



Centennial Coal



Response to Submissions

Springvale Colliery

Bore 8 Dewatering Facility

Section 75W Modification

Development Consent DA11/92

December 2012

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1. INTRODUCTION

This *Response to Submissions* (RTS) report has been prepared by Centennial Coal Company Pty Limited (Centennial) in response to submissions lodged with the Department of Planning and infrastructure during the public exhibition of the *Environmental Assessment* (EA) for Springvale Colliery's proposed Bore 8 Dewatering Facility. The EA was exhibited from 13 October to 29 October 2012, inclusive.

The Bore 8 EA has been prepared in support of an application for the modification of Springvale Colliery's development consent DA 11/92 under Section 75W of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The RTS report has been prepared in accordance with Section 75H(6) of the EP&A Act and addresses issues raised in submissions received on the EA. The report builds on information presented in the EA and is to be read in conjunction with the EA.

2. BACKGROUND

Springvale Colliery (Springvale) is an underground coal mine located within the NSW Western Coalfields, approximately 15 km northwest of Lithgow. Springvale is owned and operated by Springvale Coal Pty Ltd (Springvale Coal), a joint venture company owned in equal share by Centennial Springvale Pty Ltd and Springvale SK Kores Pty Limited.

Springvale was originally granted development consent in respect of development application (DA) 11/92 on 27 July 1992 by the Hon. Robert Webster, the then Minister for Planning, pursuant to Section 101 of the EP&A Act. This consent permitted the construction and operation of an underground coal mine to produce up to 3.4 Mtpa of coal, along with an overland conveyor system and a coal preparation plant. Longwall mining at Springvale commenced in 1995, extracting thermal coal from the Lithgow Seam.

DA 11/92 has subsequently been modified on two occasions, in 1993 and 1994. The 1993 modification allowed for a number of amendments including changes to the Springvale Pit Top layout, a new mine entry, relocation of an overland conveyor route, and use of the existing CPP facilities at the former Western Main Colliery, now the Springvale Coal Services. The 1994 modification related to a change in the schedule of lands and tenements associated with DA 11/92.

Springvale Coal are seeking a further modification to DA 11/92 to allow for the construction and operation of an additional surface mine dewatering facility, the Bore 8 Dewatering Facility (referred to as Bore 8) to be located on the Newnes Plateau within the Newnes State Forest to replace the existing dewatering facility, Bore 6. Bore 8 is required to facilitate the progress of coal extraction further to the east of existing workings at Springvale, so that water levels in the mine can be kept at safe and manageable levels, reducing operational risk associated with underground water management. The bore will form a critical part of Springvale's existing dewatering system as longwall mining progresses through approved longwalls (LWs) LW416 to LW419. Water pumped out of the underground workings at Bore 8 will be transferred via predominantly trenched pipelines to Wallerawang Power Station, as part of the existing Springvale-Delta Water Transfer Scheme.

Bore 8, a fenced compound with a final footprint of 0.32 hectares (ha), will house four boreholes installed with submersible pumps, an associated switchroom with power control equipment for the operation of the pumps, and a sump. An access track and ancillary infrastructure corridor to Bore 8 totalling approximately 3.5 km in length and 10 m wide will also be established, utilising an existing track. 11 kV cables and water transfer pipelines will be buried in the infrastructure corridor alongside the access track within this 10 m wide corridor.

Construction of Bore 8 and the associated infrastructure corridor will involve a total disturbance of approximately 4 ha of vegetation. Partial rehabilitation of the disturbed areas totalling 2.34 ha will be undertaken following infrastructure installation. Bore 8 will require to be constructed and be commissioned by June 2013 when the current dewatering bore (Bore 6) will no longer

function effectively at managing mine inflows. Bore 8 will service LW416 to LW419 at Springvale, longwalls already approved in DA 11/92, and will be decommissioned at the end of 2016. Full rehabilitation will subsequently occur to return the drill pad area to an end land use of nature conservation or open forest.

3. OVERVIEW OF SUBMISSIONS

Seven submissions were received by the DP&I from government agencies only, noted below. No submissions from the public or the Special Interest Groups were received on the EA.

- Lithgow City Council (LCC)
- Division of Resources and Energy (DRE), NSW Department of Trade & Investment, Regional Infrastructure & Service
- NSW Environment Protection Authority (EPA);
- Hawkesbury-Nepean Catchment Management Authority (HNCMA)
- NSW Office of Environment and Heritage (OEH)
- Forests NSW, Department of Primary Industries
- Department of Primary Industries, NSW Office of Water (NOW);

A summary of issues raised in the submissions is provided in **Table 1**. This table also identifies the section within this report where the issue has been addressed. **Table 2** summarises the support the project has received from the government agencies identified.

Table 1 – Summary of Issues Raised in Submissions

Issue	Raised By	Summary of Issue	Where Addressed
Bore 8 and the Springvale Mine Extension Project	OEH	OEH questions if the Bore 8 proposal is designed to facilitate the proposed Springvale Mine Extension Project, and if so, why the Bore component is not being submitted as part of the Extension project.	Section 4.1
Cumulative impacts of Centennial's Western Operations proposals	OEH	OEH considers that while the degree of impact of Bore 8 may be relatively moderate, the cumulative impacts of Centennial's Western Operations proposals are likely to be extensive. The proposals should seek to avoid, mitigate and offset impacts on biodiversity and cultural heritage. OEH advises a regional offset proposal, that takes into account the cumulative impacts of these proposals, should be formulated.	Section 4.2
Degree of impact and proposed rehabilitation	OEH	Details of rehabilitation procedures following initial construction activities and whether the rehabilitated area will be suitable for <i>Persoonia hindii</i> are not provided.	Section 4.3
Cumulative impact on <i>Persoonia hindii</i>	OEH	No consideration has been given to the cumulative impact on <i>Persoonia hindii</i> .	Section 4.4

Issue	Raised By	Summary of Issue	Where Addressed
Mitigation of impacts on <i>Persoonia hindii</i>	OEH	Mitigation of impacts on <i>Persoonia hindii</i> has not been considered.	Section 4.5
Biodiversity offset proposal	OEH	OEH contends the EA does not include a detailed offset proposal, which would include the cumulative impacts of all Centennial proposals located on Newnes Plateau.	Section 4.6
Aboriginal Cultural Heritage report	OEH	<u>Issue 1</u> Table 2.6 (page 18 of the Aboriginal Cultural Heritage report (Appendix J of EA) has an incorrect heading. <u>Issue 2</u> OEH seeks clarification regarding Helen Riley's affiliation and involvement in the consultation process.	Section 4.7
Rehabilitation Management Plan	DRE	DRE recommends that standard Rehabilitation Management Plan condition be included in the approval conditions.	Section 4.8
Recommendations for the minimisation of impacts on the environment	HNCMA	The HNCMA acknowledges the investigative work that has been undertaken in the preparation of the EA, and that some of HNCMA recommendations for the minimisation of impacts to the environment surrounding the Bore 8 footprint are already included as draft Statement of Commitments (Table 34) in the EA.	Section 4.9
Approval requirements	Forests NSW	Forests NSW recommends: - any approval of the application should require implementation of measures in the <i>Statement of Commitments</i> regarding threatened species and heritage - any approval of the application should include a requirement that the proposed development is secured from the public at all times (which is a requirement in the Operational Plan for the Forest).	Section 4.10
Licensing arrangements	NOW	NOW will assess Springvale's requirement for any future accounting for the take of groundwater in accordance	Section 4.11

Issue	Raised By	Summary of Issue	Where Addressed
		with the rules of <i>Water Sharing Plan for the Greater Metropolitan Region Groundwater Sources 2011</i> .	
Water Management	NOW	- The transfer of groundwater from Bore 8 to Springvale's coal handling facility prior to discharge or on-supply to other water users (Delta Electricity) should be incorporated into Springvale's water access licences. - Springvale should develop a water management transfer component of its Site Water Management Plan, to incorporate the installation of the transfer pipeline and any necessary upgrade to water management facilities to address incremental increase in groundwater take by Springvale.	Section 4.12
Recommended Conditions of approval	NOW	NOW recommends the following conditions of approval: <i>Minimise groundwater impacts</i> – the project should be carried out in such a way that prevents and/or minimises the potential surface and groundwater impacts of the project. <i>Baseflow offsets</i> – the project should offset the loss of any baseflows to watercourses. Offsets should be provided by the retirement of adequate water entitlements to account for loss attributable to the project.	Section 4.13
Water Management Plan	NOW	The Proponent shall develop and implement a Water Management Plan for the overall Springvale Coal Mine operations, which includes the additional Dewatering Bore No.8. This Plan must be developed in consultation with the Office of Water and include: - accounting for groundwater ingress against the rules of the <i>Water Sharing Plan for the Greater Metropolitan Region Groundwater Sources 2011</i>, - identification and quantification of the sources of groundwater ingress to the mining operation, including any inter-change from closed, flooded mine workings (State Mine or Kerosene Vale) up-dip of the mine workings, - the installation, operation and reporting on changes in groundwater levels and pressures above and below the Mt York Claystone and the water	Section 4.14

Issue	Raised By	Summary of Issue	Where Addressed
		bearing zones of the Banks Wall sandstone strata, • extension of groundwater monitoring to all upland swamps within the envelope of <i>groundwater drawdown</i> surrounding the Springvale mining operation, • conduct of on-going monitoring and provide reports on measurable changes to groundwater quality within the Banks Wall sandstone and aquifers above the Banks Wall sandstone, and • contingency arrangements to any detected changes to groundwater conditions in the monitoring programme above, including: ○ development of threshold triggers to changes in groundwater levels, pressures and quality, in accordance with ANZECC ecosystem protection requirements, ○ development of verification procedures to the groundwater predictions made for the Springvale development consent and Bore 8 EA, ○ formation of reporting procedures to the Office of Water with respect to the monitoring and verification requirements identified above, ○ development of potential mitigation response measures to such measured changes, and ○ development of operational and post-operational management measures in the event that impacts exceed trigger levels, and/or extend beyond the approval period in force.	

Table 2 – Summary of Support Received

Government Agency	Support Summary	Action
DRE	DRE supports the proposed modification which will enable the expansion of Springvale Colliery while effectively managing underground water issues. DRE notes the proposal is generally consistent with the existing consent.	Noted
EPA	- The EPA is satisfied the proposed construction and daily operation of the Bore 8 dewatering facility can be managed in such a way as to have negligible impacts on the environment with respect to air, noise and surface water quality. - The EPA supports the relevant commitments summarised in Table 34 (Section 8.9, pages 113 to 114) of the EA. - The EPA is also aware that Centennial Coal has successfully constructed, operated and rehabilitated similar groundwater sites on Newnes Plateau in recent years.	Noted
LCC	LCC has no objections to the proposed modification.	Noted
Forests NSW	Forests NSW advises: - the proposal utilises a path of least disturbance and is fundamentally acceptable - Forests NSW is engaged in the process of issuing an Occupation Permit to Centennial Coal for the site itself and associated supporting infrastructure.	Noted

4. RESPONSE TO SUBMISSIONS

Centennial Coal provides the following responses to submissions and key issues summarised in **Section 3**.

4.1. Relationship between Springvale's Bore 8 and Mine Extension Projects

Issue

OEH questions if the Bore 8 proposal is designed to facilitate the proposed Springvale Mine Extension Project, and if so, why the Bore 8 component is not being submitted as part of the mine extension project.

Response

The proposed Bore 8 will service longwalls LW416 to LW419 which, as noted in **Section 2**, were approved under DA 11/92. Bore 8 will replace Springvale's current dewatering Bore 6 which, at the commencement of extraction from LW416 (scheduled in June 2013), will no longer be effective at managing mine inflows as part of operational requirements. Bore 6 will be decommissioned at the end of 2013, and as noted in Section 7.12.2 of the EA, will subsequently be rehabilitated, similar to the former Springvale dewatering bores where rehabilitation of sites have been successfully undertaken.

The Bore 8 facility will become operational in June 2013 and will continue to service Springvale's mining operations until the end of 2016. It is noted this bore will still be in service when Springvale's current consent (DA 11/92) lapses in September 2014. The current mine schedule shows that in September 2014 Springvale will be extracting coal from LW417 and undertaking development works in LW419. So while Bore 8 will be required to service LW417 to LW419 beyond this date, if the Springvale Mine Extension Project is approved, the fact remains that it will be required at least one year before the new consent commences.

Given that Bore 8 will replace Bore 6 and will be temporary infrastructure at Springvale, its construction and operation is unlikely to increase the cumulative impact significantly. The impacts of Bore 8 will however be assessed again as part of the proposed mine extension project, when two additional dewatering bores (Bores 9 and 10) specifically designed to facilitate the mine extension project, will also be assessed.

Action

No action is required as the construction and operation of the Bore 8 Dewatering Facility is generally in accordance with DA 11/92 consent conditions.

4.2. Cumulative impacts of Centennial's Western Operations proposals on Biodiversity and Cultural Heritage

Issue

OEH considers that while the degree of impact of Bore 8 may be relatively moderate, the cumulative impacts of Centennial's Western Operations proposals are likely to be extensive. The proposals should seek to avoid, mitigate and offset impacts on biodiversity and cultural heritage. OEH advises a regional offset proposal, that takes into account the cumulative impacts of these proposals, should be formulated.

Response

The 'avoid, minimise and mitigate principles' were incorporated into the design of the Bore 8 project to the extent considered reasonable and feasible for the project. Centennial applies

these principles to all its projects, including the proposed Angus Place Colliery's Ventilation Shaft Facility, also to be located on Newnes Plateau. Mitigation measures identified in the respective EAs of the Bore 8 Dewatering Facility and the Angus Place Colliery's Ventilation Shaft Facility projects will be implemented (refer to the respective draft *Statements of Commitments* for the projects), and as concluded in the respective EAs the residual impacts of the projects are expected to be minimal.

The cumulative impacts of Centennial's Western Operations proposals will be assessed when the *Environmental Impact Statements* (EIS) of the three mine extension projects (Angus Place, Springvale, Airly), Centennial Western Coal Services and Neubeck projects are prepared. These assessments will take into consideration the cumulative effects of the existing approved operations in the region, including the proposed Bore 8 facility, and the new proposed infrastructure and operations in the mine extension projects. A regional offset proposal to mitigate the residual cumulative impacts of these projects will subsequently be formulated by Centennial, in consultation with the OEH. Initial consultations with the OEH have already commenced (refer **Section 4.6**).

Action

The cumulative impacts of all proposals from Centennial's Western Operations will be assessed within the next year as part of the preparation of the respective EISs. A regional offset strategy, addressing OEH's *Principles for the use of biodiversity offsets in NSW* to mitigate the residual cumulative impacts of the proposals, will be formulated. This regional offset strategy will be formulated in consultation with the OEH.

4.3. Degree of impact and proposed rehabilitation

Issue

OEH notes that details of rehabilitation procedures following initial construction activities, and whether the rehabilitated area will be suitable for *Persoonia hindii*, are not provided.

Response

Section 7.12 of the EA describes in detail the rehabilitation that will be undertaken of the Bore 8 drill pad site and the access track to the drill pad. It describes the rehabilitation objectives and outcomes (Section 7.12.1), rehabilitation procedures (Section 7.12.2), and rehabilitation performance criteria and monitoring strategy (Section 7.12.3). Briefly, following initial construction activities comprising infrastructure installation, partial rehabilitation of the disturbed areas will be undertaken, using soil excavated during the site establishment phase and stockpiled separately as topsoil and subsoil, to form the site compound with a footprint of 0.32 ha with the associated asset protection zone around it. Full rehabilitation of the drill pad will be undertaken only on decommissioning when Bore 8 is no longer required by the end of 2016.

Given that the proposed re-profiling activities during rehabilitation on the disturbed areas will aim to create:

- a self-sustaining, free-draining final landform with topography consistent with the pre-disturbance topography
- rehabilitated areas with similar land capability to the current land capability

it is highly likely the rehabilitated areas will be suitable to be colonised by *Persoonia hindii*. The proposed re-use of the topsoil excavated will aid with the re-colonisation of the rehabilitated area as it will contain rhizomes of *Persoonia hindii*, in addition to many seeds of native vegetation.

The Bore 8 project is proposing to remove 93 stems (not entire plants) of *Persoonia hindii* from within the Project Application Area along the access track (refer Figure 8 of the EA or Figure 3-2 of the *Bore 8 Flora and Fauna Assessment* (Appendix H of the EA)) while numerous *Persoonia*

hindii stems were recorded within the project's study area, defined as the project construction footprint along with the additional 30 metres on each side of the existing track.

Persoonia hindii exist as rhizomes and the implication of not removing the entire plants during vegetation clearing for the Bore 8 project is that the extensive rhizomes of the *Persoonia hindii* plants in the vicinity of the disturbance areas along the access track will remain within the sub-surface soil layers. The rhizomes can survive and reproduce independently of the neighbouring stems and will therefore have the potential to continue re-colonising. Anecdotal evidence suggests that the species has good level of tolerance to disturbance, as shown in **Plate 1**, which depicts several stems of *Persoonia hindii* re-colonising a road verge along Sunnyside Ridge Road on the Newnes Plateau following disturbance. It is therefore considered likely that re-colonisation of the rehabilitated areas would occur naturally, from either the soil seed bank or through spreading rhizomes from plants at the edge of the disturbance footprint.

The Part 3A Key Thresholds Assessment for the threatened species that occur or have the potential to occur within the vicinity of the defined study area, including *Persoonia hindii*, undertaken in accordance with the *Threatened Species Assessment for Part 3A Applications* (DEC/DPI, 2005) as part of the *Bore 8 Fauna and Flora Assessment* (refer Appendix H of the EA) has concluded any impact on flora biodiversity values of the area will be negligible and the degree of the impact noted in the EA is very conservative.



Plate 1 – *Persoonia hindii* re-colonising a road verge on Sunnyside Ridge Road on Newnes State Forest (Photo Source: RPS Australia Asia Pacific)

Action

Centennial will undertake research to understand the rhizomatous spreading potential of *Persoonia hindii* by:

- monitoring the re-colonisation of the rehabilitated areas of the relevant sections (isolated from public access) of the access tracks at regular intervals (biannually) following the conclusion of the rehabilitation activities for a total of three years of monitoring
- the management of the residual populations of *Persoonia hindii* identified to exist in the vicinity of the proposed access track to Bore 8 drill pad (i.e. not proposed to be removed for the project)

- monitoring the success of re-germination of stems, removed during vegetation clearing, and subsequent translocation of these stems to the rehabilitated areas (refer **Section 4.5**), to determine the effectiveness of translocation of *Persoonia hindii*
- investigation into the nature and extent of *Persoonia hindii* on the Newnes Plateau and develop up to date maps of the distribution of *Persoonia hindii* in the region
- dissemination of the monitoring data and an accompanying report to the OEH.

The draft *Statement of Commitments* (refer **Section 5.0**) has been updated to reflect this action.

4.4. Cumulative impact on *Persoonia hindii*

Issue

OEH notes no consideration has been given to the cumulative impact on *Persoonia hindii*. It is proposed to remove 93 individual stems of *Persoonia hindii* (0.8%) from a local population (within 2.8 km of the Bore 8 location) estimated to be at least 12,000 plants. *P. hindii* has an estimated population of 19,386 stems on the Newnes Plateau, where it is endemic.

Response

The Bore 8 project proposes to remove 93 stems (0.8%) of at least 12,420 stems within the local population, defined as stems within an approximate 3 – 4 km distance from the Bore 8 Project Application Area. The nearby Angus Place Colliery Ventilation Shaft Facility project will impact up to 1,269 individual stems in this local population. The overall cumulative loss as a result of these two projects could therefore be up to 1,362 stems (approximately 11%).

While the approximate 11% cumulative impact noted above may be seemingly high it should be noted the 12,420 stems within the local population is likely to be an underestimate as this local population is considered only part of the actual population likely to be present in the general area. Not all individuals within the 3 – 4 km radius would have been encountered during the surveys undertaken for the projects due to logistics. For this reason, the cumulative impact would be smaller than the approximate 11% being reported. Notwithstanding the above, the 11,054 known stems that will remain within the local population are likely to persist *in situ* and further colonise the areas in the vicinity of the disturbed or rehabilitated areas (refer **Section 4.2**), provided the species is afforded appropriate management.

OEH quotes an estimated population of 19,386 *Persoonia hindii* stems on the Newnes Plateau (excerpt from the Angus Place Ventilation Facility EA). A clarification is required. The figure reported in that EA was actually a stem count of *Persoonia hindii*, collated by RPS and R. Lembit, during opportunistic and targeted surveys (refer below) in the general area surrounding the Ventilation Shaft Project Application Area, not the entire Newnes Plateau. Centennial argues that for OEH to quote 19,386 *Persoonia hindii* stems as the estimated population on Newnes Plateau is a significant misinterpretation of the statement contained in the Angus Place Ventilation Facility EA.

The results of the opportunistic and targeted surveys noted above have been plotted in the figure included as **Appendix A**, and shows the distribution of the approximate 19,386 stems of *Persoonia hindii* in areas surveyed for a number of projects from Centennial's Angus Place, Clarence and Springvale Collieries, and records provided by R Lembit.

The figure in **Appendix A** also shows the potential habitat available to *Persoonia hindii* in the vicinity of the Bore 8 Project Application Area on Newnes Plateau, and Newnes State Forest generally, mapped by querying the vegetation types associated with previous *Persoonia hindii* occurrences. Specifically these vegetation types comprise (in accordance with DEC, 2006):

- MU7 Newnes Plateau Narrow-leaved Peppermint - Mountain Gum - Brown Stringybark Layered Forest (76%);

- MU26 Newnes Plateau Narrow-leaved Peppermint - Silver-top Ash Layered Open Forest (11%);
- MU26a Newnes Plateau Gum Hollows variant: Brittle Gum - Mountain Gum, Scribbly Gum - Snow Gum Shrubby Open Forest (8%); and
- MU14 Tableland Mountain Gum - Snow Gum - Daviesia Montane Open Forest (2%)

It is noted the 19,386 *Persoonia hindii* stems stated above covers a small fraction of the potential habitat area available within Newnes Plateau (refer **Appendix A**), suggesting that there is a potential for a larger distribution of the species to occur than recorded to date. Records of *Persoonia hindii* available from OEH's *Atlas of NSW Wildlife* database (Bionet), covering Newnes State Forest and Clarence areas when added to the survey results presented in **Appendix A**, (refer **Appendix B**) reveals a larger distribution of the species than recorded by RPS for the Centennial projects to date and by R. Lembit. Moreover, **Appendix B** shows that the potential habitat for *Persoonia hindii* exists outside of Newnes State Forest and the *Atlas of NSW Wildlife* records confirm that the species have been recorded in areas outside of Newnes State Forest within the identified potential habitat. It can be concluded from the information presented that there is a greater abundance of the *Persoonia hindii* species across Newnes State Forest and elsewhere than previously described. This would be confirmed in the research program being proposed by Centennial (refer **Section 4.3**).

OEH notes *Persoonia hindii* is under additional pressure from forestry and recreational use of the forest. These activities are difficult to assess, due to a lack of mapping available with regard to the extent *Persoonia hindii* on the Newnes Plateau and the actual impacts upon populations of *Persoonia hindii*. It is noted that these impacts are cumulative to those proposed by the Bore 8 and Angus Place Ventilation Facility projects. Notwithstanding this, Centennial's adopted strategy of avoidance and mitigation adequately accounts for the small impacts proposed by these projects.

Given the underestimation of the actual local populations of the *Persoonia hindii* species on Newnes State Forest, Centennial believes the cumulative impacts of the Bore 8 and Angus Place Colliery Ventilation Shaft Facility projects would not be considered significant, and would likely be much smaller than the approximate 11% noted above. In the long term, the mitigation measures that will be implemented by Centennial (refer **Section 4.5**) combined with the rhizomatous spreading potential of the species, especially in the vicinity of the access track being upgraded in the Bore 8 project, will ensure the impacts on *Persoonia hindii* will be minimal.

Action

No action is proposed at this stage because the cumulative impacts are not considered significant. However, as noted in **Section 4.3**, Centennial will undertake a research program to better understand the rhizomatous spreading of *Persoonia hindii* and to develop up to date maps of the distribution of *Persoonia hindii* in the region so that cumulative impacts from Centennial projects could be determined more accurately.

4.5. Mitigation of impacts on *Persoonia hindii*

Issue

OEH notes mitigation of impacts on *Persoonia hindii* has not been considered.

Response

The Bore 8 project has been designed to avoid impacts to *Persoonia hindii* through the use of an existing access track within Newnes Forest for the installation of the infrastructure (trenched pipeline and power cables) and for access to Bore 8 drill pad. This constitutes the project's main measure for minimising impacts on *Persoonia hindii*. Any proposal to create a new access track through vegetated areas may have resulted in the loss of a larger number of stems due to the

recorded high densities and wide local distribution of this species, within the limited area in which Bore 8 access track could feasibly be constructed. The residual impact comprising the loss of 93 stems of the species, as discussed above, is not considered significant.

Other mitigation measures, including seed collection and seed banking, and translocation of the *Persoonia hindii* stems to be removed in the project were not proposed in the EA due to the small number of impacted plants. OEH notes, translocation is not a suitable measure because of the lack of certainty of success (refer '*Guidelines for the translocation of threatened species in Australia*' (Vallee et al, 2004)) and should only be considered as a last resort, and whilst noted, should not be disregarded as a management strategy. Translocation has been previously shown in a Centennial study (Hunter Eco, 2012) to be successful in the case of *Tetratheca juncea*, is listed as Vulnerable under the *Threatened Species Conservation Act 1995* and which reproduces through both asexual rhizomal spread and sexual pollination. While the success of the re-germination of the translocated *Tetratheca juncea* in the Centennial study has been limited to date (mainly due to the grazing of the plants by herbivores) the translocation exercise and the subsequent monitoring undertaken by Centennial shows that successful translocation can be achievable with proper precautionary measures incorporated into the study design.

However, given the general lack of understanding of the nature and extent of *Persoonia hindii* within and beyond the Newnes State Forest Centennial is proposing translocation and propagation for use in rehabilitation as a mitigation measure. The proposed translocation mitigation measure will be complemented by a research program discussed in **Section 4.3**. Both the translocation and the research program will be undertaken in consultation with Forests NSW. The translocation mitigation strategy will comprise the following two components.

- Translocation of the existing 93 stems of the *Persoonia hindii* proposed to be removed to sites within one kilometre of the Bore 8 access track that already contain lower densities of this species. These sites would be matched in terms of habitat suitability prior to any translocation to ensure a high degree of success of translocation. The translocation would be conducted during Autumn months.
- Transplanting of the propagated specimens noted above back into the sites rehabilitated following construction of Bore 8 infrastructure. The steps to be undertaken during the proposed transplanting would be well-established procedures for *Persoonia hindii* including the translocation of the specimens in the rehabilitated areas, and will be conducted by suitably qualified personnel.

Action

Centennial will undertake the translocation of the 93 stems of the *Persoonia hindii* proposed to be removed from the access track to Bore 8 and subsequently transplant the propagated stems back to the rehabilitated sites. This is in addition to the avoidance of impact in the first instance. The draft *Statement of Commitments* (refer **Section 5.0**) has been updated to reflect this action.

4.6. Biodiversity offset proposal

Issue

OEH contends the EA does not include a detailed offset proposal, which would include the cumulative impacts of all Centennial proposals located on Newnes Plateau.

Response

An offset strategy for the Bore 8 Project will not be proposed by Centennial for the main reason the project has avoided and mitigated potential impacts (refer **Sections 4.2 to 4.5**) and the residual impacts are not considered significant. The project, however, is proposing a research program to:

- better understand the rhizomatous spreading of *Persoonia hindii* within residual populations in the vicinity of disturbance areas

- elucidate the effectiveness of translocation of *Persoonia hindii* in rehabilitated areas.

A detailed offset proposal, which would include the cumulative impacts of all Centennial's proposals located on Newnes Plateau will be developed and submitted with the EISs of the proposals, namely the Angus Place and Springvale Mine Extension projects. This strategy will be developed in consultation with the OEH and using an assessment methodology agreed by both parties.

Initial consultations between Centennial and the OEH on the proposed strategy have already commenced. These to date have comprised:

- initial email from David Coote (OEH), dated 24 October 2012, proposing discussions between OEH and Centennial, on the potential use of the available Centennial lands for future contributions to offsetting of residual impacts
- Emails between Mary-Anne Crawford (Centennial) and David Coote (OEH), dated 1/11/12, 13/11/12, 14/11/12 and 28/11/12, to organise face-to-face meetings to discuss a potential offset strategy for proposals from Centennial's Western Operations.

Action

A cumulative assessment of impacts on biodiversity on Newnes Plateau due to Centennial's proposals from the Western Operations will be undertaken and an offset strategy will be developed to mitigate any residual impacts of the proposals.

The draft *Statement of commitments* (refer **Section 5.0**) has been updated to reflect this action.

4.7. Aboriginal Cultural Heritage Report

Issue

OEH identified two inconsistencies within the *Aboriginal Cultural Heritage Report* (Appendix J of EA):

- Table 2.6, page 18 has an incorrect heading – currently it refers to the methodology whereas according to text on page 17, the table heading should relate to comments on the draft report
- Table 2.3, page 16 states that Helen Riley responded on behalf of Mingaan Aboriginal Corporation on 7/12/2011 in relation to methodology but according to the *Aboriginal Consultation Log* (page 64) Helen Riley responded on behalf of Wiradjuri Council of Elders on 7/12/2011.

Response

The incorrect heading for Table 2.6 on page 18 of the *Bore 8 Dewatering Facility Aboriginal Cultural Heritage* report has been amended to read:

“Table 2-6: Aboriginal stakeholders who commented on draft report”

Helen Riley represented both Mingaan Aboriginal Corporation and Wiradjuri Council of Elders. There was email communication between Springvale Coal (Tony Seibel-Barnes) and Robert Clegg of the Wiradjuri Council of Elders on 21/11/2011 which indicated that Helen Riley (Mingaan Aboriginal Corporation) should represent them. The consultation log has been amended accordingly for clarity. The amended *Aboriginal Consultation Log*, showing tracked changes, is included as **Appendix C** to this RTS report.

Action

The two inconsistencies identified by OEH have been addressed. The amended *Bore 8 Dewatering Facility Aboriginal Cultural Heritage* report will be provided to OEH.

4.8. Rehabilitation Management Plan

Issue

DRE recommends that standard Rehabilitation Management Plan condition be included in the approval conditions.

Response

Springvale has a *Mining Operations Plan* that is valid until November 2016. An addendum to the *Mining Operations Plan* will be prepared to reflect the proposed modification and will include integrated rehabilitation and environmental management.

Action

The Addendum to Springvale's *Mining Operations Plan* will be prepared and approval obtained from DRE prior to any surface disturbance.

4.9. Recommendations for the minimisation of impacts on the environments

Issue

The HNCMA acknowledges the investigative work that has been undertaken in the preparation of the EA, and that some of HNCMA's recommendations for the minimisation of impacts to the environment surrounding the Bore 8 footprint are already included as draft *Statement of Commitments* (Table 34) in the EA.

Response

Three out of the four recommendations that HNCMA consider important, as noted in the HNCMA submission were included in the EA as mitigation measures for the minimisation of impacts to the environment (refer Section 7.4.3 of the EA) and the draft *Statement of Commitments*. A fourth HNCMA recommendation, namely:

- Avoid clearing of hollow-bearing trees, where possible

has been included in the revised *Statement of Commitments* (refer **Section 5.0**).

Action

The revised *Statement of Commitments* has been updated so that all HNCMA recommendations for the minimisation of impacts to the environment are included.

4.10. Forests NSW Approval Conditions

Issue

Forests NSW recommends:

- any approval of the application should require implementation of measures in the *Statement of Commitments* regarding threatened species and heritage
- any approval of the application should include a requirement that the proposed development is secured from the public at all times (which is a requirement in the Operational Plan for Newnes State Forest).

Response

Centennial is committed to implementing mitigation measures, provided as the revised *Statement of Commitments* in **Section 5.0**, regarding threatened species and Aboriginal and European heritage.

The Bore 8 compound will be secured from the public at all times, in accordance with the *Operational Plan for Newnes State Forest*. As described in Section 4.7 of the EA, a temporary fence will be constructed all around the construction footprint, and this will subsequently be replaced by the installation of a permanent fence and lockable access gate around the perimeter of the facility, including the sump area.

Action

The revised *Statement of Commitments* (refer **Section 5.0**) has been updated to include a commitment for the installation of a permanent fence and a lockable gate around the perimeter of the Bore 8 site compound for public safety and security.

4.11. NSW Office of Water Licensing Arrangements

Issue

NSW Office of Water (NOW) will assess Springvale's requirement for any future accounting for the take of groundwater in accordance with the rules of Water Sharing Plan for the Greater Metropolitan Region Groundwater Sources 2011.

Response

Centennial accepts that all take of groundwater, by means of either underground mining excavation and/or a dewatering bore to surface, is subject to the access sharing arrangements and any limitations, including volumetric limitations, imposed under the *Water Sharing Plan for the Greater Metropolitan Region Groundwater Sources 2011* and the provisions of the *Water Management Act 2000*. The groundwater impact assessment for the project (refer *Bore 8 – Assessment of Potential Hydrogeological Model* attached as Appendix G of the EA) noted incorrectly that the Bore 8 is unlikely to be subject to water sharing arrangements under the *Water Sharing Plan for the Greater Metropolitan Region Groundwater Sources 2011*.

Springvale currently holds three extractive bore licences, 10BL603519 (Bore 6), 10BL601863 (Ventilation Shaft No. 3 Bore), 10BL602017 (Pit Top Collection System), with a total extraction limit of 9843 ML over 12 months for the entire site. The total volume extracted by the site over the 2011/2012 period was 6364 ML.

Pump rate data show that Bore 6, with an extraction limit of 5958 ML only extracted 5185 ML over the 2011/2012 period. Predictions of mine inflows associated with LW416 – LW419 and extraction via Bore 8, using a numerical method developed by CSIRO for Springvale (refer *Bore 8 – Assessment of Potential Hydrogeological Model* attached as Appendix G of the EA), fall in the range 160 – 220 L/s, and an average of 200 L/s, which equates to an annual water take of 6000 – 7000 ML/year. The groundwater impact assessment (refer *Bore 8 – Assessment of Potential Hydrogeological Model* attached as Appendix G of the EA) recommends the Bore 8 licence be set at the 95th percentile of recorded flows, namely 6180 ML/year, an increase of 222 ML/year. This incremental increase will fall within Springvale's total water take volumetric limit noted above, and will be within the capacity of the existing Springvale-Delta Water Transfer Scheme (30 ML/day).

The request for a proposed increase of approximately 400 ML/year from the Ventilation Shaft 3 facility bore (which does not extract water up to its entire volumetric limit in a 12-month period) to Bore 6 licence when it is transferred to Bore 8 facility will be in accordance with the rules of *Water Sharing Plan for the Greater Metropolitan Region Groundwater Sources 2011*. Centennial submitted a request for this proposed transfer to NOW in a letter dated 28 August 2012.

Action

No action is required as Centennial agrees that Springvale's requirement for any future accounting for the take of groundwater will be assessed in accordance with the rules of *Water Sharing Plan for the Greater Metropolitan Region Groundwater Sources 2011*. The request for

transfer of a portion of water allocation from Springvale's Ventilation Shaft No. 3 bore to the proposed Bore 8 license has been initiated with NOW.

4.12. Water Management

Issue

NOW recommends the following:

- *The transfer of groundwater from Bore 8 to Springvale's coal handling facility prior to discharge or on-supply to other water users (Delta Electricity) should be incorporated into Springvale's water access licences.*
- *Springvale should develop a water management transfer component of its Site Water Management Plan, to incorporate the installation of the transfer pipeline and any necessary upgrade to water management facilities to address incremental increase in groundwater take by Springvale.*

Response

A clarification is required. No volume of water extracted from Bore 8 will be transferred to Springvale's coal handling facility prior to any discharge. Water extracted at Bore 8 is proposed to be transferred directly into the Springvale-Delta Water Transfer Scheme for use as cooling water at Delta Electricity's Wallerawang Power Station. Springvale's water access licence should only note the transfer of water into the Springvale-Delta Water Transfer Scheme.

Springvale's *Site Water Management Plan* will be updated to incorporate the new Bore 8 pipeline extension to the existing Springvale-Delta Water Transfer Scheme, and also the associated incremental increase in the volume of water predicted to be extracted via Bore 8 as mining progresses from LW416 to LW419 at Springvale.

Additionally, Centennial is currently developing a *Regional Water Management Strategy* in consultation with the relevant stakeholders, including Sydney Catchment Authority, NSW Office of Water, State Water and Delta Electricity for the management of mine water discharge from its Western Operations. The proposed Bore 8 dewatering facility will form part of that *Regional Water Management Strategy*.

Action

Springvale's *Site Water Management Plan* will be updated to include the proposed infrastructure required for the Bore 8 project and the predicted slight increase in water take as mining progresses from LW416 to LW419. The Bore 8 dewatering facility will become part of the Centennial Western Operations' *Regional Water Management Strategy* when it is implemented.

4.13. NOW's Recommended Conditions of Approval

Issue

NOW recommends the following conditions of approval:

- *Minimise groundwater impacts – the project should be carried out in such a way that prevents and/or minimises the potential surface and groundwater impacts of the project.*
- *Baseflow offsets – the project should offset the loss of any baseflows to watercourses. Offsets should be provided by the retirement of adequate water entitlements to account for loss attributable to the project.*

Response

The groundwater impacts, both local and regional, will be minimised during the construction and operation of Bore 8 through the implementation of measures noted in Section 7.2.3 of the EA (and included in the *Statement of Commitments* (refer **Section 5.0**)). The main mitigation measure is the use of the blind boring method for the construction of the four boreholes which will firstly reduce the risk of groundwater drainage into the underground workings, and secondly minimise cross contamination between the aquifers to be intercepted and thus change the water chemistry.

The groundwater assessment report (refer *Bore 8 – Assessment of Potential Hydrogeological Model* attached as Appendix G of the EA) has concluded, that with the implementation of the proposed measures to mitigate the potential impacts identified, the Bore 8 project:

- will not pose a risk to the local hydrogeological regime in the Banks Walls Sandstone aquifers upon which a number of nearby Newnes Plateau Shrub Swamps (Sunnyside East and Carne West) and Newnes Plateau Hanging Swamps rely on
- will have a negligible and unmeasurable impact on the local hydrogeological regime and on surface water flows.

With regards to the recommendation for baseflow offsets, the groundwater impact assessment (refer *Bore 8 – Assessment of Potential Hydrogeological Model* attached as Appendix G of the EA) has concluded that surface baseflows to watercourses will have negligible and unmeasurable impact due to the project. Baseflows of watercourses, being tributaries of Carne Creek, that feed the two nearby shrub swamps, Sunnyside East and Carne West Swamps, are not predicted to be impacted by the project. Springvale already undertakes regular baseflow measurements (in addition to water quality monitoring) in these two swamps, and will continue to monitor these flows during construction and operation.

Action

The mitigation measures proposed to minimise the potential groundwater impacts of the project will be implemented as noted in the revised *Statement of Commitments* (refer **Section 5.0**).

4.14. Water Management Plan

Issue

The Proponent shall develop and implement a Water Management Plan for the overall Springvale Coal Mine operations, which includes the additional Dewatering Bore No.8. This Plan must be developed in consultation with the Office of Water and include:

- *accounting for groundwater ingress against the rules of the Water Sharing Plan for the Greater Metropolitan Region Groundwater Sources 2011,*
- *identification and quantification of the sources of groundwater ingress to the mining operation, including any inter-change from closed, flooded mine workings (State Mine or Kerosene Vale) up-dip of the mine workings,*
- *the installation, operation and reporting on changes in groundwater levels and pressures above and below the Mt York Claystone and the water bearing zones of the Banks Wall sandstone strata,*
- *extension of groundwater monitoring to all upland swamps within the envelope of groundwater drawdown surrounding the Springvale mining operation,*
- *conduct of on-going monitoring and provide reports on measurable changes to groundwater quality within the Banks Wall sandstone and aquifers above the Banks Wall sandstone, and*
- *contingency arrangements to any detected changes to groundwater conditions in the monitoring programme above, including:*

- *development of threshold triggers to changes in groundwater levels, pressures and quality, in accordance with ANZECC ecosystem protection requirements*
- *development of verification procedures to the groundwater predictions made for the Springvale development consent and Bore 8 EA*
- *formation of reporting procedures to the Office of Water with respect to the monitoring and verification requirements identified above*
- *development of potential mitigation response measures to such measured changes*
- *development of operational and post-operational management measures in the event that impacts exceed trigger levels, and/or extend beyond the approval period in force.*

Response

An existing Groundwater Management Plan (SV-MS-049) (GMP) at Springvale, prepared to comply with the conditions of the dewatering bore licences (10BL603519, 10BL601863 10BL60201) will be updated to include the proposed Bore 8 dewatering facility, including the infrastructure involved in the management of the mine inflows and the transfer of the water from the underground using the Bore 8 facility to the Wallerawang Power Station via the Springvale-Delta Water Transfer Scheme. Consultation with NOW will be undertaken prior to updating the GMP.

The following points are noted in response to issues raised by NOW, and will be relevant when the GMP is updated to include the Bore 8.

- Relevant information which will account for groundwater ingress at Springvale against the rules of the *Water Sharing Plan for the Greater Metropolitan Region Groundwater Sources 2011*, will be incorporated into the GMP. This will include the approximate 4% increase in the water make predictions at the proposed Bore 8 (over that of Bore 6), and the total extraction from the three Springvale's licensed bores (the proposed Bore 8, Pit Top Collection System and the Ventilation Shaft 3 Facility bore).
- The GMP and Springvale's existing Site Water Balance (*Springvale Colliery Water Balance Report* (GHD, April 2011)) already identify and quantify the sources of groundwater ingress to the mining operation, including the flooded (abandoned) Renown Colliery workings and mine inflows dewatered through Bore 6. Bore 6 will be replaced by the proposed Bore 8 in the updated GMP and the Site Water Balance; the latter is currently being updated as part of Springvale Mine Extension Project EIS. The increase in the water make at Bore 8, as predicted in the groundwater impact assessment report for the project (refer *Bore 8 – Assessment of Potential Hydrogeological Model* attached as Appendix G of the EA), will be accounted for in the updated Site Water Balance.
- The GMP will be updated to include the many vibrating wire piezometers (>100) installed within boreholes that currently report on changes in groundwater levels and pressures above and below the semi-permeable Mt York Claystone layer and the water bearing zones of the Banks Wall sandstone strata. These piezometers monitor:
 - the semi-permeable Mt York Claystone layer
 - the two aquifers (AQ4 and AQ5) above Mt York Claystone layer within the Banks Wall Sandstone strata with water heads at 46-68 m and 11 m, respectively
 - three aquifers below the Mt York Claystone layer within Burra Mokio Head Formation (AQ3), Gap Sandstone (AQ2) and Lidsdale/Lithgow Coal Seam/Marangaroo Formation with water heads at 80-88 m, 105 m, and 120 m, respectively.

Standing water levels are monitored in the installed piezometers within the Banks Wall sandstone and aquifers above this stratum (which include piezometers installed within

Carne West and Sunnyside East Shrub Swamps located in the vicinity of the Bore 8 drill pad site) on a daily basis. Water quality is also monitored but on a monthly basis and comprise the analyses of pH, electrical conductivity, iron and manganese concentrations, and total suspended solid concentration.

- An understanding of the regional hydrogeology that covers the Springvale mining area has been reported previously (ACARP Reports C14033 (CSIRO 2007) and C18016 (CSIRO 2012)) based on the pore water pressure data acquired from the installed piezometers. More recently, further refining of the existing concept hydrogeological model for Springvale has been undertaken by CSIRO for the Springvale Mine Extension project using piezometric data acquired in recent years.

The proposed regional CSIRO hydrogeological model will be able to:

- quantify impact to surface water baseflows
 - quantify groundwater level and pore pressure, on a regional level, of the various aquifers overlying the coal seam
 - predict impacts to each significant aquifer (AQ1 – AQ5 noted above) between the coal seam and the surface.
- The GMP will be updated to include:
 - contingency arrangements in response to any measureable changes to groundwater conditions (standing water level and water quality) in the existing monitoring program
 - a review of threshold triggers to changes in groundwater levels and pressures, and water quality, in accordance with ANZECC ecosystem protection requirements if appropriate
 - development of verification procedures to the groundwater predictions made for the construction and operation of Bore 8
 - formulation of reporting procedures to NOW with respect to the monitoring and verification requirements identified above
 - development of operational and post-operational management measures in the event that impacts exceed trigger levels.

In the event that there are statistically significant changes to the standing water level (not related to climatic conditions) or the threshold triggers for water quality are exceeded the groundwater impact predictions for the construction and operation of Bore 8 will be reviewed. Investigations will be undertaken to determine the possible cause of the anomalous data. Consultation with NOW will be undertaken to discuss the monitoring data and potential impacts on the environment, and also to propose recommendations for future investigations and actions.

Action

Springvale's existing Groundwater Management Plan will be updated, in consultation with NOW, to incorporate the Bore 8 dewatering facility. The draft *Statement of Commitments* (refer **Section 5.0**) has been updated to include this action.

5. REVISED STATEMENT OF COMMITMENTS

A revised Statement of Commitments for the project has been provided in **Table 3**. The new commitments that have been included are shown in blue.

Table 3 – Revised Statement of Commitments

Item	Commitment
1. Groundwater	- The blind boring method will be used for the construction of the boreholes to minimise the loss of groundwater and cross contamination of aquifers to be intercepted during drilling. - The borehole casing will be fully grouted to prevent contamination of groundwater between aquifers intercepted. - Only approved drilling fluids will be used in the borehole installation process. - Springvale's existing Groundwater Management Plan will be updated to incorporate the Bore 8 dewatering facility.
2. Bushfire	- An Asset Protection Zone will be established and maintained around the Bore 8, in which the fuel load will be managed to 10 t/ha. - The Asset Protection Zone will be approximately 20 m in width around the final footprint of Bore 8.
3. Ecology	- An environmental representative or ecologist will be present during the removal of habitat trees to ensure that fauna are handled appropriately. - Removal of hollow-bearing trees will be avoided, where possible. - Where feasible, any hollow-bearing trees removed by clearing activities along with valuable fauna habitat within displaced ground debris will be retained and collected for fauna conservation activities off site. - Populations of the threatened species <i>Persoonia hindii</i> will be avoided, where possible. - A research program will be undertaken to better understand the rhizomatous spreading of the <i>Persoonia hindii</i> within the residual populations in the vicinity of disturbance areas, and to elucidate the effectiveness of translocation of <i>Persoonia hindii</i> in rehabilitated areas. - Respreding of topsoil and organic matter will allow natural regeneration to occur in disturbed areas. - Adequate sediment control will be employed adjacent to all areas of soil disturbance. - Appropriate vehicle hygiene protocols will be employed to ensure that machinery does not bring soil materials onto the Project Application Area.
4. Aboriginal and European Heritage	- All relevant Springvale staff will be made aware of their statutory obligations for heritage under <i>National Parks and Wildlife Act 1974</i> and the <i>Heritage Act 1977</i> which may be implemented as a heritage induction. - If during the proposed works any Aboriginal sites are identified, all works in the area will cease, and legislated action will be undertaken. - If skeletal remains are identified, work will cease immediately in the vicinity of the remains and the area cordoned off. Legislated action will then be implemented. - If suspected European cultural heritage material is uncovered, work will cease in that area immediately. The NSW Heritage Branch will be notified.
5. Air Quality	Appropriate dust suppression control techniques will be employed to reduce dust emissions arising from the operation of mobile plant and open areas.
6. Waste Management	- Contractors/employees will keep all work areas in a neat orderly manner. - Chemicals, waste oils and lubricants will be collected in appropriate containers for safe transport to the Pit Top disposal area for reuse, recycling or disposal.

Item	Commitment
	• Drilling fluid to be used for the drilling activity will be biodegradable. • An appropriately sized sump with appropriate erosion and sediment controls will be constructed. The drilling fluid will be reused and on completion of drilling activities will be pumped out by a licensed contractor for disposal at an appropriate facility. • The sump water level will not be allowed to exceed 50% sump capacity for a period greater than 48 hours. • The sump and the associated erosion and sediment controls will be inspected regularly and maintained if required.
7. Traffic and Transport	• Springvale will notify Forests NSW of the heavy vehicle movements in the Newnes State Forest prior to the commencement of the construction activities. • Inspections of access roads in accordance with Springvale's existing <i>Road Management Plan</i> will continue to ensure any minor impacts to the condition of the roads are identified and remediated.
8. Surface Water	• A <i>Construction Environmental Management Plan</i> will be developed prior to commencement of construction works. • Appropriate sediment and erosion controls in accordance with the Blue Book (Landcom, 2004 and DECC, 2008) will be installed and maintained around disturbed areas. • Earthworks associated with the access track and trenching the water pipeline and electricity infrastructure will be conducted and graded to a crown to shed water in accordance with the Blue Book. • A sediment basin will be constructed on the downslope side of the Bore 8 drill pad, and dirty water diversions put in place to ensure that runoff from the drill pad is directed into the sediment basin. • A clean water diversion will be constructed upstream of the drill pad to divert clean water around the construction area and reduce the amount of dirty water runoff to be treated. • Cross banks and mitre drains will be constructed at appropriate intervals to convey runoff away from the road alignment. • Hydrocarbon and other chemical spills will be managed appropriately.
9. Rehabilitation	• Partial rehabilitation will be undertaken following construction and drilling, and full rehabilitation will be undertaken following decommissioning. • All infrastructure will be removed, the bores cut off below ground level, grouted and sealed, and the entire platform rehabilitated to the satisfaction of Forests NSW in accordance with the Occupation Permit upon decommissioning. • Upon decommissioning all disturbed areas will be trimmed, ripped and seeded to achieve a final land use of open forest. • Rehabilitation of the disturbed areas, during partial rehabilitation and subsequently during full rehabilitation following decommissioning, will use locally occurring native species and translocated and/or propagated <i>Persoonia hindii</i> for ecosystem establishment. • Adequate sediment controls will be implemented during all rehabilitation works.
10. Visual Amenity	• Building and items of infrastructure will be constructed using non-reflective material and in colours that blend in with the surrounding vegetation.
11. Soil, Land Capability and Agricultural Suitability	• Temporary erosion control structures will be erected prior to any clearing of vegetation, soil stripping or the construction of access roads. • Topsoil, where present, will be stripped and stockpiled for use in rehabilitation following completion of construction.
12. Agricultural	• Forests NSW will be consulted further prior to commencement of clearing

Item	Commitment
Impact	activities to ascertain whether any harvestable timber will be removed.
13. Public Safety and Security	The Bore 8 site compound will be secured from the public at all times, in accordance with the requirements of the <i>Operational Plan for Newnes State Forest</i>, by the installation of a permanent 2.1 m high fence and lockable access gate around the perimeter of the facility.

6. REFERENCES

DEC (2006) *The Vegetation of Western Blue Mountains*, Unpublished report funded by the Hawkesbury-Nepean Catchment Management Authority, Department of Environment and Conservation.

DECC (2008) *Managing Urban Stormwater: Soils and Construction – Volume 2C Unsealed Roads*, (the Blue Book Volume 2C)

Landcom (2004) *Managing Urban Stormwater: Soils and Construction – Volume 1*, 4th Edition, (the Blue Book Volume 1)

Hunter Eco (2012) *Cooranbong-Awaba Haul Road: Threatened Flora Translocation Monitoring*, Mandalong November 2012

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Appendix A

Known and Potential Occurrences of *Persoonia hindii* on Newnes Plateau

Results obtained from the following sources:

1. Angus Place, *Proposed Longwalls 910 and 900W*, Flora and Fauna Assessment, RPS Australia Asia Pacific
2. Springvale Colliery, *Proposed V-Notch Weir Sunnyside Swamp*, Flora and Fauna Assessment, RPS Australia Asia Pacific
3. Clarence Colliery, *Proposed Boreholes at Clarence Colliery*, Flora and Fauna Assessment, RPS Australia Asia Pacific
4. Springvale Colliery, *Proposed Longwalls 415 to 417*, Flora and Fauna Assessment, RPS Australia Asia Pacific
5. Angus Place Colliery, *Ventilation Facility Project, Flora and Fauna Assessment*, RPS Australia Asia Pacific
6. Angus Place Colliery, *Assessment of Gabion Borehole and Storage Facility*, Due Diligence Study, RPS Australia Asia Pacific
7. Springvale Colliery, *Springvale Dewatering Borehole Location*, Due Diligence Study, RPS Australia Asia Pacific
8. Springvale Colliery, *Proposed Surface Mine Dewatering Facility Bore 8*, Flora and Fauna Assessment, RPS Australia Asia Pacific
9. Clarence Colliery, *700 West Additional Extension Area: Clarence SMP*, Flora and Fauna Assessment, RPS Australia Asia Pacific
10. *Angus Place Colliery and Springvale Colliery Piezo Surveys*, RPS Australia Asia Pacific
11. R. Lembit survey records

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WARNING
No part of this plan should be used
for critical design dimensions.
Confirmation of critical positions
should be obtained from RPS Newcastle.

Legend



Bore 8 Study Area



10m Contour



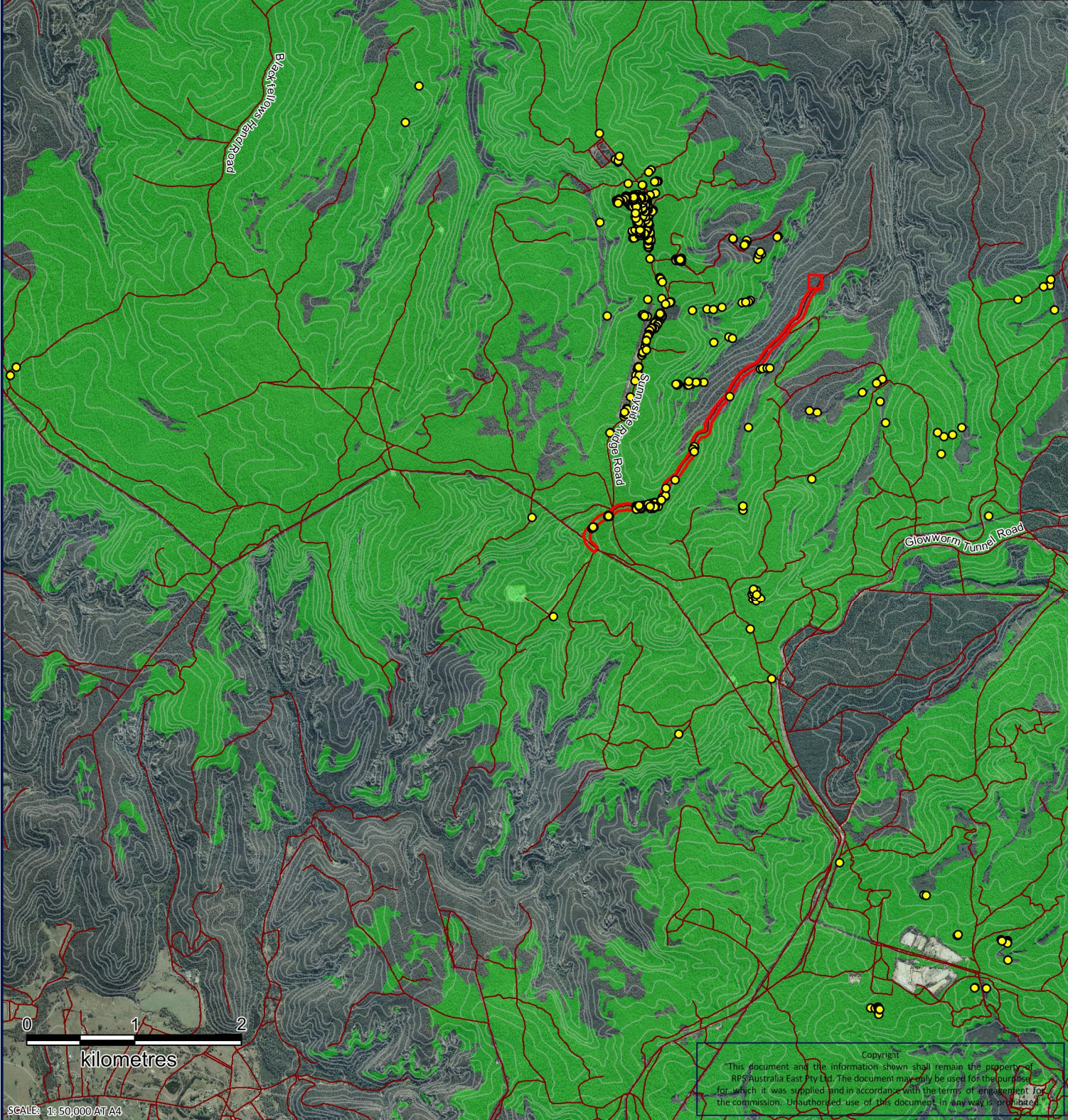
Road / Track



Persoonia hindii location
(each location may represent several stems)



Potential Persoonia hindii habitat
based on the frequency of
vegetation type association



TITLE: KNOWN AND POTENTIAL
OCCURRENCES OF
PERSOONIA HINDII

LOCATION: NEWNES PLATEAU

DATUM: DATUM
PROJECTION: MGA ZONE 56

DATE: 11/12/2012
PURPOSE: ECOLOGICAL STUDIES

LAYOUT REF: 110382
VERSION (PLAN BY): PH

CLIENT: CENTENNIAL COAL
JOB REF: 110382

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Appendix B

Known and Potential Occurrences of
Persoonia hindii on Newnes Plateau

plus

NSW *Atlas of Wildlife* Database Results

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WARNING
No part of this plan should be used
for critical design dimensions.
Confirmation of critical positions
should be obtained from RPS Newcastle.

Legend



Bore 8 Study Area



Persoonia hindii location
(each location may represent several stems)



Potential Persoonia hindii habitat
based on the frequency of
vegetation type association



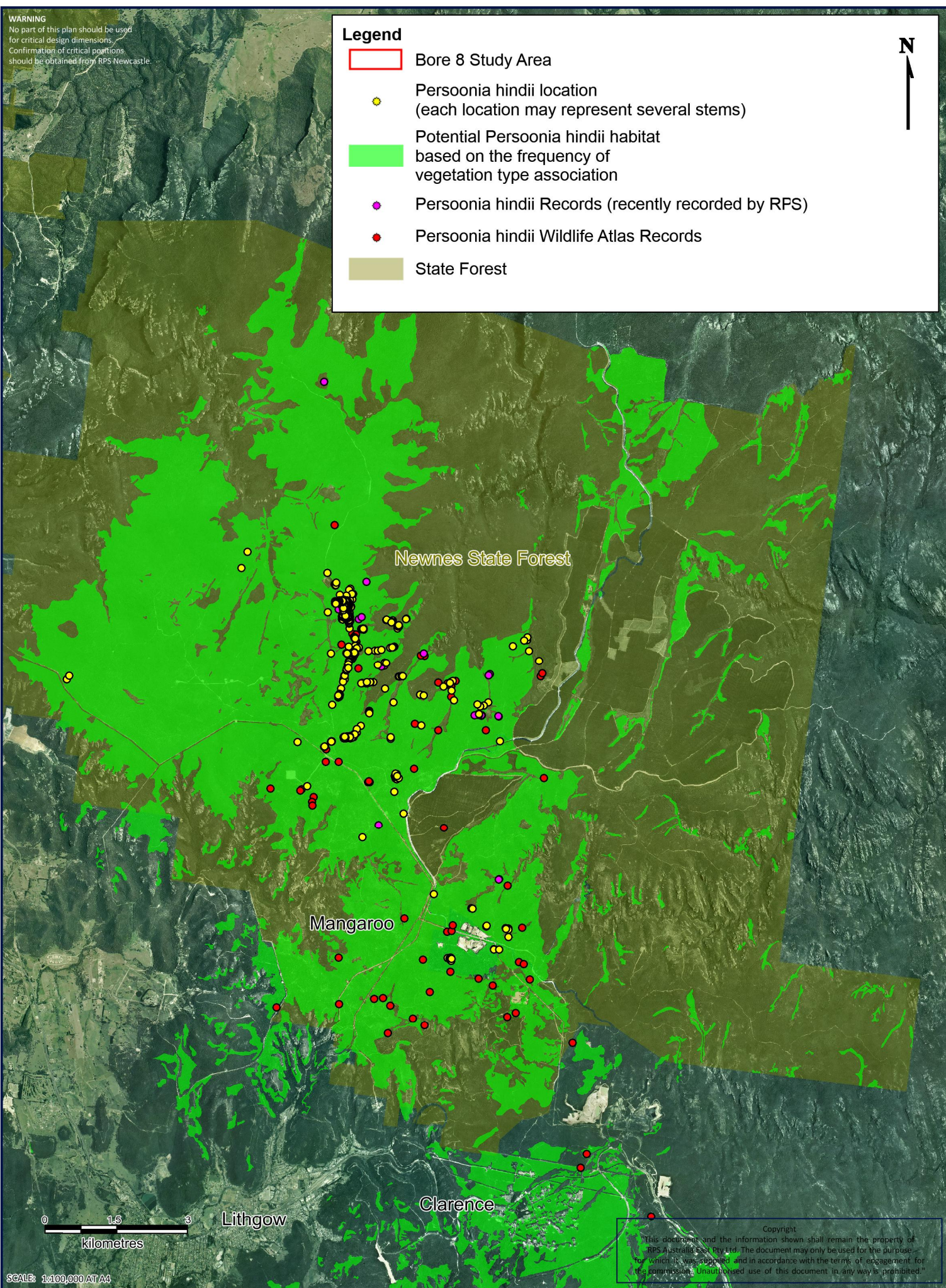
Persoonia hindii Records (recently recorded by RPS)



Persoonia hindii Wildlife Atlas Records



State Forest



TITLE: KNOWN AND POTENTIAL
OCCURRENCES OF
PERSOONIA HINDII

LOCATION: NEWNES PLATEAU

DATUM: DATUM
PROJECTION: MGA ZONE 56

DATE: 11/12/2012
PURPOSE: ECOLOGICAL STUDIES

LAYOUT REF: 110382
VERSION (PLAN BY): PH (B-A4)

CLIENT: CENTENNIAL COAL
JOB REF: 110382

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Appendix C

Revised Aboriginal Consultation Log *Aboriginal Cultural Heritage Assessment*

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Appendix 4

Aboriginal Consultation Log

Aboriginal Consultation Log

Date	Consultation Description	Method of Contact	Outcomes
04/11/2011	From Tonilee Scott of Bathurst LALC	Email	Registered interest
08/11/2011	To Dhuuluu-Yala Aboriginal Corporation	Letter	Invitation to express interest
08/11/2011	To Wiradjuri Council of Elders	Letter	Invitation to express interest
08/11/2011	To Robert Clegg	Letter	Invitation to express interest
08/11/2011	To Wiradjuri Traditional Owners Central West Aboriginal Corporation	Letter	Invitation to express interest
08/11/2011	To Wiray-dyuraa Ngumbaay-dyil	Letter	Invitation to express interest
08/11/2011	To Gundungurra Tribal Council Aboriginal Corporation	Letter	Invitation to express interest
08/11/2011	To Gundungurra Aboriginal Heritage Association Inc.	Letter	Invitation to express interest
08/11/2011	To Mingaan Aboriginal Corporation	Letter	Invitation to express interest
08/11/2011	Aboriginal Reference Group of Hawkesbury-Nepean Catchment Management Authority	Letter	Invitation to express interest
08/11/2011	To Warrabinga Native Title Claimants Aboriginal Corporation	Letter	Invitation to express interest
08/11/2011	To North East Wiradjuri	Letter	Invitation to express interest
08/11/2011	To Blackshield Lawyers on behalf of the Warrabinga-Wiradjuri People	Letter	Invitation to express interest
08/11/2011	To Eddy Neumann Lawyers on behalf of GTCAC (represented by Mervynn Trindall, Elsie Stockwell and Pamela Stockwell)	Letter	Invitation to express interest
21/11/2011	To Blackshield Lawyers	Phone	Following up letter of 08/11/2011; left message
21/11/2011	To GTCAC	Phone/ email	Following up letter of 08/11/2011; left message
21/11/2011	To Wendy Lewis of Warrabinga	Phone	Said she had moved and did not receive the first letter. Explained contents and she confirmed she wished to register
21/11/2011	To Lyn Syme of North East Wiradjuri	Phone	Stated she wished to register interest
21/11/2011	To Sharon Riley of Mingaan	Phone	Following up letter of 08/11/2011. Left message
21/11/2011	To Teitzel & Partners (representing Wiray-dyuraa Ngumbaay-dyil and Wiray-dyuraa Maying-gu	Email/ Phone	Following up letter of 08/11/2011. Left message and re-sent email.
21/11/2011	To Eddy Neumann Lawyers representing native title claimants from GTCAC	Email	Following up letter of 08/11/2011. Attaching copy of letter and requesting response ASAP.
21/11/2011	From Sharon Brown of GTCAC	Email	Registered interest and requesting emailed copy of original letter.

21/11/2011	To Helen Riley of Mingaan	Phone	Confirmed Mingaan wished to register interest
21/11/2011	To Eddy Neumann Lawyers	Phone	Confirmed GTCAC wished to register interest
21/11/2011	From Eddy Neumann Lawyers	Email	Confirmed in writing GTCAC wished to register interest
21/11/2011	To Robert Clegg	Email	Attaching copy of letter of 08/11/2011 requesting a response ASAP
21/11/2011	From Tony Seibel-Barnes of Centennial Coal to Robert Clegg, Wiradjuri Council of Elders	Email	Requesting response
21/11/2011	To Dhuuluu-Yala Aboriginal Corporation	Email	Attaching copy of letter of 08/11/2011 requesting response ASAP
21/11/2011	To Rochelle of Dhuuluu-Yala Aboriginal Corporation	Phone	Stated she did not remember the letter but said she would check her email and respond. She also believed that they would not have a sites officer available.
21/11/2011	To Neville Williams of Mooka	Email	Attaching copy of letter of 08/11/2011 requesting response ASAP
21/11/2011	To Neville Williams of Mooka	Phone	Said he did not remember receiving the letter but would check his email and respond
21/11/2011	From Neville Williams on behalf of Sharon Williams of Mooka	Email	Registering interest.
21/11/2011	To Wiradjuri Traditional Owners Central West Aboriginal Corporation	Email	Following up on letter of 08/11/2011. Sent copy of letter and requesting response ASAP
21/11/2011	To Brian Grant of Wiradjuri Traditional Owners Central West Aboriginal Corporation.	Phone	No response. No voice mail to leave message.
21/11/2011	Attempted to contact Gundungurra Aboriginal Heritage Association Inc.	Phone	Was informed this group may no longer exist.
22/11/2011	From Rochelle of Dhuuluu-Yala Aboriginal Corporation	Phone	Advised that as they don't have a sites officer available they would not be registering interest
22/11/2011	To Simon of Blackshield Lawyers	Phone	Said the Warrabinga-Wiradjuri people would like to register their interest
22/11/2011	To Brian Grant of Wiradjuri Traditional Owners Central West Aboriginal Corporation	Phone	Left message on home phone; mobile engaged.
28/11/2011	From Robert Clegg of Wiradjuri Traditional Owners Central West Aboriginal Corporation Council of Elders to Tony Seibel-Barnes	Email	Advice that Sharon Riley or Helen Riley of Mingaan will be their representatives for registration
28/11/2011	From John Lennis of Hawkesbury-Nepean Catchment Management	Phone	Confirmed they did not wish to register interest in any of the

	Authority		projects
23/11/2011	Letter to Bathurst LALC	Email	Attaching methodology of Western Holdings Project including Springvale Bores 7 & 8; requesting comments by 23/12/2011
23/11/2011	Letter to GTCAC	Email	Attaching methodology of Western Holdings Project including Springvale Bores 7 & 8; requesting comments by 23/12/2011
23/11/2011	Letter to Mingaan Aboriginal Corporation	Email	Attaching methodology of Western Holdings Project including Springvale Bores 7 & 8; requesting comments by 23/12/2011
23/11/2011	Letter to Mooka Traditional Owners	Email	Attaching methodology of Western Holdings Project including Springvale Bores 7 & 8; requesting comments by 23/12/2011
23/11/2011	Letter to Wiradjuri Council of Elders	Email	Attaching methodology of Western Holdings Project including Springvale Bores 7 & 8; requesting comments by 23/12/2011
23/11/2011	Letter to Warrabinga Native Title Claimants Aboriginal Corporation	Mail	Enclosing methodology of Western Holdings Project including Springvale Bores 7 & 8; requesting comments by 23/12/2011
23/11/2011	Letter to North East Wiradjuri	Mail	Enclosing methodology of Western Holdings Project including Springvale Bores 7 & 8; requesting comments by 23/12/2011
23/11/2011	Letter to Eddy Neumann Lawyers	Email	Attaching methodology of Western Holdings Project including Springvale Bores 7 & 8; requesting comments by 23/12/2011
23/11/2011	Letter to Teitzel & Partners	Mail	Enclosing methodology of Western Holdings Project including Springvale Bores 7 & 8; requesting comments by 23/12/2011
23/11/2011	Letter to Blackshield Lawyers	Email	Attaching methodology of Western Holdings Project including Springvale Bores 7 & 8; requesting comments by 23/12/2011
07/12/2011	Jason Brown on behalf of GTCAC	In person	Information session at Black Gold Cabins, Wallerawang, regarding Western Holdings

			Project, including Springvale Bores 7 & 8
07/12/2011	Elwin Wolfenden on behalf of Mingaan	In person	Information session at Black Gold Cabins, Wallerawang, regarding Western Holdings Project, including Springvale Bores 7 & 8
07/12/2011	Robyn Williams on behalf of NE Wiradjuri	In person	Information session at Black Gold Cabins, Wallerawang, regarding Western Holdings Project, including Springvale Bores 7 & 8
07/12/2011	Wendy Lewis on behalf of Warrabinga Native Title Claimants Aboriginal Corporation	In person	Information session at Black Gold Cabins, Wallerawang, regarding Western Holdings Project, including Springvale Bores 7 & 8
07/12/2011	Helen Riley on behalf of Wiradjuri Council of Elders	In person	Information session at Black Gold Cabins, Wallerawang, regarding Western Holdings Project, including Springvale Bores 7 & 8
07/12/2011	Helen Riley on behalf of Wiradjuri Council of Elders	In person	Advice that they approved methodology
07/12/2011	Wendy Lewis of Warrabinga	In person	Approved methodology
16/12/2011	Letter to Bathurst LALC	Email	Asking whether they still wished to be involved with project
20/12/2011	Sharon Riley on behalf of Wiray-dyuraa Ngambaay-dyil and Wiray-dyuraa Maying-gu	Phone	Approving methodology
21/12/2011	Jason Brown on behalf of GTCAC	Email	Approving methodology
21/12/2011	Lyn Syme on behalf of NE Wiradjuri	Phone	Approving methodology
21/12/2011	Tonilee Scott, Bathurst LALC	Email	Approving methodology
22/12/2011	Letter to Bathurst LALC	Email	Advising of fieldwork and inductions
22/12/2011	Letter to GTCAC	Email	Advising of fieldwork and inductions
22/12/2011	Letter to GTCAC	Email	Requesting copies of Certificates of Currency
22/12/2011	Letter from Jason Brown of GTCAC	Email	Attaching copy of certificate of currency
22/12/2011	Letter to Mingaan	Email	Advising of fieldwork and inductions
22/12/2011	Letter to NE Wiradjuri	Mail	Advising of fieldwork and inductions
22/12/2011	Letter to Warrabinga Native Title Claimants Aboriginal Corporation	Mail	Advising of fieldwork and inductions
08/01/2012	Resending letter to Lyn Syme of NE Wiradjuri	Mail	Advising of fieldwork and inductions
09/01/2012	Letter to Jason Brown of GTCAC	Email	Requesting current copy of Certificate of Currency
10/01/2012	Attendance at inductions at Springvale	In	Attendees: Deborah Farina

	mine	person	(RPS); Chantel Peters-Chapman of Bathurst LALC, Jack Pennell (NE Wiradjuri), Kevin Williams (Warrabinga) and Elwin Wolfenden (Mingaan). Site reconnaissance conducted following formal induction
12/01/2012	Fieldwork	In person	Attendees: Deborah Farina (RPS), Richard Peters (Bathurst LALC), Trevor Brown (GTCAC), Jack Pennell (NE Wiradjuri), Kevin Williams (Warrabinga) and Elwin Wolfenden (Mingaan).
01/06/2012	Letter to Bathurst LALC	Email	Attaching draft report for comment; requesting comments by 29/06/2012
01/06/2012	Letter to GTCAC	Email	Attaching draft report for comment; requesting comments by 29/06/2012
01/06/2012	Letter to Mingaan	Email	Attaching draft report for comment; requesting comments by 29/06/2012
01/06/2012	Letter to Mooka	Email	Attaching draft report for comment; requesting comments by 29/06/2012
01/06/2012	Letter to Wiradjuri Council of Elders	Email	Attaching draft report for comment; requesting comments by 29/06/2012
01/06/2012	Letter to Warrabinga	Mail	Enclosing draft report for comment; requesting comments by 29/06/2012
01/06/2012	Letter to North East Wiradjuri	Mail	Enclosing draft report for comment; requesting comments by 29/06/2012
01/06/2012	Letter to Sharon Riley on behalf of Wiray-dyuraa Ngambaay-dyil and Wiray-dyuraa Maying-gu	Email	Attaching draft report for comment; requesting comments by 29/06/2012
01/06/2012	Letter to Eddy Neuman Lawyers	Email	Attaching draft report for comment; requesting comments by 29/06/2012
01/06/2012	Letter to Blackshield Lawyers	Email	Attaching draft report for comment; requesting comments by 29/06/2012
29/06/2012	To Helen Riley of Mingaan	Phone	Asked whether they had any comments regarding draft report; said she would need to speak to Elwin Wolfenden.
29/06/2012	To Neville Williams of Mooka	Phone	Asked whether they had any comments regarding draft report; said he would have to check his emails and get back to us.

29/06/2012	To Wendy Lewis of Warrabinga	Phone	No answer; left voice mail.
29/06/2012	To Lyn Syme of NE Wiradjuri	Phone	No answer; left voice mail
29/06/2012	From Lyn Syme of NE Wiradjuri	Phone	Said she was in Wollongong and would get back to me.
29/06/2012	From Helen Riley	Phone	Provided Elwin's number
29/06/2012	To Elwin Wolfenden	Phone	No answer.
02/07/2012	From Helen Riley	Phone	Said she spoke to Elwin, who said that he had no problems with the report.



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