

Hanson Construction Materials Pty Limited

Asbestos Management Plan

East Guyong Quarry, Guyong NSW

Project Name: East Guyong Quarry Project

Preparation Date: June 2019

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1. INTRODUCTION

1.1 Project Approval

- 1.1.1 On 6 January 2011, the (then) NSW Department of Planning approved Major Project Application Number 06_0193 for the development of the East Guyong Quarry, East Guyong NSW (the **Project**), subject to conditions.
- 1.1.2 The conditions are set out in Schedules 1 to 5 of the Project Approval. Schedule 3, entitled "Environmental Performance Conditions", includes conditions specific to the management of the naturally-occurring asbestos (**NOA**) that has been identified at the Site.
- 1.1.3 In April 2012, an Asbestos Management Plan was prepared in fulfilment of Item 4 of Schedule 3 of the Project Approval, which provided that the Project Proponent, Hanson Construction Materials Pty Limited (**Hanson**), must prepare and implement an Asbestos Management Plan for the Project in consultation with the Executive Director, Mineral Resources, Division of Resources and Energy, within the Department of Trade and Investment, Regional Infrastructure and Services (**DRE**) and to the satisfaction of the Director-General of the NSW Department of Planning and Infrastructure (**Director-General**).
- 1.1.4 On 19 April 2019, the modification of the East Guyong Quarry, which includes the minor expansion / modification of the quarry pit (**Modification 2**), was approved by the ~~NSW Department of Planning and Environment~~, subject to conditions.
- 1.1.5 An updated Asbestos Management Plan has been prepared in fulfilment of Item 4 of Schedule 3 of the Project Approval, which provides that the Project Proponent, Hanson must prepare and implement an Asbestos Management Plan for the Project in consultation with the NSW Resources Regulator and to the satisfaction of the Planning Secretary (**Secretary**) of the ~~NSW Department of Planning and Environment~~.
- 1.1.6 Item 4 of Schedule 3 provides that the Asbestos Management Plan for the project must:
- (a) be prepared by a suitably qualified independent and qualified expert/s;
 - (b) be submitted to the Secretary for approval within 3 months of approval of Modification 2;
 - (c) be prepared in consultation with the Resources Regulator;
 - (d) include a description of the measures and controls that would be implemented to exposure risks and manage asbestos within the project area;
 - (e) include an asbestos monitoring protocol for evaluating compliance with the asbestos impact assessment criterion that describes daily, weekly and monthly testing protocols;
 - (f) include a protocol for the notification of monitoring results;
 - (g) include a protocol for the investigation, notification and mitigation of identified exceedances of the assessment criterion; and
 - (h) include a protocol to respond to incidents of human (personnel, neighbours or others) exposure to asbestos.

1.1.7 In addition, this Asbestos Management Plan addresses other asbestos-related conditions in the Project Approval, which provide, in summary:

Item 1, Schedule 3: The Proponent must undertake further investigations to map the extent of the asbestos mineralisation within the Project area to the satisfaction of the Secretary.

Item 2, Schedule 3: The Proponent must install appropriate fencing and warning signage around all surface outcrops of asbestos minerals within the Project Area to the satisfaction of the Secretary.

Item 3, Schedule 3: The Proponent must ensure that any asbestos fibres generated at the Site do not exceed the impact assessment criterion of 0.01 asbestos fibres/ml of air.

1.2 Asbestos Management Plan

1.2.1 The purpose of this Asbestos Management Plan is to ensure that all practicable steps are taken to eliminate the risk of exposure to asbestos for:

- (a) personnel, including visitors of the Site; and
- (b) the public, including residents of neighbouring properties.

1.2.2 To accomplish this, the Asbestos Management Plan specifies work practices and procedures to:

- (a) ensure appropriate implementation of risk control strategies;
- (b) ensure that works do not disturb "Byng Volcanics" (**BV**) bedrock, particularly that underlying the existing and proposed additional quarry area (the **Quarry Area**) and the infrastructure area (the **IA**) which may or may not host NOA;
- (c) avoid encountering and disturbing NOA otherwise located on the Site;
- (d) ensure that the asbestos fibre levels generated at the Site do not exceed the Asbestos Impact Assessment Criterion of 0.01 fibres/ml;
- (e) prevent or minimise the possibility of accidental disturbance of Byng Volcanics; and
- (f) monitor and review the risk control strategies.

1.2.3 This Asbestos Management Plan must be made available to, and understood by, all participants involved in the construction, management and operation of the Project.

1.2.4 The appropriate personnel at the site should be aware of the presence of the NOA materials and the need to ensure they are not disturbed. They should also understand their role in achieving this.

1.3 Definitions and Abbreviations

1.3.1 "Access Road" means the 3.4 hectares of the Site used as access roads.

1.3.2 "AHD" means the Australian Height Datum.

1.3.3 "Asbestos Impact Assessment Criterion" (**AIAC**) means 0.01 airborne asbestos fibres/ml.

1.3.4 "Auger Report" means Rangott Mineral Exploration Pty Ltd, Report on the Auger Drilling to Delineate the Distribution of Naturally Occurring Asbestos at the Planned Lyndon Quarry Site (East Guyong, NSW) dated 4th May 2011.

1.3.5 "Authorised Geologist" means a person with qualifications in geology who has been authorised by the Secretary as required by Section 1.5.

- 1.3.6 "Byng Volcanics" (**BV**) means the Ordovician aged bedrock which underlies a substantial part of the East Guyong District and which may or may not host NOA, and includes any weathered or regolith BV which has the potential to host NOA.
- 1.3.7 "Conditions of Approval" means Schedules 2 to 5 of the Project Approval for Application 06_0193 granted by the Minister for Planning on 6 January 2011.
- 1.3.8 "Director-General" means the Director-General of the NSW Department of Planning and Infrastructure.
- 1.3.9 "DRE" means Division of Resources and Energy, within the Department of Trade and Investment, Regional Infrastructure and Services.
- 1.3.10 "EA (MOD 2)" means the modification application titled *East Guyong Quarry Modification 2 Environment Assessment*, dated September 2018 and prepared for Hanson Construction Materials Pty Limited by Umwelt, and the Response to Submissions Report titled *Response to Submissions East Guyong Quarry Modification 2*, dated November 2018 and prepared by Umwelt, and *East Guyong Quarry Modification 2 Biodiversity Assessment Report*, dated December 2018 and prepared by Umwelt, and additional information dated 11 and 23 January and provided by Umwelt.
- 1.3.11 "EAR" means the Environmental Assessment Report, Hard Rock Quarry. East Guyong NSW dated 18 September 2009.
- 1.3.12 "GDA94" means Geocentric Datum of Australia 1994.
- 1.3.13 "Hanson" means Hanson Construction Materials Pty Limited.
- 1.3.14 "Hanson Quarry Manager" means a person who has been authorised by Hanson as required by Section 1.7.
- 1.3.15 "Hanson Project Manager" means a person who has been authorised by Hanson as required by Section 1.8.
- 1.3.16 "IA" means the infrastructure area.
- 1.3.17 "Intrusive Works" means any works for Site infrastructure that have the potential to disturb soil or rock on the IA.
- 1.3.18 "Modification 2" means the modification to the development as described in EA (MOD 2).
- 1.3.19 "NATA" means the National Association of Testing Authorities Australia.
- 1.3.20 "NOA" means naturally-occurring asbestos.
- 1.3.21 "NOA Report" means Rangott Mineral Exploration Pty Ltd, Report on the Occurrence and Distribution of Asbestos Minerals at the Planned Quarry Site, January 2010.
- 1.3.22 "PCM" means phase contrast microscopy.
- 1.3.23 "Percussion Drilling Report" means Rangott Mineral Exploration Pty Ltd, Report on RC Percussion Drilling of Pit Shell Margins at the Planned Lyndon Quarry Site (East Guyong, NSW) and Associated Activities dated 19th August 2011.
- 1.3.24 "Percussion Drilling Report 2017" means Rangott Mineral Exploration Pty Ltd, Brief Report on Percussion Drilling to Assess Naturally-Occurring Asbestos Risk for An Adjustment To The Approved Pit Outline at the East Guyong Basalt Quarry dated 17th November 2017.
- 1.3.25 "PLM" means polarised light microscopy.
- 1.3.26 "PPE" means personal protective equipment.
- 1.3.27 "Principal Hazard Management Plan(s)" (**PHMP**) means the plan(s) regarding the principal hazard(s) associated with the mining operations as outlined in Clause 24 of the *Work Health and Safety (Mines and Petroleum) Regulation 2014*.

- 1.3.28 "Principal Control Plans" (**PCP**) means Health Control Plan, Engineering Control Plan(s) and/or Explosive Control Plan associated with the mining operations as outlined in Clause 26 of the *Work Health and Safety (Mines and Petroleum) Regulation 2014*.
- 1.3.29 "Project" means Major Project Application 06_0193 for the development of the East Guyong Quarry, East Guyong NSW including approved modifications.
- 1.3.30 "Quantification Limit" means 0.01 airborne asbestos fibres/ml.
- 1.3.31 "Quarry Area" means the existing quarry area and proposed additional quarry area.
- 1.3.32 "Quarry Pit Development Plan" (**QPDP**) means the plan regarding how the quarry extraction is to progress over time.
- 1.3.33 "Secretary" means the Planning Secretary under the Environmental Planning and Assessment Act 1979 or nominee.
- 1.3.34 "SEM" means scanning electron microscopy.
- 1.3.35 "Site" means Lots 3, 4 and 5 of DP 854608 and Lots 110 and 111 of DP 852503, Lewis Ponds Creek, Shire of Cabonne, Guyong.
- 1.3.36 "TEM" means transmission electron microscopy.
- 1.3.37 "XRD" means x-ray diffraction.

1.4 Composition of Asbestos Management Plan

- 1.4.1 This Asbestos Management Plan comprises the following chapters:

Chapter 1: Introduction.

Chapter 2: Description of the Site.

Chapter 3: Description of the known occurrence and distribution of NOA on the Site.

Chapter 4: Control Measures specific to the Quarry Area.

Chapter 5: Control Measures specific to the Infrastructure Area.

Chapter 6: Asbestos Fibre Air Monitoring Protocol.

Chapter 7: Asbestos Fibre Air Monitoring Notification Protocol.

Chapter 8: Asbestos Fibre Exceedance Protocol.

Chapter 9: Incident Protocol in the event of exposure to NOA.

Chapter 10: Key responsibilities of relevant parties.

Chapter 11: Further inquiries.

Appendix A: Asbestos awareness training.

Appendix B: Asbestos clean-up or removal works.

Appendix C: Asbestos fibre air monitoring locations.

1.5 Appointment of Authorised Geologist

- 1.5.1 Before any Intrusive Works or quarrying works are carried out on the Project, and at all times thereafter until the conclusion of the Project, Hanson must ensure that there is one or more Authorised Geologists appointed in accordance with this provision.
- 1.5.2 Hanson may nominate to the Secretary a person with qualifications in geology for approval as an Authorised Geologist and provide the Secretary with information relating to the person's qualifications and experience. The Secretary may authorise any person so nominated to act as an Authorised Geologist for the purposes of this Asbestos Management Plan.

1.6 Appointment of Hanson Quarry Manager

- 1.7.1 Before any preparation for quarrying work is carried out on the Project, and at all times thereafter until the conclusion of the Project, Hanson must ensure that there is an authorised Hanson Quarry Manager.
- 1.7.2 The Hanson Quarry Manager must, upon being appointed, read this Asbestos Management Plan and be made aware of his or her responsibilities under it.

1.7 Appointment of Hanson Project Manager

- 1.8.1 Before any Intrusive Works are carried out on the Project, and at all times thereafter until the conclusion of Intrusive Works, Hanson must ensure that there is an authorised Hanson Project Manager.
- 1.8.2 The Hanson Project Manager must, upon being appointed, read this Asbestos Management Plan and be made aware of his or her responsibilities under it.

2. PROJECT SITE

- 2.1 The Project comprises the establishment of a hard rock quarry, together with associated infrastructure and an access road, on Lots 3, 4 and 5 of DP 854608 and Lots 110 and 111 of DP 852503, Lewis Ponds Creek, Shire of Cabonne, Guyong (the **Site**).
- 2.2 The Site is located in a rural area approximately 32 kilometres west of Bathurst and 20 kilometres southeast of Orange. The Site is located adjacent to the Mitchell Highway.
- 2.3 The Quarry Area is located on a ridge on the north-west part of the Site. The IA is located in a sloping area in the northern section of the Site.
- 2.4 The Site has a total area of 147 hectares. The Quarry Area currently occupies 18 hectares, the IA occupies 7.3 hectares and the access road (the **Access Road**) occupies 3.4 hectares.
- 2.5 The quarry will be operating to extract approximately 15 million tonnes of basalt over a 30 year period.
- 2.6 A Site layout of the Project is at **Figure 1**.

FIGURE 1 – PROJECT SITE LAYOUT

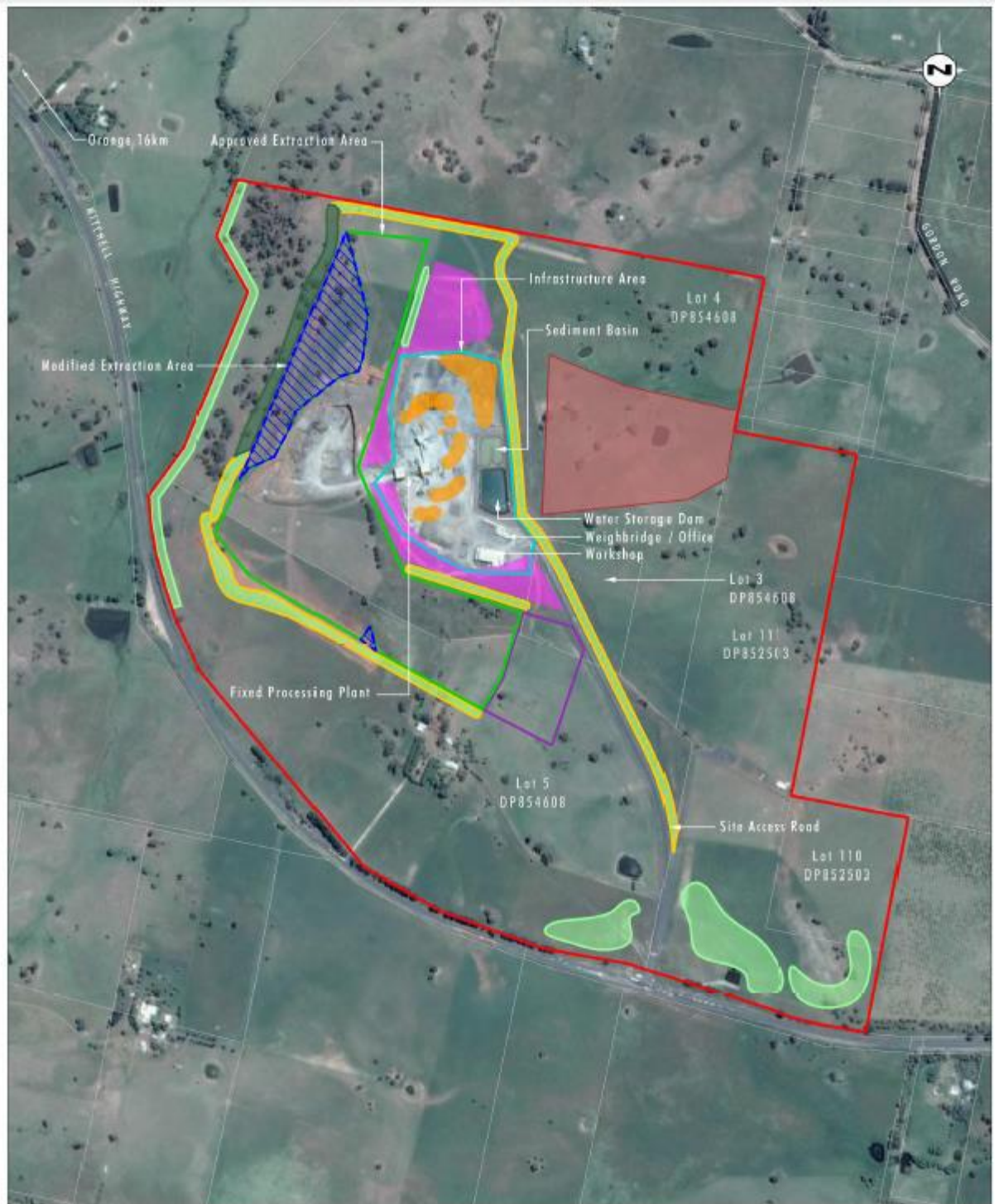


Image Source: Google Earth (November 2015)
 Data Source: LRI (September 2017); Hanson (2017)

0 100 250 500m
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- Legend**
- ▭ Site Boundary
 - ▭ Infrastructure Area
 - ▭ Approved Extraction Area
 - ▭ Proposed Additional Extraction Area
 - ▭ Fenced Asbestos Exclusion Zone
 - ▭ Product Stockpile
 - ▭ Soil Stockpile Area
 - ▭ Growth Medium Storage Area
 - ▭ Approved Visual Bund and Vegetation Screen
 - ▭ Approved Vegetation Screen
 - ▭ Proposed Vegetation Screen

FIGURE 1.2
East Guyong Quarry and Proposed Modification

3. NOA

- 3.1 Two main categories of bedrock have been identified on the Site:
- (a) BV. BV may host NOA and there is a risk that disturbance of BV may result in the release of NOA into the atmosphere.
 - (b) Tertiary and Alkali basalt. There is a negligible risk of either form of basalt hosting NOA.
- 3.2 NOA has been identified at the following locations on the Site:
- East of the IA:** Exposed outcrops of NOA-bearing minerals have been identified in the north-east section of the Site and specifically around a small dam.¹
- IA:** NOA has been identified in an east-west oriented zone in soil-covered BV in the IA at depths between 2.0 and 4.5 metres prior to the installation of the capping layer.²
- Quarry Area:** NOA has been identified in three percussion holes drilled along the eastern margin of the Quarry Area at depths of between 25 and 40 metres down hole (each significantly below the quarry pit floor).³
- 3.3 In addition, BV has been identified at the following locations on the Site:
- IA:** BV has been identified to underlie approximately 50% of the IA (predominantly the eastern half) at depths of between 1.0 and 4.0 metres beneath the soil cover prior to the installation of the capping layer.⁴
- Quarry Area:** BV has been identified in five percussion holes drilled along the eastern margin of the Quarry Area at depths between 23 and 37 metres down hole (each significantly below the quarry pit floor).⁵
- Access Road:** BV has been identified in the southern section of the Access Road at depths of between 1.5 and 31.5 metres beneath the soil cover.⁶
- 3.4 No BV or NOA was identified in the 5 percussion holes to a 40 metre downhole depth in the approved additional quarry area (Modification 2).⁷

¹Rangott Mineral Exploration Pty Ltd, Report on the Occurrence and Distribution of Asbestos Minerals at the Planned Quarry Site, January 2010 (the **NOA Report**).

² Rangott Mineral Exploration Pty Ltd, Report on the Auger Drilling to Delineate the Distribution of Naturally Occurring Asbestos at the Planned Lyndon Quarry Site (East Guyong, NSW) dated 4th May 2011 (the **Auger Report**).

³ Rangott Mineral Exploration Pty Ltd, Report on RC Percussion Drilling of Pit Shell Margins at the Planned Lyndon Quarry Site (East Guyong, NSW) and Associated Activities dated 19th August 2011 (the **Percussion Drilling Report**).

⁴ Auger Report, p.7

⁵ Percussion Drilling Report, p.4

⁶ Auger Report, p.3

⁷ Percussion Drilling Report 2017, p.1 & 2

4. CONTROL MEASURES FOR THE QUARRY AREA

4.1 Key Control Measure

- 4.1.1 No disturbance of BV on, under or in the immediate vicinity of the Quarry Area, other than by way of controlled testing for the purpose of identifying the occurrence and distribution of BV, is to occur.
- 4.1.2 This key control measure is to be implemented by following the steps below.

4.2 Qualified Personnel

- 4.2.1 All personnel involved with drilling and blasting on, under or otherwise in respect of the Quarry Area must be competent to conduct such work under relevant legislation or regulations, including the *Work Health and Safety (Mines and Petroleum) Regulation 2014*, *NSW Work Health and Safety Regulation 2017* and *Explosive Regulation 2005*.
- 4.2.2 All personnel involved with drilling and blasting on, under or otherwise in respect of the Quarry Area must complete asbestos awareness training as outlined in Appendix A.
- 4.2.3 All personnel involved with drilling and blasting on, under or otherwise in respect of the Quarry Area must read and understand this Asbestos Management Plan and the Quarry Pit Development Plan⁸ (**QPDP**) prepared in accordance with Section 5.5.2 of the *Environmental Assessment Report, Hard Rock Quarry, East Guyong NSW* dated 18 September 2009 (**EAR**) and also the Principal Hazard Management Plan(s) (**PHMP**) and Principal Control Plans (**PCP**), where applicable.
- 4.2.4 Extraction work will progress in accordance with the Quarry Pit Development Plan and under the direction and control of an authorised Hanson Development Manager.
- 4.2.5 The Hanson Quarry Manager will be responsible for determining the size of each immediate area of extraction in accordance with Section 5.5.2 of the EAR and will operate under the direction of the authorised Hanson Development Manager.

4.3 Investigative Drilling

- 4.3.1 Prior to commencing a proposed area of immediate extraction (and, in particular, prior to the drilling of holes for blasting), the Hanson Quarry Manager must ensure that the immediate area of extraction is marked out on the quarry bench floor.
- 4.3.2 Prior to the commencement of production drilling, the marked out area must have exploratory holes drilled to the depth of at least six metres below the base of the proposed working face height (being the proposed level of the floor of the quarry or "bench" following extraction of that working face). The number of holes must be sufficient to be representative of the perimeter of the immediate extraction area and must include at least one hole within the centre of the immediate extraction area. The proposed area of immediate extraction, and the locations of all exploratory drill holes must be surveyed and recorded.

⁸ The QPDP provides information on how the quarry extraction staging is to progress over time and includes information such as:

- Property and extractive boundaries;
- Location of existing plant, haul roads;
- Other features (powerlines, waterways, right of ways, easements, heritage and biological restrictions, geological hazards);
- Stage extraction areas (with geographical coordinates);
- Volumes of primary and secondary quality material and overburden material to be extracted;
- Location of overburden dumps;
- Haul road development, gradients, lengths;
- Dams/tailings/water management/settlement;
- Terminal face development;
- Staged rehabilitation works

4.4 Inspection of Drill Hole Cuttings

4.4.1 The drill cuttings from each exploratory drill hole must be inspected by the Authorised Geologist. Following that inspection, the Authorised Geologist must provide an opinion recorded in a written report that the proposed extraction work does not risk disturbing BV, having regard to:

- (a) the geology of the rocks comprising the cuttings;
- (b) the distances between the exploratory holes and their placement; and
- (c) the depth of the exploratory holes.

4.4.2 If the Authorised Geologist determines that there is no risk of the proposed extraction work disturbing BV then the Authorised Geologist must provide the report described in Section 4.4.1 to the Hanson Quarry Manager or appropriate nominated competent person.

4.5 Confirmation of Blasting Safety

4.5.1 Following inspection of the Authorised Geologist's report and the Site conditions, the Hanson Quarry Manager or appropriate nominated competent person must provide an opinion recorded in a written report that the proposed blasting work will **not** disturb BV, having regard to:

- (a) the method of extraction proposed (and, in particular, the type and extent of blasting proposed to be carried out); and
- (b) the safety methods employed (and, in particular, stemming of blast holes to proposed blast height, tamping of the stemming, measurement and recording of the remaining hole depth and specification of blast design criteria).

4.5.2 The blasting may not proceed unless the Hanson Quarry Manager or appropriate nominated competent person makes such a determination.

4.6 Discovery of BV

4.6.1 In the event that BV is identified by the Authorised Geologist in any of the exploratory drill hole cuttings, the extraction in that immediate area must not proceed any further, and the Secretary must be immediately notified.

4.6.2 In the event that, following blasting or during extraction, BV is discovered in a proposed area of extraction, the area must be cordoned off to prevent unauthorised access.

4.6.3 The Authorised Geologist must conduct further investigation to identify the extent of the BV. The Authorised Geologist must submit samples of the BV to a NATA-approved external laboratory for analysis by polarised light microscopy (**PLM**) and if required, analysis by other confirmation testing techniques such as X-Ray Diffraction (**XRD**), scanning electron microscopy (**SEM**) or transmission electron microscopy (**TEM**) to determine whether it contains NOA and take any other steps that the Authorised Geologist considers appropriate.

4.6.4 Based on the findings of the investigation, the QPDP must be modified to avoid excavating BV and to cap and isolate any BV that has been uncovered. The QPDP, however, must not be modified so as to alter the boundaries of the Quarry Area as provided in Figure 1 or the maximum depth of extraction as provided in the EAR.

4.6.5 The Hanson Quarry Manager must ensure that proposed immediate areas of extraction are in accordance with the revised QPDP.

4.6.6 Any NOA spoil must be removed and disposed of, where required, by a licensed Class A Asbestos Contractor nominated by Hanson in accordance with Appendix B.

4.7 Non-Compliance

4.7.1 The Hanson Quarry Manager and the Secretary shall be advised immediately of any incidents of non-compliance that have occurred with the Asbestos Management Plan.

4.8 Summary of Quarry Area Control Measures

4.8.1 Table 1 presents a summary of the control measures to be implemented in respect of the Quarry Area.

Table 1: Control Measures – Quarry Area		
Step	Action	Key Actions and Description
1	Approvals	<ul style="list-style-type: none"> Procure any necessary consents or approvals, including those required by SafeWork NSW.
2	Appointment of Personnel	<ul style="list-style-type: none"> Identify and engage a suitably qualified and experienced hard rock geologist (the Authorised Geologist). Identify and engage a suitably qualified and experienced blasting officer (the Hanson Quarry Manager or appropriate nominated competent person).
3	Site Establishment	<ul style="list-style-type: none"> All Site staff, contractors and sub-contractors to provide relevant documentation, insurances and Safe Work Method Statements to the authorised Hanson Quarry Manager and/or Principal Contractor. All Site staff, contractors and sub-contractors to attend mandatory asbestos awareness training as outlined in Appendix A. All Site staff, contractors and sub-contractors to read the Asbestos Management Plan and the QPDP, PHMP and PCP.
4	Investigative Drilling	<ul style="list-style-type: none"> Prior to commencing a proposed area of immediate extraction, the Hanson Quarry Manager to ensure that the immediate area of proposed extraction is marked out on the quarry bench floor. Drill exploratory holes to the depth of at least six metres below the base of the proposed working face height on the marked-out area.
5	Inspection of Drill Hole Cuttings	<ul style="list-style-type: none"> Authorised Geologist to inspect exploratory drill hole cuttings to determine geology of rock. If geology is basalt then Authorised Geologist may prepare report recommending to Hanson Quarry Manager or appropriate nominated competent person that extraction can proceed without disturbing BV. If BV is discovered in any drill hole cutting, extraction not to proceed.
6	Confirmation of Blasting Safety	<ul style="list-style-type: none"> Hanson Quarry Manager or appropriate nominated competent person to inspect Authorised Geologist's report and Site conditions to determine whether safe to commence blasting. If blasting will not disturb BV then blasting may proceed. If there is a risk that blasting will disturb BV then blasting may not proceed.

Table 1: Control Measures – Quarry Area		
Step	Action	Key Actions and Description
7	Discovery of BV	<ul style="list-style-type: none"> • Cordon off proposed area of immediate extraction. • Authorised Geologist to conduct further investigation to identify the extent of the BV. • Based on findings of the investigation, modify Quarry Pit Development Plan to avoid disturbing BV (but no alteration of boundaries of Quarry Area or maximum depth of extraction permitted). • Ensure proposed immediate areas of extraction in accordance with the revised Quarry Pit Development Plan. • If NOA spoil exposed, engage licensed Class A Asbestos Contractor to handle and transport to approved landfill waste facility in accordance with Appendix A.
8	Non-compliance	<ul style="list-style-type: none"> • Advise Hanson Quarry Manager and Secretary of any incidents of non-compliance with the Asbestos Management Plan.

5. CONTROL MEASURES FOR THE IA

5.1 Key Control Measure

- 5.1.1 No disturbance of BV on, under or in the immediate vicinity of the IA, other than by way of controlled testing for the purpose of identifying the occurrence and distribution of BV, is to occur.
- 5.1.2 This key control measure is to be implemented by following the steps below.

5.2 Permit to Work

- 5.2.1 Any contractor, Hanson employee or other authorised person who may potentially disturb the sub-surface soil beneath the capping layer must be given prior notice and acknowledge the potential presence of NOA within the BV at depth below the ground surface. Hanson must take all steps to ensure that any such person is made aware of the potential presence of NOA within the BV at depth below the ground surface.
- 5.2.2 Any contractor, Hanson employee or other authorised person who may potentially disturb the sub-surface soil beneath the capping layer must complete asbestos awareness training as outlined in Appendix A.
- 5.2.3 Any contractor, Hanson employee or other authorised person who may potentially disturb the sub-surface soil beneath the capping layer must complete a permit to work or similar form that ensures that any work will not disturb the sub-surface BV.
- 5.2.4 A permit to work must include detailed information on the location of the perimeter of excavation work and maximum depth of excavation to avoid contact with BV at depth. All information including approved drawings, plans and cross-sections must have the design referenced to Geocentric Datum of Australia 1994 (**GDA94**) and the Australian Height Datum (**AHD**).
- 5.2.5 Before being issued with a permit to work, individuals must read and understand this Asbestos Management Plan as well as copies of the approved design drawings, plans and cross-sections relevant to the excavation work being carried out. The PHMP and PCP should also be read and understood, where applicable.
- 5.2.6 At no stage may excavation be conducted at depths greater than those stipulated on the approved design drawings, plans and cross-sections.

5.3 Capping of IA

- 5.3.1 As part of the construction of the IA, the eastern section of the IA has been capped with clean soil from the western section of the IA in accordance with Figures 3g to 3j of the Percussion Drilling Report.
- 5.3.2 There is a minimum two metre cap maintained between the top of the BV as shown in the Percussion Drilling Report and the existing ground surface in the IA.

5.4 Investigative Drilling

- 5.4.1 Prior to carrying out any Intrusive Works beneath the capping layer, drawings, plans and cross-sections recording:
- (a) the proposed Intrusive Works;
 - (b) the location of any identified BV in the vicinity of the proposed Intrusive Works; and
 - (c) the position of the exploratory holes to be drilled as required by Section 5.4.2;
- must be prepared by Hanson and approved by the Authorised Geologist.

- 5.4.2 Prior to commencing any Intrusive Works beneath the capping layer, any contractor, Hanson employee or other authorised person must ensure that the immediate area of excavation is marked out on the surface of the ground in accordance with the information shown on approved drawings, plans and cross-sections.
- 5.4.3 Prior to commencement of Intrusive Works beneath the capping layer, the marked out area must first have exploratory holes drilled to three metres below the design depth as shown in the approved drawings, plans and cross-sections. The holes must be representative of the perimeter of the immediate area of the Intrusive Works and must include at least one hole within the centre of the immediate area of the Intrusive Works.

5.5 Inspection of Drill Hole Cuttings

- 5.5.1 The drill cuttings from each exploratory drill hole must be inspected by the Authorised Geologist. Following that inspection, the Authorised Geologist must provide an opinion recorded in a written report that the proposed Intrusive Works do not risk disturbing BV having regard to:
- (a) the geology of the rocks comprising the cuttings;
 - (b) the distance between the exploratory holes and their placement;
 - (c) the depth of the exploratory holes; and
 - (d) the method of Intrusive Works proposed.
- 5.5.2 If the Authorised Geologist determines that there is no risk of the proposed Intrusive Works disturbing BV then the Hanson Project Manager may direct the Intrusive Works in the immediate area to proceed. The Intrusive Works may **not** proceed unless the Authorised Geologist makes such a determination.

5.6 Discovery of BV

- 5.6.1 In the event that BV is identified by the Authorised Geologist in any of the drill hole cuttings, the Intrusive Works in that immediate area must not proceed any further, and the Hanson Project Manager must be immediately notified.
- 5.6.2 In the event that BV is discovered during excavation, work must cease and the area must be cordoned off to prevent unauthorised access.
- 5.6.3 The Authorised Geologist must conduct further investigation to identify the extent of the BV. The Authorised Geologist must submit samples of the BV to a NATA-approved external laboratory for analysis by PLM and if required, analysis by other confirmation testing techniques such as XRD, SEM or TEM to determine whether it contains NOA and take any other steps that the Authorised Geologist considers appropriate.
- 5.6.4 Any NOA spoil must be removed and disposed of, where required, by a licensed Class A Asbestos Contractor nominated by Hanson in accordance with Appendix B.

5.7 Response Measures

- 5.7.1 In the event that BV is discovered within two metres of the designed lowest depth of Intrusive Works in the immediate area of Intrusive Works, then the design of the approved drawings, plans and cross-sections must be amended to comply with the minimum capping of two metres. The amended design must be submitted to and approved by the Authorised Geologist and the Secretary before any further work is carried out.

5.8 Non-Compliance

- 5.8.1 The Hanson Project Manager and the Secretary shall be advised immediately of any incidents of non-compliance that have occurred with the Asbestos Management Plan.

5.9 Dust Suppression

5.9.1 Dust suppression techniques are to be utilised throughout all Intrusive Works, irrespective of whether BV is suspected to have been encountered or not. The level and type of dust suppression methods (eg; water carts, hand held hose) is dependent on factors such as location, proximity to sensitive areas, size, area and volume of the ground impacting works, weather conditions and machinery / equipment utilised.

5.10 Demobilisation

5.10.1 Following completion of the Intrusive Works, all plant and equipment shall be cleaned on Site to guard against asbestos contamination, whether or not BV has been encountered.

5.11 Record Keeping

5.11.1 Appropriate and detailed records of the location, depth and nature of the Intrusive Works are to be maintained, and made available to the Secretary for the purposes of each Annual Review required by Item 3 of Schedule 5 of the Conditions of Approval.

5.12 Site Monitoring and Management

5.12.1 Regular inspections (no less frequently than biannually) of the capping layer throughout the life of the Project are to be undertaken to determine whether the capping layer is still in a sound condition.

5.12.2 Appropriate and detailed records of the location, depth and nature of the capping layer, with reference to the survey plan showing the exact location of the capping layer, are to be maintained and made available to the Secretary for the purposes of each Annual Review required by Item 3 of Schedule 5 of the Conditions of Approval.

5.13 Summary of IA Control Measures

5.13.1 Table 2 presents a summary of the control measures to be implemented in respect of the IA.

Table 2: Control Measures – IA		
Step	Action	Key Actions and Description
1	Approvals	<ul style="list-style-type: none"> Procure any necessary consents or approvals, including those required by SafeWork NSW.
2	Appointment of Personnel	<ul style="list-style-type: none"> Identify and engage Authorised Geologist.
3	Site Establishment	<ul style="list-style-type: none"> All Site staff, contractors and sub-contractors to provide relevant documentation, insurances and Safe Work Method Statements to the authorised Hanson Project Manager and/or Principal Contractor as required. All Site staff, contractors and sub-contractors to attend mandatory asbestos awareness training as outlined in Appendix A. All Site staff, contractors and sub-contractors to read the Asbestos Management Plan, other relevant Plans and documentation. All Site staff, contractors and sub-contractors who may potentially disturb sub-surface soil beneath the capping layer to complete permit to work or similar form that ensures that any work will not disturb the sub-surface BV.
4	Capping Layer	<ul style="list-style-type: none"> Maintain capping layer, which has minimum depth of two metres between BV and existing ground surface.

Table 2: Control Measures – IA		
Step	Action	Key Actions and Description
5	Investigative Drilling	<ul style="list-style-type: none"> • Prior to commencing a proposed area of immediate Intrusive Works beneath the capping layer, the Hanson Project Manager to ensure that the immediate area of Intrusive Works is marked out on the ground of the IA. • Prior to commencement of Intrusive Works, the marked out area to have exploratory holes drilled to three metres below the design depth as shown in the approved drawings, plans and cross-sections.
6	Inspection of Drill Hole Cuttings	<ul style="list-style-type: none"> • Authorised Geologist to inspect each exploratory drill hole cutting to determine the geology of rock. • If BV discovered in any of the drill hole cuttings, Intrusive Works in that immediate area must not proceed.
7	Discovery of BV	<ul style="list-style-type: none"> • Cordon off proposed area of immediate Intrusive Works to prevent unauthorised access. • Authorised Geologist to conduct further investigation to identify the extent of the BV. • Based on findings of the investigation, amend design of approved drawings, plans and cross-sections to comply with minimum two metre cap. • Licensed Class A Asbestos Contractor to remove and dispose of NOA spoil, where required, in accordance with Appendix B.
8	Non-compliance	<ul style="list-style-type: none"> • Advise Hanson Project Manager and Secretary of any incidents of non-compliance that have occurred with the Asbestos Management Plan.
9	Intrusive Works	<ul style="list-style-type: none"> • Use dust suppression techniques throughout all Intrusive Works irrespective of whether BV is suspected to have been encountered or not.
10	Demobilise	<ul style="list-style-type: none"> • Clean plant and equipment on Site following completion of Intrusive Works in the IA.
11	Record Keeping	<ul style="list-style-type: none"> • Maintain appropriate and detailed records of the location, depth and nature of the Intrusive Works.
12	Site Monitoring and Management	<ul style="list-style-type: none"> • Maintain regular inspections (at least biannually) of capping layer throughout the life of the Project to check condition. • Maintain appropriate and detailed records of the location, depth and nature of capping layer.

6. ASBESTOS FIBRE AIR MONITORING PROTOCOL

6.1 Introduction

- 6.1.1 An asbestos fibre air monitoring protocol, as set out below, must be implemented in respect of the Project in order to ensure that the asbestos fibre levels generated at the Site do not exceed the Asbestos Impact Assessment Criterion of 0.01 fibres/ml.
- 6.1.2 Terms and abbreviations used in Parts 6, 7 and 8 of this Asbestos Management Plan have the following meanings:
- (a) "Asbestos Impact Assessment Criterion" (**AIAC**) means 0.01 airborne asbestos fibres/ml.
 - (b) "NATA" means the National Association of Testing Authorities Australia.
 - (c) "PCM" means phase contrast microscopy.
 - (d) "Quantification Limit" means 0.01 airborne asbestos fibres/ml.
 - (e) "SEM" means scanning electron microscopy.
 - (f) "TEM" means transmission electron microscopy.

6.2 Background Air Monitoring

- 6.2.1 In July 2012, background asbestos fibre air monitoring was undertaken at the locations being:
- (a) the Site boundaries (in the line of direction between the sensitive receptors such as residential housing and the IA);
 - (b) eastern, northern and southern boundaries and the centre of the IA;
 - (c) eastern, western, northern and southern boundaries of the Quarry Area; and
 - (d) proximate to exposed NOA rock outcrops near the existing dam.
- 6.2.2 The purpose of the air monitoring was to ascertain the background ambient asbestos fibre levels at the Site prior to the commencement of Intrusive Works.
- 6.2.3 A minimum of five days of background asbestos air monitoring was undertaken at the Site prior to the commencement of Intrusive Works.

6.3 Daily Air Monitoring

- 6.3.1 Between 16 July 2012 and 4 November 2013, control (static) asbestos fibre air monitoring was undertaken on a daily basis at the following locations during all Intrusive Works:
- (a) at a distance of no greater than 20 metres from the eastern, western, northern and southern perimeters of the immediate area of Intrusive Works;
 - (b) the Site boundaries (in the line of direction between the sensitive receptors such as residential housing and the IA); and
 - (c) the Site amenities such as change and lunch rooms.
- 6.3.2 Where Intrusive Works are undertaken beneath the capping layer in the IA, personal (exposure) asbestos fibre air monitoring must be undertaken on a daily basis on the personnel conducting the Intrusive Works and in the immediate vicinity of the Intrusive Works.
- 6.3.3 Personal asbestos fibre air monitoring must be undertaken on a daily basis on all operators of plant and equipment such as excavators, drillers or backhoes during Intrusive Works beneath the capping layer in the IA.

- 6.3.4 In the event that BV is discovered during blasting or extraction in the Quarry area or during Intrusive Works in the IA:
- (a) control asbestos fibre air monitoring must be undertaken on a daily basis for a period of one week or until testing identifies no exceedance of the Quantification Limit or AIAC; and
 - (b) personal asbestos fibre air monitoring of all operators of plant and equipment must be undertaken on a daily basis for a period of one week or until testing identifies no exceedance of the Quantification Limit or AIAC.

6.4 Weekly Air Monitoring

- 6.4.1 Between 4 November 2013 and 4 February 2014, control and personal asbestos fibre air monitoring was undertaken at the locations as indicated in **Figure 2** in Appendix C on a weekly basis for a three month period following the conclusion of Intrusive Works.

6.5 Monthly Air Monitoring

- 6.5.1 Between 4 February 2014 and 4 February 2015, control and personal asbestos fibre air monitoring was undertaken on a monthly basis for the 12 month period thereafter at the locations as indicated in **Figure 2** in Appendix C following the conclusion of Intrusive Works.

6.6 Continual Air Monitoring During Operation of the Quarry

- 6.6.1 Between February 2015 and June 2019, control and personal asbestos fibre air monitoring was undertaken at the locations as indicated in Figure 2 in Appendix C on a bimonthly basis after conclusion of Intrusive Works and for the duration of the operation of the Quarry.
- 6.6.2 On the provision that no exceedance of the AIAC has occurred for a duration of 3 years since the operation of the quarry, control and personal asbestos fibre air monitoring must be undertaken at the locations as indicated in Figure 2 in Appendix C on a quarterly basis for the duration of the operation of the Quarry, except with the agreement of the Secretary.

6.7 Air Monitoring Personnel

- 6.7.1 Asbestos fibre air monitoring must be undertaken by suitably qualified and experienced personnel from a laboratory registered and accredited by NATA or personnel approved and trained by the NATA laboratory for any works excluding during NOA clean-up and removal works.
- 6.7.2 Asbestos fibre air monitoring must be undertaken by suitably qualified and experienced personnel from a laboratory registered and accredited by NATA or personnel approved and trained by the NATA laboratory and the personnel must also be a licensed asbestos assessor for any NOA clean-up and removal works.
- 6.7.3 All filter sample analysis must be undertaken by an approved analyst and signatory from a laboratory registered and accredited by NATA.

6.8 Air Monitoring Method

- 6.8.1 All asbestos fibre air monitoring must be undertaken in accordance with the Membrane Filter Method as referenced in the "Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres", 2nd Edition [NOHSC:3003 (2005)].
- 6.8.2 All portable air sampling pumps must be located at a height between one and two metres from the ground or floor for control sampling and within the worker's breathing zone (for example, jacket or shirt lapel or collar) for personal exposure monitoring.
- 6.8.3 The sample volume of the air monitoring must be sufficient (but no greater than 1,000 litres) in order to achieve the detection or quantification limit of 0.01 fibres/ml.

- 6.8.4 The sampling period in respect of monitors located on the boundaries of the Quarry Area and IA must be representative of the work day and the activities undertaken with a minimum sampling period of no less than four hours.
- 6.8.5 The sampling period in respect of monitors located on the Site boundaries and Site amenities must be representative of the work day and the activities undertaken with sampling to occur at a minimum between the hours of 9am and 5pm.
- 6.8.6 Asbestos fibre air monitoring results must be analysed in a NATA-accredited laboratory using phase contrast microscopy (**PCM**).

6.9 Reporting

- 6.9.1 The following information must be included on the air monitoring report:
- (a) the name or letterhead of the organisation conducting the works;
 - (b) the NATA accreditation symbol and laboratory accreditation number;
 - (c) the date of the report;
 - (d) the name(s) of the persons conducting the sampling and analysis;
 - (e) the name(s) and signature of the person analysing the sample filters (the counter) and authorising the report (the signatory);
 - (f) the location of the monitoring points;
 - (g) the date of the monitoring;
 - (h) the location and activities undertaken during the sampling period (for example, excavation works for the primary crusher or beneath the capping layer in IA);
 - (i) the sampling time started and ended for each sampling location;
 - (j) the sample identification number;
 - (k) the average flow rate;
 - (l) the analytical method used;
 - (m) the number of fibres and fields counted for each sample; and
 - (n) the fibre concentration for each sample.
- 6.9.2 The monitoring locations must be marked-up on a Monitoring Plan for each sampling day. The marked-up Monitoring Plan must be attached to the Asbestos Air Monitoring Report.
- 6.9.3 The weather conditions (for example, dry and fine, overcast or raining), wind speed and direction must also be recorded on the Monitoring Plan for each sampling day.

6.10 Air Monitoring Verification

- 6.10.1 All air monitoring results which exceed the Quantification Limit of 0.01 fibres/ml must be submitted for confirmation purposes, in which either scanning electron microscopy (**SEM**) or transmission electron microscopy (**TEM**) must be used to clarify whether the fibres counted by PCM are asbestiform or non-asbestiform fibres.
- 6.10.2 All air monitoring results which exceed the Quantification Limit must be sent to an approved external laboratory for confirmation analysis by SEM or TEM as to whether there has been an exceedance of the AIAC. Approved external laboratories are listed in **Table 3**.

Table 3 – Approved Laboratories for External Testing

External Laboratories for Confirmation Analysis	Address & Contact Details
Chem Centre	Level 1, Sample Receivals Resources and Chemistry Precinct Corner Manning Road and Townsing Drive (delivery entrance off Colon Street) Bentley WA 6102 08 9422 9800 <i>Postal Address:</i> PO Box 1250 Bentley WA 6983
Envirolab Services (WA) Pty Ltd Trading as MPL Laboratories Pty Ltd	16-18 Hayden Place Myaree WA 6154 08 9317 2505
Microanalysis Australia	37 Kensington Street East Perth WA 6004 08 9225 5810

6.11 Summary of Asbestos Air Monitoring Protocol

6.11.1 Table 4 provides a summary of the Asbestos Air Monitoring Protocol.

Table 4: Asbestos Air Monitoring Protocol			
Step	Time Frame Action	Key Actions and Description	Status
1	Appointments	<ul style="list-style-type: none"> • Conduct asbestos fibre air monitoring by personnel from a NATA accredited laboratory or personnel trained and approved by a NATA accredited laboratory (excluding any NOA clean-up and removal works). • Conduct asbestos fibre air monitoring by personnel from a NATA accredited laboratory or personnel trained and approved by a NATA accredited laboratory and the personnel must also be a licensed asbestos assessor for any NOA clean-up and removal works. • Analysis of samples by a NATA accredited laboratory. 	<ul style="list-style-type: none"> • Actioned & On-going
2	Preliminary Monitoring	<ul style="list-style-type: none"> • Background monitoring for a minimum of five days prior to commencement of the construction of all infrastructure. 	<ul style="list-style-type: none"> • Actioned and Completed

Table 4: Asbestos Air Monitoring Protocol			
Step	Time Frame Action	Key Actions and Description	Status
3	During Intrusive Works	<ul style="list-style-type: none"> • Daily asbestos fibre air monitoring for construction of existing site infrastructure • Daily asbestos fibre air monitoring for any works beneath the capping layer 	<ul style="list-style-type: none"> • Actioned and Completed • To Be Actioned When Required
4	For Three Months After Conclusion of Intrusive Works	<ul style="list-style-type: none"> • Weekly asbestos fibre air monitoring. 	<ul style="list-style-type: none"> • Actioned and Completed
5	For 12 Months Thereafter	<ul style="list-style-type: none"> • Monthly asbestos fibre air monitoring. 	<ul style="list-style-type: none"> • Actioned and Completed
6	For 3 Years Thereafter Without Exceedance of AIAC	<ul style="list-style-type: none"> • Bi-monthly asbestos fibre air monitoring. 	<ul style="list-style-type: none"> • Actioned and Completed
7	For Duration of Operation of Quarry	<ul style="list-style-type: none"> • Quarterly asbestos fibre air monitoring. 	<ul style="list-style-type: none"> • On-going

7. ASBESTOS FIBRE AIR MONITORING NOTIFICATION PROTOCOL

7.1 Reporting Time-Frames of Asbestos Monitoring Results

- 7.1.1 A NATA accredited asbestos monitoring report must be provided to the Hanson Project Manager during Intrusive Works and to the Hanson Quarry Manager during operation of the Quarry.
- 7.1.2 The NATA accredited asbestos fibre air monitoring report must be provided to the relevant party stated in Section 7.1.1 within one week of completion of the air monitoring on each day air monitoring is to occur.
- 7.1.3 All results of the confirmation analysis by SEM or TEM as described in Section 8.10 must be provided to Hanson within five days from the provision of the initial asbestos fibre air monitoring report as described in Section 7.1.2.
- 7.1.4 Copies of all asbestos fibre air monitoring reports must be displayed at a prominent location such as the main noticeboard and amenities area. The asbestos air monitoring reports must be readily accessible to all workers and others on the Site.

7.2 Notification of Asbestos Monitoring Results

- 7.2.1 All asbestos fibre air monitoring results must be made publically available on Hanson's website within one month of the results becoming available.
- 7.2.2 All asbestos fibre air monitoring results must be reported quarterly to the following parties:
 - (a) the Secretary; and
 - (b) any neighbouring landowners or tenants (including tenants of quarry-owned properties) located within one kilometre of the Site boundary (if the neighbouring landowner or tenant asks to receive such reporting).
- 7.2.3 All asbestos fibre air monitoring results must be reported in the Annual Review as described in Item 3 of Schedule 5 of the Project Approval.

7.3 Record Keeping

- 7.3.1 All asbestos fibre air monitoring reports must be kept by Hanson securely on Site and must be made available to the Secretary or to a neighbouring landowner or tenant located within one kilometre of the Site boundary upon request.

8. ASBESTOS FIBRE AIR MONITORING EXCEEDANCE PROTOCOL

8.1 Exceedance of Quantification Limit

- 8.1.1 In the event of an identified exceedance of the Quantification Limit at one or more monitoring locations, the following steps must be undertaken.
- 8.1.2 All Intrusive Works and/or quarrying activity must be ceased in the immediate vicinity of the monitoring location recording the exceedance of the Quantification Limit.
- 8.1.3 The immediate work area must be isolated and secured using appropriate barriers such as fencing, ropes and tape and also warning signage.
- 8.1.4 Dust suppression techniques must be utilised to control dust emissions.
- 8.1.5 Intrusive Works and/or quarrying activity must not be resumed in the immediate vicinity of the monitoring location recording the exceedance of the Quantification Limit until:
 - (a) the results of confirmation analysis conducted in accordance with Section 8.10 are received;
 - (b) the results of confirmation analysis indicate that the fibres counted by PCM resulting in the exceedance of the Quantification Limit are non-asbestiform fibres.

8.2 Exceedance of AIAC

- 8.2.1 In the event that the results of confirmation analysis record an exceedance of the AIAC, the following steps must be undertaken.

8.3 Mitigation

- 8.3.1 All Intrusive Works and/or quarrying activity must be ceased within a radius of no less than 25 metres from the monitoring location recording the exceedance of the AIAC.
- 8.3.2 The work area within a radius of no less than 25 metres from the monitoring location recording the exceedance of the AIAC must be isolated and secured using appropriate barriers such as fencing, ropes and tape and also warning signage.
- 8.3.3 Dust suppression techniques must be utilised to control dust emissions.

8.4 Investigation

- 8.4.1 An investigation must be undertaken by a licensed asbestos assessor with at least three years experience in NOA or asbestos contaminated soil in order to determine the cause of the exceedance of the AIAC.
- 8.4.2 The investigation must be undertaken in consultation with Hanson employees, contractors or subcontractors involved with Intrusive Works on the Site.
- 8.4.3 A report of the investigation findings and recommendation must be submitted to Hanson within one week of receipt of the confirmation analysis indicating the AIAC exceedance.

8.5 Additional Air Monitoring

- 8.5.1 Control and personal asbestos fibre air monitoring must be undertaken on a daily basis for a one week period at the following locations:
 - (a) the source of the elevated monitoring results;
 - (b) the immediate vicinity of work areas;
 - (c) Site boundaries (in the line of direction between the sensitive receptors such as residential housing and the IA); and
 - (d) Site amenities such as change and lunch rooms.

8.5.2 If there is no exceedance of the Quantification Limit within the one week period, the control and personal asbestos fibre air monitoring as set out in Section 10.5.1 must be undertaken on a weekly basis for a three month period.

8.5.3 If there is no exceedance of the Quantification Limit within the three month period, the control and personal asbestos fibre air monitoring must be undertaken in accordance with the continual monitoring as outlined in Section 6.6.

8.6 Notification

8.6.1 All asbestos fibre air monitoring results recording an exceedance of the AIAC must be reported to the following parties within one day of receipt:

- (a) the Secretary;
- (b) neighbouring landowners and tenants (including tenants of quarry-owned properties) located within one kilometre of the Site boundary.

8.7 Resumption of Works

8.7.1 Intrusive Works and/or quarrying activity within a radius of no less than 25 metres from the monitoring location recording the exceedance of the AIAC must not resume until:

- (a) the report on the investigation findings prepared in accordance with Section 8.4.3 has recommended that works resume;
- (b) air monitoring conducted in accordance with Section 8.5.1 indicates that there has been no exceedance of the Quantification Limit subsequent to the recorded exceedance of the AIAC; and
- (c) the relevant parties have been notified of the exceedance of the AIAC in accordance with Section 8.6.1.

8.8 Revision of Control Measures

8.8.1 Once the cause of the exceedance of the AIAC is identified, control measures must be revised to ensure that future exceedances do not occur.

8.8.2 Authorised Hanson personnel must inspect, at least on a daily basis, all Intrusive Works or other works identified in the investigation report in order to ensure appropriate control measures in particular dust suppression techniques are implemented.

8.8.3 On-site work practices must be modified to ensure all further monitoring results are below the AIAC.

8.9 Summary of Air Monitoring Action Levels and Required Controls & Actions

10.9.1 **Table 5** outlines relevant control levels and corresponding actions required.

Action Level	Controls / Actions
Quantification Limit less than or equal to 0.01 fibres/ml	Continue with and review control measures
Quantification Limit greater than 0.01 fibres/ml	<p>Cease Intrusive Works and/or quarrying activity in the immediate affected area (para 8.1.2)</p> <p>Isolate and secure the immediate affected work area with barriers and warning signage (para 8.1.3)</p> <p>Employ dust suppression techniques (para 8.1.4)</p> <p>Await results of confirmation analysis (para 8.1.5)</p> <p>If confirmation analysis indicates no exceedance of AIAC, then works may resume (para 8.1.5)</p>
AIAC less than or equal to 0.01 fibres/ml	Continue with and review control measures
AIAC greater than 0.01 fibres/ml	<p>Cease Intrusive Works and/or quarrying activity within radius of no less than 25 metres from monitoring location recording exceedance (para 8.3.1)</p> <p>Isolate and secure the work area within radius of no less than 25 metres from monitoring location recording exceedance with barriers and warning signage (para 8.3.2)</p> <p>Employ dust suppression techniques (para 8.3.3)</p> <p>Communicate to all workers via tool box talks, safety memos of the location of the affected area(s), that the area is restricted to authorised personnel only and other relevant information such as air monitoring results, investigation in progress or findings, controls to be implemented</p> <p>Engage a licensed asbestos assessor to assist in the investigation and provide appropriate advice (para 8.4.1)</p> <p>Notify relevant stakeholders including Secretary and potentially affected landowners and tenants that work has ceased in area and the air monitoring results (para 8.6.1)</p> <p>Conduct asbestos fibre air monitoring in the potential source areas (para 8.5.1)</p> <p>Only resume works once recommended by investigation report, air monitoring results record no exceedance of Quantification Limit and relevant parties have been notified of exceedance (para 8.7.1)</p> <p>Find cause and review and revise control measures (para 8.8.1)</p> <p>Modify on-site work practices to ensure all further monitoring results are below the AIAC (para 8.8.3)</p>

9. INCIDENT PROTOCOL IN EVENT OF EXPOSURE TO ASBESTOS

9.1.1 In the event of exposure of any person (whether personnel, neighbours or others) to NOA as a result of activities on the Site, the following actions must be taken if the asbestos fibre air monitoring results exceed the AIAC:

- (a) the Hanson Project Manager or Hanson Quarry Manager (as may be relevant) must notify their Human Resources and/or Occupational Health and Safety Manager the details of the event of exposure to NOA within 24 hours of receipt of the exceedance;
- (b) the Hanson Project Manager or Hanson Quarry Manager (as may be relevant) must notify SafeWork NSW, Secretary, NSW Department of Planning and Environment and affected landowners of the event of exposure to NOA within 24 hours of the exceedance; and
- (c) Hanson must provide information to the workers and other stakeholders (such as potentially affected landowners), including a fact or information sheet outlining the situation, their potential exposure and controls to be implemented.

9.1.2 In the event of exposure of any person (whether personnel, neighbours or others) to NOA, the following actions must be taken if the asbestos air monitoring results exceed the exposure standard of 0.1 fibres/ml⁹:

- (a) the actions as required by Section 9.1.1;
- (b) subject to the consent of the persons exposed or potentially exposed, health monitoring of the persons (including potentially affected workers, visitors and landowners in the immediate vicinity of the monitoring locations which registered the exceedance and personnel working in the affected area where the exceedance occurred) must be undertaken by Hanson's authorised registered medical practitioner (with health monitoring experience) or, if the person exposed does not consent to health monitoring by Hanson's authorised medical practitioner, an independent registered medical practitioner with experience in health monitoring nominated by that person; and
- (c) the type of health monitoring must include consideration of the person's demographic, medical and occupational history and records of person's personal exposure and also a physical examination of the person unless another type of health monitoring is recommended by the registered medical practitioner as defined in Clause 435 to 444 of the *Work Health and Safety Regulation 2017* and *Clause 109 and 110 of the Work Health and Safety (Mines and Petroleum) Regulation 2014*.

⁹ As defined in the Worksafe Australia [National Occupational Health and Safety Commission (NOHSC)] 'Exposure Standards for Atmospheric Contaminants in the Occupational Environment,' May 1995 and from the Hazardous Substances Information System (HSIS) database on the Safe Work Australia website.

10. KEY RESPONSIBILITIES

10.1 The following table summarises the relevant parties involved in the Project and their key responsibilities on the Site.

Table 6 – Key Responsibilities of Relevant Parties

Role	Company	Responsibility
Principal	Hanson Construction Materials Pty Limited	<ul style="list-style-type: none"> <input type="checkbox"/> Project Manager <input type="checkbox"/> Design & Project works
Hanson Project Manager	Hanson Construction Materials Pty Limited	<ul style="list-style-type: none"> <input type="checkbox"/> Control of all Intrusive Work associated with the IA.
Hanson Quarry Manager	Hanson Construction Materials Pty Limited	<ul style="list-style-type: none"> <input type="checkbox"/> Control of all activities associated with the extraction of the resource and general ongoing operations of the quarry. <input type="checkbox"/> Inspection of Authorised Geologist's report and site conditions. <input type="checkbox"/> Investigation to determine whether blasting will not disturb BV
Hanson Quarry Manager's Nominated Competent Person	Hanson Construction Materials Pty Limited	<ul style="list-style-type: none"> <input type="checkbox"/> Inspection of Authorised Geologist's report and site conditions. <input type="checkbox"/> Investigation to determine whether blasting will not disturb BV
Principal Contractor	Nominated by or Hanson Construction Materials Pty Limited	<ul style="list-style-type: none"> <input type="checkbox"/> Control of all subcontractors and associated works
Authorised Geologist	Nominated by Hanson Construction Materials Pty Limited and approved by the Secretary	<ul style="list-style-type: none"> <input type="checkbox"/> Inspection of the exploratory drill hole cuttings <input type="checkbox"/> Inspection / investigation of extent of BV where discovered
NATA accredited personnel or trained / approved personnel and licensed asbestos assessor	Nominated by Hanson Construction Materials Pty Limited	<ul style="list-style-type: none"> <input type="checkbox"/> Asbestos air monitoring and reporting <input type="checkbox"/> Investigation of results exceeding AIAC <input type="checkbox"/> Consulting advise where required
Licensed Class A Asbestos Contractor	Nominated by Hanson Construction Materials Pty Limited	<ul style="list-style-type: none"> <input type="checkbox"/> Remove and dispose of NOA waste materials, where required
Waste Disposal Facility	Nominated Waste Disposal Facility	<ul style="list-style-type: none"> <input type="checkbox"/> NOA spoil material to be transported to the designated waste disposal facility under NSW Environment Protection Authority (only if NOA spoil is created)

11. FURTHER INQUIRES

11.1 If you have any further inquiries about the Asbestos Management Plan, please contact:

Project Contact Details			
Name:	Company:	Project Involvement:	Number:

APPENDIX A – ASBESTOS AWARENESS TRAINING

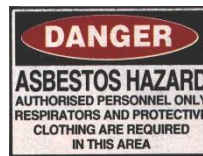
- A1 Prior to the commencement of any Intrusive Works, all Hanson employees, contractors and sub-contractors involved in Intrusive Works must be provided with appropriate training, information and instructions.
- A2 The awareness training must include the following:
- (a) background information on NOA materials;
 - (b) asbestos related health effects and risks;
 - (c) asbestos materials related legislation and guidelines;
 - (d) scheduled Intrusive Works;
 - (e) planned control measures to be utilised for Intrusive Works;
 - (f) personnel protective equipment (**PPE**) requirements;
 - (g) overview of the Asbestos Management Plan; and
 - (h) responsibilities of all stakeholders.
- A3 The asbestos awareness training must be undertaken by a suitably independent and qualified asbestos consultant.

APPENDIX B – ASBESTOS CLEAN UP OR REMOVAL WORKS

The following procedures must be implemented by a licensed Class A Asbestos Contractor and Hanson for any clean-up works in the IA or other areas of the Site where NOA or BV materials have been encountered and/or disturbed.

B1 WARNING SIGNAGE

- B1.1 The NOA affected area must be defined by barriers (for example, temporary fencing or barrier tape) and by appropriately placed signs.
- B1.2 The signs at the entry points to the work area should be generally in accordance with the following:



- B1.3 Warning signs must conform with the Australian Standard 1319 – *Safety Signs for the Occupational Environment*.

B2 PERSONAL PROTECTIVE EQUIPMENT (PPE)

- B2.1 The following PPE is required to be worn during the handling (but not inspection) of suspected NOA or BV materials or within a designated NOA area:
- (a) disposable half-face particulate respirator (P2 rated) complying with the Australian/New Zealand Standard 1715 and 1716;
 - (b) disposable coveralls made from either 100% synthetic material or a mixed natural / synthetic fabric to ensure protection against fibre penetration.

B3 DECONTAMINATION PROCEDURES

- B3.1 Personnel must undertake the following decontamination procedures at the end of each work shift or break such as morning tea, lunch and afternoon tea:
- (a) remove and dispose of disposable respirator, gloves and coveralls;
 - (b) place disposable respirator and coveralls in an asbestos waste bags or appropriate containers; and
 - (c) wash hands and face.
- B3.2 A decontamination area must be established on the Site for the use of the personnel handling known or suspected NOA or BV materials. The decontamination area will comprise a segregated area where the contaminated work clothing and respirators are removed and discarded.
- B3.3 Any plant or equipment that is to be removed from the NOA affected area of the Site must be washed down in a designated area using water spray techniques to ensure no NOA spoil material remains. This includes vehicles travelling in and out of designated asbestos areas, plant machinery equipment and hand excavation tools.

B4 NOA WASTE ON-STORAGE

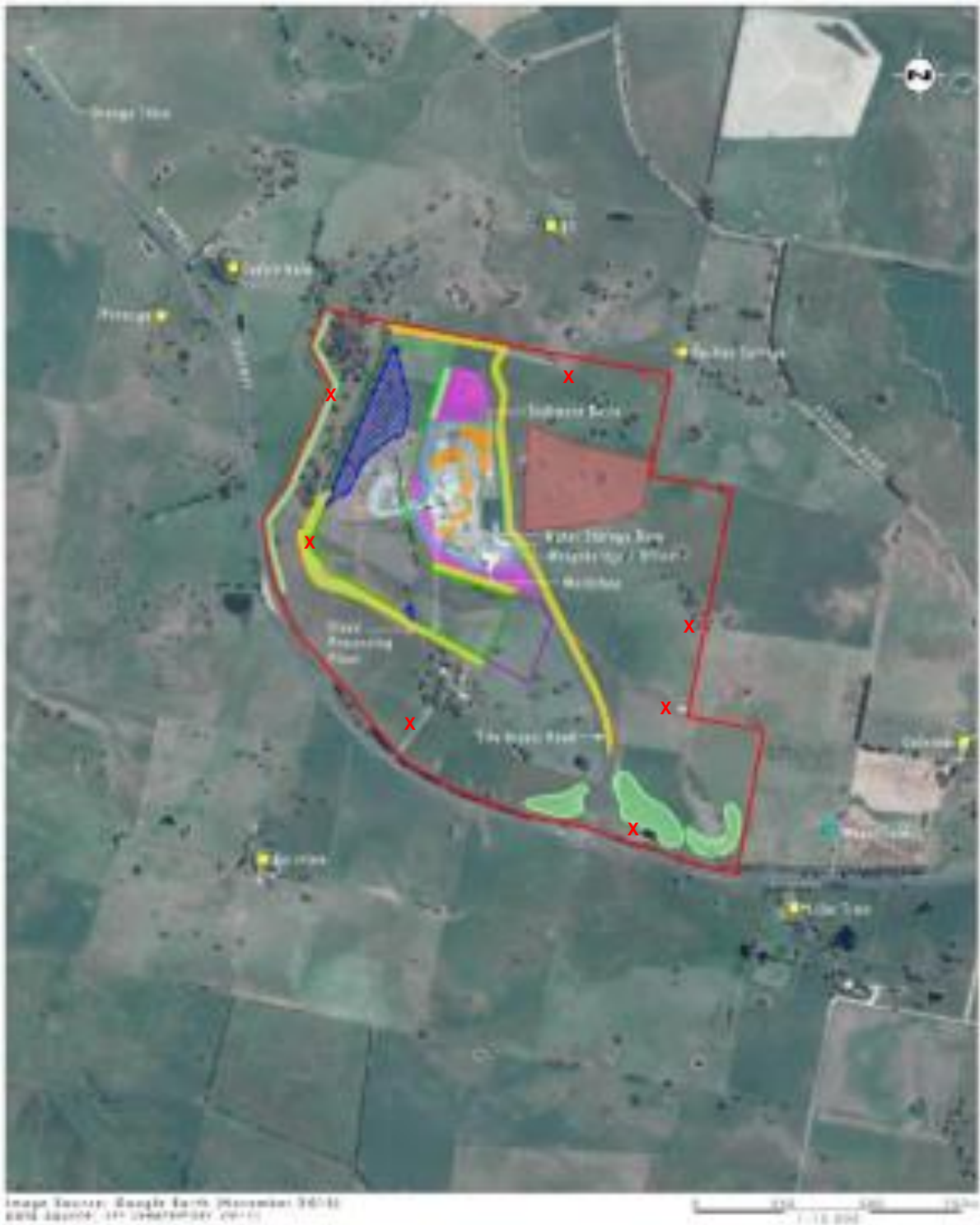
- B4.1 Any NOA spoil material must be placed in a secured area which is either within a designated lockable shed or designated area which has appropriate surrounding barriers.
- B4.2 The secured NOA waste storage area must be appropriately signposted.
- B4.3 The NOA waste material must be disposed off site as soon as practicable.

B5 NOA WASTE DISPOSAL

- B5.1 NOA waste must be kept in an appropriately labelled sealed container (eg; 200 micron plastic waste bags or sealable drums).
- B5.2 Waste bags must be twisted tightly, folded over and the neck secured in the folded position with adhesive tape, or any other effective method.
- B5.3 Waste bags must not be used for other waste.
- B5.4 When the waste bin becomes full, the asbestos waste bags must be disposed of at the local landfill site that can accept this type of asbestos waste.
- B5.5 Disposal permits or certificates must be sought and authorised at the completion of the disposal operation. Documentation must be filed with all relevant asbestos documentation for the project, and a copy forwarded to Hanson.
- B5.6 Disposal of any excess spoil which cannot be returned to the excavation must be classified in accordance with the NSW Environmental Protection Authority *Waste Classification Guidelines Part 1: Classifying waste* (EPA 2014/0796, November 2014).
- B5.7 Transportation and disposal of asbestos contaminated wastes must be conducted in accordance with the requirements of the *Protection of the Environment Operations (Waste) Regulation 2014*.

APPENDIX C – ASBESTOS FIBRE AIR MONITORING LOCATIONS

FIGURE 2 – MONITORING LOCATIONS DURING QUARRY OPERATIONS



X Air Monitoring Locations

- Legend**
- Site Boundary
 - Sensitive Receiver
 - Quarry Sensitive Receiver
 - Infrastructure Area
 - Approved Excursion Area
 - Proposed Additional Excursion Area
 - Forest Reserve Excursion Area
 - Product Stockpile
 - Soil Stockpile Area
 - Wash Water Storage Area
 - Riparian Vegetation Buffer and Vegetation Screen
 - Approved Vegetation Screen
 - Proposed Vegetation Screen

FIGURE 2.2
Sensitive Receivers and Land Use Context

APPENDIX D – Correspondence

From: [Ron Dillon](#)
To: [Pignone, Belinda \(Parramatta\) AUS](#)
Cc: [Phillip Morton](#); [Cooke, Chris \(Molong\) AUS](#)
Subject: East Guyong Asbestos Management Plan - consultation with Resource Regulator
Date: Tuesday, 16 July 2019 1:17:25 PM

Good Morning Belinda, I have been asked to review your updated Asbestos Management plan (AMP) for Hanson's East Guyong site.

Natural Occurring Legislation

- Part 8.4 Work Health and Safety Regulation 2017, Management of naturally occurring asbestos deals with natural occurring Asbestos. Part 8.4 requires the site to develop an AMP, review the AMP and give workers training in Natural Occurring Asbestos.
- Legislation clause 431 also requires the person with management or control of a workplace to manage the risk of NOA in accordance with Part 3.1 Work Health and Safety Regulation 2017, risks to health and safety associated with naturally occurring asbestos at the workplace.
- Clause 445 Work Health and Safety Regulation 2017, Duty to train workers about asbestos
- Clause 23-26 Work Health and Safety Mines & Petroleum Regulation 2014, Principal Hazard and Principal Control Plans

In reviewing your AMP please find the following points for review:

- I did not see any risk assessments which identifies the risk and controls with reference to the hierarchy of controls as identified in Part 3.1 (clause 35 & 36).
- The AMP makes no reference to the sites Principal Hazard Plans, Dust and Airborne Contaminates plan, Clause 23 and 24 Work Health and Safety Mines & Petroleum Regulation 2014
- The AMP makes no reference to the sites Principal Control Plans, Health control Plan, Blast control plan and Engineering control plan, Clause 26 Work Health and Safety Mines & Petroleum Regulation 2014
- Section 1.6, Does the site have an authorised blasting officer appointed and is this position listed in the management structure or contained in job descriptions.
- Section 4.2.2 & 5.2.2, Have all drilling and blasting workers on site completed asbestos awareness training. Has this been linked to your permit to work and contractor management systems.
- Section 5.9.1, Dust suppression, what level or type of dust suppression is the site requiring.
- Section 5.10, Demobilisation does this happen on site. Where does this happen and how is it done. Is there any paperwork, procedures or records in place
- Section 5.2.3, Does your permit to work system identify potential NOA.
- Section 5.2.5, Do workers completing a permit to work read and understand the AMP as stated in the plan
- What additional training has Hanson provided the Quarry Manager on site with dealing with NOA on site.

If you would like to discuss any of these points further please do not hesitate to contact me.

Regards

Ronald Dillon
Senior Mine Safety Officer

Resource Regulator
161 Kite Street ORANGE NSW 2800 | Locked Bag 21 ORANGE NSW 2800
T: 02 63 609 508 | M: 0429 917 890 | E: ron.dillon@planning.nsw.gov.au

Please update your address books to reflect my new phone number and @planning address.



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An orange rectangular banner containing the NSW Government logo on the left. The logo is white and includes the text 'NSW GOVERNMENT'. To the right of the logo, the text 'Committed to safety and environmental rehabilitation' is written in white, bold, sans-serif font. Below this, the text 'Click through to view our compliance priorities' is written in a smaller white font. On the right side of the banner is a large white checkmark icon.

From: [Simon Butterfield](#)
To: [Pignone, Belinda \(Parramatta\) AUS](#)
Cc: [Bernard Day](#)
Subject: RE: East Guyong Asbestos Management Plan - consultation with Resource Regulator
Date: Monday, 30 September 2019 2:25:56 PM
Attachments: [image002.png](#)
[image007.png](#)
[image004.png](#)
[image005.png](#)
[Hanson East Guyong Quarry - Asbestos Management Plan June 2019R1.pdf](#)
[Hanson East Guyong Quarry - Asbestos Management Plan June 2019R1.docx](#)

Hi Belinda

Please find attached the updated Asbestos Management Plan (version R1) in both pdf and word format.

The following inclusions or changes have been made to the previous report:

1. Page 1 Document filename change
2. Page 2 Document Revision Record (added new row indicating attached revised document)
3. Page 5 Removed Section 1.3.6 "Authorised Blasting Officer"
4. Page 6 Inclusion of Section 1.3.27 "Principal Hazard Management Plan" (**PHMP**) means the plan regarding the principal hazard(s) associated with the mining operations as outlined in Clause 24 of the Work Health and Safety (Mines and Petroleum) Regulation 2014.
5. Page 7 Inclusion of Section 1.3.28 "Principal Control Plans" (**PCP**) means Health Control Plan, Engineering Control Plan(s) and/or Explosive Control Plan associated with the mining operations as outlined in Clause 26 of the Work Health and Safety (Mines and Petroleum) Regulation 2014.
6. Page 8 Removed Section 1.6 Appointment of Blasting Officer (which includes 1.6.1 & 1.6.2)
7. Page 12 Section 4.2.1 Inclusion of the following words *Work Health and Safety (Mines and Petroleum) Regulation 2014*
8. Page 12 Section 4.2.3 Inclusion of the following words and also the Principal Hazard Management Plan (PHMP) and Principal Control Plans (PCP), where applicable
9. Page 13 & 14 Section 4.4.2, 4.5.1, 4.5.2, 4.8.1 Replaced words *Authorised Blasting Officer* with *Hanson Quarry Manager or appropriate nominated competent person*
10. Page 13 Section 4.5.2 now reads The blasting may not proceed unless the Hanson Quarry Manager or appropriate nominated competent person makes such a determination
11. Section 4.8.1 (Step 3) Inclusion of the following wordsPHMP and PCP
12. Page 16 Inclusion of the 2nd sentence to Section 5.2.5 The PHMP and PCP should also be read and understood, where applicable.
13. Page 18 Inclusion of the 2nd sentence to Section 5.9.1 The level and type of dust suppression methods (eg; water carts, hand held hose) is dependent on factors such as location, proximity to sensitive areas, size, area and volume of the ground impacting works, weather conditions and machinery / equipment utilised.
14. Page 19 Section 5.13.1 (Step 3) Inclusion of the following words other relevant Plans and documentation
15. Page 29 Inclusion of the following words to Section 9.1.2 (c) *and Clause 109 and 110 of the Work Health and Safety (Mines and Petroleum) Regulation 2014*
16. Page 30 Section 10.1, Table 6, Removed Row for Authorised Blasting Officer
17. Page 30 Section 10.1, Table 6, Inclusion of row for Hanson Quarry Manager's Nominated Competent Person

Regards

Simon Butterfield
Principal Consultant

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From: Pignone, Belinda (Parramatta) AUS [mailto:belinda.pignone@hanson.com.au]
Sent: Friday, 27 September 2019 8:22 AM
To: Simon Butterfield <SButterfield@risktech.com.au>
Cc: Bernard Day <bday@risktech.com.au>
Subject: RE: East Guyong Asbestos Management Plan - consultation with Resource Regulator

Hi Simon,

I am just following up on the below email.