



भारत सरकार/ GOVERNMENT OF INDIA  
खान मंत्रालय/ MINISTRY OF MINES  
भारतीय खान ब्यूरो/ INDIAN BUREAU OF MINES  
क्षेत्रीय खान नियंत्रक कार्यालय/  
OFFICE OF REGIONAL CONTROLLER OF MINES



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29, इंडस्ट्रियल सबर्ब II स्टेज,, तुमकुर रोड,  
गोरगुंटापाल्या येशवंतपुर,  
बेंगलुरु -560022

सं/No.: 279/375/93/BNG 599

दिनांक/Date: 12/04/2022

सेवा में/ To,  
M/s. MARWA MINING COMPANY,  
Do.No.687, 13<sup>th</sup> Ward., "Umer Manzil",  
Kudligi-583 135,  
Dist: Vijayanagar, Karnataka State.

**विषय/Sub:** Approval of "Review and Updation of Mining Plan including progressive mine closure plan" in respect of your **Jiginahalli Manganese Mine ( ML No. 2482)** over an area of **22.45 Ha** (as per Lease Deed) in Jiginahalli village, Sandur Taluk, Ballari District, Karnataka state, submitted for approval under rule 17(1) of MCR, 2016-**Private / Forest / Non-Captive/ 'A' Category Mechanized.**

**संदर्भ /Ref:** (1) Your e-mail dated 07/03/2022 submitting therewith soft copy of draft Review and Updation of Mining Plan" including PMCP.  
(2) This office letter of even no. Dated: 06/04/2022.  
(3) Your QP's letter No. Nil dated 11/04/2022 submitting therewith final bound copies of "Review and Updation of Mining Plan" including Progressive Mine Closure Plan.

महोदय/Sirs,

In exercise of the powers conferred by clause (b) of sub-section (2) of section 5 of the Mines and Minerals (Development & Regulation) Act, 1957 read with Govt. of India order No.S.O.445 (E) dated 28.04.1987 and S.O.1857 (E)dtd.18/05/2016. I hereby **approve the "Review and Updation of Mining Plan" including Progressive Mine Closure Plan** in respect of your **Jiginahalli Manganese Mine (ML No. 2482)** over an area of **22.45 Ha** (as per Lease Deed) in Jiginahalli village, Sandur Taluk, Ballari District, Karnataka state. This approval is subject to the following conditions:

1. The Review and Updation of Mining Plan along with Progressive Mine Closure Plan is approved without prejudice to any other laws applicable to the mine from time to time whether made by the Central Government, State Government or any other authority and without prejudice to any order or direction from any court of competent jurisdiction.
2. The proposals shown on the plates and /or given in the document is based on the lease map/Sketch submitted by the applicant /lessee and is applicable from the date of approval.
3. It is clarified that the approval of your aforesaid Review and Updation of Mining Plan along with Progressive Mine Closure Plan does not in any way imply the approval of the Government in terms of any other provisions of the Mines and Minerals (Development and Regulation) Act 1957 or the Mineral (Other than Atomic and Hydro-Carbon Energy Minerals) Concession Rules, 2016 and any other laws including Forest (Conservation) Act, 1980, Environment (Protection) Act,1986 or the rules made there under Mines Act, 1952 and Rules & Regulations made there under.



4. Indian Bureau of Mines has not undertaken verification of the mining lease boundary on the ground and does not undertake any responsibility regarding correctness of the boundaries of the leasehold shown on the ground with reference to lease map & other plans furnished by the applicant/ lessee.
5. At any stage, if it is observed that the information furnished, data incorporated in the document are incorrect or misrepresent facts, the approval of the document shall be revoked with immediate effect.
6. Next Financial Assurance shall be due for submission on 01/04/2025
7. The execution of Review and Updation of Mining Plan along with Progressive Mine Closure Plan shall be subjected to vacation of prohibitory orders / notices, if any.
8. The Approval of Review and Updation of Mining Plan along with Progressive Mine Closure Plan is strictly confined to the proposals contained within the mining leasehold demarcated as per lease sketch given by the joint survey team constituted by the CEC and duly authenticated by the State DMG. It does not convey approval to the proposals falling outside the Mining Lease boundary.
9. The Approval of Review and Updation of Mining Plan along with Progressive Mine Closure Plan is without prejudice to the final order of the Hon'ble Supreme Court order dtd.18/04/2013 in W.P. No. 562/2009 and interim orders passed by the Hon'ble Supreme Court from time to time in the said W.P. Nos. 25910/2009 and 26083/2009.
10. A copy of Environment Impact Assessment and Environment Management Plan as approved by the MOEF, New Delhi shall be submitted to this office along with a copy of their approval letter, within one month of the date of such approval.
11. The Environmental Monitoring Cell of the company shall continue monitoring ambient air quality, dust fall rate, water quality, soil sample analysis and noise level measurements on various stations established for the purpose both in the core zone and buffer zone as per MOEF guidelines and keeping in view IBM's circular No.3/92, season wise every year or by engaging the services of an Environment Laboratory approved by MOEF/CPCB. The data so generated shall be maintained in a bound paged register kept for the purpose and the same shall be made available to the inspecting officer on demand.
12. In case the mining lease falls within a radius of 10 kms of National Park/ sanctuary, recommendations of NBWL have to be obtained as per the Order of Hon'ble Supreme Court in I A No. 460/2004.
13. A yearly report shall be submitted to this office before 1<sup>st</sup> July of every year setting forth the extent of protective and rehabilitative works carried out as envisaged in the approved mine closure plan.
14. The Review and Updation of Mining Plan along with Progressive Mine Closure Plan is approved for proposals contained therein and as applicable from the date of approval of the document for the mining activities to be carried out within the mining lease hold. The earlier instances of irregular mining/illegal mining, if any, shall not be regularized with this approval.
15. If anything is found to be concealed as required by the Mines Act in the contents of this document and the proposal for rectification has not been made, the approval shall be deemed to have been withdrawn with immediate effect.
16. You shall maintain the boundary pillars as required under Rule 12 of Minerals (Other than Atomic & Hydro Carbons Energy Minerals) Concession Rules, 2016.



सं/No.: 279/375/93/BNG

17. As per the Hon'ble Supreme Court of India in Writ Petition No.114/2014 dated 08.01.2020, the mining Lease holders shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.
18. The Review and Updation of Mining Plan along with Progressive Mine Closure Plan is approved for the period from **2022-2023 to 2024-2025** for total Mineral Reserves of **3.522** Million Tonnes of **Manganese Ore** (as on 01/04/2022) with Annual Production Capacity proposals valid for the following period with respective production capacity.

Year	Production Capacity in Tonnes (Manganese Ore) #
2022-2023	268800
2023-2024	268800
2024-2025	268800

# above approved production capacity is subject to periodical changes in permissible annual production capping by DMG, Karnataka.

19. The Approval of proposals contained in Review and Updation of Mining Plan along with Progressive Mine Closure Plan is subject to execution of the supplementary Mining Lease Deed for extension of mining lease period up to 05/07/2030 under Section 8A (3) of MMDR Act, 1957 from the State Government of Karnataka, Environmental Clearances from MOEF and all the regulatory Authorities. A copy of the lease deed shall be submitted to this office within one month of the date of execution of the supplementary Mining Lease deed.

भवदीय/Yours faithfully,

संलग्नक : अनुलग्नक/ One copy of the Approved Review and Updation of Mining plan along with Progressive Mine Closure Plan.

(सुरेश प्रसाद /Suresh Prasad)

क्षेत्रीय खान नियंत्रक/Regional Controller of Mines  
भारतीय खान ब्यूरो/Indian Bureau of Mines

प्रतिलिपि सूचनार्थ/Copy for kind information to:

- 6
1. The Director of Mines & Geology, Govt. of Karnataka, Bangalore, along with a copy of the Approved Review and Updation of Mining Plan along with Progressive Mine Closure Plan.
  2. The Director of Mines Safety, Directorate General of Mines Safety, Bellary Sub- Region, 31, Infantry Road, Cantonment, Bellary – 584104.
  3. The Controller of Mines (SZ), Indian Bureau of Mines, Bangalore along with soft copy of the Approved Review and Updation of Mining Plan along with Progressive Mine Closure Plan in CD form.
  4. Sri. Sitaram Kemmannu, QP H.No.1054, 35<sup>th</sup> Ward, Eshwar Nagar, Near AIR Station, Hosapete-583 203.
  5. Mine file / Guard file

Encl: As above.

(सुरेश प्रसाद /Suresh Prasad)

क्षेत्रीय खान नियंत्रक/Regional Controller of Mines  
भारतीय खान ब्यूरो/Indian Bureau of Mines

**REVIEW AND UPDATION  
OF MINING PLAN  
INCLUDING PROGRESSIVE MINE CLOSURE PLAN**  
(Under Rule – 17(1) of MCR – 2016) and (Under Rule – 23 of MCDR – 2017)

**FOR  
JIGINAHALLI MANGANESE MINE  
(ML NO – 2482)  
in  
JIGINAHALLI VILLAGE  
SANDUR TALUK  
BALLARI DISTRICT**

**EXTENT – 22.45 Ha (As per ML Deed) /24.82 Ha. (As per CEC)**

**IBM Registration No. IBM/6513/2011  
Mine Code: 40KAR03015**

**MINERAL –MANGANESE ORE**

<b>Type of Land:</b>	<b>Sandur Range Forest, Jiginahalli Village</b>
<b>Category of Mine:</b>	<b>Category “A”- Mechanized/Opencast/ Non-captive Mine</b>
<b>RUMP Period :</b>	<b>2020-21 to 2024-25</b>
<b>Proposal Period</b>	<b>2022-23 to 2024-25</b>
<b>M.L Valid upto:</b>	<b>05.07.2030(As per MM (DR)Amendment Act – 2015)</b>

**LESSEE  
M/S Marwa Mining Company**

**Prepared by  
Sitaram Kemmannu M.Sc. (Applied Geology), FCC, MBA  
Qualified Person**



**PART : A**

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**APPROVED**



## Chapter 1: GENERAL INFORMATION

### 1.1 : Lease Details

IBM Registration Number:	IBM/6513/2011		
Lease Code:	2482		
Mine Code:	40KAR03015		
Name of Lessee:	M/s. MARWA MINING COMPANY		
Address of Lessee:	Door No.687, 13 <sup>th</sup> Ward, "UMER MANZIL", KUDLIGI-583 135, Dist.: Ballari, Karnataka State.		
Type of Lessee :	Partnership Firm (Partnership deed enclosed as <u>Annexure-5</u> ).		
Name of Mining Lease:	Jiginahalli Manganese Mine		
State:	Karnataka		
District:	Ballari		
Tehsil/ Taluk/ Mandal:	Sandur		
Village:	Jiginahalli		
Lease Area (Ha):	22.45 as per lease deed and 24.82 as per CEC		
Forest Area (Ha):	22.45		
Name of Minerals:	Manganese Ore		
Name of associated minerals:	NIL		
Type :	Existing Lease		
Five Year Block (Financial Year)	2020-21	TO	2024-25
Type of working:	Opencast		
Nature of Use:	Non-Captive		
Category of Mine:	A-Mechanized		

#### 1.1.1: Initial/subsequent Lease grant details

Grant	From	To	Lease deed execution date	Lease registration date
25.04.1980 (Annexure-1A)	05.07.1980	04.07.2000	05.07.1980	09.07.1980
27.09.2004 (Annexure-1B)	06.07.2000	05.07.2020	21.03.2005	29.03.2005
25.04.2015* (Annexure-1C)	06.07.2020	05.07.2020	----	NA
10.12.2021 (Annexure-1D)	06.07.2021	05.07.2030	To be executed	NA

\* Note : In this order lease validity extended upto renewal (05.07.2020) by mistake instead of 50 years from original grant which is being higher as per Section 8-A (6) of Mines Minerals (Development & Regulation) Amendment Act 2015 (MMDRAA-2015). Hence corrigendum has been issued on 10.12.2021 with respect to correction of extended period. Executed lease deeds as per initial grant and renewal are enclosed as Annexure-2A & 2B.

This Mining Plan is approved subject  
to the conditions / stipulations  
Indicated in the Mining Plan approval  
letter No. 279/375/93/BNG  
Date 12/4/2022

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### 1.1.2: Mining Plan Submission Criteria Details

Type of document	Review & Updation of Mining Plan (RUMP) with Progressive mine Closure Plan (PMCR)
Reason/s for modification	Not applicable
Period for which modification is proposed	Not applicable
LOI Number:	Not Applicable
Date:	Not applicable

### 1.2: LAND OWNERSHIP DETAILS -

S. No.	Village	Taluka	Area (Ha)	Khasra No/ Compartment No.	Type of Land
1	Jiginahalli	Sandur	22.45	Paymasi	State Forest

### 1.3: EXISTING LEASE -

Date of Execution -	To be executed*
---------------------	-----------------

\* Lease has been extended as per MMDR Amendment Act-2015 & Director -Government of Karnataka, Department of Mines & Geology had issued intimation letter to execute supplementary lease deed vide letter No. DMG/ML-2482/2021-22/8799 dated 22.12.2021 after providing all statutory documents like Approved RUMP from IBM, Extended Forest Clearance(FC) validity, Environmental Clearance (EC) & Consent to Operate (CTO) etc.,. The copy of Letter enclosed as **Annexure-1E**. Hence this RUMP is part of this letter for executing supplementary lease & for obtaining other clearances/extensions.

#### 1.3.1: Approval of earlier Mining Plan & Its Subsequent Review in Chronological Order –

Sl. No.	Letter no.	Date	Period		Type Of Approved Document
			From	To	
1	279/375/93/BNG	12.03.1999	1998-99	2004-05	Mining Plan (For the mines under renewal)
2	MS/BLR/Mn/-1065/SZ	02.04.2008	2005-06	2009-10	Scheme of Mining

The approval letters are enclosed as **Annexure-14A** Colly.

**Note: For SoM period 2010-11 to to 2014-15 & 2015-16 to 2019-20:** Scheme of Mining for the period 2010-11 to 2014-15 had been prepared & submitted for the approval on 15.06.2011, however further approval process couldn't have been carried as mine became non-operational due to blanket ban imposed by Hon'ble Supreme Court of India (SCol) during 2010-11 to 2013-14 and further to this 2014-15 to 2021-22 mine was not operational further for R&R plan preparation as per order of Hon'ble SCol with related statutory clearances like- extension of lease, extension of FC, obtaining EC & CTO and Implementation of R&R measures during 2014-15 to 2020-21. **For RUMP 2020-21 to 2024-25:** This document is part of same while two years are lapsed (2020-21 & 2021-22) & proposal were given for 2022-23 to 2024-25.

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### 1.3.2: Partial Surrendered Area during Stages of Operations in Chronological Order -

Sl. No.	Date	Supplementary Surrender order Letter Number	Supplementary Lease Deed Date	Final Retained Area over which current Mining Plan is Prepared (Ha)
1	27.09.2004	Renewal Notification No.CI.21: MMM.2004	Renewal Lease deed dated 23.05.2005	22.45**

Note: \* Lease renewed for the 22.45 Ha area from the original lease area of 33.18 Ha vide notification as mentioned above & copy of same is enclosed as **Annexure-1B**. Renewal lease deed executed for reduced area is enclosed as **Annexure-2B**.

# Central Empowered Committee (CEC) duly appointed by Hon'ble Supreme Court of India (SCol) had conducted Joint Survey as per the direction of Hon'ble SCol in Writ Petition (WP) 562/2009 for the survey of all leases covered under WP by digitalizing the lease sketch with fresh survey to locate lease points on the ground. As per this direction during the survey of the present mine, it is observed that, the digitalized cadastral plan issued for the lease area of 22.45 Ha during the renewal was found to be of 24.82 Ha area. The CEC survey Sketch is provided as **Plate-IC** with Mahazar of Joint survey as per CEC direction by Joint Team showing the GPS co-ordinates of lease boundaries as **Annexure-14B**. The excess area of 2.37 Ha as per digitalized lease sketch by CEC has been relinquished to forest department ( as per the Checklist with the DCF-Ballari letter dated 31.12.2021 -enclosed as **Annexure-14F**) & communication of relinquish/surrender of excess area duly acknowledged by forest department is enclosed as **Annexure-14D** & the sketch showing relinquished excess of lease area duly approved by forest department (Land right holder) is enclosed as **Plate-XIV**.

### 1.3.3: Transfer of Lease Area Subsequent to Grant –

Sl. No.	Transfer of lease deed Number	Date of execution of Transfer lease deed	Name of Transferor	Nature of block transferred	
				Granted through auction	other than through auction for captive use
1	BKI/767/05.06	28.11.2005	Mr. V.N.K.Menon	NO	NO

The Copy of government notification of transfer of mining lease has been enclosed as **Annexure-1F** & execution of lease transfer in FORM -O is enclosed as **Annexure-2C**.

**APPROVED**





### 1.3.4: Statutory Compliances –

#### 1.3.4.1: Environment Clearance -

Applicable	Yes
Letter No	Applied for obtaining EC on 07.10.2008 (Copy enclosed as <u>Annexure-3A</u> ) & all formalities are over for the EC issuance as per communication of State Environment Impact Assessment Authority-Karnataka (SEIAA) dated 31.05.2011 subjected to some additional information. The information had been submitted on 18.07.2011 by the lessee (copy enclosed as <u>Annexure-3B</u> ) . However, our proposal has been delisted by SEIAA based on Office Memorandum (OM) of Ministry of Environment, Forest & Climate change (MoEF&CC) referring to Hon'ble SCol's direction vide its communication dated 03.10.2011 (Copy enclosed as <u>Annexure-3C</u> ). The process of granting of EC had been reinitiated on 08.12.2021 (copy of acknowledgement of application enclosed as <u>Annexure-3D</u> . The copy of communication with respect to acceptance of EC application and issuance of ToR by State Environment Impact Assessment Authority-Karnataka (SEIAA) is enclosed as <u>Annexure-3I</u> .
Date	NA
Validity	NA
ROM Mineral in tonnes	Applied for 268800 tonnes per annum.

#### 1.3.4.2: SPCB Approvals -

Letter No	To be obtained after grant of EC
Approval of	NA
Date	NA
Validity	NA
ROM Mineral in tonnes	NA

#### 1.3.4.3: Forest Clearance –

Applicable	Yes
Letter Nos	No.8-73/2001-FC (MoEF&CC) and FEE 27 FFM 2001 (Government of Karnataka -GoK) copies of letters enclosed as <u>Annexure-3E &amp; Annexure-3F</u> respectively. Subsequently FC had been transferred to Marwa Mining Company from M/s VNK Menon vide letters F.No.15-7/2006-ROHQ 22.06.2006 by MoEF&CC & No. FEE 62 FFM2004 06.07.2006 & copies of same are enclosed as <u>Annexure-3G &amp; Annexure-3H</u> .
Date	25.07.2003 & 06.09.2003
Validity	FC is co-terminus with lease period i.e., 05.07.2030. Issuance of FC Extended validity as per MMDRAA-2015 & MoEFCC's guideline dated 01.04.2015 is under process. Recommended communication from PCCF to GoK is enclosed as <u>Annexure-3J</u> .
Area (Ha)	22.45

#### 1.3.4.4: Land Acquisition Details – No private land involved.

Total Area acquired/purchased so far	Not applicable
Total Amount Paid (INR)	---

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### 1.3.5: Mine Location Details –

Topo sheet Number: D43K9

Note: Key plan is attached as Plate-IB

#### 1.3.5.1: Location of Boundary Pillars –(add additional Row for subsequent pillars)

Pillar No.	Pillar Latitude (dd:mm:ss.ss)	Pillar Longitude (dd:mm:ss.ss)
LBS-1	14° 59' 27.20462" N	76° 33' 37.98116" E
LBS-2	14° 59' 07.86011" N	76° 33' 37.35652" E
LBS-3	14° 59' 02.88648" N	76° 33' 17.35994" E
LBS-4	14° 59' 08.51784" N	76° 33' 15.68626" E
LBS-3A	14° 59' 04.04187" N	76° 33' 22.02309" E
LBS-4A	14° 59' 10.52287" N	76° 33' 18.08069" E

Note: Cadastral Plan of lease as per lease deed is enclosed as Plate-IA. The DGPS Survey plan showing latitudes & longitudes are provided in Geo referenced Cadastral Plan as Plate-X.

### 1.3.6: Owner/Nominated Owner Details -

Name	PAN of Nominated Owner	Address of Nominated Owner	Mobile Number	Email	Please attach Minutes of Board Resolution in case of Nominated Owner
D. Abdulwaris	AGSPA1858J (Copy enclosed as <u>Annexure-6B</u> )	S/o D M Umer Sab, Ward-29, 1 <sup>st</sup> Cross, Rajiv Nagar, Mashallah Enterprises, HOSAPETE -583 201 Vijayanagara District, Karnataka (Copy of address proof enclosed as <u>Annexure-6A</u> )	944813 0396/ 990092 0396	<a href="mailto:marwamincompny@gmail.com">marwamincompny@gmail.com</a>	M/s Marwa Mining Company is partnership firm and partners selected Mr. D Abdulwaris as Managing Partner and copy of same document is enclosed as <u>Annexure-4</u> )

### 1.3.7: Qualified Person Details as per M(OAHCEM)CR, 2016 -

Sr No	Prefix	Name	PAN of QP	Address	Mobile no.	Qualification	Experience in years as prescribed under the rule	Email
1	Mr.	Sitaram Kemmannu	AREPS 6536Q	H.No.1054, Putta Nilaya, 35 <sup>th</sup> Ward, Eshwar Nagar, Near AIR Station, HOSAPETE-583 203	8826 1646 83	M.Sc. (Applied Geology)	+25 years	<a href="mailto:sitaram.kemmannu@gmail.com">sitaram.kemmannu@gmail.com</a>

Master degree Certificate copy, experience certificates copies as collage and pan card of QP enclosed as Annexure-8A, Annexure-8B & Annexure-8C.

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## Chapter 2

### GEOLOGY & EXPLORATION

#### 2.1: GEOLOGY

##### 2.1.1: Topography –

<b>Terrain</b>	The lease hold terrain is flat topped hill mound partially lateritized & elevated by 100-125m from surrounding plain terrain at around 700m RL from MSL & sloping at eastern & south-western part of the lease.
----------------	---

#### **RELIEF**

Highest Level (m) from MSL	Lowest Level (m) from MSL	Average Level (m) from MSL
824	755	790

Drainage Pattern	Order of Stream	Minimum Distance of Stream from Lease Area (m)
Dendritic	2-3 orders	One runoff streamlet passes on north eastern part of within lease & another runoff streamlet pass at southwestern part within lease.

#### 2.1.2: Details of Physiographic features and Infrastructures available in and around the lease/ block area -

Description	Location if existing Within the lease/block area.	Distance from boundary periphery in kms, if existing outside the lease/block area. (within 5.00Kms)	Remark if any
River/Nallah/Reservoir	Two small seasonal runoff courses are in SW & NE corner of lease	Few seasonal runoff course found in buffer zone which are not connected to any perennial /non perennial sources of water except draining runoff water during rains.	--
Public roads (Tar road, cart road)	No	Jiginahalli -Tummaraguddi-Tonasihal village tar road at 3-4kms from lease area. Few mud roads/cart roads connecting to mine and agriculture fields are found in 5km buffer zone.	--
Railway track	No	One railway track connecting Swamihalli & Yashwantnagar railway station passes at 3.2kms from the lease area & within 5kms buffer zone.	--
Human settlements	No	5villages are there in 5kms buffer zone- Subbarayanahalli-2.5kms, Jiginahalli -3.45 kms, Tummaraguddi -4.25kms, Ankamanahal- 4.90 kms & Devaramallapur-5.0Kms	--
Archaeological monuments/ places of worships/public utilities etc.	No	Kumaraswamy temple of archeological importance is at 2.5kms north of lease. Few small temples within villages in 5kms buffer zone.	Lease falls outside the restricted range of 300m of temple.
Wild life sanctuaries/ national parks	No	No	--
Coastal Regulation Zone (CRZ)	No	No	--

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Power transmission lines/telephone lines	No	Few lines of power supply to villages
Firing range	No	No
Ordinance factory	No	No
grazing land/ burial ground or cremation ground	No	All above 5 villages have burial grounds.
Any other specify	No	1. Mining leases within 5km periphery of lease boundary are, <ul style="list-style-type: none"> <li>• ML2489 GMMC -Common boundary(Mn)</li> <li>• ML 1031GMMC– 03 kms. (Mn)</li> <li>• ML 2580 SMIORE -0.5kms. (Fe &amp; Mn )</li> <li>• ML 0005 JSW-2.8kms (Fe)</li> <li>• ML 1111 NMDC-4.5kms (Fe)</li> <li>• ML 2629 KSMCL- -3.6 kms (Fe)</li> </ul>

Refer Plate-IB.

Particulars	Distance from lease boundary in kms
Nearby village	Jiginahalli at 3.45kms on south of lease & Subbarayanahalli at 2.5kms north of the lease.
Nearest Railway station	Swamihalli at 13 kms & Yaswantanagar at almost 14kms
Nearest Port	Vasco-300kms. & Mangalore -450kms.
Distance of SH/NH from lease area	SH-40 at 14kms from lease (connecting at Yashwantnagar)

Refer Plate-IB.

### 2.1.3: Regional Geology –

The geological formations of the Ballari, Hospet & Sandur region are known by the name Sandur Schist Belt, belongs to Dharwar Super Group. The generalized succession of these formations in the order of superposition was first suggested by Foote (1895) is as follows,

Dharwar Group Intrusive rocks  
 -----Un-conformity-----  
 Sedimentaries  
 -----Un-conformity-----  
 Basic igneous rocks  
 -----Un-conformity-----  
 Older gneisses granites

**Older gneisses and granites:** These are the oldest rocks of the area and occur mainly along the Western and South western boundaries of the schist belt.

**Basic igneous rocks:** This group comprises mainly of meta basalt and epidiorites and overlies the gneisses and granites with an unconformity.

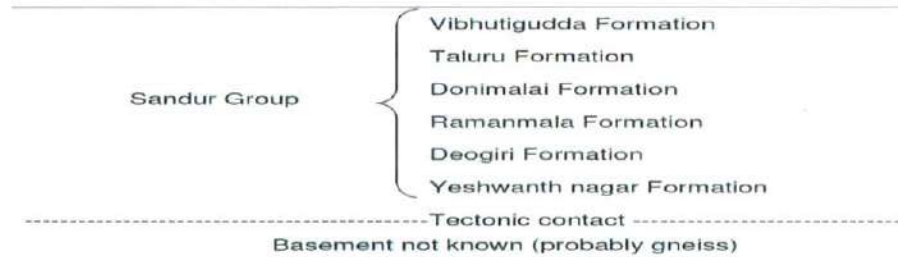
**Sedimentaries:** The sedimentary formations consist largely arenaceous sediment (sandstones and quartzites) successively followed by argillaceous (shales, phyllites and slates) and ferruginous sediments (ferruginous shales, quartzites, manganese and iron ores).

**Intrusive rocks:** These include both acid and basic intrusives. The acid intrusives are in the form of granites while the basic ones are in the form of dioritic or doleritic sills.

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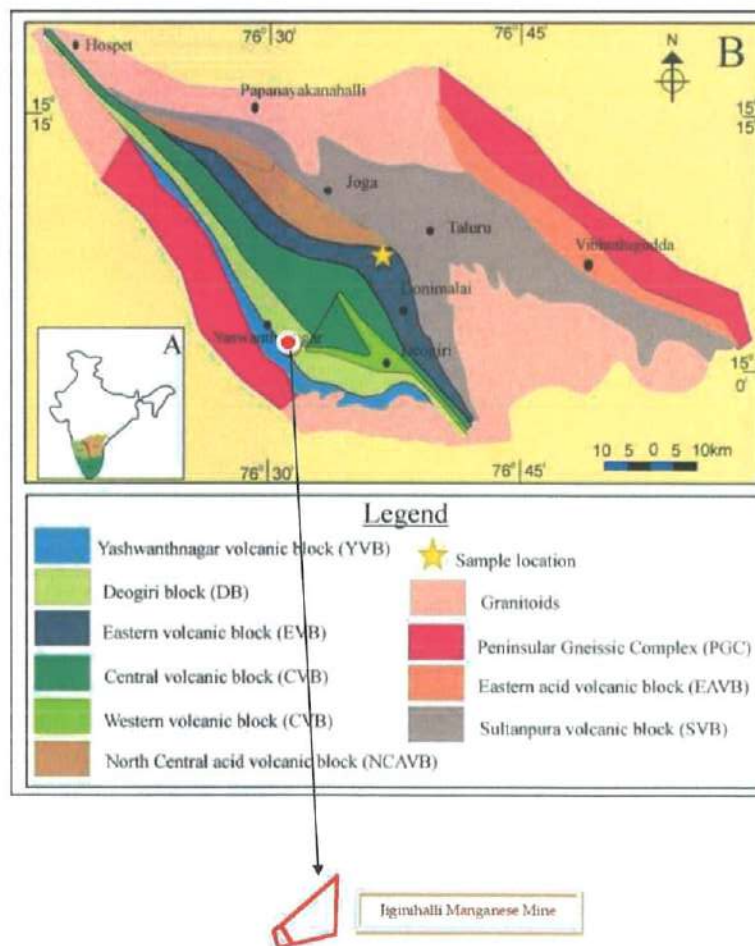


The two most significant economic mineral deposits of the area are manganese and iron ores. The manganese ore is confined mainly to the southern portion of Kumaraswamy range and the western flanks of the Ramgad range. Iron ore occurrences are spread over almost all the major hill ranges viz. Ramgan, Kumaraswamy, Donimalai, Devadarigudda, Thimmappanagudi, NEB range and Copper Mountain (Belagall) range. The litho- stratigraphy of volcanic & sedimentary rocks under the new term "Sandur Group" given below,



The formations which are source for manganese ore in lease area are part of Deogiri Formation.

**Deogiri Formations:** The sedimentary sequence overlies the amphibolite of the Yeshwanthnagar formation. The lowest part of the formation is mostly greywacke and the top most part are manganiferous greywackes which immediately underlie the lowest banded chert of Ramanmala Formation. The greywackes are commonly calcareous. Much of the manganiferous greywackes occurs as secondary concentrations of oxides or hydroxides in the form of nodules or encrustations on fractures.





#### **2.1.4: Local Geology & Structure –**

The lease area is part of highly altered & weathered amphibolite/granitic gneiss/Clay mounds of Yeshwanthnagar formations on which Manganese Float Ore (MFO) deposits are formed due to weathering, transportation & deposition of manganiferous rocks of Deogiri formations.

The lease area is fully comprised of Manganese Float Ore for the established varying depths from 5-23m thickness as evidenced by pit/ Trial pits and DTH boreholes. Out crops of pegmatites were seen outside the lease along foot hill slopes of the hill mounds. However, lease area is comprises of manganese float ore & Clay/Wad as established by trial pits/DTH exploratory Holes.

MANGANESE FLOAT ORE /LATERITISED MANGANESE FLOAT ORE

CLAY/WAD/SHALE PHYLLITE

#### **2.1.4.2: Structure –**

The Manganese Float Ore in the lease area had covered entire extent as flat topped upto established varying depth of 23m-5m with topmost 1-2m thickness is being partially lateritized. The thickness of MFO is reducing over the slopes of hill mounds on southwest. Botryoidal, reinform and vesicular structures are seen in precipitated secondary manganese ore in cavities.

#### **2.1.4.3: Lithology, Petrographic & Mineralogical Description for Major Associated & Indicator**

##### **Minerals –**

Manganese Float Ore (MFO) with transported soil is main lithology in the lease area with partial lateralization upto 1m from surface. Iron oxides, silica and alumina are associated gangue minerals within ore while ore is associated with transported soil & some time BHQ/iron ore pebbles around 2-3%. The MFO deposits are formed over shale, phyllite & Wad.

#### **2.1.4.4: Mode of Occurrence & Controls of Mineralization -**

Manganese ore is occurring as float ore transported from top of the adjacent hillocks and deposited as thick layer over the lower lying mounds with transported clayey soil. The float manganese ore was locally lateritized upto 1m deep. Controls of mineralization is weathering, transportation and deposition over low lying mounds after choking of flow. It appears there was two stages of float ore formation in lease area which was marked by lateritized zone in between the float deposit indicating discontinuous deposition initiating the lateritization while again redeposition was started.

#### **2.1.4.5: Extent of Weathering/ Alteration –**

Lease area forms manganese float ore deposit which is product of weathering of formations, their transportation and redeposition. The float manganese ore undergone lateritization locally on top levels & during in between deposition stage to some extent. It is also observed that, during lateritization aluminous clay acted as binding material of transported pebbles with soil & in few instances binding is also took place by re-precipitation of manganese ore. Reprecipitation of dissolved manganese oxide is also observed in cavities as fillings. Occasionally few iron ore pebbles seen in float ore which shows alteration to limonite and goethite and martitization.

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#### **2.1.4.6: Nature/Form of Mineral –**

Manganese float ore occur as +10mm lumpy ore upto 300mm size range. -10mm size material is mainly clayey soil in float ore zone having Mn value below the threshold limits and same is discarded as waste. From 22 numbers of face samples in all existing 3 pits and the earlier 6 trial pits on virgin manganese float ore zone the average recovery of +10mm size manganese ore is around 72% & -10mm as waste is around 28%. The related calculation sheet is enclosed as **Annexure-11A**. However, for reserve/resource calculation of manganese float ore (lumpy of +10mm) is considered as 70% of float ore zone & remaining 30% of float ore zone which is -10mm is considered as waste. During crushing of lumpy ore for desired size range there is further generation of fines which is considered as finer generated manganese ore.

#### **2.1.4.7: Extent of Mineralization –**

Entire lease area is covered by manganese float ore (MFO) on surface geological studies of out crop. The extent of mineralized surface area is around 22.45 Ha. & width of float ore is evidenced maximum upto 23m by earlier DTH exploratory drilling, earlier mining activities and by outcrops in the mine working benches. It is also evidenced that the manganese float ore is still existing further depth as evidenced by DTH drilling & as underlying formations are not exposed anywhere by historic mining pits. The small slope portion of lease area at NE is having 3-6m depth persistency of float ore which was covered by historic dumps of waste after recovering ore from MFO zone mined out. On SW part of the lease small valley portion shows less depth of manganese float ore upto 3-6m. The flat-topped mound has manganese float ore depth persistency as established by earlier DTH exploratory drillings & old working benches are 8-15m & ore existing still below and needs to be established for exact depth of manganese float ore deposit by further exploration.

#### **2.1.4.8: Deposit Type (as per MEMC Rule) -**

**Strike / Trend of the Ore Body:** Flat spreading manganese float ore deposit trending on entire lease surface area except small valley/slopes on NW & SE.

**Amount of dip of Ore body:** Not applicable as deposit is manganese float ore deposit.

**Dip Direction of the Ore Body:** Not applicable as deposit is manganese float ore deposit.

**Plunge of Mineral Body (degree) (if any):** Not applicable as deposit is manganese float ore deposit.

**Direction of plunge:** Not applicable as deposit is manganese float ore deposit.

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## 2.2: Exploration -

### 2.2.1: Summary of The Previous Exploration (for fresh grant) / During Last Plan Period (For existing leases) –

The details of exploratory 22 numbers of face sampling from earlier worked out 3 numbers of mining pits are detailed here.

#### Name of the Agency –

Face sampling has been carried out by engaging the NABL Accredited laboratory- SGS India Private Limited. SGS House, Plot No.R-12 & L-16, Industrial Estate, Dam Road, HOSAPETE -583 203 of entirely opened deposit on mine worked out faces for grade, size and recovery studies.

#### 2.2.1.1: Geological Mapping –

Sl. No.	Year	Scale	Area Covered (ha)
1	2021-22	1 : 2000	22.45

Note: Refer Plate-III.

#### 2.2.1.2: Airborne Geophysical Survey –

Not conducted as no proposal.

Sl. No.	Type of Survey	Spacing (m)	Total line (km)	Area Covered (Ha/km <sup>2</sup> )	Latitude		Longitude	
					To	From	To	From
--	--	--	--	--	--	--	--	--

#### 2.2.1.3: Ground Geophysical Survey-

Not conducted as no proposal.

Sl. No.	Type of Survey	Spacing (m)	Total line (km)	Area Covered (ha)	Latitude	Longitude
--	--	--	--	--	--	--

#### 2.2.1.4: Geochemical Survey –

Not conducted as no proposal.

Sl. No.	Type of Sample	No of Samples
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#### 2.2.1.5: Pitting –

No. of pits: No pitting during period

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Sl. No.	Year	Pit ID	Length of Pit (m)	Width of Pit (m)	Depth of Pit (m)	Depth (from)	Depth (to)	Running meters	Litho units exposed	Name of the radical	Av. Grade (in %)	Latitude	Longitude
--	--	--	--	--	--	--	--	--	--	--	--	--	--

#### 2.2.1.6: TRENCHING –

No. of trenches: No proposals & no pits were dug.

##### 2.2.1.6.1: SPACING

Min (m)	Max (m)	Avg (m)
--	--	--

Sl. No.	Year	Trench ID	Length of Trench (m)	Width of Trench (m)	Depth of Trench (m)	Depth (from)	Depth (to)	Running meters	Litho units exposed	Name of the radical	Av. grade	Latitude (from)	Longitude (from)	Latitude (to)	Longitude (to)
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

#### 2.2.1.7 Exploratory Drilling (Core/non-Core) – No proposals & not carried.

Sl. No	Year	Exploration agency	Core holes		Non-core (RC/DTH)		Grand total		Attach log sheet of each borehole in csv/excel format.
			Number of boreholes drilled	Total meter	Number of boreholes drilled	Total meters	Total boreholes	Total meters	
--	--	--	--	--	--	--	--	--	--

#### 2.2.1.8: Exploratory Mining –

No proposal and not carried.

Sl. No.	Pit/Audit ID	Length in Mtr	Width in Mtr	Depth in mtrs	Volume (m <sup>3</sup> )
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### 2.2.1.9: SAMPLING –

22 numbers of Face samplings have been drawn in December-2021.

Sl. No	Type of sample	No of samples collected	Number of samples analyzed	Location		Remark if any
				Latitude	Longitude	
1	Face samples by chipping on channels	22	22	667700-667550	1667850-1657500	Sample locations are shown in Plate-III & Plate-IV. Details are tabled in <u>Annexure-11A</u> .
2	vertical channel on opened trial pits at all the sides of pit & Sample Marks: TP-01 to TP-06	06	24 (each sample four size fractions)	1657262 1657315 1657355 1657346 1657398 1657561	667400 667505 667602 667670 667731 667474	Reports are enclosed as <u>Annexure-9C (Colly)</u> & <u>Annexure-12A (Colly)</u>
3	Earlier DTH Borehole samples by coning and quartering from cuttings	213 Samples of Borehole cuttings	213	Refer log <u>Annexure-11B</u>	Refer log <u>Annexure-11B</u>	Refer log <u>Annexure-11B</u> & Analysis reports as <u>Annexure-12B</u> .

Note: The mine was not operational from 2011 onwards for the reasons of imposition of blanket ban on mining in Ballari district during 2011 to 2013 & subsequently for R&R plan /statutory clearances. On 22<sup>nd</sup> December 2021 Department of Mines & Geology had issued letter to execute supplementary lease deed after getting all statutory clearances including mining plan in line with corrigendum issued by Government of Karnataka on 10.12.2021 with respect to extending our lease validity as 05.07.2030 which was earlier wrongly mentioned as 05.07.2020. The exploration data was insufficient to prepare mining plan in line with UNFC/MEMC Rule. Hence face samples are drawn for chemical and physical(Recovery) analysis with resampling and analysis of old pits. The borehole samples were also reanalyzed. The details of Face samples provided here (2.2.1) while borehole details/trial pit details are provided in para 2.2.2.

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### 2.2.1.10: Chemical Analysis –

S. No.	Sample ID	Minerals	Radical with grade in %	Name of Agency	Type of agency	Attachment
1	FF01 to FF-22	Psilomelane & Pyrolusite	Mn varies from 3.29 to 31.42	SGS India Private Limited. SGS House, Plot No.R-12 & L-16, Industrial Estate, Dam Road, HOSAPETE -583 203	NABL Accredited Laboratory for Testing ores/ minerals	Reports are enclosed as <u>Annexure-9A (Colly)</u> & <u>Annexure-12C (Colly)</u> . The same are tabled in <u>Annexure-11A</u> .
2	TP-1 to TP-6	Psilomelane & Pyrolusite	Mn varies from 13.48 to 16.76	As above	As above	Reports are enclosed as <u>Annexure-9A (Colly)</u> & <u>Annexure-12A(Colly)</u> . The same are tabled in <u>Annexure-11A</u> .
3	Borehole samples	213	Mn varies from 1.66 to 16.41	As above	As above	Borehole samples re-analysis reports are provided in <u>Annexure-12B</u> & logs compiled in compiled in <u>Annexure-11B</u> .

### 2.2.1.11: Petrology & Mineralogical Studies –

No proposals & no pits were dug.

Sl. No.	Type of Sample	Number of Sample Drawn	Number of Sample Analyzed	Petrographic Study Report
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### 2.2.1.12: Beneficiation Studies –

No proposals & no pits were dug.

Sl. No.	Type of Beneficiation	Number of Samples	Attach
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### 2.2.1.13: Bulk Density Study as per M (EMC) Rules, 2016 and SOP of CGPB –

Method adopted for calculating bulk density of manganese float ore is explained in test certificate as in Annexure-9B.

Sl. No.	Nature of Ore/OB	Mineral	Number of samples	Bulk Density Established (t/m <sup>3</sup> )
1	In-situ float	Manganese ore	01	3.01*
2	Associated clay	clay	NIL	2.0 <sup>#</sup>

\* Bulk density of float manganese ore study conducted and details enclosed in **Annexure-9B**.

<sup>#</sup> Waste rock bulk density considered as directed by the Hon'ble SCoI direction in WP562/2009 for Karnataka mines in Ballari, Tukur & Chitradurg districts.

### 2.2.1.14: Area Covered under Exploration –

Level of exploration	Area in Ha		Total area in Ha.
	Forest	Non-forest	
G-1	14.23	NIL	14.23
G-2	3.27	NIL	3.27
G-3	4.95	NIL	4.95
G-4	0	NIL	0
Area proved as Non-mineralized	0	NIL	0
Area to be explored	0	NIL	0
<b>Total</b>	<b>22.45</b>	<b>NIL</b>	<b>22.45</b>

Note: Above is as per reassessment of old data retrieved, samples reanalyzed & re-interpreted in line with UNFC guidelines & MEMC Rule during Jan to Feb-2022.

### 2.2.2: Summary of the Previous Exploration (Before Last Plan Period) –

**Name of Agency:** In house exploration.

#### 2.2.2.1: Geological Mapping -

Sl. No.	Year	Scale	Area Covered (Hect/km <sup>2</sup> )
1	2006-07	1 : 2000	22.45 Ha

#### 2.2.2.2: Airborne Geophysical Survey - No proposal & not carried.

Sl. No.	Type of Survey	Spacing (m)	Total line (km)	Area Covered (Ha/km <sup>2</sup> )	Latitude		Longitude	
					To	From	To	From
--	--	--	--	--	--	--	--	--

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### 2.2.2.3: Ground Geophysical Survey – No proposal & not carried.

Sl. No.	Type of Survey	Spacing (m)	Total line (km)	Area Covered (ha)	Latitude	Longitude
--	--	--	--	--	--	--

### 2.2.2.4: Geochemical Survey – No proposal & not carried.

Sl. No.	Type of Sample	No of Samples	Analysis report	Area Covered (Ha/km <sup>2</sup> )
--	--	--	--	--

### 2.2.2.5: Pitting –

Sl. No.	Pit ID	Length of Pit (m)	Width of Pit (m)	Depth of Pit (m)	Litho Unit Exposed	Litho Unit From (m)	Litho Unit To (m)	Average Grade	Runni ng Meter s (m)	Latitude	Longitu de
1	TP-1	2.8	1.8	3	Float Mn Ore	0	3	15.77% Mn	3	1657262	667400
2	TP-2	4.8	1.8	3.3	Float Mn Ore	0	3.3	13.48% Mn	3.3	1657315	667505
3	TP-3	3.5	1.7	2.6	Float Mn Ore	0	2.6	16.76% Mn	2.6	1657355	667602
4	TP-4	3.2	1.8	2.8	Float Mn Ore	0	2.8	15.36% Mn	2.8	1657346	667670
5	TP-5	3.5	1.7	1.1	Float Mn Ore	0	1.1	13.98% Mn	1.1	1657398	667731
6	TP-6	11.8	1.9	3.7	Float Mn Ore	0	3.7	14.80% Mn	3.7	1657561	667474

Note: These historical pits sampled and analyzed during Jan to Feb-2022 with proper naming, recovery study etc., Analysis reports are enclosed as **Annexure-12A (Colly)**.

### 2.2.2.6: TRENCHING – No trenches were dug.

Number of Trenches	SPACING		
	Min (m)	Max (m)	Avg (m)
--	--	--	--

Area Covered Under Trenching -

Co-ordinates -

Latitude	Longitude
--	--

Sl. No.	Trench ID	Length of Trench (m)	Width of Trench (m)	Depth of Trench (m)	Litho Unit Exposed	Average Grade (%)	Running Meters (m)	From Longitude	From Latitude	To Latitude	To Longitude
-	-	-	-	-	-	-	-	-	-	-	-

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### 2.2.2.7: EXPLORATORY Drilling -

#### 2.2.1.7.1: Core/Non-core Drilling –

Sl. No	Year	Exploration agency	Core holes		Non-core (RC/DTH)		Grand total		Attach log sheet of each borehole in csv/excel format.
			Number of boreholes drilled	Total meter	Number of boreholes drilled	Total meters	Total boreholes	Total meters	
1	During-2011	Marwa Mining Company	NIL	NIL	16	227	26	227	Attached Log Sheet as <b>Annexure-11B</b> (Both in PDF & XLS)

\* Borehole locations in the field and samples from office were retrieved. The samples were retrieved & reanalyzed keeping in view of changed threshold limits and tabulated as per standard log sheet during January-February-2022.

#### 2.2.2.8: Exploratory Mining – No exploratory mining was carried in the lease area

Sl. No.	Pit ID	Volume (m <sup>3</sup> )
--	--	--

#### 2.2.2.9: SAMPLING –

Sl. No	Type of sample	No of samples collected	Number of samples analyzed	Location		Remark if any
				Latitude	Longitude	
--	--	--	--	--	--	--

Note: Earlier Trial pits are resampled and analyzed. Borehole samples were available & same are reanalyzed by NABL accredited laboratory again in Jan-Feb-2022 & same is provided in 2.2.2.9.

#### 2.2.2.10: Chemical Analysis –

S.No.	Sample ID	Minerals	Radical Analysis
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Note: Samples resampled and analyzed from earlier trial pits & their reports detailed in 2.2.1.10

#### 2.2.2.11: Petrology & Mineralogical Studies – No proposal & not carried.

Sl. No.	Type of Sample	Number of Sample Drawn	Number of Sample Analyzed	Petrographic Study Report
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#### 2.2.2.12: Beneficiation Test – Beneficiations tests were not carried.

Sl. No.	Type of Beneficiation	Number of Samples
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#### 2.2.2.13: Bulk Density -

Sl. No.	Rock Types	Number of Samples	Minerals	Bulk Density Established (t/m <sup>3</sup> )
1	Manganese ore	--	Pyrolusite	3.2
2	Waste rock	--	Clayey soil	2.5

Note: Test reports were not provided but considered bulk density for reserve calculations as indicated above in old Scheme of Mining approved in 2008.

#### 2.2.2.14: Area Covered under Exploration -

G1 (Ha)	14.85*
G 2 (Ha)	0
G3 (Ha)	0
G4 (Ha)	7.60
G1+G2+G3+G4 (Ha)	22.45

\* as in Scheme of Mining approved in 2008 and inconsistent with M(EMC) Rule- 2016. Resources are reassessed based on trial pits and boreholes drilled during 2008 onwards upto 2011 in 2022 & details are dealt in 2.2.1.14.

Year	Area converted to G1 from G2, G3 & G4	% increase in G-1 Area	Remaining Area % in G2	Remaining Area % in G3	Remaining Area % in G4	Remaining Area in G2	Remaining Area in G3	Remaining Area in G4
2005-06	0	0	0	0	33.85	00	00	7.60
2006-07	0	0	0	0	33.85	00	00	7.60
2008-09	0	0	0	0	33.85	00	00	7.60
2009-10	0	0	0	0	33.85	00	00	7.60
2021-22*	0*	0*	14.57%	22.05%	0	3.27 <sup>#</sup>	4.95 <sup>#</sup>	0

\* There was reduction in G1 area as per UNFC classification and Guidelines of MEMC Rule.

<sup>#</sup> There is changes in G2 & G3 area by reassessment & face samples

Note: In 2021-22 entire mineralized zone is reassessed to define G-1, G-2, G-3 & G-4 levels as per guidelines of M(EMC) Rule 2016 with fresh face sampling of manganese ore pits & further reassessment of old exploration information in 2021-22. Earlier classification as in approved SoM (2008) was inconsistent with M(EMC) Rule-2016. Mine was not operational since 2011 for SCOl Order of blanket ban in Ballari district/ Statutory clearances. Exploration is planned in 2022-23 once mining is resumed.

Potentially Mineralized area (Ha) – 22.45 (Entire lease area with float ore)

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### 2.2.3: ORE BODY GEOMETRY & GRADE -

Sl. No.	Name of the ore band	General Strike / Trend	Dip Of Mineral Body	Average Strike Length (m)	Average Width (m)	Average Depth (m)	Name of the radical	Chemical parameters		
								Min Grade (%)	Max Grade (%)	Avg. Grade (%)
1	Manganese Float ore.	Surface area	NA	NA	NA	14 ( to )	Mn	10.21	32.25	20.85

Note: Float ore is evidenced in entire surface area of 22.45 Ha of lease area at varying depths from 5m to 23m in fully explored area.

### 2.2.4: Reserve / Resource Estimation Method –

#### 2.2.4.1: Methodology -

Resource / Reserve Estimation Method	Cross Sectional Method with AutoCAD Software use
--------------------------------------	--

#### Methodology -

**Guideline:** The manganese ore deposit in the lease area is float type, hence the guidelines prescribed for Float Ore/Placers as in para IV (type of deposit/nature of mineral-Mn Ore) as per part-III (Norms of exploration for different types of deposits) of Schedule-I of Minerals (Evidence of Contents) Rules-2015 (as amended on 2021) had been used to estimate the reserves/resources in the lease area. For various levels of exploration.

Wherever 50m lateral extent & 100m along trend extent of samples those are evidenced by outcrop of ore & by assay values are considered under measured reserves (111) upto the explored depth by trial pits, open face/bench heights and established by DTH holes, while beyond 100m but upto 200m trend extent had considered under 122 category reserves upto the depth established/influenced as recorded by adjacent boreholes/trial pits. The 5m further depth of established level by nearby faces/boreholes wherever float ore is evidenced to continue further below are considered under 122 category reserves. Remaining all other surface evidence resources are kept in G3 & G4 level to the assumed depth of -5m based on nearby pits/Boreholes/Outcrop evidences.

**Recovery, Threshold Value/Cutoff Grade:** From the physical analysis of all trial pits and face samples revealed that about 30% of -10mm material in the float ore zone is mainly waste and found the Mn content below the threshold limit/cut-off grade considered at 10% of Mn content. The remaining 70% of lumpy ore in +10mm size is found to be Mn ore being above the threshold/cut-off limit of Mn content considered at 10% Mn.

**Estimation:** Surface geological plan is prepared with suitable cross sections at 50m interval based on the information of previous exploration (Trial Pits & DTH boreholes) in integration with their samples physical and chemical analysis. Cross sectional areas of float ore deposit recorded as per AutoCAD software on every cross sections & volumes of each cross sections are measured by multiplying with strike influence.

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The volumes are reduced by 30% for associated clayey minerals as waste in -10mm size as established by assay values and size recoveries of face samples as given in para 2.2.1.9 & 2.2.1.10 along with connected Annexures references.

The 70% of volume of float ore zone is multiplied by bulk density of float manganese ore of +10mm material (Recorded as 3.0) as established by field investigation as detailed in para 2.2.1.13 to estimate ore reserves/resources in tonnes. While remaining 30% volume is multiplied by bulk density of clayey material as -10mm material (Recorded as 2.0) as detailed in para 2.2.1.13 to estimate associated waste in tonnes. The intercalated clayey waste of 30% in -10mm size is separately calculated under waste.

The ore blocking due to ultimate pit limit at the safety zone of lease area had recorded under blocked resources.

**Lump/Fines Ratio:** Entire 100% of float manganese ore recovered is lumpy ore having size above 10mm. The marketable size of manganese ore is upto 100mm. The lumpy ore above 100mm will be crushed and screened to size reduction below 100mm. During this process there will be generation of fines which is dealt in processing chapter 3.0.

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## 2.2.4.2: RESOURCE CALCULATION – Manganese Float Ore

Sl. No.	Cross section/Block	Sectional Area/Block area (sq mtr)	Influence (m)	Depth in mtr	Volume (m³) *	Bulk Density (t/m³)	Resource Quantity (t)	Level of Exploration	Type of Land	Name of the radical	Grade (%)	Method used for resource estimation
1	AA'	401	45	NA	12632	3.01	38021	G-1	Forest	Mn	20.85	Cross Sectional
2	BB'	1013	50	NA	35455	3.01	106720	G-1	Forest	Mn	20.85	Cross Sectional
3	CC'	1913	50	NA	66955	3.01	201535	G-1	Forest	Mn	20.85	Cross Sectional
4	DD'	2763	50	NA	96705	3.01	291082	G-1	Forest	Mn	20.85	Cross Sectional
5	EE'	5736	50	NA	200760	3.01	604288	G-1	Forest	Mn	20.85	Cross Sectional
6	FF'	4894	50	NA	171290	3.01	515583	G-1	Forest	Mn	20.85	Cross Sectional
7	GG'	3071	50	NA	107485	3.01	323530	G-1	Forest	Mn	20.85	Cross Sectional
8	II'	1293	50	NA	45255	3.01	136218	G-1	Forest	Mn	20.85	Cross Sectional
9	JJ'	2494	50	NA	87290	3.01	262743	G-1	Forest	Mn	20.85	Cross Sectional
10	KK'	1448	50	NA	50680	3.01	152547	G-1	Forest	Mn	20.85	Cross Sectional
<b>Total</b>	<b>NA</b>	<b>25026</b>	<b>NA</b>	<b>NA</b>	<b>874507</b>	<b>3.01</b>	<b>2632265</b>	<b>G-1</b>	<b>Forest</b>	<b>Mn</b>	<b>20.85</b>	<b>Cross Sectional</b>
11	GG'	1610	50	NA	56350	3.01	169614	G-2	Forest	Mn	20.85	Cross Sectional
12	HH'	6243	25	NA	109253	3.01	328850	G-2	Forest	Mn	20.85	Cross Sectional
13	II'	1445	50	NA	50575	3.01	152231	G-2	Forest	Mn	20.85	Cross Sectional
14	JJ'	2667	50	NA	93345	3.01	280968	G-2	Forest	Mn	20.85	Cross Sectional
15	KK'	995	50	NA	34825	3.01	104823	G-2	Forest	Mn	20.85	Cross Sectional
<b>Total</b>	<b>NA</b>	<b>13535</b>	<b>NA</b>	<b>NA</b>	<b>344348</b>	<b>3.01</b>	<b>1036486</b>	<b>G-2</b>	<b>Forest</b>	<b>Mn</b>	<b>20.85</b>	<b>Cross Sectional</b>
16	AA'	300	45	NA	9450	3.01	28445	G-3	Forest	Mn	20.85	Cross Sectional
17	BB'	390	50	NA	13650	3.01	41087	G-3	Forest	Mn	20.85	Cross Sectional
18	CC'	330	50	NA	11550	3.01	34766	G-3	Forest	Mn	20.85	Cross Sectional
19	DD'	220	50	NA	7700	3.01	23177	G-3	Forest	Mn	20.85	Cross Sectional
20	EE'	210	50	NA	7350	3.01	22124	G-3	Forest	Mn	20.85	Cross Sectional
21	FF'	320	50	NA	11200	3.01	33712	G-3	Forest	Mn	20.85	Cross Sectional
22	GG'	1580	50	NA	55300	3.01	166453	G-3	Forest	Mn	20.85	Cross Sectional
23	HH'	2790	50	NA	97650	3.01	293927	G-3	Forest	Mn	20.85	Cross Sectional
24	HH'	6243	25	NA	109253	3.01	328850	G-3	Forest	Mn	20.85	Cross Sectional
25	II'	2990	50	NA	104650	3.01	314997	G-3	Forest	Mn	20.85	Cross Sectional
26	JJ'	2458	50	NA	86380	3.01	260004	G-3	Forest	Mn	20.86	Cross Sectional
27	KK'	1900	50	NA	66500	3.01	200165	G-4	Forest	Mn	20.87	Cross Sectional
<b>Total</b>	<b>NA</b>	<b>46236</b>	<b>NA</b>	<b>NA</b>	<b>580633</b>	<b>3.01</b>	<b>1747704</b>	<b>G-3</b>	<b>Forest</b>	<b>Mn</b>	<b>20.85</b>	<b>Cross Sectional</b>
<b>Total G</b>	<b>NA</b>	<b>84797</b>	<b>NA</b>	<b>NA</b>	<b>1799487</b>	<b>3.01</b>	<b>5416455</b>	<b>G1,G2&amp; G3</b>	<b>Forest</b>	<b>Mn</b>	<b>20.85</b>	<b>Cross Sectional</b>

NOTE: Volume is reduced by 30% for association of Waste as -10mm clayey soil with manganese float ore established by recovery and analysis tests of face samples.

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#### 2.2.4.3: Mineral Resource Estimate for Conversion to Mineral Reserve –

The economically extractable mineral resources under G-1 & G-2 categories based on technical and economical parameters are considered for converting to mineral reserves from the estimated resource after reducing the ore restricted by ultimate pit limit being at safety zone/lease boundary which are considered under blocked resources categorized as 221.

**2.2.4.4: Threshold value & Cut off Parameters –** The **threshold limit** for manganese ore as prescribed by Indian Bureau of Mines vide its Gazette Notification No. C-284/3/CMG/2017 dated 25<sup>th</sup> April 2018, is 10% Mn (Min) and same is used for resource estimation.

The **cutoff grade** for marketing is considered around 16% of Mn while the ore between cutoff marketing grade and threshold limit is properly blended with higher grade ore to bring to the 16% Mn for marketing purpose.

#### 2.2.4.5: Mining Factors or Assumptions –

Mechanized opencast mining by engaging excavators for **direct excavation** and transport of ore/waste by dumpers. The few hard patches of MFO with lateritic capping were proposed to be broken by drilling and blasting if not excavated directly.

3m maximum bench height and more than 10m bench widths will be maintained in working benches. In non-working benches when become restricted by UPL will maintained at 6m height & widths being not less than height of the bench for a temporary period in the interest of mineral conservation with proper closure of entry to the area and area will be immediately backfilled to reclaim further. Bench slopes are maintained at 70° and overall pit slope will be around 30°.

Small laterite patches require drilling & blasting for excavation. Drilling parameters are 3.5m spacing x 3m burden with 100mm dia hole to the depth of desired bench height (2-3m) plus 20% subgrade drilling. Blasting will be done by explosives calculated at powder factor 10 as formations are semihard.

Intercalated finer clay soil is separated by screening to obtain Mn ROM. Associated finer clayey waste is temporarily stacked as dump & later backfilled in mined out areas. While Mn ROM is further subjected to crushing and screening to obtain products of Mn Fine ore, Mn Calibrated ore of different sizes like 10mm-20mm, 10-40mm or 20-40mm as per market requirement.

**2.2.4.6: Metallurgical Factors or Assumptions -** Most of the manganese produced is used in the form of ferromanganese and silicomanganese alloys for iron and steel manufacture. Manganese ores containing iron oxides are first reduced in blast furnaces or electric furnaces with carbon to yield ferromanganese, which in turn is used in steelmaking. It is also used in production of aluminum alloys, in battery industry, in chemical industry, in medical industry, in mints and as pigment in ceramic industry. The typical specifications of Mn ore used by the various industries are tabled and provided as **Annexure-14G**.

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#### 2.2.4.7: Cost & Revenue Factors –

**Cost:** Mining is both capital cost & operational cost intensive activity and details for present mines (as per Chapter-3.0 & 4.0 for the production of 2, 68,800 tonnes per annum) are given below,

##### A. Capital Cost (Per Ton of Ore)

Total Capital Cost	INR	19,66,00,000/-
Equated Interest on Capital at 12%	INR	1,41,55,200/-
<b>Capital &amp; Interest Cost per ton of ore</b>	<b>INR</b>	<b>198.94/-</b>

##### B. Operational Cost:

<b>Grand Total</b>	<b>INR</b>	<b>29,12,95,000/-</b>
<b>Operational Cost per ton of ore</b>	<b>INR</b>	<b>1083.68/-</b>

##### C. Statutory Payments per ton of Ore:

Royalty per ton @ 5% of sale value(for ASP in INR 2698)	INR	135/-
DMF & NMET @ (30+2)% of Royalty	INR	43.2/-
SPV as per Supreme Court (10% of sale value)	INR	270/-
Forest permit/Other fees at INR 25.8/ton	INR	25.8/-
<b>Grand Total Statutory payment per ton</b>	<b>INR</b>	<b>474/-</b>

##### D. Summary of Cost per ton:

Capital expenditure & Interest per ton	INR	199.00
Operational Expenditure per ton	INR	1084.00
Statutory Payments	INR	474.00
<b>Total Cost of Production per ton</b>	<b>INR</b>	<b>1757.00</b>

**Revenue:** Revenue of mine is estimated based on the average monthly sale price of past 12 months for the state of Karnataka as published by the Indian Bureau of Mines and the details of same is tabled below,

Average Sale Price as per IBM for Karnataka State in last (figures are in Indian National Rupees).		
Sl.No.	Month	Mn Ore less than 25%
1	Dec-20	Not Available
2	Jan-21	1132
3	Feb-21	1519
4	Mar-21	1369
5	Apr-21	2722
6	May-21	1740
7	Jun-21	4004
8	Jul-21	2427
9	Aug-21	4709
10	Sep-21	2353
11	Oct-21	4192
12	Nov-21	3513
	<b>Avg</b>	<b>2698.18</b>

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Based on above average sale price the expected revenue of the mine for the production level of 2,68,800 is around INR 72,52, 70, 784/- ( 2698.18 x 268800).

From the above cost & revenue calculations the project is economically feasible if the ASP rates will be maintained as per the last one-year average as tabled above. If prices fall below INR 1757/- then project is un viable (as in case of ASP for the months Dec-20 to Feb-20 & May-21 as in above table). The Diesel price is crucial in the cost of production & also inflation escalating salaries/spares.

The detailed cost calculation sheet enclosed as Annexure-14E.

#### 2.2.4.8: Market Assessment –

##### Potential Buyers of Mn ore from the mine Surroundings:

1. Visvesvaraya Iron & Steel Ltd., -Bhadravati
2. KIOCL -Pellet Plant – Mangalore
3. Vishakpattana Steel Plant -Vizag
4. Kirloskar Ferrous Industries Limited -Koppal
5. Lanco Industries -Chittoor
6. JSW Steel Limited -Toranagallu
7. JSW Steel Limited -Salem
8. Vedanta Limited -Goa
9. SLR Mitalicks -Mariyammanahalli
10. BMM Ispat Limited -Mariyammanahalli
11. Indisil -Kerala
12. Golden Ferro alloys -Tamil Nādu
13. Kej Minerals.
14. Natural sugars & Allied industries
15. Concost Ferrous Company
16. Sonsatre Ferrous Industries Limited
17. Nava Bharath Voutures Limited.

#### 2.2.4.9: Other Modifying Factors –

- Change in mining technology will modify cost of production accordingly cutoff grade.
- Change in threshold limits periodically fixed by Government and Cutoff grade adopted on technological factor will modify reserves/resources calculations.

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#### 2.2.4.10: Classification –

UNFC Framework for classification of ore and minerals and for estimation of reserves and resources are being applied. The codes used for estimation of resources/reserves are detailed below.

- A. **Mineral Reserve (111 & 122)** - Economically mineable part of measured and/or indicated mineral resource as established G-1 & G-2 stages as in Para IV of part III of Mineral (Evidence of Mineral Content) Rule 2015 as amended upto 2021 are considered here,
- (i) **Proved Mineral Reserves (111)** - Economically mineable part of Measured Mineral Resource.
  - (ii) **Probable Mineral Reserves (121 & 122)** - Economically mineable part of indicated or in some cases a measured mineral resource.
- B. **Feasibility Mineral Resource (211)** - That part of measured mineral resource, which after feasibility study has been found to be economically not mineable. - Possibly economically viable subject to changes in technological, economic, environmental and/or other relevant condition.
- The ore reserves are estimated at G-1 level exploration as per IV of part III of MEMC Rule 2015, but mining is restricted due to ultimate pit restriction due to safety zone of lease area and lease boundary.
- C. **Indicated Mineral Resource (322 & 332)** - Tonnage, densities, shape, physical characteristic, grade and mineral content can be estimated with reasonable level of confidence based on exploration, sampling and testing information, location of borehole, pits etc. too widely spaced.
- D. **Inferred Mineral Resource (333)** - Tonnage, grade and mineral content can be estimated with low level of confidence. Inferred from geological evidence.

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### 2.2.4.11: Calculation of blocked resources – Manganese Float Ore

Sl. No.	Reserves blocked due to	Cross section/Block	Sectional area/block area (in Sq mrt)	Influence (m)	Depth (m)	Volume* (m <sup>3</sup> )	Bulk Density (t/m <sup>3</sup> )	Resource Quantity in tonnes	UNFC code	Type of Land	Name of the radical	Grade (%)	Method used for resource estimation
1	Ultimate pit limit to safety Zone	AA'	213	45	NA	6710	3.01	20196	221	Forest	Mn	20.85	Cross Sectional Method
2	Ultimate pit limit to safety Zone	BB'	160	50	NA	5600	3.01	16856	221	Forest	Mn	20.85	Cross Sectional Method
3	Ultimate pit limit to safety Zone	CC'	313	50	NA	10955	3.01	32975	221	Forest	Mn	20.85	Cross Sectional Method
4	Ultimate pit limit to safety Zone	DD'	213	50	NA	7455	3.01	22440	221	Forest	Mn	20.85	Cross Sectional Method
5	Ultimate pit limit to safety Zone	EE'	278	50	NA	9730	3.01	29287	221	Forest	Mn	20.85	Cross Sectional Method
6	Ultimate pit limit to safety Zone	FF'	152	50	NA	5320	3.01	16013	221	Forest	Mn	20.85	Cross Sectional Method
7	Ultimate pit limit to safety Zone	JJ'	35	50	NA	1225	3.01	3687	221	Forest	Mn	20.85	Cross Sectional Method
8	Ultimate pit limit to safety Zone	KK'	46	50	NA	1610	3.01	4846	221	Forest	Mn	20.85	Cross Sectional Method
	Total		1410	NA	NA	48604.5	3.01	146300	221	Forest	Mn	20.85	Sectional Method

\* NOTE: Volume is reduced by 30% for association of Waste as -10mm clayey soil with manganese float ore established by recovery and analysis tests of face samples.



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#### 2.2.4.12: Calculation of Reserves – Manganese Float Ore

Sl. No.	Cross Section/ Block	Sectional area/ block area in Sq mtr	Influence (m)	Depth (m)	Volume (m <sup>3</sup> )	Bulk Density (t/m <sup>3</sup> )	Reserves Quantity (t)	UNFC Code	Type of Land	Name of the of radical	Grade (%)	Method used for resource estimation
1	AA'	188	45	NA	5922	3.01	17825	111	Forest	Mn	20.85	Cross Sectional
2	BB'	853	50	NA	29855	3.01	89864	111	Forest	Mn	20.85	Cross Sectional
3	CC'	1600	50	NA	56000	3.01	168560	111	Forest	Mn	20.85	Cross Sectional
4	DD'	2550	50	NA	89250	3.01	268643	111	Forest	Mn	20.85	Cross Sectional
5	EE'	5458	50	NA	191030	3.01	575000	111	Forest	Mn	20.85	Cross Sectional
6	FF'	4742	50	NA	165970	3.01	499570	111	Forest	Mn	20.85	Cross Sectional
7	GG'	3071	50	NA	107485	3.01	323530	111	Forest	Mn	20.85	Cross Sectional
8	II'	1293	50	NA	45255	3.01	136218	111	Forest	Mn	20.85	Cross Sectional
9	JJ'	2459	50	NA	86065	3.01	259056	111	Forest	Mn	20.85	Cross Sectional
10	KK'	1402	50	NA	49070	3.01	147701	111	Forest	Mn	20.85	Cross Sectional
<b>TOTAL</b>	<b>NA</b>	<b>23616</b>	<b>NA</b>	<b>NA</b>	<b>825902</b>	<b>3.01</b>	<b>2485965</b>	<b>111</b>	<b>Forest</b>	<b>Mn</b>	<b>20.85</b>	<b>Cross Sectional</b>
1	GG'	1610	50	NA	56350	3.01	169614	122	Forest	Mn	20.85	Cross Sectional
2	HH'	6243	25	NA	109253	3.01	328850	122	Forest	Mn	20.85	Cross Sectional
3	II'	1445	50	NA	50575	3.01	152231	122	Forest	Mn	20.85	Cross Sectional
4	JJ'	2667	50	NA	93345	3.01	280968	122	Forest	Mn	20.85	Cross Sectional
5	KK'	995	50	NA	34825	3.01	104823	122	Forest	Mn	20.85	Cross Sectional
<b>TOTAL</b>	<b>NA</b>	<b>12960</b>	<b>NA</b>	<b>NA</b>	<b>344348</b>	<b>3.01</b>	<b>1036486</b>	<b>122</b>	<b>Forest</b>	<b>Mn</b>	<b>20.85</b>	<b>Cross Sectional</b>
1	AA'	300	45	NA	9450	3.01	28445	333	Forest	Mn	20.85	Cross Sectional
2	BB'	390	50	NA	13650	3.01	41087	333	Forest	Mn	20.85	Cross Sectional
3	CC'	330	50	NA	11550	3.01	34766	333	Forest	Mn	20.85	Cross Sectional
4	DD'	220	50	NA	7700	3.01	23177	333	Forest	Mn	20.85	Cross Sectional
5	EE'	210	50	NA	7350	3.01	22124	333	Forest	Mn	20.85	Cross Sectional
6	FF'	320	50	NA	11200	3.01	33712	333	Forest	Mn	20.85	Cross Sectional
7	GG'	1580	50	NA	55300	3.01	166453	333	Forest	Mn	20.85	Cross Sectional
8	HH'	2790	50	NA	97650	3.01	293927	333	Forest	Mn	20.85	Cross Sectional
9	HH'	6243	25	NA	109253	3.01	328850	334	Forest	Mn	20.86	Cross Sectional
10	II'	2990	50	NA	104650	3.01	314997	333	Forest	Mn	20.85	Cross Sectional
11	JJ'	2468	50	NA	86380	3.01	260004	333	Forest	Mn	20.85	Cross Sectional
12	KK'	1900	50	NA	66500	3.01	200165	333	Forest	Mn	20.85	Cross Sectional
<b>TOTAL</b>	<b>0</b>	<b>19741</b>	<b>0</b>	<b>NA</b>	<b>580633</b>	<b>3.01</b>	<b>1747704</b>	<b>333</b>	<b>Forest</b>	<b>Mn</b>	<b>20.85</b>	<b>Cross Sectional</b>
<b>Grand Total</b>		<b>56317</b>	<b>NA</b>	<b>NA</b>	<b>1750882</b>	<b>3.01</b>	<b>5270155</b>	<b>all</b>	<b>Forest</b>	<b>Mn</b>	<b>20.85</b>	<b>Cross Sectional</b>

\* NOTE: Volume is reduced by 30% for association of Waste as -10mm clayey soil with manganese float ore established by recovery and analysis tests of face samples.



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#### 2.2.4.13

Mineral	Manganese Float Ore
Reserves/ Resources estimated as on	01.04.2022*
UNIT of estimation	Tonnes

\* Since mine is not going to be operated in remaining months of present financial year 2021-22 due to statutory clearances, the resources estimated as on date (15.01.2022) can be considered as on 01.04.2022 or as on 01.04.2021 as mine is not operational during 2021-22.

Classification	Code	Quantity			Grade	
		Forest	Non-Forest	Total	Forest	Non-Forest
<b>A. Mineral Reserve</b>		<b>3522451</b>	<b>0</b>	<b>3522451</b>	<b>20.85% Mn</b>	<b>NA</b>
1. Proved Mineral Reserve (A)	111	2485965	0	2485965	20.85% Mn	NA
2. Probable Mineral Reserve (A)	121	0	0	0	NA	NA
3. Probable Mineral Reserve (A)	122	1036486	0	1036486	20.85% Mn	NA
<b>B. Remaining Resources</b>		<b>1894004</b>	<b>0</b>	<b>1894004</b>	<b>20.85% Mn</b>	<b>NA</b>
1. Feasibility Mineral Resource (B)	211	0	0	0	NA	NA
2. Prefeasibility Mineral Resource (B)	221	146300	0	146300	20.85% Mn	NA
3. Prefeasibility Mineral Resource (B)	222	0	0	0	NA	NA
4. Measured Mineral Resource (B)	331	0	0	0	NA	NA
5. Indicated Mineral Resource (B)	332	0	0	0	NA	NA
6. Inferred Mineral Resource (B)	333	1747704	0	1747704	20.85% Mn	NA
7. Reconnaissance Mineral Resource (B)	334	0	0	0	NA	NA
<b>Total Mineral Resources (A+B)</b>		<b>5416455</b>	<b>0</b>	<b>5416455</b>	<b>20.85% Mn</b>	<b>NA</b>

\*\* Additional tables may be added for associated minerals.

#### 2.2.5: Future Exploration Proposal -

##### 2.2.5.1: Geological Mapping -

Sl. No.	Year	Scale	Area Covered (ha)
1	2022-23	1 : 2000	22.45
2	2023-24	1 : 2000	22.45
3	2024-25	1 : 2000	22.45

##### 2.2.5.2: Ground Geophysical Survey - No proposal

Sl. No.	Type of Survey	Spacing (m)	Total line (km)	Area Covered (ha)	Latitude	Longitude
--	--	--	--	--	--	--

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### 2.2.5.3: Pitting –

Number of pits
08

Sl. No.	Year	Land type	Pit ID	Length of Pit (m)	Width of Pit (m)	Depth of Pit (m)	Latitude	Longitude
1	2022-23	Forest	PTP-01	1	1	3	667754.6	1657800
2	2022-23	Forest	PTP-02	1	1	3	667769.7	1657700
3	2022-23	Forest	PTP-03	1	1	3	667765.2	1657633
4	2022-23	Forest	PTP-04	1	1	3	667756.7	1657537
5	2022-23	Forest	PTP-05	1	1	3	667752.9	1657450
6	2022-23	Forest	PTP-06	1	1	3	667301.3	1657500
7	2022-23	Forest	PTP-07	1	1	3	667301.3	1657446
8	2022-23	Forest	PTP-08	1	1	3	667237.0	1657400

Note: For location refer Plate-III & IV.

### 2.2.5.3: TRENCHING –

Number of Trenches - No proposals

#### 2.2.5.4.1 - SPACING

SPACING		
Min (m)	Max (m)	Avg (m)
--	--	--

#### 2.2.5.4.2 Area Covered Under Trenching -

Co-ordinates -

Latitude	Longitude
--	--

Sl. No.	Trench ID	Length of Trench (m)	Width of Trench (m)	Depth of Trench (m)	Litho Unit Exposed	Average Grade (%)	Running Meters (m)	From Longitude	To Latitude	To Longitude
--	--	--	--	--	--	--	--	--	--	--

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### 2.2.5.5: EXPLORATORY Drilling -

#### 2.2.6.5.1: Core/Non-core Drilling -

S. No.	Year	In forest area				In Non-forest				Total borehole	Total Mtr	Attachment
		No. of boreholes	Total mtr	Type of bore hole	Grid interval	No. of boreholes	Total mtr	Type of borehole	Grid interval			
1	2022-23	11	280	DTH	100 X 100	NA	NA	NA	NA	11	280	Annexure -11C & Plate-III

Note: For location refer Plate-III & IV.

### 2.2.5.6: Exploratory Mining – No proposal

Sl. No.	year	Pit ID	Length in mtrs	Width in mtrs	Depth in mtrs	Volume (m <sup>3</sup> )
--	--	--	--	---	--	--

### 2.2.5.7: SAMPLING -

Sl. No.	Type of Sample	Number of Samples proposed	Area Covered (ha)	Latitude	Longitude
1	Rock chip	08	6.69	As in TPs	
2	Borehole	280	6.69	As in Annexure-11C	
3	Grab Sample ID-1	10	0.91	ID-1 dump refer Surface map	
4	Grab Sample ID-2	10	1.13	In ID-2 Refer Surface map	

Note: For establishing country rocks beneath the manganese float ore deposit & establishing depth persistency of manganese float ore deposit and plan for concurrent backfilling/backfilling.

### 2.2.6.8: Petrology & Mineralogical Studies – No proposal.

Sl. No.	Type of Sample	Number of Sample proposed
--	--	--

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## Chapter 3: MINERAL BENEFICIATION / PROCESSING



Name of The Ore/Mineral	Manganese Ore
-------------------------	---------------

### 3.1: Mineralogy of the ROM ore/ Mineral:

S. No.	Valuable Mineral Name	Approx. Mineral %	Gangue Mineral/s Name	Approx. Gangue Mineral %
1	Psilomelane & Pyrolusite - Manganese Ore (MnO <sub>2</sub> )	40	Iron Oxide Alumina Silica & others	25 to 40% 10%-15% 5-10%

### 3.2: Complete Chemical Analysis of the ROM Ore/Mineral:

#### a) Manganese Ore

1	Mn	13.43%
2	Fe	27.76%
3	Al <sub>2</sub> O <sub>3</sub>	10.81%
4	SiO <sub>2</sub>	17.59%
5	P	0.044%
6	S	0.0151%
7	LoI	12.55%

Note: Refer Annexure-12D of NABL accredited lab certificate of typical analysis of manganese float ore.

### 3.3: Crushing Section:

#### 3.3.1: Primary Crushing

Sl. No.	Type of Crusher	Make	Capacity of Crusher (tph)	Feed Size (mm)	Product Size (mm)
1	Cone Crusher	Power screen (Mobile unit)	100	600mm	-100mm (in close circuit)

#### 3.3.2: Secondary Crushing:

Sl. No.	Type of Crusher	Make	Capacity of Crusher (tph)	Feed Size (mm)	Product Size (mm)
2	Jaw Crusher	Power screen (Mobile unit)	100	100	-40mm (Close circuit)

#### 3.3.3: Tertiary Crushing: No proposal

Sl. No.	Type of Crusher	Make	Capacity of Crusher (tph)	Feed Size (mm--)	Product Size (mm)
--	--	--	--	--	--

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3.4: Grinding Section: No proposal.

3.4.1: Dry Grinding: No proposal.

S.N	Type of Mill	Stages	Make of the mill	Feed Flow Rate (tph)	Feed Size (mm)	Product Size Mill Discharge (mm)	Type of screen
--	--	--	--	--	--	--	--

S.N	Make	Aperture Size of Screen/Classifier (mm), if applicable	Classifier / Screen undersize (tph)	Classifier / Screen oversize (tph)
--	--	--	--	--

3.4.2: Wet Grinding: No proposal.

S.N	Type of Mill	Stages	Make of the mill	Feed Flow Rate (tph)	Feed Size (mm)	Product Size (mm)	Type of screen / Classifier
--	--	--	--	--	--	--	--

S.N.	Aperture Size of Screen/Classifier (mm), if applicable	Classifier / Screen undersize (tph)	Classifier / Screen oversize (tph)	Water Requirement (l/h)	Fresh Water Requirement (l/h)	Recirculated Water (l/h)
--	--	--	--	--	--	--

3.5: Dry Processing:

3.5.1: Screening and Classification:

S. N.	Type of screen /classifiers	Stages	Make	Capacity (tph)	Aperture Size of Screen/ Classifier	Feed Size (mm)	Product Size (mm)	Product quality (if applicable)
1	Double Deck Screen	For ROM	Power screen (Mobile units)	150	45mm & 5mm	-300mm	-5mm, 5-45mm & +45mm	NA
2	Double deck screen	For crushed products		100	45mm & 5mm	-45mm	-5mm & 10-45mm	NA

3.5.2: Other Operations: No proposal.

S.N	Type of equipment / operation	Stages, if applicable	Make	Capacity (tph)	Feed Size (mm)	Product Size (mm)	Product-Mid (tph), if available	Product-Tail (tph)
--	--	--	--	--	--	--	--	--

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### 3.5.3: Product Quality:

Products	Wt. %	In tonnes	Size (range) mm
Fines	40% (Approx.)	1,07,520 (approx.)/annum	-10mm
Lumps	60%(Approx.)	1,61,280 (approx.)/annum	10-45mm

Note: During first screening ROM is separated from associated clay in -10mm size & after crushing of ore fine ore is generated in secondary screening after crushing. The lump and fines ratio given above for crushed oversize lumps. The average percentage of associated clay as waste with ROM is as given in para 2. 1.4.6.

### 3.6: Wet Processing:

#### 3.6.1: Scrubbing / Washing:

S.N.	Type of Scrubbers / Washers	Stages, if	Make	Capacity (tph)	Feed Size (mm)	Product Size (mm)	Product quality (if applicable)
--	--	--	--	--	--	--	--
No proposal							

S.N.	Water Requirement (l/h)	Fresh Water Requirement (l/h)	Recirculated water (l/h)
--	--	--	--
No wet processing is proposed			

#### 3.6.2: Screening and Classification:

S.N.	Type of screen /classifiers	Stages, if applicable	Make	Capacity (tph)	Aperture Size of Screen/Classifier	Feed Size (mm)	Product Size (mm)
-	--	--	--	--	--	--	--
Not applicable							

S.N.	Product quality (if applicable)	Water Requirement (l/h)	Fresh Water Requirement (l/h)	Recirculated water (l/h)
--	--	--	--	--
Not applicable				

#### 3.6.3: Gravity Separation:

S.N	Type of separators (Jig, table, spiral,)	Stages, if applicable	Make	Capacity (tph)	Feed Size (mm)	Product (Conc) (tph)	Product-Mid (tph), if available
--	--	--	--	--	--	--	--

No proposal.

S.N.	Product-Tail (tph)	Water Requirement(l/h)	Fresh Water Requirement (l/h)	Recirculated water (l/h)
--	--	--	--	--
Not applicable				

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3.6.4: Magnetic Separation: No proposal.

Sl. No.	Type of magnetic separators (Magnetic intensity)	Stages, if applicable	Make	Capacity (tph)	Feed Size (mm)	Product-Mag (tph)	Product-Mid (tph), if available
--	--	--	--	--	--	--	--

Sl. No.	Product non-Mag (tph)	Water Requirement (l/h)	Fresh Water Requirement (l/h)	Recirculated water (l/h)
--	--	--	--	--
Not applicable				

3.6.5: Flotation:

S.N.	Type of flotation equipment (froth/ column)	Stages (rougher/ cleaner, etc.), if applicable	Make	Capacity (tph)	Feed Size (mm)	Product-Float (tph)	Product non-Float (tph)
--	--	--	--	--	--	--	--
Not proposed							

S.N.	Water Requirement (l/h)	Fresh Water Requirement (l/h)	Recirculated water (l/h)
Not applicable			

3.6.6: Other Operations:

S.N.	Type of equipment / Operation	Stages, if applicable	Make	Capacity (tph)	Feed Size (mm)	Product-Conc (tph)	Product-Mid (tph), if available
No proposal							

S.N.	Product-Tail (tph)	Water Requirement (l/h)	Fresh Water Requirement (l/h)	Recirculated water (l/h)
Not applicable				

3.6.7: Product Quality (wet processing):

Products	Wt. %	In tonnes	Size (range) mm	Complete chemical
Concentrate	Not applicable			

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Sub-grade	
Rejects	

### 3.7: Overall Product Quality (Dry cum Wet Processing)

Products	Wt. %	In tonnes	Size (range) mm	Complete chemical analysis
Concentrate	Not applicable			
Sub-grade				
Rejects				

### 3.8: Disposal Method for tailing/ rejects

a) Explain the disposal method for tailing or reject from processing plant with detail chemical / mineral analysis of tailing	NA
b) Size and capacity of tailing pond, toxic effect of such tailings, process adopted to neutralize its effect (if any)	NA
c) Any other data (if available)	NA

### 3.9: Overall water requirement of mining and mineral processing

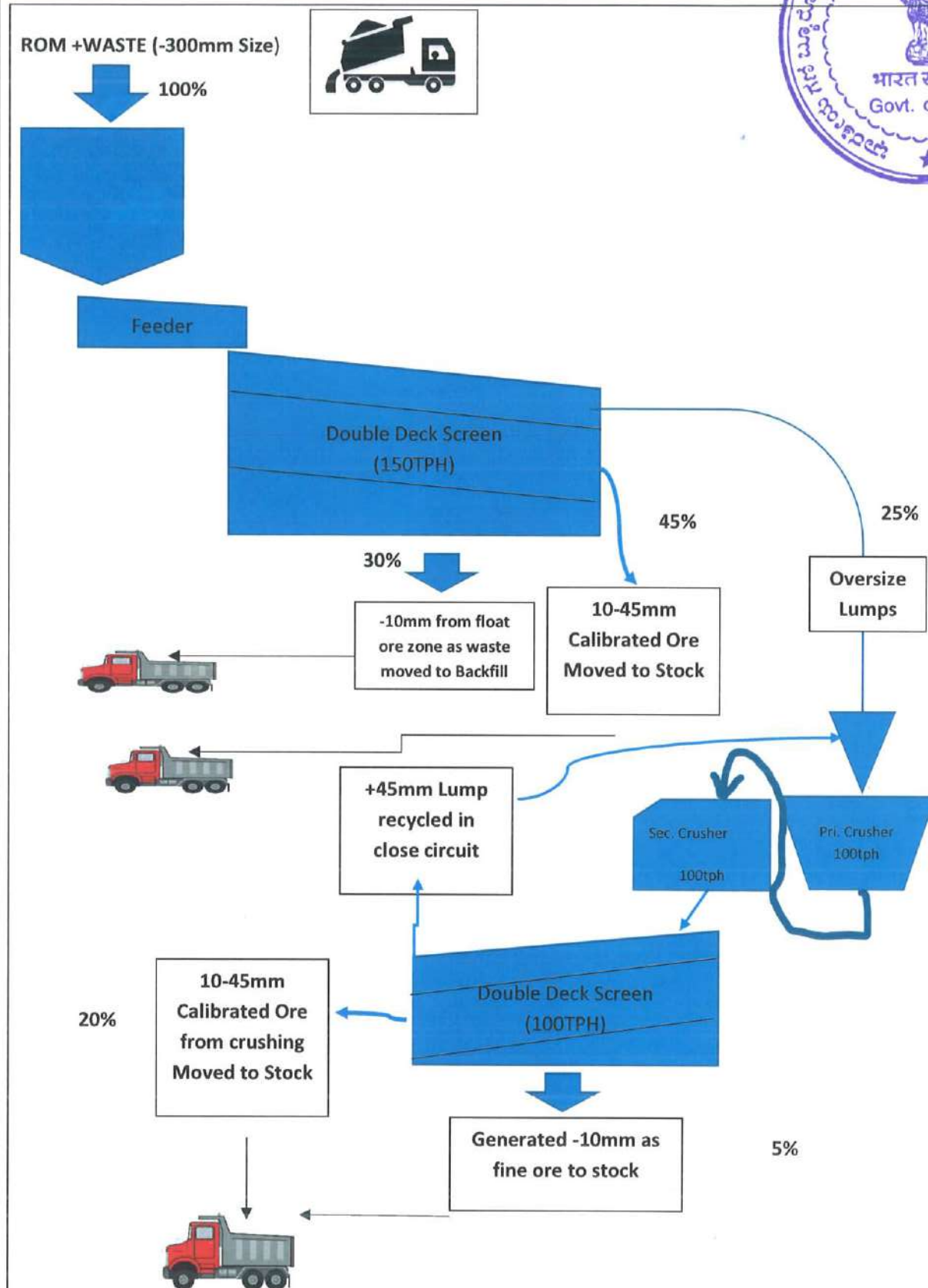
Indicate quantity, source of supply, disposal of water and extent of recycling and chemical analysis of water	No wet processing is proposed. Water required for mining and allied activities is around 8 KL per day & necessary CTO will be obtained under Water Act. The details of water requirement is provided in <u>Annexure-14H</u> .
---	---

### 3.10: Flow sheets and charts

Material balance chart of mineral processing plant(s) (each stage of process)	Not applicable
Attach flow sheet of beneficiation of plant(s)	Not applicable
Any other data (if applicable) Flow chart for crushing & Screening	Given below in next page,

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## Chapter 4: MINING OPERATIONS



### 4.1: MINING METHOD (Opencast)

#### 4.1.1: Existing Method of Mining – Mechanized/Manual

Specify in the space below:

Mechanized	--	--
------------	----	----

#### 4.1.2: Proposed Method of Mining- Mechanized/Manual

Specify in the space below:

Mechanized	--	--
------------	----	----

Reasons for proposed changes – Not applicable

### 4.2: Operational Parameters-

#### 4.2.1: Inventory of Existing Pits & Dumps-

##### 4.2.1.1: PITS

S. No.	Pit ID	Pit Status	Area Covered by Pit (Ha)	Pit Dimension (m x m x m)
1	North Pit	Active	1.49	240 X 70 X 14
2	South Pit	Active	1.46	275 X 75X 11

Note: Refer Plate-II for location.

##### 4.2.1.2: DUMPS & STACK

##### 4.2.1.2.1: DUMP DETAILS

S. No.	Dump ID	Dump Status	Type of Dump	Total Dump Quantity (t)	Area covered by Dump (Ha)	Height (m)	Location
1	ID-1 (ID as in R&R)	Inactive	Waste	101360	0.91	11	1657500-1657820 Northing & 667680-667780 Easting
2	ID-2 (PD as in R&R)	Inactive	Waste	186944	1.13	16	1657500-1657820 Northing & 667680-667780 Easting

Note: Assessed in cubic meters 50680 & 93472 respectively for ID-1 & PD-2 (named as AD -means active dump proposed over old dump for short period in R&R-which is not done hence renamed as ID-2) AD in approved R&R plan and converted to tonnage by considering 2.0 as tonnage factor. Refer Plate-II for location. Heights of inactive dumps are reduced by terracing.

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#### 4.2.1.2.2: STACK DETAILS

S. No.	Stack ID	Type of Stack	Total Stack Quantity (t)	Area covered by Stack (Ha)	Height (m)
1	TS-1	Mn Ore Lumps	816	0.12	0.5
2	TS-2	Mn Ore Lumps	127	0.015	0.7
3	TS-3	Mn Ore Lumps	918	0.09	1.2
4	TS-4	Mn Ore Lumps	286	0.028	1.1
5	TS-5	Mn Ore Lumps	490	0.024	2
6	TS-6	Mn Ore Lumps	122	0.018	0.8
7	TS-7	Mn Ore Lumps	535	0.045	1.3
8	TS-8	Mn Ore Lumps	298	0.025	1.2
9	TS-9	Mn Ore Lumps	187	0.022	0.8

**Note:** The stock details are as per closing stock of annual returns for 2010-11 (last working FY around 3177.200 tons) & these stocks are also recorded in the R&R plan prepared by ICFRE as per the direction Hon'ble SCoI & duly approved by CEC during 2011-12 & 2012-13. The related pages of approved R&R plan enclosed as **Annexure-14C**. These stocks are also shown in the existing land use plan (Fig. 3.5) of R&R plan & same is provided as **Plate XIII**. Tonnage arrived on loose bulk density 1.7 from the volume measured as given in para 4.7.3.

**4.2.1.3: DETAILS OF STABILIZED DUMPS:** There are two inactive dumps in the mine named as ID-1 & ID-2 as detailed in 4.2.1.2.1. which are yet to be stabilized.

Sl. No.	Dump ID	Number of Terraces	Average Height of Terraces (m)	Length of Toe Wall (m)	Length of Garland Drain (m)	Area Stabilized (ha)	Method of Stabilization
--	--	--	--	--	--	--	--

**Note:** The Inactive dumps ID-1 & ID-2 of old workings will be analyzed to explore possibility of recovery of manganese ore as change in threshold limits by systematic pitting and grab sampling as proposed in Sl.Nos.3 & 4 of para 2.2.5.7. Based on studies dump will be rehandled to recover minerals if exists and waste is backfilled in mined out pit in 2025-26 (first year of next plan period) if mineral is not there to recover then also material is rehandled to backfill in mined out area in 2025-26 (first year of next plan period) to recover float ore beneath it & further slope of lease area. Till that temporary stabilization of dump will be made by providing LBCD(loose boulder check dam) and garland drain at the toe of dump and terracing the dump at 10m height. The proposals are given in Environment plan.

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#### 4.2.2: Opencast Mining

##### 4.2.2.1: Bench Parameters

Pit Id	Year	Max Height of the Benches in Over Burden (m)	Min Width of the Benches in Over Burden (m)	Slope of the Bench in Over Burden (degree)	Max Height of the Benches in Mineral (m)	Min Width of the Benches in Mineral (m)	Slope of the Bench in Mineral (degree)	Overall Slope of Pit (degree)	Number of Benches in Top Soil	Number of Benches in Over Burden	Number of Benches in Mineral	Max Depth of Working (m)	Depth of Water Table (m)	Max Slope Angle of Haul Roads (1 in)	Year-Wise Development & Production Plan	Year-Wise Development & Production Section
NA	2020-21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NA	2021-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pit-1 (North-South)	2022-23	0	0	0	3	10	70°	40°	0	0	2	13#	40m from surrounding plain area at 720m from MSL	1 : 16	Plate No. VA	Plate No. VIA
	2023-24	0	0	0	3	10	70°	40°	0	0	2	8#		1 : 16	Plate No. VB	Plate No. VIB
	2024-25	0	0	0	3	10	70°	40°	0	0	4	13#		1 : 16	Plate No. VC	Plate No. VIC

\* Waste is part of ROM in manganese float ore deposit hence no separate benches are formed in overburden.

#Sloping bench along ore to waste contact & bench height will be maximum 3m vertical for working benches excluding non-working benches before backfilling for short duration for at any given point & MFO is removed layer by layer by making single bench of 3m height to entire proposed excavation width.



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#### 4.2.2.2: Year wise Opencast Development

Sr. No	Year	Pit ID	Bench	Direction	Bulk Density of Overburden (BD1) (ton/m <sup>3</sup> )	Bulk Density of Mineral (BD2) (tonn/m <sup>3</sup> )	Top Soil Volume (Length x Width x Height) (m <sup>3</sup> )	Over Burden Volume (Length x Width x Height)	Over Burden Quantity (t)	ROM Volume (Length x Width x Height)	ROM Quantity (t)	Recovery	Mineral Reject (t)	Production Main (t)	Production Associated (t)	Location of Advancement	OB to Ore Ratio (ton/m <sup>3</sup> )
1	2020-21	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
2	2021-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
3	2022-23	South	810-795*	North	2.0	3.01	0	38272	76545	89302	268800	100	0	268800	0	N1657225 to N1657495 & E667269 to E667499	0.28 : 1
4	2023-24	Central to North	812-804*	North	2.0	3.01	0	38272	76545	89302	268800	100	0	268800	0	N1657495 to N165780 & E667402 to E667708	0.28 : 1
5	2024-25	Central to North	812-799*	North	2.0	3.01	0	38272	76545	89302	268800	100	0	268800	0	N1657417 to N165781 & E667402 to E667730	0.28 : 1

**Note :** Manganese float ore is associated with clayey waste of 30% by volume. OB to Ore ratio is calculated on ton to ton'

\* Sloping bench along ore to waste contact & bench height will be maximum 3m vertical for working benches excluding non-working benches restricted by UPL before backfilling for short duration for at any given point & MFO is removed layer by layer by making single bench of 3m height to entire proposed excavation width.

S.No.	Pit ID	Total Topsoil Volume (m <sup>3</sup> )	Total Over Burden Volume (m <sup>3</sup> )	Total Over Burden Quantity (t)	Total ROM Volume (m <sup>3</sup> )	Total ROM Quantity (t)
1	North & South	0	1,14,817	2,29,635	2,68,800	8,06,400



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#### 4.2.2.3: Transportation & Hauling Equipment

S. No.	Type	Make	Capacity (m <sup>3</sup> )	No. of Equipments
1	Dumper	Tata	6.4	

#### 4.3: Material Handling Summary

Slope Stability Study Report	Yes/No	(If yes attach report as annexure)
Recovery Study Report	Yes/No	<b>Annexure-9A &amp; 9C</b>
Hydrological Study Report	Yes/No	(If yes attach report as annexure)
Mineral Beneficiation Study Report	Yes/No	(If yes attach report as annexure)
Underground Rock Displacement Study Report	Yes/No	(If yes attach report as annexure)
Subsidence Study Report	Yes/No	(If yes attach report as annexure)
Geotechnical Study Report	Yes/No	(If yes attach report as annexure)
Any Other Study Report	Yes/No	(If yes attach report as annexure)
Bulk Density Study Report	Yes/No	<b>Annexure-9B</b>

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#### 4.3.2: INSITU MINING

Sl. No.	Year	Total Handling (t)	Waste Quantity (t)	ROM Quantity (t)	ROM Quantity Saleable Mineral (t)	ROM Quantity Mineral Reject (t)	OB to Ore Ratio (Waste Quantity / ROM Quantity)	Grade Range (%)
1	2020-21*	0	0	0	0	0	0	0
2	2021-22*	0	0	0	0	0	0	0
3	2022-23	345345	76545	268800	268800	0	0.285 : 1 <sup>#</sup>	Mn: 32.25-10.21
4	2023-24	345345	76545	268800	268800	0	0.285 : 1	Mn: 32.25-10.21
5	2024-25	345345	76545	368800	368800	0	0.285 : 1	Mn: 32.25-10.21

\* first two years of Plan period are over and mine was not operational during the same.

# OB to Ore ratio calculated on ton to ton

#### 4.3.3: Dump workings- No proposal.

Sl. No.	Year	Dump Id	Location Latitude	Location Longitude	Area (m <sup>2</sup> )	Avg Height of Dump (m)	Volume (m <sup>3</sup> )	Total Dump Quantity (t)	Proposed Dump Handling Quantity (t) (A)	Proposed Recovery of Saleable Mineral (t)(B)	Proposed Waste Quantity (t) (A-B)	Grade Range (%)	Justification
--	--	--	--	--	--	--	--	--	--	--	--	--	--



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#### 4.3.4: Calculation Summary

Year	2020-21*	2021-22*	2022-23	2023-24	2024-25	Total
(A) Total ROM quantity (t)	0	0	2,68,800	2,68,800	2,68,800	8,06,400
(B) Saleable ore from ROM (t)	0	0	2,68,800	2,68,800	2,68,800	8,06,400
(C) Proposed Dump Handling Quantity (t)	0	0	0	0	0	0
(D) Saleable Ore recovered from dump workings (t)	0	0	0	0	0	0
(E) Total Saleable Ore (t) (=B+D)	0	0	2,68,800	2,68,800	2,68,800	8,06,400
(F) Total Quantity Handled (t) (=A+C)	0	0	2,68,800	2,68,800	2,68,800	8,06,400

\* first two years of Plan period are over and mine was not operational during the same.

#### 4.4: Machine Calculation

4.4.1: Machine Requirement Summary	
Number of Average Working Days in One Year (A)	300
Number of Shifts per Day (B)	1
Material Handling Required per Day (t) ((D)=Largest of (Q1,Q5)/(A))	$345345 \div 300 = 1151$
Material to be Handled per Shift (t) ((E)=(D)/(B))	$1151 \div 1 = 1151$
Handling Required per Hour (t) ((F)=(E)/8 hours)	$1151 \div 7 = 164.5 \text{ OR } 165$
Effective Shift Time	7 Hours

#### 4.4.2: Shovel / Excavator Requirement

Effective Shift Time:	7 Hrs	00 min
-----------------------	-------	--------

12/4/2022  
 क्षेत्रीय खान नियंत्रक  
 Regional Controller of Mines  
 भारतीय खान ब्यूरो  
 Indian Bureau of Mines,  
 बेंगलूर / Bangalore - 560 022

This Mining Plan is approved subject  
 to the conditions / stipulations  
 Indicated in the Mining Plan approval  
 letter No. 279/375/93/BNG  
 Date. 12/4/2022

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Sl. No.	Type	Bucket Capacity (m³)(A)	Bucket Fill Factor (B)	Swell Factor (C)	Tonnage Factor (m³/t) (D)	Machine Utilization Factor (%) (U)	Efficiency (%) (E)	Cycle time (sec) (F)	(G) TPH =TPH (G) =((3600 x A x B x C x D x E x U) / F)/1000	Total Hours (H) =Number of working days x Number of shifts/day x Effective shift hours	Yearly handling by one Excavator (t) (I)=(G x H)	Maximum handling of the material by this machine during the block period (t) (J)	Number of excavator machines required (K) = (J / I)	Standby excavator (L)
1	Back Hoe Excavator	1 cum	85%	90%	3.01 for ore 2.0 for waste rock	80%	90%	25	237	2100	4,97,700	744450*	1.5 Say 1	Not required
2	Front End Wheel Loader (FEL)	1.5	85%	90%	3.01 for ore 2.0 for waste rock	80%	90%	40	223	2100	4,68,000	399105#	0.78 Say 1	1 <sup>§</sup>

Note : \* Ore and waste handling at pit & at plants = [2,68,800 t ROM+76545 waste once at pit & same quantity once at screening plant as feeding + 20% 268800 lumps feed to crushing plant = {(268800+76545) x 2} + 53760 = 744450.

# Product handling at plant = 268800 + 53760 (crushed products) + 76545 screened waste for temp. stock = 399105t

§ One FEL is required for road maintenance, dump maintenance, Face cleaning, Stock levelling, Final product loading to customer.



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#### 4.4.3: Dumper Requirement

Effective Shift Time:			7 Hrs			00 mins								
Sl. No.	Total Hours=Number of working days (W)x Number of shifts/day x Effective shift hours (Machine Requirement Summary) (A)	Capacity of Dumpers (t) (B)	Speed of the dumper (KMPH) (i)	Lead Distance (KM) (ii)	Time taken to cover distance in minutes (i ii) =(ii/i) x 60	Queuing, Loading Time at Shovel (min) (iv)	Queuing, Unloading Time during unloading (min) (v)	Total Time to complete one trip(vi) = (iii + iv + v)	No. of Trips/hr = (60 / vi)	Total transportation per hour =( B X vii)	Yearly handling by one dumper (ix) = A x TPH	Maximum handling of the material by this machine during the block period (t) (x)	Number of dumpers will be (xi) =( x / ix)	Plus, Stand by dumper (xii)
1	300*1*7 =2100	16	20	1.5 kms (to and fro)	5	5	5	15	4	64	134400	690690*	5.2 or say 6	1

Note: \* 2,68,800 t ROM+76545waste+ 268800 products at plant+76545 waste(Rehandle)=690690t

#### 4.4.4: Drill Machine Requirement

Effective Shift Time:		7 hrs					00 mins							
Sl. No.	Type of Drill	Depth of Hole(including Sub-grade Drilling (m)	Spacing (m)	Burden (m)	Bulk Density of Waste (t/m <sup>3</sup> )	Bulk Density of Mineral (t/m <sup>3</sup> )	Yield per Hole (t)	Yield per Meter (t/m)	Annual Target Known (t)	Drilling Requirement per Day (m)	Drilling Requirement per Shift (m)	Rate of Drilling per Hours (m/hr)	Required Number of Drills (m/c)	Stand by Drill
1	Mechanical/ Pneumatic	7.2m	3.5	3	2	3	227	32	25000	2.6*	2.6*	20*	1	Not required

Note: \* Drilling requirement is only to extent of 10% of excavation & Drill units are used once or twice in a year to drill entire requirement for one or two weeks by hired drill machines. Total requirement is 780m per annum maximum. & number of days drill machine is used 780/7÷20= 8 days.



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#### 4.4.5: Machine Deployment Details

##### 4.4.5.1: Excavator & Loading Equipment

S.No.	Type	Make	Capacity (m <sup>3</sup> )	No. of Equipments
1	Back Hoe Excavator	Volvo & Kobelco	1.0	2
2	Front End Wheel Loader	HM 2021	1.70	2

##### 4.4.5.2: Dozers Details

S.No.	Type	Make	Capacity (m <sup>3</sup> )	No. of Equipments
--	--	--	--	--

Note: FEL is used for dozing work & no proposal of using Dozer.

##### 4.4.5.3: Drilling Details

S.No.	Type	Make	Capacity (t)	Diameter of Hole (mm)
1	Pneumatic/Mechanical	Atlas Copco	230HP	100mm

#### 4.5 Blasting Requirement:

##### 4.5.1 Blasting & Explosive Requirement in Waste/Development

S.N.	Drill Pattern / Spacing of Holes (m)	Burden of Holes (m)	Number of Rows / Rings	Yield per Holes in Waste (m <sup>3</sup> )	Frequency of Blasting in a Week	Maximum Number of Holes Blasted in a Round	Charge per Hole (kg)	Charge per Round (kg)	Explosive Requirement Per Month in Development (kg)	Powder Factor in Development / Waste (kg/t)	Depth Of Hole
--	--	--	--	--	--	--	--	--	--	--	--

##### 4.5.2 Blasting & Explosive Requirement in Mineral / Ore

Type of Explosive	Type of Explosives used / to be Used
Class-2 & Div-0 Class-6 & Div-1 Class-6 & Div-2 Class-6 & Div-6	Slurry Explosive (Nitrate Mixture) Safety Fuse(Gun powder) Detonating Fuse (PETN) Ordinary/Electri/Relay/Delay Detonators

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S.N.	Total ROM proposed to be handled in CUM/annum	Total ROM proposed to be handled in CUM/day	Spacing of Holes (m)	Burden of Holes (m)	Number of Rows	Yield per Holes in ROM Zone (m <sup>3</sup> )	Frequency of Blasting in a Week	Maximum Number of Holes Blasted in a Round	No. of Holes Required to be Blasted per Round	Charge per Hole (kg)
1	89302	298	3.5	3	2	75.6	0.07*	10	10	27

Note: \* Drilling and Blasting is required for only 10-15% of Manganese float ore deposit which is lateritized in few patches locally. Yearly 3-4 times will be used.

Table continued....

S.N.	Charge per Round (kg)	Explosive Requirement Per Month for ROM Zone Blasting (kg)	Powder Factor in Ore (kg/t)	Pop Shooting (no of Boulders)	Plaster Shooting (no of Boulders)	Use of Rock breaker	Capacity	Secondary Blasting Requirements	Depth Of Holes
1	270	300*	7	Nil	Nil	Intermittently used	NA	Nil	Nil

\* Avg requirement per month but used 3-4 instants in a year.

#### 4.6: Man Power Deployment

##### 4.6.1: Managerial

Sr. No	Particulars	Number of Persons in Shift 1	Number of Persons in Shift 2	Number of Persons in Shift 3	Number of Persons in General Shift	Total No. of Persons per day
1	1st Class	0	0	0	1	1
2	Mining Engineer	0	0	0	1	1
3	Geologist	0	0	0	1	1
4	Others (PR/Env)	0	0	0	1	1

##### 4.6.2: Supervisory

Sl. No.	Particulars	Number of Person in Shift 1	Number of Person in Shift 2	Number of Person in Shift 3	Number of Person in General Shift	Total Number of Person per Day
1	Statutory -Foreman, Mate, Mech Engr, Blaster, Plant in-charge & Environment officer	0	0	0	7	7
2	Weighbridge Sup	1	1	0	1	3
3	Quarry/Dump Sup	0	0	0	2	2
4	Store/Office Sup	1	1	0	4	6

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#### 4.6.3: Skilled Workers / Operators

Sr No	Particulars	Number of Persons in Shift 1	Number of Persons in Shift 2	Number of Persons in Shift 3	Number of Persons in General Shift	Total No. of Persons per day
1	Excavator Op	0	0	0	2	2
2	Loader Op	0	0	0	3	3
3	Dumper Op	0	0	0	7	7
4	Plant Operators	0	0	0	2	2
5	Jeep Drivers, Water tanker Driver, Diesel tank Driver, Conveyance Driver	0	0	0	5	5
6	Mechanic, Electrician, Auto Electrician, Tyre Fitter, Welder etc.	0	0	0	7	7

#### 4.6.4: Semi-skilled Workers

S. No.	Number of Persons in Shift 1	Number of Persons in Shift 2	Number of Persons in Shift 3	Number of Persons in General Shift	Total No. of Persons per day
1	0	0	0	18	18

\*4 plant, 4 quarry, 2 maintenance & 2 office/store.

#### 4.6.5: Unskilled Workers

S.No	Number of Persons in Shift 1	Number of Persons in Shift 2	Number of Persons in Shift 3	Number of Persons in General Shift	Total No. of Persons per day
1	1*	1*	2*	15 <sup>#</sup>	19

\* Security # 2 Security, 5 Environment, 5 plant, 3 road maintenance.

#### 4.6.6: No of Persons Engaged Per Day

Number of Persons in Shift 1	Number of Persons in Shift 2	Number of Persons in Shift 3	Number of Persons in General Shift	Total No. of Persons per day
3	3	2	77	85

No of Shifts per Day ((A) = Machine Requirement Summary (B))	01
Average Daily Employment per Shift ((B) = (Total Number of Person per Day) / (A))	85
Material to be Handled per Shift ((C) = Machine Requirement Summary (E))	1152t

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#### 4.6.7: Supervision

Sl. No.	Particulars	Qualification	Requirement / Proposed	In Position / Existing Strength	Shortage / (+) Excess	Remarks
1	Mines Manage Cum Mining Engineer	FCC & Diploma-Mining with 20 y service	01	01	01	Presently mine is not operational for statutory clearances. Appointment will be done at the time of resumption of work
2	Geologist	M.SC Geology	01	00	-01	
3	Asst. Mines Manager	SCC	01	00	-01	
4	Foreman	Foreman Certi.	01	00	-1	
5	Mech Engineer	BE/Diploma Mech	01	00	-1	
6	Mate	Mate Certi.	01	00	-01	
7	Blaster	Blaster Certi.	01	00	-1	

#### 4.7: Waste Management

##### 4.7.1: Existing Dump

Sl. No.	Year	Dump Id	Type of Dump	Proposed Area (ha)	Height (m)	Total Dump Quantity (m <sup>3</sup> )	Existing Dump Location
1	Before 2011	ID	Dead	1.25	11	50680	1657300-1657560 Northing & 667410-667250 Easting
2	Before 2011	PD	Active	1.52	16	93472	1657500-1657820 Northing & 667680-667780 Easting

**Note:** The Inactive dump & active dump of old workings will be analyzed to explore possibility of recovery of manganese ore as change in threshold limits. Studies are proposed. Based on studies dump will be rehandled or backfilled in mined out area or stabilized as suitable in next plan period.

##### 4.7.2: New Dump

Sl. No.	Year	Dump Id	Type of Dump	Proposed Area (ha)	Height (m)	Total Dump Quantity (m <sup>3</sup> )	New Dump Location
1	2020-21*	0	0	0	0	0	0
2	2021-22*	0	0	0	0	0	0
3	2022-23	0	0	0	0	0	0
4	2023-24	0	0	0	0	0	0
5	2024-25	0	0	0	0	0	0

\* first two years of Plan period are over and mine was not operational during the same.

**Note:** Concurrent Backfilling is proposed in mined-out area for remaining 3 years of plan period hence no external dumping is required.

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#### 4.7.3: Existing Stack

Sl. No.	Year	Stack ID	Type of Stack	Proposed Area (ha)	Height (m)	Total Stack Quantity (m <sup>3</sup> )	Existing Stack Location	
1	Before 2011	TS-1	Mn ore lumps	0.12	0.5	480	1657510.5 Northing	667528.036 Easting
2	Before 2011	TS-2	Mn ore lumps	0.015	0.7	75	1657495.1 Northing	667591.309 Easting
3	Before 2011	TS-3	Mn ore lumps	0.09	1.2	540	1657498.8 Northing	667607.78 Easting
4	Before 2011	TS-4	Mn ore lumps	0.028	1.1	168	1657567.8 Northing	667674.0972 Easting
5	Before 2011	TS-5	Mn ore lumps	0.024	2	288	1657619.88 Northing	667686.1027 Easting
6	Before 2011	TS-6	Mn ore lumps	0.018	0.8	72	1657661.51 Northing	667652.9168 Easting
7	Before 2011	TS-7	Mn ore lumps	0.045	1.3	315	1657663.61 Northing	667677.4218 Easting
8	Before 2011	TS-8	Mn ore lumps	0.025	1.2	175	1657542.89 Northing	667606.1225 Easting
9	Before 2011	TS-9	Mn ore lumps	0.022	0.8	110	1657545.72 Northing	667621.2399 Easting

**Note:** Volumes are estimated on survey & tonnage can be arrived by using loose bulk density 1.7. These stocks will be cleared by selling during 2022-23 & one new stock is maintained for plan period as given below.

#### 4.7.4: New Stack

Sl. No.	Year	Stack ID	Type of Stack	Proposed Area (ha)	Height (m)	Total Stack Quantity (m <sup>3</sup> )	New Stack Location
1	2020-21	0	0	0	0	0	0
2	2021-22	0	0	0	0	0	0
3	2022-23	Stock	Mn Ore	0.70	10	100000	1657280-1657355 Northing & 667515-667590 Easting
4	2023-24	Stock	Mn Ore	As above	As above	As above	As above
5	2024-25	Stock	Mn Ore	As above	As above	As above	As above
<b>Total</b>				<b>0.70</b>	<b>10</b>	<b>100000</b>	

**Note:** first two years of Plan period are over and mine was not operational during the same. The stock area will serve as addition & removal of products to facilitate e-auction every year.

#### 4.8: Mineral Waste Handling To Utilize As Minor Mineral: Not suitable & No proposal.

Sl. No.	Year	Dump Id	Type of Dump	Proposed Area (ha)	Quantity Handled (t)	Quantity Recovered (t)	Name Of Minor Mineral	Alternative Waste Utilization (m <sup>3</sup> )
--	--	--	--	--	--	--	--	--

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#### 4.9: Use of Minerals:

Sl. No.	Proposed Use Of Mineral *	Name Of Mineral	Relevant Use Of Mineral	Physical Specifications	Chemical Specifications
1	Direct Selling	Manganese ore	1. Steel plant, 2. Aluminum alloy industry, 3. Metallurgical industry, 4. Battery industry & 5. Chemical industry	1. 10-40mm for steel melting grade, 2. 25-85mm for blast furnace grade, 3. 0-100mm for Ferro-manganese industry, 4.-150mesh size for chemical industry	1. +25% Mn for Steel industry, 2. +40%Mn for Ferro manganese alloys, 7-8% SiO <sub>2</sub> & Al <sub>2</sub> O <sub>3</sub> Max. 3. 45% Mn for chemical industry

Note: Presently direct selling of ore from the iron ore/manganese ore mines of Ballari district in the Karnataka state is performed through e-auction platform by MSTC / State Government / Monitoring Committee as per the direction of Hon'ble Supreme Court of India.

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## Chapter 5: SUSTAINABLE MINING



### 5.1: Sustainable Mining and SDF Implementations in Compliance of Rule 35 of MCDR'2017

The management committed to implement sustainable mining practices & its implementation in line with compliances to Rule 35 of MCDR-2017. The Committee will be formed and implementation will be done accordingly.

#### Compliance of Vishakha Committee Guidelines for prevention of women harassment at workplace:

No women were employed in the mine & compliances to Guidelines will be implemented once women employment takes place in the mine.

### 5.2: CSR INITIATIVES

**Note:** First two years of plan period (2020-21 & 2021-22) are over as mine was not operational. Hence CSR Proposal as per this para is given for remaining three years of plan period (2022-23 to 2024-25).

#### 5.2.1: YEAR 1-5 (2022-23)

Details of Work Proposed during the Year / Measures Planned for the Affected Segment	Cumulative Work done / Measures Taken
<b>5.2.1.1: Area to be Developed for Recreation</b>	
Financial Support to nearby villages for creating infrastructure Area (Ha)/Amount	Area (Ha)/Amount
200000	200000
<b>5.2.1.2: Area for Water Storage &amp; Recharge Facility</b>	
Area (Ha)	Area (Ha)
No proposal	NA
<b>5.2.1.3: Efforts Made towards Housing for Local Communities</b>	
Number of Houses	Number of Houses
No proposal	NA
<b>5.2.1.4: Efforts Made towards Providing Transport to Local Communities</b>	
Number of Beneficiaries	Number of Beneficiaries
No proposal	NA
<b>5.2.1.5: Efforts Made towards Providing Healthcare to Local Communities</b>	
Providing one eye/health camp in nearby village Number of Beneficiaries	Number of Beneficiaries
150	150
<b>5.2.1.6: Efforts Made towards Providing Hygiene &amp; Sanitation to Local Communities</b>	
Providing Masks Number of Beneficiaries	Number of Beneficiaries
300	300

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**5.2.1.7: Efforts Made towards Skill Development Programs to Local Communities**

Number of Beneficiaries	Number of Beneficiaries
No proposal	No proposal

**5.2.1.8: Efforts Made to Promote Education & Knowledge Based Initiatives**

Two computers to nearby villages		
Number of Beneficiaries :		Number of Beneficiaries
50	NA	50

**5.2.1.9: Communication Facilities Provided to Local Communities**

Number of Beneficiaries	Number of Beneficiaries
No proposal	NA

**5.2.1.10: Any Other Steps Taken for Improving the Socio-Economic Standard of Local Communities**

Number of Beneficiaries	Number of Beneficiaries
No proposal	NA

**5.2.1.11: Adoption of ODF**

Number of Toilets Built inside the Lease Area:	Number of Toilets Built outside the Lease Area:	Number of Beneficiaries
02 40	04 10	50

**5.2.1.12: Awareness Program among Mine Workers for Swatchata**

Number of Swatchata Programmes proposed: Yearly once	Number of Swatchata Programmes Held:
01	01

**5.2.1.13: Efforts for green energy**

Total energy consumption (KWh)	Green energy consumption (% of total)
15Kwh	--

**5.2.1.14: Water & recycled use**

Total water consumption (KLD)	Water recycled (% of total)
5000 ltrs/day	No proposal.

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#### 5.2.1: YEAR 1-5 (2023-24)

Details of Work Proposed during the Year / Measures Planned for the Affected Segment	Cumulative Work done / Measures Taken
<b>5.2.1.1: Area to be Developed for Recreation</b>	
Financial Support to nearby villages for creating infrastructure Area (Ha)/Amount	Area (Ha)/Amount
200000	400000
<b>5.2.1.2: Area for Water Storage &amp; Recharge Facility</b>	
Area (Ha)	Area (Ha)
No proposal	NA
<b>5.2.1.3: Efforts Made towards Housing for Local Communities</b>	
Number of Houses	Number of Houses
No proposal	NA
<b>5.2.1.4: Efforts Made towards Providing Transport to Local Communities</b>	
Number of Beneficiaries	Number of Beneficiaries
No proposal	NA
<b>5.2.1.5: Efforts Made towards Providing Healthcare to Local Communities</b>	
Providing one Health camp in nearby village Number of Beneficiaries	Number of Beneficiaries
150	300
<b>5.2.1.6: Efforts Made towards Providing Hygiene &amp; Sanitation to Local Communities</b>	
Providing Sanitary pads to locals Number of Beneficiaries	Number of Beneficiaries
100	300
<b>5.2.1.7: Efforts Made towards Skill Development Programs to Local Communities</b>	
Number of Beneficiaries	Number of Beneficiaries
No proposal	No proposal
<b>5.2.1.8: Efforts Made to Promote Education &amp; Knowledge Based Initiatives</b>	
Two computers to nearby villages Number of Beneficiaries :	Number of Beneficiaries
50      NA	100
<b>5.2.1.9: Communication Facilities Provided to Local Communities</b>	
Number of Beneficiaries	Number of Beneficiaries
No proposal	NA
<b>5.2.1.10: Any Other Steps Taken for Improving the Socio-Economic Standard of Local Communities</b>	

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Number of Beneficiaries	Number of Beneficiaries
No proposal	NA

#### 5.2.1.11: Adoption of ODF

Number of Toilets Built inside the Lease Area:	Number of Toilets Built outside the Lease Area:	Number of Beneficiaries
Nil	06 20	70

#### 5.2.1.12: Awareness Program among Mine Workers for Swatchata

Number of Swatchata Programmes proposed: Yearly once	Number of Swatchata Programmes Held:
01	02

#### 5.2.1.13: Efforts for green energy

Total energy consumption (KWh)	Green energy consumption (% of total)
15Kwh	13.3% (2kw Solar for Weighbridge)

#### 5.2.1.14: Water & recycled use

Total water consumption (KLD)	Water recycled (% of total)
5000 ltrs/day	No proposal

#### 5.2.1: YEAR 1-5 (2024-25)

Details of Work Proposed during the Year / Measures Planned for the Affected Segment	Cumulative Work done / Measures Taken
<b>5.2.1.1: Area to be Developed for Recreation</b>	
Financial Support to nearby villages for creating infrastructure Area (Ha)/Amount	Area (Ha)/Amount
200000	600000
<b>5.2.1.2: Area for Water Storage &amp; Recharge Facility</b>	
Area (Ha)	Area (Ha)
No proposal	NA
<b>5.2.1.3: Efforts Made towards Housing for Local Communities</b>	
Number of Houses	Number of Houses
No proposal	NA
<b>5.2.1.4: Efforts Made towards Providing Transport to Local Communities</b>	
Number of Beneficiaries	Number of Beneficiaries
No proposal	NA

#### 5.2.1.5: Efforts Made towards Providing Healthcare to Local Communities

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Providing one eye/health camp in nearby village	Number of Beneficiaries
150	450

#### 5.2.1.6: Efforts Made towards Providing Hygiene & Sanitation to Local Communities

Providing Sanitary pads to locals	Number of Beneficiaries
200	600

#### 5.2.1.7: Efforts Made towards Skill Development Programs to Local Communities

Number of Beneficiaries	Number of Beneficiaries
No proposal	No proposal

#### 5.2.1.8: Efforts Made to Promote Education & Knowledge Based Initiatives

Two computers to nearby villages	Number of Beneficiaries
Number of Beneficiaries : 50 NA	150

#### 5.2.1.9: Communication Facilities Provided to Local Communities

Number of Beneficiaries	Number of Beneficiaries
No proposal	NA

#### 5.2.1.10: Any Other Steps Taken for Improving the Socio-Economic Standard of Local Communities

Number of Beneficiaries	Number of Beneficiaries
No proposal NA	NA

#### 5.2.1.11: Adoption of ODF

Number of Toilets Built inside the Lease Area:	Number of Toilets Built outside the Lease Area:	Number of Beneficiaries
02 40	04 10	170

#### 5.2.1.12: Awareness Program among Mine Workers for Swatchata

Number of Swatchata Programs proposed: Yearly once	Number of Swatchata Programs Held:
1	03

#### 5.2.1.13: Efforts for green energy

Total energy consumption (KWh)	Green energy consumption (% of total)
15Kwh	6.66%(1Kw solar panel near office)

#### 5.2.1.14: Water & recycled use

Total water consumption (KLD)	Water recycled (% of total)
5000 ltrs/day	No proposal

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### 5.3: REHABILITATION & RESETTLEMENT OF AFFECTED PERSONS:

The mine is not involved in displacement of human settlement. Hence para is not applicable.

Particular	2020-21	2021-22	2022-23	2023-24	2024-25
Proposed Number of Project Affected Persons(PAP)	NA	NA	NA	NA	NA
Proposed Number of Person for Alternate Arrangement for Sustainable Livelihood	NA	NA	NA	NA	NA
Proposed Number of Person for Skill Training	NA	NA	NA	NA	NA
Proposed Number of Person Likely to get Direct Employment	NA	NA	NA	NA	NA
Proposed Number of Person Likely to get Indirect Employment	NA	NA	NA	NA	NA
Proposed Project Affected Families Skilled and Absorbed	NA	NA	NA	NA	NA
Proposed Number of Project Affected Families	NA	NA	NA	NA	NA

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## Chapter 6: PROGRESSIVE MINE CLOSURE PLAN

### 6.1: Status of Land

Total Area Degraded					Total mined out area Reclaimed and Rehabilitated			Other Areas Reclaimed and Rehabilitated	
Total area under excavation in the lease		Area under Dumps(in hect)	Area under utility services (in hect)	Area under Stack yards (in hect)	Mined out Area Reclaimed but not rehabilitated (in hect)	Mined out Area fully Rehabilitated from Reclaimed area (in hect)	Area under Water Reservoir considered Rehabilitated (in hect)	Stabilized Waste dump Rehabilitated (in hect)	Virgin area under Green Belt (in hect)
Area under mining operation	Mined Out area in the lease								
2.95	0	2.04	0.44	0.67	0	00	0	0	1.54 (safety Zone)

Note: Unbroken area is 14.81 Ha

### 6.2: Progressive Reclamation and Rehabilitation Plan

#### 6.2.1: Backfilling :

Quantity of Waste / Fill Material Available at Site (m <sup>3</sup> )	144152*
Availability of Top Soil for Spreading (m <sup>3</sup> )	0
Spread Area (m <sup>2</sup> )	2.04

\* Covered in ID-1 & ID-2 dumps & same will be studied for mineral content (due to change in threshold limit) before backfilling & will be backfilled if mineral content beneath the proposed location is below the threshold value by rehandling if the mineral is above threshold limit then waste generated after recovering minerals from the location will backfilled.

Year Wise Proposal						
Sr No	Year	Pit ID	Area (m <sup>2</sup> )	Top RL	Bottom RL	Estimated Expenditure (INR)
1	2020-21*	0	0	0	0	0
2	2021-22*	0	0	0	0	0
3	2022-23	South	7000	803	795	45,00,000
4	2023-24	South	8000	805	796	45,00,000
5	2024-25	South	8000	808	794	45,00,000

\* Note: first two years of Plan period are over and mine was not operational during the same.

#### 6.2.2: Water Reservoir:- No proposal

Average Rainfall of The Area (mm)	NA
Proposed Area under Water Storage	NA

#### 6.2.2.1: Preparations For Ground Water Recharging - No proposal.

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6.2.2.1.1: Drilling Holes	
Year	Proposed no of Holes to be Drilled
2020-21*	--
2021-22*	--
2022-23	No proposal.
2023-24	No proposal.
2024-25	No proposal.

\* **Note:** first two years of Plan period are over and mine was not operational during the same.

6.2.2.1.2: Preparation of Course Gravel Bed	
Year	Proposed Area of Bed (LxW)
2020-21*	--
2021-22*	--
2022-23	NA
2023-24	NA
2024-25	NA

\* **Note:** first two years of Plan period are over and mine was not operational during the same.

**Please specify, if others-**

**6.2.2.2: Protective measures (Please specify running meter)**

6.2.2.2.1: Fencing			
Year	Proposed Fencing Length (m)	Co-ordinates from	Co-ordinates to
2020-21*	0	0	0
2021-22*	0	0	0
2022-23	780	1657393 N & 667206 E	1657907 N & 667794 E
2023-24	590	1657907 N & 667794 E	1657316 N & 667779 E
2024-25	700	1657316 N & 667779 E	1657393 N & 667206 E

\* **Note:** first two years of Plan period are over and mine was not operational during the same.

6.2.2.2.2: Retaining Wall: for ID-1, ID-2 & backfilled area			
Year	Proposed Wall Length (m)	Co-ordinates from	Co-ordinates to
2020-21*	0	0	0
2021-22*	0	0	0
2022-23	745	1657315-667231 TW2 1657501-667719 TW3	1657605-667420 TW2 1657810-667791 TW3
2023-24	119	1657285-667275 TW1	1657393-667312 TW1
2024-25	86	1657393-667312 TW1	1657455-667367 TW1 EXT

\* **Note:** first two years of Plan period are over and mine was not operational during the same.

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#### 6.2.2.2.3: Garland Drains for ID-1, ID-2 & backfilled area

Year	Proposed Bund Length (m)	Co-ordinates from	Co-ordinates to
2020-21*	0	0	0
2021-22*	0	0	0
2022-23	770	1657316-667225 GD2 1657499-667718 GD3	1657607-667421 GD2 1657825-667792 GD3
2023-24	210	1657221-667258 GD1	1657394-667309 GD1
2024-25	90	1657394-667309 GD1	1657458-667366 GD1 EXT

\* **Note:** first two years of Plan period are over and mine was not operational during the same.

#### 6.2.3: Green Belt Development

##### 6.2.3.1: Cumulative work done (upto end of previous block of five years)

Sr. No	Total Expenditure Incurred up to Last Year (INR)	Area Covered (Ha)	Number of Plants	Survival Rate (%)
1*	0	0	0	0

\* **Note:** No data available with lessee or in SoM approved earlier.

##### 6.2.3.2: Year Wise Proposal

Sr. No	Year	Green Belt Location (s)	Area Proposed to be Covered (Ha)	Number of Plants Proposed	Expected Survival Rate (%)	Estimated Expenditure (INR)
1	2020-21*	0	0	0	0	0
2	2021-22*	0	0	0	0	0
3	2022-23	Safety Zone (Gap fill)	0.51	600	75%	120000
4	2023-24	Safety Zone (Gap fill)	0.51	600	75%	120000
5	2024-25	Safety Zone (Gap fill)	0.52	600	75%	120000

\* **Note:** first two years of Plan period are over and mine was not operational during the same.

#### 6.2.4: Use of shallow pits: No proposal.

##### 6.2.4.1: Cumulative work done (upto end of previous block of five years)

Sr. No	Pit ID	Work Done	Area covered (m <sup>2</sup> )	Total Expenditure Incurred (up to last five year block) (INR)
0	0	0	0	0



**6.2.4.2: Year Wise Proposal:** Not applicable as no proposal.

Sr. No	Year	Pit ID	Total Area (Ha)	Area Proposed for Crops (Ha)	Suitable Crops	Area Proposed for Grass (Ha)	Total Proposed Expenditure (INR)	Location (S)	Remarks
1	2020-21*	NA	NA	NA	NA	NA	NA	NA	NA
2	2021-22*	NA	NA	NA	NA	NA	NA	NA	NA
3	2022-23	NA	NA	NA	NA	NA	NA	NA	NA
4	2023-24	NA	NA	NA	NA	NA	NA	NA	NA
5	2024-25	NA	NA	NA	NA	NA	NA	NA	NA

\* **Note:** first two years of Plan period are over and mine was not operational during the same.

**6.2.5: PISCICULTURE:** No proposal.

<b>6.2.5.1: Total Expenditure incurred as on Date (INR)</b>	NIL
---	-----

**6.2.5.2: Cumulative work done as on Date**

Sr. No	Pit ID	Area (m <sup>2</sup> )	Expenditure (INR)
NIL	NIL	NIL	NIL

**6.2.5.3: Year Wise Proposal**

Sr. No	Year	Pit ID	Area (m <sup>2</sup> )	Estimated Expenditure (INR)
1	2020-21 to 2024-25	NIL	NIL	NIL

<b>6.2.5.4: Source of Water for Pisciculture</b>	No proposal
<b>6.2.5.5: Whether the quality of water has been assessed &amp; found to be suitable for Pisciculture</b>	NA

**6.2.6: Recreational Facility-** No proposal

<b>6.2.6.1: Total Expenditure Incurred (up to last five year block) (INR)</b>	NIL
---	-----

**6.2.6.2: Cumulative work done as on Date**

Sr. No	Pit ID	Area (m <sup>2</sup> )	Expenditure (INR)
--	No proposal	No proposal	No proposal

**6.2.6.3: Year Wise Proposal**

Sr No	Year	Type of Recreational Facility	Area Covered (Ha)	Location	Estimated Expenditure (INR)
1	2020-21*	Nil	Nil	Nil	Nil
2	2021-22*	Nil	Nil	Nil	Nil
3	2022-23	Nil	Nil	Nil	Nil
4	2023-24	Nil	Nil	Nil	Nil
5	2024-25	Nil	Nil	Nil	Nil

\* **Note:** first two years of Plan period are over and mine was not operational during the same.





#### 6.2.7: Dump Area Stabilization & Development

Sr. No	Year	Dump ID	No of Terraces	Average Height of Terraces (m)	Length of Toe Wall (m)	Length of Garland Drain (m)	Area Stabilized (Ha)	Method of Stabilization	Estimated Expenditure (INR)	No. of Check Dams
1	2020-21*	0	0	0	0	0	0	0	0	0
2	2021-22*	0	0	0	0	0	0	0	0	0
3	2022-23	0	0	0	0	0	0	0	0	0
4	2023-24	0	0	0	0	0	0	0	0	0
5	2024-25	0	0	0	0	0	0	0	0	0

\* first two years of Plan period are over and mine was not operational during the same.

**Note:** Existing ID-1 & ID-2 dumps will be rehandled to recover subgrade ore from it then backfill in mined out area or will be rehandled to backfill in mined out area in next plan period based on feasibility studies proposed in plan period.

#### 6.2.8: Other Form of Reclaiming the Area-

##### 6.2.8.1: Cumulative work done as on Date

Sr. No	Total Expenditure incurred as on Date (INR)	Work Done
NA	NA	NA

##### 6.2.8.2: Year Wise Proposal

Sr. No	Year	Work Proposals	Estimated Expenditure (INR)
1	2020-21	No proposal	No proposal
2	2021-22	No proposal	No proposal
3	2022-23	No proposal	No proposal
4	2023-24	No proposal	No proposal
5	2024-25	6000 saplings plantation over 2.3 Ha backfilled area (created during 2022-23 to 2024-25).	12,25,000

#### 6.2.9: TOPSOIL MANAGEMENT

##### 6.2.9.1: Cumulative Work Done as on Date

Sl. No.	Top Soil Generated (m <sup>3</sup> )	Top Soil Utilized (m <sup>3</sup> )	Topsoil Stored (m <sup>3</sup> )	Total expenditure incurred as on date (₹)
1	Nil	Nil	Nil	Nil

##### 6.2.9.2: Year Wise Proposal -No top soil generation as mine is broken up

Year	Topsoil Generated (m <sup>3</sup> ) (A)	Topsoil Utilized (m <sup>3</sup> ) (B)	Topsoil Stored (m <sup>3</sup> ) (A-B)	Estimated Expenditure (INR)
2020-21	NA	NA	NA	NA
2021-22	NA	NA	NA	NA
2022-23	NA	NA	NA	NA
2023-24	NA	NA	NA	NA
2024-25	NA	NA	NA	NA

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**6.2.10: TAILINGS DAM MANAGEMENT-** No wet processing was proposed hence not applicable.

Year	Yearly generation of Tailing (m <sup>3</sup> ) (A)	Total capacity of Tailing Pond (m <sup>3</sup> )	Measures Proposed for Periodic Desilting	Yearly Utilization of Tailing (m <sup>3</sup> ) (B)	Disposal of Tailing to Tailing Pond (m <sup>3</sup> ) (A-B)	Tailing Dam Design	Structural Stability Studies
2020-21	NA	NA	NA	NA	NA	NA	NA
2021-22	NA	NA	NA	NA	NA	NA	NA
2022-23	NA	NA	NA	NA	NA	NA	NA
2023-24	NA	NA	NA	NA	NA	NA	NA
2024-25	NA	NA	NA	NA	NA	NA	NA

Note: Details of PMCP measures as given in para 6.1 to 6.2.10 were provided in Progressive Mine Closure Plan & Sections as in Plate-VII & Plate-VIII.

**6.2.11 LAND USE OF LEASE AREA AT THE EXPIRY OF LEASE PERIOD (CONCEPTUAL STAGE)**

Total Area Degraded				Non Degraded area	Total mined out area Reclaimed and Rehabilitated			Other Areas Reclaimed and Rehabilitated			
Mined Out area in the lease	Area under Dumps (in hect)	Area under the Tailing Dam	Area under utility services (in hect)	Area undisturbed/virgin	Mined out Area Reclaimed but not rehabilitated (in hect)	Mined out Area fully Rehabilitated from Reclaimed area (in hect)	Area under Water Reservoir considered Rehabilitated (in hect)	Stabilized Waste dump Rehabilitated (in hect)	Virgin area under Green Belt (in hect)	Rehabilitated Area under utility services (in hect)	Rehabilitated Area under Tailing dam (in hect)
14.20	0	0	1.62*	5.09	0	6.90	0	0	1.54 <sup>#</sup>	0	0

\* Road/Mineral Stock/Weigh bridge/Mobile plant/ Infrastructure

<sup>#</sup>Area under safety Zone as green belt

At the end of lease period on 05.07.2030 around 14.2 Ha of mineralized zone will be covered under mining in which 10.15 Ha area will be exhausted with the ore reserves (in which 6.90 Ha area will be backfilled & rehabilitated with plantation while 3.25 Ha area will be available for backfilling) and 4.05 Ha will be under active mining where ore is still existing. Apart from this around 5.09 Ha mineralized area will be still in virgin state for future mining. 1.54 Ha of remaining lease area will be under Safety Zone maintained as green belt. Since reserves are available for further mining at the end of lease area in 5.09 virgin ore zone & 1.54 Ha active mining where ore is not fully exhausted, the mining will continue for post expiry of lease by further allocation of lease as per MMDR Amendment Act, Hence full mine closure plan will not be applicable for conceptual period of present lease validity hence no reclamation is proposed except only top of backfill areas will be stabilized reclaimed & same will be regressed. Existing infrastructure, Mineral processing plant will be dismantled at the conceptual stage and regarassification will be done.

Refer conceptual pan and section enclosed as Plate-IXA & Plate-IXB

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## Chapter 7: FINANCIAL ASSURANCE/ PERFORMANCE SURETY

(AREA PUT TO USE)

7.1 YEAR 1-5 (Separate form for each year as below)

FINANCIAL YEAR 2020-21*				
Sl. No.	Particular	Area put to use at Start of Year (ha) (A)*	Additional Requirement (ha) (B)*	Total (ha) (C = A + B)
1	Area under Mining	2.95	0	2.95
2	Topsoil stacking	0	0	0
3	Overburden/Waste Dumping	2.04	0	2.04
4	Mineral Storage	0.67	0	0.67
5	Infrastructure (Workshop, Administrative Building etc.)	0	0	0
6	Roads	0.44	0	0.44
7	Railways	0	0	0
8	Tailing Pond	0	0	0
9	Effluent Treatment Plant	0	0	0
10	Mineral Separation Plant	0	0	0
11	Township Area	0	0	0
12	Others to Specify	0	0	0
Total Broken		6.1	0	6.1
13	Safety Zone	1.54	0	1.54
14	Area untouched	14.81	0	14.81
Total lease area		22.45	0	22.45
FINANCIAL YEAR 2021-22*				
Sl. No.	Particular	Area put to use at Start of Year (ha) (A)*	Additional Requirement (ha) (B)*	Total (ha) (C = A + B)
1	Area under Mining	2.95	0	2.95
2	Topsoil stacking	0	0	0
3	Overburden/Waste Dumping	2.04	0	2.04
4	Mineral Storage	0.67	0	0.67
5	Infrastructure (Workshop, Administrative Building etc.)	0	0	0
6	Roads	0.44	0	0.44
7	Railways	0	0	0
8	Tailing Pond	0	0	0
9	Effluent Treatment Plant	0	0	0
10	Mineral Separation Plant	0	0	0
11	Township Area	0	0	0
12	Others to Specify	0	0	0
Total Broken		6.1	0	6.1
13	Safety Zone	1.54	0	1.54
14	Area untouched	14.81	0	14.81
Total lease area		22.45	0	22.45





FINANCIAL YEAR 2022-23				
Sl. No.	Particular	Area put to use at Start of Year (ha) (A)*	Additional Requirement (ha) (B)	Total (ha) (C = A + B)
1	Area under Mining	2.95	1.85	4.8
2	Topsoil stacking	0	0	0
3	Overburden/Waste Dumping	2.04	0	2.04
4	Mineral Storage	0.67	0.03	0.7
5	Infrastructure (Workshop, Administrative Building etc.)	0	0.02	0.02
6	Roads	0.44	0.06	0.5
7	Railways	0	0	0
8	Tailing Pond	0	0	0
9	Effluent Treatment Plant	0	0	0
10	Mineral Separation Plant	0	0	0
11	Township Area	0	0	0
12	Others to Specify (Mobile crusher & Weighbridge)	0	0.4	0.4
Total Broken		6.1	2.36	8.46
13	Safety Zone	1.54	0	1.54
14	Area untouched	14.81	-2.36	12.45
Total lease area		22.45	0	22.45
FINANCIAL YEAR 2023-24				
Sl. No.	Particular	Area put to use at Start of Year (ha) (A)*	Additional Requirement (ha) (B)*	Total (ha) (C = A + B)
1	Area under Mining	4.8	2.86	7.66
2	Topsoil stacking	0	0	0
3	Overburden/Waste Dumping	2.04	0	2.04
4	Mineral Storage	0.7	0	0.7
5	Infrastructure (Workshop, Administrative Building etc.)	0.02	0	0.02
6	Roads	0.5	0	0.5
7	Railways	0	0	0
8	Tailing Pond	0	0	0
9	Effluent Treatment Plant	0	0	0
10	Mineral Separation Plant	0	0	0
11	Township Area	0	0	0
12	Others to Specify(Mobile crusher & Weighbridge)	0.4	0	0.4
Total Broken		8.46	2.86	11.32
13	Safety Zone	1.54	0	1.54
14	Area untouched	12.45	-2.86	9.59
Total lease area		22.45	0	22.45
FINANCIAL YEAR 2024-25				

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Sl. No.	Particular	Area put to use at Start of Year (ha) (A)*	Additional Requirement (ha) (B)	Total (ha) (C = A + B)
1	Area under Mining	7.66	1.24	8.9
2	Topsoil stacking	0	0	0
3	Overburden/Waste Dumping	2.04	0	2.04
4	Mineral Storage	0.7	0	0.7
5	Infrastructure (Workshop, Administrative Building etc.)	0.02	0	0.02
6	Roads	0.5	0	0.5
7	Railways	0	0	0
8	Tailing Pond	0	0	0
9	Effluent Treatment Plant	0	0	0
10	Mineral Separation Plant	0	0	0
11	Township Area	0	0	0
12	Others to Specify	0.4	0	0.4
<b>Total Broken</b>		<b>11.32</b>	<b>1.24</b>	<b>12.56</b>
13	Safety Zone	1.54	0	1.54
14	Area untouched	9.59	-1.24	8.35
<b>Total lease area</b>		<b>22.45</b>	<b>0</b>	<b>22.45</b>
<b>Grand Total under use (year 2020-21 to 2024-25)</b>		<b>6.1</b>	<b>6.46</b>	<b>12.56</b>

\* Mine was/is not operational during the FY of plan period as one year is over (2020-21 & 2021-22 will not be operated).

Note: For land use/ broken details refer Financial Assurance plan in enclosed as Plate-XII

## 7.2 FINANCIAL ASSURANCE

### Category-A Mining Lease

Total Area Proposed to be put to use in hect (Year 1 to 5)	Amount of Bank Guarantee (Lac INR)	Valid till (dd/mm/yyyy)	Upload copy of Bank Guarantee
12.56	INR 62.8 lac*	31.03.2025	<u>Annexure-15</u>

\* At the rate of Indian National Rupees of 5 lacs per hectare as per the sub rule 1 of Rule 27 of MCDR-2017 (Amended as on 3/11/2021)

### Category-B Mining Lease

Total Area Proposed to be put to use in hect (Year 1 to 5)	Amount of Bank Guarantee (Lac INR)	Valid till (dd/mm/yyyy)	Upload copy of Bank Guarantee
Not applicable	Not applicable	Not applicable	Not applicable

\* Mine is A category hence not applicable

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### 7.3 PERFORMANCE SECURITY

Lease Category (A/B)	Total Resources in tonnes for calculation of Performance Surety*	Existing Performance surety amount in Rs	Valid till (dd/mm/yyyy)	Upload copy of existing Performance Security
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

Note: Mine is not allotted as per Auction Rule 2015, Hence not applicable

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## Chapter 8: Review of Previous Proposals

(Not applicable for fresh grant)

There is no previous plan period (2015-16 to 2019-20) proposal. Hence details are provided as in last approved document i.e., Scheme of Mining for 2005-06 to 2009-10.

### 8.1: General:

#### 8.1.1: LEASE AREA UTILISATION

Sl. No.	Type of land use (in ha)	Area at the beginning of the proposal period	Area proposed under activity	Actual Area utilized in the proposal period	Deviation	Reasons for deviation
1	Mining	1.58	3.39	2.95	-0.44	Proposed production hadn't achieved due to statutory restriction as explained in para 8.2.2.
2	Mineral storage	--	--	--	--	--
3	Mineral Beneficiation plant	--	--	--	--	--
4	Township	--	--	--	--	--
5	Tailing Pond	--	--	--	--	--
6	Railways	--	--	--	--	--
7	Roads	1.28	1.28	0.44	-0.84	Roads became part of mining pit benches with workings.
8	Infrastructure (Workshop, administrative building etc.)	--	--	--	--	--
9	OB/waste dump	2.21	1.32	2.77	+1.45	Backfilling area was not available as projected productions are not done due to EC. Same is affected the proposed rehandling of existing dumps to reduce dump area
10	Top soil preservation	--	--	--	--	--
11	Others: Sub grade stock	--	0.70	0.67	-0.03	Subgrade Ore stocks are created which now shown as stock due to change in threshold limits.
12	Total area put to use	5.07	6.69	6.83	+0.14	As above(Sl.Nos.1,7 & 9)
13	Excavated area reclaimed	--	2.80	--	2.8	Production of ore & waste are not achieved to exhaust ore to create backfill area for backfill & reclamation as targeted due to EC.
14	Waste dump area reclaimed	--	--	--	--	--
15	Undisturbed Area	16.79 + 0.59(SZ)	15.17 + 0.59(SZ)	14.08 +1.54(SZ)	-1.09 & +0.95(SZ)	Adjacent mine common boundaries included in SZ as those were expired.
	<b>Total</b>	<b>22.45</b>	<b>22.45</b>			

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### 8.1.2: SDF and CSR Expenditures: No proposals in approved document.

Activity	Proposals		Achievement	Deviation	Reasons for deviation
	10% of Royalty (a)	Total Expenditure for SDF implementation (b)			
Total expenditure incurred for implementation of SDF at mine level including - Environment Protection - CSR & other welfare activities in peripheral area <i>(Explanation: Expenditure is not over and above the statutory levies imposed by the Government; However, THIS EXCLUDES CONTRIBUTION TO DMF &amp; NMET and is over and above the statutory levies imposed by the Government.)</i>					
CSR (Corporate Social Responsibility) spending at the mine level in Proposal Period (as per Companies Act, 2013 or otherwise)	NA	NA	NA	NA	No proposal. Mine was not operational due to statutory clearances.

## 8.2: Technical Details

### 8.2.1: Exploration

Particulars	Proposals	Achievement	Deviation	Reasons for deviation
Number of Boreholes/ Pits/ Trenches	9 trial pits	6 Nos.	NA	Digging of trial pits are 6 against proposal of 9 due to mine was being non-operational from 2011 to till date due to blanket ban imposed by Hon'ble Supreme Court in 2011 upto 2013 & thereafter for statutory clearance.
Boreholes Meterage (If Boreholes selected in first row) (m)	No proposal	NA	NA	
Grid	No proposal	NA	NA	
G Axis upgradation during Proposal Period as per guidelines of MEMC Rule 2015)	No proposal	NA	NA	
Area converted under G1 from G2/G3				



### 8.2.2: Mine Development (Opencast / Dump Mining)

Particulars	Proposed	Actual	Deviation	Reasons for deviation
<b>8.2.2.1: Generation of Ore/Waste While Development</b>				
Ore (t)	5,34,400	7701	-5,26,699	Statutory Delays: Proposed production & waste handling was not achieved as the EC enhancement applied for the proposed production level was still in granting process during end of plan period hence production & developments were done as per existing approvals.
Waste(t)	6,26,250	9075	-6,17,175	
Generated Waste while ROM recovery	0	0	0	
Dumping Site (For Surface)				
Removal of waste/ over burden in cubic meters	2,50,500	3630	2,46,870	
Generated Waste while ROM recovery	0	0	0	
Dumping site of waste/ overburden				
<b>8.2.2.2: Excavation</b>				
Lateral extent	1.80 Ha	0.80	-1.0	As above
Vertical extent	18m	3m	-15m	

### 8.2.3: Mining operation: Dump Mining

Particulars	Proposals	Achievement	Deviation	Reasons for deviation
Handling of Material	No proposal	NA	NA	NA
Waste Generated post recovery	No proposal	NA	NA	NA
Dumping site for waste	No proposal	NA	NA	NA

### 8.2.4: Zero Waste Mining

Particulars	Proposals	Achievement	Deviation	Reasons for deviation
Alternative use / Disposal of Waste Generated (excluding top soil)	No proposal	NA	NA	NA

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### 8.2.5: Backfilling

Particulars	Proposals	Achievement	Deviation	Reasons for deviation
Site (Co-ordinates)	N 1657288 to N 1657747 & E 667511 to E 667771	0	-100%	As in para 8.2.2.1 & backfill area was not created & not backfilled.
Area (Ha)	2.80	0	-2.8	
Depth (m)	10	0	-10	
Volume Backfilled (CuM)	2,19,000	0	-2,19,000	
Backfilled Area available for Reclamation and Rehabilitation	2.80	0	-2.80	
Backfilled Area Reclaimed and Rehabilitated	1.20	0	0	
Balance Backfilled Area	2.60	0	-2.60	

### 8.2.6: Production of Mineral(s):

Particulars	Proposals	Achievement	Deviation	Reasons for deviation
<b>8.2.6.1: ROM</b>				
Opencast	5,34,400	7701	-5,26,699	As in para 8.2.2.1
<b>8.2.6.2: Cleaned Ore</b>				
Opencast	5,34,400	7701	-5,26,699	As in para 8.2.2.1
Dump Mining	0	NA	NA	
Recovery from Mineral Rejects or Tailings	0	NA	NA	
Total	5,34,400	7701	-5,26,699	As in para 8.2.2.1

### 8.2.7: Handling of Mineral Rejects/ Sub-Grade

Particulars	Proposals	Achievement	Deviation	Reasons for deviation
<b>Generation of mineral rejects</b>				
Opencast	0	NA	NA	--
Dump mining	0	NA	NA	--
Other recovery	0	NA	NA	--
<b>Stacking of mineral rejects/ sub-grade mineral</b>				
Stacking of mineral rejects/ sub-grade mineral	0	NA	NA	--
Blending of mineral reject / sub-grade	0	NA	NA	--

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## 8.2.8: Environment Compliances

Particulars	Proposals	Achievement	Deviation	Reasons for deviation
8.2.8.1: Top soil				
Generation	0	NA	NA	--
Utilization	0	NA	NA	--
Stacking (Dump Id)	0	NA	NA	--
Reclamation	0	NA	NA	--
Rehabilitation	0	NA	NA	--
8.2.8.2: Afforestation (Dumps/Benches/Backfilled Area etc.)				
2005-06	NA	NA	NA	SoM approved for balance 3y of plan period in 2008
2006-07	NA	NA	NA	
2007-08	No proposal	NA	0	
2008-09	1.32 Ha Inactive Dump (52800agaves & 3300 saplings)	0.50 Ha (10000 + 1000)	-0.82 Ha (42800 +1300)	Mine was not worked full extent to proposed production due to delay in clearances and area of backfill was not available.
2009-10	1.20 Float ore backfilled area			
8.2.8.3: Afforestation (Green Belt)				
2005-06	NA	NA	NA	SoM approved for balance 3y of plan period in 2008
2006-07	NA	NA	NA	
2007-08	0.59 Ha (1479 Nos.)	0.59 (1800)	0	Safety Zone area as green belt
2008-09	No proposal	0	NA	--
2009-10	No proposal	0	NA	--
Construction of check dams	2 Nos.	0	-100%	Targeted excavation was not achieved to create external dump / backfill area due to statutory clearances for which these proposals were made, hence proposed structures were not done.
Construction of garland drains	350m x 1.5m x 1.5m	0	-100%	
Construction of retaining walls	750m x 1.5m X 1.5m	0	-100%	
8.2.8.4: Tailing				
Generation	No proposal	No proposal	No proposal	--
Utilization (Auto fill from production)	No proposal	No proposal	No proposal	--
Disposal	No proposal	No proposal	No proposal	--

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### 8.3: Socio-Economic Review:

**8.3.1: Rehabilitation & Resettlement for Project Affected People :** Area was in forest and not involved in displacement of human settlements. Hence R&R PAP is not applicable (NA).

Particulars	Proposals	Actual	Deviation	Reasons for deviation
No. of Project Affected People (PAP)	No proposal	NA	0	--
%age of PAP for whom alternate arrangements made for sustained livelihood	No proposal	NA	0	--
% of project affected families given employment	No proposal	NA	0	--
% of project affected families who have been skilled by the lessee and absorbed (% of total employment given to affected families)	No proposal	NA	0	--

#### 8.3.2: Grievance Redressal

Grievances Received	NA	NA	NA	NA	NA
Grievances Redressed	NA	NA	NA	NA	NA

#### 8.3.3: Welfare and socio-economic development programs for local communities

##### 8.3.3.1: Support for Drinking Water & Agriculture

No. of Water Storage Tanks constructed	No proposal	NA	NA	NA	NA
Drinking Water Facilities provided (Bore wells/ Pumps etc.)	No proposal	NA	NA	NA	NA
Irrigation Support provided (Canals/ Pumps etc.)	No proposal	NA	NA	NA	NA
No. of Water tanks De-silted	No proposal	NA	NA	NA	NA
Water Treatment facilities provided (A/NA)	No proposal	NA	NA	NA	NA
Amount of Water treated (in kL) (if selected A in above)	No proposal	NA	NA	NA	NA

##### 8.3.3.2: Support to Health & Medical Services

No. of persons identified from Occupational health diseases	NIL	NA	NA	NA	NA
No. of Health Camps/ Medicine Camps Organized	No proposal	NA	NA	NA	NA

##### 8.3.3.3: Support to Skill development & Education

##### Vocational Training Provided/ Support Provided

No. of employees undergone Vocational training	No data	All employees covered	NA	NA	NA
No. of other persons undergone Vocational training	No data	NA	NA	NA	NA

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Number of Literacy & Education Camps held/ Supported	No proposal	NA	NA	NA	NA
<b>8.3.3.4: Support to Transportation Services &amp; Infrastructure</b>					
Expenditure on Transportation Services & Infrastructure	No proposal	NA	NA	NA	NA
Road development (m) in the peripheral area (not lease area)	No proposal	NA	NA	NA	NA
No. of Public transport support provided (Ambulance/Buses/ School Vans etc)	No proposal	NA	NA	NA	NA
<b>8.3.3.5: Swatchata Programs: Creating/providing sanitation and healthy condition in and around the mine area</b>					
<b>Adoption of ODF within mining lease area</b>					
No. of Toilets built in the Lease Area	No proposal	NA	NA	NA	NA
<b>Adoption of ODF in nearby villages</b>					
No. Of Toilets built in the villages	No proposal	NA	NA	NA	NA
<b>Provision for greenage recreational facility (Within Lease Area/ Outside)</b>					
Recreational Area Type (Picnic Spot/ tracks/Park Etc)	No proposal	NA	NA	NA	NA
Area covered (For within Lease Area only)	No proposal	NA	NA	NA	NA
<b>Awareness program among Mine workers for Swatchata</b>					
No. of Swatchchta Programmes held	No proposal	NA	NA	NA	NA

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## Chapter 9: IMPACT ASSESSMENT (for fresh grant)

9.1: BASELINE INFORMATION : The mine is not fresh grant hence; chapter is not applicable. Refer Plate-XI.

Whether Area falls under Forest	(yes)
Whether Area falls under Wildlife Sanctuary	(No)
Whether Area falls under Coastal Regulation Zone (CRZ)	(No)
Whether Area falls under Defense Land	(No)
Any Other Clearance (specify)	(No)

Any Significant Objections from any Agency Involved in Stakeholder's Consultation -

Not applicable

9.2: Environment Parameters- Not applicable.

9.2.1: Environment Monitoring-

Not applicable

Monitoring Activity:

9.2.1.1: Ambient Air Quality-

Core Zone (Quarterly Monitoring Planned)	NA
Buffer Zone (Quarterly Monitoring Planned)	NA

9.2.1.2: Water Quality-

Core Zone (Quarterly Monitoring Planned)	NA
Buffer Zone (Quarterly Monitoring Planned)	NA

9.2.1.3: Noise Level-

Core Zone (Quarterly Monitoring Planned)	NA
Buffer Zone (Quarterly Monitoring Planned)	NA

9.3: Impact Assessment: Not applicable.

9.3.2: Land Environment

9.3.2.1: BASE / PRESENT STATUS	
Pre Mining Use	AREA (Ha)
Barren / Waste land with small bushes & shrubs	NA
Land under Agriculture / Crops	NA
Land covered with Plants	NA
Land under Grass Cover	NA

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Land under Public Infrastructure / Utilities (water bodies, roads, railways, electric lines, telephone lines etc.)	NA
Land under Habitation	NA
Land under Monuments & places of Historical Importance	NA
Degraded by Pits & Excavation	NA
Degraded by Dumps & Material Staking	NA
Covered under Mine Infrastructure (plants, shades, buildings etc.)	NA
Land under Forest	NA
Historically, Culturally & Ecologically Important Places	NA
Any Other, please specify below	NA
Date of Observation	NA

9.3.2.2: ANTICIPATED IMPACT	
Post Mining Use	AREA (Ha)
Degradation by Excavation	NA
Degradation by Dumps & Material Staking	NA
Covered under Plants, Shades & Buildings	NA
Covered by Roads & Approaches	NA
Any Other, please specify below	NA
--	

### 9.3.2.3: MITIGATION MEASURES

#### 9.3.2.3.1: Backfilling – NA

#### 9.3.2.3.2: Area proposed to be covered by Plantation in Backfilled Area – NA

#### 9.3.2.3.3: Proposed Area under Agriculture - NA

#### 9.3.2.3.4: Proposed Area to be converted to Grazing Land – NA

#### 9.3.2.3.5: Ground Water Recharging – NA

#### 9.3.2.3.6: Green Belt Development \* NA

#### 9.3.2.3.7: Agriculture \* NA

### 9.3.3: Air Environment

#### 9.3.3.1: Climate & Meteorology (Please provide average of 10 years): Not applicable

Temperature (°C)		Relative Humidity (%)	Average Rainfall (mm)
Maximum	Minimum		
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**9.3.3.2: Air Quality Details for Base line Information / Present Status: Not applicable**

Sr. No.	Station Name	Season	PM10 ( $\mu\text{g}/\text{m}^3$ )	PM10 Excess ( $\mu\text{g}/\text{m}^3$ ) 2	PM2.5 ( $\mu\text{g}/\text{m}^3$ )	PM2.5 Excess ( $\mu\text{g}/\text{m}^3$ ) 2	SO <sub>2</sub> Value ( $\mu\text{g}/\text{m}^3$ )	SO <sub>2</sub> Excess ( $\mu\text{g}/\text{m}^3$ )	NO <sub>x</sub> Value ( $\mu\text{g}/\text{m}^3$ )	NO <sub>x</sub> Excess ( $\mu\text{g}/\text{m}^3$ )	Date of Observation	Action
--	--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--	--

**9.3.3.3: Impact Assessment & Mitigation Measures: Not applicable**

**9.3.3.3.1: Anticipated Impact** (Give details on Prediction of fugitive dust emissions due to mining activities, crushing & cleaning plants, loading & unloading, transportation by rail, road or conveyor)

Not applicable

**9.3.3.3.2: Mitigation Measure** Give details on measures to reduce the emissions of pollutants during mining, loading, unloading, transportation, drilling, blasting, crushing etc. to maintain the air quality

Not applicable

**9.3.4: Water Environment- Not applicable**

**9.3.4.1: RAIN WATER**

**9.3.4.1.1: Base / Present Status** (Details of Rivers, Springs, Lakes, Reservoirs & Drains up to First Order in Study Area)

Not applicable

**9.3.4.1.2: Anticipated Impact** (Impact on Surface Water Bodies / Groundwater Table Regime / Streams / Lake / Springs due to Mining, to be Assessed from Hydro-geological Study Give details about impact on vegetation)

Not applicable

**9.3.4.1.3: Mitigation Measure** (Possibilities of Rain Water Harvesting & Artificial Recharge with in the Mining Lease)

Not applicable

**9.3.4.2: WATER BODY: Not applicable**

**9.3.4.2.1: Base / Present Status\*** (Water Bodies Existing & Water Bodies likely to be created due to Mining Activities & their Water Holding Capacity)

Not applicable

**9.3.4.2.2: Anticipated Impact** (Ingress of Sea Water, Particularly for Mining Projects in Coastal Areas)

Not applicable

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**9.3.4.2.3: Mitigation Measure (Steps to Minimize Impact on Water Table if Mining Intercepts Groundwater Regime) -Not applicable**

**9.3.4.3: WATER BALANCE**

**9.3.4.3.1: Base / Present Status (Water Balance (Withdrawal of Surface Water & Release of Mine Drainage Water) Water Requirement & Waste Water Generation from various Activities of Mine, Including Beneficiation)**

Not applicable

**9.3.4.3.2: Anticipated Impact (Impact of Water Drawl on Surface & Groundwater Resources Impact on Surface & Groundwater Quality due to Discharges from Mining, Tailings Pond, Workshop, Township, & Leach ate from Solid Waste Dumps etc)**

Not applicable

**9.3.4.3.3: Mitigation Measure (Construction of Check Dams, Sedimentation Ponds, Settling Tanks, Retaining Walls etc. with Design & Site Features for Control of run-off Mine Water Treatment for Meeting the Prescribed Standard Waste Water Treatment for Township Sewage, Workshop(s), Tailing Pond Overflow etc)**

Not applicable

**9.3.5: NOISE**

**9.3.5.1: Critical Locations Identified within Lease Area \***

Not applicable

**9.3.5.2: Give Detail about Prediction of Noise Level by using Mathematical Modeling at Different Locations Identified \***

Not applicable

**9.3.5.3: Measures to Minimize the Impact on Receiving Environment \***

Not applicable

**9.3.5.4: Noise Details for Base / Present Status: Not applicable**

Noise Standards			
Area Code	Category of Area	Limits in dB(A)Leq	
		Day Time	Night Time
A	Industrial Area	75	70
B	Commercial Area	65	55
C	Residential Area	55	45
D	Silence Area	50	40

Sl. No.	Station Name	Season	Type of Area	Noise At Day Time:	Excess Noise At Day	Noise At Night Time:	Excess Noise at Night	Date of Observation
--	--	--	--	---	--	--	--	--
--	--	--	--	--	--	--	--	--

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#### 9.3.5.5: Impact Assessment & Mitigation Measures

9.3.5.5.1: Anticipated Impact (Give details on impact on ambient noise level due to rock excavation, transportation, processing equipment's & ancillaries)

Not applicable

9.3.5.5.2: Mitigation Measure (Give details on measures for noise abatement including point source & line source)

Not applicable

#### 9.3.6: VIBRATION

9.3.6.1: Vibration Details for Base / Present Status: Not applicable

S.no	Station	Season	Distance from Blasting Site(m)	Peak Particle Velocity(mm/sec)	Air over Pressure(DB)	Frequency (Hz)	Date of Observation
--	--	--	--	--	--	--	--

9.3.6.2.1: Anticipated Impact (Give details on impact of vibrations including damage to materials/structures due to blasting)

Not applicable

9.3.6.2.2: Mitigation Measure (Give details on measures for noise abatement including point source & line source)

Not applicable

9.3.7: SOCIO-ECONOMIC ENVIRONMENT: Not applicable

9.3.7.1: Demographic Profile: NA

Sl. No.	Type of Area	Name of Village	Total Population	Male to Female Ratio	Literacy Rate (%)	Employment Rate (%)
--	--	--	--	--	--	--

9.3.7.1.1: Anticipated Impact (Give details about impact on the cropping pattern & crop productivity in the core zone)

Not applicable

9.3.7.1.2: Mitigation Measure (Give details about compensation for loss of land & crops)

Not applicable

9.3.7.2: Traditional Skills & Source of Livelihood- NA

9.3.7.2.1: Base / Present Status (Give details about present status on traditional skills & source of livelihood)

Not applicable

9.3.7.2.2: Anticipated Impact (Give details about positive & negative impacts on present status of livelihood in the area) -Not applicable

9.3.7.2.3: Mitigation Measure (Give details about training to locals for employment in the project training for making them self-employable or elsewhere) -Not applicable





9.3.7.3: Economic Profile of the Population in Core & Buffer Zone: NA

9.3.7.3.1: Base / Present Status (Give details about economic profile of the population in core & buffer zone)

Not applicable

9.3.7.3.2: Anticipated Impact (Give details about impact on community resources such as grazing land)

Not applicable

9.3.7.3.3: Mitigation Measure (Give details about employment opportunities & access to other amenities such as education, health care facilities to be extended to locals, addressing local unemployment, tourism or recreation opportunities, efforts for sustainable development of the local community)

Not applicable

9.3.7.4: Human Settlement in Core & Buffer Zone: NA

9.3.7.4.1: Base / Present Status\* (Give details about human settlement in core & buffer zone)

Not applicable

9.3.7.4.2: Anticipated Impact\* (Give details about any displacement of human settlements during the life of the mine)

Not applicable

9.3.7.4.3: Mitigation Measure\* (Give details about rehabilitation & resettlement of land ousters & displaced people)

9.3.7.5: Health Profile of Population in Core & Buffer Zone

Not applicable

9.3.7.5.1: Base / Present Status\* (Give details about health profile of population in core & buffer zone)

Not applicable

9.3.7.5.2: Anticipated Impact\* (Give details about any adverse impact on the general health condition of the population in core & buffer zone)

Not applicable

9.3.7.5.3: Mitigation - Measure\* (Give details about avenues like dispensaries, hospitals, maternity homes if any to be created) - Not applicable

9.3.7.6: Historically, Culturally & Ecologically Important Places in Core & Buffer Zone- NA

9.3.7.6.1: Base / Present Status\* (Give details about historically, culturally & ecologically important places in core & buffer zone) - Not applicable

9.3.7.6.2: Anticipated Impact\* (Give details about risk profiling)

Not applicable

9.3.7.6.3: Mitigation Measure\* (Give details about public health benefits (e.g. clean water to an aboriginal community), measure for safeguard against damage etc.) - Not applicable

This Mining Plan is approved subject to the conditions / stipulations Indicated in the Mining Plan approval letter No. 279/375/93/13 NG Date 12/4/2022

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Sitaram  
Kemmannu

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by Sitaram  
Kemmannu  
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12/4/2022  
क्षेत्रीय खान नियंत्रक  
Regional Controller of Mines  
भारतीय खान ब्यूरो  
Indian Bureau of Mines  
बैंगलूर / Bangalore - 560 022

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### List of Annexures (in pdf format):

S.No.	Document	Index
1	Letter of Intent /Letter of lease grant: <ul style="list-style-type: none"> <li>Original Grant Order</li> <li>Renewal grant Order</li> <li>Extended lease validity order in line with MMDR amendment act 2015 by GoK</li> <li>Extended lease validity corrigendum to Annexure-1C by GoK</li> <li>DMG Communication to execute Supplementary lease deed for extended validity</li> <li>Copy of GoK order for transfer of lease</li> </ul>	1A 1B 1C 1D 1E 1F
2	Copy of lease deed executed <ul style="list-style-type: none"> <li>Copy of original lease deed</li> <li>Copy of renewal lease deed</li> <li>Copy of form-O transfer lease deed document.</li> </ul>	2A 2B 2C
3	Copy of Environment and Forest Clearance, Consent to Establish, Consent to Operate <ul style="list-style-type: none"> <li>Copy of EC application in 2008</li> <li>Copy of MoEF&amp;CC communication for clarification for EC issue</li> <li>MoEF&amp;CC letter Copy delisting our EC proposal</li> <li>Copy of application for EC after extended lease validity in 2021</li> <li>Copy of Forest Clearance by MoEF&amp;CC</li> <li>Copy of FC communication by GoK</li> <li>Copy of FC transfer by MoEF&amp;CC</li> <li>Copy of FC transfer by GoK</li> <li>Copy of acceptance of EC by SEIAA &amp; issuance of ToR</li> <li>Copy of PCCF Recommendation of FC validity extension to GoK</li> </ul>	3A 3B 3C 3D 3E 3F 3G 3H 3I 3J
4	Copy of Declaration of Owner/Nominated Owner in case of Company/partnership firm	4
5	Copy of Registration of Company (RoC)/Partnership firm (Registration) & Deed <ul style="list-style-type: none"> <li>Copies of Partnership deed &amp; Form C for registration of deed (Collectively)</li> </ul>	5
6	ID & Address Proof of Owner/ Nominated Owner <ul style="list-style-type: none"> <li>ID Proof copy (Aadhar card)</li> <li>Pan card of Marwa Mining Company</li> </ul>	6A 6B
7	Consent letter for Qualified Person	7
8	Experience & Qualification Details of Qualified Person <ul style="list-style-type: none"> <li>Copy of M.Sc. Geology of QP qualification</li> <li>Copy of Experience certificates (Collectively) of QP</li> <li>Copy of Pan Card of QP</li> </ul>	8A 8B 8C
9	Copy of Study reports conducted as per Para 4.3.1, <ul style="list-style-type: none"> <li>Recovery study report of face samples from NABL accredited laboratory</li> <li>Bulk Density report of NABL accredited laboratory</li> <li>Recovery study Report of Trial Pits</li> </ul>	9A 9B 9C
10	Copy of Scale relaxation approval granted(if applicable)	NA
11	Exploration details <ul style="list-style-type: none"> <li>Workout of average grade and recovery calculations from face samples/Trial pits</li> <li>Details of Exploratory DTH Boreholes drilled (XLS/PDF file -csv)</li> <li>Proposed Boreholes location, azimuth, dip, depth information</li> </ul>	11A 11B 11C
12	Chemical and Mineralogical analysis report,	

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	<ul style="list-style-type: none"> <li>• Copies of Analysis reports of Trial Pits (Collectively)</li> <li>• Copies of Analysis reports of Boreholes (Collectively)</li> <li>• Copies of chemical analysis of face samples (Collectively)</li> <li>• Copy of Complete analysis of Mn float ore zone &amp; Manganese float ore</li> </ul>	
13	Mineral processing flowsheet with stage wise recovery	--
14	Any other Report or Certification as required in the submitted Document. <ul style="list-style-type: none"> <li>• Copies of IBM approvals of MP/SoM (Collectively)</li> <li>• CEC survey Mahazar copy showing boundary co-ordinates</li> <li>• R&amp;R Plan pages showing about Dumps &amp; Stocks during 2011-12.</li> <li>• Copy of communication of Relinquish of excess area of 2.37 Ha of lease area to forest department duly acknowledged.</li> <li>• Detailed cost calculation of mining and allied activities</li> <li>• Copy of DFO letter with Checklist for FC extension.</li> <li>• Major End Users Specifications of Manganese Ore</li> <li>• Water requirement for mining/allied activities, source &amp; their recycle details.</li> </ul>	14A 14B 14C 14D  14E 14F 14G 14H
15	Copy of Bank Guarantee	15
16	Copy of Performance Surety <b>(Not applicable as lease was not granted through auction)</b>	NA
17	Copy of MDPA (as applicable) <b>(Not applicable as lease was not granted through auction)</b>	NA
18	Any other Report or Certification as required in the submitted Document.	--

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## **List of Plates ( Geometry type: Polygon, Datum: WGS 84)**

1. **Lease Cadastral Plan (scanned image)**: The Scanned copy shall be of the original lease map issued by State Government along with other details.
  - a. Scanned Copy of lease sketch enclosed as **Plate-I**.
  - b. Scanned Copy of CEC sketch as **Plate-IB**.
  - c. The key plan of lease area on toposheet enclosed as **Plate-IC**.
2. **Surface Plan(.KML /.KMZ/.SHP format)**: A statutory plan as per MCDR, 2017. The Plan should be submitted showing different color codes for:(1) Active Pits & Excavation area(2) Excavated area reclaimed & rehabilitated (3)Active dumps (4) Stabilized & rehabilitated dump area , (5) Green belt (6) Mineral Stacks (7) Utilities such as plant, buildings etc. (8) Lease boundary. Provided as **Plate-II**.
3. **Surface Geological Plan of the lease (.KML /.KMZ/.SHP format)**: The Plan should be submitted showing different color codes for : (1) Lithological/Geological Occurrence (2) Area under G1,G2,G3 & G4 (3) Active pits & Excavation area (4) Dump Area (5) Mineral Stacks (6) Lease boundary. Provided as **Plate-III**.
4. **Surface Geological sections (in Pdf/.dwg format)**: Geological sections with different color coding depicting all the features shown in Surface Geological Plan. Provided as **Plate-IV**.
5. **Five year Production and Development plan(.KML /.KMZ/.SHP format)**: The Plan should be submitted showing different color coding for: (1) Active Pit and Excavation area , (2) Year wise excavation proposal for year I to V ( 3) Active dump and year wise dump proposal for year I to V (4) Year wise Dump working proposal for year I to V (6) Lease boundary (with reference to chapter 4). Provided as **Plate-VA, Plate-VB & Plate-VC** for remaining 3 years (2022-23, 2023-24 & 2024-25) of plan period.
6. **Five-years Production and Development sections(in pdf/.dwg format)**: Year wise excavation and dumping proposals with different color coding depicting all the features as shown in the Five year Production and development plan. Provided as **Plate-VIA, Plate-VIB & Plate-VIC** for remaining 3 years (2022-23, 2023-24 & 2024-25) of plan period.
7. **Progressive Mine Closure Plan (.KML /.KMZ/.SHP format)**: The Plan should be submitted showing different color coding for : (1) Year wise excavated area Reclaimed & rehabilitated for year I to V (2) Year wise dump area to be stabilized and dump area to be rehabilitated for year I to V (3) Year wise Green area proposed from year I to V.(4) Any other reclamation and rehabilitation measures proposed.(5) Lease boundary ( with reference to chapter 6). Provided as **Plate-VII**.
8. **Progressive mine Closure sections(in pdf/.dwg format)**: Year wise Progressive mine closure sections showing all the year wise reclamation, rehabilitation proposals as depicted in the Progressive mine closure plan. Provided as **Plate-VIII**.
9. **Conceptual Plan and section (.KML /.KMZ/.SHP format)**: The Plan should depict the status of lease area as envisaged at the end of life of Mine. Status of land use shall be depicted by different color coding. Plan is provided as **Plate-IXA** & Sections as **Plate-IXB**.
10. **Geo referenced Cadastral Plan** : Duly certified by the State Government. Provided as **Plate-X**.



11. Environmental Plan(.KML /.KMZ/.SHP format): As per MCDR, 2017 Rule 32(5)(b) Provided as Plate-XI.

12. Any other plan/section as deemed necessary by approving authority

- Financial Assurance Plan as Plate-XII.
- Scan copy of existing land use plan showing stock locations in approved R&R Plan as Plate-XIII.
- Sketch showing relinquish/surrender area of excess 2.37 Ha area duly signed by forest department as Plate-XIV.

# Annexures



**MARWA MINING COMPANY**

Door No. 687, 13th Ward, 'UMER MANZIL'  
KUDLIGI - 583 135, Dist Vijayanagara, KARNATAKA, INDIA  
Email : marwaminingcompany@gmail.com

**CONSENT LETTER FROM THE LESSEE**

1. The Review and Updation of Mining plan in respect of Jiginihalli Manganese Mine of M/s Marwa Mining Company, over an area of 22.45 Hectares (24.82 Ha. as per CEC), in M.L. No.: 2482 of Jiginihalli Village, S.M.Block, Sandur Taluk, Ballari district, Karnataka state, under Rule 17(1) of MCR, 2016 has been prepared by Qualified person Sitaram Kemmannu.

This is to request the Regional Controller of Mines, Indian Bureau of Mines, Bengaluru, to make any further correspondence regarding any correction of the Review and Updation of Mining Plan with the said Qualified person at his address below: -

**Sitaram Kemmannu**

**Qualified Person**

H.No 1054, Putta Nilaya

Near AIR Station, 35<sup>th</sup> ward, Eshwarnagar,

HOSAPETE-583 203 Vijayanagar District, Karnataka.

Ph: +91-8826164683

E mail ID: sitaram.kemmannu@gmail.com

**APPROVED**

**MARWA MINING COMPANY**

Door No. 687, 13th Ward, 'UMER MANZIL'  
**KUDLIGI - 583 135**, Dist Vijayanagara, KARNATAKA, INDIA  
Email : marwaminingcompany@gmail.com



We hereby undertake that all modifications / updating as made in the said Review and Updation of Mining plan by the said Qualified person be acceptable on us and binding in all respects.

2. It is certified that the **CCOM Circular No-2/2010** will be implemented and complied with when an authorized agency is approved by the State Government.
3. It is certified that the Progressive Mine Closure plan of Jiginihalli Manganese ore Mine of M/s. Marwa Mining Company, over an area of 22.45 Hectares (24.82 Hectares as per CEC) complies with all statutory rules, Regulations, Orders Made by the Central or State Government, Statutory organization, Court etc. which have been taken into consideration and whenever any specific permission is required the lessee will approach the concerned authorities. The information furnished in the **Progressive Mine Closure plan** is true and correct to the best of our knowledge and records.
4. This is to certify that "The provisions of **Mines Act, Rules and Regulations** made there under have been observed in the Review and Updation of Mining Plan, over an area of 22.45 hectares (24.82 Hectares as per CEC) in S.M. Block, Jiginihalli Village, Sandur Taluk, Ballari District, Karnataka state belonging to M/s Marwa Mining company and where specific permissions are required, the applicant will approach the

**APPROVED**

## MARWA MINING COMPANY

Door No. 687, 13th Ward, 'UMER MANZIL'  
KUDLIGI - 583 135, Dist Vijayanagara, KARNATAKA INDIA  
Email : marwaminingcompany@gmail.com



D.G.M.S. Further, standards prescribed by D.G.M.S. in respect of miners' health will be strictly implemented".

Place: Hosapete

Date: 24.01.2022

D  
Abdulwaris

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Abdulwaris  
Date: 2022.03.04  
11:03:24 +05'30'

(D. Abdulwaris)

Signature of Managing Partner

APPROVED-



# Sitaram Kemmannu

Professional Consultant (Mining/ Metal Business)

Service Tax Code(Registration Number): AREPS6536QD001

GSTIN : 29AREPS6536Q1ZS



## CERTIFICATE FROM QUALIFIED PERSON

The provisions of the Mineral Conservation and Development Rules 2017 made under Section 18 of the Mines & Minerals (Development & Regulation) Act 1957, have been observed in the preparation of the Review and Updation of Mining Plan for Jiginihalli Manganese Mine (ML No.2482) of M/s Marwa Mining Company, over an area of 22,45, in Jiginihalli Village, Sandur Taluk, Ballari District, Karnataka State and whenever specific permissions are required, the applicant will approach the concerned authorities of Indian Bureau of mines. The information furnished in the Review and Updation of Mining Plan is true and correct to the best of our knowledge.

Place : Hosapete

Date : 05.03.2022

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Kemmannu

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by Sitaram  
Kemmannu  
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**Sitaram Kemmannu**

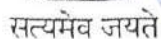
Qualified Person

**APPROVED**

H.No.1054, "Putta Nilaya"  
35<sup>th</sup> Ward, Eshwar Nagar,  
Near Air Station'

HOSAPETE-583 201 (Bellary District, Karnataka State)

Phone: +91 8826164683/9482355707



**Government of Karnataka**

**e-Stamp**



Certificate No.	: IN-KA91020413790291U
Certificate Issued Date	: 11-Apr-2022 10:30 AM
Account Reference	: NONACC (FI)/ kaksfcl08/ HOSPET/ KA-BY
Unique Doc. Reference	: SUBIN-KAKAKSFCL0813197999612002U
Purchased by	: MARWA MINING
Description of Document	: Article 12 Bond
Description	: BANK GUARANTEE
Consideration Price (Rs.)	: 0 (Zero)
First Party	: MARWA MINING
Second Party	: ICICI BANK LTD
Stamp Duty Paid By	: MARWA MINING
Stamp Duty Amount(Rs.)	: 200 (Two Hundred only)

Vikas Souharda Co-op Bank Ltd.,  
Authorized Signatory



Please write or type below this line

This Stamp Paper forms an integral part of  
BG 0613NDD900000223 issued on 11-04-2022  
value of Rs. 62,80,000/-  
Issued By ICICI Bank Ltd

APPROVED



**Statutory Alert:**

1. The authenticity of this Stamp certificate should be verified at '[www.shcilestamp.com](http://www.shcilestamp.com)' or using e-Stamp Mobile App of Stock Holding. Any discrepancy in the details on this Certificate and as available on the website / Mobile App renders it invalid.
2. The onus of checking the legitimacy is on the users of the certificate.
3. In case of any discrepancy please inform the Competent Authority.

Ref: 0613NDDG00000223  
Date: 11-04-2022

To,  
THE REGIONAL CONTROLLER OF MINES  
INDIAN BUREAU OF MINES BANGALURU

BANGALURU  
KARNATAKA  
INDIA  
560022

Sub: Issuance of Bank Guarantee

Dear Sir/Madam,

Please find attached Bank Guarantee issued by us favouring yourself on behalf of:

SREE SRINIVASA MINERALS, HOTEL, PRIYADARSHINI COMPLEX, COMPLEX,, 207 STATION ROAD, HOSAPETE,, BALLARI (BELLARY)  
KARNATAKA, HOSPET, KARNATAKA, INDIA, 583201

Please find the details mentioned below.

Bank Guarantee No. & Date of Issue	Expiry Date	Claim Expiry Date	Currency	Amount of Bank Guarantee
0613NDDG00000223 11-04-2022	31-03-2025	31-03-2025	INR	62,80,000.00

We confirm that the officials who have signed the above Bank Guarantee are authorized to sign such documents on behalf of ICICI Bank Limited. You may verify genuineness of the Bank Guarantee from any branch of ICICI Bank in your own interest.

In the event of invocation, we request you to please ensure compliance with the terms and conditions of the Bank Guarantee in order to ensure timely payment. You are requested to ensure special care inter alia with respect to the following in the invocation claim letter -

- Bank Guarantee Number
- Expiry/Claim Expiry date
- Claim Amount
- Designated Bank branch for submission of invocation claim
- Any declaration / certification that may be required as part of the guarantee text.
- Any other requisite document including the original Bank Guarantee.

Thanking you,

Yours faithfully,

For ICICI Bank Limited  
Authorized Signatory



APPROVED

APPROVED





Sr.No. 096886

BG Number: 0613NDDG00000223

Issuance Date: 11 April, 2022

**BANK GUARANTEE**

**ICICI Bank Limited**

(Incorporated in India)



**BANK GUARANTEE AND CO-ACCEPTANCE BOND**

To  
The Regional Controller of Mines  
Indian Bureau of Mines  
Bangaluru - 560022

Dear Sirs,

Guarantee No : 0613NDDG00000223

Amount of Guarantee Rs.62,80,000/- (Rupees Sixty Two Lakh Eighty Thousand Only)

Guarantee Period from 11.04.2022 to 31.03.2025

Last date of lodgement of claim 31.03.2025

This Deed of Guarantee executed on 11 Day of April 2022 by ICICI Bank (bank name) constituted under the Banking Regulation Act, 1949 having its Central Office at ICICI Bank Tower, Near Chakli Circle, Old Padra Road, Vadodara, Gujarat, Pin – 390007 and among other places, a branch at, ICICI Bank Ltd, No.150/4, Aradhya Enclave, K.B Extension, Pb Road, Davangere-577001, Karnataka (hereinafter referred to as the bank), in favour of the Regional Controller of Mines, Indian Bureau of Mines, Bangalore (hereinafter referred to as the Beneficiary) for an amount not exceeding Rs.62,80,000/- (Rupees Sixty Two Lakh Eighty Thousand Only) at the request of M/s Marwa Mining Company office address at WARD NO.29 1ST CROSS, MASHALLAH ENTERPRISES, RAJIV NAGAR, HOSPET, Karnataka 583201 (hereinafter referred to as the Contractor/s/lessee)

This guarantee is issued subject to the condition that the liability of the bank under this guarantee is limited to maximum of Rs.62,80,000/- (Rupees Sixty Two Lakh Eighty Thousand Only) and the guarantee shall remain in full force upto 31.03.2025 (date of expiry) and cannot be revoked on or before 31.03.2025 (last date of claim) by the Regional Controller of Mines, Indian Bureau of Mines, Bangalore in writing.

1. Agreement on production of a Bank guarantee for Rs.62,80,000/- (Rupees Sixty Two Lakh Eighty Thousand Only) under rule 27(1) of Mineral Conservation and Development (Amendment) Rules, 2021 and rule 27 of MCDR, 2017.

2. We ICICI Bank Limited (bank name), at the request of M/s Marwa Mining Company (lessee) do hereby undertake to pay to the Regional Controller of Mines, Indian Bureau of Mines, Bangalore or any other Officer authority nominated by the Controller General, Indian Bureau of Mines an amount not exceeding Rs.62,80,000/- (Rupees Sixty Two Lakh Eighty Thousand Only) against any loss or damage caused to or suffered or would be caused to or suffered by the Government or towards non compliance of provisions of Rule-23 of MCDR, 2017 i.e., Progressive Mine Closure Plan approved in respect of the Jiginahalli Manganese Ore (ML no: 2482) located in Sandur South Forest Range, Jiginahalli Village of Sandur Taluk, Bellary Dist., Karnataka, by reason of any Breach of the said lessee of any of the terms or conditions contained in the Progressive Mine Closure Plan.

The beneficiary may, in its own interest, verify the genuineness of the bank guarantee by seeking confirmation of its issuance from a branch of ICICI Bank other than the issuing branch.

Regd. Office: ICICI Bank Ltd., ICICI Bank Tower, Near Chakli Circle, Old Padra Road, Vadodara, Pin code- 390 007, Gujarat  
Phone : +91-265-6722286, CIN L65190GJ1994PLC021012

**APPROVED**



**BANK GUARANTEE**  
**ICICI Bank Limited**  
(Incorporated in India)

**BG Number: 0613NDDG00000223**

**Issuance Date: 11 April, 2022**



3. We, ICICI Bank Limited (bank) do hereby undertake to pay the amount due and payable under this guarantee without any demur, to the authority merely on a demand from the Regional Controller of Mines, Indian Bureau of Mines, Bangalore or any other authorized by the Controller General, Indian Bureau of Mines stating that the amount claimed is due by way of loss or loss of damage caused to or would be caused to or suffered by the government by reason of breach by the said lessee or any of the terms or conditions contained in the Mining Plan or by reason of lessee's failure to perform the said progressive mine closure plan. Any such demand made on the bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs.62,80,000/-(Rupees Sixty Two Lakh Eighty Thousand Only).

4. We undertake to pay to the authority on a demand from the Regional Controller of Mines, Indian Bureau of Mines, Bangalore or any other officer authorized by the Controller General, Indian Bureau of Mines or Govt, of India any money so demanded not withstanding any dispute or disputes raised by the lessee in any suit or proceeding pending before any court or tribunal relating thereto our liability under this present being absolute and unequivocal. The payment so made by us under this bond shall be valid discharge of our liability for payment there under and lessee shall have no claim against us for making such payment.

5. We, ICICI Bank Limited, further agree that the guarantee herein contained shall remain in full force and effect during the period up to the end of the Mining Plan of Mining period of five years that would be taken for performance of the said Agreement and that shall continue to be enforceable till all the dues of the Govt, under or by virtue of the said agreement have been fully paid and its claims, satisfied or discharged till Regional Controller of Mines, Indian Bureau of Mines, Bangalore or any other officer authorized by the Controller General, Indian Bureau of Mines certifies that the terms and conditions of the said progressive mine closure plan have been fully and properly carried out by the said lessee and accordingly discharge this guarantee. Unless a demand or claim under this guarantee is made on us in writing on or before 31.03.2025 we shall be discharged from all liability under this guarantee thereafter.

6. We, further agree that Regional Controller of Mines, Indian Bureau of Mines, Bangalore or any other officer authorized by the Controller General, Indian Bureau of Mines shall have fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said agreement or to extend time of performance by the said lessee from time to time or to postpone for any time or from time to time any powers exercisable by Regional Controller of Mines, Bangalore against the said lessee and to forbear or enforce any of the terms and conditions relating to the said agreement, we (bank) shall not be relieved from our liability by reason of any such variation or extension being granted to the said lessee or for any forbearance, act or omission on the part of Regional Controller of Mines, Indian Bureau of Mines, Bangalore or any indulgence by Regional Controller of Mines, Indian Bureau of Mines, Bangalore to the said lessee or in any manner or thing whatsoever which under the law relating to sureties, would but this provision have effect of so relieving us.

7. This guarantee will not be discharged due to change in constitution of the bank or lessee.

The beneficiary may, in its own interest, verify the genuineness of the bank guarantee by seeking confirmation of its issuance from a branch of ICICI Bank other than the issuing branch.

Regd. Office: ICICI Bank Ltd., ICICI Bank Tower, Near Chakli Circle, Old Padra Road, Vadodara, Pin code- 390 007, Gujarat  
Phone : +91-265-6722286, CIN L65190GJ1994PLC021012

**APPROVED**



Sr.No. 096888

**BANK GUARANTEE**  
**ICICI Bank Limited**  
(Incorporated in India)

**BG Number: 0613NDDG00000223**  
**Issuance Date: 11 April, 2022**



8. We, ICICI Bank, lastly undertake not to revoke this guarantee during its currency except with the previous consent of the Regional Controller of Mines, Indian Bureau of Mines, Bangalore in writing.

9. Notwithstanding anything contained herein:

a) Our liability under this Bank guarantee shall not exceed Rs.62,80,000/- (Rupees Sixty Two Lakh Eighty Thousand Only).

b) The bank guarantee shall be valid up to 31.03.2025.

c) The period of bank guarantee submitted is valid for the period of the proposals given in the Mining Plan /PMCP etc. We are liable to pay the guarantee amount or any part thereof under this Bank Guarantee and only if served upon us a written claim or demand on or before.

10. If the bank guarantee is to be en-cashed through the court, in that case the Bangalore court will have jurisdiction.

The liability of the Guarantor under this Guarantee shall not exceed Rs.62,80,000/- (Rupees Sixty Two Lakh Eighty Thousand Only) (the "Guaranteed Amount")

This Guarantee shall be valid up to 31-03-2025 (the "Expiry Date")

Notwithstanding anything to the contrary contained herein, no obligation of the Guarantor to pay any amount under this Guarantee shall arise prior to the fulfillment of the following conditions precedent:

(a) written claim/demand(s) in terms of this Guarantee of an aggregate amount less than or equal to the Guaranteed Amounts is/are made by the Beneficiary hereunder; and

(b) such written claim/demand(s) is/are delivered to the Guarantor on or before the 31-03-2025 at the ICICI Bank Ltd, No.150/4, Aradhya Enclave, K.B Extension, Pb Road, Davangere-577001, Karnataka.

Date: 11.04.2022

Place: HOSPET

For ICICI BANK LIMITED

Authorised Signatories

Signature :

Signature of Devarey

Signature :

Signature of S. Tabal Hussain

Name: Devarey

Name: S. Tabal Hussain

Signature Code: 2248982

Signature Code: 284086

The beneficiary may, in its own interest, verify the genuineness of the bank guarantee by seeking confirmation of its issuance from a branch of ICICI Bank other than the issuing branch.

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Phone : +91-265-6722286, CIN L65190GJ1994PLC021012

**APPROVED**



# Plates

PLAN OF MINING BLOCK GRANTED  
TO SRI V. NARAYANA KOTTI MENON, FOR MINING  
PURPOSES, FOR MANGANESE ORE, IN JIGINIHALLI VILLAGE  
SANDUR TALUK, BELLARY DISTRICT.

☒ SANCTIONED AREA 55-20 ACRES (22.45 HECTARES) IS  
SHOWN BELOW BY HATCHED AND RED LINE MARKED BOUNDARY  
MINING LEASE PERIOD IS 20 YEARS

BOUNDARIES

NORTH - M.L. BLOCK OF M/S GADIGI MINERAL MINING CO

SOUTH - SY No 1A

EAST - M.L. BLOCK OF M/S GADIGI MINERAL MINING CO

WEST - SY No: 1A

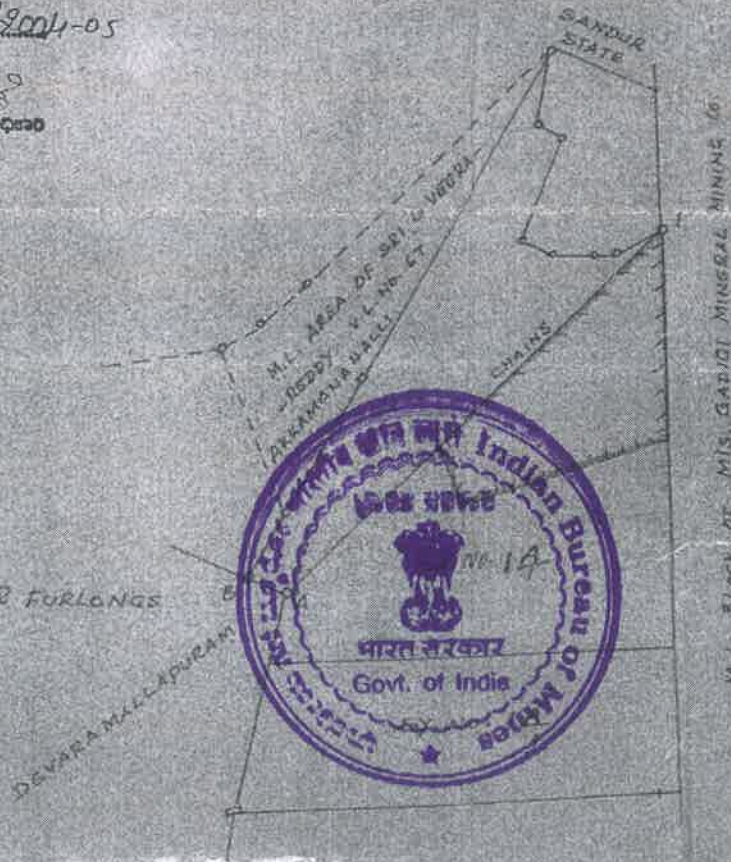
ಈ ದಾಖಲೆಯು 1/4 ಹಾಗೂ 1/2

ಎಕರ್ 1221/90ml-05

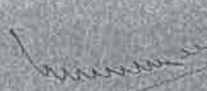
ದಾಖಲೆ 3 ನೇ ಪುಟ.


  
 V. Narayana Kotti Menon  
 ಸಹಾಯಕ ಮಂತ್ರಿ

N  
  
 SCALE 1" = 2 FURLONGS



File: 125 AML 75	RML 1676
MLD No. E-2	21-10-2003
Sanctioned By: ABEJE HOSM	21-03-05
Trained By: A. K. Narayanan	21-03-05
Checked By: S. S. Narayanan	21-03-05

  
 V. Narayana Kotti Menon  
 21-03-05

  
 Director of Mines & Geology  
 Karnataka, Bangalore



Sitaram  
 Kemmannu  
 Digitally signed by Sitaram Kemmannu  
 12.2021-0530

**Sitaram Kemmannu**  
**Qualified Person**

**PLATE NO. IA**

PLATE-1A

11/04/2022