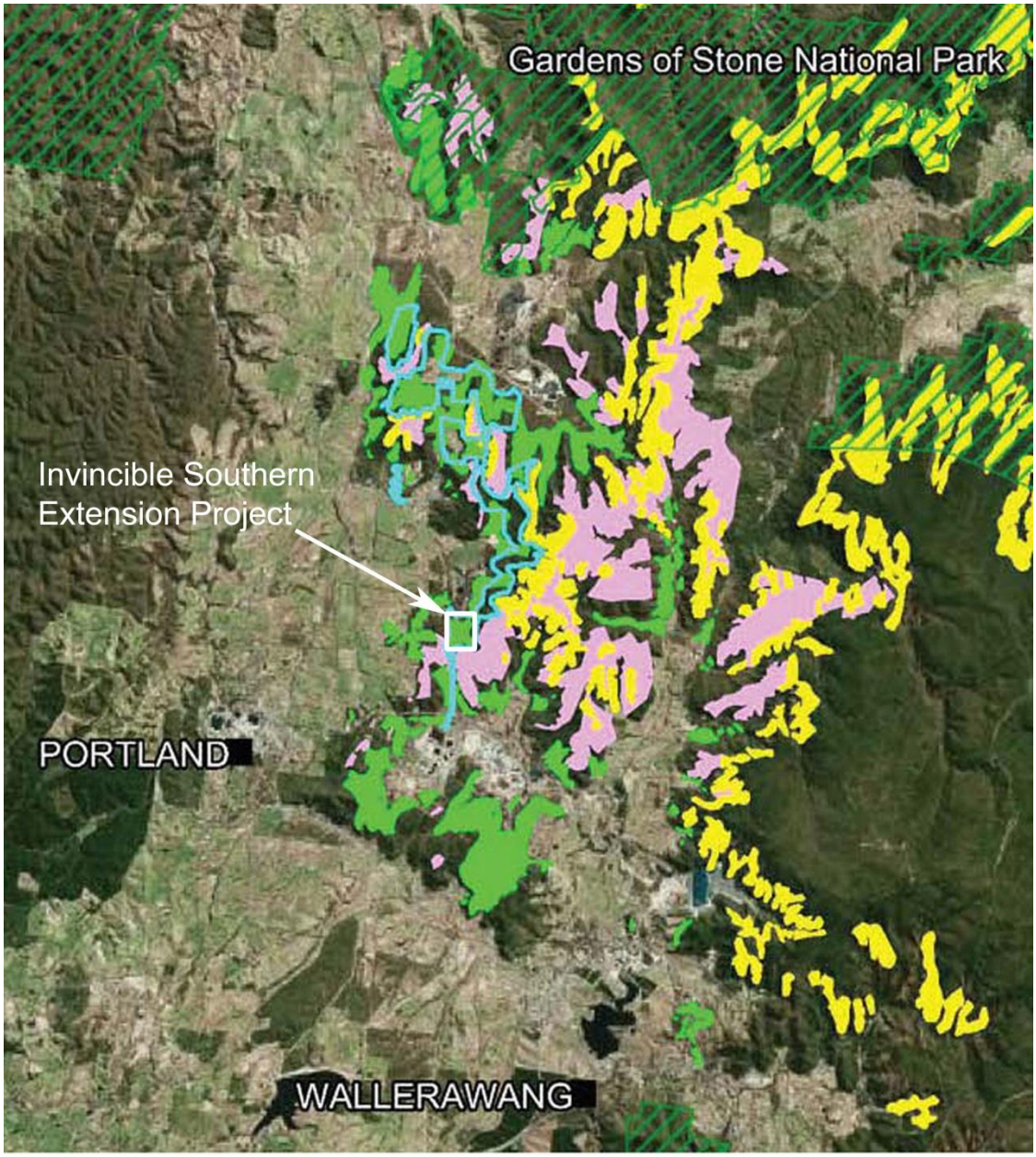
> The PAC recommended that "…the pagodas and associated escarpments be considered natural features of special significance and that they be fully protected from any mine-induced impacts" "The Ben Bullen State Forest contains the … 'Pagoda land system' … the landscape in its totality is unique and needs to be considered this way" [PAC Review 2012 Recommendations at pp.iii and 73-4]
>
> The PAC determination found the pagoda landform worthy of the highest level of protection (PAC 2014, pp 10, 12 and 20) and that mining in the vicinity of these landforms [in that case to within 300 metres as with this proposal] was unacceptable.
>
> The Department of Planning and Environment (DPE) and the PAC concluded that "from a regional , national and international land use planning perspective, the highest and best use of the site should be for conservation purposes" [DPE Director General's Environmental Assessment Report, Coalpac Consolidation Project, 2013 at p. 5)
>
> DPE also recognised "…the inherent incompatibility of open cut mining with preserving the internationally significant conservation value of the site" [DPE Director General's Environmental Assessment Report, Coalpac Consolidation Project, 2013 at p. 5]

The 2014 PAC determination should also apply to this 'extension' as open-cut mining is similarly proposed within 300 metres of pagodas, which clearly does not ensure 'the highest level of protection' to the 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

The 50 hectare Manildra open-cut is a short term project, providing short term benefits. It will have significant impacts on the Ben Bullen pagoda land system (see map following) and is in an area of significant conservation value.

This proposal seeks to overturn previous PAC determinations on the protection of the Ben Bullen Pagoda Land System, but offers no valid reasons for such a decision.

The Ben Bullen Pagoda Land System has three well-defined land units: the Cullen Plateau Unit; the Ben Bullen Range Pagoda Unit; and the Tablelands Grassy Woodland Complex Unit all will be impacted by this proposal. Scattered platy and less common smooth pagodas occur throughout the Ben Bullen Range Pagoda Unit, particularly along the more gently sloping spurs that radiate from the Ben Bullen Range. The Tablelands Grassy Woodlands Complex comprises woodland types from dry woodland of Inland Scribbly Gum and Capertee Stringybark to alluvial flats dominated by Ribbon Gum. The Cullen Plateau Unit only occurs in small areas and consists of Inland Scribbly Gum and Narrow-leaved Stringybark.

The Ben Bullen Pagoda land system is very limited in extent. This land system can only be properly understood and appreciated where its three component land units occur together.

Most of the Tablelands Grassy Woodlands on the Permian rocks of the Illawarra Coal Measures have been cleared. The western section of Ben Bullen State Forest is now the sole location where this grassy woodland occurs in association with platy pagodas. The loss of 50 hectares of this community by open-cut mining will have a significant impact and cannot fail to impact adjoining areas of the other two units in the land system to cause the loss of the pagoda landform complex as a whole from this part of the forest. In other words the loss of one land unit is amplified as the land system is lost.

The proposal area is a unique landscape of Triassic platy pagodas above grassy woodlands on Illawarra Coal Measures. It is irreplaceable, as there are no replicates elsewhere. It also cannot be offset in the manner described, which only addresses individual values. The association of platy pagodas with other woodlands is irrelevant, as they comprise another landscape.

If the Department believes that mining must stop due to impacts on the significant conservation values of the broader area, why allow mining to restart? The political reality is that stopping an operating mine at the end of eight years will be difficult, even if it were foreshadowed in an assessment report. The time to prevent further open-cut mining in the Gardens of Stone region is now, not in eight years at the expiry of the requested development consent.

Fair pricing of nut coal

Manildra has a nut coal supply problem that has led it to engage in coal mining. Coal producers apparently charge unreasonable prices for this specialty product and it is these prices that seem to have forced Manildra to propose the capital necessary for this open-cut coal mining venture. This proposal is an odd solution to unfair pricing.

Australia has corporation laws that prevent unfair practices. Manildra should pursue relief through the provisions of the *Competition and Consumer Act, 2010* regarding the misuse of market power.

Manildra is not without influence and its first recourse should be to use of democratic tools through government agencies and, if necessary, the courts, to ensure a fair coal price.

This competition legislation prevents cartel conduct, defined in section 44ZZRD as including four forms of activity: price fixing, market division, restricting outputs and bid rigging. The sale of nut coal to Manildra seems to have the 'purpose or effect' of price fixing. So it seems reasonable that Manildra should seek the assistance of the Australian Competition and Consumer Commission to protect it from price fixing, rather than to initiate the destruction of the Gardens of Stone region through open-cut mining operations.

At present Manildra thinks it is easier and cheaper to destroy public forests for a poor nut coal resource 300 kilometres away from its industrial plant, than to take on the price fixing behaviour of its suppliers and obtain a fairer price for this resource. The Colong Foundation believes that other nut coal options which would prove cheaper and more profitable have not been thoroughly canvassed.

Bituminous low ash coals from various origins can be used to produce Nut Coal

Nut coal is a specialty coal product defined by a specific particle size of 10-30mm in diameter. Various coal seams are known to be used in its production. Nut coal can be manufactured from bituminous coal from the Katoomba and Lithgow seams. The Ulan seam is correlated with the Lithgow seam, and the Katoomba seam with the Bulli Seam (Hutton, A. 2009). All these seams are suitable for nut coal production. It is unclear from Manildra's Environment Assessment which coal seam Whitehaven uses to manufacture nut coal, but bituminous coal from the Gunnedah Coalfield has been used to manufacture nut coal for Manildra.

It is mystifying why it would not be cheaper for Manildra to purchase bituminous coal delivered to Port Kembla and manufacture nut coal there rather than tie up capital investing in a small, inefficient, inoperative coal mine. Manildra could haul their nut coal 60 kilometres if a processing plant were established at Port Kembla, instead of 300 kilometres from the Invincible Mine near Cullen Bullen. This would seem much more efficient and less environmentally damaging than to attempt coal mining in the Gardens of Stone region.

The proponent claims that trucking the product from Port Kembla to Nowra is not viable due to the small amount of nut coal required. How can it be cheaper to mine for nut coal at Invincible, when production at Port Kembla would save 480 truck kilometres per load?

The characteristics of the Invincible nut coal resource

The Invincible coal resource IS NOT suitable for nut coal production.

Only 7% of each tonne of coal mined at Invincible is suitable for nut coal production. Annually 1.15 million tonnes of high ash coal needs to be mined to produce 85,000 tonnes of nut coal. The proponent's specialty resource argument is misconceived and similar to the timber industry being driven by a vast amount of wood chipping to provide a small quantity of sawlogs. It is same inverted argument. Manildra's nut coal production will be a by-product of supplying up to 1.15 million tonnes of high ash, low-energy value coal to Mt Piper Power Plant. This coal will produce high volumes of fly ash and high carbon pollution relative to other coal supplies available to the power

plant. The coal will make the power plant less carbon efficient and so is contrary to the NSW Government's Climate Change Fund draft strategic plan (contrary to Section 2.7, page 18).

Only 35% of the Lithgow Coal Seam remains to be mined. Its the only proven source for nut coal production at Invincible as the two other inferior seams above the Lithgow seam have 30% ash. , The entire nut coal resource in the modification area is just 300,000 tonnes. This is a small amount of nut coal relative to the area of public forest that will be destroyed. It may be possible to extend the resource by blending some components of the Irondale and Lidsdale seams or using Lithgow seam coal from the Cullen Valley mine but in the case of the alternative coal seams these options are unrealistic. The proposal's 300 kilotonnes of nut coal will supply Manildra's Bomaderry plant for less than four years. Economic viability of this short term supply proposal is further eroded through royalty payments to Ivanhoe Coal Pty Ltd for coal extraction from CCL 712.

This proposal for a resource that hardly seems worth mining will restart open-cut mining in the public forests of the Gardens of Stone region where it has already been twice rejected on environmental grounds. If approved, it will set precedent for open-cut mining in areas that have previously been mined by low intensity underground methods. It is hardly credible that such wasteful and environmentally destructive mining is being attempted for a third time.

Waste Water and Void management

The Colong Foundation is concerned that discharges from the Invincible mine have been and will continue to pollute Cullen Creek and the Turon River. The omission of water quality data from the two paragraph section on water quality (section 6.3.5.4) offers no explanation on mine discharge water quality and its impacts on Cullen Creek.

The Environmental Assessment states that the old Invincible underground workings leak 111 to 317 ML/yr into Baal Bone Colliery. The groundwater salinity of Baal Bone Colliery dewatering discharged to a tributary of Jews Creek measured at 1,125 µS/cm (Invincible EA, pg 108) is partly due to the current dewatering of the northern void through workings associated with the old Invincible mine.

The salinity data for mine water in the Ivanhoe Number 2 should be similar or better than Baal Bone Colliery's (Appendix 4, pg 35). It is of concern though that no groundwater samples were collected directly from the Ivanhoe No. 2 Colliery's underground workings (within the Project Area) for this assessment (see Appendix 5, pg 24).

It is alleged that the water stored within Invincible Colliery's underground workings is very fresh with an EC value of about 150 µS/cm (Appendix 5, pg 24). We consider this figure highly inconsistent with the above salinity levels for mine water associated with workings in the Lithgow Seam. The claim that this later salinity level is due to higher surface water recharge rates into underground workings is inconsistent with Baal Bone data and other comments in the Environmental Assessment quoted above.

The Baal Bone data is consistent with the median salinity of dewatering discharges from Springvale mine at LDP009 said to be 1,170 µS/cm (Springvale water treatment EIS 2016, pg 3.3). So it should be these data from Baal Bone and Springvale upon which consideration of waste water management is based, not the highly exceptional EC value of 150 µS/cm.

The EC figures for surface waters in Cullen Creek downstream of the Invincible open-cut of up to 1080 µS/cm at BWS02 are in line with Lithgow seam mine water, not surface water runoff. Did the water measured in Cullen Creek come from the Invincible open-cut and dewatering of Ivanhoe Number 2?

Apart from mine water potentially flowing to Cullen Creek, current open-cut mining has removed 700 hectares from the Cullen Creek catchment as explained by Table 6.7 on page 114 and also Table 2.1 on page 14 of Appendix 4. The changes to the catchment form previous open-cut mining have captured near-surface groundwater and runoff upslope of the open-cut and directed these flows into the Eastern and Northern Voids.

The abandoned underground workings at the old Invincible mine interconnect with Baal Bone underground workings as indicated in Figure 6.5. It seems that flows to the Eastern and Northern Voids of between 111 and 317 ML/year are lost from Cullen Creek.

Given these losses, the rehabilitation strategy should aim to fill and rehabilitate the northern and eastern voids. The voids, however, are instead to be used to dispose of mine water from Ivanhoe Number 2 workings in the southern extension area, increasing the amount of water transferred to Baal Bone.

The project's water management strategy assumes that pumping from the neighbouring, Baal Bone colliery, will continue, even though this mine is closed and decommissioned.

Discharges from Baal Bone Colliery and the Invincible southern extension should not continue to contaminate Baal Bone Creek. Continued pumping is a poor option for enabling access to the Lithgow Seam in the Invincible Colliery open-cut several kilometres away.

Terminating pumping at Baal Bone colliery will have significant environmental benefits. Baal Bone Creek and associated shrub swamps would slowly recover when relieved of the constant input of mine water pollution. It would also allow groundwater levels to rise in the abandoned mine workings and that in turn would permit recovery of water levels in Long Swamp, a large shrub swamp forming the headwaters of the Coxs River. This swamp suffered groundwater loss when longwall mining operations passed adjacent to it.

The vast subterranean storages in the old Ivanhoe Number 2 workings are a significant component of the water management problem. Due to the shallow nature of these underground workings in Ben Bullen State Forest which refill after rain, the pumping estimates presented for Invincible Southern extension seem very low.

A new water pollution licence will be required as toxic groundwater in the old workings is heavily polluted and must be treated before discharge, yet this is not proposed.

Major environmental problems associated with mine water have not been explained or addressed. In addition, the proposal to mine coal pillars from the old workings in the Ivanhoe Number 2 Colliery is not adequately explained in relation to groundwater disposal.

Any groundwater from the Invincible mine will be contaminated with metals and salts and should not be discharged without treatment using reverse osmosis technology. It would be better if this

water were pumped to the treatment plant at the Springvale coal processing facility three kilometres away, than discharged untreated into Cullen Creek or by Baal Bone mine into Jews Creek.

Biodiversity offsets

Eight vulnerable fauna species and only one vulnerable flora species were recorded by the proponent's consultants in the 50 hectares proposed for open-cut mining. The proposal area also qualifies as habitat for the broad-headed snake and foraging habitat for the large-eared pied bat.

The area is recognised as having high floristic diversity yet surprisingly few threatened plants were identified. Flora, such as ground orchids, have been missed. These results are at odds with independent plant surveys around this mine. In October on one short inspection four orchids were identified by amateur botanists from the Lithgow Environment Group - *Pterostylis bicolor*, *Caladenia tentaculata*, *Caladenia fitzgeraldii* and *Calochilus campestris*.

Even if these surveys did identify all threatened plant species, the subsequent calculation of offsets could not compensate for the significant damage that would be caused to the irreplaceable Ben Bullen Pagoda Land System.

Rehabilitation efforts

Revegetation efforts do not replant or replace native ecosystems. Efforts to improve rehabilitation are welcome but the proposed open-cut mining will destroy the most of the plant diversity found in the mining area.

Vegetation replanted after mining is a human artefact, not a native ecosystem. Such vegetation is without a fully functional soil profile that can recycle nutrients and water, and has no ecological complexity. The re-establishment of soil profiles takes millennia. Adequate establishment of man-made ecosystems is also very long-term.

Employment

Employment will not decrease if the Manildra modification proposal is refused development consent as several other coal producers could produce and supply nut coal to meet the needs of their Bomaderry plant.

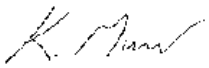
Refusing consent is likely to increase employment as the high quality thermal nut coal required will then probably be provided from underground coal mines. Such production would employ more local miners. Carbon dioxide emissions would be reduced by more efficient coal extraction rather than open-cut mining Ivanhoe Number 2's remnant Lithgow seam.

Refusal of Manildra's environmentally damaging mine will benefit workers, the terrestrial environment, the health and amenity of the Lithgow community as well as reduce greenhouse gas emissions.

No unique coal resources will be 'sterilised' and the security of Manildra's Bomaderry plant will not be affected if the Invincible modification is refused consent.

Thank you for accepting our submission in objection to the Invincible Southern Extension Project.

Yours sincerely,



Keith Muir
Director
The Colong Foundation for Wilderness Ltd

Reference:

Hutton, A. C., 2009, Geological Setting of Australasian Coal Deposits, University of Wollongong, http://ro.uow.edu.au/cgi/viewcontent.cgi?article=1772&context=scipapers