



Environmental Assessment

for the

Dargues Gold Mine

Modification 2

July 2013

Prepared by:



R.W. CORKERY & CO. PTY. LIMITED

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ABN 12 112 787 470

Environmental Assessment

for the

Dargues Gold Mine Modification 2

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July 2013



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EXECUTIVE SUMMARY

Introduction

This *Environmental Assessment – Modification 2* has been prepared for Big Island Mining Pty Ltd (the Proponent) by R.W. Corkery & Co. Pty. Limited (RWC) to support an application for modification of Project Approval MP10_0054 (the proposed modification) granted for the Dargues Reef Gold Project (the Project) by the Land and Environment Court (LEC) on the 7 February 2012 and subsequently modified on 12 July 2012.

The proposed modification is being sought to regularise a range of changes in the layout of the Project that have been identified during the detailed design phase of the Project. Some of these changes are within the ambit of Project Approval MP10_0054 and do not by themselves necessitate a formal modification, however some others do. For the sake of completeness, all changes have been identified in this Environmental Assessment.

This application for modification of MP10_0054 is being made under Section 75W of the *Environmental Planning and Assessment Act 1979* (the EP&A Act). As the Project is considered a “transitional Part 3A Project”, as defined in Schedule 6A of the EP&A Act, the Proponent contends that Section 75W still applies to the Project despite the wider repeal of Part 3A of the EP&A Act.

This executive summary introduces the Proponent, provides relevant information in relation to the proposed modification and anticipated additional impacts on the surrounding environment and community and provides a brief justification of the proposed modification.

The Proponent

The Proponent, Big Island Mining Pty Ltd (BIM), is a wholly owned subsidiary of Dargues Gold Mine Limited (DGM). DGM is itself a fully owned subsidiary of Unity Mining Limited (Unity). Unity is an Australian listed public gold mining and exploration company which operates the Henty Gold Mine in Tasmania and the Kangaroo Flat Gold Mine in Victoria.

The Proponent is committed to continue the development and operation of the Project in a manner that achieves environmentally responsible outcomes and benefits the local community and broader region. The Proponent recognises that the proposed modification should not be achieved to the detriment of the local community or the environment.

Background to the proposed modification

The Proponent and its predecessors have controlled exploration licences over the Project Site since 2002. As a result of mineral exploration activities within those licences, the Dargues Gold Deposit was defined, and subsequently determined to be economically recoverable in 2010. An application for project approval was submitted in September 2010 and PA10_0054 was granted by the Land and Environment Court on 7 February 2012. The approval was subsequently modified on 12 July 2012 to allow the use of paste fill MP10_0054).

MP10_0054 permits the following activities.

- Extraction of material from the Dargues Gold Deposit using underground, sublevel open stope mining methods with a suitable crown pillar and internal pillars and sills, as

well as backfilling of stopes using a combination of waste rock and paste fill to prevent surface subsidence and ensure geotechnical stability of the approved mine.

- Construction and use of:
 - a processing plant, office area and an integrated Run-of-Mine (ROM) pad/temporary waste rock emplacement;
 - a tailings storage facility;
 - a water management system; and
 - a site access road and intersection.
- Transportation of sulphide concentrate using covered semi-trailers.
- Construction and rehabilitation of a final landform that would be geotechnically stable and suitable for a final land use of agriculture and/or nature conservation.

Objectives of the proposed modification

In addition to the Project objectives identified in Section 2.1.1 of RWC (2010a), the Proponent's objectives in modifying MP10_0054 are as follows.

- To ensure that the detailed design and as-constructed layout conform with the assessed and approved layout
- To reduce, to the maximum extent practicable, the overall environmental impact of the Project.
- To minimise, to the maximum extent practicable, the impact on the local community and other stakeholders.
- To enhance the sediment and erosion control capabilities of the Project.

Description of the proposed modification

This proposed modification would include the following modifications to the approved Project Site layout (**Figure 5**).

- Change the surface expression of the boxcut to reflect geotechnical and safety requirements.
- Change the shape of the ROM Pad to more appropriately accommodate the amenity bund, clean water diversion drain and the detailed process plant design.
- Relocation of approved core yard, workshop and laydown yard to the north of the Processing Plant Area and establishment of a separate Office and Core Processing Area and Mine Infrastructure Area.
- Minor change to the shape of the Processing Plant Area to accommodate the detailed plant design and process water pond.
- Relocation of the transmission line to improve the supply of electricity to the underground mine.
- Relocation and enlargement of the Mine Water Settlement Dam to ensure that there is sufficient capacity to store all water removed from the underground mine.
- Minor relocation of the Site Access Road and Tailings Storage Facility Access Road to account for road construction conditions and to ensure that the Tailings Storage Facility Access Road is located to the northwest of a ridgeline.
- Associated adjustments to surface water management structures.

The Proponent notes that the proposed modification does not include any additional infrastructure, merely modification of the location of infrastructure that has already been approved.

Finally, the proposed modification includes a range of minor adjustments to the conditions of MP 10_0054 to further clarify the intent of the conditions.

Assessment of Key Environmental Issues

The proposed modification is not expected to result in any significant changes to the following environmental impacts when compared with the approved Project.

- Groundwater.
- Surface water.
- Aboriginal and non-Aboriginal heritage.
- Bushfire.
- Traffic and Transportation.
- Air quality and greenhouse gas.
- Soil and land capability.

Noise

Spectrum Acoustics Pty Limited undertook an assessment of the noise impacts associated with the proposed modification. In summary, three scenarios were assessed, two (Scenario 1a and 1b) were associated with site establishment activities and one (Scenario 2) was associated with mining operations. In each case, the closest nine residences were assessed and noise contours were generated.

The noise assessment determined that during the site establishment phase of the Project the proposed modification would result in negligible changes to noise levels associated with the approved Project. The maximum noise levels at surrounding residences during the site establishment phase of the Project would remain 35dB(A) at Residence R31.

In addition, the noise assessment determined that during the operational phase of the Project, surrounding residences would experience changes in noise levels

varying from a reduction of 3dB(A) to an increase of 2dB(A). The maximum noise levels at surrounding residences during the operational phase of the Project would increase from 31dB(A) to 33dB(A) at Residence R31. This is less than the noise assessment criteria of 35dB(A).

Ecology

The proposed modification would not result in any additional disturbance to vegetation communities other than pasture communities. As a result, the Proponent contends that the proposed modification would not result in changes to the approved ecology-related impacts.

Visual Amenity

The only significant change to the visual character of the Project is likely to be the changes to the ROM pad/amenity bund. In summary, the ROM Pad/amenity bund has moved north, been extended to the west and lowered by approximately 5m. This has the potential to reduce the direct visual impact of the ROM pad/amenity bund. However, conversely, this also has the potential to reduce screening provided by the ROM Pad / amenity bund for the processing plant.

The only component of the processing plant that is likely to be visible from outside the Project Site, taking in to account the revised ROM Pad/amenity bund layout is the upper few meters of the cement silo. This structure would have a non-reflective surface and would be a dull colour that would blend with the background.

As a result, the Applicant contends that the Project would not result in adverse visual amenity impacts surrounding the Project Site.

Conclusion

The Proponent contends that the proposed modification should proceed because it would:

- satisfy sustainable development principles;

- operate with risks to the local environment minimised to the greatest extent practicable;
- have a negligible or minimal additional adverse impact on the biophysical environment; and
- further contribute to the continued economic activity of the Palerang LGA.

1. INTRODUCTION

1.1 BACKGROUND

The Dargues Gold Mine (the Project) was first proposed in December 2009. Project Approval PA10_0054 was granted by the Land and Environment Court on 7 February 2012, with a subsequent modification granted on 12 July 2012 (MP10_0054) to permit the use of paste fill.

Since first being proposed, the Project has undergone a number of changes in its design and layout in response to feedback from the local community and government agencies. In addition, during the detailed design phase, further adjustments to the layout of the Project have been made to further reduce environmental impacts or streamline the operation of the Project. While a range of these adjustments and modifications have been captured in the original approval and subsequent modification, discrepancies between the final design of the Project and the approved layout remain. Some of these changes are within the ambit of Project Approval MP10_0054 and do not by themselves necessitate a formal modification, however some others do. For the sake of completeness, all changes have been identified in this Environmental Assessment.

While the Proponent contends that these modifications are relatively minor, the intent of this modification is to regularise these changes. It is noted that no additional infrastructure or operations are being sort with this proposed modification.

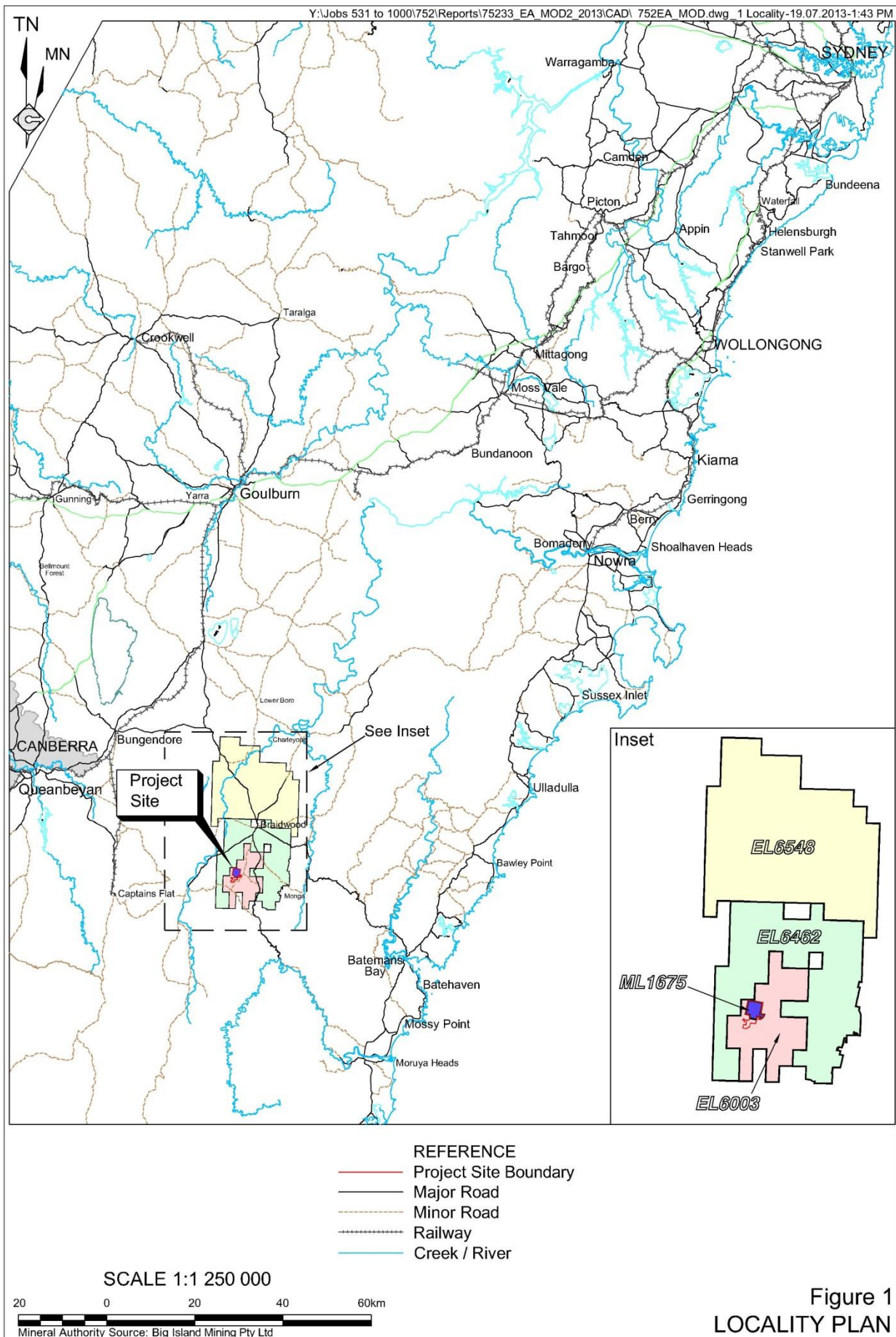
1.2 SCOPE

This *Environmental Assessment – Modification 2* has been prepared by R.W. Corkery & Co. Pty. Limited (RWC) on behalf of, and with the assistance of, Big Island Mining Pty Ltd (the Proponent) to support an application for modification of Project Approval MP10_0054 (the Proposed Modification). Project Approval PA10_0054 was granted for the Project by the Land and Environment Court on 7 February 2012 and subsequently modified to permit the use of paste fill on 12 July 2012 (MP10_0054).

Figure 1 presents the location of the Project on the western slopes of the Great Dividing Range, approximately 60km southeast of Canberra, immediately to the north of Majors Creek and approximately 13km south of Braidwood. The Project Site is located on freehold land that is referred to hereafter as “the Project Site”. This application for modification of MP10_0054 is being made under Section 75W of the *Environmental Planning and Assessment Act 1979* (the EP&A Act). As the Project is considered a “transitional Part 3A Project”, as defined in Schedule 6A of the EP&A Act, the Proponent is of the understanding that Section 75W still applies to the Project despite the wider repeal of Part 3A of the EP&A Act.

The information contained in this document relates only to those components of the Project that would be the subject of the proposed modification. Aspects of the Project that would not be modified would continue to be undertaken in accordance with the following.

- The *Environmental Assessment* dated September 2010 (RWC, 2010a).
- The *Response to Submissions* dated December 2010 and associated documentation and correspondence (RWC, 2010b).
- The *Environmental Assessment – Modification 1* dated April 2012 (RWC, 2012a)



- The *Response to Submissions* dated June 2012 (RWC, 2012b)
- Project approval MP10_0054 and its associated conditions, statement of commitments and plans.

As a result, this document should be read in conjunction with the above.

The information provided in this document is presented to a level of detail, that the Proponent believes would allow the Minister for Planning or their delegate to determine the application.

1.3 THE PROPONENT

The Proponent, Big Island Mining Pty Ltd (BIM), is a wholly owned subsidiary of Dargues Gold Mine Limited (DGM). DGM is itself a fully owned subsidiary of Unity Mining Limited (Unity). Unity is an Australian listed public gold mining and exploration company which operates the Henty Gold Mine in Tasmania and the Kangaroo Flat Gold Mine in Victoria. Unity's focus is currently on the development and operation of the Dargues Gold Mine.

As of 11 June 2013, Unity has approximately 9,470 shareholders, of which Lion Gold is the largest with a 13.2% stake in the Company. Unity is controlled by a board of four directors with a combined experience in mining-related industries of more than 110 years. At the time of preparation of this document, Unity had commenced pre-development earthworks at the Dargues Gold Mine.

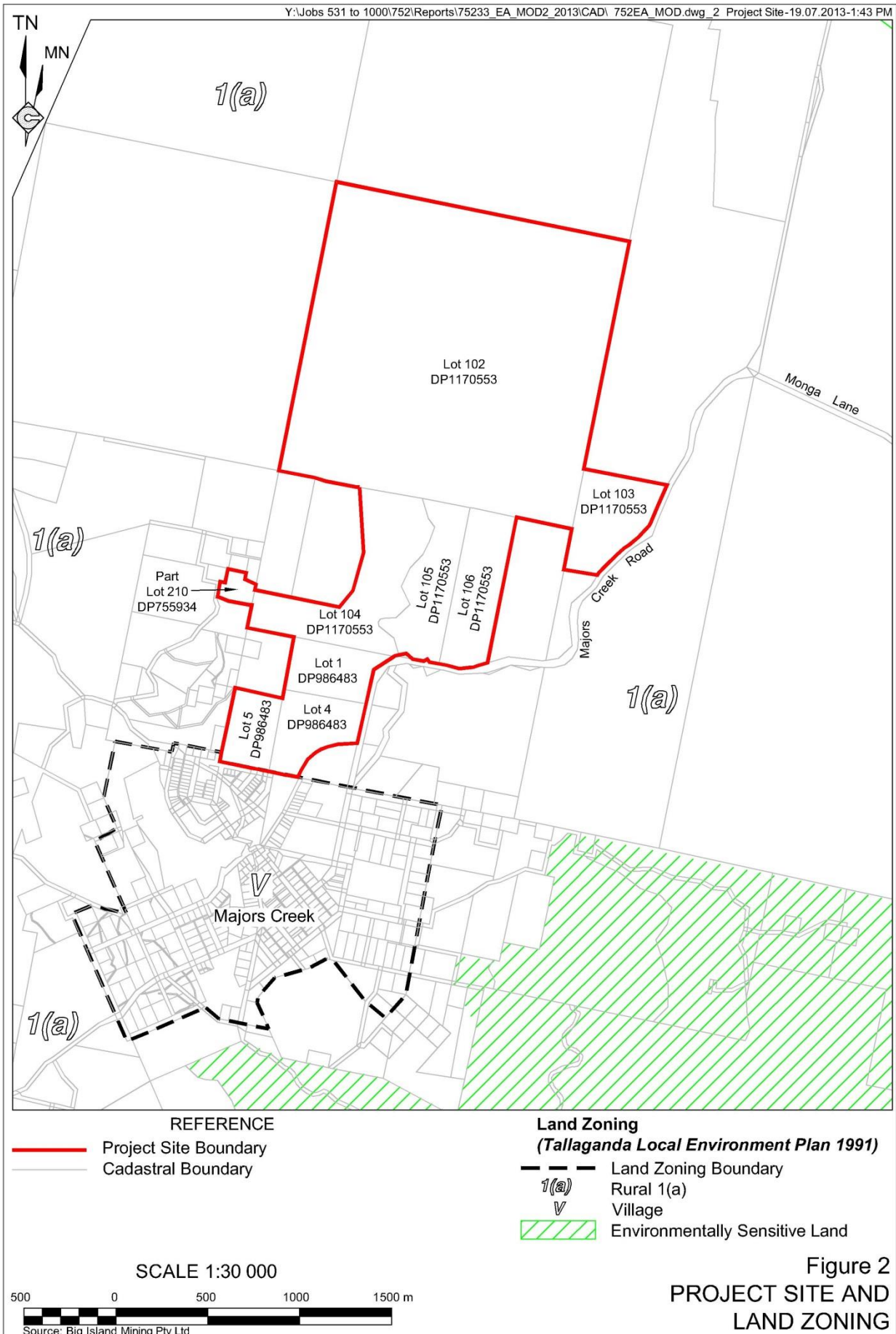
The Proponent is committed to continue the development and operation of the Project in a manner that achieves environmentally responsible outcomes and benefits the local community and broader region. The Proponent recognises that the proposed modification should not be achieved to the detriment of the local community or the environment. Rather, the Proponent is of the belief that the proposed modification would further minimise the potential for adverse Project-related environmental impacts while providing economic and other benefits for all stakeholders, including its employees and contractors, the surrounding community, State and Commonwealth governments, Palerang Council and the Company's shareholders.

1.4 PROJECT SITE

The Project Site is as described in Section 1.3.2 of RWC (2010a) and comprises nine separate freehold land titles, eight of which are owned by the Proponent (**Figure 2**). It is noted that one parcel of land, namely Lot 210, DP755934, is registered to B and C James. An agreement has been entered into with the James's, which grants the Proponent access to part of Lot 210 for the purpose of water extraction. **Table 1** presents the land titles within the Project Site.

Table 1
Project Site Land Titles

Lot	DP	Lot	DP
102	1170553	1	986483
103	1170553	4	986483
104	1170553	5	986483
105	1170553	210 ¹	755934
106	1170553		
Note 1: Land registered to B and C James. Part lot only.			



1.5 BACKGROUND TO THE PROPOSED MODIFICATION

1.5.1 Existing Mineral Authorities

The Proponent and its associated predecessors have controlled exploration licences over the Project Site since 2002.

The mineral authorities held by the Proponent are presented in **Table 2** and **Figure 1**. It is noted that following approval of the Project, Mining Lease 1675 (ML1675) was granted by the Minister for Resources and Energy on 12 April 2012.

Table 2
Mineral Authorities

Authority ¹	Act Year	Date Granted	Mineral Groups ²
ML1675	1992	12 April 2012	1
EL6548	1992	5 April 2006	1
EL6003	1992	3 October 2002	1
EL6462	1992	1 September 2005	1
Note 1: See Figure 1			
Note 2: Mineral groups as defined under the Mining Act 1992.			
Source: Big Island Mining Pty Ltd			

1.5.2 Exploration Operations

Gold was first discovered at Majors Creek on 5 October 1851, with a number of significant alluvial goldfields being established in the following years. The vast majority of gold extracted within the vicinity of the Project Site was won by alluvial mining in the mid to late 1800's. The mineral authorities held by the Proponent encompass the Majors Creek (Elrington) Goldfield, the Jembaicumbene alluvial Goldfield and a small portion of the Araluen alluvial Goldfield. Past historic production comprises approximately 1.25 million ounces sourced from alluvial (98%) and lode gold (2%) workings. The area surrounding the Project Site represents the richest alluvial goldfield in NSW.

The Dargues Gold Deposit has been evaluated and drill tested by several mining companies. To date in excess of 40 000 metres of reverse circulation and diamond drilling has been completed, with the majority targeting along-strike and down-dip extensions of the mineralised gold lodes that make up the Dargues Gold Deposit.

The Proponent has identified a range of associated prospects in the vicinity of the Dargues Gold Deposit, including Chinaman's, Ruby Lode, Copper Ridge, Excalibur and the Carmine Prospects. These and other mineralised zones are continuing to be tested. However, these prospects do not form a component of the Mine or this proposed modification. Should mineralisation with the potential to be economically extracted be identified, a further modification to MP10_0054 or a new development consent would be sought.

1.5.3 Identified Resources and Reserves

Gold mineralisation within the Dargues Gold Deposit occurs as a number of discrete gold lodes positioned within zones of structural weakness and intense alteration within the host Braidwood Granodiorite. The Dargues Gold Deposit resource inventory is 1.615Mt at 6.3g/t gold for 327 300 ounces of gold and 142 000 ounces of silver. The Project's Proven and Probable Reserve is 1.4 million tonnes at 5.2g/t gold for 233 000 ounces of gold and a mining inventory of 257 462 ounces of gold at an undiluted grade of 7.24g/t. Gold production is forecast at an average of 50 000 ounces per year.

1.5.4 Approved Activities

The approved Project is fully described in RWC (2010a) and RWC (2012a). However, for completeness, the approved activities include the following (**Figure 3**).

- Extraction of waste rock and ore material from the Dargues Gold Deposit using underground sublevel open stope mining methods with a suitable crown pillar, and internal pillars and sills to prevent surface subsidence and ensure geotechnical stability of the approved mine.
- Filling of voids created during underground mining using a combination of paste fill (a mixture of tailings and cement) and waste rock including associated infrastructure.
- Construction and use of surface infrastructure required for the underground mine, including a box cut, portal and decline, magazines, fuel store, ventilation rise, paste fill hole and power and water supply.
- Construction and use of a processing plant and office area which would include an integrated Run-of-Mine (ROM) pad/temporary waste rock emplacement, crushing and grinding, gravity separation and floatation circuits, Proponent and mining contractor site offices, workshop, laydown area, ablution facilities, stores, car parking, and associated infrastructure.
- Construction and use of a tailings storage facility.
- Construction and use of a water management system, including construction and use of eight dams and associated water reticulation system, to enable the harvesting and supply of water for environmental flows. It is noted that the proposed water harvesting operations would be consistent with the Proponent's rights under Section 53 of the *Water Management Act 2000*.
- Construction and use of a site access road and intersection to allow site access from Majors Creek Road.
- Transportation of sulphide concentrate from the Project Site to the Proponent's customers via public roads surrounding the Project Site using covered semi-trailers.

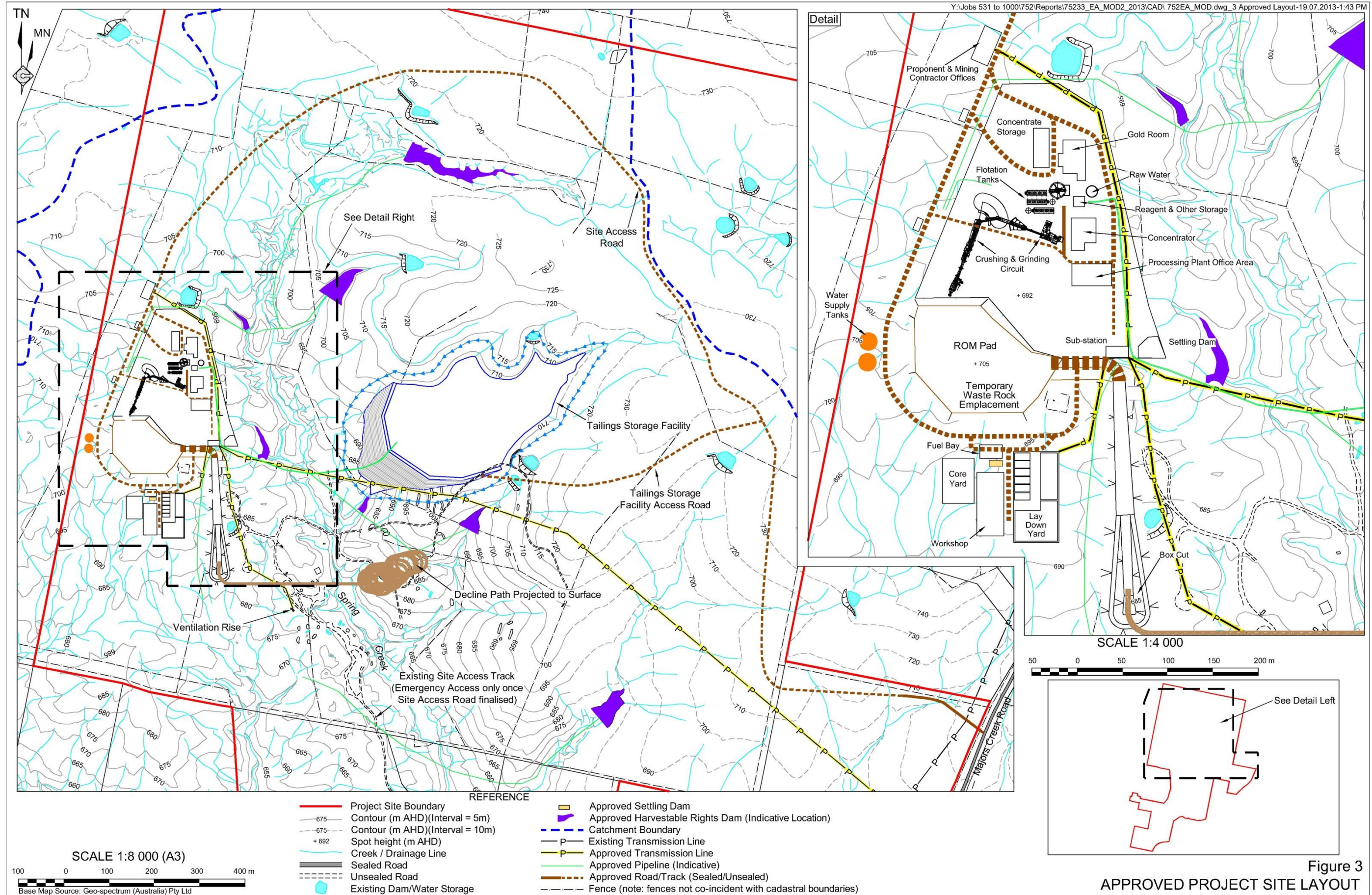


Figure 3
APPROVED PROJECT SITE LAYOUT

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- Construction and use of ancillary infrastructure, including soil stockpiles, core yards, internal roads and tracks, and sediment and erosion management structures.
- Construction and rehabilitation of a final landform that would be geotechnically stable and suitable for a final land use of agriculture and/or nature conservation.

1.5.5 Status of the Project

Project-related earthworks commenced on 11 February 2013. Between that date and finalisation of this document on 26 July 2013, the following earthworks were commenced. Percentages in parenthesis indicate the percentage of the total earthworks that are complete for each component. **Figure 4** presents the as-constructed layout on 10 July 2013.

- Site access road and intersection (70% complete).
- Box cut (80% complete).
- ROM Pad and Temporary Waste Rock Emplacement (90% complete).
- Processing Plant Area (10% complete).
- Mine Infrastructure Area (10% complete).
- Office and Core Processing Area (10% complete).
- Tailings Storage Facility (yet to be commenced).
- Harvestable rights dams (yet to be commenced).
- Surface water management structures not within the above areas (60% complete).

In addition, the following additional non-earthwork related works have commenced.

- Construction and use of a series of temporary offices in the vicinity of the existing exploration site offices and facilities. These temporary structures will be removed once the final offices have been established.
- Establishment of temporary ablutions and car park at the intersection of Majors Creek Road and the Site Access Road.

Since commencement of site earthworks, the Project has faced a number of environmental management challenges. These have principally been associated with management of surface water. During the early stages of the site establishment operations, a series of multiday rainfall events occurred. These overwhelmed the surface water management structures that were in place at the time. These initial rainfall events resulted in sediment-laden water being discharged from the Project Site and a range of complaints to both the Proponent and the Environment Protection Authority (EPA).

In order to manage this issue the Proponent implemented the following measures.

- Engaged, in consultation with the EPA, the Proponent's surface water consultant, namely SEEC, to prepare a revised Sediment and Erosion Control Plan and to closely supervise implementation of that plan.

- Significantly expanded the capacity of the sediment control structures within the Project Site, including diversion of surface water from the ROM Pad and temporary waste rock emplacement area to the boxcut.
- Continued close liaison with the EPA, during, and subsequent to each event.
- Preparation and implementation of a Pollution Reduction Program in consultation with the EPA.
- Continued review and modification of the Project layout to better manage surface water runoff.

1.6 FORMAT OF THE REPORT

This *Environmental Assessment – Modification 2* has been compiled in a single volume which includes five sections of text as follows.

Section 1: Introduces the proposed modification, the Proponent and provides relevant background information.

Section 2: Describes the Proponent’s objectives and proposed modification in sufficient detail to enable the application for modification to be determined.

Section 3: Provides a description of the stakeholder consultation and a review of relevant planning instruments.

Section 4: Describes the key environmental issues associated with the proposed modification.

Section 5: Evaluates the Project in terms of biophysical, economic and social considerations, and the goals and guidelines of Ecologically Sustainable Development and provides a conclusion to the document.

References: Lists the various source documents referred to for information and data used during the preparation of the *Environmental Assessment*.

Appendices: Present the following additional information.

- **Appendix 1** – Figures for Inclusion in Modified Project Approval
- **Appendix 2** – Copies of correspondence from Government agencies.
- **Appendix 3** – Noise Assessment Report.

1.7 MANAGEMENT OF INVESTIGATION

This document has been prepared by Mr Mitchell Bland (BSc (Hons), MEcon Geol, LLB (Hons)), Principal Environmental Consultant with R.W. Corkery & Co Pty. Limited.

Professional representatives of the Proponent assisted with the preparation of this document including, but not limited to:

- Mr James Dornan, (BSc), Project Engineer – Unity Mining Limited;
- Mr Scott Jones, (BEng (Hons) Mining), General Manager – Dargues Gold Mine; and
- Mr Matthew Gray, (BSc), Environment and Community Manager – Dargues Gold Mine.

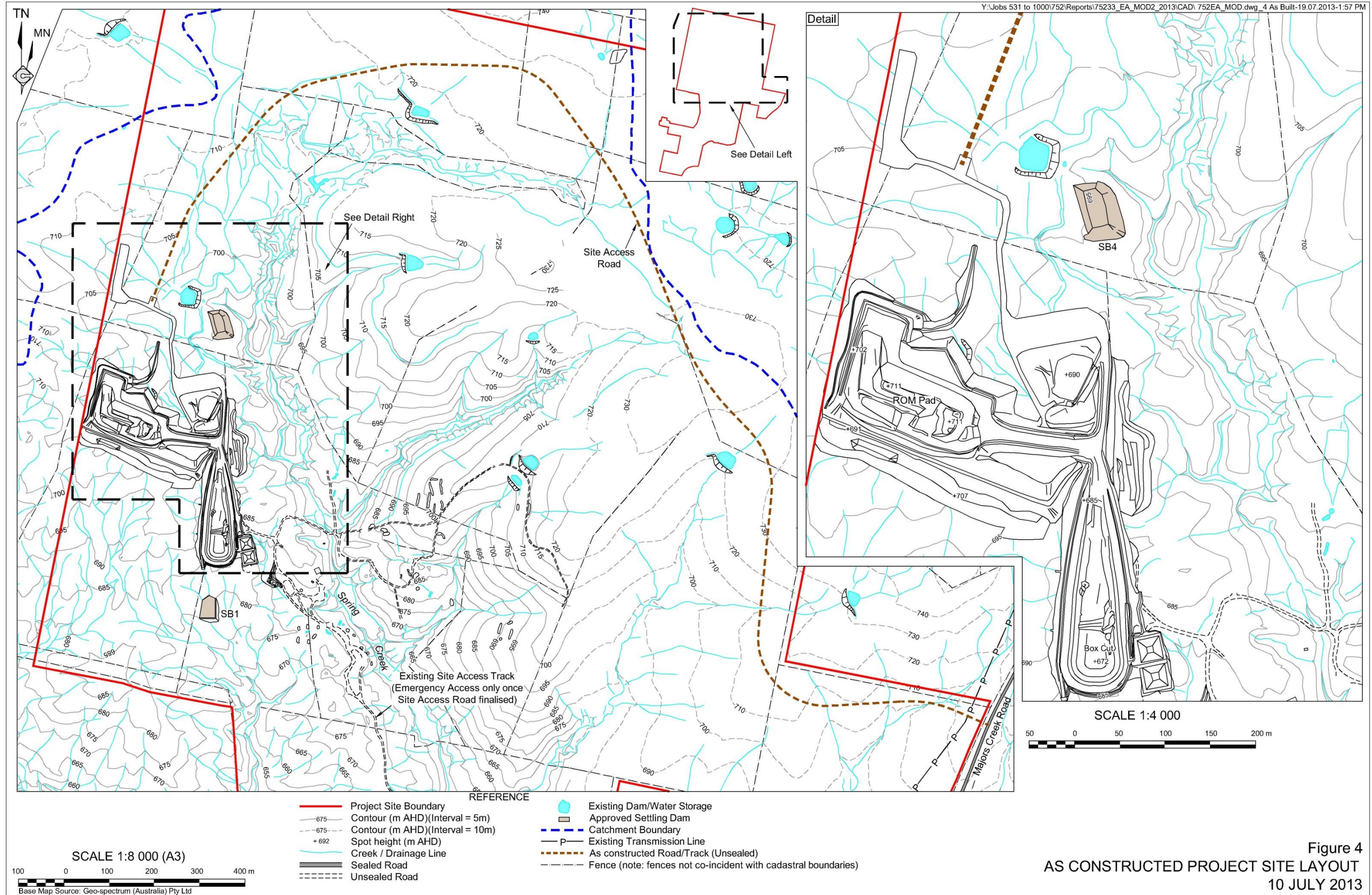


Figure 4
AS CONSTRUCTED PROJECT SITE LAYOUT
10 JULY 2013

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In addition, specialist advice in relation to the proposed modification has been provided by Mr Neil Pennington, Principal Noise Consultant, with Spectrum Acoustics.

2. DESCRIPTION OF THE PROPOSED MODIFICATION

2.1 INTRODUCTION

2.1.1 Objectives of the Modification

The Proponent's objectives in developing the Project are identified in Section 2.1.1 of RWC (2010a). The Proponent's objectives in modifying MP10_0054 are as follows.

- To ensure that the detailed design and as-constructed layout conform with the assessed and approved layout
- To reduce, to the maximum extent practicable, the overall environmental impact of the Project.
- To minimise, to the maximum extent practicable, the impact on the local community and other stakeholders. .

2.1.2 Overview of the proposed modification

This proposed modification would include the following modifications to the approved Project Site layout (**Figure 5**).

- Change the surface expression of the boxcut to reflect geotechnical and safety requirements.
- Change the shape of the ROM Pad to more appropriately accommodate the amenity bund, clean water diversion drain and the detailed process plant design.
- Relocation of approved core yard, workshop and laydown yard to the north of the Processing Plant Area and establishment of a separate Office and Core Processing Area and Mine Infrastructure Area.
- Minor change to the shape of the Processing Plant Area to accommodate the detailed plant design and process water pond.
- Relocation of the transmission line to improve the supply of electricity to the underground mine.
- Relocation and enlargement of the Mine Water Settlement Dam to ensure that there is sufficient capacity to store all water removed from the underground mine.
- Minor relocation of the Site Access Road and Tailings Storage Facility Access Road to account for road construction conditions and to ensure that the Tailings Storage Facility Access Road is located to the northwest of a ridgeline.
- Associated adjustments to surface water management structures.

The Proponent notes that the proposed modification does not include any additional infrastructure, merely modification of the location of infrastructure that has already been approved.

Finally, the proposed modification includes a range of minor adjustments to the conditions of MP 10_0054 to further clarify the intent of the conditions.

2.1.3 Modifications Required

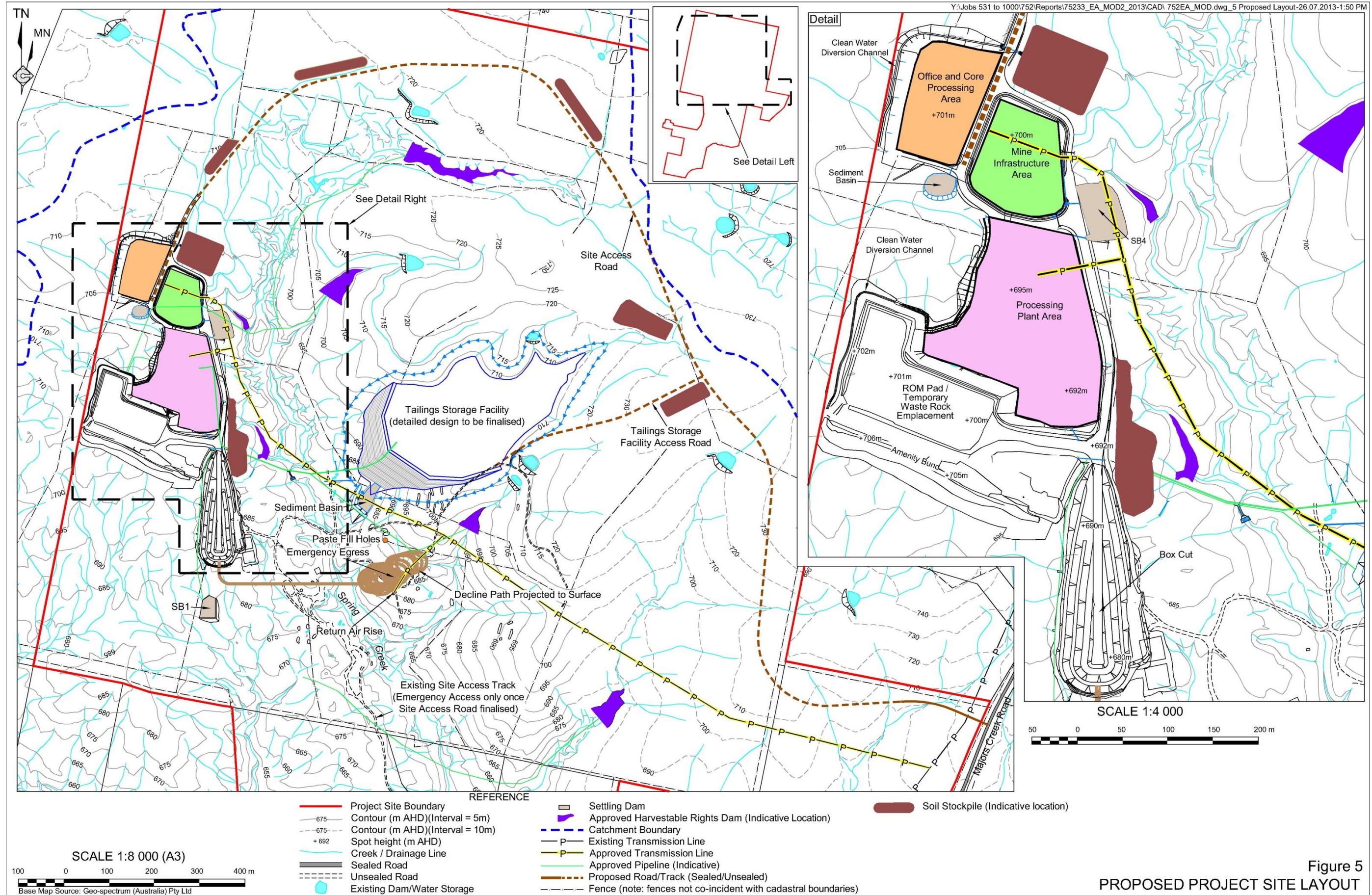
The Proponent anticipates that the following modifications to MP 10_0054 will be required. The proposed additions are underlined and the proposed deletions are in ~~strikeout~~. Text included in square brackets is for information only and is not proposed to be included in the modified Project Approval.

- Definitions
 - Clean water Water that accumulates from areas of the Site that have not been disturbed under this Project Approval.
 - Dirty water Water that accumulates from disturbed areas of the Site, synonymous with sediment-laden or contaminated water
 - EA Environmental assessment titled *Environmental Assessment for the Dargues Reef Gold Project*, and *Specialist Consultant Studies Compendium Volume 1 and 2*, dated September 2010, prepared by R. W. Corkery and Co Pty Limited, including the *Response to Submissions*, and additional information from Gaia Research Pty Ltd dated 5 May 2011,

Environmental Assessment titled *Environmental Assessment for the Dargues Reef Gold Project, Modification 1*, dated April 2012, prepared by R. W. Corkery and Co Pty Limited, including the *Response to Submissions*.

Environmental Assessment titled *Environmental Assessment for the Dargues Gold Mine, Modification 2*, dated July 2013, prepared by R. W. Corkery and Co Pty Limited.
 - Mine-related infrastructure Comprises the processing plant and permanent built infrastructure, not including site earthworks or installation of temporary offices or structures ancillary to those earthworks.

[Note: definition consistent with correspondence from Department of Planning and Infrastructure dated 31 January 2012.]
 - Mine water Water that accumulates within active mining areas, tailings dams and infrastructure areas, synonymous with ~~dirty~~ chemical-laden or contaminated water.



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- Condition 2(2)
 - The Proponent shall carry out the project generally in accordance with the:
 - EA
 - statement of commitments presented in Appendix 5 of the Approval; and
 - conditions of this approval.
- Condition 3(25)
 - The Proponent shall ensure that all other ~~groundwater~~ mine water storage and treatment dams are suitably lined to comply with a permeability standard of $< 1 \times 10^{-9}$ m/s.
- Appendix 2 and 4
 - Replace the figures with versions presented in **Appendix 1** of this document.
- Appendix 5
 - Insert the following commitment into the Statement of Commitments

Maintenance and improvement of the biodiversity value of the Project Site and surrounding areas. (Cont'd)	5.13	Ensure that all in-ground infrastructure in the vicinity of living native trees that comprise a component of the Ribbon Gum Forest or Fragmented Ribbon Gum Forest are installed in accordance with AS4970-2009 – <i>Protection of Trees on Development Sites</i> . In particular, ensure that such infrastructure is installed outside any Tree Protection Zone established by the standard.	During construction of in-ground infrastructure
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- Appendices 7 and 8
 - Replace the figures with versions presented in **Appendix 1** of this document.

In addition, should the proposed modification be granted, the Proponent would review, revise as required and seek approval the following documentation.

- Mining Operations Plan in accordance with the requirements of the Mining Act 1992 and the conditions of Mining Lease 1675.
- All Management Plans identified by MP10_0054. Where modifications to management plans are required, they would be undertaken in consultation with the relevant government agencies.

2.2 REVISED PROJECT SITE LAYOUT

2.2.1 Introduction

The proposed modification would result in changes to the layout of the Project Site as shown on **Figure 5**. **Figure 6** presents a comparison of the approved and proposed site layouts. This subsection provides further information in relation the proposed revised layout of the principal components of the Project. Further information in relation to ancillary infrastructure is provided in Section 2.8.

It is noted at the outset that, the proposed modification relates to the location of the infrastructure or area rather than a change to the function or activities that would be undertaken in those areas. As a result, this subsection should be read in conjunction with RWC (2010a) and RWC (2012a).

Finally, the Proponent notes that items of infrastructure or areas not described in this subsection remain unchanged.

2.2.2 Boxcut

Following granting of Project Approval, the Proponent undertook extensive geotechnical drilling to refine the design criteria for the boxcut to ensure the long-term stability of the structure and safe access to the underground mine. As result of that program, the design of the boxcut was revised slightly from the approved design, although the revised boxcut remains within the same area and on the same alignment as the approved layout.

Table 3 presents a comparison of the approved and proposed boxcut layouts.

Table 3
Box Cut

	Approved Layout	Proposed Layout
Area	2.94ha	2.45ha
Volume	202 275m ³	159 375m ³
Length	286m	255m
Maximum width	64m	80m
Maximum depth	29m	29m
Gradient of haul road	1:7 (V:H)	1:7 (V:H)
Slopes of walls	Approximately 55°	Approximately 45°
Source: Big Island Mining Pty Ltd		

2.2.3 Office and Core Processing Area

The Office and Core Processing Area would include the following infrastructure.

- Office area, comprising a series of demountable buildings that would comprise the site office, ablution facilities, first aid room, security and meeting rooms.
- An unsealed car parking area.
- A drill core storage and processing facility comprising the following components.
 - A hardstand core storage area, possibly with core storage racks.
 - An unsealed hardstand layout area to allow logging of drill core.
 - A core processing facility comprising an enclosed area with one or more core saws.

This infrastructure would replace the core yard and Proponent and Contractor Office identified on **Figure 3**.

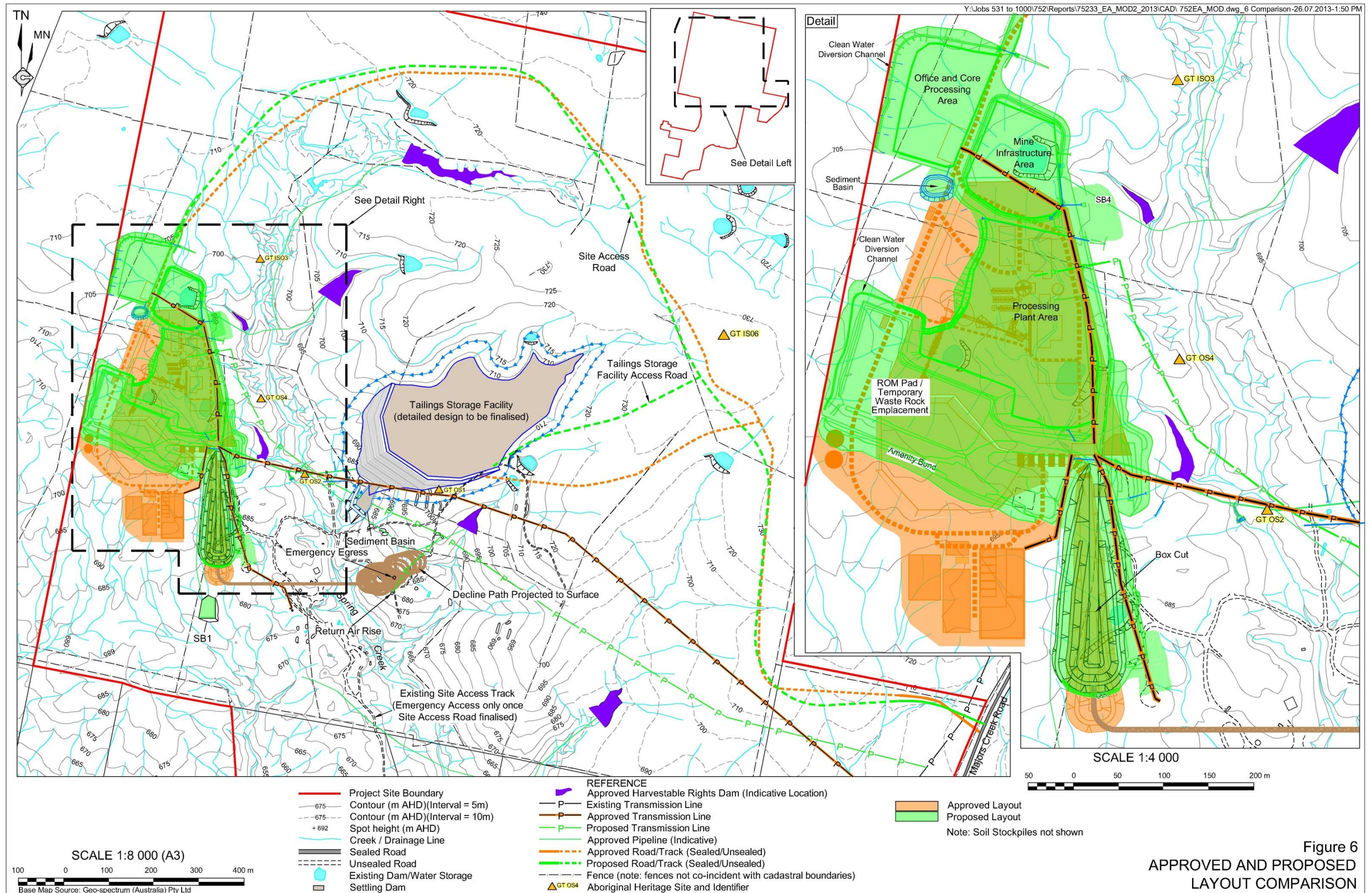


Figure 6
APPROVED AND PROPOSED
LAYOUT COMPARISON

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2.2.4 Mine Infrastructure Area

The Mine Infrastructure Area would comprise the following infrastructure.

- One or more workshop buildings, each including a concrete sealed floor and vehicle inspection bays. In addition, a concrete-sealed apron would be constructed in front of each service bay. A small bund or containment structure around the perimeter of the building would contain potentially contaminated runoff and all surface water flows would be directed to an oil/water separator.
- A stores facility.
- A vehicle wash down bay.
- A substation and switch yard.
- A hardstand and laydown area comprising an unsealed area for storage of excess equipment awaiting use or removal from site, or parking of mobile equipment.
- A fuel bay and refuelling area incorporating a covered concrete bunded storage area containing fuel tanks, unused oil and grease, waste oil tank and a concrete sealed refuelling area. The capacity of the bunded area would be 110% of the volume of the largest tank. All potentially contaminated surface water runoff within the refuelling area would be directed to an oil/water separator.

This infrastructure would replace the workshop, Laydown Yard and Fuel Bay identified on **Figure 3**.

2.2.5 ROM Pad and Temporary Waste Rock Emplacement

The revised ROM Pad and Temporary Waste Rock Emplacement would be located largely within the approved area (**Figure 6**). **Table 4** presents a comparison of the approved and proposed layouts.

Table 4
ROM Pad and Temporary Waste Rock Emplacement

	Approved Layout	Proposed Layout
Area (ha)	1.76ha	1.49ha
Volume (m ³)	230 090m ³	46 732m ³
Elevation of working area (m AHD)	706m AHD	700m AHD
Elevation of amenity bund (m AHD)	711m AHD	705m AHD to 706m AHD
Slope of southern face (V:H)	1:3	1:3
Source: Big Island Mining Pty Ltd		

Management of ore and waste rock within the ROM Pad and Temporary Waste Rock Emplacement would be as described in Sections 2.5.4 and 2.6.3 of RWC (2010a).

2.2.6 Processing Plant Area

The Processing Plant Area would be located largely within the approved area (**Figure 6**) and would include the following infrastructure.

- Crushing and grinding circuit, with the primary crusher enclosed.
- Processing plant, comprising a gravity circuit and flotation circuit.
- Lined process water pond and water management infrastructure.
- Concentrate dewatering and storage area.
- Water supply tanks, processing plant office, plant store, hardstand areas, laboratory, ablutions and other ancillary infrastructure.

Management of processing operations would be as described in Sections 2.6.4 to 2.6.6 of RWC (2010a).

2.3 MINING OPERATIONS

The only changes to the approved mining operations would be as follows.

- The area of the boxcut would be as described in Section 2.2.2.
- Following completion of a geotechnical drilling program, the ventilation rise or return air rise, would be relocated from the approved location to the west of Spring Creek to a location to the east of the creek. In addition, the location of the approved emergency egress has now been determined and is approximately 50m north of the return air rise (**Figure 5**).

2.4 WASTE ROCK MANAGEMENT

No changes to the approved management of waste rock, with the exception of the revised layout of the ROM pad and temporary waste rock emplacement, are proposed.

2.5 PROCESSING OPERATIONS

No changes to the approved processing operations, with the exception of the revised layout of the ROM pad and temporary waste rock emplacement, are proposed.

2.6 TAILINGS AND PASTE MANAGEMENT

No changes to the approved management of tailings and paste are proposed. The Proponent notes that detailed designs for the approved Tailings Storage Facility are currently being prepared and assessed by the Dam Safety Committee and that minor adjustments to the presented layout may be required.

2.7 TRANSPORTATION

No changes to the approved management of off-site transportation operations are proposed.

Minor adjustments to the layout of the Site Access Road have been implemented as a result of the detailed design of the road. These have been required as a result of detailed surveys of the road route, as well as to ensure that the areas of rocky outcrop and unsuitable sub-base are avoided.

In addition, the Tailings Storage Facility Access Road has been relocated approximately 120m to the north of the approved layout to ensure that the road is located to the north of ridgeline and is therefore shielded from residences to the south (**Figure 6**).

2.8 FACILITIES AND SERVICES

2.8.1 Introduction

This subsection provides further information in relation to the proposed revised layout for ancillary infrastructure within the Project Site and broadly follows the structure of Section 2.10 of RWC (2010a).

2.8.2 Explosives Storage Area

The explosives storage area remains as described in Section 2.10.1.5 of RWC (2010a). The location of the explosives storage facility is not presented on the plans associated with this document or RWC (2010a) in accordance with previous advice from the Department of Planning and Infrastructure. Notwithstanding this, the explosives storage areas would comply with the following design guidelines and standards.

- Separation distances for Class A works as per AS2187.1.
- Isotainers would be constructed to meet AS4326.
- Magazines would be constructed to meet AS2187.1.
- Compound gates would be secured with chain and padlocks meeting AS1725 and AS4145 requirements, and magazine doors would have an internal locking mechanism meeting the requirements of AS2187.1.
- Earth bunds and fencing would be established as per AS2187.1.
- A site emergency plan would be issued to NSW Rural Fire Service.

In addition, the Proponent notes that the explosives storage facility would require an explosives storage licence from WorkCover NSW and that an application for that licence has been submitted.

2.8.3 Electricity Supply

A 22kV electricity transmission line was approved as part of MP10_0054 to provide power for the processing plant, underground mine, offices, workshop and other sections of the Project Site (**Figure 3**). The transmission line would be connected to the existing 22kV transmission line owned and operated by essential energy (formerly Country Energy), which runs parallel with Majors Creek Road on the eastern boundary of the Project Site.

The transmission line would be constructed during the site establishment phase of the Project and would be constructed entirely on land owned by the Proponent and covered by ML1675. Therefore, the Proponent understands that the line would be subject to NSW mining regulations

for power line construction and maintenance. However, as the transmission will be connected to Essential Energy infrastructure, the Proponent will seek approval of the line design from essential energy prior to construction.

The transmission line route has been adjusted slightly to accommodate a revised location for the ventilation rise (**Figure 6**). In summary, the transmission line south of the Tailings Storage Facility would be up to 150m south of the approved location. In addition, the western-most section of the line would be adjusted to reflect the fact that the substation locations in the Processing Plant and Mine Infrastructure Areas have been adjusted. Finally, a small substation would be established in the vicinity of the return air rise to reduce the voltage from 22kV to a voltage suitable for use underground. Power would then be provided to the underground operations via the return air rise.

Power would be distributed to different sections of the site using underground cables from the relevant substations, consistent with the approved project.

Finally, as described in Section 2.2.2 of RWC (2010a), during construction operations, until such time as the transmission network is commissioned, silenced diesel generators may be used to provide the required power for site operations.

2.8.4 Communications

The Project would be serviced by a fibre optic cable. Approval for installation of that cable is to be sought separately by Telstra.

Distribution of data and voice services around the Project Site would be achieved using both underground cabling, and wireless technologies.

2.8.5 Hydrocarbons

The fuel bay and refuelling area would be relocated to the Mine Infrastructure Area. In addition, the Proponent proposes to increase the maximum diesel storage capacity from 50 000L to 68 000L. All other aspects of hydrocarbon management would remain as described in Section 2.10.2.4 RWC (2010a).

2.9 PROJECT LIFE AND HOURS OF OPERATION

The proposed modification would not change the approved Project life of 9 years or the operating hours of the Project.

2.10 EMPLOYMENT, CAPITAL COST AND ECONOMIC CONTRIBUTIONS

The proposed modification would not result in changes to the number of employees required during the construction or operational phases of the Project. Further, it is anticipated that the proposed modification would have no net impact on the capital cost of the Project and that the economic contributions from the Project would remain unchanged.

2.11 SITE REHABILITATION AND DECOMMISSIONING

The proposed modification would not result in a net increase in the disturbance area of the Project nor in changes to the total area of disturbance for each vegetation community. As a result, rehabilitation and decommissioning-related activities would remain as described in Section 2.14 of RWC (2010a). **Figure 7** presents the proposed final landform which is broadly consistent with the approved final landform.

Following approval of the proposed modification, assuming that approval is granted, the Proponent would prepare an amendment to the approved *Mining Operations Plan* to incorporate the revised Project Site layout.

3. CONSULTATION AND PLANNING ISSUES

3.1 INTRODUCTION

In order to undertake a comprehensive assessment of the proposed modification, appropriate emphasis needs to be placed on those issues likely to be of greatest significance to the local environment, neighbouring landowners and the wider community. To ensure this has occurred, a program of community and government consultation, and review of other environmental documentation was undertaken to identify relevant environmental issues and potential impacts.

3.2 CONSULTATION

3.2.1 Introduction

Identification of environmental issues relevant to the proposed modification involved:

- consultation with the Dargues Reef Community Consultative Committee (Section 3.2.2);
- consultation with the local community (Section 3.2.3);
- consultation with neighbouring landowners (Section 3.2.4); and
- consultation with State and local government agencies (Section 3.2.5).

3.2.2 Consultation with the Dargues Reef Community Consultative Committee

The Dargues Reef Community Consultative Committee (DRCCC) was briefed on the proposed modification during the DRCCC meeting and site inspection on 10 July 2013. The DRCCC discussed the Proposed Modification with representatives of the Proponent and did not raise any issues or concerns. In a formal show of hands, not including the Mine's representatives, the DRCCC members unanimously supported the proposed changes to the Projects layout.

3.2.3 Consultation with the Community

A community meeting was held at the Majors Creek Community Hall on 19 July 2013 to update the community on the progress of the Project, the revised Project layout and associated application to modify MP10_0054 and provide an opportunity for the community to comment on the proposed modification. To ensure that as many community members as possible could attend, the Proponent:

- advertised the meeting in the Braidwood Times on 17 July;
- placed a notice on the Project's website (www.darguesreef.com.au), on the community notice board in Majors Creek and in the monthly community newsletter published on 15 July 2013; and
- emailed all registered downstream water users and other members of the community who have consented to receive emails in relation to the Project on 11 July 2013.

Approximately 20 people attended the meeting and the following feedback was received. The section of this document where each issue is addressed is presented in parenthesis.

- Visual amenity – what changes to the visual aspects of the Project would the revised layout produce (Section 4.11)?
- Surface water – further information in relation to the current status of sediment and erosion control on site, the impacts of previous discharges on Majors Creek and the anticipated changes to sediment and erosion control as the Project is developed. The meeting was advised that the Proponent is working with the Environment Protection Authority and SEEC, an independent sediment and erosion control specialist;
- to ensure that appropriate controls are implemented;
- assess the impact of previous discharge events; and
- to ensure that the Sediment and Erosion Control Plan is updated as required.

The Proponent also noted that the construction phase of a Project is often the most challenging phase and that once major earthworks are complete, that this issue is expected to become less significant.

- Employment – The meeting requested and was provided with an overview of when the Proponent anticipates that further employment opportunities for local applicants will be made available.
- Majors Creek Road and Site Access Road intersection – the meeting requested and was provided with a timeline for completion of the roadworks.
- Site visits – a number of requests were made to visit the Project Site. The Proponent indicated that local residents were always welcome and that a request should be made to arrange a suitable time.

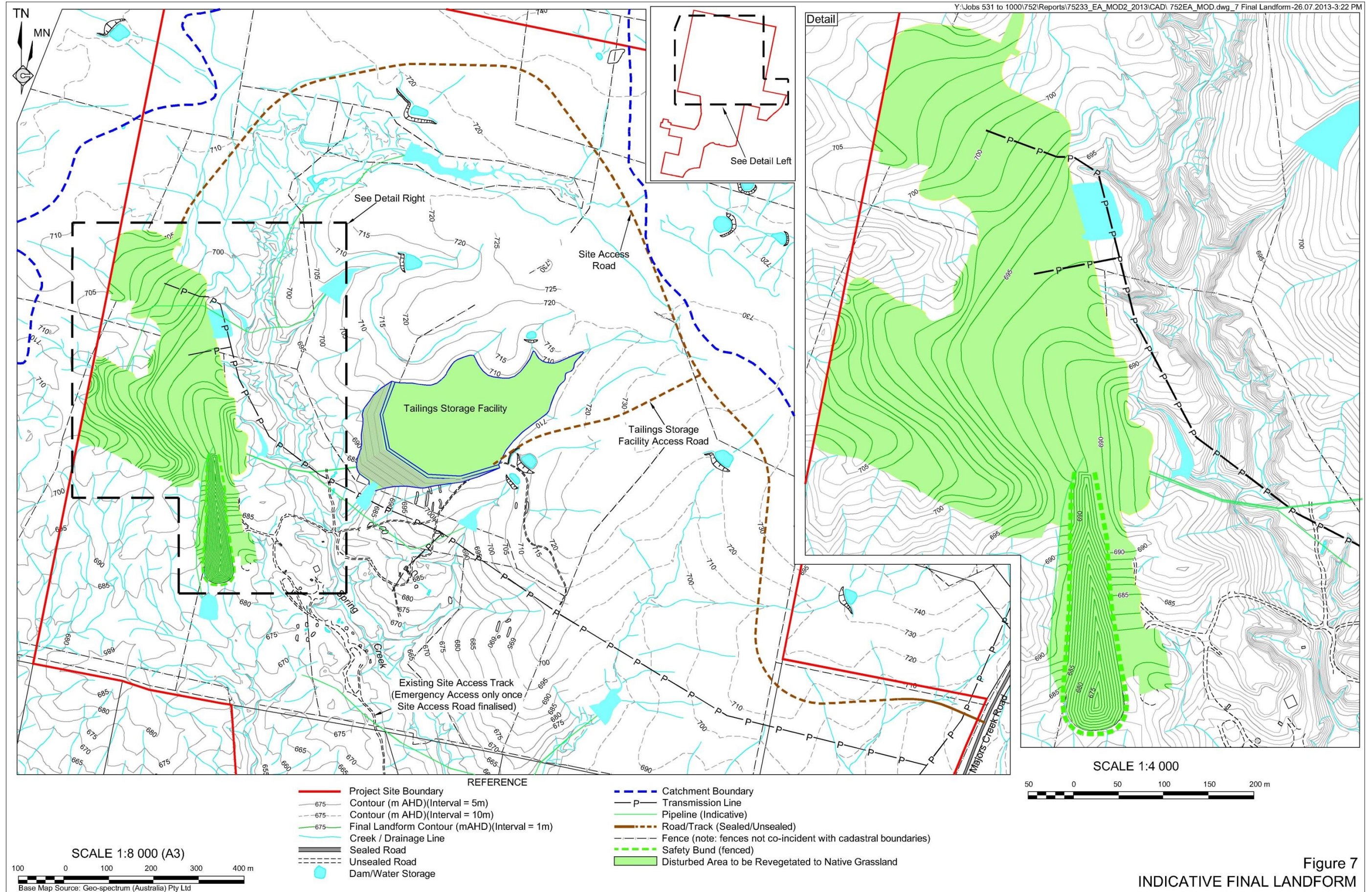


Figure 7
 INDICATIVE FINAL LANDFORM

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3.2.4 Consultation with neighbouring landowners

The Proponent maintains a close working relationship with its neighbours. As part of the consultation process the Proponent has discussed the proposed modification with the following landholders. Those discussions included those aspects of the Project that could potentially change the Project's impact on their properties. None of the landholders consulted raised any significant concerns with the proposed modification or raised matters to be addressed in this document.

- James and Belinda Royds.
- Marshall and Sandra McCarron.
- Frank and Penny Hardy.
- John and Kate Spring.
- Brian and Chris James.
- Brian and Deidre McDonald.
- Tony and Maxine Page.

3.2.5 Consultation with Government Agencies

Following initial discussions with the Department of Planning and Infrastructure, it was agreed that a formal planning focus meeting with relevant government agencies was not required for the proposed modification. Rather, it was agreed that the Proponent should provide a copy of the approved and proposed layout to relevant agencies and seek their requirements for matters to be included in this document. An email was provided to the following agencies on 8 July 2013 (with Office of Environment and Heritage contacted on 9 July). Dates in parenthesis indicate the dates that each agency responded. Where no date is provided, no response was received.

- Department of Planning and Infrastructure.
- Environment Protection Authority (response received 25 July 2013).
- Office of Environment and Heritage (response received 18 July 2013).
- NSW Office of Water (response received 17 July 2013).
- Division of Resources and Energy (response received 12 July 2013).
- Palerang Council (response received (9 July 2013)).
- Eurobodalla Shire Council.

Appendix 2 presents copies of all correspondence received from the above agencies, while **Table 5** presents an overview of the requirements provided in that advice and where each requirement is addressed in this document.

Table 5
Government Agency Feedback

Feedback	Section of EA
Environment Protection Authority	
<p>The EPA also understands that a revised sediment and erosion control plan has been prepared by SEEC and that this will be included in the Environmental Assessment. The EPA has concerns regarding the adequacy of previous stormwater assessments and therefore recommends that the assumptions of the current stormwater management practices and sediment and erosion control plan are tested against reasonable performance standards which could be expected at any discharge location to the environment. This recommendation is consistent with a recent Pollution Reduction Program (PRP) that was placed on Environment Protection Licence 20095....</p> <p>The EPA therefore considers it appropriate that any planning modification for the site include the outcomes arising from the PRP as detailed above. This may require a further modification to the Water Management Plan and Sediment and Erosion Control plan for the site.</p>	4.5
Office of Environment and Heritage	
Aboriginal Heritage	
<p>Office of Environment and Heritage therefore recommends the locations where the revised footprint has resulted in relocation of infrastructure should be subjected to archaeological survey, if they were not assessed during the 2010 survey, unless advice can be provided clearly showing these areas of the revised footprint have been subjected to survey and assessment.</p>	4.6
<p>As it appears the revised transmission line route will now pass through, or close to, the sites GT OS2 and GT OS4 [sic – should be GT OS1] ; OEH is concerned that the revised route may impact on any potential subsurface extent of these sites. Previous advice from OEH in relation to the 2010 archaeological report was that the extent of the recorded Aboriginal sites had not been adequately determined during the 2010 assessment. Therefore, OEH recommends that Test excavation should be considered for these sites [GT OS2 and GT OS4] and any other areas within the revised footprint where there may be potential for subsurface deposits to be impacted.</p>	4.6
<p>Once the extent of GT OS2 and GT OS4, and any new sites that may be subsequently recorded, are known, consideration can then be given to appropriate management measures.</p>	4.6
<p>In relation to the other previously recorded Aboriginal sites within the Project area; it appears that sites GT OS1 [sic – should be GT OS4 and GT IS03] will not be harmed as a result of the proposed modifications, while the site GT IS05 appears to be outside of the proposed revised footprint area. However, if there is any doubt all previously recorded Aboriginal sites should be re-located on the ground.</p>	4.6
<p>OEH notes that an additional Aboriginal site, GT-IS06, is now recorded on the Aboriginal Heritage Information Management System (AHIMS) within the Project area. This site appears to have been recorded by Sandra Wallace, from Artefact Heritage Services, in June 2011. The site features recorded at this location include an artefact and potential archaeological deposit. While this site also appears to be outside of the proposed revised footprint area OEH recommend, if there is any doubt, then this site should also be re-located on the ground.</p>	4.6 and Figure 6

Table 5 (Cont'd)
Government Agency Feedback

Page 2 of 3

Feedback	Section of EA
Office of Environment and Heritage (Cont'd)	
Biodiversity	
The information provided via email on 18 July 2013, shows the location of a buried 11 kV power line between the substation and return air rise. This 11 kV power line must be located outside of the "Tree Protection Zone" as defined by 'AS4970-2009 Protection of trees on development sites' to avoid affecting the health of the trees. OEH has reviewed the remainder of the modified footprint and is of the view that there will be no additional impacts on biodiversity other than those addressed in the original approval.	4.3
NSW Office of Water	
Detail of amendments to water management system within both clean and dirty/contaminated water catchments. This is to include details of water storages and water conveyance structures.	4.5
An assessment of impact to surface water systems due to adjustments to the site layout. This is to include an assessment of impacts to watercourses and modifications to hydrological regimes and water storage. This is particularly relevant to the following: <ul style="list-style-type: none"> • proposed office and core processing area, • proposed mine water settlement dam and sediment basin, • previously approved workshop and laydown area, and • existing dam 9 and variations to dams considered under the Harvestable Right Dam Capacity for the site. 	4.5
An assessment of impact to groundwater and surface water systems due to the construction, operation and final landform of the waste rock expansion area.	4.5
Mitigating and monitoring requirements to address surface water and groundwater impacts.	4.5
Division of Resources and Energy	
Identify all significant changes to the already approved Development Consent and associated EA	2
Rehabilitation associated with the revised site layout, predominantly covered in Section 2.14 of the current EA, will need to be updated, including a revised final landform plan. The EA should identify all areas to be disturbed and rehabilitated in association with the project.	2.11 and Figure 7
The location of topsoil stockpiles need to be shown on a revised Site Plans.	Figure 5
Considering the recent occurrence of offsite sediment discharge events at the Dargues Gold Mine, I would recommend a detailed review of sediment and erosion control measures and documentation of appropriate control measures (currently being implemented) to reduce the likelihood and/or severity of similar events in the future.	4.5
Assuming the revised Environmental Assessment is approved by the Department of Planning and Infrastructure, the current Mining Operations Plan for Dargues Gold Mine will need to be modified for consistency with the new approval. Also an updated Rehabilitation Cost Estimate will need to be prepared - this will be required as an attachment to the revised <i>Mining Operations Plan</i> .	2.1.3

Table 5 (Cont'd)
Government Agency Feedback

Page 3 of 3

Feedback	Section of EA
Division of Resources and Energy (Cont'd)	
Palerang Council	
Noise impacts	4.2
Visual impacts	4.11

3.3 REVIEW OF PLANNING ISSUES

3.3.1 Introduction

A number of State and regional planning instruments apply to the proposed modification. These planning instruments were reviewed to identify any environmental aspects requiring consideration in this document. This subsection provides a brief summary of each of the relevant planning instruments.

3.3.2 STATE PLANNING ISSUES

3.3.2.1 Application of Part 3A of the EP&A Act

In accordance with the requirements of Clause 2(1)(a) of Schedule 6A of the *Environmental Planning and Assessment Act 1979*, the Project is classified as a “transitional Part 3A Project” for which Part 3 of the Act continues to apply irrespective of the repeal of that Part on 8 April 2011. As a result, application for the proposed modification may be made under Section 75W of the Act.

3.3.2.2 Mining SEPP

The *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007* (Mining SEPP) was gazetted on 17 February 2007, in recognition of the importance to New South Wales of mining, petroleum production and extractive industries. The quoted aims of the Mining SEPP are as follows.

- a. *To provide for the proper management and development of mineral, petroleum and extractive material resources for the purpose of promoting the social and economic welfare of the State.*
- b. *To facilitate the orderly and economic use and development of land containing mineral, petroleum and extractive material resources.*
- c. *To establish appropriate planning controls to encourage ecologically sustainable development through the Environmental Assessment, and sustainable management, of development of mineral, petroleum and extractive material resources.”*

The Mining SEPP specifies matters requiring consideration in the assessment of any mining-related development. **Table 6** presents an overview of the matters that a consent authority needs to consider and where each is addressed in the *Environmental Assessment*.

Table 6
Application of the Mining SEPP

Page 1 of 2

Relevant SEPP Clause	Description	Section	
		RWC (2010a)	This document
12: Compatibility with other land uses	Consideration is given to:		
	<ul style="list-style-type: none"> the existing uses and approved uses of land in the vicinity of the development; 	1.5.5	N/A
	<ul style="list-style-type: none"> the potential impact on the preferred land uses (as considered by the consent authority) in the vicinity of the development; and 	N/A	N/A
	<ul style="list-style-type: none"> any ways in which the development may be incompatible with any of those existing, approved or preferred land uses. 	N/A	N/A
	The respective public benefits of the development and the existing, approved or preferred land uses are evaluated and compared.	4.11 & 5.2.3	5.2.3
	Measures proposed to avoid or minimise any incompatibility are considered.	NA	N/A
13: Compatibility with mining, petroleum production or extractive industry	Consideration is given to whether the development is likely to have a significant impact on current or future mining, petroleum production or extractive industry and ways in which the development may be incompatible.	N/A	N/A
	Measures taken by the Proponent to avoid or minimise any incompatibility are considered.	N/A	N/A
	The public benefits of the development and any existing or approved mining, petroleum production or extractive industry must be evaluated and compared.	N/A	N/A
14: Natural resource and environmental management	Consideration is given to ensuring that the development is undertaken in an environmentally responsible manner, including conditions to ensure:		
	<ul style="list-style-type: none"> impacts on significant water resources, including surface and groundwater resources, are avoided or minimised; 	4.2, 4.7	4.5, 4.6
	<ul style="list-style-type: none"> impacts on threatened species and biodiversity are avoided or minimised; and 	4.3	4.3
	<ul style="list-style-type: none"> greenhouse gas emissions are minimised and an assessment of the greenhouse gas emissions (including downstream emissions) of the development is provided. 	N/A	N/A
15: Resource recovery	The efficiency of resource recovery, including the reuse or recycling of material and minimisation of the creation of waste, is considered.	2.3.2 & 2.3.3	N/A

Table 6 (Cont'd)
Application of the Mining SEPP

Page 2 of 2

Relevant SEPP Clause	Description	Section	
		RWC (2010a)	This document
16: Transportation	The following transport related issued are considered.		
	<ul style="list-style-type: none"> The transport of some or all of the materials from the site by means other than public road. 	2.6	N/A
	<ul style="list-style-type: none"> Limitation of the number of truck movements that occur on roads within residential areas or roads near to schools. 	2.6	N/A
	<ul style="list-style-type: none"> The preparation of a code of conduct for the transport of materials on public roads. 	N/A	N/A
17: Rehabilitation	The rehabilitation of the land affected by the development is considered including:		
	<ul style="list-style-type: none"> the preparation of a plan that identifies the proposed end use and landform of the land once rehabilitated; 	N/A	Figure 7
	<ul style="list-style-type: none"> the appropriate management of development generated waste; 	N/A	N/A
	<ul style="list-style-type: none"> remediation of any soil contaminated by the development; and 	N/A	N/A
	<ul style="list-style-type: none"> the steps to be taken to ensure that the state of the land does not jeopardize public safety, while being rehabilitated or at the completion of rehabilitation. 	2.10	N/A
Note 1: This is a matter for the Department of Planning to determine NR = Not relevant.			

3.3.2.3 Infrastructure SEPP

The *State Environmental Planning Policy (Infrastructure) 2007* (Infrastructure SEPP) identifies, amongst other things, the matters to be considered in the assessment of development adjacent to particular types of infrastructure.

The proposed modification does not seek to amend any activities in the vicinity of the classes of infrastructure identified by the Infrastructure SEPP. As a result, the Infrastructure SEPP does not apply to this modification.

3.3.2.4 SEPP 33 – Hazardous and Offensive Development

State Environmental Planning Policy No. 33 – Hazardous and Offensive Development (SEPP 33) identifies that hazardous and offensive industries, and potentially hazardous and offensive industries, relate to industries that, without the implementation of appropriate impact minimisation measures would, or potentially would, pose a significant risk in relation to the locality, to human health, life or property, or to the biophysical environment.

The proposed modification would not result in any modifications to the types, volumes, storage or use of hazardous or dangerous goods within the Project Site. As a result, SEPP 33 is not relevant to this application.

3.3.2.5 SEPP 44 – Koala Habitat Protection

The former Tallaganda Local Government Area, which includes the Project Site, is identified in Schedule 1 of *State Environmental Planning Policy No. 44 – Koala Habitat Protection* (SEPP 44) as an area that could provide habitat for Koalas. As a result, the Minister is required to consider whether potential or core Koala habitat would be disturbed by the proposed modification.

The proposed modification would not result in disturbance of any additional areas of habitat suitable for Koala. As a result, the Proponent contends that no further assessment is required.

3.3.3 REGIONAL AND LOCAL PLANNING ISSUES

3.3.3.1 Drinking Water Catchments Regional Environmental Plan No 1

Clause 6 of the *Drinking Water Catchments Regional Environmental Plan No 1* (Drinking Water Catchments REP) identifies the upper Shoalhaven River catchment as part of the land covered by this plan. As noted in Section 3.2.3.3 of RWC (2010a), the northern-most section of the Project Site extends into this catchment; however, no surface disturbing activities would be undertaken within the upper Shoalhaven River catchment. In addition, that section also identifies the anticipated reduction in groundwater discharge within that catchment.

As the proposed modification would not result in changes to the approved groundwater discharge to the upper Shoalhaven River catchment the Proponent contends that the Drinking Water Catchments REP is not relevant to the proposed modification.

3.3.3.2 Tallaganda Local Environment Plan 1991

The Project Site occurs within the Palerang Local Government Area and as noted in Section 3.2.3.4 of RWC (2010a), permissibility of development is governed by the *Tallaganda Local Environment Plan 1991*.

Under that plan, the Project Site is zoned Zone 1a. Mining is permissible with consent within this zone.

4. ASSESSMENT OF KEY ENVIRONMENTAL ISSUES

4.1 INTRODUCTION

Section 4 of RWC (2010a) provides a range of background information in relation to aspects of the environment within and surrounding the Project Site. That section also provides an assessment of anticipated impacts associated with the Project as it was then understood. Section 4 of RWC (2012a) provides an assessment of changes to the approved level of impacts associated with the Project as modified. This section similarly provides an assessment of anticipated changes to impacts that would result from Modification 2. The structure of this section broadly reflects the structure of Section 4 of RWC (2010a). Where no changes to the approved level of impacts are anticipated, a brief explanation as to why that is the case has been provided.

Finally, the following background information that has not changed significantly since RWC (2010a) was finalised, it is not repeated here.

- Topography and drainage.
- Climate.
- Local and regional geology.
- Surrounding land ownership, residences and land use.
- Surrounding community.

4.2 NOISE AND BLASTING

4.2.1 Introduction

The Proponent notes that changes to noise-related impacts, including reductions in impacts, as a result of the proposed modification may result from the following.

- Relocation of the infrastructure within the Office and Core Processing Area and Mine Infrastructure Area to the north.
- Relocation and reorientation of the ROM pad to the north and west.
- Relocation of the boxcut to the north.
- Relocation of the Tailings Storage Facility Access Road to the north.

Spectrum Acoustics was engaged to revise the noise model used to assess the original application. The letter report presenting the revised noise assessment is presented in **Appendix 2** and is referred to hereafter as Spectrum (2013). The following subsections present an overview of the results of the revised assessment.

No changes to blasting or offsite transportation operations are proposed. As a result, no changes to blasting or road-traffic-related impacts are anticipated.

4.2.2 Existing Environment and Assessment Criteria

No changes in the noise environment surrounding the Project Site, with the exception of commencement of Project-related works, has occurred since finalisation of RWC (2010a). Hence, no changes to the default *Industrial Noise Policy* criteria are anticipated. As a result, Spectrum (2013) has assumed an $L_{eq(15\text{-minute})}$ operational noise assessment criterion for all periods of the day of 35dB(A). In addition, an $L_{1(1\text{-minute})}$ sleep disturbance criterion of 45dB(A) has been assumed.

4.2.3 Assessment Methodology

Spectrum (2013) state that the noise assessment methodology used to assess the anticipated impacts associated with the Proposal are as described in the original noise assessment. Similarly, the 2013 noise assessment assessed two construction noise scenarios and one operational noise scenario as follows. These scenarios are broadly similar to those described in Section 4.2.4.1 of RWC (2010a), with the exception that relevant noise sources have been relocated to reflect the proposed modification. $L_{1(1\text{-minute})}$ sleep disturbance criterion that would apply to the Project would be 45dB. **Figures 8 and 9** present the revised noise modelling scenarios.

- Scenario 1a – Site establishment – excluding bulk earthworks.

This scenario considers the noise likely to be generated by all site establishment activities, with the exception of bulk earthworks. These activities are approved to be undertaken 24-hours per day. Spectrum (2013) note that this scenario is identical to the originally modelled scenario in terms of source types and locations, with the difference being the revised layout of the ROM Pad and Processing Plant Area.

- Scenario 1b – Site establishment – Including bulk earthworks.

This scenario considers the noise likely to be generated by the establishment of surface infrastructure and initial development of the box cut. Spectrum (2013) notes that while the same number and type of noise sources with the same sound power levels were assumed, their locations were adjusted to reflect the revised site layout.

- Scenario 2 – Operations.

This scenario considers the noise likely to be generated by the mining, processing and internal transport operations associated with the operational phase of the Project. Spectrum (2013) notes that similar to Scenario 1b, the same number and type of noise sources with the same sound power levels were assumed, however their locations were adjusted to reflect the revised site layout.

Finally, point-to-point noise calculations are presented for the closest residences only, with noise contours presented to provide a graphical indication of the anticipated extent of the noise-related impacts.

4.2.4 Management and Mitigation Measures

All management and mitigation measures identified in Section 4.2.5 of RWC (2010a) and embodied in the Statement of Commitments presented in Appendix 5 MP10_0054 would continue to be implemented.

4.2.5 Assessment of Impacts

4.2.5.1 Site Establishment - Scenario 1a

Table 7 presents the results of the noise assessment for Scenario 1a during the night-time temperature inversions. In summary, the proposed modification is likely to result in a negligible change to the noise levels at surrounding residences.

Table 7
Predicted Scenario 1a Noise Levels¹

Residence ²	Spectrum (2010)		Spectrum (2013)		Differential	
	Neutral	Inversion	Neutral	Inversion	Neutral	Inversion
Criterion	35	35	35	35		
R15	20	29	20	29	0	0
R27	21	30	21	30	0	0
R29	<20	21	<20	21	0	0
R30	<20	27	<20	27	0	0
R31	23	35	23	35	0	0
R32	21	31	21	31	0	0
R33	20	30	20	30	0	0
R107	26	33	26	33	0	0
R108	20	34	20	34	0	0
Note 1: Units = dB(A), L _{eq} (15min)						
Note 2: For residence location, see Figure 10						
Source: Spectrum (2013) – After Table 1						

4.2.5.2 Site Establishment - Scenario 1b

Table 8 presents the results of the noise assessment for Scenario 1b. As earthworks would only be undertaken during daylight hours, this scenario has been assessed by Spectrum (2013) under daytime conditions, with no temperature inversions. In summary, the proposed modification is likely to result in a negligible change to the noise levels at surrounding residences.

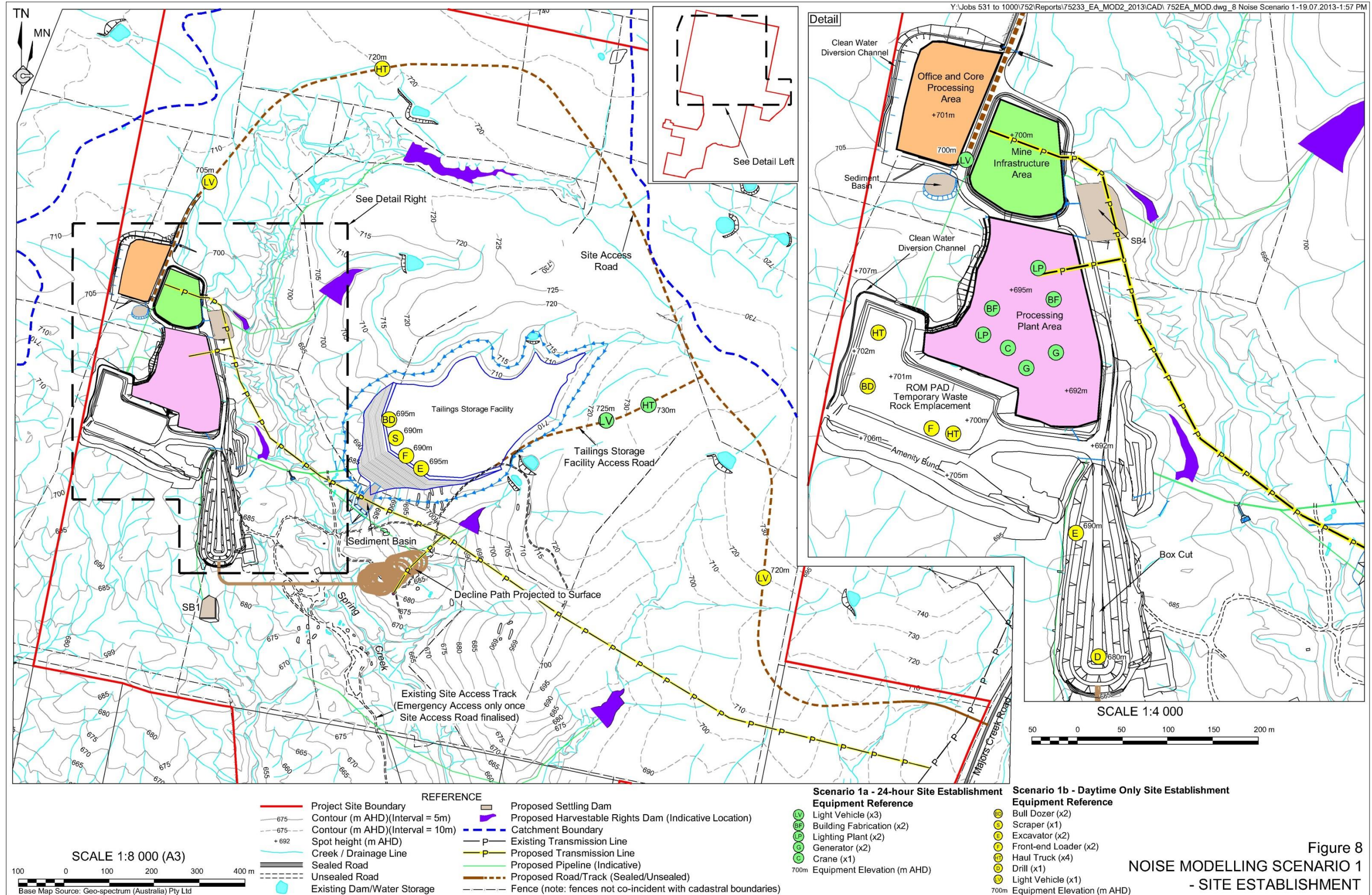
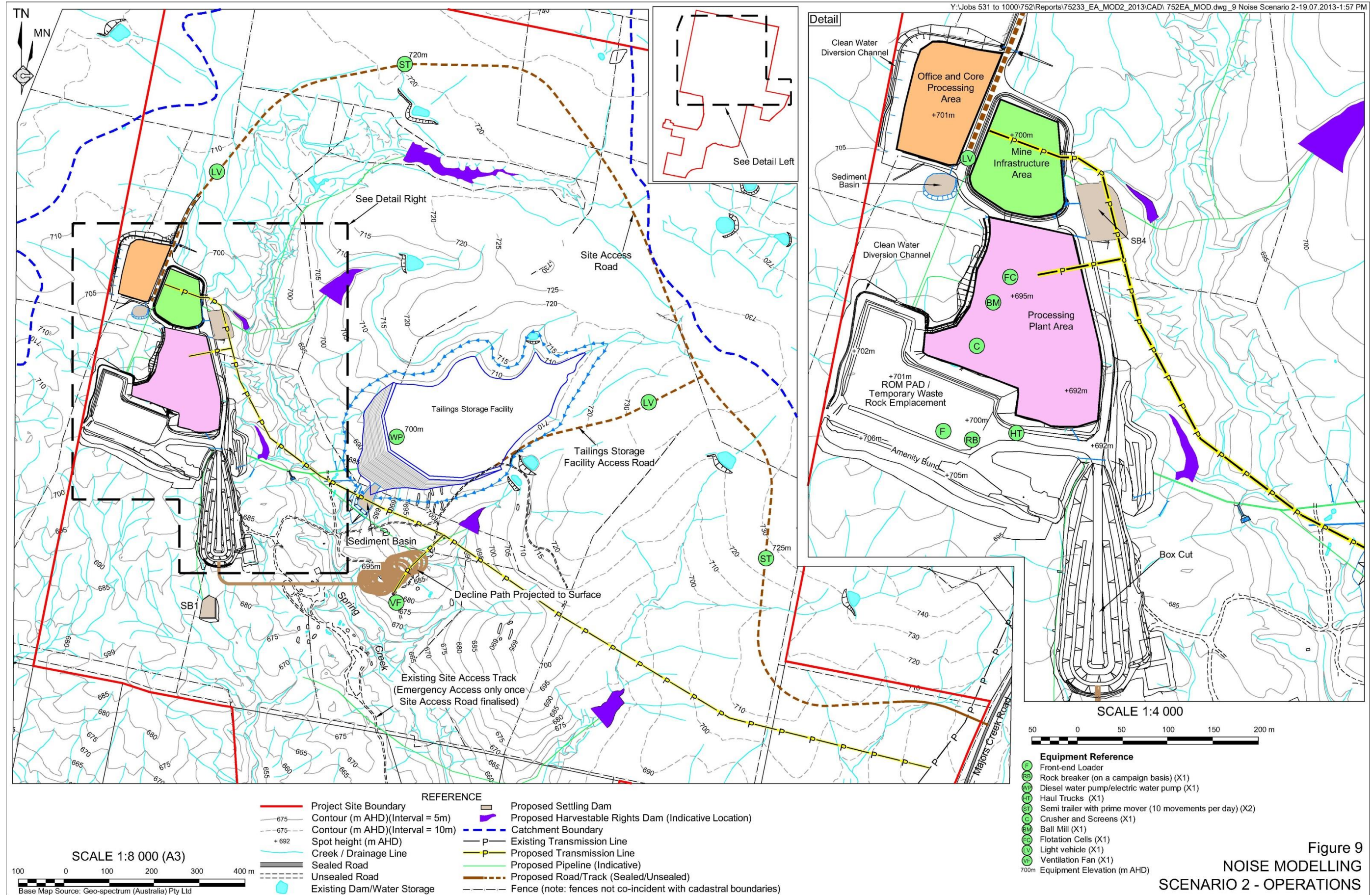


Figure 8
NOISE MODELLING SCENARIO 1
- SITE ESTABLISHMENT

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