

ENVIRONMENTAL ASSESSMENT REPORT

Bulli Seam Operations Project

Mine Gas Drainage Modification (08_0150 MOD 2)

1. BACKGROUND

South32 Illawarra Coal Holdings Pty Ltd (South32) owns and operates the Bulli Seam Operations Project (BSO Project). The project comprises two underground coal mines, the Appin Mine and the West Cliff Mine, and their respective surface facilities. The project is located 25 kilometres from Wollongong, in the Wollongong, Wollondilly and Campbelltown local government areas (see **Figure 1**).

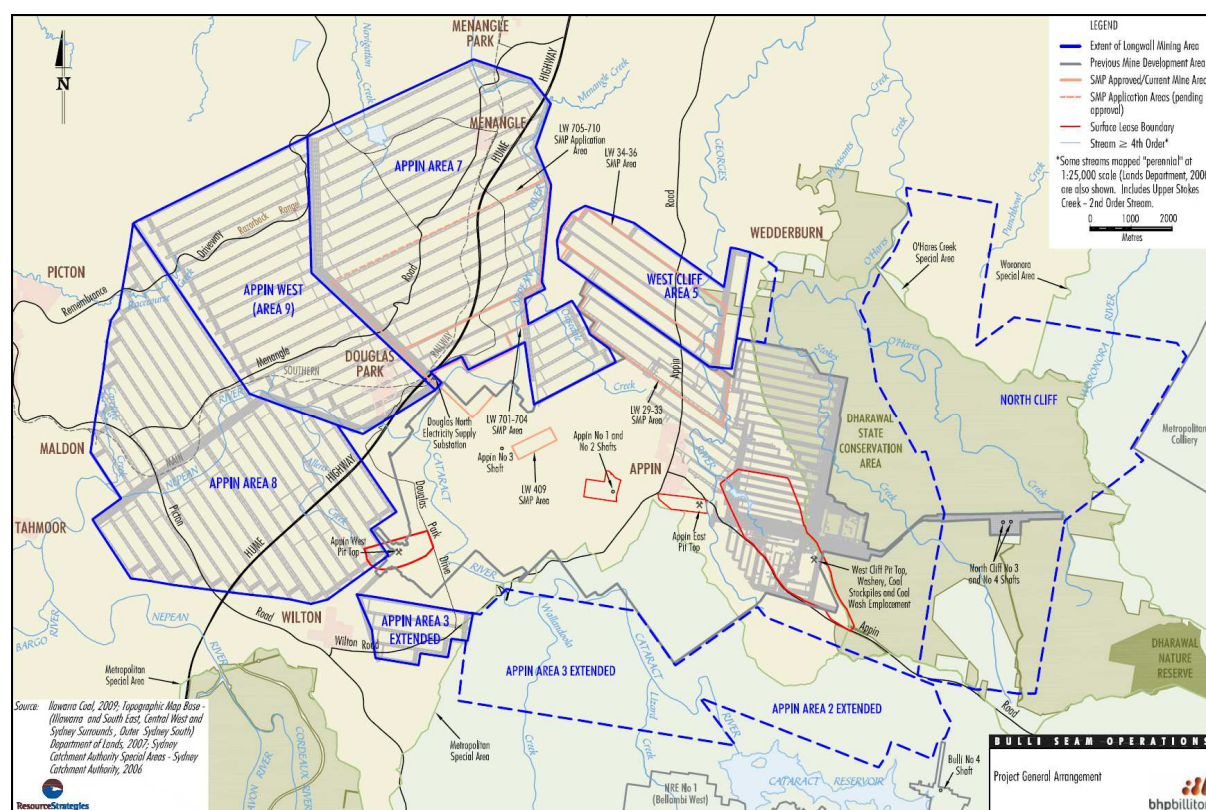


Figure 1: BSO Project

The BSO Project was approved by the Planning Assessment Commission on 22 December 2011 under Part 3A of the *Environmental Planning & Assessment Act 1979* (EP&A Act). The project approval (08_0150) has been modified once, and allows South32 to:

- extract up to 10.5 million tonnes per annum (Mtpa) of coal from the Appin and West Cliff underground mining domains, using longwall mining methods until 2041;
- process the coal at the West Cliff Coal Handling and Preparation Plant;
- operate a range of ancillary mining and mine ventilation facilities at the Appin Mine and West Cliff Colliery pit top sites;
- operate a mine gas drainage system at the Appin Mine pit top;
- transport up to 9.3 Mtpa of product coal by road to Port Kembla for export;
- transport and emplace coal rejects at the West Cliff Emplacement; and
- provide combined strategic biodiversity offsets to meet current and future biodiversity offsetting requirements for the BSO project and the Dendrobium Coal Mine.

South32 also operates the Appin Ventilation Shaft No. 6 (Vent Shaft 6), which is located 500 metres east of Douglas Park township (see **Figure 2**). It was approved under a separate application (10_0079) on 4 May 2011, and has been operating since August 2015.

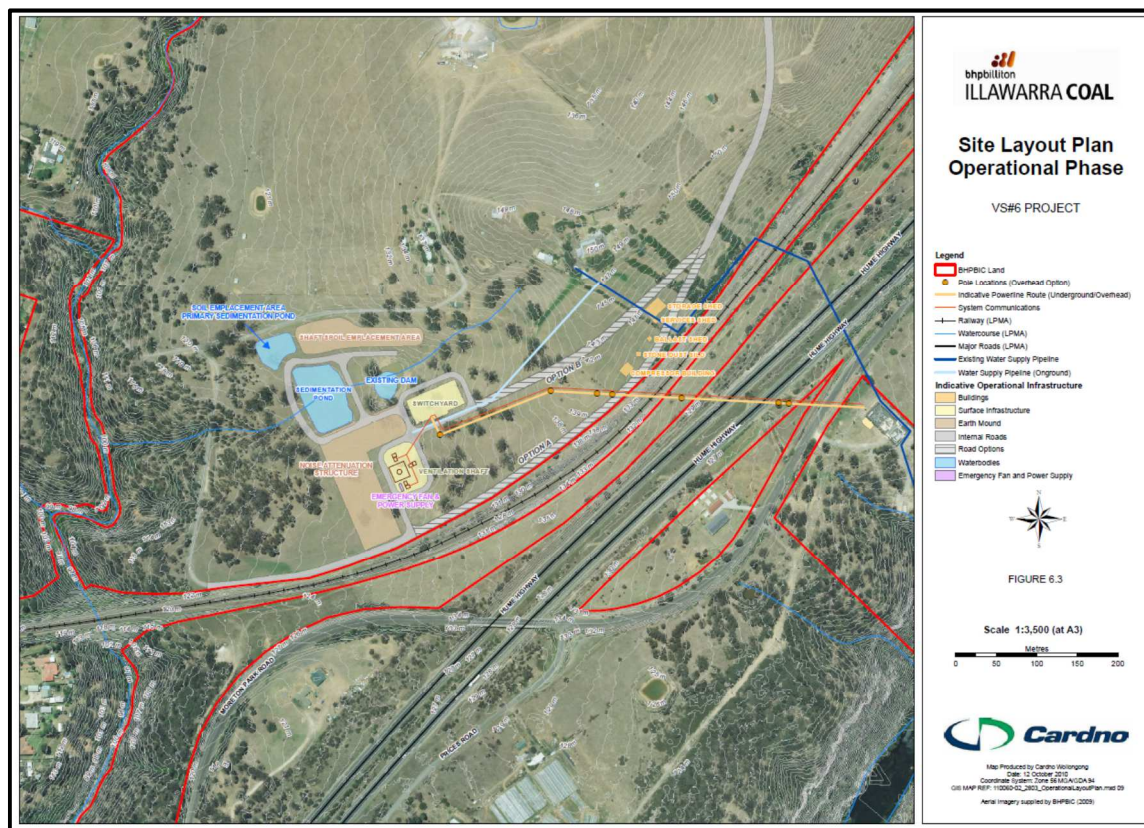


Figure 2: Appin Ventilation Shaft No. 6

2. PROPOSED MODIFICATION

On 5 June 2016, South32 submitted a modification application and Environmental Assessment (see **Appendix A**) for the BSO Project (08_0150 MOD 2).

The proposal involves constructing and operating a 4 km mine gas drainage pipeline between the Appin No. 2 and Appin No. 3 Ventilation Shafts. Ancillary infrastructure would also be required to support the pipeline, including a gas upcast riser within Appin Ventilation Shaft No. 3, and a number of water collection traps to capture gas condensate before this liquid is removed from the site (see **Figure 3**).

The proposed modification also seeks a number of other minor changes to the BSO Project.

2.1 Mine Gas Drainage Pipeline

The mine contains high levels of methane, which must be drained from the coal seams to maintain safe working conditions underground.

The drained gas provides a beneficial re-use, as it fuels a power station which creates enough electricity for approximately 100,000 residences. The drained gas is transferred by a pipeline to gas extraction facilities at the Appin East and Appin West pit top sites.

However the existing gas extraction infrastructure does not have the capacity to effectively handle future gas drainage, given that mining is moving away from the pit tops.

To address this situation, South32 proposes to install a higher capacity suction pipeline. The pipeline would be buried along Wollondilly Shire Council road reserves, except for short sections over the Upper Canal and across two minor watercourses. The pipeline and its associated infrastructure would take up to 8 months to construct.

2.2 Other Changes

The proposal also seeks to regulate the operation of Vent Shaft 6 under the BSO project approval rather than a separate approval.

Vent Shaft 6 is an integral part of the ventilation system for the mining operations at the BSO Project. The proposed modification seeks to surrender the Vent Shaft 6 project approval, and ensure that the all of the BSO Project components are regulated under one approval.

In addition, the proposed modification also includes a number of administrative changes to the project approval, including:

- streamlining the process for providing compensatory water supplies to affected residents;
- removing the requirement for a Personal Emergency Device Management Plan;
- streamlining the way in which minor site surface works are dealt with; and
- closing the BSO Project shopfront in Appin.

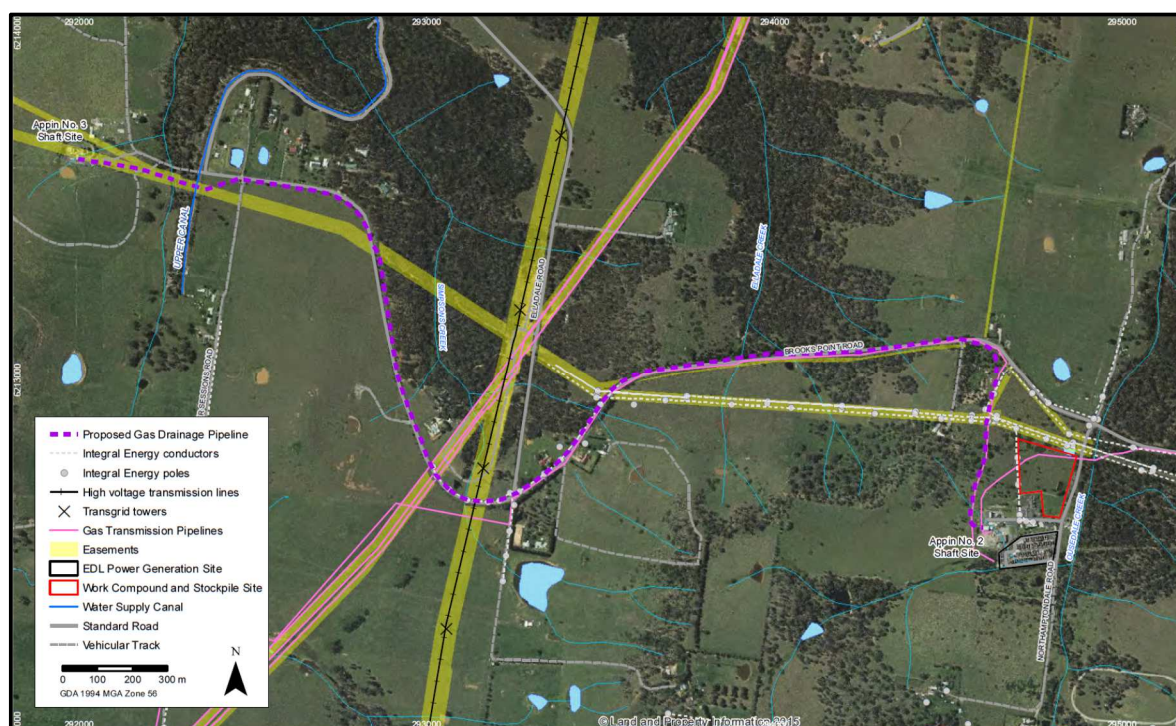


Figure 3: Proposed gas drainage pipeline alignment

3. STATUTORY CONTEXT

3.1 Section 75W

The BSO project was approved under Part 3A of the EP&A Act. Although Part 3A was repealed on 11 October 2011, the Project remains a 'transitional Part 3A project', and can be modified under Section 75W of the EP&A Act.

The Department is satisfied that the proposed modification can be characterised as a modification to the BSO Project Approval. The proposed gas drainage pipeline and associated infrastructure supports the existing approved mine workings. The proposed modification would not change the approved mining area, the approved mining method or increase the production rate. Consequently, the Department considers the proposal to be within the scope of Section 75W of the EP&A Act.

3.2 Approval Authority

The Minister for Planning is the approval authority for the modification application. However, under the Minister's delegation of 16 February 2015 the Director Resource Assessments, can determine the application, as the relevant councils did not object to the proposal, there were no objections received from the public, and a political disclosure statement has not been made.

4. CONSULTATION

The Department publicly exhibited the application and accompanying Environmental Assessment from 8 July until 5 August 2016.

4.1 Submissions

During the exhibition period, the Department received submissions from 10 public authorities (see **Appendix B**). No submissions were received on the proposal from the general public.

None of the public authorities objected to the proposed modification. However most commented on particular aspects of the proposal and made recommendations to manage residual environmental impacts. These comments and recommendations are summarised below, and the issues are considered in more detail in Section 5 of this report.

The **Environment Protection Authority (EPA)** recommended that reasonable and feasible mitigation measures are implemented to manage construction noise impacts at residences along the alignment of the pipeline.

WaterNSW considered it critical that the structural integrity of the Upper Canal is protected. It recommended a range of conditions to manage construction impacts on the canal, and recommended further consultation with WaterNSW during the detailed design phase of the proposal.

The **Office of Environment and Heritage (OEH)** asked that a suitable offset be secured for the clearing of Cumberland Plain Woodland. It also asked South32 to confirm that the local Aboriginal community had been consulted on the proposal. Its **Heritage Division** initially raised concerns that the aesthetics of the State-listed Upper Canal would be affected, and recommended that the pipeline should be constructed under the canal. It consequently acknowledged that a number of constraints would apply to underboring the canal.

The **Department of Primary Industries (DPI Water)** commented that the pipeline would need to be constructed in accordance with relevant guidelines where it affects watercourses.

The **Division of Resources and Energy (DRE)** advised that the proposal would require an update to the current Mine Operations Plan.

Roads and Maritime Services did not object to the proposal.

Wollondilly Shire Council noted that it has entered into a deed of agreement with South32 to undertake the works on Council's road reserves. The agreement includes provision of design information and a community engagement strategy to Council. Council also made recommendations to minimise the biodiversity impacts, water impacts and Aboriginal Cultural Heritage Impacts of the proposed modification.

Campbelltown City Council made a number of recommendations about the management of impacts to the Cumberland Plain Woodland .

Wollongong City Council provided general comments about the need to manage the potential air quality impacts, noise impacts, biodiversity impacts and water impacts of the proposal.

4.2 Response to Submissions

On 6 September 2016, South32 responded to the issues raised in submissions (see **Appendix C**). The Department made this document publicly available and provided it to agencies. The Department also received further comments from OEH about offsetting the clearing of Cumberland Plain Woodland.

4.3 Additional Consultation

During its assessment, the Department consulted with OEH in regard to the proposed biodiversity offset strategy South32 proposed to compensate the loss of Cumberland Plain Woodland.

The Department also held a meeting with WaterNSW and the Heritage Division, where the constraints to underboring the Upper Canal were discussed.

5. ASSESSMENT

In assessing the merits of the proposed modification, the Department has considered the:

- EA for the proposed modification;
- the submissions received and South32's responses;
- current conditions of approval for the BSO Project and Vent Shaft 6;
- relevant environmental planning instruments, policies and guidelines; and
- the requirements of the EP&A Act.

The Department considers that the key issues requiring detailed assessment relate to potential noise impacts during construction of the pipeline, impacts to the heritage values of the Upper Canal System and biodiversity impacts through the clearing of native vegetation.

Other issues relevant to the proposed modification are considered in Section 5.4 of this report.

5.1 Noise

The proposed gas drainage pipeline alignment is mostly sited within the road reserve of Brooks Point Road, which predominantly consists of rural residential properties (see **Figure 4**).

The only potential noise impacts would occur during construction, as the pipeline would be inaudible at residences when it is operational.

During the 8 month construction schedule there are likely to be exceedances of the EPA's *Interim Construction Noise Guidelines* (ICNG) noise management levels at a number of residences.

A total of 37 residences are near the pipeline alignment (see **Figure 4**). Of this total, 23 residences would be potentially impacted by high levels of construction noise, with 20 likely to experience construction noise above the ICNG "noise affected" level (i.e. the background noise level plus 10 decibels), and 3 (78, 217 and 218) likely to be "highly noise impacted" (i.e. noise levels above 75 decibels).

The Department acknowledges that there is limited scope for South32 to reduce these construction noise exceedances, however with careful management and close consultation with landowners, South32 could limit the resulting effects of construction noise.

South32 has proposed a range of noise mitigation measures, which include:

- compacting the overall construction schedule, by using two work crews operating simultaneously from either end of the pipeline alignment;
- providing a hotline for residents to contact the proponent with any concerns about noise impacts
- undertaking all construction works only during standard hours (i.e. Monday to Friday 7.00 am to 6.00 pm, Saturday 8.00 am to 1.00 pm);
- adjusting the construction schedule in consultation with affected residents, to provide respite from the noisiest activities, and avoiding undertaking these activities during sensitive times of day (e.g. early mornings); and
- installing temporary noise barriers at the residence, if necessary.

The Department acknowledges that some residents may consider the construction noise impacts of the proposed modification to be intrusive, however it notes that the noisiest activities would only affect each receiver for a matter of days at the most. The Department considers that with the above described suite of noise management measures, construction noise could be effectively managed at the 20 "noise affected" residences.

For residences 78, 217 and 218, the impacts would be greatest for only two weeks in total, while the pipeline is being laid directly in front of the residence. The Department requested that South32 consult with the property owners and notes that it has subsequently offered to enter into written noise agreements with them to manage the construction noise impacts.

The Department supports this commitment, which aligns with EPA's recommendation to implement reasonable and feasible mitigation, and accords with the measures recommended under the ICNG for highly noise affected residences.

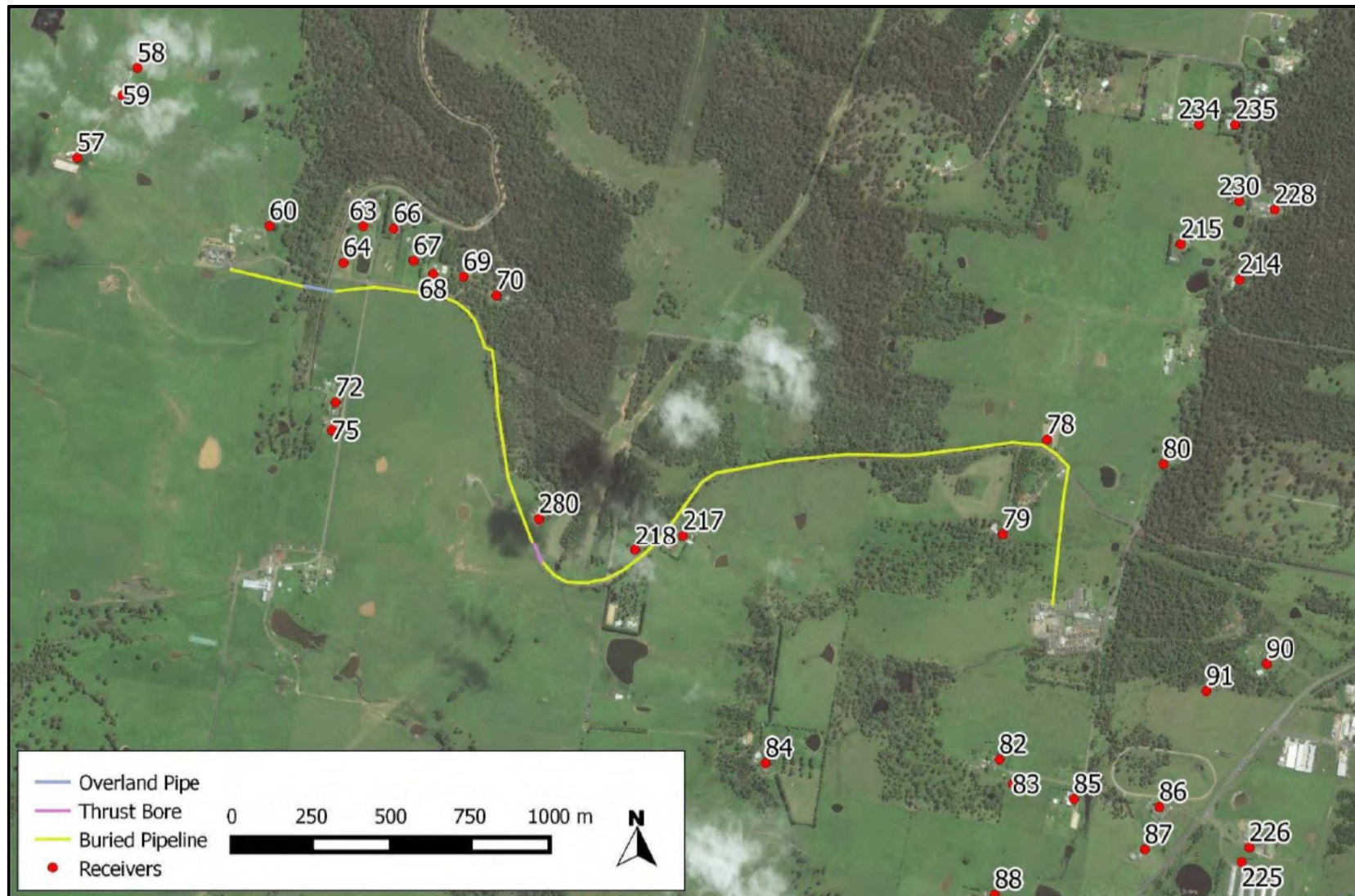


Figure 4: Residences near the proposed pipeline

Furthermore, the Department has recommended an additional condition of approval requiring construction noise impacts of the gas drainage pipeline to be managed in accordance with the ICNG. The approved noise management plan for the project would also be updated to manage the operational noise impacts of the modified project.

5.2 Historic Heritage

The proposed gas drainage pipeline is proposed to cross the Upper Canal (see **Figure 5**).



Figure 5: Proposed Upper Canal crossing

The Upper Canal is owned and operated by WaterNSW. It was built in the 1880's and still supplies up to 40% of Sydney's drinking water. Since its listing on the State Heritage Register in 1999, a number of linear structures have been built over the Upper Canal.

There are essentially two key issues to consider in relation to the Upper Canal.

Firstly, the Heritage Division initially wanted the pipeline to be constructed beneath the canal, in order to protect and preserve its aesthetic heritage values.

South32 investigated this option. It found that while this option would be feasible from an engineering perspective, it would:

- require a far greater development footprint;
- involve additional construction works;
- significantly increase the risk of damaging the structure of the canal; and
- significantly increase the capital cost of the pipeline.

In addition to these constraints, the Department notes that the canal is 64 km long, and the section that the pipeline would cross has limited access to the general public. Therefore it is unlikely that very many people would visit this section of the canal to appreciate its aesthetic values. For the above reasons, the Heritage Division acknowledges that the pipeline can be built over the canal in this instance.

Secondly, as the canal continues to play an important role in supplying drinking water, the Department considers it critical to minimise any risks to its structural integrity. WaterNSW has asked to be consulted on the final detailed design plans for the pipeline, and for a vibration monitoring program to be implemented, to check that no damage is occurring to the canal during construction.

The Department considers the risks to the structural integrity of the Upper Canal would be appropriately managed under a suite of additional conditions of approval it has recommended, which require South32 to:

- not cause any damage to the Upper Canal during the construction and operation of the pipeline;
- undertake pre-construction and post-construction dilapidation surveys of the Upper Canal, in consultation with WaterNSW and the Heritage Division;
- develop the final detailed design plans of the pipeline with WaterNSW; and
- monitor the vibration levels of all earthworks within 25 metres of the Upper Canal.

Further, the Department acknowledges the Heritage Division's concerns about cumulative impacts to the aesthetic values of the Upper Canal, and notes that WaterNSW is currently in the process of updating its guidelines for works which affect the Upper Canal. The Department therefore considers that the opportunity exists for these guidelines to include consultation with the Heritage Division on future proposals which may affect the heritage values of the canal.

5.3 Biodiversity

The Ecology Impact Assessment in the EA found that most of the vegetation that would be affected by the proposal is cleared land or exotic pasture. It also found small areas of regenerating Cumberland Plain Woodland, which is a Critically Endangered Ecological Community (EEC) listed under the NSW *Threatened Species Conservation Act 1995*.

The proposal would clear 0.45 hectares of Cumberland Plain Woodland. However, this area of EEC has been affected by previous clearing in the Brooks Point Road corridor, and is in poor condition.

Notwithstanding the condition of the Cumberland Plain Woodland that would be cleared, the Department and OEH agree that this loss should be suitably offset.

South32 has since offered to purchase and retire four Cumberland Plain Woodland ecosystem credits from a biobanking site currently being established adjacent to the Appin West Pit Top. OEH accepts that this offer would be a suitable offset for the proposed clearing.

The Department has accordingly recommended a condition of approval that South32 offsets the clearing in consultation with OEH and to the satisfaction of the Secretary. It has also recommended that the Biodiversity Management Plan for the project be expanded to include a protocol for the translocation of the Cumberland Plain Snail and nest boxes to compensate the loss of hollow-bearing trees.

5.4 Vent Shaft 6 Project Approval

South32 intentionally submitted the Vent Shaft 6 project application separately to the BSO project application so that it could develop Vent Shaft 6 first and allow the underground mine workings to be developed more quickly.

Now that Vent Shaft 6 is fully operational, and the BSO project is well underway, it is considered logical to integrate the Vent Shaft 6 conditions into the BSO Project Approval. This would provide various administrative efficiencies, particularly through the consolidation of the respective management regimes and reporting requirements.

Consequently the Department supports the proposal.

The Department has recommended that a range of the Vent Shaft 6 conditions are incorporated into the BSO Project Approval, including those relating to:

- biodiversity matters, including Vent Shaft 6 offsets;
- noise impact assessment criteria for Douglas Park residences;
- residual heritage matters, including the ongoing management of the Mountbatten Group of heritage buildings; and
- the Vent Shaft 6 Statement of Commitments.

5.5 Other Issues

The Department has summarised its assessment of a range of other matters in **Table 1**.

Table 1: Assessment of other issues

Issue and Assessment	Recommendation
Traffic & Transport	
<ul style="list-style-type: none"> • Around 16 truck movements a day would be generated during construction of the pipeline. • Brooks Point Road can handle this minor increase in traffic. • Partial road closures would be required, but these closures would only last for between 2 to 5 days, and would be managed in accordance with Wollondilly Council's requirements. • The proposal may temporarily disrupt access to the private access to some residences on Brooks Point Road, however this would be fully communicated to the resident well in advance of construction, and would only last for a maximum of 2 days at each residence, given that around 100 m of pipeline is proposed to be laid per day. • South32 would require relevant <i>Roads Act 1993</i> approvals from Wollondilly Shire Council before constructing the pipeline. 	<ul style="list-style-type: none"> • Expand the approved Traffic Management Plan to include construction traffic management measures, and appropriate community consultation protocols.
Soil and water	
<ul style="list-style-type: none"> • The pipeline would be mostly laid in a 2 m x 2 m trench which would be covered as soon as the pipe is laid, to avoiding stockpiling of soil for extensive periods. • The proposal would cross Elladale Creek and Simpsons Creek. It would be unlikely to result in significant impacts to these watercourses, as appropriate controls would be implemented in consultation with DPI Water and consistent with the relevant guideline for constructing pipelines on waterfront land. • South32 is required to replace any private water supply lost as a consequence of the project, within 24 hours of the loss being reported, following consultation with DPI Water and approval by the Secretary. • This consultation and approval process is proposed to be streamlined, and instead detailed in the Surface Water Management Plan. • In this way, South32 would be able to meet the 24-hour timeframe to replace the water supply, and in a manner approved by DPI Water and the Department. • The Department does not object to South32 having an upfront approved water supply compensation protocol, to ensure it can act quickly restore and/or compensate affected private water supplies. 	<ul style="list-style-type: none"> • Update the Surface Water Management Plan to include the upfront approval of protocols to quickly compensate the loss of private water supplies.
Surface Activities Management Plan	
<ul style="list-style-type: none"> • The Department does not object to the removal of the Personal Emergency Device (PED) Communications Management Plan, as a PED cable was never installed, due to newer and more efficient technology being used instead. • The existing Service Boreholes Management Plan would be expanded into a Surface Activities Management Plan, to cover a range of surface activities. • The plan would include the protocols to develop a range of minor site activities for the BSO project, such as service boreholes, minor pipelines, electrical infrastructure, minor public infrastructure works, and communications and monitoring equipment. • The Department does not object to this initiative. 	<ul style="list-style-type: none"> • Delete the conditions requiring a PED Communications Management Plan and Service Boreholes Management Plan, and replace with the requirement to prepare a Surface Activities Management Plan.
Aboriginal Cultural Heritage	
<ul style="list-style-type: none"> • No additional Aboriginal Cultural Heritage sites or artefacts were located during the assessment of the proposed disturbance corridor. • The current approved management regimes and protection protocols would apply to the proposed modification. • The approved Heritage Management Plan would be updated as necessary to include Vent Shaft 6, and the proposed gas drainage pipeline. 	<ul style="list-style-type: none"> • Update the Heritage Management Plan.
Community Information	
<ul style="list-style-type: none"> • South32 operates a Community shopfront in Appin Village, which it now wishes to close, as mining is moving away from Appin and towards Douglas Park. • South32 has consulted with the community, which supports the closure of the shop. • The Department is satisfied that South32's proposal to increase its web-based community consultation strategies, and target the Douglas Park community is appropriate in this case. 	<ul style="list-style-type: none"> • Update the Statement of Commitments.

6. RECOMMENDED CONDITIONS

The Department has prepared a Notice of Modification for the proposed modification (see **Appendix D**).

The Department's proposed conditions mainly relate to integrating the residual construction and operational conditions of Vent Shaft 6 with the BSO Project.

The Department considers that the construction and operational impacts of the gas drainage pipeline could be appropriately managed within the existing management regime of the project, with additional conditions to protect the Upper Canal, and with appropriate updates to the various management plans under the project approval.

The Department has also taken the opportunity to update the conditions in terms of agency names and references. South32 has accepted the proposed conditions.

7. CONCLUSION

The Department has assessed the merits of the proposed modification in accordance with the relevant requirements of the EP&A Act, including the objects of the Act and the principles of ecologically sustainable development.

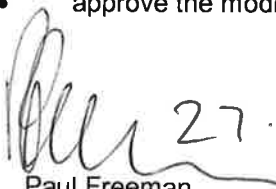
The Department considers the proposed modification has merit and should be approved, subject to conditions, as it would ensure the continued safe operation of the Appin Mine underground workings for the life of the mine. It would also continue to supply gas for residential energy generation purposes for up to 100,000 homes.

The proposed modification would also not significantly increase the approved impacts of the project as a whole, as the construction impacts of the gas drainage pipeline would be temporary and would be able to be managed in accordance with strict protocols and relevant guidelines. The residual biodiversity impacts of the proposed modification would be able to be appropriately offset. The operational impacts of the pipeline would be negligible and would be managed in accordance with the conditions of approval.

8. RECOMMENDATION

It is **RECOMMENDED** that the A/Director, Resource Assessments, as delegate of the Minister for Planning:

- consider the findings and recommendations of this report;
- determine that the proposed modification (08_0150 MOD2) falls within the scope of Section 75W of the EP&A Act;
- approve the modification application under Section 75W of the EP&A Act.



27.10.16

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28/10/16

Clay Preshaw
A/Director, Resource Assessments

APPENDIX A – ENVIRONMENTAL ASSESSMENT

See website at:

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=7522

APPENDIX B – SUBMISSIONS

APPENDIX C – RESPONSE TO SUBMISSIONS

APPENDIX D – NOTICE OF MODIFICATION

APPENDIX E – MODIFIED PROJECT APPROVAL