



Illawarra Coal



# Bulli Seam Operation

## Broad-Headed Snake Management Plan

ICHMP0568



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**VERSION HISTORY**

| VERSION   | DESCRIPTION OF CHANGES   | DATE        |
|-----------|--|-------------|
| 1.0       | Original Plan for Dendrobium EPBC Approval (2001/214), Condition 5 (Biosis Pty Ltd)  | 2007        |
| 2.0 & 3.0 | Plan updated to reflect Bulli Seam Operations EPBC 2010/5350 requirements (Niche Environment & Heritage & IC)  | 2013 & 2014 |
| 4.0       | <p>Updated to reflect South32 name and branding.</p> <p>Updates to management &amp; mitigation measures to remove duplication with the Coal Wash Emplacement Area Management Plan.</p> <p>Updated section on Management of Captured Broad-headed Snakes to preference being relocation.</p> <p>Updated section on Provision of Regional Funding - funding has been expended.</p> | 2017        |

**PERSONS INVOLVED IN THE LATEST REVIEW OF THIS PLAN INCLUDE:**

| NAME          | TITLE  | EXP (YRS) |
|---------------|--|-----------|
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# 1 INTRODUCTION

## 1.1 Objectives

The objectives of this Management Plan are to meet the requirements of the:

- BSO Project EPBC Approval 2010/5350 and Dendrobium Mine EPBC Approval 2001/214;
- BSO Project NSW EP&A Act (DoPI) Approval

The approval conditions are summarised below.

Table 1: Approval conditions and where these requirements are met within the plan.

| Development Consent Instrument and Condition  | Reference                                |
|---|--|
| BSO Project Approval - Schedule 4, Condition 17   |  |
| The Proponent shall prepare and implement a West Cliff Emplacement Area Management Plan for the project to the satisfaction of the Director-General. This plan must be prepared in consultation with OEH and be submitted to the Director -General for approval by the end of June 2013.This plan must include:                                       | Separate MP                              |
| (d) management strategies for the protection and conservation of the Broad-headed Snake and the Southern Brown Bandicoot.   | management and mitigation                |
| BSO EPBC Project Approval (2010/5350) Condition 7   |  |
| Within 1 year of the date of this approval the person taking the action must provide for the Minister's approval a Southern Brown Bandicoot and Broad-headed Snake management plan or plans. The plan or plans must include:  | This Management Plan                     |
| (a) measures to avoid, mitigate and manage impacts on the Southern Brown Bandicoot, Broad-headed Snake and their habitats occurring as result of the action;  | management and mitigation                |
| (b) provisions for the contribution of no less than \$250,000 (GST exclusive) in funding towards regional Southern Brown Bandicoot and Broad-headed Snake programs. This funding must not be expended on the measures referred to in condition 6a;  | provision of regional funding            |
| (c) a description of actions to be funded and undertaken to inform and/or enhance the conservation of these species, including through survey or research, threat abatement with specific reference to predator controls and habitat restoration or rehabilitation, including public reporting or publication of information gained by these actions; | Actions to be Funded                     |
| (d) a demonstration that management actions to be undertaken will not adversely impact EPBC Act listed species;   | Impacts on other EPBC Act Listed Species |
| (e) a description of funding arrangements or agreements including work programs and responsible entities; and   | Funding Arrangements                     |



| Development Consent Instrument and Condition  | Reference                       |
|---|---------------------------------|
| (f) measures for the provision of documentary evidence within 30 days of the funding having been expended and/or that funding commitments have been met.  | Documentary Evidence of Funding |
| Dendrobium Mine EPBC Project Approval (2001/214), Condition 5   |                                 |
| S32 Illawarra Coal must submit for the Minister's approval a plan for managing the impacts of the action on the Broad-headed Snake Hoplocephalus bungaroides. The plan must be implemented. No vegetation may be cleared as part of West Cliff Coal Emplacement Stage 3 until the plan has been approved by the Minister. | All Sections                    |

## 1.2 Scope

This Plan applies to potential impacts on the Broad-headed Snake from Stages 3 and 4 of the West Cliff Emplacement construction and operations. The Plan addresses the requirements of:

- Bulli Seam Operations NSW EP&A Act - Project Approval Condition 17 d) and
- Bulli Seam Operations - EPBC Approval Condition 2010/5350 Condition 7 and Dendrobium Coal Mine - EPBC Approval 2001/214 - Condition 5.

This plan formally replaced the previous Broad-headed Snake Management Plan that was developed in 2007 for the Dendrobium 2001/214 EPBC Approval Condition 5.

## 2 ROLES AND RESPONSIBILITIES

Table 2 outlines the roles and responsibilities associated with this Management Plan.

Table 2: Summary of roles and responsibilities

| Responsibilities   | Role   |
|--|--|
| Meeting the commitments (including auditing, investigation and reporting) of this Management Plan.<br><br>Implementation and periodic review of this Management Plan.                            | Site Environmental Specialist  |
| Provision of suitable resources to manage the Emplacement in accordance with this Plan.<br><br>Day to day operation and maintenance of Emplacement Area in accordance with this Management Plan. | Production Superintendent  |
| Relocation (if required) of the Broad-headed Snake.  | Ecologist or wildlife specialist (with experience in relation to the Broad-headed Snake) |

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## 2.1 Consultation

As required, the components relating to the Broad-headed Snake from the West Cliff Coal Wash Emplacement Area Management Plan were prepared in consultation with the then Department of the Environment (DoTE - Now Department of the Environment & Energy (DoTE&E)) and the NSW Office of Environment and Heritage (OEH).

DoTE and OEH were provided with drafts of this Plan for comment with responses addressed within the previous version (Rev3) of the Plan where appropriate.

## 2.2 Review of the Management Plan

This management Plan will be reviewed, and if necessary revised, following the submission of an Independent Environmental Audit report; or any modification to relevant Project approval conditions (unless the conditions require otherwise); and if required by Condition 17 of the EPBC Act Approval.

Changes made to this Plan since first being approved are summarised below:

Table 3: Summary of changes made to this plan.

| Summary of Changes  | By Who                                    | Date/Review No.                                 |
|---|---|---|
| New Plan developed for Dendrobium EPBC Approval (2001/214), Condition 5   | Biosis Pty Ltd                            | 2007/Rev1                                       |
| Plan updated to reflect Bulli Seam Operations EPBC 2010/5350 requirements   | D. Gregory & Niche Environment & Heritage | 2013 & 14/Rev 2 & 3 (Previous approved version) |
| Updated to reflect South32 name and branding.<br><br>Updates to management & mitigation measures to remove duplication with the Coal Wash Emplacement Area Management Plan.<br><br>Updated section on <i>Management of Captured Broad-headed Snakes</i> to preference being relocation.<br><br>Updated section on <i>Provision of Regional Funding</i> - funding has been expended. | D. Gregory                                | 2017/Rev4                                       |

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### 3 BROAD-HEADED SNAKE INFORMATION

The Broad-headed Snake *Hoplocephalus bungaroides* is a species of national conservation significance. It is listed as Vulnerable under provisions of the Federal Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) and as Endangered under New South Wales' Threatened Species Conservation Act 1995 (TSC Act).



Figure 1: Broad-headed Snake.

Records of Broad-headed Snake are restricted to the Sydney Basin Bioregion of NSW (Cogger 2000). The species occurs in association with Triassic sandstones within the Sydney Basin, and is typically found among exposed sandstone outcrops within vegetation types ranging from woodland to heath. Within these habitats, they generally seek shelter in rock crevices and exfoliating rock with males and non-gravid females also using tree hollows during the warmest periods of summer (Webb and Shine 1998b). Research has found that the rock outcrops used by Broad-headed Snake have relatively specific characteristics, being generally western facing and with a relatively open canopy (Webb and Shine 1998a, b).

Furthermore, the rock crevices within these outcrops are quite specific, with rocks having to be exposed to direct sunlight (no overgrowth; Pringle et al 2003), be a rock on rock substrate and have relatively specific crevice structures and rock thicknesses that provide specific microclimates (Croak et al 2008).

These highly specific rock characteristics lead to a paucity of suitable rocks being available in any given outcrop area and so there may significant competition for suitable rocks between resident snakes and hence, the loss of suitable crevices may be a significant problem for local populations. Individual snakes have been found sheltering in hollows in tree species including *Eucalyptus gummifera*, *E. punctata*, *E. piperita* and *E. agglomerate* and prefer larger trees, trees with multiple hollows or dead trees. These hollows are typically located in positions where they are relatively unshaded by surrounding vegetation. Individual snakes use between one and nine trees and may spend long periods within a single hollow, up to 48 days (Webb & Shine 1997a).

The Broad-Headed snake is an ambush predator, spending up to four weeks in the same retreat site (Webb & Shine 1997a) and preying on small reptiles and mammals that enter the retreat (Webb & Shine 1997a; Wells 1981). Snakes feed very infrequently, with less than 20% of captured adults showing signs of having fed recently (Webb & Shine 1994). Juveniles feed more frequently than adults (Webb & Shine 1994; Webb & Shine 1998c). Juvenile snakes feed primarily on Velvet Geckos (*Oedura lesuerii*) (up to 70% of prey items) and occasionally on small skinks (Downes 1999; Webb & Shine 1998c). Adult snakes also consume Velvet Geckos, although they only comprise 27% of prey items (Webb & Shine 1998c). Other prey items include lizards, snakes and small mammals (Downes 1999; Shine 1983b; Webb & Shine 1998c). Broad-headed Snakes show a greater specialisation or specificity of prey than is typical of Australian snakes (Webb and Shone 1998c), which may be related to limited prey types occurring within their preferred habitats.

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The Broad-headed Snake has been recorded to have a sedentary life cycle for a snake. Individuals in southern areas of its range have been found to occupy home ranges that are only 3.43 ( $\pm 2.86$  SD) ha ( $n = 18$ ) with all snakes avoiding sharing space (Webb & Shine 1997b). Despite this low home range size and habitat specificity, recent research has indicated that there is a relatively high exchange of genes amongst populations, although this appears to occur only along lines of outcropping (Dubey et al 2011). The Broad-headed Snake also has a notably long reproductive cycle, with adults reaching maturity only a six years for female snakes and five years for males (Webb et al. 2003). Females are able to produce offspring only every second year (Webb et al 2002) and with litter sizes of 4-12 (Webb & Shine 1998c). This relatively low reproductive rate, relative to other Australian elapid snakes, appears to be related to low prey availability or low prey capture rates (Webb et al. 2003).

Stages 3 and 4 of the Emplacement Area contain areas of suitable habitat for the species in the Sandstone Scribbly Gum Woodland, Sandstone Gully Apple Peppermint Forest and Sandstone Gully Peppermint Forest. These vegetation units contain areas of suitably exposed sandstone that also have adjacent forests containing large hollow bearing trees that can be used during summer.

Common prey species, such as the Velvet Gecko (*Oedura lesueurii*) and the Southern Leaf-tailed Gecko (*Phyllurus platurus*), have also been recorded within Stages 3 and 4 of the Emplacement Area, indicating that prey species are available.

To date, the Broad-headed Snake has been definitively recorded only twice within the Stage 3 Emplacement Area (Figure 3). Another record nearby the Stage 4 Emplacement is still the subject of some conjecture. Several records of the species exist within 10 km of the West Cliff operations (OEH Atlas of NSW Wildlife – See Figure 3). Most of these records occur to the north and east of the site, including within Dharawal National Park. Locally, the species has a patchy distribution, almost certainly reflecting its specific habitat requirements.

### 3.1 Significance of Broad-Headed Snake Population within the Study Area

The local Broad-headed Snake population within the West Cliff Colliery Surface Lease and surrounds is considered to be of national conservation significance and, as such, Stages 3 and 4 of the Emplacement Area may be considered to support an '*important population*' of the species, as defined by the EPBC Act.

An *important population* is one that is necessary for a species' long-term survival and recovery and may include populations that are:

- Key source populations either for breeding or dispersal,
- Populations that are necessary for maintaining genetic diversity, and/or
- Populations that are near the limit of the species range.

Under provisions of the EPBC Act, an action has, will have, or is likely to have a 'significant impact' on a '*Vulnerable Species*' if it does, will, or is likely to:

- Decrease the size of an *important population* of a species, or
- Reduce the area of occupancy of an important population, or
- Fragment an existing *important population* into two or more populations, or
- Adversely affect critical habitat, or
- Disrupt the breeding cycle of an *important population*, or
- Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline, or
- Directly or indirectly result in invasive species that are harmful to a vulnerable species becoming established in the '*vulnerable species*' habitat, or

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- Interferes substantially with the recovery of the species.

### 3.2 Habitats of the Broad-Headed Snake within the Study Area

Known and potential habitat for the Broad-headed Snake occurs within the West Cliff Colliery Stages 3 and 4 of the Coal Wash Emplacement Area and the remainder of the surface lease. This habitat includes:

- Rocky outcrops, crevices, caves and overhangs;
- Open forest and woodland with hollow-bearing trees (particularly dead trees); and
- Fallen hollow timber and bark.

The individual recorded by Biosis Research (2001) was observed in March 2001 during a spotlighting survey and was crossing a dirt track between open woodland habitat on a ridge, within the site (refer to Figure 3). A second individual was recorded in April 2016 by Illawarra Coal during a pre-clearing survey in the Stage 3 Emplacement. The snake was captured and relocated in accordance with this Plan.

The Broad-headed Snake spends a significant amount of time inactive in retreat-sites and moves only short distances between winter sites (i.e. rocky outcrops). The species' movement is more frequent and extensive within woodland (summer) habitat, with males and non-gravid females moving up to 780 m from winter sites into woodland during summer (Webb and Shine 1997a).



Figure 2: Potential Broad-headed Snake habitat.

### 3.3 Potential Impacts on Broad-Headed Snake

Key Threatening Processes (KTP), as listed under Schedule 3 of the TSC Act, are actions that have the ability to significantly impact threatened species and/or their habitats. KTP's relevant to the proposal that would impact on actual and potential habitat for the Broad-headed Snake include:

- 'Bushrock Removal'- the emplacement operations involve the removal of bushrock, including large rock platforms and outcrops that provide potential habitat for the species;
- 'Clearing of Native Vegetation'; and
- 'Loss of Hollow-bearing Trees'.

The emplacement operations have the potential to negatively impact on the local population of Broad-headed Snake either directly through mortality and habitat removal, or indirectly by changes to habitat conditions, fragmentation of suitable habitats and loss of prey items.

A summary of potential impacts associated with the Project are outlined below.

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**Direct Impacts**

Direct impacts that may result from the active emplacement within Stages 3 and 4 of the emplacement area include:

- Death and/or injury of Broad-headed Snakes due to the disturbance and removal of known and potential habitat for this species;
- Direct loss of habitat such as hollow-bearing trees, hollow logs and exposed sandstone rocky outcrops;
- Increased predation due to loss of sheltering habitat;
- Relocation of individuals during habitat translocation;
- Direct road-kill mortality by construction vehicles (although unlikely due to nocturnal nature of Broad-headed Snake); and
- Creation of artificial barriers to movement (eg, Isolation of rock outcrops from adjacent hollow-bearing trees to the extent that snakes can no long move between these two critical resources).

**Indirect Impacts**

Potential indirect impacts that may result from the active emplacement within Stages 3 and 4 of the emplacement area include:

- Loss of prey habitat and hence prey availability leading to starvation and reduced recruitment;
- Reduction in genetic diversity within the regional population due to a reduction or loss of the West Cliff population, or to disrupted capacity for the species to move within and through Stages 3 and 4 of the Emplacement Area; and
- Reduction in quality of surrounding habitat due to noise and dust from the proposal.

**4 MANAGEMENT AND MITIGATION**

This Section addresses Condition 17(d) of the BSO Project Approval and Condition 7(a) of the EPBC Approval in relation to the Broad-headed Snake as follows:

*17 (d) management strategies for the protection and conservation of the Broad-headed Snake and the Southern Brown Bandicoot;*

*7 (a) measures to avoid, mitigate and manage impacts on the Southern Brown Bandicoot, Broad-headed Snake and their habitats occurring as result of the action.*

This plan replaced the Broad-headed Snake Management Plan that was developed in 2007 for the Dendrobium 2001/214 EPBC Approval Condition 5.

**4.1 Management Strategies**

Clearing practices will incorporate appropriate controls to minimise mortality and injury to Broad-headed Snakes occupying the site. These are summarised in the following sections.

**4.1.1 Pre-clearance Surveys**

Prior to the first stage of clearing, the area to be cleared will be marked using flagging and surveyed by an ecologist or suitably trained site environmental representative to locate record and mark specific habitat features that are proposed for preservation and redistribution to the emplacement (e.g. rocks and boulders, stags and large hollows).

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The pre-clearing surveys (relating to Stage 3 coal wash emplacement operations) that have been undertaken to date are summarised in Table 4.

Table 4: Summary of pre-clearing surveys undertaken in Stage 3

| Area in Ha | Purpose of Clearing <sup>1</sup> | Report Reference     |
|------------|----------------------------------|----------------------|
| 6.5        | Coal wash emplacement            | Niche, 2011          |
| 0.4        | Coal wash emplacement            | Niche 2012           |
| 0.25       | Slurry pond                      | Illawarra Coal, 2013 |
| 2          | Coal wash emplacement            | Illawarra Coal, 2015 |
| 2          | Coal wash emplacement            | Illawarra Coal, 2016 |

\*In April 2016, one individual Broad-headed Snake was found in the Stage 3 area during a pre-clearing survey. The individual was captured and released to another location in accordance with this Plan (See Figure 4).

#### 4.1.2 Two-Stage Clearing

The primary mitigating measure for protection of Broad-headed Snakes within the West Cliff Emplacement Area is two-stage clearing.

Where possible, (i.e. where access to trees by the excavator is safe and practical), clearing of hollow bearing trees will be performed in a two stage process where surrounding vegetation is cleared separately, before the removal of habitat trees to allow fauna an opportunity to move.

The process is detailed in the approved Coal Wash Emplacement Area Management Plan.

#### 4.1.3 Management of Captured Broad-Headed Snakes

If a Broad-headed Snake is found during the two-stage clearing process, the animal will be relocated to pre-determined suitable habitat within the West Cliff surface mining lease area (Figure 4).

Pre-determined sites for relocation will take into account the species home ranges and be evenly spaced to avoid social conflict. Ideally, predetermined relocation sites should not be inhabited by another Broad-headed snake at the time of relocation.

Pre-determined relocation sites will necessarily consist of the following:

- Occur on Hawkesbury Sandstone within the current known range of the species and provide rocky outcrops with a westerly or north-westerly aspect, and horizontal crevices (Webb and Shine 1998c);
- Have large adjacent areas of woodland that support large stags or trees bearing numerous hollows (Webb and Shine 1997b). The adjacent woodland will ideally be larger than the area supporting rocky outcrops (Webb and Shine 1997a) and contain preferred species of 'habitat trees' (trees most often selected by Broad-headed Snakes) such as *Eucalyptus gummifera*, *E. punctata*, *E. agglomerata* and *E. piperita* (Webb and Shine 1997b).

Any other fauna located within the emplacement area during the pre-clearing survey will also be relocated. In particular, any Velvet Geckos (and other lizards) encountered will be relocated to the same pre-determined sites for Broad-headed Snakes to provide prey for the relocated snakes.

<sup>1</sup> Table includes areas cleared for Stage 3 under the Broad-headed Snake Management Plan that was developed in 2007 for the Dendrobium 2001/214 EPBC Approval Condition 5 (Version 1 of this plan). Future clearing activities in Stage 3 and Stage 4 will be undertaken in accordance with the current version.

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Where possible, snakes will be translocated from the initial capture point to the nearest site considered suitable for the long-term habitation by the species, but not more than 1 km from that point (where possible) to reduce the possibility for unfavourable genetic mixing.

Snakes will be released at sites as soon as practicable after capture.

#### 4.1.4 Habitat Translocation

Rocky outcrops, crevices, caves and overhangs provide winter habitat for the Broad-headed Snake (Goldingay and Newell 2000). Suitable winter habitat occurring within the Stages 3 and 4 of the Emplacement Area will be identified during the pre-clearing survey.

Rehabilitation of the Emplacement area behind the line of clearing for the Broad-headed Snake, in terms of winter habitat, will include the following:

- Translocated rocky outcrops and boulders will ideally be positioned with a westerly or north-westerly aspect and crevices should remain horizontal (Webb and Shine 1998c);
- The Velvet Gecko should also be translocated (Webb and Shine 2000). Suitable habitat for this prey species is the same as for the Broad-headed Snake's winter habitat and includes loose rock on rock substrate (Shine et al. 1998, Webb and Shine 1998c);
- The above shelter sites will ideally be evenly spaced and not clumped together to encourage a greater number of Broad-headed Snakes to the area (Webb and Shine 1997a). If shelter sites are too close together, they are likely to remain uninhabited due to home range overlap. Shelter sites will ideally be placed at least 300 m apart and close/adjacent to suitable summer habitat (translocated hollow-bearing trees or limbs within rehabilitating sections of the old Emplacement areas; Webb and Shine 1997a);
- Artificial rocks/concrete pavers will be added to the Emplacement area behind the line of clearing to increase habitat opportunities for prey items and the Broad-headed Snake if insufficient natural rock cannot be sourced from the Emplacement Area for this purpose. Webb and Shine (2000) recommend the use of large pavers (30 – 45 cm wide and 5 – 10 cm thick), as well as a range of smaller pavers (e.g. 19 cm wide) and thicker pavers (e.g. > 30 cm thick) placed with a variety of crevice sizes (up to 10 mm). The artificial rocks will be placed in both shaded and exposed areas to provide a range of suitable micro-climates for the snake and its prey depending on the time of year.
- Hollow logs and hollow-bearing stags will also be translocated to provide additional retreat-sites for the Broad-headed Snake and its prey (Webb and Shine 1997b).

#### 4.1.5 Summary of Impact Minimisation Strategies

Measures to minimise impacts of the Project (Stage 3 and 4 emplacement areas) on the local population of the Broad-headed Snake are outlined in Table 5.

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Table 5: Impact minimisation measures for the protection of the Broad-headed Snake at West Cliff

| Performance Objective   | Performance Target   | Management/Mitigation Measures   | Monitoring and Reporting Methods   |
|---|--|--|--|
| Protection of Hoplocephalus bungaroides outside the approved emplacement and development footprints | - No loss of Hoplocephalus bungaroides individuals or its habitat outside the approved emplacement and development footprints                                      | - Vegetation clearing to be within approved boundaries<br>- Future development requiring land clearing to consider Hoplocephalus bungaroides individuals.  | - Works as executed survey plans of any vegetation clearing  |
| Protection of Hoplocephalus bungaroides within the approved emplacement and development footprints  | Minimise loss of Hoplocephalus bungaroides individuals within the approved emplacement footprints due to construction and operations.                              | Conduct pre-clearance surveys in the Stage 3 and 4 emplacement areas and subsequent two-stage clearing, to give animals the opportunity to move away.<br><br>Individuals found will be relocated to pre-determined suitable habitat within the West Cliff surface mining lease area. | Document by preparation of pre-clearing survey reports for every emplacement phase cleared including use of GIS coordinates for survey results.<br><br>Document numbers of individuals trapped and released. Observation of animal condition. Record release location. |
| Re-establishment of suitable habitat on completed and rehabilitating emplacement areas              | Establishment of suitable rocky and woodland habitat components to support Hoplocephalus bungaroides individuals within 5 years of commencement of rehabilitation. | Placement of hollow logs and rock outcrop elements of habitat for the Broad-headed Snake in rehabilitated areas.<br><br>Installation of artificial habitat (eg concrete paving slabs) if necessary as per Webb and Shine (2000).   | Annual Emplacement Rehabilitation Inspection program undertaken<br><br>Reports from the annual Rehabilitation monitoring program to be attached to the Bulli Seam Annual Environmental Management Report (Annual Review).  |
| Reduce dust impacts on Hoplocephalus bungaroides habitat from operations.                           | Dust controls as per West Cliff Coal Wash Emplacement Area Management Plan   | Dust impacts from emplacement operations will be mitigated by the coal wash material being wet   | Annual environmental reporting of dust results in the Bulli Seam Annual  |

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| Performance Objective   | Performance Target  | Management/Mitigation Measures   | Monitoring and Reporting Methods   |
|---|---|--|--|
|   |   | <p>from coal washing processes and being compacted once emplaced.</p> <p>Active emplacement areas will be capped and vegetated as soon as practicable.</p> | <p>Environmental Management Report (Annual Review).</p>  |
| <p>Monitoring and Reporting undertaken and submitted as scheduled</p> | <p>Annual monitoring report submitted and Management Plan review as required.</p> | <p>Reporting of project to DoEE and other stakeholders</p> <p>Adjustments made to systems and methods as required</p>                                      | <p>Monitoring including pre-clearing surveys, capture and transfer of animals, implementation of two-stage clearing, success of translocation efforts, progress in rehabilitation of emplacement sites, success of captive breeding programs if applicable.</p> <p>Annual compliance report to DoEE.</p> |

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## 5 PROVISION OF REGIONAL FUNDING

### 5.1 Provision of Funding

This section addresses Condition 7(b) of the EPBC Approval as follows:

*(b) provisions for the contribution of no less than \$250,000 (GST exclusive) in funding towards regional Southern Brown Bandicoot and Broad-headed Snake programs. This funding must not be expended on the measures referred to in condition 7a;*

IC has funded \$250,000 towards the regional management of the Southern Brown Bandicoot and Broad Headed Snake programs as outlined in this Plan (Attachment B).

The project took place over three years commencing July 2014 and finishing June 2017 with payments issued as follows:

- Year 1 \$85,000 July 2014
- Year 2 \$85,000 July 2015
- Year 3 \$80,000 July 2016.

### 5.2 Actions to be Funded

Illawarra Coal consulted with the Office of Environment and Heritage (local and threatened species unit) regarding EPBC Act Approval Conditions 7(b) to (e).

*(c) a description of actions to be funded and undertaken to inform and/or enhance the conservation of these species, including through survey or research, threat abatement with specific reference to predator controls and habitat restoration or rehabilitation, including public reporting or publication of information gained by these actions;*

The Office of Environment and Heritage (OEH) developed a Project Proposal to be funded by IC, which addresses points (c) to (f) of the EPBC Act Approval Condition 7.

The OEH letter and Project Proposal is included in this Plan as Attachment B.

### 5.3 Impacts on other EPBC Act Listed Species

This Section addresses Condition 7(d) of the EPBC Approval for works conducted by OEH as follows:

*(d) a demonstration that management actions to be undertaken will not adversely impact EPBC Act listed species;*

The OEH Proposal addressed the above requirement (see section titled *Consideration of Impacts of the Project*).

### 5.4 Funding Arrangements

This Section addresses Condition 7(e) of the EPBC Approval as follows:

*(e) a description of funding arrangements or agreements including work programs and responsible entities.*

OEH provided a Project Proposal for the Broad headed Snake and Southern Brown Bandicoot recovery actions (see Attachment B).

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IC provided the funding through a Non-order Invoice (NOI). OEH issued three separate invoices, prior to the start of each financial year i.e. year 1, year 2 and year 3.

### 5.5 Documentary Evidence of Funding

This Section addresses Condition 7(f) of the EPBC Approval as follows

*(f) measures for the provision of documentary evidence within 30 days of the funding having been expended and/or that funding commitments have been met.*

IC provided documentary evidence to the DoTE&E in September 2016 to satisfy this condition.

The relevant results were included in the FY17 BSO Annual Review.

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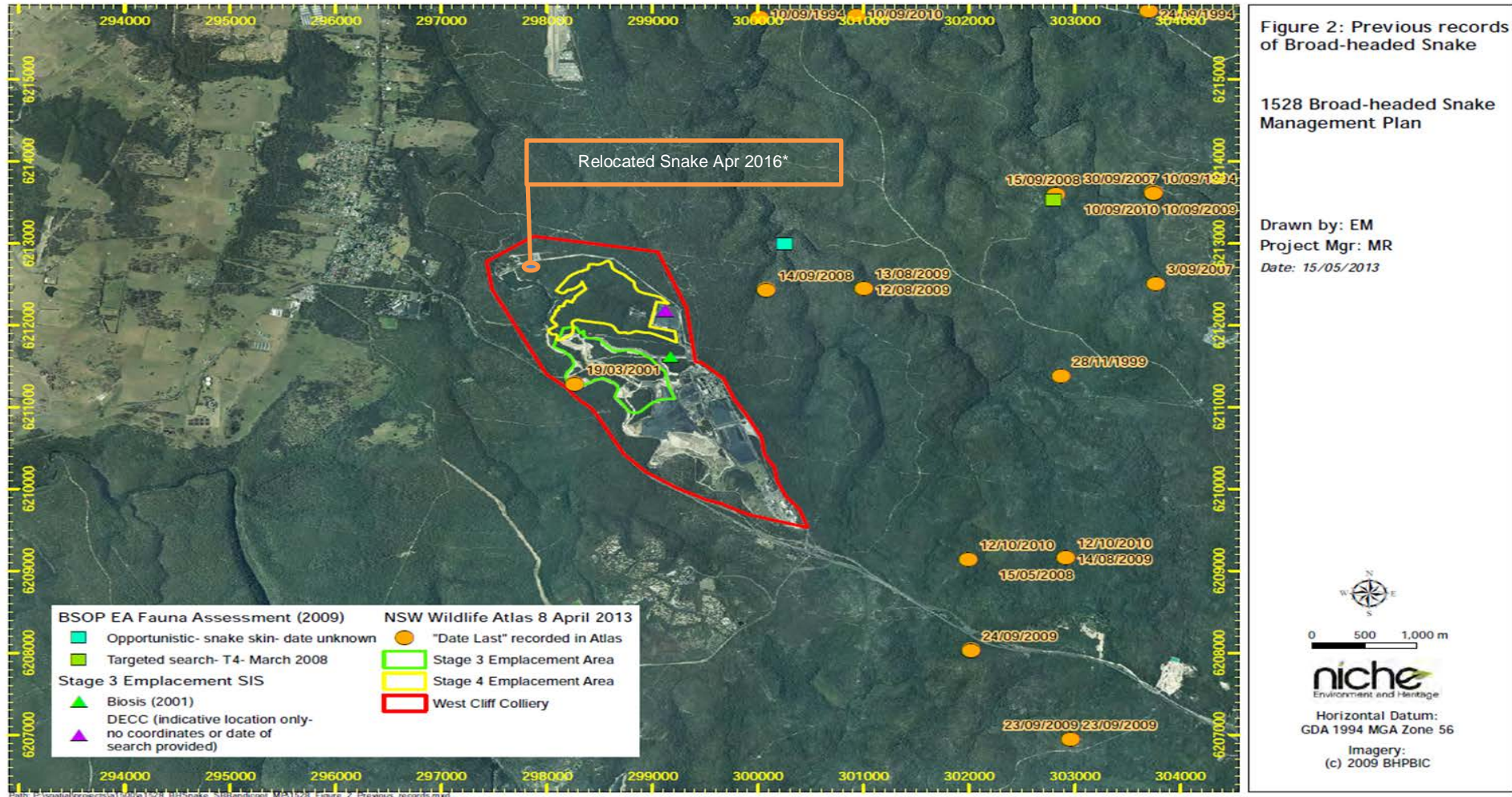
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## 7 APPENDICES

### ATTACHMENT A: PLANS



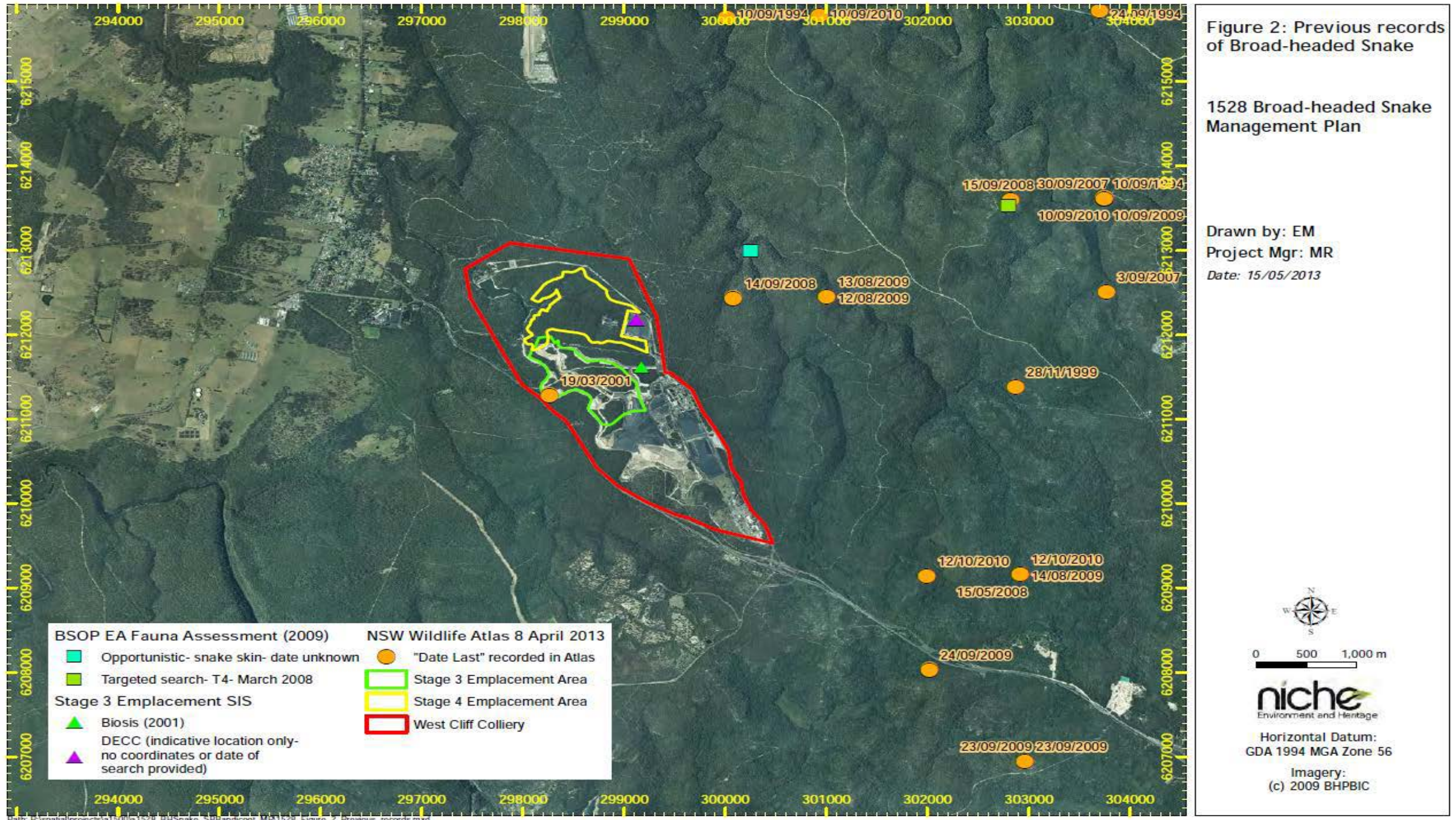
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Figure 3: Broad-headed Snake records. \*BHS was located during pre-clearing survey in Stage 3 in April 2016 and was relocated in accordance with this Management Plan



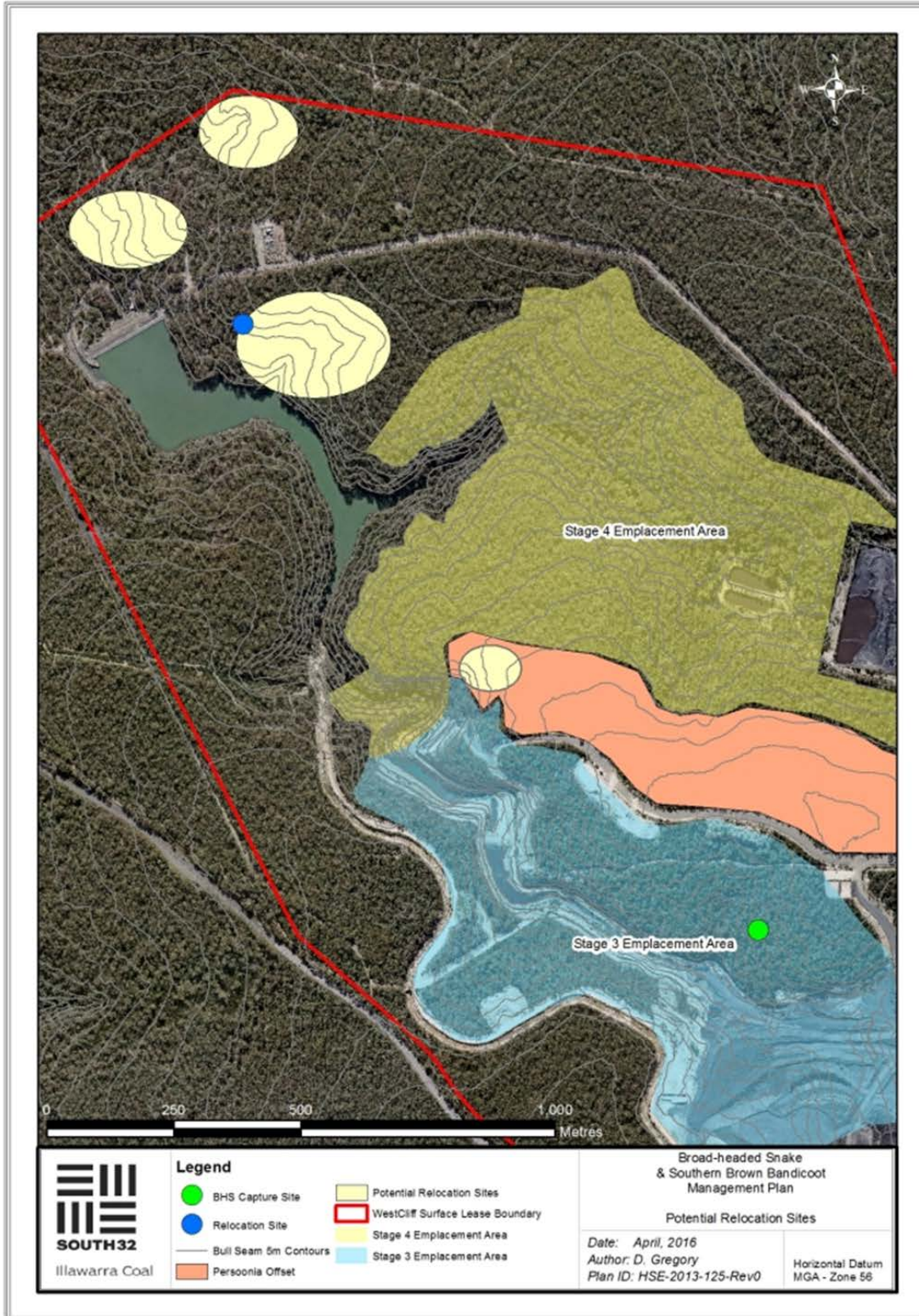
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Figure 4: BHS potential relocation sites. BHS was located during pre-clearing survey in Stage 3 in April 2016 and was relocated in accordance with this Plan.



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**ATTACHMENT B: OEH BROAD-HEADED SNAKE AND SOUTHERN BROWN BANDICOOT PROPOSAL**



Our reference: DOC14/46528, SF14/2223  
 Contact: Meagan Hinds 02 9585 6825

Joanne Page  
 Manager Environment  
 BHP Billiton Illawarra Coal  
 PO Box 514  
 Unanderra NSW 2526

Dear Ms Page

I am writing with regards to BHP Billiton Illawarra Coal (BHPBIC) request that the Office of Environment and Heritage (OEH) develop and implement a project proposal to fulfil the requirements of Condition 7 of the Federal Government Bulli Seam Operations Project Approval EPBC 2010/5350. This condition requires BHPBIC to contribute no less than \$250,000 to regional Broad-headed Snake and Southern Brown Bandicoot recovery programs in order to offset predicted impacts of the proposal.

I am pleased to advise you that this project proposal has now been finalised and a copy is attached for your endorsement. This project proposal has been prepared in consultation with the Commonwealth Department of Environment, species experts, relevant land managers and BHPBIC. It is proposed that the project be scheduled over three years, commencing 1 July 2014 and finishing 30 June 2017 with payments scheduled as follows:

Year 1 \$85,000 - July 2014  
 Year 2 \$85,000 - July 2015  
 Year 3 \$80,000 - July 2016

OEH now seeks your written endorsement of the project proposal to ensure that the necessary arrangements within OEH and BHPBIC are completed in time to allow for the commencement of the project and the first project payment in July 2014.

A copy of the final project proposal has also been provided to the Commonwealth Department of Environment. Should you require further information regarding this matter please contact Meagan Hinds, Senior Threatened Species Officer on 0295856825 or [meagan.hinds@environment.nsw.gov.au](mailto:meagan.hinds@environment.nsw.gov.au).

Yours sincerely

**David Trewin**  
 Regional Manager  
 Greater Sydney Region

17/4/14

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