

FORMAT OF MINING PLAN ALONG WITH PROGRESSIVE MINE CLOSURE PLAN (PMCP)

Mining Plan*/Review of Mining Plan (RMP)*/Modifications* in Mining Plan submitted under Rule 8(1)/8(2)/8(7)/8(9)* of the Atomic Minerals Concession Rules, 2016

(Cover Page of the Mining Plan should have the following Information)

Mining Plan*/Review of Mining Plan (RMP)*/Modifications* in Mining Plan submitted under Rule 8(1)/8(2)/8(7)/8(9)* of the Atomic Minerals Concession Rules, 2016

(*Strike out whichever is not applicable)

1. Name of the Mine along with Mining Lease Number/T.C. Number/Mine Code if any.
2. Name of Mineral(s) for which mining lease is applied for (in case of fresh ML) or Mineral(s) included in the mining lease/deed
3. Name and address of the Applicant/Mining Lease Holder.
4. Name of the Village, Taluk, District and State where the Mining Lease falls. (In case of multiple villages, indicate the prominent village name(s) with etc.)
5. Applied area [in Hectare (Ha)/Acre (Ac)] of the mining lease [with break-up of Forest and Non-forest area (Govt. / private / poramboke, etc.)].
6. Registration Number allocated by IBM if any to applicant/lease holder.
7. Category of Mine (Category A-Fully Mechanized / Category A-Others / Category B).
8. 5 Year Plan Period (Not applicable for fresh grant of Mining Lease).
9. Name of the Qualified Person (QP).

**Model Certificates / Undertakings/ Consents to be furnished
by Applicant/Lease Holder
CONSENT LETTER/ UNDERTAKING/ CERTIFICATE**

01 The Mining Plan^/Review of Mining Plan^/Modifications in the Mining Plan^ along with Progressive Mine Closure Plan in respect of (Name of Mine) Mine over an area of (Area in Ha/Ac), in (Village/s), P.O. (Name of Post office), Tehsil (Name of Tehsil), District (Name of district), (Name of state), bearing Mining Lease No./T.C. No./Mine Code (if any) submitted under Rule 8(1)/8(2)/8(7)/8(9)^ of the Atomic Minerals Concession Rules, 2016/ Rule 23 of MCDR, 2017 has been prepared by Qualified Person (QP)(Name of QP).

This is to request the Director, Atomic Minerals Directorate for Exploration and Research, Hyderabad to make any further correspondence regarding any correction of the Mining Plan^/Review of Mining Plan^/Modifications in the Mining Plan^ with the said qualified person at his address below:-

(Full name of QP, address and contact details)

We hereby undertake that all information/ modifications / updating as made in the said Mining Plan^/Review of Mining Plan^/Modifications in the Mining Plan^ by the said qualified person be deemed to have been made with our knowledge and consent and shall be acceptable and binding to us in all respects.

02 It is certified that the **CCOM Circular No-2/2010** has been implemented/will be implemented and complied within 6 months of authorization of agency by the state government or within 6 months of lease execution (whichever is earlier).

03 It is certified that the Progressive Mine Closure plan 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 wherever any specific permission is required the lessee will approach the concerned authorities.

04 The provisions of **Mines Act, Rules and Regulations** made there under have been followed in the preparation of Mining Plan^/Review of Mining Plan^/Modifications in the Mining Plan^ over an area of ----- Ha/Ac in ----- district in ----- state belonging to (Name of Mine) **Mine**, and where specific permissions are required, the applicant will approach the **D.G.M.S.** Further, standards prescribed by **D.G.M.S.** in respect of **miners' health** will be strictly implemented.

05. The information furnished in the **Mining Plan** along with Progressive Mine Closure Plan is true and correct to the best of our knowledge and records.

06 It is to undertake that the Modification in the Approved Mining Plan has been prepared for enhanced production beyond the existing Environment

Clearance (EC) limits but actual enhanced production from the lease area shall start only after the necessary clearances are obtained from MoEFCC.

07 It is to undertake that all the measures proposed in this Progressive Mine Closure Plan will be implemented in a time bound manner as proposed.

**{Name of Owner/
Managing Partner (in case of firm)/
Nominated Owner (in case of Company)}**

**Designation
Name of Company/Organization**

Place :

Date :

^ Strike out whichever is not applicable

**Certificates to be furnished
by Qualified Person**

CERTIFICATE FROM QP:

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 Mining Plan[^]/Review of Mining Plan[^]/Modifications in the Mining Plan[^] for **(Name of Mine) Mine** over an area of **(area in Ha/Ac)**, of M/s **(Name of Owner/ Company/Organization)**, in **(Village/s name)**, P.O. **(Post office name)**, Tehsil **(Name of Tehsil)**, District **(District name)** of **(State name)** State and whenever specific permissions are required, the applicant will approach the concerned authorities of **Atomic Minerals Directorate for Exploration and Research (AMD)**. The information furnished in the Mining Plan[^]/Review of Mining Plan[^]/Modifications in the Mining Plan[^] is true and correct to the best of our knowledge.

[^] Strike out whichever is not applicable

Place: -----
Date: -----

Signature
(Name of Qualified Person)

SUMMARY OF PROPOSALS AT A GLANCE

PERIOD:_____ TO _____

Date of execution of lease deed _____ (for existing ML)

Date up to which the lease is valid _____ (for existing ML)

Proposal	Year						Remarks
	I	II	III	IV	V		
Exploration							
No of Boreholes (Core/non-core) with meterage							
No of Pits/ Trenches with dimensions							
Any other Exploration activity							
Excavation							
Top Soil in m ³ /Metric Tonnes (MT)							
ROM in MT							
Waste Material in m ³ /MT							
Area Utilisation							
Area under mining (in Ha/Ac)							
Area under waste dumping (in Ha/Ac)							
Area under mineral reject (in Ha/Ac)							
Area under top soil stack (in Ha/Ac)							
Area under tailings/rejects if any (in Ha/Ac)							
Area already reclaimed and rehabilitated (in Ha/Ac)							
Stacking							
Top soil in m ³ /MT							

Mineral reject in MT							
Waste material in m ³ /MT							
Environmental Protective Measures							
Plantation in Virgin area (green cover)							
Numbers							
Area covered							
Plantation over waste dumps /reclamation areas:							
Numbers							
Area							
Reclamation of mined out area							
Construction of:							
Check dams numbers							
Retaining wall in metres							
Garland drain in metres							
Settling ponds (Numbers)							
Any other environmental protective measures							

Mining Plan for (Name of the Mine with ML/T.C. No/Mine Code)
of M/s _____ over an area of _____ Ha/Ac situated in
_____ District of _____ State.

CHAPTER-I INTRODUCTION AND GENERAL INFORMATION			
1.0	PART-A: INTRODUCTION		
	A brief introduction of the mine/about applicant/lease holder may be given		
Details of Lease Processing			
Sl. No	Particulars	Letter No.	Date & Period
1	Precise area communication		
2	Previous approval from Central Government		
3	Initial grant of Mining Lease		
4	Lease Deed Execution		
5	Renewal of Mining Lease and Previous Approval from the Central Government (if any)		
6	Lease Deed Execution		

Details of Mining Plan document approved earlier					
Sl. No	Nature of Document	Scheme /Review Period	Name of minerals approved	Approval Letter No	Date
1	Mining Plan				
2	1 st Scheme of Mining /Review Mining Plan				
3	2 nd Scheme of Mining /Review Mining Plan				
4	and so on				

2.0	PART-B: GENERAL INFORMATION	
2.1	Name of the Applicant / lessee	
	Address:	
	District:	
	State:	
	Pin Code:	
	Phone & Mobile No:	
	Fax:	
	e-mail:	
2.2	IBM Registration Number	
2.3	Status of applicant/lessee: (Public Company / Public Sector Undertaking / Joint Sector Undertaking / Public-Private Joint Venture (JV))	
2.4	Name of partner(s)/ Director(s) with full address, phone, fax & email details (Share in management in case of JV)	
2.5	Reference letter of state Govt./Letter of Intent for grant of lease (for fresh grant of lease only)	
2.6	Mineral(s) included in the lease deed	
2.7	Mineral(s) which the applicant/lessee intends to mine	
2.8	Name of Qualified Person who prepared Mining Plan and his qualifications & experience	
	Address-	
	Phone number /mobile number/email Id	
	Fax number	

3.0	PART-C: LOCATION AND ACCESSIBILITY OF AREA /MINES	
3.1	Name of mine/ applied area	
3.2	Lease No/T.C. No. & Mine code if allotted	
3.3	Date of grant of lease and date of execution of lease.	
3.4	Period of lease from----to-----	
3.5	Location of mine/ area Village, Police station, Tehsil, District, PIN	

3.6	Postal address of Mine	
	Post:-	
	Tehsil/taluka:-	
	District & State:-	
	Pin Code:-	
	Phone/Mobile:-	
	Fax:-	
	e-mail:-	
3.7	Details of applied/lease area with location plan- (type of land reserve forest, protected forest, other forest, waste land, grazing land, agriculture land, Govt. land and others to specify)	
3.7.1	a) Non-Forest area with Khasra/survey No.	Area in Ha/Ac
	i)	
	ii)	
	iii)	
	Sub Total (a)	
3.7.2	b) Forest Area with Block No./ Forest survey No.	
	i)	
	ii)	
	iii)	
	Sub Total (b)	
	Grand Total (a+b)	

3.8	Whether the area falls under Coastal Regulation Zone (CRZ)? If yes, details thereof along with the permission from CRZ authorities and whether it is in accordance with the provisions of Rule 3(1) of Atomic Minerals Concession Rules, 2016	
3.9	Shortest distance from any boundary pillar to the nearby National Park/Wild Life Sanctuary/Protected Area (to be given if located within 10km from the radius of applied/lease area)	
3.10	Existence of public road/railway line, if any nearby and approximate	

	distance-		
3.11	Approach route from District Headquarters to area/ mine site.		
3.12	Survey of India Toposheet No		
3.13	DGPS co-ordinates (Geographic/UTM) of all corner boundary pillars and Fixed Reference Point (FRP)	Latitude : Longitude	Northing : Easting
	Pillar no-1		
	Pillar no-2		
	Pillar no-3		
	Pillar no-4		
	Pillar no-5		
	Pillar no-6 & so on		
3.14	Star Rating as per Rule 35(5) of MCDR 2017 during the last two financial years		
Attach a general location map showing area and access routes. It is preferred that the area be marked on a Survey of India topographical map or a cadastral map or forest map as the case may be. However, if none of these are available, the area may be shown on an administrative map.			

4.0	PART-IV: DETAILS OF APPROVED MINING PLAN (if any)			
4.1	Date and reference of earlier approved MP/SOM/RMP			
Sl. No.	Type of document & rule under which prepared	approval letter No & date	Lease area for which approval granted (Ha/Ac)	Proposal from ___to__ (period of years)
a)				
b)				
c)				

4.2	Details of last modifications, if any (for approved MP/RMP, indicating date of approval, reason for modification of previous approved plan period)					
Sl. No.	Modification (MP/RMP)	Rule under which modified	Reasons for modifications	Area (Ha/ Ac)	Date of approval	Period of modification
a)						
b)						

c)						
----	--	--	--	--	--	--

5	PART-V: DETAILS OF EARLIER APPROVED PROPOSALS Period from ____ to ____ (Exploration, Development & Reclamation etc)					
	Items	Proposals	Actual work done		Remarks/Reasons For deviations, if any	
5.1	Exploration for Geological axis 1 or 2. Bore holes – Trail pits & Trenches-					
5.2	Number of pits proposed for production					
5.3	Location of Development					
5.4	Total Quantity of topsoil removed, used and stacked in five years period in m ³ /MT					
5.5	Quantity of Overburden/ Waste m ³ /MT					
	1 st year (Years to be indicated)					
	2 nd Year					
	3 rd Year					
	4 th year					
	5 th year					
	Total					
5.6	Production of ROM (MT)		Actual Prod. in MT with grade	Prod. as per Returns	Av. Grade of ROM	
	1 st Year					
	2 nd Year					
	3 rd Year					
	4 th year					
	5 th year					
	Total					
For BSM, insert separate table showing year-wise production of individual mineral and the quantity of Monazite-rich concentrates generated and its grade						
5.7	Total Quantity of Mineral reject stacked in MT					
5.8	Overall Stripping ratio					

	or Ore to OB ratio in five years period. (MT/m ³)			
5.9	Height of benches in Overburden and in Ore (m)			
5.10	Location of topsoil Dumps - Plate No. (indicate on surface plan)			
5.11	Location of OB & mineral reject dumps - Plate No. (indicate on surface plan)			
5.12	Length of Retaining wall or garland drain all along dump.			
5.13	Area under backfilling of mined out area			
5.14	Plantation/ Afforestation			
5.15	Number of settling ponds			
5.16	Area proposed for put to use in last Mining Plan/RMP proposals at end of five year period-			
	Item details	Proposed area in last document. (Ha/Ac)	Actual area as on date (Ha/Ac)	Remark
	i) Area under mining			
	ii) Storage for top soil			
	iii) Waste dump site			
	iv) Mineral storage			
	v) Infrastructure Workshop, Administrative building etc.			
	Roads			
	Railways			
	Tailing pond			
	Effluent Treatment Plant			
	Minerals Separation Plant			
	Township Area			
	Others (to Specify)			
	Total in Ha/Ac			

5.17	Give status of compliance of violations pointed out by IBM / AMD / State Govt. for last 5 years			
Sl. No.	Date of inspection/ Violation Date if based on office record	letter no.	Rule violated (Details of violation)	Compliance status
i)				
ii)				
iii)				
5.18	Whether IBM / AMD/ State Govt. has suspended the mining operations in the said mine during last five year period? If yes give details below:			
Sl. No.	Date of Suspension of mining operations	Letter No.	Deviation of Rules for which the suspension order issued.	Compliance status/Letter No. and Date of revocation of suspension order by IBM / AMD / State Govt.
i)				
ii)				
iii)				
5.19	Indicate and give details of any suspension /closure/prohibitory order issued by any Government agency (other than IBM/AMD) under any rule or Court of law during the last five years period			
5.20	Details of revocations order if any -			
5.21	In case the Mining Plan is submitted for modifications in the earlier approved proposal under AMCR, 2016, indicate/ specify reasons and justification for modification.			

CHAPTER-II GEOLOGY AND EXPLORATION

6.1	Briefly describe the topography, drainage pattern, vegetation, climate, rainfall data of the area applied/mining lease area.
6.1.1	PHYSIOGRAPHY-
6.1.2	DRAINAGE PATTERN -
6.1.3	VEGETATION-
6.1.4	CLIMATE-

6.2.0	REGIONAL GEOLOGY-- Brief descriptions of Regional Geology with reference to location of lease/applied area. Under this stratigraphy, description of different rock types, strike and dip of formations and related structures.
6.2.1	LOCAL GEOLOGY: - Detailed description of geology of the lease area such as disposition of various litho-units, structural features, surface expression / extension of mineralization with strike and dip. Category of the exploration in terms of Schedule-B of AMCR, 2016 etc. should be described

6.3	i) Name of prospecting / exploration agency-
	ii) Address-
	iii) email-
	iv) Phone / fax etc-

6.4	Details of prospecting/exploration already carried out:																																
6.4.1	Extent of Geological mapping / Geophysical / Geochemical with scale, surface sampling, Number of pits and trenches indicating dimensions, spacing etc. along and across the strike/ foliation with reference to geological plan.																																
	<table border="1"> <thead> <tr> <th>Sl. No.</th> <th>Year of exploration</th> <th>Number of Pit/Trench</th> <th>Dimension (LXW) (m)</th> <th>Depth (m)</th> <th>Spacing / Grid Interval</th> <th>Area covered (km²)</th> <th>Scale of Exploration</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>											Sl. No.	Year of exploration	Number of Pit/Trench	Dimension (LXW) (m)	Depth (m)	Spacing / Grid Interval	Area covered (km ²)	Scale of Exploration														
Sl. No.	Year of exploration	Number of Pit/Trench	Dimension (LXW) (m)	Depth (m)	Spacing / Grid Interval	Area covered (km ²)	Scale of Exploration																										
6.4.2	Number of boreholes indicating type (Core/non-core), diameter, spacing, inclination, Collar RL, depth etc. with generalized sub-surface lithological information and mineralized intercepts [thickness (m) X grade (%)] duly marked on geological plan/sections.																																
	<table border="1"> <thead> <tr> <th>Sl. No.</th> <th>Year of exploration</th> <th>Number of Bore Hole</th> <th>Type of BH</th> <th>Diameter (mm)</th> <th>Inclination</th> <th>Collar RL (m)</th> <th>Depth (m)</th> <th>Spacing/ Grid Interval (m x m)</th> <th>Area Covered (km²)</th> <th>Stage of Exploration</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>											Sl. No.	Year of exploration	Number of Bore Hole	Type of BH	Diameter (mm)	Inclination	Collar RL (m)	Depth (m)	Spacing/ Grid Interval (m x m)	Area Covered (km ²)	Stage of Exploration											
Sl. No.	Year of exploration	Number of Bore Hole	Type of BH	Diameter (mm)	Inclination	Collar RL (m)	Depth (m)	Spacing/ Grid Interval (m x m)	Area Covered (km ²)	Stage of Exploration																							
6.4.3	Details of sample analysis (10% of the samples should be analysed from Govt. accredited laboratories /AMD):-																																
	<table border="1"> <thead> <tr> <th>Type of Sample</th> <th>Total samples collected</th> <th>Total samples analysed</th> </tr> </thead> <tbody> <tr> <td>(Like Grab Sample, Bulk Sample, Core / Sludge Samples etc.)</td> <td> </td> <td> </td> </tr> </tbody> </table> Note: Location of the samples should be shown on the Geological Plan											Type of Sample	Total samples collected	Total samples analysed	(Like Grab Sample, Bulk Sample, Core / Sludge Samples etc.)																		
Type of Sample	Total samples collected	Total samples analysed																															
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6.4.4	Expenditure incurred in various prospecting operations.																																
6.4.5	Details of exploration as per AMCR, 2016																																
G-Axis			Area in Ha / Ac				Range of explored depth (m)																										
G1																																	
G2																																	
G3																																	
G4																																	
Area Unexplored							XX																										

Non-Mineralized Area		XX
Total		

6.5	Method of mineral resource estimation (surface plan / cross sectional area / triangular method etc.). Resources to be calculated separately for forest area and non-forest area.	
6.5.1	Parameters for resource estimation:-	
	Strike length / continuity (m)	
	Dip continuity (m)	
	Width / thickness (m)	
	Cut-off grade (%) and thickness (m)	
	Estimated Bulk Density (g/cc) or Specific Gravity as the case may be	
	Explored Depth w.r.t. surface RL	
	Vertical intercept (m) of mineralization (min. and max.)	
	Threshold Value (As per AMCR,2016)	
	Any other information	

Table: 6.5.2: For BSM

Section line	Bore Hole No	Total Depth (m)	Bulk Density (g/cc)	THM (wt %)	Slime %
A-A'	1				
	1A				
	1B				
	Wt. Av.				
B-B'	8				
	8A				
	8B				
	8C				
	Wt. Av.				
Total					

Table: 6.5.3 (For BSM): BSM, Geological Reserves / Resources based on Sectional Method

Section line	Section area (m ²) (a)	Influence (m) (b)	Volume (m ³) (c) = a x b	BD (g/cc) (d)	Raw sand / ROM Quantity (MT) (e)=(c)x(d)	Av. THM Grade (%) (f)	Quantity of HM (MT) (g) = e x f/100
A-A'							
B-B'							
C-C'							
and so on							
Total							

Table: 6.5.4

Block (s)	Gross Reserve/Resources as on 31.03.(year) (MT) (a)	Raw sand mined out as on 31.03.(year) (MT) (b)	Ore blocked in Safety barrier (MT) (c)	Addition of Resources + Reserves during previous plan period 01.04.(year) (MT) (d)	Total Reserves available for mining as on 01.04.(year) (MT) (e) = (a)-(b)-(c)+(d)	grade (THM%)
Total						

Table: 6.5.5: For Atomic Minerals other than BSM

LEVEL	LODE	Gross Reserve/Resources as on 31.03.(year) (MT)	Ore mined out as on 31.03.(year) (MT)	Ore blocked in Safety regulated pillars (MT)	Addition of Resources + Reserve as on 01.04.(year) (MT)	Total Reserves available for mining as on 01.04.year (MT)	In-situ grade (%eU ₃ O ₈)
		A	B	C	D	A-B-C+D	
1st	FW						
	HW						
2nd	FW						
	HW						
3rd	FW						
	HW						
And so on							
Total							

6.5.6	Mineral Reserves/ Resources as per Geological axis of UNFC:-		
	Level of Exploration	Reserves / Resources in MT	Grade
	G-1 Detailed Exploration		
	G-2 General Exploration		
	G-3 Preliminary Exploration		
	G-4 Reconnaissance		
6.5.7	Level/Degree of feasibility study undertaken: F1/ F2/ F3 (accordingly feasibility study report to be enclosed)		

Table 6.5.8: Estimated mineral reserves/ resources under different categories as per Schedule B of AMCR, 2016:- (To be indicated separately for forest and non-forest area)

	UNFC Code	Estimated mineral reserves/ resources in the last Approved MP /SOM/RMP as on ____ date (a)		Addition of reserves/ resources during the previous plan period ____ date, if any (b)		Total reserves/ resources (c) =(a+b)		Reserves / Resources available as on 01.04.____ (year) after depletion of mined out reserves in the previous plan period	
A. Total Mineral Reserves		Quantity (MT)	Grade	Quantity (MT)	Grade	Quantity (MT)	Grade	Quantity (MT)	Grade
Proved Mineral Reserves 111	111								
Probable mineral Reserves 121 and 122	121 122								
B. Total Remaining Resources									
Feasibility mineral Resources	211								
Prefeasibility mineral resources	221 & 222								
Measured mineral resources	331								
Indicated mineral resources	332								
Inferred mineral resources	333								
Reconnaissance mineral resources	334								
Total Reserves + Resources									

Note: Reserves and Resources of individual mineral available in the mining lease area to be furnished separately by inserting additional columns in above table. (e.g. in respect of Beach Sand Minerals, Reserves and Resources of Ilmenite, Leucoxene, Rutile, Zircon, Monazite, Garnet, Sillimanite and any other heavy minerals to be furnished separately)

Guidelines for Reserves/Resource Estimation	
1.	The surface plan of the lease area may be prepared on a scale of 1:1000 or 1: 2000 with contour interval of maximum of 10 m depending upon the topography and size of the area duly marked by grid lines showing all features required under MCDR, 2017.
2.	For preparation of geological plan, surface plan prepared on a scale of 1: 1000 or 1: 2000 scale may be taken as the base plan. The details of exploration already carried out along with supporting data for existence of mineral, locations proposed for exploration, various litho-units along with structural features, mineralized/ore zone with grade variation if any may be marked on the geological plan along with other features indicated under MCDR, 2017
3.	Geological sections may be prepared at suitable interval across the lease area

from boundary to boundary.	
4.	Reserves and Resources with respect to the threshold value notified by DAE may be furnished in a tabular form: (Area explored under different level of exploration may be marked on the geological plan and code for area considered for different categories of reserve/resources estimation may also be marked on geological cross sections).
5.	Submit a feasibility/pre-feasibility study report along with financial analysis for economic viability of the deposit as specified in Schedule B of AMCR, 2016.
6.	Furnish detailed calculation of reserves/resources section-wise (when the mine is fully mechanized and deposit is of complex nature with variation in size, shape of mineralized zones, grade variation due to intrusion within ore zone etc., an attempt may be made to estimate reserves/resources by slice plan method). In case of deposits where underground mining is proposed, reserve/resources may be estimated by level plan method, as applicable, as per the proposed mining parameters.

6.6	Broadly indicate the future programme of exploration with due justification (duly marking on Geological plan year wise location in different colours) taking into consideration the future tentative excavation programme planned in next five years as in table below: -

Year	No. of boreholes (Core / non-core)	Grid Interval (m x m)	Total No. of boreholes and meterage	No. of Pits, dimensions and volume	No. of trenches with dimensions
1st					
2nd					
3rd					
4th					
5th					

6.11	Broadly indicate the future programme / proposals for compliance of Rule 63 of MCDR'2017 in regard to 'Preservation of Cores, etc.'
	Brief details regarding preservation of cores, etc. obtained while exploration within the lease area should be given. No cores should be destroyed without the permission of Director, AMD /Authorized officer of AMD. In terms of the above said rule, the cores etc. should be stored serially with suitable indexing and cataloging in terms of sub-rule (4)

	and shall ensure submission of cores as per the manual issued by GSI from time to time (GSI being nodal agency for archiving drill cores at National Core Repository and at the Regional Drill Core Repositories).
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CHAPTER-III MINING

7.0	MINING				
7.1	A. OPEN CAST MINING:				
a)	Briefly describe the existing as well as proposed method for excavation with all design parameters indicated on plans /sections.-				
7.2	Indicate year-wise tentative excavation in cubic metres indicating development, ROM, pit wise as in table below.				
7.2.1	TENTATIVE EXCAVATION - INSITU				
(a)	YEAR WISE DEVELOPMENT PROPOSAL				
Year	Pit no	Top soil (in m ³)	Overburden (OB)/Side burden (SB)/ Inter burden (IB)(in m ³)	Total waste (in m ³)	Total waste (MT)
(1)	(2)	(3)	(4)	5=(3+4)	(6)
I					
II					
III					
IV					
V					

(b)	YEAR WISE PRODUCTION PROPOSAL				
Year	Pit no	Total ROM (in m ³)		Total ROM (in MT)	
		Saleable Ore	Mineral Reject	Saleable Ore	Mineral Reject
(1)	(2)	(3)	(4)	(5)	(6)
I					
II					
III					
IV					
V					

The year-wise/bench-wise/mRL-wise opening reserves, exploitation and closing balance for five year period may be given in tabular format wherever, possible for Category A (Fully Mechanized Mines). Year should be in FY for existing mine.

Note: Year-wise production of individual mineral to be furnished separately by inserting additional columns in above table. (e.g. in respect of Beach Sand Minerals, individual production of Ilmenite, Leucoxene, Rutile, Zircon, Monazite, Garnet, Sillimanite and any other heavy minerals to be furnished separately specifying the grade of heavy minerals in rawsand, heavy mineral concentrates and grade of individual mineral in rawsand)

Notes

1. Tentative tonnage of the ore may be arrived by computing approximate bulk density and recovery factor as these data are variable and may be established on time series.
2. **Run-of-Mine (ROM)** means the raw unprocessed or uncrushed material in its natural state obtained after blasting or digging, from the mineralised zone of a lease area
3. OB: means overburden capping waste
4. SB: means side burden waste on both hang wall and foot wall sides of the ore body
5. IB: means intermediate burden waste between Single, two or more ore body.
6. Enclose year wise development plans and sections showing pit layouts, dumps, stacks of mineral reject, if any, etc. in case of 'A' category mines. Composite development plans showing pit layouts, dumps, stacks of mineral reject, if any, etc. and year wise sections in case of 'B' category mines.
7. Estimation of Top Soil should be done for the area which is proposed to be degraded by mining or allied activities up to the conceptual period / projected area.

8. Conceptual Period is either up to the mine life or up to the lease period whichever is earlier.

(c)	YEAR-WISE DEVELOPMENT & PRODUCTION		
Year	Total ROM (MT)	Total overburden /waste (m ³)	Ore to OB Ratio MT / m ³
(1)	(2)	(3)	(4)=(2)/(3)
I			
II			
III			
IV			
V			
Total			

Note: Year-wise production of individual mineral to be furnished separately by inserting additional columns in above table. (e.g. in respect of Beach Sand Minerals, individual production of Ilmenite, Leucoxene, Rutile, Zircon, Monazite, Garnet, Sillimanite and any other heavy minerals to be furnished separately specifying the grade of heavy minerals in rawsand, heavy mineral concentrates and grade of individual mineral in rawsand)

7.2.2 Dump re-handling (for the purpose of recovery of mineral):						
Dump No./ Dump Identification No.	Year-wise handling		Estimated recovery of saleable ROM		Mineral Rejects	
	(in m ³)	(in MT)	(in m ³)	(in MT)	(in m ³)	(in MT)
7.2.3	AT A GLANCE			YEAR WISE PRODUCTION -		
year	ROM (MT) from In-situ		ROM / Ore (MT) from dump working		Total ROM / Ore production (MT)	Remark
(1)	(2)		(3)		(4)	(5)
I						
II						
III						
IV						
V						

Note: Year-wise production of individual mineral to be furnished separately by inserting additional columns in above table. (e.g. in respect of Beach Sand Minerals, individual production of Ilmenite, Leucoxene, Rutile, Zircon, Monazite, Garnet, Sillimanite and any other heavy minerals to be furnished separately specifying the grade of heavy minerals in rawsand, heavy mineral concentrates and grade of individual mineral in rawsand)

7.3	Describe briefly giving salient features of the proposed method of working indicating Category of mine.	
i)	Method of mining	
ii)	Bench parameters	
iii)	Bench height in OB/ore	
iv)	Bench width	
v)	Bench slope	
vi)	Over all pit slope	
vii)	Bottom mRL proposed during plan period	
viii)	Grid reference of proposed working location	

7.4	BLASTING	
i)	Broad blasting parameters like charge per hole, blasting pattern, charge per delay, maximum number of holes blasted in a round, manner and sequence of firing, etc.	
ii)	Annual ROM proposed = MT.	
iii)	Annual waste/OB proposed = MT	
iv)	Total annual (ROM + Waste) TMH	
v)	Drilling pattern in ore/ over burden (Spacing x Burden x depth)	
vi)	Yield per holes in ore/ OB Zone, tonnes per holes	
vii)	Annual drilling requirement, TMH/Yield per hole = m	
viii)	Total Annual Drilling Requirement considering 10 % additional, TADR =m	
ix)	Rate of drilling R, m/hr,	
x)	Total no of working days= 300 days	
xi)	Total Schedule Hours (TSH) of drills 300 x no of working hours in a day	
xii)	Actual productive hours considering 80% availability and 50 % utilisation = TSH x .80 x .50	
xiii)	Annual Output of one drill machine (AO) in (m)	
xiv)	No of drilling machine required to meet proposed	

	material handling =TADR/AO			
7.5	DRILLING MACHINARIES-			
Sl. No.	Drilling Machines Make	Dia. Of hole (mm)	Rated capacity of drilling m / hr	No. of machines

7.6	Explosive Requirement for over burden removal-	
i)	Frequency of blasting in a week	
ii)	Maximum number of holes blasted in a round.	
iii)	Charge per hole (kg)	
iv)	Charge per round (Kg)	
v)	Explosive requirement per month for OB removal	
7.7	Explosive Requirement for ORE ZONE	
i)	Total ROM proposed to be handled in CUM/ annum (x)	
ii)	ROM proposed to be handled in CUM / day $y = x/300$ days	
iii)	Drilling pattern in ROM zone (Spacing * Burden* depth)	
iv)	Yield per holes in ROM Zone CUM= z	
v)	No of holes required to be blasted per day = y/z	
vi)	Frequency of blasting in a week	
vii)	Maximum number of holes blasted in a round.	
viii)	Charge per hole (kg)	
ix)	Charge per round (Kg)	
x)	Explosive requirement per month for ROM zone blasting	
xi)	Total explosive requirement per month	

7.8	Type of explosives used / to be used	
7.9	Powder factor in ore and overburden / waste.	
7.10	Whether secondary blasting is needed, if so describe it briefly	
7.11	Storage of explosives (like capacity and type of explosive magazine)	
7.12	Excavation	
7.13	Loading	
7.14	Transportation	
7.15	Crushing/screening	

7.16	Extent of mechanization- Describe briefly with calculation for adequacy and type of machinery and equipment proposed to be used in different activities of drilling, excavation, loading & transportation			
	Type of Excavator	Bucket capacity	Rated production/hr	
	a)			
	b)			
	c)			
	Dumper	Capacity & Make	Rated production/hr	
	a)			
	b)			

7.17	Describe briefly the layout of mine workings, pit road layout, the layout of face sand sites for disposal of overburden/waste along with ground preparation prior to disposal of waste, reject etc. A reference to the plans and sections may be given. UPL or ultimate size of the pit is to be shown for identification of the suitable dumping site.
7.18	Conceptual Mine planning taking into consideration the present available reserves and resources describing the excavation, recovery of ROM. However, disposal of waste, backfilling of voids, reclamation and rehabilitation and drawing UPL shall be planned conceptualizing extraction of entire mineral deposit. Showing the same on a plan with few relevant sections to be enclosed.
7.19	Exploration-
7.20	Excavation-
7.21	Rated production capacity of Mine - MT/year
7.22	Life of Mine -
7.23	Ultimate pit limit and pit depth -
7.24	Waste Disposal-
7.25	Reclamation and rehabilitation-
7.26	Post mining land use conceptualized-

8.0	UNDERGROUND MINING-
8.1	Mode of entry (adit, incline, shaft, ramp / decline). Briefly describe the reason for choosing the mode of entry and its location with justification
	Describe development and stoping method.
8.2	Underground layout- Attach a note briefly describing the underground layout using longitudinal sections / longitudinal vertical projections and level plans indicating; - size and interval of levels and raises / winzes with proper reasoning - proposed year-wise level-wise extent of development for five years along with the support system

8.3	System of drilling and blasting	
a)	Drilling pattern in ore	
b)	Drilling pattern in rock	
c)	Drilling pattern in stopes	
d)	Maximum number of holes blasted in a round.	
e)	Charge per round (kg)	
f)	Charge per hole (kg)	
g)	Type of explosive	
h)	Powder factor (Norms)	
	i)Rock development-	
	ii)Ore development-	
	iii)Stope-	
8.4	Method and sequence of stoping	
	Describe briefly the method of stoping to be adopted, illustrated by plan, cross sections and longitudinal sections indicating broad parameters in the table below. In case it is open stoping attach a Geotechnical report from a reputed agency on stability of open stopes. In case of filled stopes, details of filling method to be described with supporting plans and sections. Broader thumb rule in respect of development be considered.	

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8.5	Stope parameters		
i)	Number of stopes already stoped out		
ii)	Number of stopes already backfilled		
iii)	Number of stopes under backfilling		
iv)	Number of stopes under preparations		
v)	Number of working stopes		
vi)	Level interval		
vii)	Thickness of crown pillar		
viii)	Thickness of sill pillar		
ix)	Thickness of rib pillar		
x)	Size and interval of stope pillar		
xi)	Size/shape of man way		
xii)	Size/shape of ore pass		
xiii)	Method of stowing/back filling		
xiv)	Method of drainage of stowed water		

8.6	System of underground transportation: Describe in the table below	
a)	From face to pit bottom or loading point.	
b)	From surface to end use plant.	
c)	From surface to end use plant.	
d)	Safety features provided on conveyor/ haulage track/ roadway	

Attach a note briefly describing the system and linking with its adequacy for the desired rate of material and man handling

8.7	Subsidence management may be described as below.	
8.7.1	Whether surface areas being monitored are marked on plan?	
8.7.2	Details of surface features in the subsidence basin	
8.7.3	Whether monitoring points have been marked on plan as well as on ground?	
8.7.4	Depth of the workings from surface (m) where subsidence is being measured.	
8.7.5	Maximum subsidence observed at monitoring points (mm).	
8.7.6	At what frequency subsidence monitoring is done?	
8.7.7	Whether results of monitoring are being properly recorded?	
8.7.8	Angle of draw observed on dip and strike side.	
8.7.9	Whether critical, sub-critical or super-critical area extracted?	

8.8	Conceptual Mine planning taking into consideration the present available reserves and resources describing the excavation, recovery of ROM, Disposal of waste, stowing/backfilling of voids, surface subsidence, reclamation and rehabilitation shown on a plan with few relevant sections to be enclosed.	
8.9	Mine ventilation: - Enclose a note outlining the steps to be taken to ensure adequate supply of air in all parts of the mine and prevention of noxious gases produced and excessive rise of temperature or humidity so as to ensure adequate ventilation. Also indicate No. & type of main mechanical ventilators, total air requirement as per statute, total intake / return (cu.m/ sec) etc	
8.10	Extent of mechanization- Describe briefly with calculation for adequacy and type of machinery and equipment proposed to be used in different activities of drilling, material handling in development and stope, hauling, hoisting to surface, surface transportation and any other operation.	

CHAPTER-IV OTHER TECHNICAL PARAMETERS	
9.0	MINE DRAINAGE-
a)	Minimum and maximum depth of water table based on observations from nearby wells and water bodies
b)	Indicate maximum and minimum depth of workings (from natural surface level starting the pit excavation irrespective of the slope and may also be given in RL).
c)	Quantity and quality of water likely to be encountered, the pumping arrangements and places where the mine water is finally proposed to be Discharged
d)	Describe regional and local drainage pattern. Also indicate annual rain fall, catchments area, and likely quantity of rain water to flow through the lease area, arrangement for arresting solid wash off etc.
10.0	STACKING OF TOP SOIL, MINERAL REJECT AND DISPOSAL OF WASTE
10.1	Indicate briefly the nature and quantity of top soil, overburden / waste and mineral reject to be disposed of.

Year	Top Soil (m ³)		Waste (m ³)		Mineral Reject (m ³)		
	Top soil reuse	Top soil storage	Backfilling	Storage	Mineral reject storage	Mineral reject blending	Beneficiation
I							
II							
III							
IV							
V							

10.2	The proposed dumping ground within the lease area be proved for Presence or absence of mineral and be outside the UPL unless simultaneous backfilling is proposed or purely temporary dumping for a short period is proposed in mineralized area with technical constraints & justification.
10.3	Attach a note indicating the manner of disposal of waste, configuration and sequence of year wise build-up of dumps along with the proposals for protective measures.
11	USE OF MINERAL AND MINERAL REJECT-
11.1	Describe briefly the requirement of end-use industry specifically in terms of physical and chemical composition.
11.2	Give brief requirement of intermediate industries involved in upgradation of mineral before its end-use.
11.3	Give detailed requirements for other industries, captive consumption, export, associated industrial use etc.
11.4	Indicate precise physical and chemical specification stipulated by buyers
11.5	Give details of processes adopted to upgrade the ROM to suit the user requirements.
11.6	Year-wise generation of mineral reject
12.0	PROCESSING OF ROM AND MINERAL REJECT
12.1	If processing / beneficiation of the ROM or Mineral Reject is planned to be conducted, briefly describe nature of processing / beneficiation. This may indicate size and grade of feed material (Mineralogical composition and particle size analysis) and concentrate (finished

	marketable product), recovery etc. including by-product /co-product recovery, if any
12.2	Give a material balance chart with a flow sheet or schematic diagram of the processing procedure indicating feed, product, recovery, and its grade at each stage of processing.
12.3	Explain the disposal method for tailings or reject from the processing plant. Also indicate the composition of mill effluents
12.4	Quantity and quality of tailings /reject proposed to be disposed, size and capacity of tailing pond, toxic effect of such tailings, if any, with process adopted to neutralize any such effect before their disposal and dealing of excess water from the tailings dam.
12.5	Specify quantity and type of chemicals if any to be used in the processing plant.
12.6	Specify quantity and type of chemicals to be stored on site / plant.
12.7	Indicate quantity (cu. m per day) of water required for mining and processing and sources of supply of water, disposal of water and extent of recycled water. Water balance chart may be given.

13.0	MISCELLANEOUS	
13.1	Site services	
13.2	Employment potential-	
	Managerial	
	Supervisory	
	Workers	
	Total -	

	CHAPTER-V PROGRESSIVE MINE CLOSURE PLAN
14.0	PROGRESSIVE MINE CLOSURE PLAN
14.1	Environmental Baseline Information Attach a note on the status of baseline information with regard to the following.
a)	existing land use pattern indicating the area already degraded due to mining, roads, processing plant, workshop, township etc in a tabular form.
b)	Water regime, quality of air, ambient noise level, flora, climatic conditions
c)	Human settlements
d)	Public buildings, places of worship and monuments
e)	Indicate if, any sanctuary is located in the vicinity of leasehold area
14.2	Impact Assessment: Attach an Environmental Impact Assessment Statement describing the impact of mining and beneficiation on environment on the following:
i)	Land area indicating the area likely to be degraded due to quarrying, dumping, roads, workshop, processing plant, tailing pond/dam, township etc.
ii)	Air quality-
iii)	Water quality
iv)	Noise levels
v)	Vibration levels (due to blasting)
vi)	Water regime

vii)	Acid mine drainage
viii)	Surface subsidence
ix)	Socio-economics
x)	Historical monuments etc.

14.3	Progressive reclamation Plan :
14.3.1	Mined-Out Land: Describe the proposals to be implemented for reclamation and rehabilitation of mined-out land including the manner in which the actual site of the pit will be restored for future use. The proposals may be supported with yearly plans and sections depicting yearly progress in the activities for land restoration/reclamation/rehabilitation, afforestation etc, called “ Reclamation Plan ”.
14.3.2	Topsoil Management: The topsoil available at the site and its utilization may be described.
14.3.3	Tailings Dam Management: The steps to be taken for protection and stability of tailing dam, stabilization of tailing material and its utilization, periodic desilting measures to prevent water pollution from tailings etc, arrangement for surplus water overflow along with detailed design, structural stability studies, the embankment seepage loss into the receiving environment and ground water contaminant if any may be described.
14.3.4	Acid mine drainage, if any and it's mitigation measures.
14.3.5	Surface subsidence mitigation measures through backfilling of mine voids or by any other means and its monitoring mechanism.
14.3.6	A brief about surface features existing within a periphery of 60 m from the lease boundary as per the Rule 32(1)(a) of MCDR, 2017
14.3.7	The information on protective measures for reclamation and rehabilitation works year wise may be provided as per the following

	table.
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Items	Details	Existing^^	Proposals
Dump management	Area afforested (Ha)		
	No. of saplings planted		
	Cumulative no. of plants		
	Cost including watch and care during the year		
Management of worked out benches	Area available for rehabilitation (Ha)		
	Afforestation done (Ha)		
	No. of saplings planted in the year		
	Cumulative no. of plant		
	Any other method of rehabilitation (specify)		
	Cost including watch and care during the year		
Reclamation and Rehabilitation by backfilling	Void available for backfilling (L x B x D) pit-wise /stope-wise		
	Void filled by waste /tailings		
	Afforestation on the backfilled area		
	Rehabilitation by making water reservoir		
	Any other means(specify)		
Rehabilitation of waste land within lease	Area available (Ha)		
	Area rehabilitated		
	Method of rehabilitation		
Others			

^^To be indicated wherever applicable

14.3.8	Disaster Management and Risk Assessment: This may deal with action plan for high risk accidents like landslides, subsidence flood, inundation in underground mines, fire, seismic activities, tailing dam failure etc. and emergency plan proposed for quick evacuation, ameliorative measures to be taken etc. The capability of lessee to meet such eventualities and the assistance to be required from the local authority may also be described.
14.3.9	Care and maintenance during temporary discontinuance: An

	emergency plan for the situation of temporary discontinuance due to court order or due to statutory requirements or any other unforeseen circumstances may indicate measures of care, maintenance and monitoring of status of discontinued mining operations expected to re-open in near future.
14.3.10	Expenditure incurred in watch and care: A brief detail of the expenditure proposed/incurred in implementation of PMCP proposals and environment monitoring should be given item-wise.
14.3.11	A Brief note on sustainable mining and SDF implementations in compliance of Rule 35 of MCDR, 2017 should be given.

14.3.12		Financial Assurance - Table indicating the break-up of areas in the Mining Lease for Calculation of Financial assurance				
Sl.	Items	Area put to use at start of Plan period 01.04.____ (year) (Ha)	Additional area requirement during plan period 01.04.__ to 31.03.____ (year) (Ha)	Total area (Ha)	Area considered as fully reclaimed & rehabilitated as on 31.03.____ (year) (Ha)	Net area considered for calculation (Ha)
(a)	(b)	(c)	(d)	(e)=(c+d)	(f)	(g)=(e-f)
1.	Area under mining					
2.	Storage for top soil					
3.	Waste dump site					
4.	Mineral storage					
5.	Infrastructure workshop, Administrative building etc.					
6.	Roads					
7.	Railways					
8.	Tailing pond					

9.	Effluent Treatment Plant					
10.	Mineral Separation Plant					
11.	Township area					
12.	Others (to specify)					
13.	Undisturbed Area					
14.	Grand Total					

14.3.13	Financial assurance details -

List of the Plans and Sections to be submitted with Mining Plan	
i)	Key Plan on 1:50,000 scale as provided in Rule 32(5)(a) of MCDR 2017
ii)	Location Plan of the mine showing distance from the nearest railhead /road head/sea port/air port
iii)	Lease map- (In case of fresh grant of mining lease a precise area demarcation map with survey nos./Khasra nos.) with latitude & longitude plotted on survey of India Toposheet. Details of recommended area to be given with geo-referenced co-ordinates (to be certified by State Govt. preferably with ground control points). In case of existing leases, lease plan as provided by the state govt. showing location of the lease area. If the lease area is not surveyed with DGPS, then the competent authority in the State Government should certify its co-ordinates.
iv)	Surface Plan as per provisions of Rule 32(1) (a) of MCDR 2017.
v)	Surface Geological Plans and Sections as per provisions of Rule 32(1) (b), (c) and (d) of MCDR, 2017.
vi)	An Underground Plan as per provisions of Rule 32(1)(e) of MCDR 2017.(For Underground Mines)
vii)	Year-wise development plans & sections (in case of 'A' Category mines)/ (a) Composite development plans & year wise sections (in case of 'B' Category mines)
viii)	Environment Plan as per provisions of Rule 32(5) (b) of MCDR 2017.
ix)	Conceptual plan.
x)	A Financial area Assurance plan may show only outlines of the existing

	working, dumps, stacks, etc. covering all the items under the financial assurance table and at the end of 5 year plan period in different colour for the purpose of computation of the areas required to be used in that period to verify the financial assurance including areas considered as reclaimed and rehabilitated.
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List of documents to be Annexed	
1.	In case of fresh grant of lease: • Copy of communication received from the State Govt. under Rule 6(5) of AMCR, 2016. • Copy of the precise area communication along with the survey numbers demarcated for grant of mining lease by the State Govt. to prospective lessee. • Copy of the DAE communication, nominating the Govt. company as a prospective lessee to undertake mining operations and recommendation to the State for grant of ML. (as per Rule 6 (2) of AMCR, 2016) In case of existing ML, grant of mining lease orders by the State Government and copy of lease deed.
2.	Copy of previous approval of the Central Govt. for grant of ML under Section 5(1) of MMDR Act, 1957
3.	In case of JV, a copy of agreement indicating the share of management to be enclosed
4.	Copy of report on scientific studies carried out by the Govt. agencies/ institutes etc. on stope design, slope stability, subsidence studies, blast vibration studies etc.
5.	Copy of report on scientific studies carried out by the Govt. agencies/ institutes etc. on sand budgeting for mining of BSM in the intertidal zone
6.	Copies of current licences issued by DAE and AERB for handling of Prescribed Substances (PS) or storage of concentrates containing PS
7.	Documents in support of ownership of land/Surface rights in case of existing leases, if available
8.	Copy of last approval of MP/SOM letter in case of existing leases.
9.	Few photographs showing land use of the lease area/applied area, environmental status of the area/Ground Control Points/Lease Boundary Pillars.
10.	Certificate of registration of the company under Companies Act and memorandum of the association.
11.	Photo Identity Card of Lessee/Nominated Owner with permanent address proof

12.	Copy of Board Resolution for declaration of nominated owner as per Mines Act 1952.
13.	List of members of Board of Directors.
14.	In case of Review of Mining Plan/Modification of Mining Plan, copies of violation letters issued by IBM/AMD and its compliance thereof. Also enclose copies of violations /suspension of mining operations by other Government agencies, if any.
15.	Copy of Exploration report
16.	Copy of Feasibility report as per Schedule-B of AMCR, 2016
17.	Copy of Form 'T' for exploration submitted under Rule 47 of MCDR 2017 wherever applicable
18.	Copy of analysis reports from NABL accredited laboratory or similar accredited laboratory and third party NABL accredited lab or Govt. lab /AMD etc. (wherever applicable)
19.	Copy of Financial Assurance
20.	Details of other leases held by the lessee.
21.	Copy of Environmental Clearance and Forest Clearance (wherever applicable) viz. EC, FC, CRZ clearances etc.
22.	Notifications, if any, by MoEF in regard to concern Ecological Sensitive Zone for Wildlife Sanctuary/ Birdlife Sanctuary etc.
23.	Copy of NOC from Chief Wildlife Warden for permitting Mining Operations, if applicable
24.	Any other documents in support of the contents of Mining Plan

Note:- All the Certificates/ Consents/Undertakings and Annexures to be enclosed at the end of the text part/Mining Plan format.