

# THE MINING PLAN

(Prepared Under Rule 13 of MCR, 2016 & submitted under Rule 16, of MCR, 2016)

With

## PROGRESSIVE MINE CLOSURE PLAN

(Submitted Under Rule 23 of MCDR, 2017)

in respect of

### JUMKA PATHIRIPOSHI PAHAR IRON ORE BLOCK

OVER 158.509 HA IN BATAGAON, KENSARA IN KOIRA TAHASIL  
OF SUNDERGARH DISTRICT AND KADAKALA VILLAGE OF  
BANSPAL TAHSIL OF KEONJHAR DISTRICT, ODISHA STATE

FOR THE FINANCIAL YEAR : (2024-25 to 2028-29)

LOI No. IV(B)SM-49/2021/8716/SM, dated 28.10.2021

FOREST AREA - 156.978 HA, NON FOREST AREA 1.531 HA.

CATEGORY OF MINE - "A" category

OPEN CAST

Submitted by

**M/s. Rungta Mines Limited**

**At/Po: Barbil, Main Road, Keonjhar, Odisha-758035**

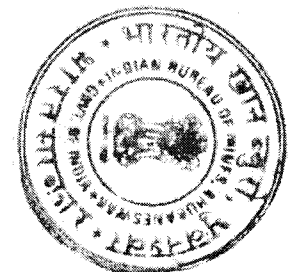
**Email ID: bbloffice@runtamines.com**

Prepared By:

**Abhijit Sen, M.Sc (Tech) Applied Geology**

**B. K. Jha, M. Sc (Geology)**

**Ritesh Ranjan, M.sc(Geology)**



MP / A / 18 - 000 / 8440 / 2021-22  
From Mr. B. K. Jha  
Date - 29-11-21

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## Chapter 1: General Information

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### 1.1 : Lease Details

IBM Registration Number: NA  
 Lease Code: NA  
 Mine Code: NA  
 Name of Lessee: M/s. Rungta Mines Limited  
 Address of Lessee: Rungta House, Chaibasa - 833201, West Singhbhum (Jharkhand)  
 Type of Lessee : Limited company  
 Name of Mining Lease: Jureka Pathiriposhi Pahar Iron Ore Block  
 State: Odisha  
 District: Sundergarh & Keonjhar  
 Tehsil/ Taluk/ Mandal: Koira in Sundergarh & Banspal Tahsil of Keonjhar district  
 Village: Batagaon, Kensara in Sundergarh and Kadakala in Keonjhar  
 Lease Area (Ha): 158.509 ha (as per DGPS survey)  
 Forest Area (Ha): 156.978 ha (147.803 DLC + 9.175 Forest)  
 Name of Minerals: Iron ore  
 Name of associated minerals: Nil  
 Type : Nil  
 Five Year Block (Financial Year) 2024-25 TO 2028-29  
 Type of working: Opencast  
 Nature of Use: Captive as well as outside sell  
 Category of Mine: Category A

APPROVED

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

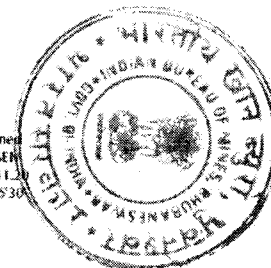
Grant	From	To	Lease deed execution date	Lease registration date
* Detail given below				
<p>* Government of Odisha, pursuant to the Mines and Minerals (Development and Regulation) Act, 1957 and the Mineral (Auction) Rules, 2015 as amended from time to time, issued the notice inviting tender dated 07.07.2021 to commence the auction process for grant of mining lease for Jureka Pathiriposhi Pahar Iron ore block over an area of 158.509 Hectare for Iron Ore located in Koira Mining circle, district Sundergarh, Odisha. The e-auction process was conducted in accordance with the tender document for the said mineral block on 24.09.2021 and Rungta Mines Ltd. was declared as the 'Preferred Bidder' under Rule 9(9)(iii) or Rule 10 (1A) of Auction Rules, having quoted highest Final Price Offer vide letter No. MXIII(b) 46/2021/7738/DM Dated 05.10.2021 Issued by Director of Mines Government of Odisha, Annexure-1A.</p> <p>As required under Rule 10(1) of the Auction Rules and the tender document for the said mineral block, Rungta Mines Ltd. has made payment of the first instalment, being 20% (twenty percent) of the upfront payment of Rs.49,21,44,251/- (Forty Nine Crore Twenty One Lakh Forty Four Thousand Two Hundred Fifty One ) only through Treasury Challan vide e- Challan no. 0853/1886 dated 08.10.2021 at Cyber Treasury, Dist- Sundergarh.</p> <p>Accordingly, pursuant to Rule 10(2) of the Auction Rules and the terms of the Tender Document, the Government of Odisha is pleased to issue Letter of Intent (LOI) bearing no. IV(B)SM-49/2021/8716/SM, Bhubaneswar dated 28.10.2021 for grant of Mining Lease for Jureka Pathiriposhi Pahar Iron ore block for Iron ore located in 20 km south of Koira town in Kedeshala village Koidatahasli, Sundergarh district on 158.509 Hectare Area to Rungta Mines Ltd. for a period of 50 (fifty) years. (Annexure-1)</p>				

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Rungta Mines Ltd. shall be considered to be the "successful bidder" upon continuing to be in compliance with all the terms and conditions of eligibility; payment of the second installment being 20% (twenty per cent.) of the upfront payment; furnishing an irrevocable and unconditional performance security to the State Government from an Acceptable Bank and payable at Bhubaneswar, Odisha, pursuant to the Auction Rules; satisfying the conditions specified in clause (b) of sub-section (2) of Section 5 of the Act with respect to a mining plan; and signing of the Mine Development and Production Agreement upon obtaining all consents, approvals, permits, no-objections and the like as may be required under applicable laws for commencement of mining operations.

The Validity of LOI is for a period of 3 (three) years from the date of its issuance, within which time all the above conditions must be fulfilled and the Mining Lease deed must be executed between the Rungta Mines Ltd. and the Government of Odisha. In case there is a delay in execution of Mining Lease Deed due to reasons beyond the control of the Preferred Bidder, then it may submit an application to Government of Odisha, requesting for further extension. If the Government of Odisha is satisfied that there is a delay in execution of Mining Lease Deed due to reasons beyond the control of the Preferred Bidder and a longer period is required to enable the Preferred Bidder to satisfy all or any of the above conditions, it may extend the validity of this letter of intent for such period or periods as the Government of Odisha may specify. Provided that: (a) this letter of intent shall be extended for a maximum period of 2 (two) years; and (b) the total period for which this letter of intent would remain valid must not exceed 5 (five) years from the date of issuance.

Thus, on issuance of LOI, process for grant mining lease has been started. According to this process calendar for grant of mining lease the last date of execution of mining lease deed will be 27.10.2024 i.e. 3 years from date of issuance of letter of intent (LOI). Accordingly M/s Rungta Mines Limited, only on execution of mining lessee deed will be entitled to start the mining operation. Here, it is pertinent to refer the clause 10 of the Format of Mine Development and Production Agreement (MDPA) as a part of tender document of Jureka Pathiriposhi Pahar Iron ore block, the provisions of which are quoted below:

#### MINING PLAN AND COMPLIANCE WITH APPLICABLE LAW

The Mining Plan applicable pursuant to clause (b) of sub-section (2) of the Section 5 of the Act shall be complied with by the Successful Bidder at all times. The Successful Bidder shall also comply with Applicable Law in relation to conduct of mining operations

The Successful Bidder shall implement an annual production and dispatch plan to ensure that the estimated quantity of mineral resources in the Mineral Block are fully exploited during the period of the Mining Lease, failing which appropriate actions in accordance with this Agreement shall be initiated. In this regard, the Successful Bidder shall make an application for approval of a Mining Plan to the competent authority contemplating an annual production and dispatch in each year commencing from year 3 (three), which should be equal to or more than the quantity arrived at by dividing the estimated quantity of resources of the Mineral Block by 48 (forty eight)."

In view of the above, during 1st two years of mining lease period which will start from the date of execution of lease deed; we are assuming the last date of execution of mining lease deed to be 27.10.2024 i.e. 3 years from date of issuance of letter of intent (LOI), there will be no production during first 2 years i.e. from 27.10.2024 of financial year 2024-25 upto 26.10.2026 of financial year 2026-27. Thus, Production may start from 27.10.2026 of financial Year 2026-27. Accordingly, the production proposal for this Mining Plan of 1st Five years will be as follows:-

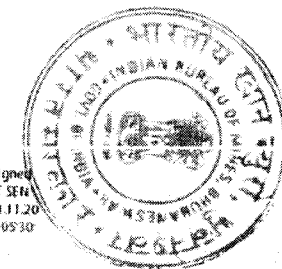
Year	proposal (MTPA)
1 <sup>st</sup> year 2024-25	0
2 <sup>nd</sup> year 2025-26	0
3 <sup>rd</sup> year 2026-27 (From 27.10.2026 to	1.432 (for 156 days/five months)
4 <sup>th</sup> year 2027-28	3.35
5 <sup>th</sup> year 2028-29	3.35

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During proposed period of mining operation the mining operation will be fully mechanized opencast with development of benches of height upto 10m and width upto 20m. The conventional opencast method with utilization of excavator of capacity upto 4.5m<sup>3</sup>, dumpers of capacity upto 50MT, rock-breakers, deep-hole drilling blasting will be adopted. During mining operation period from 2026-27 (From 27.10.2026 to 31.03.2027) to 2028-29, mining operation will be done in only one quarry. The proposed mining area and other area of the lease is already proved mineralized at G<sub>2</sub> level by 85 no. of boreholes completed by GSI, MECL as per G.R. provided with the Tender Document.

### 1.1.2: Mining Plan Submission Criteria Details

Type of Document	Mining plan (under Rule 13 of Minerals [other than Atomic & Hydrocarbons [Energy Minerals] concession Rule, 2016 and progressive mine closure plan under Rule 23 of Mineral conservation & Development Rules 2017
Reason/s for modification	NA
Period for which modification is proposed	NA
LOI Number:	IV(B)SM-49/2021/8716/SM
Date:	28.10.2021

### 1.2: Land Ownership Details (Annexure-10)

S.N.	Village	Taluka	Area (Ha)	Khasra No	Type of Land	Nature of Land
1	Batagaon	Koira, (Sundergarh)	80.144	35/P, 18/P, 20/P, 21/P, 22/P, 22/P, 23/P, 36/P, 50/P	Pahad	DLC Forest
2	Kensara (Kedeshala)	Koira, (Sundergarh)	67.659	45/P, 55/P, 99/P, 100/P, 103/P, 97/P, 101/P, 102/P	Hudi, village forest	Govt. Land & Forest
3	Kadakala	Banspal, (Keonjhar)	10.706	27/P, 29/P, 45/P, 72/P, 45/P	Pahad	DLC Forest

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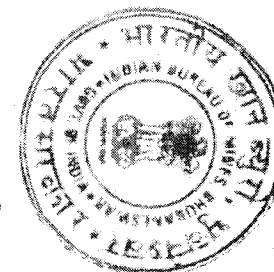
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### 1.3: Existing Lease

Date of Execution	NA
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#### 1.3.1: Approval of earlier Mining Plan & Its Subsequent Review in Chronological Order

S.N.	Letter Number	Date	Period		Type Of Approved Document
			From	To	
1	Nil	Nil	Nil	Nil	Nil
2	Nil	Nil	Nil	Nil	Nil
3	Nil	Nil	Nil	Nil	Nil
4	Nil	Nil	Nil	Nil	Nil

#### 1.3.2: Partial Surrenderd Area During Stages of Operations in Chronological Order

S.N.	Date	Supplementary Surrender order/ Letter Number	Supplementary Lease Deed Date	Final Retained Area over which current Mining Plan is Prepared ( ha)
1	Nil	Nil	Nil	Nil

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

S.N.	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	Not Applicable	Nil	Nil	Nil	Nil

#### 1.3.4: Statutory Compliances

##### 1.3.4.1: Environment Clearance

Applicable	It is a new iron ore block, where, M/s Rungta Mines Limited was declared preferred bidder through auction. After the approval of mining plan, M/s. Rungta Mines Limited will take environment clearance.
Letter No	NA
Date	NA

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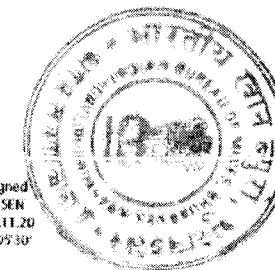
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Validity	NA
ROM Mineral in tonnes	NA

#### 1.3.4.2: SPCB Approvals

Letter No	It is a new Iron ore block, where M/s Rungta Mines Limited was declared preferred bidder through auction. After approval of mining plan and Environmental clearance, M/s Rungta Mines Limited will take SPCB approvals.
Approval of	-
Date	-
Validity	-
ROM Mineral in tonnes	-

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### 1.3.4.3: Forest Clearance

	It is a new iron ore block, where M/s Rungta Mines Limited was declared preferred bidder through auction. M/s Rungta Mines Limited will go for forest clearance, immediately after approval of mining plan.
Applicable	
Letter No	NA
Date	NA
Validity	NA
Area (Ha)	NA

### 1.3.4.4: Land Acquisition Details (It will be done after execution of mining lease)

Total Area acquired/purchased so far	NA
Total Amount Paid (INR)	NA

### 1.3.5: Mine Location Details

Toposheet Number:	73G/1 on 1:50000
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### 1.3.5.1: Location of Boundary Pillars

1	85°12'13.87352"	21°47'39.29591"	314311.837	2411134.329
2	85°12'48.88379"	21°48'07.23287"	315327.419	2411981.889
3	85°12'43.45020"	21°48'13.05824"	315173.431	2412162.864
4	85°13'06.29391"	21°48'31.52860"	315836.11	2412723.349
5	85°12'56.91209"	21°48'42.56911"	315570.586	2413066.030
6	85°13'04.93242"	21°48'48.14961"	315802.916	2413235.001
7	85°13'14.61025"	21°48'54.81396"	316083.229	2413436.760
8	85°13'25.32167"	21°48'42.36089"	316386.442	2413050.203
9	85°13'15.20689"	21°48'34.32949"	316093.093	2412806.538
10	85°13'19.33079"	21°48'29.12803"	316209.689	2412645.194
11	85°13'21.01698"	21°48'27.03441"	316257.376	2412580.244
12	85°13'20.34026"	21°48'24.00203"	316236.864	2412487.204
13	85°13'17.62482"	21°48'20.99534"	316157.807	2412395.629
14	85°12'13.87352"	21°48'19.55624"	316132.447	2412351.654
15	85°13'15.61180"	21°48'17.67171"	316098.811	2412294.074
16	85°13'13.50455"	21°48'15.91567"	316037.664	2412240.763
17	85°13'08.34305"	21°48'11.09231"	315887.703	2412094.126
18	85°13'05.80366"	21°48'09.65388"	315814.256	2412050.728

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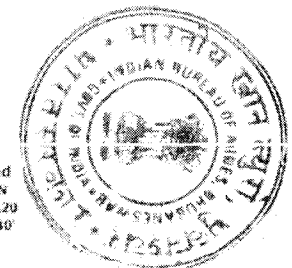
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19	85°13'04.72433"	21°48'08.24905"	315782.756	2412007.879
20	85°13'03.84203"	21°48'06.10753"	315756.653	2411942.307
21	85°13'02.10312"	21°48'01.42190"	315705.042	2411798.772
22	85°12'59.63609"	21°48'00.23978"	315633.762	2411763.233
23	85°12'55.49869"	21°47'54.80890"	315512.992	2411597574
24	85°12'55.25884"	21°47'50.31172"	315504.503	2411459.338
25	85°12'56.26107"	21°47'47.54488"	315532.306	2411373.907
26	85°12'56.46665"	21°47'46.06295"	315537.684	2411328.261
27	85°12'56.28536"	21°47'44.77618"	315532.018	2411283.744
28	85°12'44.94140"	21°47'35.13124"	315202.743	2410995.875
29	85°12'42.00714"	21°47'35.12409"	315118.457	2410996.632
30	85°12'39.93416"	21°47'34.37028"	315058.643	2410974.137
31	85°12'36.08800"	21°47'34.81571"	314948.325	2410989.119
32	85°12'33.31259"	21°47'34.32745"	314868.429	2410975.027
33	85°12'31.93346"	21°47'33.95911"	314828683	2410964.158
34	85°12'30.12602"	21°47'33.53081"	314776.613	2410951.588
35	85°12'28.60983"	21°47'33.44514"	314733.031	2410949.459
36	85°12'26.98228"	21°47'33.50511"	314686.302	2410951.846
37	85°12'24.88359"	21°47'34.15613"	314626.252	2410972.57
38	85°12'22.09962"	21°47'33.31665"	314545.985	2410947.680
39	85°12'19.58977"	21°47'32.62280"	314473.643	2410927.178
40	85°12'18.66933"	21°47'32.94620"	314447.320	2410937.432

### 1.3.6: Owner/Nominated Owner Details (Annexure-5&5A)

Name	PAN of Nominated Owner	Address of Nominated Owner	Mobile Number	Email	Please attach Minutes of Board Resolution in case of Nominated Owner
Shri Hirak Mazumder	ABFPM4516K	M/s. Rungta Mines Limited, At/Po: Barbil, Main Road, Keonjhar, Odisha-758035	9437076501	<a href="mailto:bbloffice@runtamines.com">bbloffice@runtamines.com</a>	Enclosed as Annexure for Resolution of nominated owner and Address proof/photo Id OF Nominated Owner

### 1.3.7: Qualified Person Details as per M(OAHCEM)CR, 2016 (Annexure-7, 7A & 7B)

S.N.	Prefix	Name	PAN of QP	Address	Mobile no.	Qualification	Exp in years as prescribed under the rule	Email
1	Mr.	Abhijit Sen	AXCPS1435J	M/s. Rungta Mines Limited, At/Po: Barbil, Main Road, Keonjhar, Odisha-758035	9437579431	M.Sc (Tech), applied Geology	29	<a href="mailto:abhijit.bbi@gmail.com">abhijit.bbi@gmail.com</a>
2	Mr.	B. K. Jha	ADHPJ7577K	Rungta Centre, Chibasa, Westsinghbhum, Jharkhand-833201	9431704517	M.Sc. (Geology)	29	<a href="mailto:rmibd@runtamines.com">rmibd@runtamines.com</a>
3	Mr.	Ritesh Ranjan	APGPR7775A	M/s. Rungta Mines Limited, At/Po: Barbil, Main Road, Keonjhar, Odisha-758035	9438620701	M.Sc. (Geology)	21	<a href="mailto:riteshranjan2707@gmail.com">riteshranjan2707@gmail.com</a>

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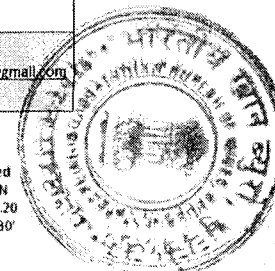
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## Chapter 2: Geology & Exploration

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### 2.1: Geology

#### 2.1.1: Topography

##### Terrain \*

The Jumka-Pathiriposhi block and the surrounding area forms one of the prominent high iron ore ridges in the Bonai Iron Ore Range lying to the southwest of Mankadanachha hill, whereas rest of the mapped area forms narrow spurs, hills and valleys. The entire area falls in the elevation ranging from 488 m and 1037m. The eastern boundary of the Jumka-Pathiriposhi ridge is bounded to the north by a cliff with a straight fall of about 100m, which marks the district boundary between Kendujhar and Sundargarh. The area has a gentle slope to the west and further down marked by rugged topography. The B.H.J. ridges are dotted with springs at an altitude range of 800 -900 m, all of them join to form perennial nallas and streams. The major nallas flow towards south. In general, the streams form dendritic pattern and at many places water falls (10 – 15m), and rapids are found along their courses. (Plate-II)

##### Relief

Highest Level (m) from MSL \*

1037 m

Lowest Level (m) from MSL \*

926.29 m

Average Level (m) from MSL

982 m

Drainage Pattern \*

Dendritic

Order of Stream \*

Order 3

Minimum Distance of Stream from Lease Area (m) \*

Seasonal nallah as shown in lease area.

#### 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	NA	-	-
Public roads (Tar road, cart road)	NA	1. Koira- Jaldih Road 4.5 km. 2. Koira-Barsua Road 7.1 km	-
Railway track	NA	Barsuan siding at 10.1 km	-
Human settlements	NA	Batagaon 700 m, Kensara 2.75 km, Karhakola 1.5 km, Kedeshala 1 km, Purnapani 1.25km	-
Archaeological monuments/ places of worships/public utilities etc.	NA	Nil	-
Wild life sanctuaries/ national parks	NA	Nil	-
Coastal Regulation Zone (CRZ)	NA	Nil	-
Powertransmission lines/telephone lines	NA	at Jaldih 5 km	-
Firing range	NA	Nil	-
Ordinance factory	NA	Nil	-

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grazing land/ burial ground or cremation ground	NA	NII	-
Any other specify	NA	NII	-

Particulars	Distance from lease boundary in kms
Near by village	Batagaon 700 m, Kensara 2.75 km, Karkhola 1.5 km, Kedeshala 1 km, Purnapani 1.25km
Nearest Railway station	Basua 10.5 km
Nearest Port	Paradeep
Distance of SH/NH from lease area	Koira-Tensa-Rourkela 6.2 km

### 2.1.3: Regional Geology

#### Regional Geology \*

The huge iron ore deposits of Jharkhand– Orissa region, eastern India are part of the volcano-sedimentary basins containing iron and to some extent manganese deposits of Precambrian age (Jones 1934). The Precambrian iron ore of Singhbhum–North Orissa region of eastern India occurs as part of the horse-shoe shaped broad synclinorium known as Iron Ore Group (IOG) of rocks that host most important iron ore deposits of India. The Precambrian IOG largely contains BIF in addition to the other volcano-sedimentary rocks (~3.1–3.3 Ga, Sarkar et al 1969), forming a significant portion of the Singhbhum–North Orissa Craton of eastern Indian shield (Saha et al 1984). Structural analysis in the eastern anticline of the horse-shoe synclinorium suggests that the BIF hosting the high grade iron ore bodies are disposed in three linear NNE-SSW trending belts and the major iron ore deposits in the eastern anticline at the present level of erosion are preferentially localized within shallow basinal structures only (Ghosh and Mukhopadhyay 2007). The Jureka-Pathriposhi block forms a part of the eastern limb of the north plunging asymmetric 'horse-shoe shaped synclinorium'. They include deep-seated hydrothermal, syngenetic and diagenetic (Taylor et al 2001) supergene enrichment followed by metamorphism, is the most widely cited explanation for the genesis of high-grade hematite ores in Hamersley province (Morris 1985; Harmsworth et al 1990 and Thorne et al 2008). The Banded Haematite Jasper with iron ore, overlain by Upper Shales with volcanics and underlain by a lower formation of bleached clayey shale/tuff/volcanic forms the Iron Ore Group of Sarkar & Saha (1977) or Koira Group of Murty & Acharya (1975). The above said unit is disposed in the form of a low northerly plunging U shaped synclinorium (Jones, 1934). The Lower Shale formation is mainly composed of a number of acidic and basic flows which have altered into bleached clayey shale rarely splintery in nature. The Upper Shale is splintery and banded in nature with lenses of green chert, altered tuffs and dolomite beds (Murty & Ghosh 1971). The litho-stratigraphic succession of the region as worked out by different geoscientists based on field studies is furnished Regional litho-stratigraphic Succession in the Area.

Jones (1934) Saha (1994), modified after Sarkar & Saha (1977) Murty & Acharya (1975)

Upper shales,

epidiorite & ash bed

IRON ORE GROUP Singhbhum granite K O I R A G R O U P Mixed Facies Formation

BHQ with iron ore

bodies Upper Shale with volcanics Upper Shale Formation

Shales with occasional

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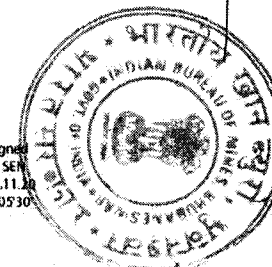
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sandstones

Purple sandstone with basal conglomerate BHJ with iron ore, ferruginous quartzite Banded Iron Formation

--- Unconformity --- Lower Shale and acid, intermediate tuffs, local dolerite Volcanic Formation

Gritty sandstone/conglomerate

Older Dharwars

The bottom most unit of the Koira Group is marked by gritty sandstone ranging from ortho-quartzite to pebbly sandstone and conglomerate. This formation is overlain by volcanic formation, the lower part of which is comprised of mafic volcanic flows and the upper portion is marked by a tuffaceous zone. The lava is pillowed towards bottom and amygdaloidal at the top, which indicates its sub-aqueous and subsequent sub-aerial character. It grades into purple tuffaceous shale better known as Lower Shale Formation (Sarkar & Saha) towards the top. The Banded Iron Formation (BIF) overlies the Lower Shale litho-unit and is marked by the appearance of Jasper and Banded Jasper, interbedded with greenish & black shale towards the top. BIF is represented by Banded Haematite Jasper (BHJ) or Banded Haematite Quartzite (BHQ), interbedded with black or green shale and banded ferruginous chert. Owing to its high resistance to erosion, it stands out as high ridges, conspicuously marking the outline of the 'Horse-Shoe' shaped synclinorium structure of the belt. The Upper Shale Formation lying conformably over the BIF is composed of thick sequence of tuffaceous purple, white and buff coloured shale, black shale, banded ferruginous shale with interbedded chert and BHJ/BHQ bands and forms the core of the synclinorium. It is made up of two horizons, one lower manganiferous shale horizon and

the other upper ferruginous shale horizon having a conformable relationship with each other. The lower unit, comprising predominantly of manganiferous grayish green shale, carbonaceous shale with interbeds of chert locally grading into dolomite acts as host to all the manganese deposits of the area, while the upper unit comprising of banded ferruginous shale with interbeds of BHJ/BHQ and BFC gives rise to isolated iron ore deposits in the core of the synclinorium.

Regional Structure

The Iron Ore Group (IOG) of rocks in Bonai-Keonjhar belt is disposed in a horseshoe shaped synclinorium structure in the western part of the Singhbhum Craton. Morphology of this synclinorium is expressed by a near continuous western ridge and dissected eastern highlands with the broad Jamda-Koira valley at the centre. Detailed structural analysis in the northern part of the belt suggests that the synclinorium is in fact a series of NE-SW to NNE-SSW trending shallow plunging, second generation (D2) synclines and anticlines which have overturned, inclined, relatively tight geometry in the western part and upright, open and gently plunging in the eastern part. This structure is clearly manifested by synclinal ridges and anticlinal valleys. Evidence of an early deformational event (D1) manifested by the presence of isoclinal folds on outcrop scale has been recorded. D1 and D2 are near co-axial. The last deformational event (D3) has led to dome and basin interference pattern due to cross folding along NW-SE striking axial planes. Owing to steep dip and overturned nature of the western limb, it forms a deeper basin (Koira Syncline) with thick sequence of younger shale in the core region. The eastern syncline (Bamebari Syncline) is a shallower basin that exposes younger litho members within the core region as outliers. The Upper Shale unit within the Koira syncline is mostly continuous while in Bamebari syncline it occurs as isolated patches.

## 2.1.4: Local Geology & Structure

### 2.1.4.1: Local Geological Set-up \*

Geology of the block

The Jumka- Pathriposhipahar area constitutes weakly metamorphosed volcano- sedimentary sequence of rocks, occurring in Sundargarh district of Odisha, belonging to the Iron Ore Series of Precambrian age (Jones 1934) and forms part of the eastern limb exhibiting a westerly dip of the northerly plunging asymmetric synclinorium.

The local stratigraphic succession as worked out by GSI at Jumka – Pathriposhipahar and adjoining areas of Sundargarh district is given in Table- 2.2.

Table- 2.2

Litho-stratigraphic succession of Jumka-Pathriposhi block

Laterites (ferruginous and aluminous) Different litho units

Iron Ore Group

Upper shale sequences Black shale, khaki & bluish grey shale, chert, dolomite with manganese and iron bearing shale unit.

Basic dykes

BIF sequences Ferruginous shale, iron ore

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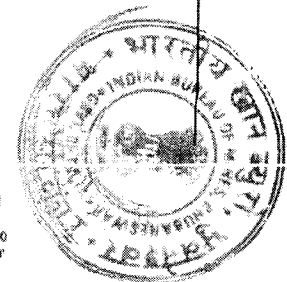
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#### 2.2.1.4: Geochemical Survey

S.N.	Type of Sample	No of Samples	Aanlysis rept	Area Covered (Ha/km <sup>2</sup> )
1	Nil	Nil	Nil	Nil
2	Nil	Nil	Nil	Nil

#### 2.2.1.5: Pitting

Number of Pits \*

10

S.N.	Year	Pit ID	Length of Pit (m)	Width of Pit (m)	Depth of Pit (m)	Depth (from)	Depth(to)	Running mtr
1	2016 to 2018	1	1	1	1	-	-	1
2		2	1	1	1	-	-	1
3		3	1	1	1	-	-	1
4		4	1	1	1	-	-	1
5		5	1	1	1	-	-	1
6		6	1	1	1	-	-	1
7		7	1	1	1	-	-	1
8		8	1	1	1	-	-	1
9		9	1	1	1	-	-	1
10		10	1	1	1	-	-	1

Table continued...

S.N.	Litho units exposed	Name of the radical	Av Grade(in %)	Latitude	Longitude
1	Massive ore	Nil	Nil	2412278.98	315777.86
2	Laminated ore	Nil	Nil	2412479.96	316095.88
3	Lateritic Ore	Nil	Nil	2412749.52	315854.28
4	Scree zone laterite	Nil	Nil	241178.38	315111.29
5	Laminated ore	Nil	Nil	2411368.68	314924.85
6	Lateritic BHJ with SLO	Nil	Nil	2412550.25	315968.85
7	Lateritic ore	Nil	Nil	2412244.9	315910.95
8	SLO with lateritic BHJ	Nil	Nil	2412115.9	315748.6
9	Scree Zone with Laterite ore	Nil	Nil	2411878.04	315319.72
10	Scree Zone with Laterite ore	Nil	Nil	2411160.65	314704.72

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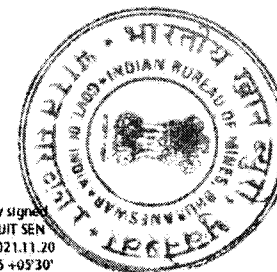
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### 2.2.1.6: Trenching

Number of Trenches \*

Nil

2.2.1.6.1: Spacing

Min (m) \*

Nil

Max (m) \*

Nil

Avg (m) \*

Nil

S.N.	Year	Trench ID	Length of Trench (m)	Width of Trench	Depth of Trench	Depth(from)	Depth(to)	Running mtr
	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil

Table continued...

S.N.	Litho units exposed	Name of the radical	Av.grade	Latitude(from)	Longitude (from)	Latitude( to)	Longitude (to)
	Nil	Nil	Nil	Nil	Nil	Nil	Nil
	Nil	Nil	Nil	Nil	Nil	Nil	Nil

### 2.2.1.7 Exploratory Drilling(Core/non Core)

S.N.	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 metr	Number of boreholes drilled	Total mtrs	Total boreholes	Total mtr	
1	1997-98 to 1999-2000	GSI	29	1395.5	-	-	29	1395.5	log sheet enclosed as annexure
2	12.12.2016 to 31.10.2018	MECL	56	3967.6	-	-	56	3967.6	
	<b>Total</b>		<b>85</b>	<b>5363.1</b>	-	-	<b>85</b>	<b>5363.1</b>	

### 2.2.1.8: Exploratory Mining

S.N.	Pit/Adit ID	Length in Mtr	Width in Mtr	Depth in mtrs	Volume (m³)
1	Nil	Nil	Nil	Nil	Nil

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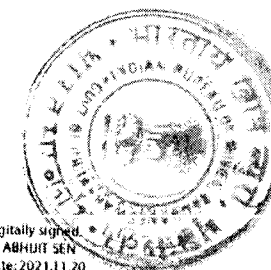
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### 2.2.4.13:

Mineral	Iron ore				
Reserves/ Resources estimated as on	Feb 2019 by MECL				
UNIT of estimation					
Classification	Code	Quantity			Grade
		Forest	Non-Forest	Total	Forest Non-Forest
<b>A. Mineral Reserve</b>					
1. Proved Mineral Reserve (A)	111				
2. Probable Mineral Reserve (A)	121	88.1202	--	88.1202	55% Fe 55% Fe
2. Probable Mineral Reserve (A)	121	28.6581	--	28.6581	≥45% Fe to <55% Fe ≥45% Fe to <55% Fe
3. Probable Mineral Reserve (A)	122	15.080		15.0801	55% Fe 55% Fe
	122	8.420		8.4195	≥45% Fe to <55% Fe ≥45% Fe to <55% Fe
		140.2779		140.278	

<b>B. Remaining Resources</b>					
1. Feasibility Mineral Resource (B)	211	--	--	--	--
2. Prefeasibility Mineral Resource (B)	221	--	--	--	--
3. Prefeasibility Mineral Resource (B)	222	11.4667		11.4667	55% Fe 55% Fe
	222	3.398		3.3975	≥45% Fe to <55% Fe ≥45% Fe to <55% Fe
4. Measured Mineral Resource (B)	331	--	--	--	--
5. Indicated Mineral Resource (B)	332	--	--	--	--
6. Inferred Mineral Resource (B)	333	0.0691	--	0.0691	55% Fe 55% Fe
6. Inferred Mineral Resource (B)	333	0.6531		0.6531	≥45% Fe to <55% Fe ≥45% Fe to <55% Fe
7. Reconnaissance Mineral Resource (B)	334	--	--	--	--
		15.5864		155.864	
Total Mineral Resources (A+B)				155.864	

Mineral					
Reserves/ Resources estimated as on					
UNIT of estimation					
Classification	Code	Quantity			Grade
		Forest	Non-Forest	Total	Forest Non-Forest
<b>A. Mineral Reserve</b>					
1. Proved Mineral Reserve (A)	111	0	0	0	NA NA
2. Probable Mineral Reserve (A)	121	0	0	0	NA NA
3. Probable Mineral Reserve (A)	122	0	0	0	NA NA
<b>B. Remaining Resources</b>					
1. Feasibility Mineral Resource (B)	211	0	0	0	NA NA
2. Prefeasibility Mineral Resource (B)	221	0	0	0	NA 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	0	0	0	NA NA
7. Reconnaissance Mineral Resource (B)	334	0	0	0	NA NA
Total Mineral Resources (A+B)				0	

## 2.2.5: Future Exploration Proposal

### 2.2.5.1: Geological Mapping

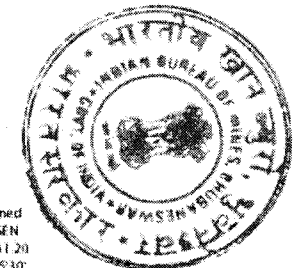
S.N.	Year	Scale	Area Covered (ha)
1	2025-26	1:2000	158.509

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### 2.2.5.5: Exploratory Drilling

#### 2.2.5.5.1: Core Drilling & Non-Core Drilling

S.N.	Year	In forest area			
		No. of boreholes	Total mtr	Type of borehole	Grid interval
1	1st year	0	0	core	0
2	2nd year	0	0	core	0
3	2026-27	42	upto discontinuance of Iron ore body (max. 100m)	core	100m
4	2027-28	29	do	core	100m
5	2028-29	16	do	core	100m
	Total	87			

Table continued...

In Non-forest							
S.N.	No. of boreholes	Total mtr	Type of borehole	Grid interval	Total borehole	Total Mtr	Attachment
1	Nil	Nil	Nil	Nil	Nil	Nil	
2	Nil	Nil	Nil	Nil	Nil	Nil	
3	Nil	Nil	Nil	Nil	42	4200/Total thickness of ore body	Details of proposed bore holes enclosed as annexure-8
4	Nil	Nil	Nil	Nil	29	2900/Total thickness of ore body	
5	Nil	Nil	Nil	Nil	16	1600/Total thickness of ore body	

### 2.2.5.6: Exploratory Mining

S.N.	Year	Pit ID	Length in mtrs	Width in mtrs	Depth in mtrs	Volume (m³)
1	Nil	Nil	Nil	Nil	Nil	Nil

### 2.2.5.7: Sampling

S.N.	Type of Sample	Number of Samples proposed	Area Covered (ha)	Latitude	Longitude
1	Drill core	8500 (approx)	158.509	Ref:Annexure-8	Ref:Annexure-8

### 2.2.5.8 Petrology & Mineralogical Studies

S.N.	Type of Sample	Number of Sample proposed
1	Nil	Nil

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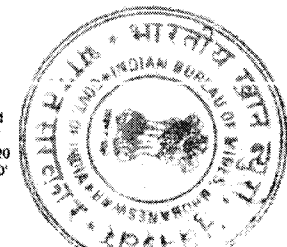
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## Chapter 4: Mining Operations

### 4.1: Mining Method (Opencast)

#### 4.1.1: Existing Method of Mining

Choose one or more

<input type="radio"/> Manual	<input checked="" type="radio"/> Mechanized
------------------------------	---

#### 4.1.2: Proposed Method of Mining

Choose one or more

<input checked="" type="radio"/> Mechanised	<input type="radio"/> HEMM	<input type="radio"/> Deep hole drilling & blasting	<input type="radio"/> with combination of excavator & dumper, loader, Rock breaker, Dozer etc.
---	----------------------------	---	--

#### Reasons for Proposed Changes

Government of Odisha, pursuant to the Mines and Minerals (Development and Regulation) Act, 1957 and the Mineral (Auction) Rules, 2015 as amended from time to time, issued the notice inviting tender dated 07.07.2021 to commence the auction process for grant of mining lease for Jureka Pathiriposhi Pahar Iron ore block over an area of 158.509 Hectare for Iron Ore located in Koira Mining circle, district Sundergarh, Odisha. The e-auction process was conducted in accordance with the tender document for the said mineral block on 24.09.2021 and Rungta Mines Ltd. was declared as the 'Preferred Bidder' under Rule 9(9)(iii) or Rule 10 (1A) of Auction Rules, having quoted highest Final Price Offer vide letter No.MXIII(b) 46/2021/7738/DM Dated 05.10.2021 issued by Director of Mines Government of Odisha.

As required under Rule 10(1) of the Auction Rules and the tender document for the said mineral block, Rungta Mines Ltd. has made payment of the first instalment, being 20% (twenty percent) of the upfront payment of Rs.49,21,44,251/- (Forty Nine Crore Twenty One Lakh Forty Four Thousand Two Hundred Fifty One ) only through Treasury Challan vide e- Challan no. 0853/1886 dated 08.10.2021 at Cyber Treasury, Dist- Sundergarh.

Accordingly, pursuant to Rule 10(2) of the Auction Rules and the terms of the Tender Document, the Government of Odisha is pleased to issue Letter of Intent (LOI) bearing no. IV(B)SM-49/2021/8716/SM, Bhubaneswar dated 28.10.2021 for grant of Mining Lease for Jureka Pathiriposhi Pahar Iron ore block for Iron ore located in 20 km south of Koira town in Kedesahala village Koidahasil, Sundergarh district on 158.509 Hectare Area to Rungta Mines Ltd. for a period of 50 (fifty) years.

Rungta Mines Ltd. shall be considered to be the "successful bidder" upon continuing to be in compliance with all the terms and conditions of eligibility; payment of the second instalment being 20% (twenty per cent.) of the upfront payment; furnishing an irrevocable and unconditional performance security to the State Government from an Acceptable Bank and payable at Bhubaneswar, Odisha, pursuant to the Auction Rules; satisfying the conditions specified in clause (b) of sub-section (2) of Section 5 of the Act with respect to a mining plan; and signing of the Mine Development and Production Agreement upon obtaining all consents, approvals, permits, no-objections and the like as may be required under applicable laws for commencement of mining operations.

The Validity of LOI is for a period of 3 (three) years from the date of its issuance, within which time all the above conditions must be fulfilled and the Mining Lease deed must be executed between the Rungta Mines Ltd. and the Government of Odisha. In case there is a delay in execution of Mining Lease Deed due to reasons beyond the control of the Preferred Bidder, then it may submit an application to Government of Odisha, requesting for further extension. If the Government of Odisha is satisfied that there is a delay in execution of Mining Lease Deed due to reasons beyond the control of the Preferred Bidder and a longer period is required to enable the Preferred Bidder to satisfy all or any of the above conditions, it may extend the validity of this letter of intent for such period or periods as the Government of Odisha may specify. Provided that: (a) this letter of intent shall be extended for a maximum period of 2 (two) years; and (b) the total period for which this letter of intent would remain valid must not exceed 5 (five) years from the date of issuance.

Thus, on issuance of LOI, process for grant mining lease has been started. According to this process calendar for grant of mining lease the last date of execution of mining lease deed will be 27.10.2024 i.e. 3 years from date of issuance of letter of intent (LOI). Accordingly M/s Rungta Mines Limited, on/on execution of mining lessee deed will be entitled to start the mining operation. Here, it is pertinent to refer the clause 10 of the Format of Mine Development and Production Agreement (MDPA) as a part of tender document of Jureka Pathiriposhi Pahar Iron ore block, the provisions of which are quoted below:

#### MINING PLAN AND COMPLIANCE WITH APPLICABLE LAW

The Mining Plan applicable pursuant to clause (b) of sub-section (2) of the Section 5 of the Act shall be complied with by the Successful Bidder at all times. The Successful Bidder shall also comply with Applicable Law in relation to conduct of mining operations.

The Successful Bidder shall implement an annual production and dispatch plan to ensure that the estimated quantity of mineral resources in the Mineral Block are fully exploited during the period of the Mining Lease, failing which appropriate actions in accordance with this Agreement shall be initiated. In this regard, the Successful Bidder shall make an application for approval of a Mining Plan to the competent authority contemplating an annual production and dispatch in each year commencing from year 3 (three), which should be equal to or more than the quantity arrived at by dividing the estimated quantity of resources of the Mineral Block by 48 (forty eight)."

In view of the above, during 1st two years of mining lease period which will start from the date of execution of lease deed; we are assuming the last date of execution of mining lease deed to be 27.10.2024 i.e. 3 years from date of issuance of letter of intent (LOI), there will be no production during first 2 years i.e. from 27.10.2024 of financial year 2024-25 upto 26.10.2026 of financial year 2026-27. Thus, Production may start from 27.10.2026 of financial Year 2026-27. Accordingly, the production proposal for this Mining Plan of 1st Five years will be as follows:-

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Year Production proposal(MTPA)	
Year	Production proposal(MTPA)
1 <sup>st</sup> year 2024-25	0
2 <sup>nd</sup> year 2025-26	0
3 <sup>rd</sup> year 2026-27 (From 27.10.2026 to 31.03.2027)	1.432 (for 156 days/five months only)
4 <sup>th</sup> year 2027-28	3.35
5 <sup>th</sup> year 2028-29	3.35

During proposed period of mining operation the mining operation will be fully mechanized opencast with development of benches of height upto 10m and width upto 20m. The conventional opencast method with utilization of excavator of capacity upto 4.5m<sup>3</sup>, dumpers of capacity upto 50MT, truck-breakers, deep-hole drilling blasting will be adopted. During mining operation period from 2026-27(From 27.10.2026to 31.03.2027) to 2028-29, mining operation will be done in only one quarry. The proposed mining area and other area of the lease is already proved mineralized at G2 level by 85 no. of boreholes completed by GSI, MECL as per G.R. provided with the Tender Document.

#### Ore & OB transportation:

Both ore & OB/waste will be transported by dumpers of capacity up to 40MT. Ore will be despatched to nearby railway siding by 10 MT to 15MT dumpers. Sometimes, ore will be transported to buyer's destination by truck also.

#### Ore processing & beneficiation of iron ore:

As all the processing units are mobile in nature, they will be shifted to suitable area of the lease i.e. quarry bench, quarry floor, dead top /terrace of the dump as per requirement. There will be some temporary stacks always around the processing plants. Moreover, within the quarry, on the quarry floor or in other part of the lease area some temporary stacks will be there. These stacks will be despatchable within short period of stacking. These stacks are the result of immediate productions of crushing/screening plants as per the grade or size. Lessee is proposed to install 7 nos. of mobile screening units & 3 sets of mobile crushing + screening plants for processing of iron ore as per buyer's requirement. As all screening and crushing units are mobile in nature, they will work on processing yard or within pit. Processing units will either work as single unit or in combination. The machineries will be shifted different locations within mines as per requirement.

#### Dumping:

In this mine, One Dump D1 will be in operation. It will be situated at south west of the iron ore block. During proposed period of mining waste material will be dumped in that area.

During the proposed mechanized mining operation, ROM iron ore will be produced as an admixture of highgrade (+55%Fe) & low grade (mineral reject) ore. During ROM ore excavation, different ore type will be judiciously blended before dry processing to produce different grade and sizes of products as per buyer's requirement.

## 4.2: Operational Parameters

### 4.2.1: Inventory of Existing Pits & Dumps

#### 4.2.1.1: Pits

S.N	Pit ID	Pit Status	Area Covered by Pit (Ha)	Pit Dimension (m x m x m)
1	Nil	Nil	Nil	Nil

### 4.2.1.2: Dumps and Stacks

#### 4.2.1.2.1: Dump Details

S.N	Dump ID	Dump Status	Type of Dump	Total Dump Quantity (t)	Area covered by Dump (Ha)	Height (m)	Location
1	Nil	Nil	Nil	Nil	Nil	Nil	Nil

#### 4.2.1.2.2: Stack Details

S.N	Stack ID	Type of Stack	Total Stack Quantity (t)	Area covered by Stack (Ha)	Height (m)
1	Nil	Nil	Nil	Nil	Nil

### 4.2.1.3: Details of stabilised dumps

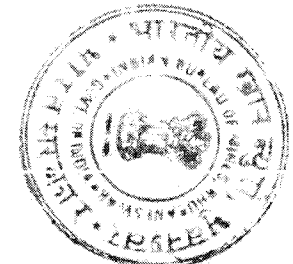
S.N	Dump ID	Number of Terraces	Average Height of Terraces (m)	Length of Toe Wall (m)	Length of Garland Drain (m)	Area Stabilized (ha)	Method of Stabilization
1	Nil	Nil	Nil	Nil	Nil	Nil	Nil

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## Opencast Mining

### 2.1: Bench Parameters

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)	Minimum Width of the Benches in Mineral (m)	Slope of the Bench in Mineral (degree)	Overall Slope of Pit (degree)
2024-25	Nil	Nil	Nil	0	0	0	0
2025-26	Nil	Nil	Nil	0	0	0	0
2026-27 (27.10.2026 to 31.03.2027)	10m	12m	60°	10	18	60°	40°
2027-28	10m	12m	60°	10	18	60°	40°
2028-29	10m	12m	60°	10	18	60°	40°

Table continued

Number of Benches in Top Soil	Number of Benches in Over Burden	Number of Benches in Mineral	Max Depth of Workings (m)	Depth of Water Table (m)	Max Slope Angle of Haul Roads (1 in)	Year-Wise Development & Production Plan	Year-Wise Development & Production Section
Nil	Nil	0	0	0	0	Nil	Nil
Nil	Nil	0	0	0	0	Nil	Nil
Nil	1	1	10	878 mRL	1:16	Production plan enclosed	Production section enclosed
Nil	2	5	40	878 mRL	1:16	Production plan enclosed	Production section enclosed
Nil	2	5	40	878 mRL	1:16	Production plan enclosed	Production section enclosed

### 2.2: Yearwise Opencast Development: INSTU ORE

Year	Pit ID	Bench	Direction	Bulk Density of Overburden (BD1) (ton/m³)	Bulk Density of Mineral (BD2) (ton/m³)	Top Soil Volume (Length x Width x Height) (m³)	Over Burden Volume (Length x Width x Height) (m³)	Over Burden Quantity (t)
2024-25	JP-1	Nil	Nil	Nil	Nil	Nil	Nil	Nil
2025-26	JP-1	Nil	Nil	Nil	Nil	Nil	Nil	Nil
2026-27 (27.10.2026 to 31.03.2027)	JP-1	1	N & NE	2	3.37	Nil	58364	116727
2027-2028	JP-1	5	NE & NW	2	3.37	Nil	106402	212804
2028-29	JP-1	5	NE, NW & S	2	3.37	Nil	316307	632614

Table continued

ROM Volume (Length x Width x Height) (m³)	ROM Quantity (t)	Recovery	(+45% -55% Fe) Mineral Reject (t)	(+55% Fe) Production Main (t)	Production Associated (t)	Location of Advancement	OB to Ore Ratio (m³/tonne)
Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
424926	1432000	90% (+55% Fe) 10% (+45 to 55% Fe)	143200	1288800	Nil	E315742, N2412915 E316029, N2412633	0.04:1
994065	3350000	90% (+55% Fe) 10% (+45 to 55% Fe)	335000	3015000	Nil	E315712 N2413010 E316195 N 2412351	0.03:1
994065	3350000	90% (+55% Fe) 10% (+45 to 55% Fe)	335000	3015000	Nil	E315642 N2413146 E316195 N 2412332	0.09:1

As the proposed mining operation will be fully mechanised, ROM ore will be excavated out mechanically. Mineral reject (+45%-55% Fe) and Iron ore (+55% Fe) will occur as an admixture within the ROM ore. No mechanical separation of mineral reject (+45%-55%) and iron ore (+55% Fe) will be possible. Total ROM ore after size processing will be despatchable.

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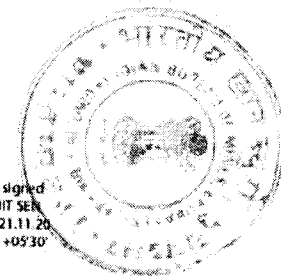
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Pit ID	Total Topsoil Volume (m <sup>3</sup> )	Total Over Burden Volume (m <sup>3</sup> )	Total Over Burden Quantity (t)	Total ROM Volume (m <sup>3</sup> )	Total ROM ore Quantity (t)
Nil	Nil	Nil	Nil	Nil	Nil
Nil	Nil	Nil	Nil	Nil	Nil
JP-1	Nil	58364	116727	424926	ore: 1432000
JP-1	Nil	106402	212804	994065	ore: 3350000
JP-1	Nil	316307	632613	994065	ore: 3350000

### 2.2.3: Transportation & Hauling Equipment

Type	Make	Capacity (m <sup>3</sup> )	No. of Equipments
Dumper	Volvo	10 MT	36
Dumper	Volvo	30 MT	15

## 3: Material Handling Summary

### 3.1: Studies Undertaken

Blast Vibration Study Report	No	Will be carried out after commencement of mining operation
Slope Stability Study Report	No	Will be carried out after commencement of mining operation
Recovery Study Report	No	Will be carried out after commencement of mining operation
Hydrological Study Report	No	Will be carried out after commencement of mining operation
Mineral Beneficiation Study Report	No	Will be carried out after commencement of mining operation
Subsidence Study Report	No	Will be carried out after commencement of mining operation
Geotechnical Study Report	No	Will be carried out after commencement of mining operation
Any Other Study Report	No	Will be carried out after commencement of mining operation
Bulk Density Study Report	Yes	As per GR is enclosed as annexure-11 / Will be carried out after commencement of mining operation

### 3.2: Insitu Mining

Year	Total Handling (t)	OB Waste Quantity (t)	ROM Quantity (t)	ROM Quantity Saleable Mineral (t)	(+45 to -55% Fe) ROM Quantity Mineral Reject (t)	Ore to OB Ratio (ROM Quantity / Waste Quantity)	Grade Range (%)
2024-25	Nil	Nil	Nil	Nil	Nil	Nil	Nil
2025-26	Nil	Nil	Nil	Nil	Nil	Nil	Nil
2026-27 (27.10.2026 TO 31.03.2027)	1548727	116727	1432000	1288800	143200	1:08	+45% to 65% Fe
2027-2028	3502804	212804	3350000	3015000	335000	1:06	+45% to 65% Fe
2028-29	3982614	632614	3350000	3015000	335000	1:19	+45% to 65% Fe

As the mining operation is totally mechanical mineral reject from ore (+45% to 55% Fe) waste & from ore (+55% Fe) grades are totally inseparable. Total overburden from ore will be saleable.

### 3.3: Dump workings

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)
2024-25	Nil	Nil	Nil	Nil	Nil	Nil	Nil
2025-26	Nil	Nil	Nil	Nil	Nil	Nil	Nil
2026-27 (27.10.2026 TO 31.03.2027)	Nil	Nil	Nil	Nil	Nil	Nil	Nil
2027-2028	Nil	Nil	Nil	Nil	Nil	Nil	Nil
2028-29	Nil	Nil	Nil	Nil	Nil	Nil	Nil

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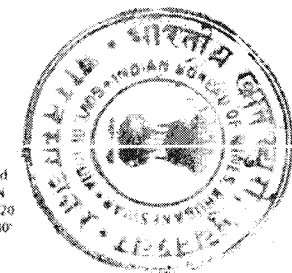


Table continued..

S.N	Proposed Dump Handling Quantity (t) (A)	Proposed Recovery of Saleable Mineral (t) (B)	Proposed Waste Quantity (t) (A-B)	Grade Range (%)	Justification
1	Nil	Nil	Nil	Nil	Nil
2	Nil	Nil	Nil	Nil	Nil
3	Nil	Nil	Nil	Nil	Nil
4	Nil	Nil	Nil	Nil	Nil
5	Nil	Nil	Nil	Nil	Nil

### 1.3.4: Calculation Summary

Year	2024-25	2025-26	2026-27	2027-28	2028-29	Total
(A) Total ROM quantity (t)	0	0	1432000	3350000	3350000	8132000
(B) Saleable ore from ROM (t)	0	0	1432000	3350000	3350000	8132000
(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	1432000	3350000	3350000	8132000
(F) Total Quantity Handled (t) (=A-C)	0	0	1432000	3350000	3350000	8132000

8. As the mining operation will be fully mechanised, mineral rejects (45-55% Fe) will not be produced separately. The mineral reject (45-55% Fe) and Iron ore (+55% Fe) will be produced as a blended ore. The detailed calculation is annexed as Annexure - 17.  
16 percentage of mineral rejects (45-55% Fe) will be 10% of total ROM.

### 1.4: Machine Calculation

#### 1.4.1: Machine Requirement Summary

Number of Average Working Days in One Year (A)	300
Number of Shifts per Day (B)	one
Material Handling Required per Day (t) ((D)=Largest of (Q1.Q5)/(A))	13275.38 T/day
Material to be Handled per Shift (t) ((E)=(D)/(B))	13275.38 T/day
Handling Required per Hour (t) ((F)=(E)/8 hours)	1659.42
Effective Shift Time 6.8	6.8

#### 1.4.2: Shovel / Excavator Requirement

Effective Shift Time:	6.8	0
-----------------------	-----	---

S.N	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)
1	Tata Hitachi	4.2	0.8		3.36	0.85	6.8 hr.	47 seconds
2	Tata Hitachi	3.9	0.8		3.12	0.85	6.85%	47 seconds

Table continued..

S.N	(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	624.77	2040	1274530.8	1991307	1.56	1
2	538.71	2040	1098968.4	1991307	1.81	1

1 nos. of excavator 3.9 m³ capacity and 3 nos. of excavator 3.9 m³ capacity will be required.  
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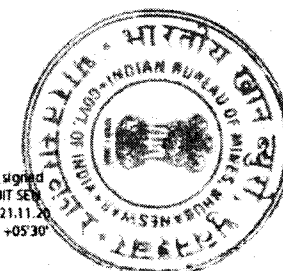
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#### 4.4.3: Dumper Requirement

Effective Shift Time:		6 hr	18 min					
S.N	Total Hours=Number of working days (W)x Number of shifts/day x Effective shift hours (Machine)	Capacity of Dumpers (t) (B)	Speed of the dumper (KMPH) (I)	Lead Distance (KM) (ii)	Time taken to cover distance in minutes(iii) =(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)
1	2040	40	15	4.6	30.66 or 31	8	5	44

Table continued:

S.N	No. of Trips / hr = (60 / vi)	Total transportation per hour = (B X vi) (vii)	Yearly handling by one dumper (Ixx) = A x TPH	Maximum handling of the material by this machine during the block period (t) (x)	Number of dumpers will be (xi) = (x / Ixx)	Plus Standby dumper (xii)
1	1.36 or 2	54.4 or 55	110976	3982614	35.88	15

Note: Total 51 nos. of Dumpers of 40MT capacity will be required.

#### 4.4.4: Drill Machine Requirement

Effective Shift Time:		6	48					
S.N	Type of Drill	Depth of Hole(including Sub-grade Drilling (m)	Spacing (m)	Burden (m)	Bulk Density of Waste (t/m³)	Bulk Density of Mineral (t/m³)	Yield per Hole (t)	Yield per Meter (t/m)
1	Hydraulic	11m	2.5	3	2	3.37	252.75	25.275

Table continued:

S.N	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	3186091	420.19	420.19	59.70	7	2

#### 4.4.5: Machine Deployment Details

##### 4.4.5.1: Excavator & Loading Equipment

S.N	Type	Make	Capacity (m³)	No. of Equipments
1	Excavator	Hirachi	4.2/3.8/2	13
2	Dozer	Komatsu		2

Note: 7 nos. of excavator will be required in ore processing plant.

##### 4.4.5.2: Dozers Details

S.N	Type	Make	Capacity (hp)	No. of Equipments
1	Dozer	Komatsu	354	2

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#### 4.4.5.3: Drilling Details

S.N	Type	Make	Capacity (t)	Diameter of Hole (mm)
1	Hydolic	Atlas copco	12m/hrs	110

#### 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 (m³)	Frequency of Blasting In a Week	Maximum Number of Holes Blasted in a Round	Charge per Hole (kg)	Charge per Round (kg)
1	2.5	3	3	75 (For 10m hole)	1	63	45	2835

Table continued...

S.N	Explosive Requirement Per Month in Development (kg)	Powder Factor in Development / Waste (kg/t)	Depth Of Hole
1	11340	3.34	11m

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

Type of Explosive	Type of Explosives used / to be Used
-------------------	--------------------------------------

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 (m³)	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	795252	2451	2.5	3	3	75 (For 10m hole)	3	72	72	45

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 Rockbreaker	Capacity	Secondary Blasting Requirements	Depth Of Hole
1	3240	38880	5.61	Nil	No	Yes	90 TPH	No	11m

#### 4.6: Man Power Deployment

##### 4.6.1: Managerial

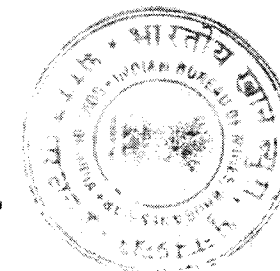
S.N	Particulars	Number of Persons in Shift 1	Number of Persons in Shift 2	Number of Persons in Shift 3	Number of Persons in General Shift	Total No. of Persons per day
1	1st Class Manager	0	0	0	1	1
2	2nd Class Manager	0	0	0	1	1
3	Mining Engineer	0	0	0	1	1
4	Geologist	0	0	0	2	2
5	Surveyor	0	0	0	1	1

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6	Mechanical Engineer	0	0	0	1	1
7	Electrical Engineer	0	0	0	1	1
8	Environment Manager	0	0	0	1	1
9	Others (Stores, IT, Logistics, HR, Mechanical, Security Head, CSR head)	0	0	0	20	20
	<b>TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>29</b>	<b>29</b>

Note: Intimation of all statutory persons will be intimated before commencement of mining operation.

#### 4.6.2: Supervisory

S.N	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	Foreman	0	0	0	2	2
2	Mine mate	0	0	0	2	2
3	Blaster	0	0	0	2	2
4	OTHERS	0	0	0	2	2
	<b>TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>8</b>

#### 4.6.3: Skilled Workers / Operators

S.N	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	Operator	0	0	0	30	30
2	Dumper Operator	0	0	0	61	61
3	Technician (C&S Operators, Welder, Mechanic, LMV)	0	0	0	6	6
4	Drill Operator	0	0	0	10	10
5	Dozer/Grader	0	0	0	3	3
6	Operator/Loader	0	0	0	3	3
7	Others (LMV Drivers)	0	0	0	10	10
	<b>TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>120</b>	<b>120</b>

#### 4.6.4: Semi-skilled Workers

S.N	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	6	6

#### 4.6.5: Unskilled Workers

S.N	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	30	30

#### 4.6.6: Others Specify

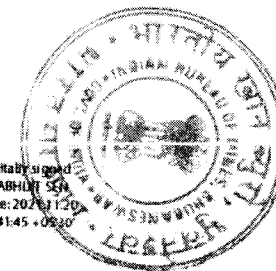
S.N	Particulars	Number of Persons in Shift 1	Number of Persons in Shift 2	Number of Persons in Shift 3	Number of Persons in General Shift	Total No. of Persons per day
1	Security	20	20	20	5	65
						0

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## Chapter 6: Progressive Mine Closure Plan

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### 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 outArea 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								
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

### 6.2: Progressive Reclamation and Rehabilitation Plan

#### 6.2.1: Backfilling

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

#### 6.2.1.1: Year Wise Proposal

During initial stage of mining operation, no backfilling proposal is given as reserve of iron ore in the proposed quarry will not be exhausted.

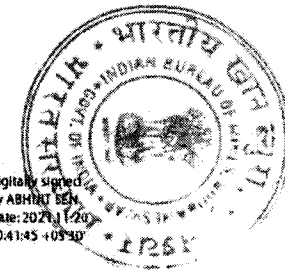
Year	Pit ID	Area (m <sup>2</sup> )	Top RL	Bottom RL	Estimated Expenditure (INR)
2024-25	JP-1	NA	NA	NA	NA
2025-26	JP-1	NA	NA	NA	NA
2026-27 (27.10.26 to 31.03.27)	JP-1	NA	NA	NA	NA
2027-28	JP-1	NA	NA	NA	NA
2028-29	JP-1	NA	NA	NA	NA

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## 2: Water Reservoir

Average Rainfall of The Area (mm)	1200 mm to 2000 mm per year (as given in GR)
Proposed Area under Water Storage	0.52 ha.

### 6.2.2.1: Preparations For Ground Water Recharging

6.2.2.1.1: Drilling Holes		6.2.2.1.2: Preparation of Course Gravel Bed	
Year	Proposed no of Holes to be Drilled	Year	Proposed Area of Bed (LxW)
2024-25	0	2024-24	0
2025-26	0	2025-26	0
2026-27 (27.10.26 to 31.03.27)	1	2026-27 (27.10.26 to 31.03.27)	0
2027-28	1	2027-28	0
2028-29	1	2028-29	0

Please specify, if others

Proposed Settling tank at the toe of the dump and two nos. rainwater harvesting pits (total area 0.52 ha.) will act as ground water recharging points.

### 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
2024-25	NA	NA	NA
2025-26	NA	NA	NA
2026-27 (27.10.26 to 31.03.27)	Nil	Nil	Nil
2027-28	Nil	Nil	Nil
2028-29	Nil	Nil	Nil

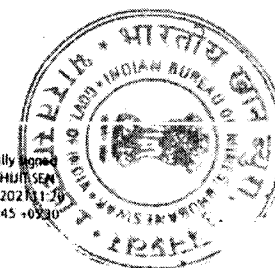
6.2.2.2.2: Retaining Wall			
Year	Proposed Wall Length (m)	Co-ordinates from	Co-ordinates to
2024-24	-	-	-
2025-26	-	-	-
2026-27 (27.10.26 to 31.03.27)	1251	E 314995 & N 2411360	E315155 N2411220
2027-28	675	E316082, N2413426 E316208, N2413264	E316103, N2413183 E315972, N2413347
2028-29	1501	E315442, N2412380 E315588, N2412310	E315356, N2412080 E315242, N2412211

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6.2.2.2.3: Garland Drains			
Year	Proposed Bund Length (m)	Co-ordinates from	Co-ordinates to
2024-25	-	-	-
2025-26	-	-	-
2026-27 (27.10.26 to 31.03.27)	1251	E 314995 & N 2411360	E315155 N2411220
2027-28	675	E316082, N2413426 E316208, N2413264	E316103, N2413183 E315972, N2413347
2028-29	1501	E315442, N2412380 E315588, N2412310	E315356, N2412080 E315242, N2412211

### 3: Green Belt Development

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

Total Expenditure Incurred up to Last Year (INR)	Area Covered (Ha)	Number of Plants	Survival Rate (%)
NA	NA	NA	NA

#### 5.2.3.2: Year Wise Proposal

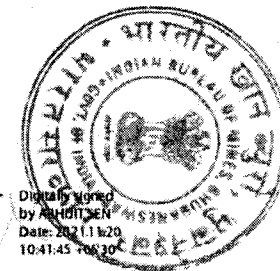
Year	Green Belt Location (s)	Area Proposed to be Covered (Ha)	Number of Plants Proposed	Expected Survival Rate (%)	Estimated Expenditure (INR)
2024-25	0	0	0	0	0
2025-26	0	0	0	0	0
2026-27 (27.10.26 to 31.03.27)	Safety zone	1.929	4822	90%	482200.00
2027-28	Safety zone	1.929	4822	90%	482200.00
2028-29	Safety zone	1.912	5000	90%	500000.00

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#### 4: Use of shallow pits

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

Pit ID	Work Done	Area covered (m <sup>2</sup> )	Total Expenditure Incurred (up to last five year block) (INR)
NA	NA	NA	NA
NA	NA	NA	NA

##### 4.2: Year Wise Proposal (Not applicable as there is no proposal for use of shallow pits)

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

#### 5: PISCICULTURE

##### 6.2.5.1: Total Expenditure incurred as on Date (INR)

NA

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

Pit ID	Area (m <sup>2</sup> )	Expenditure (INR)
NA	NA	NA

##### 6.2.5.3: Year Wise Proposal (Not applicable)

Year	Pit ID	Area (m <sup>2</sup> )	Estimated Expenditure (INR)

##### 6.2.5.4: Source of Water for Pisciculture

NA

6.2.5.5: Whether the quality of water has been assessed & found to be suitable for Pisciculture

NA

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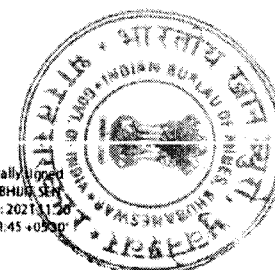
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## 6: Recreational Facility

6.2.6.1: Total Expenditure Incurred (up to last five year block) (INR)

NA

6.2.6.2: Cumulative work done as on

Pit ID	Area (m <sup>2</sup> )	Expenditure (INR)
NA	NA	NA
NA	NA	NA

6.2.6.3: Year Wise Proposal

Year	Type of Recreational Facility	Area Covered (Ha)	Location	Estimated Expenditure (INR)
Year 1	NA	NA	NA	NA
Year 2	NA	NA	NA	NA
Year 3	NA	NA	NA	NA
Year 4	NA	NA	NA	NA
Year 5	NA	NA	NA	NA

6.7: Dump Area Stabilization & Development (No proposal for dump stabilisation as the dump is active dump in this fresh lease area in this sh lease area.

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
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

## 6.8: Other Form of Reclaiming the Area

6.2.8.1: Cumulative work done as on Date

Total Expenditure incurred as on Date (INR)	Work Done
NA	NA
NA	NA

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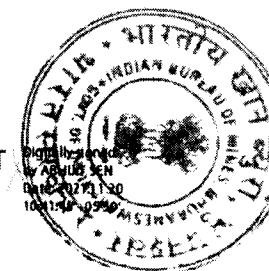
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## 8.2: Year Wise Proposal (No proposal as it is fresh lease area)

Year	Work Proposals	Estimated Expenditure (INR)
2024-25	-	-
2025-26	-	-
2026-27	-	-
2027-28	-	-
2028-29	-	-

## 9: TOPSOIL MANAGEMENT

### 6.2.9.1: Cumulative Work Done as on

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 (₹)
NA	NA	NA	NA
NA	NA	NA	NA

### 6.2.9.2: Year Wise Proposal

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)
2024-25	0	0	0	-
2025-26	0	0	0	-
2026-27	0	0	0	-
2027-28	0	0	0	-
2028-29	0	0	0	-

## 10: Tailings Dam Management (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
Year 1	NA	NA	NA	NA	NA	NA	NA
Year 2	NA	NA	NA	NA	NA	NA	NA
Year 3	NA	NA	NA	NA	NA	NA	NA
Year 4	NA	NA	NA	NA	NA	NA	NA
Year 5	NA	NA	NA	NA	NA	NA	NA

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**.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 outArea 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)
144.918 ha	7.301	nil	24.122 ha. area under utility services are all temporary features and all feature will come under active mining operation to mine out the total iron ore resources at the expiry of lease period. Road-8.012, Infrastructure use-3.0 (office, R.S., W.B., etc), Ore processing site 3.82 & ore stack yard-9.29	5.77 ha. of safety zone will be covered by plantation	nil	144.918 ha which include reclaimed & rehabilitated backfilled quarry, bench plantation and utility service area.	0.52	7.301	safety zone (5.77 ha) plantation	24.122	nil

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