PROPOSED MINING OF MINERALS (GOLD, SILVER, LEAD & ZINC) ON ML 10/2016 LOT 2014 AND LOT 1143 WITH AN AREA OF 995.19 HECTARES (2,459.158 ACRES) IN MUKIM SOKOR, DISTRICT OF ULU KUSIAL, JAJAHAN TANAH MERAH, KELANTAN DARUL NAIM

Lease Holder

PERBADANAN KEMAJUAN IKTISAD NEGERI KELANTAN
KELANTAN STATE ECONOMIC DEVELOPMENT CORPORATION

Perbadanan Kemajuan Iktisad Negeri Kelantan (PKINK)

Tingkat 9-11, Bangunan PKINK,
Jalan Tengku Maharani,
15710 Kota Bahru,
Kelantan Darul Naim.

Project Proponent

CNMC
CNMC GOLDMINE HOLDINGS LIMITED

CMNM Mining Group Sdn Bhd
(Company No. : 757691-M)

PT 6724 Kelewek,
Jalan Jeli,
17500 Tanah Merah,
Kelantan

Qualified Person

KCS

CERTIFIED TO ISO 9001: 2015
CERT. NO.: QMS 03181

KenEp Consultancy & Services
(Company No. : IP 0436751-T)
ECP REG : 314 P/N

5-9. Jalan Jelapang Bayu 1,
Puncak Jelapang Bayu,
30020 Ipoh, Perak Darul Ridzuan

Project Background

CMNM Mining Group Sdn Bhd

CMNM Mining Group Sdn. Bhd. is an existing mine that initially started operation in the year 2010.

Approval Letter/ Permits Obtained:

Approval from Department of Environment (DOE)	Mining Lease from Pejabat Pengarah Tanah dan Galian (PTG) Negeri Kelantan	Permit Penggunaan Sementara from Pejabat Hutan Jajahan Kelantan Barat (PHJKB)	Surat Kelulusan Skim Pengendalian Melombong (SKSPM) from Jabatan Mineral dan Geosains Kelantan (JMG)
- 3 EIA and 5 EMP for Gold Mining Activity	- Mining Lease (ML 10/2016) for Lot 2014 mining operation of 21 years from 1 Jan 2014 until 31 Dec 2034. - Application in mining of second mineral (Silver, Lead & Zinc) for ML 10/2016	- Lot 1143 with an area of 38.69 hectare at Hutan Simpan Sokot Taku, Mukim Sokor, Tanah Merah, Kelantan	- The mining operation at the Project site (ML 10/2016) for Lot 2014 for period from 5 May 2019 until 4 May 2021.

Scope of Project

- CMNM has responsibility and commitment to enhance its mining operation on ML 10/2016 Lot 2014 and Lot 1143 in Mukim Sokor, District of Ulu Kusial, Jajahan Tanah Merah, Kelantan Darul Naim.
- CMNM had proposed some new activities as below to be operated as to support the current established mining activity.

ML 10/2016 Lot 2014 & Lot 1143

Parcel A

- Utilization of Gold Treatment Plant-GTP 3 to replace demolished GTP 1
- Proposed construction of Magazine for storage of explosive
- Proposed upgrading capacity of crusher plant at CIL to maximum capacity of 2,500 TPD
- Proposed Increase production of 500 TPD to 1,200 TPD at Carbon In Leach (CIL) facility
- Proposed expansion of Spent Ore Dump (SOD) at Carbon In Leach Facility.
- Proposed construction of underground mining at Manson's Lode deposit for mining of Lead (Pb), Zinc (Zn) and Silver (Ag) ore
- Proposed expansion of open cast mining at New Found (2) deposit for mining of Gold (Au) ore

Parcel B

- Proposed construction of Flotation Plant for the extraction of Lead (Pb), Zinc (Zn) and Silver (Ag)
- Proposed construction of new Leaching Pads for Heap Leaching Facility
- Proposed expansion of Spent Ore Dump (SOD) at Heap Leaching Facility
- Proposed relocation of leaching pads for Vat Leaching Facility
- Proposed construction of Spent Ore Dump (SOD) for Vat Leaching Facility.
- Proposed construction of underground mining at Rixen deposit for mining of Gold (Au) ore
- Proposed construction of underground mining at Sg. Amang deposit for mining of Lead (Pb), Zinc (Zn) and Silver (Ag) ore
- Proposed open cast mining at Sungai Amang deposit for mining of Gold (Au) ore

Legislative Requirement

❖ Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 2015

SECOND SCHEDULE,

- **PRESCRIBED ACTIVITY 8(A)**: “Mining of Minerals in New Areas Involving Large Scale Operation”
- **PRESCRIBED ACTIVITY 8(B)**: “Mining of Minerals Within or Adjacent or Near to Environmentally Sensitive Area”

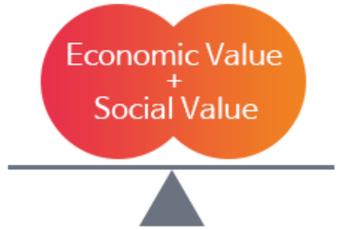
Statement of Need

Resources

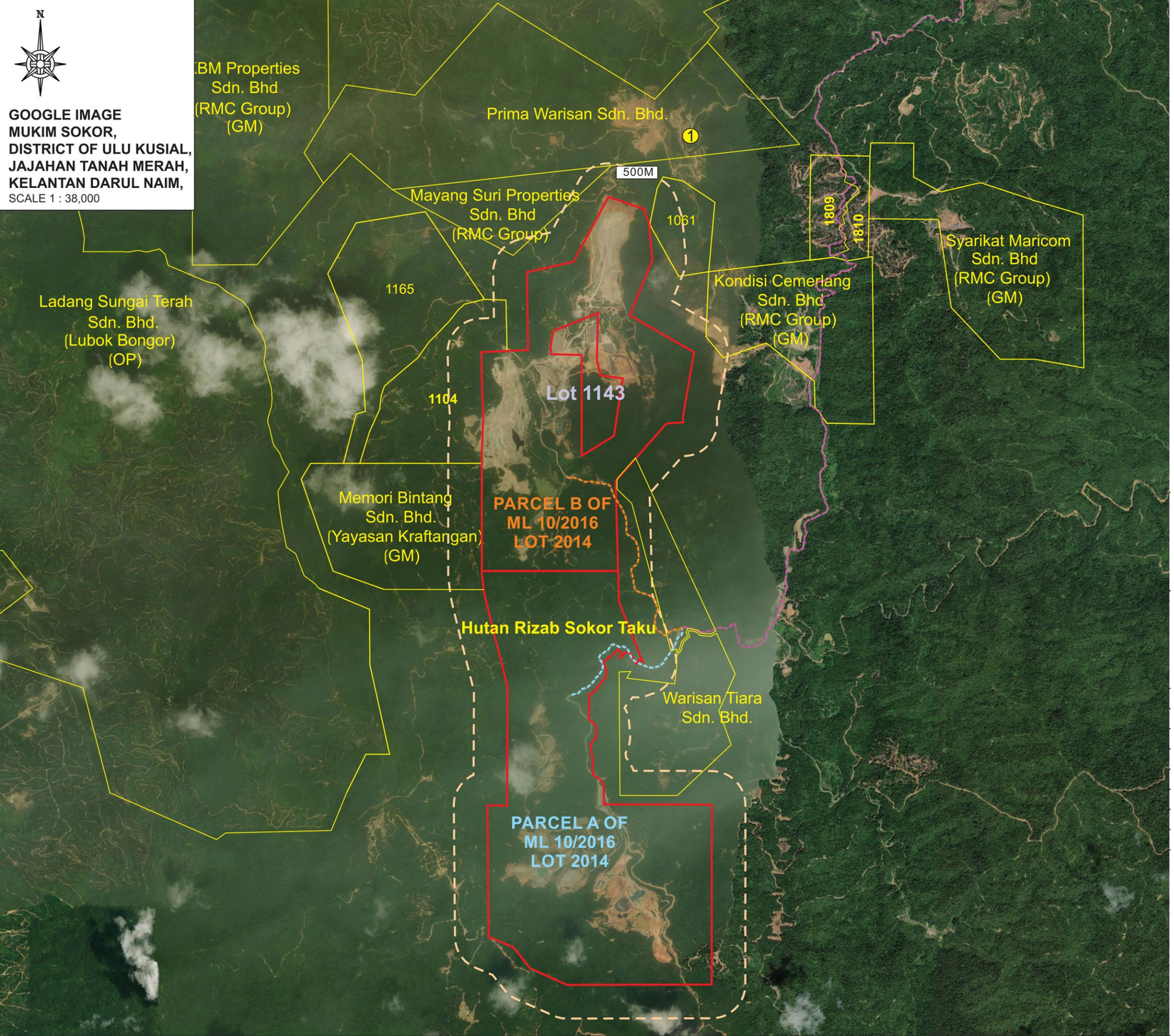
- Ore Deposit

Products

- Gold Dore Bars & Base Metal Concentrate (Lead & Zinc)



Social Economic Value

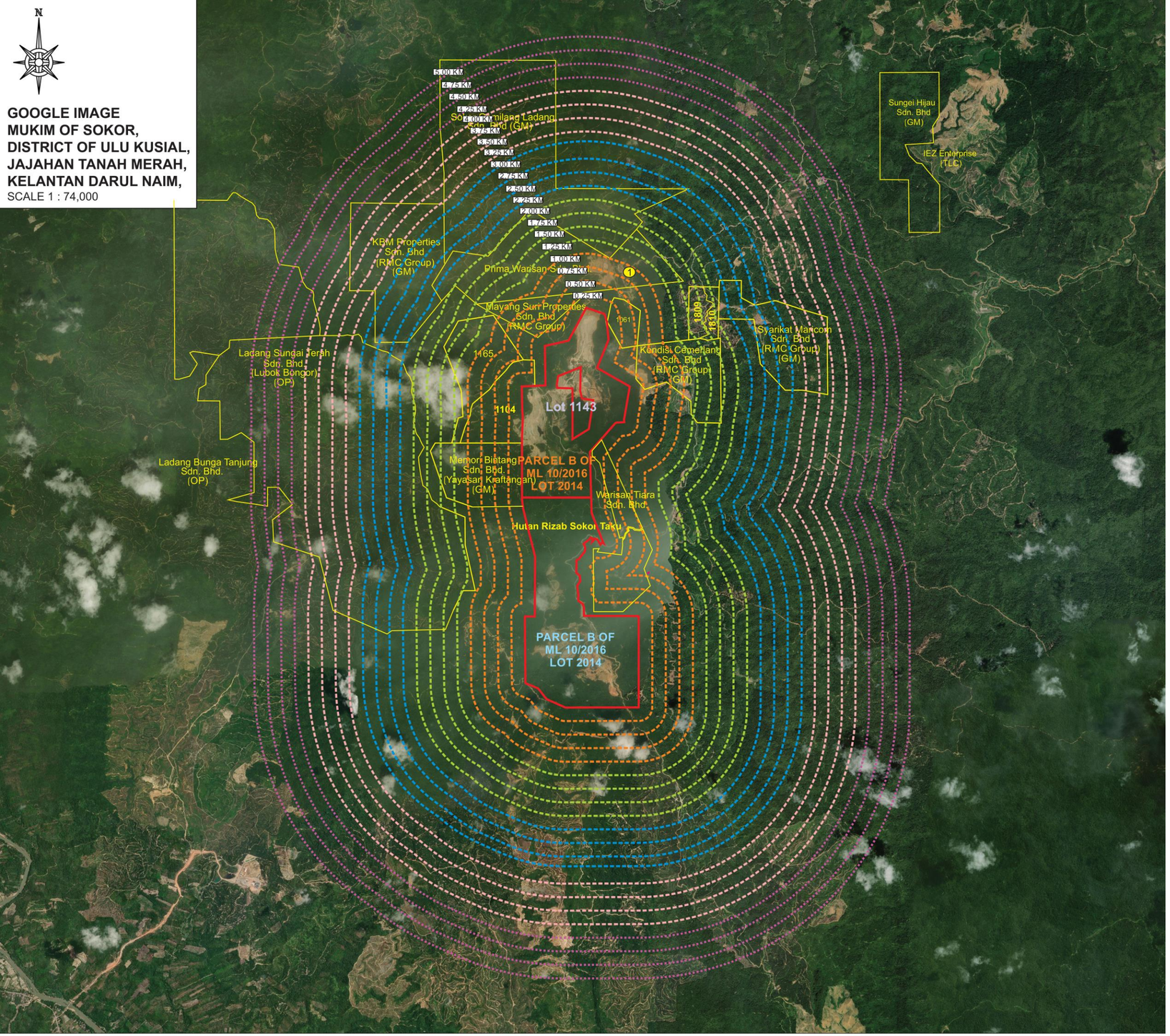


500M RADIUS OF THE PROPOSED PROJECT SITE AND SENSITIVE RECEPTORS

LEGEND

- PROPOSED PROJECT AREA (ML 10/2016 Lot 2014 & Lot 1143)
- EXISTING APPROVED MINING LEASE MINE AND PLANTATIONS ACTIVITIES
- EXISTING MAIN ROAD
- EXISTING ACCESS ROAD (PARCEL A)
- EXISTING ACCESS ROAD (PARCEL B)

No.	Location
1	Worker Quarters (Prima Warisan Sdn. Bhd.)



5KM RADIUS OF THE PROPOSED PROJECT SITE AND SENSITIVE RECEPTORS

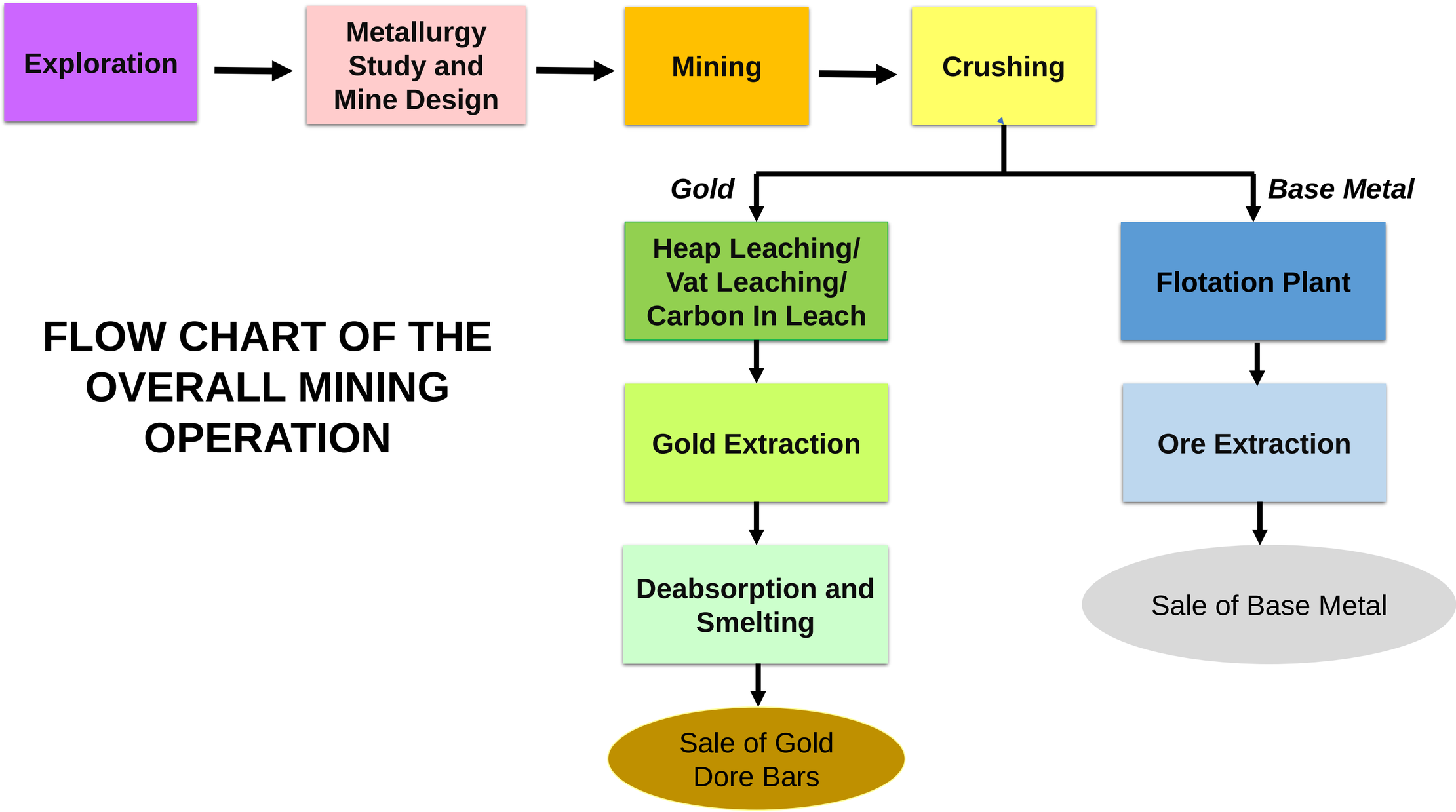
LEGEND

PROPOSED PROJECT AREA
(ML 10/2016 Lot 2014 & Lot 1143)

EXISTING APPROVED MINING LEASE MINES AND PLANTATION ACTIVITIES

No.	Location
1	Worker Quarters (Prima Warisan Sdn. Bhd.)

FLOW CHART OF THE OVERALL MINING OPERATION



Project Activities

1

Investigation
- Exploration
- Environmental Impact Assessment

2

Initial Site Preparation and Development Stage
- Site Clearing
- Overburden Removal
- Infrastructure Construction
- Improvement of watercourses and drainage system
- Installation of Processing Plant

3

Operational Stage
- Excavation
- Drilling & Blasting
- Crushing
- Screening
- Processing (Heap Leaching, Vat Leaching, Carbon In Leach (CIL) Plant, Gold Treatment Plant, Flotation Plant)
- Stockpiling

4

Rehabilitation and Abandonment Stage
- Rehabilitation

Existing Environment

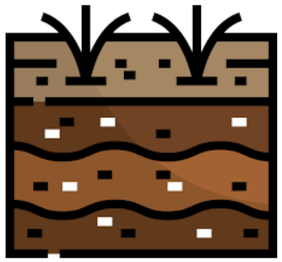
Physical Environment

Topography

The proposed Project site is located in Sokor Taku Forest Reserve in Mukim Sokor, District of Ulu Kusial, Jajahan Tanah Merah, Kelantan Darul Naim.

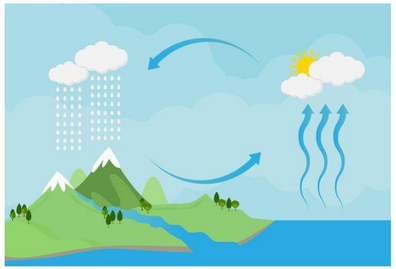
Geology

The Project site is underlain by Telong Formation, a set of Permo-Triassic intermediate-acidic marine meta-volcanic-sedimentary rocks.



Soil

Steep Land and Durian-Munchong-Bungor



Hydrology

Flow of runoff discharge:
Earth Drain – Sediment Basin – Sungai Sokor – Sungai Kelantan

Climate

Meteorological station at Kuala Krai

Environmental Quality

Water Quality

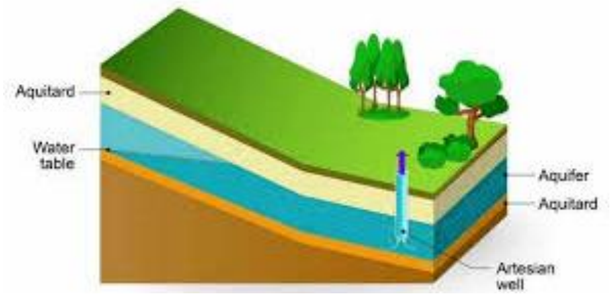
River samplings were taken at 12 locations which located at tailing ponds of parcel A & B, upstream, midstream, downstream of Sg. Sokor and Sg. Kelantan. For sampling point, WQS5 located at downstream of Sg Sokor was inaccesible.

The water quality sampling was carried out for for 3 days continuously for all the specified rivers. The sample to be collected at mid depth and at the center of the river whenever possible. For the tailing ponds, the water quality sampling shall be carried out at mid depth for 1 time.

Based on DOE WQI, all water samples majorly were classified as Class II.

Existing Environment

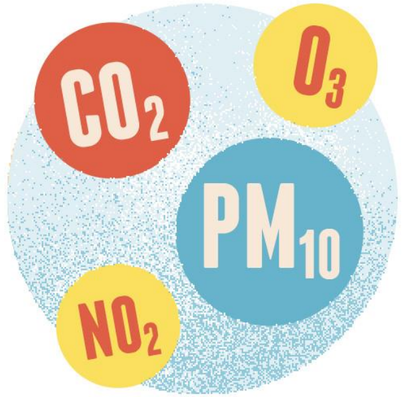
Environmental Quality



Groundwater Quality

Sixteen (16) borehole sampling stations were tested within the proposed Project site. The results are compared with the National Groundwater Quality Standard for Conventional Drinking Water Treatment.

All the sampling stations were complied to the standard limit of National Groundwater Quality Standard for Conventional Drinking Water Treatment except sampling stations BH2, BH4, BH8, BH9 and BH9B, parameter Iron was exceeded standard limit due to Iron which is naturally occurring metal that is widely present in soils, rocks, and groundwater



Air Quality

Eleven (11) locations (AC1 to AC11) have been selected to carry out the ambient air quality monitoring. All reading at point AC1 to AC11 were within the Malaysia Ambient Air Quality Standard 2020.

Noise Level

Noise monitoring also has been carried out at the locations (NC1 to NC11) same as the air monitoring point. The result showed that the noise level was both below 65 dB(A) for daytime and 60 dB(A) for night time which complied to its limits under the Guidelines for Environmental Noise Limit and Control 2019.

Existing Environment

Biological Resources

Ecosystem

The addition of proposed new activities still within the previous EIA approved Project area. The proposed Project site is located in Sokor Taku Forest Reserve in Mukim Sokor, District of Ulu Kusial, Jajahan Tanah Merah, Kelantan Darul Naim. It consists of flat land, undulated hills and valleys.

Since much of the original vegetation and ecosystem had been co-exist with surrounded approved mining lease mine and various existing agriculture plantation area. Thus, there is no significant biological habitat in this area as the habitat for wildlife and primary vegetation has been diminishing at the surrounding area. Large wildlife has long vanished and the common fauna found are those that can co-exist with man.

Existing Landuse

5km-Landuse

The nearest receptors are Kampung Tebing Tembah which situated about 750m westernThere is no resident located within 500m and 5km radius from the proposed Project site. The nearest receptors are Kampung Air Limau and Kampung Peralla, which located 8 km north-east and 10.5 km north-east from the proposed Project site, respectively.

The Project site is surrounded by various approved mining lease mine owned by Prima Warisan Venture Sdn. Bhd. (PKINK), Kondisi Cemerlang Sdn. Bhd. (RMC Group), Mayang Suri Properties Sdn. Bhd. (RMC Group), Syarikat Maricom Sdn. Bhd. (RMC Group), Memori Bintang Sdn. Bhd. (Yayasan Kraftangan), Warisan Tiara Sdn. Bhd. and Sungei Hijau Sdn. Bhd.

The mining site also surrounded by various existing plantation activities owned by Ladang Sungai Terah Sdn. Bhd., Ladang Bunga Tanjung Sdn. Bhd., Sokor Gemilang Ladang Sdn. Bhd. and IEZ Enterprise (TLC).

Proposed Monitoring Programme

Type of Monitoring	Monitoring Parameter	Parcel	Monitoring Station	Location	Coordinate	Monitoring Frequency	Applicable Standard
Compliance Monitoring (CM)							
Sediment Basins/ Silt Traps Discharge	TSS Turbidity	A	Exist.SB 1a	Presenting the sediment basin at southern of Project area	-	Monthly	TSS ≤50 mg/l Turbidity ≤250 NTU
			Exist.SB 2a	Presenting the sediment basin at south western of Project area			
			Exist.SB 4a	Presenting the sediment basin at south eastern of Project area			
			Exist.SB 5a	Presenting the sediment basin at southern of Project area			
			Exist.SB 6a	Presenting the sediment basin at southern of Project area			
			Prop. ST 1a	Presenting the silt trap at northern of Project area			
			Prop. ST 2a	Presenting the silt trap at south western of Project area			
			Exist. ST 3a	Presenting the silt trap at south eastern of Project area			
			Exist. ST-UG	Presenting the silt trap at southern of Project area			
		B	Exist.SB 2b	Presenting the silt trap at north western of Project area			
			Prop. SB 5b	Presenting the silt trap at north western of Project area			
			Prop. SB 6b	Presenting the silt trap at northern of Project area			
			Prop. SB 7b	Presenting the silt trap at eastern of Project area			

Proposed Monitoring Programme

Type of Monitoring	Monitoring Parameter	Monitoring Station	Location	Coordinate	Monitoring Frequency	Applicable Standard
Compliance Monitoring (CM)						
Air Pollution Control (Stack Emission Monitoring)	Dust and HNO_3	Scrubber Stack and Furnace Stack	Gold Treatment Plant (GTP 3)	-	Quarterly	Environmental Quality (Clean Air) Regulation 2014
Site Inspection by CESSWI	-	-	Project Site	-	Quarterly, and within 24 hours after storm event of ≥12.5mm	EIA approval condition, LD P2M2, EMP and ESCP
Environmental Audit	-	-	Project Site	-	Quarterly during earthwork stage, Yearly during operation stage	DOE's conditions of EIA approval, related legislation & regulations
Impact Monitoring (IM)						
Vibration Level Monitoring	Production Blast (Nonel), dB(L)	V1	Project Boundary	5° 33'1.75" N 101° 59'26.98" E	Every blast	Airblast: ≤125 dBL Vibration: ≤ 5 mm/s
		V2	Workers quarter nearby Ketubong Underground Mine	5° 33'19.46" N 101° 59'6.00" E		
		V3	Workers quarter nearby Rixen Mine Pit	5° 34'58.02" N 101° 59'6.61" E		

Proposed Monitoring Programme

Type of Monitoring	Monitoring Parameter	Monitoring Station	Location	Coordinate	Monitoring Frequency	Applicable Standard
Impact Monitoring (IM)						
Water Quality Monitoring	pH, Temperature COD, BOD5 @ 20 °C, Suspended Solids, Oil & Grease, Ammoniacal Nitrogen, Dissolved Oxygen, Percentage Oxygen, Saturation, Conductivity, Hexa-Chromium, Cyanide, Tri-Chromium, Boron, Iron, Phenol, Free Chlorine, Sulphide, Aluminium, Barium, Fluoride, Formaldehyde, Manganese, Nickel, Tin, Zinc, Cadmium, Copper, Lead, Selenium, Arsenic, Silver, Mercury	TP1 A	Located at Tailing Pond 1 (Parcel A)	101˚59'17.34"E 5˚32'43.38"N	Monthly	Complied to NWQS Class II
		TP 1 B	Located at Tailing Pond 3 (Parcel A)	101˚59'16.38"E 5˚32'43.38"N		
		TP1B	Located at Tailing Pond 1 (Parcel B)	101˚59'31.25"E 5˚35'26.53"N		
		TP3B	Located at Tailing Pond 3 (Parcel B)	101˚59'31.25"E 5˚35'26.53"N		
		WQS1	Located at upstream of Sg Sokor	102˚0'17.11"E 5˚33'54.21"N		
		WQS2	Located at upstream of Sg Sokor	102˚3'24.79"E 5˚35'32.28"N		
		WQS3	Located at midstream of Sg Sokor	102˚3'29.99"E 5˚36'22.61"N		
		WQS4	Located at midstream of Sg Sokor	102˚5'5.25"E 5˚37'24.52"N		
		WQK1	Located at upstream of Sg Kelantan	102˚8'37.91"E 5˚36'11.44"N		
		WQK2	Located at midstream of Sg Kelantan	102˚6'29.39"E 5˚40'55.02"N		
		WQK3	Located at downstream of Sg Kelantan	102˚7'57.09"E 5˚42'29.27"N		

Proposed Monitoring Programme

Type of Monitoring	Monitoring Parameter	Monitoring Station	Location	Coordinate	Monitoring Frequency	Applicable Standard
Impact Monitoring (IM)						
Groundwater Quality Monitoring	pH Cyanide, Iron, Conductivity, Hardness, Dissolved Oxygen	BH 1	Located at the eastern part of Vat Leaching Facilities	5° 32' 40.4810" N 101° 59' 18.8318" E	Monthly	Complied to National Groundwater Quality Standard for Conventional Drinking Water Treatment
		BH 2	Located at the eastern part of Vat Leaching Facilities	5° 32' 41.7516" N 101° 59' 19.2841" E		
		BH 3	Located at the eastern part of Vat Leaching Facilities	5° 32' 43.1538" N 101° 59' 20.3860" E		
		BH 4	Located at the eastern part of Vat Leaching Facilities	5° 32' 43.6436" N 101° 59' 21.0999" E		
		BH 5	Located at the eastern part of Vat Leaching Facilities	5° 32' 44.5577" N, 101° 59' 22.3002" E		
		BH 6	Located at the western part of Parcel B Main Gate	5° 34' 39.0246" N 101° 59' 20.7342" E		
		BH 7	Located at the eastern part of Rixen Mine Pit	5° 34' 53.5450" N 101° 59' 04.9120" E		
		BH 8	Located at the north eastern part of Rixen Mine Pit	5° 35' 16.4041" N 101° 59' 06.9775" E		
		BH 9	Located at south eastern part of Heap Leaching Facilities	5° 35' 18.4508" N 101° 59' 36.6740" E		
		BH 9B	Located at south eastern part of Heap Leaching Facilities	5° 35' 24.9255" N 101° 59' 34.6786" E		
		BH 10	Located at eastern part of Heap Leaching Facilities	5° 35' 39.3394" N 101° 59' 30.3924" E		
		BH 11	Located at the eastern part of Carbon In Leach (CIL) Facilities	5° 32' 22.4382" N 101° 59' 31.6709" E		
		BH 12	Located at the eastern part of Carbon In Leach (CIL) Facilities	5° 32' 23.1518" N 101° 59' 30.3697" E		
		BH 13	Located at the eastern part of Carbon In Leach (CIL) Facilities	5° 32' 24.8079" N 101° 59' 28.2868" E		
		BH 14	Located at the eastern part of Carbon In Leach (CIL) Facilities	5° 32' 25.5502" N 101° 59' 25.1010" E		
		BH 15	Located at the eastern part of Carbon In Leach (CIL) Facilities	5° 32' 28.4743" N 101° 59' 22.1707" E		

Proposed Monitoring Programme

Type of Monitoring	Monitoring Parameter	Monitoring Station	Location	Coordinate	Monitoring Frequency	Applicable Standard
Impact Monitoring (IM)						
Ambient Air Quality Monitoring	TSP, PM_{10}, $PM_{2.5}$, NO_2, SO_2, CO, O_3	AC1	Located nearby Tailing Pond No.1 within Parcel A mining site area	05° 32'47.5"N 101° 59'26.0'E	Once in every three months	PM_{10} ≤100 µg/m^3 $PM_{2.5}$ ≤35 µg/m^3 NO_2 ≤280 µg/m^3 SO_2 ≤250 µg/m^3 CO ≤30 µg/m^3 O_3 ≤180 µg/m^3 NH^3 - H_2S - HCN - Lead -
		AC2	Located nearby leaching yard within Parcel A mining site area	05° 32'42.6"N 101° 59'14.0"E		
		AC3	Located nearby new discovery lode within Parcel A mining site area	05° 32'56.1"N 101° 59'10.7"E		
		AC4	Located nearby worker quarters within Parcel A mining site area	05° 33'22.0"N 101° 59'10.9"E		
		AC5	Located nearby canteen and worker quarters within Parcel B mining site area	05° 35'31.9"N 101° 59'30.8"E		
		AC6	Located nearby crusher within Parcel B mining site area	05° 35'38.7"N 101° 59'35.7"E		
		AC7	Located nearby chemical store within Parcel B mining site area	05° 35'10.5"N 101° 59'45.3"E		
		AC8	Located nearby spend ore dump within Parcel B mining site area	05° 32'31.4"N 101° 59'32.3"E		
		AC9	Located nearby proposed additional tailing pond within Parcel B mining site area	05° 32'40.4"N 101° 59'51.0"E		
		AC10	Located nearby sediment basin within CIL Plant area	05° 32'47.5"N 101° 59'26.0'E		
		AC11	Located outside Parcel A mining site area	05° 32'42.6"N 101° 59'14.0"E		

Proposed Monitoring Programme

Type of Monitoring	Monitoring Parameter	Monitoring Station	Location	Coordinate	Monitoring Frequency	Applicable Standard
Impact Monitoring (IM)						
Boundary Noise Monitoring	L_{10}, L_{50}, L_{90}, Total Leq dB(A)	NC1	Located nearby Tailing Pond No.1 within Parcel A mining site area	05° 32'47.5"N 101° 59'26.0'E	Once in every three months	Total Leq (Daytime) ≤65 Total Leq (Night time) ≤60
		NC2	Located nearby leaching yard within Parcel A mining site area	05° 32'42.6"N 101° 59'14.0"E		
		NC3	Located nearby new discovery lode within Parcel A mining site area	05° 32'56.1"N 101° 59'10.7"E		
		NC4	Located nearby worker quarters within Parcel A mining site area	05° 33'22.0"N 101° 59'10.9"E		
		NC5	Located nearby canteen and worker quarters within Parcel B mining site area	05° 35'31.9"N 101° 59'30.8"E		
		NC6	Located nearby crusher within Parcel B mining site area	05° 35'38.7"N 101° 59'35.7"E		
		NC7	Located nearby chemical store within Parcel B mining site area	05° 35'10.5"N 101° 59'45.3"E		
		NC8	Located nearby spend ore dump within Parcel B mining site area	05° 32'31.4"N 101° 59'32.3"E		
		NC9	Located nearby proposed additional tailing pond within Parcel B mining site area	05° 32'40.4"N 101° 59'51.0"E		
		NC10	Located nearby sediment basin within CIL Plant area	05° 32'47.5"N 101° 59'26.0'E		
		NC11	Located outside Parcel A mining site area	05° 32'42.6"N 101° 59'14.0"E		

Proposed Pollution Prevention and Mitigation Measures

BLASTING

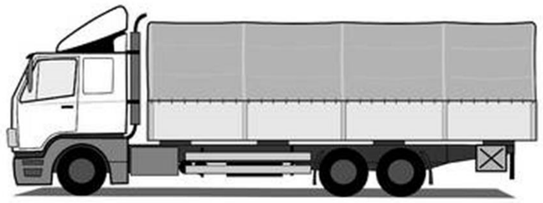
Handling by certified shotfirer

No smoking signboard

Ear muffler

No entry signboard during blasting in progress

AIR POLLUTION



Vehicles that carried materials out from project site need to be covered up

Regular Monitoring Programme

Water Browser

Landscaping at the project boundary

Proposed Pollution Prevention and Mitigation Measures

EROSION AND WATER POLLUTION

Sediment Basin

Earth Drain

Cover Crop

CERTIFIED INSPECTOR
SEDIMENT AND EROSION CONTROL
CISEC

Site Inspection by CISEC

SOLID AND HAZARDOUS WASTE POLLUTION

Scheduled Waste Storage Area

Spent Ore Dump (SOD) underlain with HDPE Geomembrane

Proposed Pollution Prevention and Mitigation Measures

NOISE AND VIBRATION POLLUTION

Ear muffler

Ear Plug

Audiometric Test

Regular Monitoring

Natural Buffer Zone