Ph.No. 0712-2220750
Fax-0712-2225694
email- director@mahadgm.gov.in
dgm@mahadgm.gov.in

No. Tech /1780/2022/ 1558

Directorate of Geology and Mining,
Government of Maharashtra,
27, Khanij Bhavan, Shivaji Nagar
Nagpur - 440010

Dated :- 20 APR 2022

To,

Shri Janardan Pasad,
ADG &HoD, Southern Region and Chairman, TCC, NMET,
Geological Survey of India,
GSI Complex, Bandlaguda,
Hyderabad, Telangana – 500 068.

Sub:-Exploration proposals to be carried out through NMET Fund.

Sir,

Please find enclosed herewith a draft proposal of following 4 exploration schemes of DGM, Maharashtra proposed to be carried out through NMET Fund during F.S. 2022-23.

Sr.No.	Project/Block Name
1.	Proposal for Manganese ore in Rongha Block, Tumsar Tahsil, Bhandara District, Maharashtra State for Reconnaissance Survey (G4) under NMET.
2.	Proposal for General Exploration (G2) for A1- Laterite/ Bauxite at Kudopi Block, Malvan Taluka, Sindhudurg District, Maharashtra state in Collaboration with GSI under NMET.
3.	Proposal for Preliminary exploration (G-3)/ General Exploration (G2) for A1-Laterite/ Bauxite in Kudopi Block, Malvan Taluka, Sindhudurg District, Maharashtra state.
4.	Proposal for Prospecting of Limestone in Savalhira Block, Tah.-Korpana, Chandrapur District, Maharashtra State for G3 Stage of mineral exploration under NMET.

For your kind perusal and necessary action please.

Encl:- As above.

Yours,

13/05/22
निदेशक, नीति सहायक तंत्र, कृ.
Director, PSS pl.

(S. S. Joshi)
Geologist,
Directorate of Geology and Mining
Government of Maharashtra, Nagpur

(Draft Approved by DGM)

योजना
31/3/2022

पत्र.क्र.योजना/मो.स.सा.प./भाग–३/२०२२/298

भूविज्ञान आणि खनिकर्म संचालनालय
प्रादेशिक कार्यालय, महाराष्ट्र शासन,
२७,''खनिज भवन'' ४ था माळा, सिमेंट रोड,
शिवाजी नगर, नागपूर.

भूविज्ञान व खनिकर्म संचालनालय
महाराष्ट्र शासन नागपूर
आवक क्र. 1956
दिनांक 31-3-2022

दिनांक :– 31 MAR 2022

प्रति,
मा. संचालक,
भूविज्ञान आणि खनिकर्म संचालनालय,
महाराष्ट्र शासन नागपूर.

विषय :– NEMT अंतर्गत सर्वेक्षण/पुर्वेक्षण योजनाचे प्रस्ताव सादर करणेबाबत

मा.महोदया,

उपरोक्त विषयान्वये, NEMT अंतर्गत सर्वेक्षण/पुर्वेक्षण योजनाचे प्रस्ताव खालीलप्रमाणे या पत्रासह सादर करण्यात येत आहे.

पुर्वेक्षण योजनाचे प्रस्ताव :

१) मॅगनिज पुर्वेक्षण योजना,रोंधा –खापा. खुर्द. त. तुमसर. जि. भंडारा.

आपला विश्वासू

(डॉ. एस. पी. आवळे)
उपसंचालक,
भूविज्ञान आणि खनिकर्म संचालनालय,
प्रादेशिक कार्यालय, नागपूर.

Proposal for Manganese in Rongha Block, Tumsar Tahsil, Nagpur District, Maharashtra State for Reconnaissance Survey (G4) under NMET.

(Industrial Mineral)

By

DIRECTORATE OF GEOLOGY AND MINING,
NAGPUR (MAHARASHTRA)

Place : Nagpur

Proposal for Reconnaissance Survey (G4) For Manganese Ore in Rongha Block, Tumsar Tehsil, District – Nagpur, Maharashtra

Table -1

	Features	**Details**
	Block ID	Rongha
	Current Exploration Agency	Directorate of Geology & Mining Regional Office Nagpur
	Previous Exploration Agency	GSI
	G4 stage Geological Report (Previous stage Geological Report)	Final Report on Prospecting And Assessment of Manganese Ore In Gobarwahi-Karli-Asalpani Belt, Bhandara Distrct, Maharashtra by Geological survey of India
	Commodity	Manganese
	Mineral Belt	Sausar Belt
	Completion Period with entire Time schedule to complete the project	15 months (including rainy season)
	Objectives	G-4 level of exploration to delineate the Manganese ore body
	Whether the work will be carried out by the proposed agency or through outsourcing and details thereof. Components to be outsourced and name of the outsource agency	Yes – work will be carried out by the proposed agency.
	Name/ Number of Geoscientists	03
	Expected Field days (Geology, Geophysics, Surveyor)	100 Days
1.	**Location**	
	Latitude	21°27'57.98" - 21°31'02.79"
	Longitude	79°30'54.49" -79°34'53.36"
	Villages	Rongha, Khapa, Lendezari
	Tehsil/ Taluk	Tumsar
	District	Bhandara
	State	Maharashtra
2.	**Area (hectares/ square kilometers)**	
	Block Area	38.34 Km^2
	Forest Area	35.34Km^2 (South Bawanthari Reserve Forest)
	Government Land Area	NA
	Private Land Area	3.00 Km^2
3.	**Accessibility**	

	Nearest Rail Head	Tumsar Road Junction Rail Way Station
	Road	NH - 7
	Airport	Nagpur
4.	**Hydrography**	
	Local Surface Drainage Pattern (Channels)	Dendritic
	Rivers/ Streams	Pench River
5.	**Climate**	
	Mean Annual Rainfall	
	Temperatures (December)(Minimum) Temperatures (June)(Maximum)	December (Minimum) 32° June (Maximum) 40°
6.	**Topography**	
	Toposheet Number	55 O/10 & O/11
	Morphology of the Area	
7	**Availability of baseline geoscience data**	
	Geological Map (1:50K/ 25K)	Available (GSI)
	Geochemical Map	Not Available
	Geophysical Map (Aerogeophysical, Ground geophysical, Regional as well aslocal scale GP maps)	Not Available
8	Justification for taking up G4	**GSI** has carried out detail geological mapping in the area on scale of 1:12,500. As per report, in the said area, Manganiferous horizons occur as detached lenticular outcrop at the contact of biotite gneiss and muscovite schist. The ore horizon mainly comprised of gondite spessartite and manganese pyroxene. Between Rongha and Lendejari detached outcrop of gondite are traceable for over a distance of 1 km. Thickness of gondite varies from half meters to 2 meters. Similarly, manganese horizon also occur as detached outcrop associated with calc-silicate between Khapakhurd and area north of Rongha. They are mainly composed of gondite with minor pocket of secondary manganese oxide. These detached outcrops are traceable for over a distance of 1.5 km numerous small abandoned prospecting pits are seen along the belt.

Proposal for Reconnaissance survey G-4 For Manganese Ore in Rongha Block, Tumsar Tehsil District – Nagpur, Maharashtra

Block Summary

i) Introduction:

The Sausar fold belt is well known for Manganese ore mineralization which is exposed in Madhya Pradesh and Maharashtra. In Sausar group, Manganese ore mainly occurs in Mansar formation, also some deposits occur in Lohangi formation. The main minerals are braunite, pyrolusite, psilomelane along with Mn silicate rock "gondites".

The northern Bhandara district forms a part of Manganese belt, which occur within Sausar Series of rocks and extend over an area of about 1000 sq.km. Most of the major Mn ore production come from this part of the district, namely Chikla, Sitasaongi and Dongribuzurg, operated by MOIL. In addition to it there are no of abandoned mines, which were under exploitation by different mining companies along Gobarwahi, Chikla.

The present programme has proposed for G-4 level of exploration in pursuance to delineate the manganese mineralisation in the said area.

ii) Location and accessibility:

The area is located at the north – western corner of Bhandara district and at the southern side of Bawanthari river which is a border between Maharashtra and Madhya Pradesh. In the south, it is bounded by the Mangarli – Lendezari – Pangdi road. In the east lies the western tip of Lamanhukri – Dongri Buzurg – Pangdi area, while in its west runs the Tandia nala and the road between Mangarli and Kandri. The area lies in between Latitudes 210 28` to 210 33`and Longitudes 790 30` to 790 38` and falls in Survey of India Toposheet No. 55 O/10 & 11.

The Kandri (on Ramtek – Tumsar road) – Lendezari – Alesur – Chikhli road passes through the eastern part of the area, while the Kandri – Susurdohtola road via Lendezari & Khapa passes through western part. The area is well connected to Dongri Buzurg – Gobarwahi in the east and also to Pauni on NH7 (Nagpur – Jabalpur road) in the west via Mangarli and Hivra. The area may be reached from Dongri Buzurg Railway Station which is about 11km to the ENE, and also from Chicholi Railway Station, around 13km in ESE direction.

Table -2

Block corner points / Cardinal Points	Datum - WGS 1984, UTM Zone - 44N		Latitude	Longitude
	Easting	Northing		
A	346204.87	2374464.04	21° 27' 57.98"	79° 30' 56.34"
B	346204.87	2380084.11	21° 31' 0.72"	79° 30' 54.49"
C	353028.07	2380084.11	21° 31' 02.79"	79° 34' 51.59"
D	353028.07	2374464.04	21° 28' 0.04"	79° 34' 53.36"

iii) Physiography:

The area is mainly an undulating terrain with average elevation of about 300m above MSL.General drainage direction of the area is to east and southeast towards Wainganga river. Bawantari river is a tributary of Wainganga and is situated to north of the area under investigation. There is a central water divide extending along ENE-WSW direction right from Chikla hill and pass through Gobarwahi-Karli Asalpani and Rongha. The country to north of this divide drained by south east flowing Bawanthari river which meander and meets Wainganga. The drainage to the south of this divide is drained by small stream and meets Wainganga south of Tumsar town ship; the drainage is sub parallel to sub dendrite, controlled by ridges and lineament.

iv) Climate:

Area experience moderately dry and wet climate, dry hot summer from March to June when temperature reaches maximum of 46°C. Monsoon sets from last week of June and last upto September, annual average rainfall is 150 cm. November to February is the winter season where average temperature is about 20°C.

v) Background Geology :

The Sausar Fold Belt (SFB) lies on the southern margin of the Central Indian Tectonic Zone and trending in E-W to ENE-WSW direction. This belt is about 35 km wide and more than 215 km long covers an area in Madhya Pradesh and Maharashtra. The SFB is surrounded by Deccan in the N & W, Malanjkhand granitoids, Chilpis, Nandgaon and Dongargarh-kotri Belt in the east and southeast, Gondwana and Sakoli Group in the south. The Sausar Group (SSG) is divided into Sitasaongi Formation, Lohangi Formation, Mansar Formation, Chorbaoli Formation, Junewani formation and Bichua Formations. The lithounits such as quartzite, quartz-mica schist, calc-silicate, calcitic and pink marble and manganese/ gondite ore are present in Sausar Group The Manganese ore belt of Madhya Pradesh and adjacent parts of Maharashtra known as Central belt is principally made up of intensely deformed and metamorphosed rocks of Precambrian Sausar series. The Madhya Pradesh- Maharashtra Manganese belt stretches over about 200 km in length fromBalaghat in the east to Nagpur Maharashtra in the west, with a width of 25 km at in central part. The Precambrian Sausar Group meta-sediments host the Manganese ore horizons, which occurs in the lower part of Sausar sequence at three horizons, viz., i) at the contact of Mansar Formation and overlying Chorbaoli Formation (Horizon-I), ii) within Mansar Formation (Horizon=II) and, iii) at the contact of Mansar Formation and the underlying Lohangi/Sitasaongi Formation (Horizon-III). The Dongri-buzurgMn deposit, is the largest known supergene oxide deposit in Madhya Pradesh-Maharashtra Manganese belt, this is the only deposit which yields manganese dioxide ore.

Sausar fold belt is an important Mesoproterozoic mobile belt in the central part of the Indian Peninsular shield. It forms an arcuate belt covering an area of over 7000 km2 in the state of Maharashtra and Madhya Pradesh. The regional strike of

the rocks is generally ENE-WSW in the western and eastern parts, and E-W in the central portion with 45°-70° dip due south.

Stratigraphic Succession

With this geological history, the succession of rocks - the Pre-Sausars, Sausars and Post - Sausars could be depicted as follows:

Stratigraphy	Rock types
Recent	Soil and alluvium
Intrusive	Granite, pegmatite and quartz vein
Bichhua Formation	Dolomitic marble and quartzite calc-gneisses
Junewani foramtion	Quartz Biotite granulites, fine grained Biotite schist, Muscovite Biotite schist, Quartz sillimanite concretions (Tabloids)
Chorbahuli Formation	Micaceous quartzite, quartz Muscovite schist (occasionally garnetiferous), feldpathic Musc. Schist, Tabloids
Mansar Formation	Quartz muscovite schist, Mica schist with Manganese ore horizons, garnetiferous sericite schist, muscovite gneiss
Lohangi Formation	Pink Marble, white Marble with thin Manganese ore bands, Calc Silicates
Sitasaongi Formation	Fedspathic Musco. Schist with intercalated Quartzite
Pre Sausar Tirodi Biotite Gneiss	Pre Sausar Tirodi Biotite Gneiss

Many parts of the area of Pre-Sausar, Sausar and Post Sausar rocks in Nagpur and Bhandara districts are covered by soil cover. The stratigraphic sequence of the rock types in this area, as given above, has been worked out on the basis of surface and subsurface data obtained from mapping, trenching, quarrying, underground mining and drilling.

Geology and Structural Set-up of the block:

The chief rock types are biotite gneiss, muscovite gneiss, garnetiferous muscovite schist and calc-gneiss, general trend being ENE – WSW, dip 60^0 south and vertical. The rocks are involved in isoclinal folding, overturned towards north. A closed anticlinal structure occurs in the area surrounding Rongha, Khapa, Itpur and Lendezari villages. Both towards north and south of this structure, there are series of tight isoclinal folds running ENE-WSW direction. The contact between the biotite gneiss and muscovite schist/gneiss carries impersistent beds of calc- gneiss or gondite. The northern fault cuts off the western continuation of gondite in the area NNW of Rongha.

Manganiferous Zones, Mines and Prospects:

The manganiferous zone in the form of gondite, composed of quartz, spessartite and manganese pyroxenes in varying proportion, at places grades to pure quartz – spessartite rock. Gondite is exposed as lenticular outcrops reaching maximum thickness of 6m and a maximum length of 1065m. The workable manganese ore is mostly secondary manganese oxides, psilomelane and pyrolusite, occurring as thin impersistent lenses and seams within the gondite. The area includes one mine within Rongha village, one mine inside Alesur Reserved Forest area and about 19 prospects between Rongha, Lendejhari, Khapa Khurd and Alesur villages and inside the intervening RF areas. The deposits consist of narrow impersistent beds of gondite, containing very minor workable seams of secondary manganese oxide. The mines and prospects are all located on the reefs of gondite.

Scope for proposed exploration

In accordance to the objectives set for Reconnaissance survey G-4 in Rongha Block, District- Bhandara, Maharashtra, Geological Mapping, Geophysical Survey and Scout drilling program is proposed in the block. The exploration shall be carried out as per Mineral (Evidence of Mineral Contents) Rule-2021. Accordingly, the following scheme of exploration is formulated in order to achieve the objectives. The details of different activities to be carried out are presented in subsequent paragraphs.

Proposed programme for Exploration

The present exploration reconnaissance survey G-4 has been formulated on the basis of previous regional data available and the data collected by GSI team during the geological mapping to fulfil the following objectives:-

Objective of the proposed exploration work:

i) To carry out geological mapping on 1:12500 scale and demarcate the rock types of manganese bearing formations with the structural features i.e. strike, dip, lineation / foliations etc.

ii) To find out occurrence of manganese ore mineralization (if any) by geological mapping on 1:12500 scale.

iii) To carry out surface geophysical survey (Gravity, Magnetic & Resistivity) to demarcate concealed manganese ore bodies.

iv) To carry out trenching/pitting to expose manganese body concealed under soil & lateritic cover.

v) To drill scout boreholes up to 60-70m vertical depth to prove the strike and depth persistence of Mn ore body mapped in the area.

vi) To estimate manganese ore resources (334) in the block as per UNFC norms & Minerals (Evidence of Mineral Contents) Rules- 2021.

Planned Methodology:

i) Geological Mapping

Detail geological mapping on 1:10000 scale will be carried out in the block by taking geological traverses in the block. The contacts of different formations, identification of different rock formation, structural features, etc., will be carried out in detail.

ii) Drilling:

The exploration work will bring the deposit to G-4 level of exploration. Depending on the outcome of G-4 level exploration, further drilling at close spaced grid will be proposed to bring the deposit to G-3 level which will help the State Govt. of Maharashtra to facilitate auctioning of the blocks.

History of Manganese Mining

Existence of Manganese ore was known to ancient India, Fermors (1909) record shows that the smelters of Mahabaleshwar in western ghat, Ghora in Jabalpur used mn ore in the charge. Jenkins was the first to locate occurrence of Mn ore in MP in crystalline limestone near Pench River, Blanford discovered the Kodegaon deposit in Nagpur district in 1872. Col. Bloom field in 1883, found float ore of Mn in watercourse near Ambagarh. W.H. Clark and Harvey Dodd of Vizag mining company started prospecting for Mn in Nagpur district in 1899 and 1900 respectively and found out several deposit. Thus the Central Province Prospecting Syndicate was formed for exploiting these deposits. P.N. Datta of GSI while mapping in this area discovered the deposit at Kurmura, Chikla Sitasaongi and Asalpani. The Central Province Prospecting Syndicate were the first organization to acquire mining lease in this area, this company later became central 8 province Manganese Ore Company and subsequently MOIL, which took up mining lease of Chikla, Dongribuzurg and Sitasaongi, which are all active producing mine. The success of this firm led numerous entrepreneurs who look up a number of prospecting license and mining lease in the district.

Observation and Previous Work

P.N. Datta of GSI 1893-94 first carried out systematic Geological mapping and he was credited for having discovered majority of major deposit of the dist. Fermor in (1909) gave a comprehensive account of Geology, Mineralogy, Petrology, and Manganese ore of MP. He was also the first to coin the name Sausar for the meta sedimentary rock associated with Mn ore deposit, which was later on modified by West (1936). Major parts of Bhandara district were covered by Fermor (1931-1933). Chatterjee remapped the same area. Manganese belt mapping of MP and Maharashtra was initiated again in 1951 under over all coordination of Straezek. The entire area

was mapped up different orkers between 1951 and 1957 and the detailed account of this study was presented in GSI Bulletin in seven parts (Narayanswami et.al 1963 Rao 1970, Narayanswami,Venktesh 1971, Subramanyam 1973, Shukla Anandalwar 1973, Chakraborty 1973 Vemban Nagarajaiah 1974).

A.S.Khan, Geologist (Sr) A. K. Dawande, Geologist (Sr) & & A. Chattopadhyay, Geologist (Jr), R.K. Singhai Geologist (Sr) from GSI studied the area in the F.S. 1999-2000 and made the following observations that, the Mn ore horizon occurs in the area in the form of pockety gondite associated with calc silicate rocks of Lohangi Formation. The calc silicate rocks occur as detached linear thin bands in the form of tectonic slices within TBG. The calc silicate rocks strike in WNW-ESE to ENE-WSW direction and dip at 60° towards south to vertical. The gondite is composed of quatz, spessartite and manganese pyroxenes. The workable manganese ore occurs in the form of secondary manganese oxides (psilomelane and pyrolusite) within gondite. The old working on gondite are of very limited extent. The area as such is of very little economic importance as far as the dimensions and quality of the Mn ore is concerned. Analysis of a grab sample from Ronga area carried out by Narayanaswami and Venkatesh (1971) indicates: Mn 37.33%, Fe2O3 9.03%, SiO2 5.98% and P 0.26%. The samples analysed during this work from 2 km WNW of Lendejhari (NE of Ronga) indicate Mn 27.19%, Fe2O3 23.00%, SiO2 24.36% and P 0.32% in gonditic Mn ore (ASG/12) and Mn 32.96%, Fe2O3 9.88%, SiO2 6.25% and P 0.12% in oxidised gonditic ore (ASG/13).

M. Chandradas from GSI carried out detail geological mapping in the area on 1:12500 scale and observed that, area between Lat 21°38' to 21°31' and long. 79°31' and 79°35' has numerous abandoned Mn quarries and some illegal quarries within the reserved forest. The deposit consists of narrow impersistant bands of gondite and contains minor workable bands. Most of the outcrop of gondite in this area have been prospected and exploited by shallow trial pits and later on abandoned as unfeasible Mn quarries. The area is situated in the North West corner of 55O/11 and south west corner of 55O/10 sheet. The general drainage in the area is towards north. The Tondia nala , Madvi nala and Sara nadi are the main drainage of this area. The main rock types in this area are biotite gneiss, garnetiferous calc-gneiss. The general trend of the rock is ENE-WSW and dips vary from 55° to 75° south. Manganiferous horizons occur as detached lenticular outcrop at the contact of biotite gneiss and muscovite schist. The ore horizon mainly comprised of gondite spessartite and manganese pyroxene. Between Rongha and Lendejari detached outcrop of gondite are traceable for over a distance of 1 km. Thickness of gondite varies from half meters to 2 meters. Similarly, manganese horizon also occur as detached outcrop associated with calc-silicate between Khapakhurd and area north of Rongha.. They are mainly composed of gondite with minor pocket of secondary manganese oxide. These detached outcrops are traceable for over a distance of 1.5 km numerous small abandoned prospecting pits are seen along the belt.

3. Block description

Block corner points / Cardinal Points	Datum - WGS 1984, UTM Zone - 44N		Latitude	Longitude
	Easting	Northing		
A	346204.87	2374464.04	21° 27' 57.98"	79° 30' 56.34"
B	346204.87	2380084.11	21° 31' 0.72"	79° 30' 54.49"
C	353028.07	2380084.11	21° 31' 02.79"	79° 34' 51.59"
D	353028.07	2374464.04	21° 28' 0.04"	79° 34' 53.36"

4. Planned Methodology

The exploration shall be carried out as per Mineral (Evidence of Mineral Contents) Rule-2021. Accordingly, the following scheme of exploration is formulated in order to achieve the objectives.

Topographic Surveying

The prospect area would be tied up with the triangulation network and contouring/topographical survey will be carried out in the block area and the surface features will be picked up and marked on a map on 1:10000 scale. The reduced levels and co-ordinates of boreholes would be determined. The block boundary will be surveyed by DGPS & total station in WGS-84 Datum for demarcation of Block Boundary points and ancillary area to facilitate the state governments for auctioning of block.

Geological Mapping:

Detailed geological mapping on 1:10000 scale will be carried out in the entire block by taking geological traverses. The contacts of different formations, identification of different rock formation, structural features, etc., will be carried out. The geological map on 1:10000 scale will be generated based on the detail geological mapping of the block and interpretation of exploration data.

Exploratory Drilling:

Based on the outcome of the geological mapping, sampling and trenching the decision of scout borehole would be taken. If the area is promising scout boreholes will be planned accordingly.

The exploration work will bring the deposit to G-4 level of exploration. Depending on the outcome of G-4 level exploration, further drilling at close spaced grid will be proposed to bring the deposit to G-3 level which will help the State Govt. of Maharashtra to facilitate auctioning of the blocks.

Table No. 8		
Details of Proposed Boreholes		
SL. NO	CORING BOREHOLE	PROPOSED DEPTH TO BE DRILLED (m)
1	PBH 1	60.00
2	PBH 2	60.00
	Total	**120.00**

The depth of the boreholes may be upto 60-70 mtr.

Core Sampling

The mineralized part of drill core will be sampled as Primary sample. The length of each sample will be kept 0.50m within the ore zone depending upon the width of particular type of manganese ore and its physical character. The representative powdered samples of (-) 200 # size will be prepared by stage wise grinding of the borehole core samples and by reducing the weight of sample by repeated coning and quartering. A final finished sample of 500 gram (- 200 mesh) will thus be prepared. One part around 100gm sample will be sent to chemical laboratory for analysis, second part will be preserved in the camp as duplicate sample, the third part will be utilized for preparing composite sample for individual ore band and the fourth part will be kept as either check sample or sample to be used for any other specific purpose. The cores of rocks 3 m immediately on the footwall and 3 m immediately on the hanging wall of mineralized zones would be sampled at 1.0 m interval, as far as possible, depending upon the intensity of mineralization, change in lithology and core recovery etc.

a) Around 50 nos of core samples (45 No Primary & 5 No Check samples) might be generated from the mineralized zone intersected in the boreholes. All the primary and internal check samples for manganese mineralisation will be analysed for 6 radicals' i.e. Mn, SiO2, P2O5 Fe2O3, MnO2 and Acid Insolubles.

b) Around 5% (5nos) and 10% (10nos) of primary samples will be sent to DGM, Chemical Laboratory and other NABL External Labs as internal and external check samples respectively for analysis of six radicals i.e., Mn, SiO2, P2O5 Fe2O3, MnO2 and Insolubles.

c) Composite samples would be prepared from the mineralized zones of primary drill core samples of each borehole as well as from the mineralized zones demarcated in the channels. A total of 5 nos. of composite sample would be generated from drill cores and be analyzed for manganese mineralization i.e., Mn, SiO2, P2O5 Fe2O3, MnO2 and Acid Insolubles.

Petrological and Mineragraphic Studies

Thin and polished section studies on outcrop samples and drill cores samples would be done for ascertaining the petrographic and mineragraphic characteristics. These

samples would be drawn from ore zones and host rocks. A provision of 5 specimens each for petrographic and mineragraphic studies has been kept.

Specific Gravity Determination

To derive the tonnage factors, 5 nos manganese bearing drill core samples are proposed to be studied for specific gravity determination. The samples are to be drawn from ore zones/ mineralized zones.

5. Nature Quantum and Target

Table -9

Sl. No.	Item of Work	Unit	Proposed Quantum of work
1	Geological Mapping (on 1:12500Scale).	Sq. Km.	38.34
2	Core Drilling (02 Boreholes)	m.	120.00
3	Trenching (1m x 2m x1 50m)	No.s	05
4	Sample Preparation & Laboratory Studies		
A.	Primary samples (Surface samples + Core Samples)		
	i) Chemical Analysis: Primary samples for 6 radicals i.e., Mn, MnO_2, Fe_2O_3, SiO_2, P_2O_5, and Acid Insolubles.	Nos.	45
B.	Composite Samples (Core Samples)		
	i) Composite samples will be analyzed for 6 radicals i.e., Mn, MnO_2, Fe_2O_3, SiO_2, P_2O_5, and Acid Insolubles.	Nos.	5
5	Petrographic Studies	Nos	5
6	Mineragraphic Studies	Nos	5
7	Specific gravity determination	Nos	5
8	Report Preparation (Digital format)	Nos.	--

6. Manpower Deployment

Table -10

Senior Geologist	01
Geologist	01
Junior Geologist	01
Surveyor	01
Driller	01
Assistant Driller	01
Driver	02
Labors	12

7. Break-up Expenditure

The project cost with provisional escalation is estimated at say **Rs. 1,03,04,772/-** the details of item wise cost estimate with inbuilt actual escalation and same has been considered for subsequent years for Geological and Laboratory studies and is given in Table no. 12 and the summary is given below :

Table-11 - **Summary of Cost estimates**

Sl. No.	Item	Estimated Cost (Rs.)
1	Drilling	2213000/-
2	Geology	1410000/-
3	Laboratory	833565/-
4	Preservation of Core	111300/-
5	Pitting and Trenching	49500/-
6	Total (1+2+3+4+5)	4617365/-
7	Report	432993/-
8	Peer Review	10000/-
9	Total (6+7+8)	5060358/-
10	GST (18% of Sl. No. 8)	910864/-
11	Total cost including 18% GST.	5971222/-

8. Time Schedule:

Time schedule is given in table no. 13

9. Reference

1. M. Chandradas, 2006, Final Report On Prospecting And Assessment Of Manganese Ore In Gobarwahi-Karli-Asalpani Belt, Bhandara Distrct, Maharashtra, Geological Survey Of India
2. A.S.Khan, Geologist (Sr) A. K. Dawande, Geologist (Sr) & & A. Chattopadhyay, Geologist (Jr), R.K. Singhai Geologist (Sr) 2005, Progress Report On Specialised Thematic Mapping In Sausar Fold Belt In Goreghat – Lendejhari Area, Balaghat District, Madhya Pradesh And Bhandara District, Maharashtra (Parts Of Toposheets No. 55 O/10 & 11) Field Season 1999-2000, Geological Survey Of India
3. Khan A.S., Huin A.K., and Chattopadhyay.A, 1998: Specialized Thematic Mapping in sausar belt in Deolapar and Paoni area Nagpur and Bhandara district, Maharashtra for elucidation of stratigraphy structure metamorphic history and tectonic. Records Geological Survey of India, 131(6) page 31-35

Deputy Director,
Directorate of Geology & Mining,
Regional Office, Nagpur,

Officer-in-charge,
Manganese. Pros. Scheme
Teh.- Tumsar, Dist.- Bhandara

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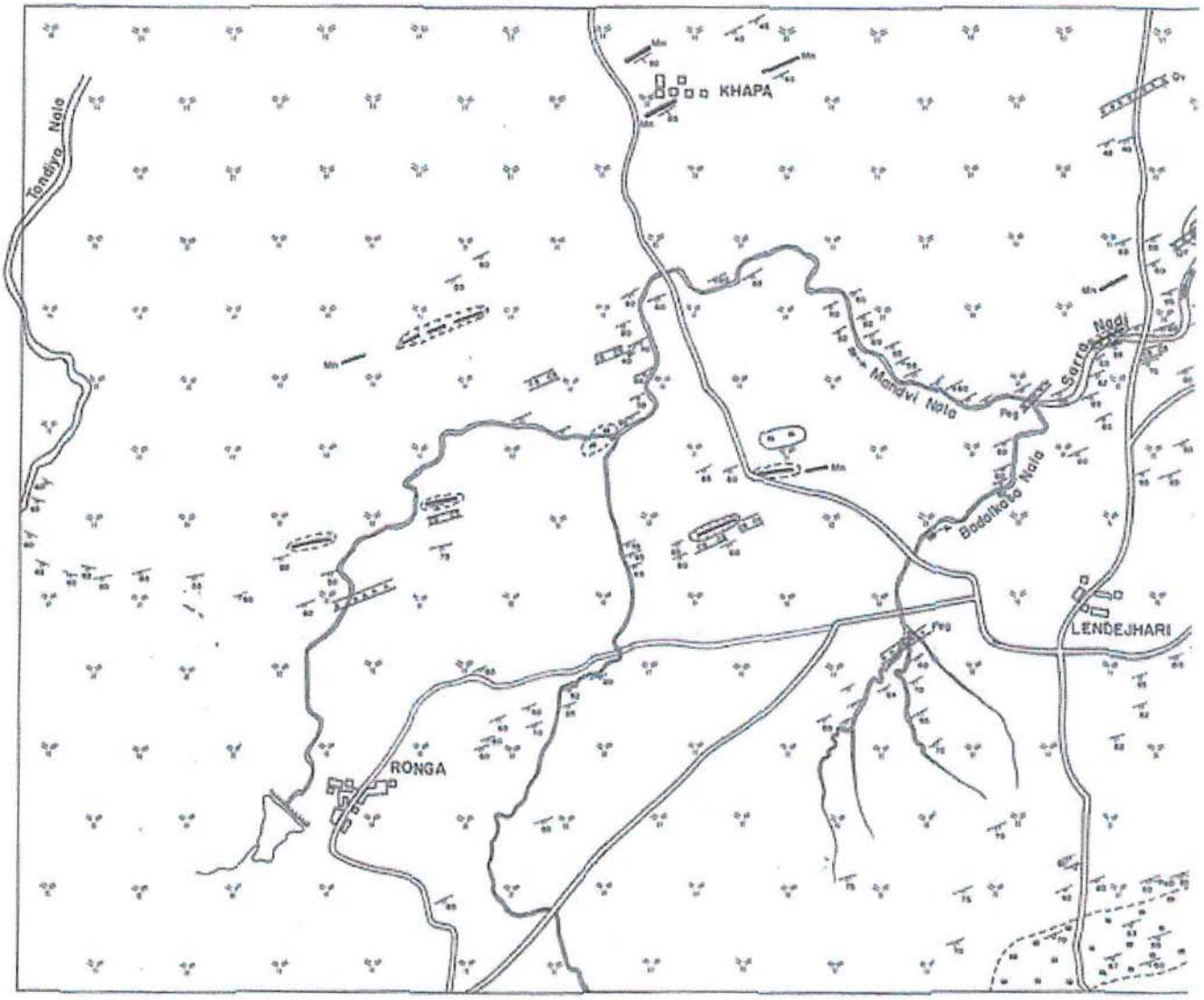
PLATE-2

GEOLOGICAL SURVEY OF INDIA

GEOLOGICAL MAP OF RONGA-KHAPA AREA SHOWING Mn ORE HORIZON, BHANDARA DISTRICT, MAHARASHTRA

SCALE METRE 0 250 500 750 1000 1250 METRE



INDEX

- Quartz Vein
- Pegmatite
- Foliated Granite
- Calc-Silicate with Mn. Ore
- Amphibolite
- Biotite Gneiss
- Gneissosity
- Foliation in Granite
- Lineation
- Mn. Ore Quarry

MAPPED BY:-
M. CHANDRADAS
GEOLOGIST (Sr.)

F. S. 2001-02

G.S.I., Cntr. Mkt., D.D. No. 564/02

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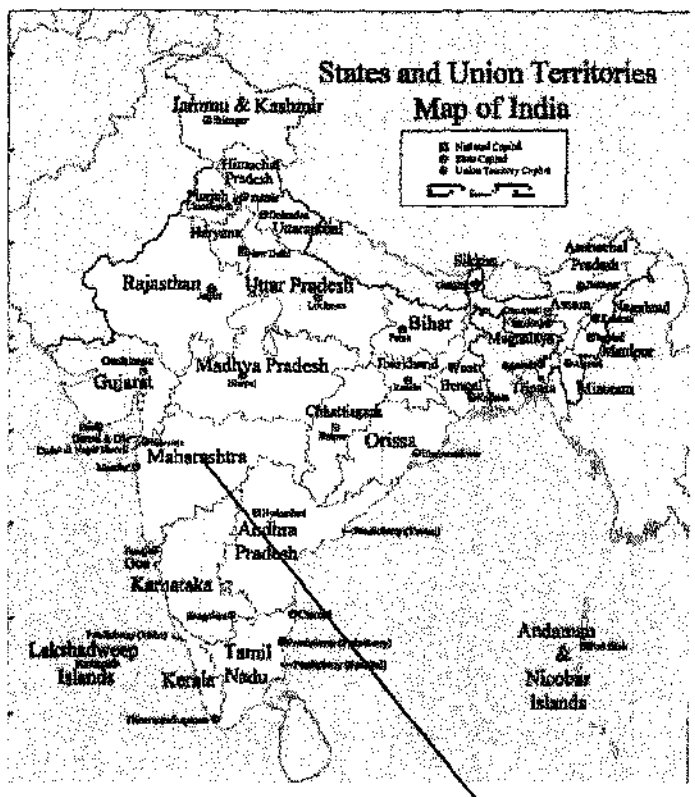
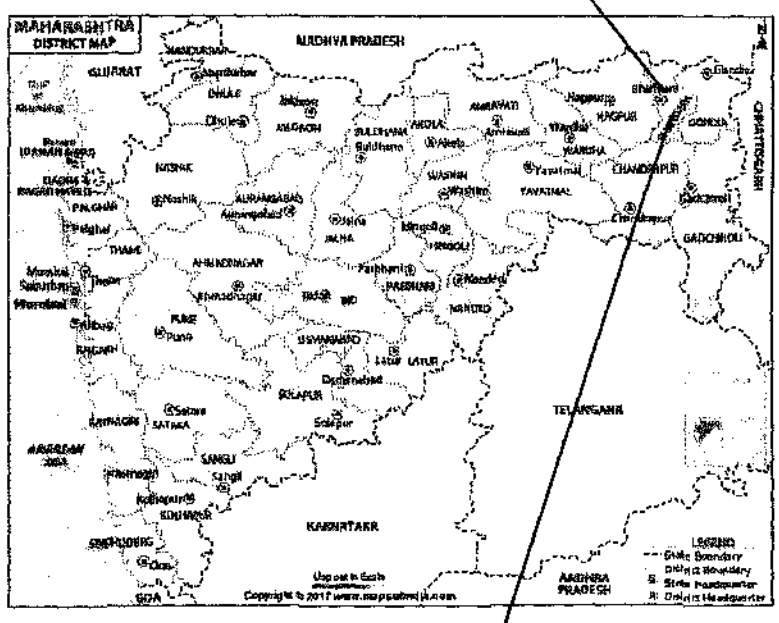
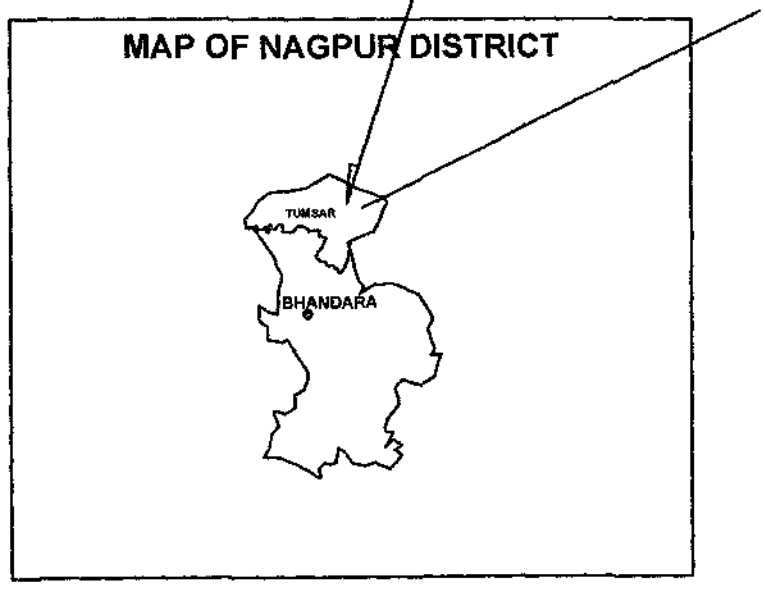
INDEX MAP







PROPOSED BLOCK (AREA38.34 SQ.I

SCALE 1: 50000

DIRECTORATE OF GEOLOGY AND MINING
OFFICE OF DEPUTY DIRECTOR, NAGPUR REGION

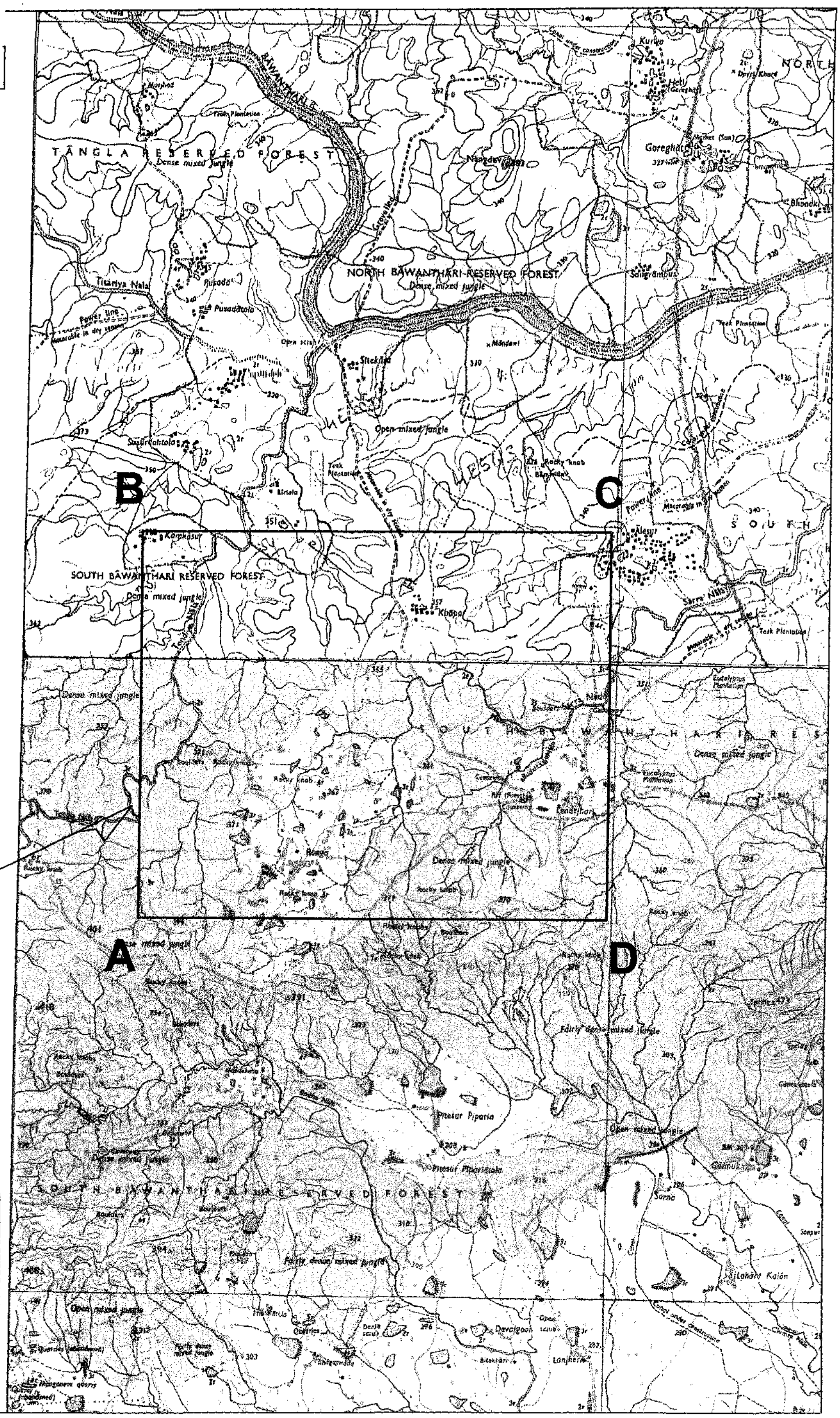


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Table - 12 - Cost Estimate for Reconnaissance Survey (G4) of Manganese ore in Rongha Block, Distt. Bhandara, Maharashtra

S.N	Item of Work	Unit	Rates as per NMET SoC 2020-21				Remarks
			SoC-Item -Sl No.	Rates as per SoC	Year 2022-2023		
					Qty.	Amount (Rs)	
A	**GEOLOGICAL WORK**						
1a	Geologist Party days (1 party)-Field	day	1.2	11,000	50	550,000	
1b	Geologist Party days (1 party)-HQ	day	1.2	9,000	50	450,000	
1c	4 labours/ party (Rs 350/day/labour) (As per rates of Central Labour Commissioner)	day	5.7	1,400	50	70,000	Amount will be reimbursed as per the notified rates by the Central Labour Commissioner or respective State Govt. whichever is higher
2a	Survey Party days (1 party)	day	1.6.1a	8,300	25	207,500	
2b	4 labours/ party (Rs 350/day/labour) (As per rates of Central Labour Commissioner)	day	5.7	1,400	25	35,000	Amount will be reimbursed as per the notified rates by the Central Labour Commissioner or respective State Govt. whichever is higher
3a	Sampling -1 Samplers Labour charge not included	day	1.5.2	5,100	15	76,500	
3b	4 labours/ party (Rs 350/day/labour) (As per rates of Central Labour Commissioner)	day	5.7	1,400	15	21,000	Amount will be reimbursed as per the notified rates by the Central Labour Commissioner or respective State Govt. whichever is higher
	Sub-Total A					**1,410,000**	
B	**PITTING AND TRENCHING**						
1	Trenching (1m x 2mx 1.50 m)	Cu m	2.1.1	3300	15	49,500	
	Sub-Total B					**49,500**	
C	**DRILLING**						
1	Drilling (2 rigs) up to 300m	m	2.2.1.4a	11,500	120	1,380,000	
2	Borehole deviation Survey	m	2.2.6	330	120	39,600	
3	Land / Crop Compansation	per BH	5.6	20,000	2	40,000	Amount will be reimbursed as per actuals or max. Rs. 20000 per BH with certification from local authorities
4	Bore Hole Fixation and determination of co-ordinates & Reduced Level of the boreholes by DGPS	Nos	1.6.2	19,200	2	38,400	
5	Construction of concrete Pillar (12"x12"x30")	per borehole	2.2.7a	2,000	2	4,000	
6	Transportation of Drill Rig & Truck associated per drill	Km	2.2.8	36	400	14,400	

7	Monthly Accomodation Charges for drilling Camp (up to 2 Rigs)	month	2.2.9	50,000	2	100,000	
8	Drilling Camp Setting Cost	Nos	2.2.9a	250,000	-	250,000	
9	Drilling Camp Winding up Cost	Nos	2.2.9b	250,000	-	250,000	
10	Road Making (Hilly Terrain)	Km	2.2.10b	32,200	3	96,600	Road Making will be considered as per the requirement and Road Making Charges will be reimbursed accordingly.
	Sub Total C					**2,213,000**	
D	**Total - A to C**					**3,672,500**	
E	**LABORATORY STUDIES**						
1	**Chemical Analysis (Primary & Check samples)**						
i)	**Trench/Pit samples**	Nos	4.1.1	8,157	50	407,850	
ii)	**Drill Core samples**	Nos	4.1.1	8,157	45	367,065	
2	**Physical & Petrological Stusies**						
i)	Preparation of thin section	Nos	4.3.1	2,353	5	11,765	
ii)	Complete petrographic study report	Nos	4.3.4	4,232	5	21,160	
iii)	Specific Gravity determination	Nos	4.8.1	1,605	5	8,025	
iv)	Determination of insitu bulk density	Nos	4.1	3,540	5	17,700	
	Sub-Total -E					**833,565**	
F	**Drill Core Preservation**						
	One complete borehole plus mineralised cores of all the BHs of the Block, all cost included	m	5.3	1,590	70	111,300	Core samples will be sent to GSI core lab
	Sub-Total - F					**111,300**	
G	**Total - E to F**					**4,617,365**	

H	Geological Report Preparation	No	5.2	iv) Detailed exploration with cost of work exceeding ₹ 300 lakh: A minimum of ₹ 9 lakh or 3% of the value of work whichever is more subject to a maximum amount of ₹ 20 lakh and ₹ 10,000/- per each additional copy.		432,993	
I	Peer review Charges		As per EC decision			10,000	
J	Total Estimated Cost without GST					5,060,358	
K	Provision for GST (18% of J)	%				910,864.44	GST will be reimbursed as per actual and as per notified prescribed rate
L	Total Estimated Cost with GST					5,971,222	
					Say in Lakhs	59.71	

Note - If any part of the project is outsourced, the amount will be reimbursed as per the Paragraph 3 of NMET SoC and Item No. 6 of

Note - If any part of the project is outsourced, the amount will be reimbursed as per the Paragraph 3 of NMET SoC and Item No. 6 of *NMET SoC. In case of execusion of the project by NEA on its own, a Certifiate regarding non outsourcing of any component/project is required.*

TABLE- 13 TIME SCHEDULE / ACTION PLAN FOR EXPLORATION PROPOSAL FOR MANGANESE ORE IN RONGHA - KHAPA KHURD (G-4) BLOCK, DISTRICT - BHANDARA, MAHARASHTRA

			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
1	Camp Setting	Month																1 month
2	Geological Mapping	Month																9 Months
3	Survey Party days (1 Party)	Party days																50 Days
4	Pitting /Trenching	Cu.m																550 Cu m
5	Surface Drilling (1 rig)	m.																120m in 2 Bhs
6	Geologist Party days (1Party)	Party days																120 Days
7	Sampling Party days (1 party)	Party days																50 days
8	Camp Winding	Months																1 month
9	Laboratory Studies	Months																11 Months
10	Geologist Party days, HQ (1Party)	Party days																100 days
11	Report Writing with Peer Review	Months																4 months

Time loss on account of monsoon/agricultural activity/forest clearance/local law and order problems will be addition to above time line.