Kartikay Exploration And Mining Services Pvt. Ltd.
Regd.Office: 18, SFS, First Floor, Vasant Enclave, Rao Tula Ram Marg, New Delhi - 110057
Corp. Office : 101, 102, Bhaskar Tower, Temple Road, Civil Lines
Nagpur-440001 (M.S.) **Tel No**: 0712-2956388
E Mail : kemspl.ngp@kartikay.co.in; kartikayngp@gmail.com
CIN: U10200DL2008PTC183269

To **07/07/2025**

The Director & HoD
National Mineral Exploration Trust (NMET)
Ministry of Mines
F-114, Shastri Bhawan,
New Delhi-110001

Subject: Submission of Detailed Project Report for Bhagvati Block, Bhagalkot District, Karnataka State for G-3 Stage Mineral Exploration under NMET

Reference: Block allotted to us from DGM Karnataka in 7th Meeting of Technical Committee (Exploration) held on 23.09.2024

Dear Sir,

We are NABET Accredited Notified Private Exploration Company under Ministry of mines, Govt Of India Vide Notification SR No 528 dated 14th September, 2023 under Category-A.

Please refer to the meeting under reference we hereby submitting the detail project report on the above subject to NMET. It is requested to kindly consider our DPR for further necessary action.

Regards,

KARTIKAY EXPLORATION AND MINING SERVICES PVT. LTD. NAGPUR

Nitin Kohad
DGM (Business Development/ Geology)

Kartikay Exploration And Mining Services Pvt. Ltd.
Regd.Office: 18, SFS, First Floor, Vasant Enclave, Rao Tula Ram Marg, New Delhi - 110057
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To

The Director & HoD
National Mineral Exploration Trust (NMET)
Ministry of Mines
F-114, Shastri Bhawan,
New Delhi-110001

It is to certified that:

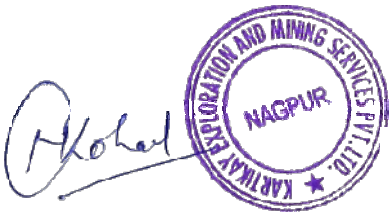
1. Project titled"Priliminary Survey (G3) for Gold" in Bhagvati Block, Bhagalkot District, Karnataka State along with estimated cost Rs. 522.48 Crore is submitted for consideration of NMET funding.

2. The project proposal is prepared following the guidelines prescribed in Minerals (Evidence of Mineral Contents) Rules, 2015 in case of mineral exploration project proposals.

3. The proposal has been duly examined and concurred by associate finance in accordance with canons of financial propriety.

4. The same project proposal or project proposal with similar objectives has not been submitted to any other funding agency by this organization and the project proposal bears no duplication with existing work/ ongoing project undertaken by this agency.

Regards,



Nitin Kohad
DGM (Business Development/ Geology)
Kartikay Exploration & Mining Services Pvt Ltd

Date: 07.07.2025

Place: Nagpur

DPR ON PRILIMINARY EXPLORATION FOR GOLD IN BHAGVATI BLOCK, BHAGALKOT DISTRICT, KARNATAKA (UNFC: G-3)

COMMODITY: GOLD

BY

KARTIKAY EXPLORATION AND MINING SERVICES PRIVATE LIMITED

PLACE: NAGPUR

DATE: 07.07.2025

Summary of the Block for PreliminarySurvey (G3 Stage)

GENERAL/BASIC INFORMATION ABOUT THE PROPOSED BLOCK

	Features	**Details**
	Block Name	Bhagvati Gold Block
	Exploration Agency	Kartikay Exploration and Mining Services Pvt. Ltd, Nagpur
	Previous Exploration Agency	GSI done G4 stage Exploration in and surrounding area
	Commodity	Gold & Associated minerals
	Mineral Belt	Hungund - Kushtagi Schist Belt
	Completion period with entire Time Schedule to complete the project	12 Months
	Objectives	The block area occupied by Hungund – Kushtagi schist belt. Wall rock alteration in the form of silicification, sericitization, epidotization, carbonatization and oxidization observed at several places. Few silicified zones observed in schistose metabasalt and massive metabasalt The area is covered by thick vegetation and the terrain is flat to undulating. The surrounding area was explored by Geological Survey of India (GSI) in field season 2018-19 & 2019-20 and reported the gold occurrences. Old workings in the surrounding area reported by Madusudanan et al., (2009) during the Regional targeting for gold in the Granitoids, bordering Greenstone belts and high strain zones, Eastern Dharwar Craton, Karnataka The main objective of the investigation is to assess the gold potentiality in the Block

		The following objectives to be taken up during UNFC G3 stage. 1. The Geological mapping of the area to be updated at 1: 4000 scale. 2. The block to be explored by Geophysical Studies, Trenching and drilling component. 3. If, above Exploration strategy is successful then further block will be ready for auction. 4. To estimate the resources along with associated elements as per UNFC norms and Minerals (Evidence of Mineral Content) Rules-2015 at G-3 level.
	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	Work will be carried out by the proposed agency Kartikay Exploration and Mining Services Pvt. Ltd.
	Number of Geoscientists	In Field: 04 Geo-scientists (2 Geologist & 2 Geophysicist) and 1 Surveyor In Headquarter: 02 Geo-scientists (1 Geologist & 1 Geophysicist)
	Expected Field days (Geology, Surveyor)	Details given in cost sheet
1.	**Location**	
		Easting / Northing i) 586716.00 m E / 1790375.00 m N ii) 587024.00 m E / 1790762.00 m N iii) 588254.00 m E / 1790643.00 m N iv) 588883.00 m E / 1789877.00 m N v) 588017.00 m E / 1789073.00 m N
	Villages	Bhagvati
	District	Bhagalkot District

	State	Karnataka
2.	**Area (hectares/square kilometres)**	
	Block Area	2.00 sq.km
	Forest Area	NA
	Government Land Area	Data not available
	Private Land Area	Data not available
3.	**Accessibility**	
	Nearest Rail Head	The nearest railway station is Kadlimatti which is about 4 km from the block corner point. Bagalkot Railway Station is situated on the Indian railways main line route between Bangalore and Mumbai.
	Road	The Block is located at around 25 km from Bagalkote district Headquarter and around 470km from District headquarter Bangalore. The village Bhagavati is falling in it. It can be approached from Bagalkote district place with good condition tar road via SH135. The entire area is well accessible by means of good network of motorable (non-metalled and metalled) roads.
4.	**Hydrography**	
	Local Surface Drainage Pattern (Channels)	Major Rivers are absent in the study area. Few small streams are present in the area These streams mainly flow during the monsoon. Topographically area is almost flat with small undulations.
	Rivers/Streams	Major Rivers are absent in the study area. Few small streams are present in the area These streams mainly flow during the monsoon.
5.	**Climate**	
	Mean Annual Rainfall	The climate is generally hot and dry. The summer starts from the middle of February and continues upto the end of June. The southwest monsoon follows thereafter and extends upto the end of September. From December to middle of February is the winter season. The

		average rainfall is 654mm. The driest month is January with 0mm of rainfall.
	Temperatures	The minimum temperature is between 14□ to 15□ C in December and maximum is between 42□ to 45□ C in summer. The annual average temperature is 26.1□C.
6.	**Topography**	
	Topo sheet Number	47 P/16
	Morphology of the Area	The area forms the northeastern part of the Hungund Kushtagi Hagari schist belt which represents prominent hills with undulating plains of low relief. The elevation varies from 550 to 595m. Geomorphologically, the area is characterized by flat terrain. Isolated small to medium mounds are occupied by granite bouldery outcrops. The flat area is covered by thick black cotton soil.
7.	**Availability of base line geosciences data**	
	Geological Map (1:50K/25K)	Bhukosh Portal (available map 1:50,000 scale)
	Geochemical Map	In surrounding area GSI collected samples in field season 2018-19 & 2019-20 & previously in 2007 also.
	Geophysical Map (Aeromagnetic, ground geophysical, Regional as well Also scale maps)	NA

8.	**Justification for taking up Preliminary Exploration**	i) The Govt. of India enacted the MMDR Amendment Act-2015 duly introducing the system of auction for allocation of Mineral Concessions including Gold in order to boost exploration of critical minerals. The justification of taking item in G3 stage is mentioned hereunder ii) GSI has already carried out reconnaissance survey at G4 level. Where they have recommended upgradation at G3 level. (Report on reconnaissance survey for gold and associated metals in yalligutti and mugalalli block, bagalkot district, karnataka. (stage-g4) Final report for field season 2019-2020) iii) Prospecting for Gold deposits resulted in identification of Gold deposits falling in toposheet no.48M/13 and 47P/16. in Hungund - Kushtagi Schist Belt. ((Final Report of GSI for priliminary Investigation of Gold in field season 2018-19 & 2019-20). reported the Old working Pit and gold values 978 ppb, 1090 ppb etc. iv) The Geological survey of India Carried out survey for Evaluation Of Geochemical Anomalies For Gold In Hungund-Kushtagi And Hagari Schist Belts, Bagalkot, Koppal Raichur And Bellary Districts, Karnataka(Code No. MIP/GSI/SR/KG/1999/008; Progress Report for the Field Season 1999-2000) iv) In the above reports various gold bearing zones showing average 22 - 651 ppb Au values over 100 - 650m width various zones in Granite. v) In metabasalt & Quartz Cloritic Schist average gold values ranging from 47 - 138 ppb with average width ranging from 100 - 400m. vi) In BIF formation average gold values ranging from 40 - 108 ppb with average width ranging from 100-300m.

		vi) In the proposed Bhagavati block also same lithotype is falling hence it is worth to take up Exploration in this block. vii) This block was handed over to DMG Karnataka by GSI for auctioning process. The block was quoted on auction platform by state government but was twisely annulled due to inadequacy of exploration data. viii) This Block is selected by DMG Karnataka for upgradation of exploration level and it is allotted to M/s Kartikay in 7th meeting of Technical Committee (Exploration) held on 23.09.2024. ix) During our field visit, a total of 12 samples were collected from an area of approximately 15 sq. Km which was initially allotted by DMG Karnataka. However during review of proposal DMG advised to carve out a sizeable potential block. This value, when compared with the findings of the previous G4 stage exploration report, indicates a positive anomaly. Based on the encouraging result from sample BB-5 and its correlation with earlier exploration data, the block was considered for further exploration and evaluation. From aforesaid mentioned background information, exploration proposal of Bhagvati block is formulated at G3 level Exploration programme with Geological Mapping, Geophysical Survey, Trenching & Drilling to make the block auctionable.

DETAILED PROPOSAL FOR PRILIMINARY SURVEY FOR GOLD & ASSOCIATED MINERALS IN BHAGAVATI BLOCK , BAGALKOTE DISTRICT, KARNATAKA (UNFC: G-3)

1. Introduction

1.1.0 Gold in its purest form is a bright, slightly reddish yellow, dense, soft malleable and ductile metal. It is one of the least reactive chemical elements and is solid under standard conditions. Gold often occurs in free elemental (native) form, as nuggets or grains, in rocks, in vein and in alluvial deposits. Gold dissolves in alkaline solution of cyanide, which are used in mining and electroplating. It also dissolves in mercury, forming amalgam alloys, but this is not a chemical reaction. Gold is resistant to corrosion and to most acid and has unique properties distinct from other metals. Gold is a relatively scarce metal in the world and a scarce commodity in India. The domestic demand is mainly met through imports.

1.1.1 Production of primary gold in 2021-22 at 1,251 kg increased by 11% ascompared to that in the previous year. Karnataka was the leading producer of gold accounting for 99% of the total production. The remaining production was reported from Jharkhand. The average daily employment of labour in 2021-22 was 3,086 as against 3,247 in the previous year.presently it producesgold from three mines namely Hutti, Uti, Hirabuddni of HGML in Karnataka and from oneprivate mine in Prorjana Mine (Kundarkocha) in Jharkhand besides as by-product from thecopper mines of HCL.

1.1.2 The total reserves/resources of gold (primary), in terms of metal stood at 607.26 tonnes (NMI of IBM). Out of these, 92.76 tonnes were placed under Reserves category and 514.50 tonnes under Remaining Resources category. The resources include placer-type gold ore in Kerala estimated at 26.12 million tonnes containing 5.86 tonnes gold metal. By States, largest resources in terms of gold ore (primary) are located in Bihar (43%) followed by Rajasthan (24.92%), Karnataka (20%),West Bengal (2.47%) & Andhra Pradesh (3.03%) and Jharkhand (2%). The remaining 5.22% resources of ore are located in Chhattisgarh, Madhya Pradesh, Kerala, Maharashtra and Tamil Nadu.Although, Bihar is the leading State in India as far as resources of gold ore are concerned.

1.1.3 The worldwide regular demand of Gold can be eased with the exploration of new Gold deposits of economic importance.

1.1.4 In view of the auction policy of the Government of India and demand of more explored blocks Government of India amended the MM (D & R), 1957 in 2021 allowing Private Agencies to be a stake holders in explorations of major minerals in a time bound manner in which the funds will be provided by the NMET instituted by Govt. Of India (Notification, NPEA, 2021).

1.1.5 Considering the Government policies and demand for Gold and other Critical Minerals our agency M/s Kartikay Exploration And Mining Services Private Limited was shown interest to take up this block for Reconnaisance survey and DMG Karnataka gave in In Principal approval and suggested to visit the site and to to prepare the detailed Project Report to present to the Committee of NMET. Accordingly we have prepared the DPR and submitting to NMET for approval of DPR in the upcoming TCC of NMET.

1.2.0 Previous work

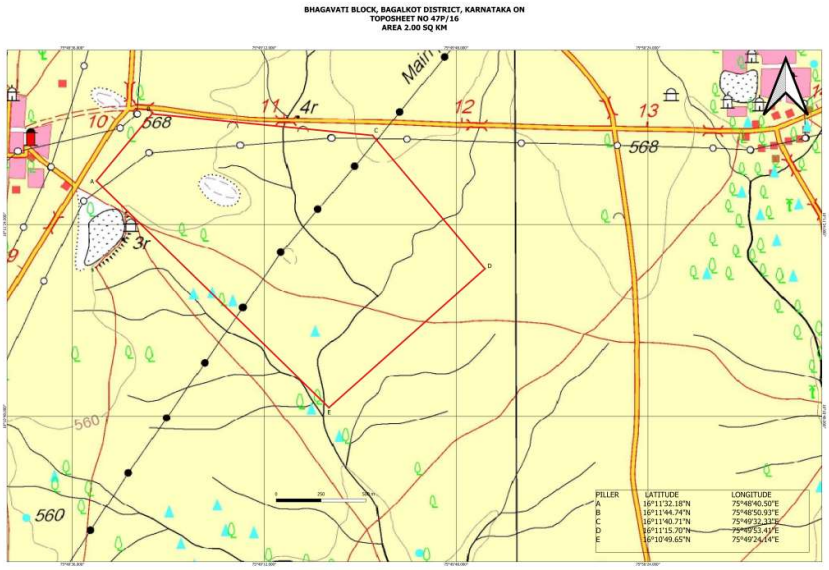
Final Report of GSI for Priliminary Investigation of Gold in field season 2018-19 & 2019-20.

GSI Report for Evaluation Of Geochemical Anomalies For Gold In Hungund-Kushtagi And Hagari Schist Belts, Bagalkot, Koppal Raichur And Bellary Districts, Karnataka(Code No. MIP/GSI/SR/KG/1999/008; Progress Report for the Field Season 1999-2000)

1.3.0 Location and Accessibility

The Block is located at about 25 km from Bagalkote district Headquarter and around 470km from District headquarter Bangalore. The village Bhagavati is falling in it. It can be approached from Bagalkote district placewith good condition tar road via SH135. The entire area is well accessible by means of good network of motorable (non-metalled and metalled) roads. The area falls in toposheet number47P/16.

The nearest railway station is Kadlimatti which is about 4 km from the block corner point. Bagalkot Railway Station is situated on the Indian railways main line route between Bangalore and Mumbai.



1.4.0 Physiography & Drainage

Major Rivers are absent in the study area. Few small streams are present in the area These streams mainly flow during the monsoon. Topographically area is almost flat with small undulations.

The area forms the northeastern part of the Hungund Kushtagi Hagari schist belt which represents prominent hills with undulating plains of low relief. The elevation varies from 550 to 595m. Geomorphologically, the area is characterized by flat terrain. Isolated small to medium mounds are occupied by granite bouldery outcrops. The flat area is covered by thick black cotton soil.

1.5.0 Climate and Vegetations

The climate is generally hot and dry. The summer starts from the middle of February and contiunues upto the end of June. The southwest monsoon follows thereafter and extends upto the end of September. From December to middle of February is the winter season. The average rainfall is 654mm. The driest month is January with 0mm of rainfall.

The minimum temperature is between 14 ° to 15 ° C in December and maximum is between 42 ° to 45 ° C in summer. The annual average temperature is 26.1 °C.

2.0 Regional Geology and Structure

The Dharwar Craton lying between longitude 72º45´ - 80°00´ and latitudes 11° - 19° is an elliptical region comprising of a number of subparallel supracrustal belts and stringers, set in a matrix of polyphasic gneisses and bordered by granulites in the south and granites to the east (Radhakrishna and Naqvi, 1986; Radhakrishna and Ramakrishnan, 1988).

The Dharwar Craton has been divided into two distinct tectonic regions, the Western Dharwar Craton (WDC) containing larger volumes of older TTGs and the Eastern Dharwar Craton (EDC) containing TTGs and thin elongated greenstone sequences separated by the Chitradurga Shear Zone close to the linear Closepet Granite.

The contact between WDC and EDC is not sharp, and there is a transition zone between the Chitradurga Shear Zone and Closepet Granite. The Eastern Dharwar block consists of narrow, elongated, gold bearing, dominantly volcanic supracrustal greenstone belts of Archaean age (Swami Nath and Ramakrishnan, 1981). Kolar, Hutti, Ramagiri and Mangalur schist belts are the important greenstone belts of the eastern block. They consist of negligible sedimentary sequences compared to the greenstone belts of Dharwar Supergroup of western Dharwar Craton. These belts are made up of basic igneous rocks of original ` basaltic composition together with associated intrusives (Balakrishnan et al, 1990; Zachariah et al, 1995; Nutman et al, 1996).

The Hungund-Kushtagi-Hagari schist belt is a NW-SE trending linear belt in

the Eastern Dharwar Craton and is in the northern continuation of the Ramagiri – Penakacherla schist belt in the northeastern part of the degreesheet no. 48M. It is 75 Km long, 3 to 4 km wide part of the extending from 17km NW of Nadvi located on the southern bank of Tungabhadra River to 10 km SE of Paramadevanahalli situated on the eastern bank of Hagari River in the southern part is called Hagari schist belt/Hagari part of Hungund-Kushtagi-Hagari schist belt. It rests over Peninsular gneisses and intruded by younger granites. It might have been once linked to the Sandur schist belt and possibly dislocated and truncated by intrusion of younger Closepet granite (Ahmed, 1995).

Regional Stratigraphy of the area is as below:-

Western Block

Eon / Era / Epoch	Suite/Assemblage Super Group	Group / Formation	Lithology
Quarternary (<2m.y)		Coastal and fluvial	Undifferentiated fluvial sediments coasta. Sediments, transported red soil / alluvium
Neogene			Laterite
Mio-Pliocene		Warkalli Beds	Sandstone, clay, marl and limestone
Upper Cretaceous to Palaeocene (67-65 m.y)	Deccan Trap	Sahyadri Group	Continental flood basalt of tholeiitic chemistry with intertrappean beds of chert and marl
Neoproterozoic (650-540 m.y)		Bhima Group	Predominantly Mg poor carbonate sequence with shale, sandstone and conglomerate
Mesoproterozoic to Neoproterozoic (1000±200 m.y)		Chamundi Granite	Anorogenic K-rich porphyritic granite to homophanous granite
Mesoproterozoic (1800-1200 m.y)		Kaladgi Group	Two mega cycles of repeated sequence of argillite followed by chemogenic precipitates, limestone, dolomite, quartzite, conglomerate
Paleoproterozoic		Intrusives	Dolerite / Gabbro, pegmatite and quartz vein
Neoarchaean (2500 m.y)	Southern Granulite Complex	Charnockite Suite	Pyroxene Granulite
Neoarchaean (2530-2510 m.y)	Younger Granitoids	Closepet Granite	Granites, monozogranite / adamellite to granodiorite
		Chitradurga Group (2700-2600 m.y) / Ranibennur Group	Greywacke/BIF/Polymictic Conglomerate/volcanics (Maradihalli, Bellara, Medur)
Neoarchaean (2800-2600 m.y)	Dharwar Supergroup	Vanivilas Subgroup	Polymictic Conglomerate, cross bedded quartzites, Pelites, stromatolitic carbonates, cherts, BIF and manganese formations
		Bababudan Group (2800-2700 m.y)	BIF and carbonaceous phyllites, basalt-dacite suite with minor ultramafics/ alterations of amygdular basalts/ cross bedded quartzites, Pelites/minor BIF/ basal quartz pebble conglomerate
Neoarchaean to Mesoarchaean (2800-2900 m.y)		Older Granites	Granitoids and gneiss
Mesoarchaean (3000-2900 m.y.)	Peninsular Gneissic Complex	Peninsular Gneissic Complex-I	Tonalite-trondhjemite-granodiorite
Mesoarchaean (3200-3100 m.y.)	Ancient Supracrustals	Sargur Complex	Mafic-ultramafic intrusive complex (Holenarsipur Nuggehalli) / serpentinized komatiites, komatiitic and tholeiitic amphibolites, cherts, BIF/garnet biotite schists, local marbles and calc silicates / fuchsite quartzites with chromite and barite layers
Palaeoarchaean (3400-3300 m.y)	Basement Gneiss	Gorur Gneiss	Trondjhemite, granodiorite, grey coloured banded biotite orthogneiss

Eastern Block

Eon/Era/Epoch	Suite / Assemblage Supergroup	Group / Formation and other lower ranks	Lithology
Neoarchaean (2530-2510 m.y.)	Closepet Granite		Granites, monzogranite/ adamallite to granodiorite
Neoarchaean to Palaeoproterozoic (2600-2350 m.y.)	Peninsular Gneissic Complex	Peninsular Gneissic Complex-II	Potassic granodioritic to granitic material
Neoarchaean (2700 m.y.)		Greenstone belts, viz. Kolar Sandur Raichur Hutti, Mangalur Hungund-Kushtagi	Metamorphosed grits/arenites, pellites/BIF Bimodal mafic felsic volcanic, pyroclasts, agglomerates, BIF, local komatiites, quartzites, manganese marble, stromatolitic carbonate bearing Pelites, amphibolite, BIF

STRUCTURE

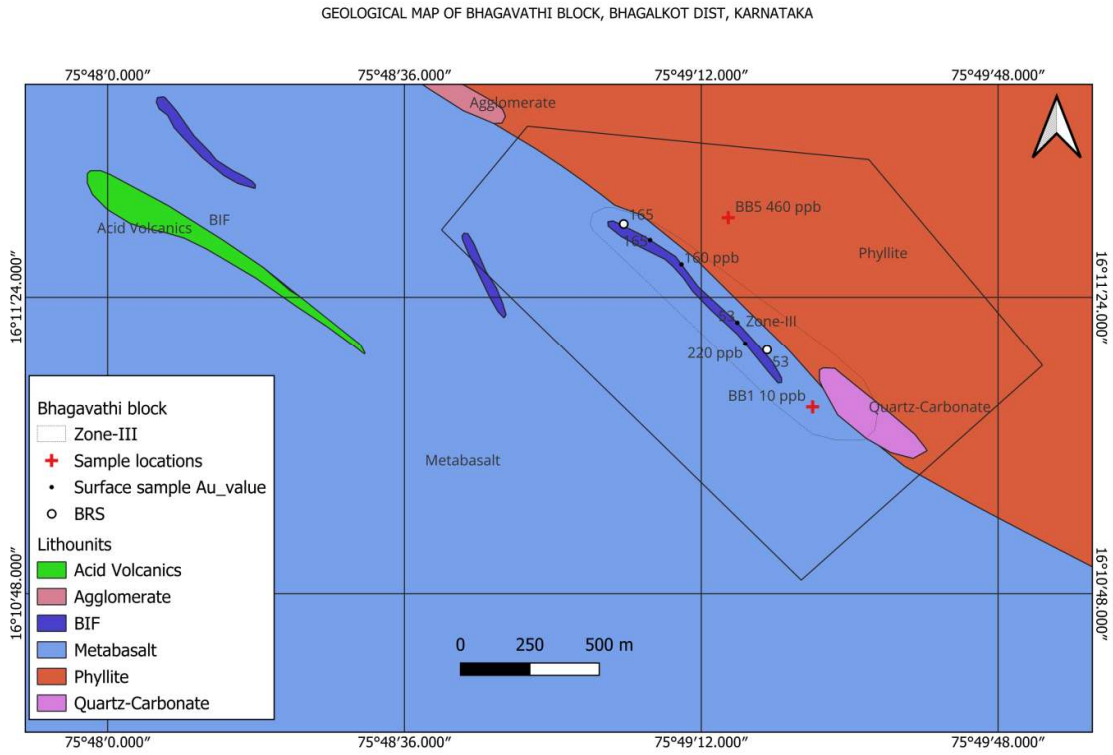
The investigation block located in the Hungund-Kushtagi schist belt. The Hungund-Kushtagi Schist Belt is characterised by narrow linear greenstone belt with bulges around domes and diapirs of gneisses. It is a part of the Ramgiri-Penakacherla-Sirigiri-Hungund Superbelt which splits into a smaller arm due to gneissic intrusions and presence of shear zones (Ramakrishnan and Vaidyanadhan, 2010). The metasedimentary and metavolcanic units form a narrow band trending NW-SE, keeping in conformity with the Dharwarian trend (Devadu, 1974). The general trend of schistosity in schist belt and crude foliation in granite is NW-SE to NNW-SSE with dipping moderate to steep easterly/westerly (Ahmed, 1995; Gera, 1989).

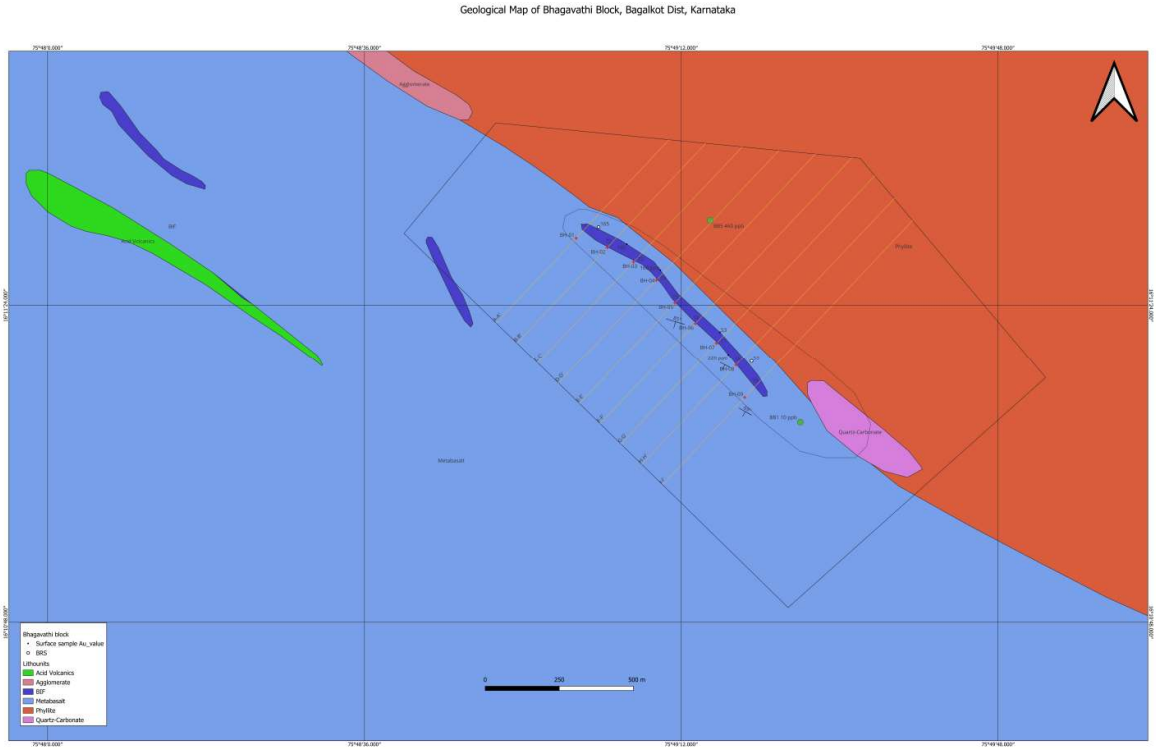
The granite shows intrusive relationship with the Hungund-Kushtagi Schist Belt and forms a chain of boundary hillocks in NW-SE direction along the southwestern and northwestern border of the study area occurring as sheets, tongues and veins (Raju and Mohieddin, 2001). From the mineral assemblage, it is found that the area has undergone amphibolite facies of metamorphism. Amphibolite formed because of thermal metamorphism by intrusion ` of granite. The green schist facies of metabasalts, attain amphibolite facies nearer to the granite contact (Raju and Mohieddin, 2001). The study area is represented by strongly metamorphosed and schistose rocks evidenced by the presence metamorphic mineral assemblages of hornblende, actinolite, tremolite and chlorite etc.

Table 5.2: Stratigraphy of the study area

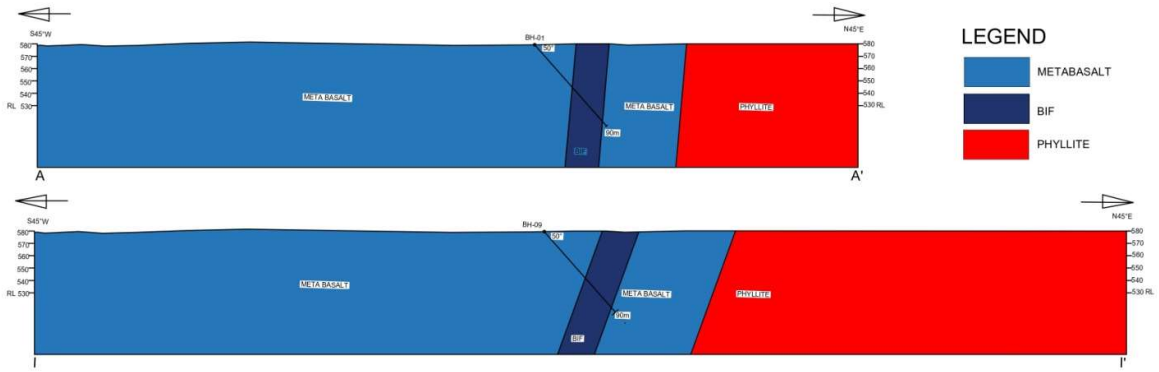
↑	Sandstone	Badami Group
	---- Unconformity ----	
	Quartz vein, Pegmatite, Dolerite	Younger Instrusives
	Granite	Closepet Granite
	Anorthisitic metagabbro, Hornblende gabbro	Kalmangi ultramafites
	Acid volcanics, Metagabbro, Amphibolite, Banded Iron Formation, Schistose metabasalt, massive metabasalt, pillowed metabasalt	Hungund-Kushtagi schist Belt

GEOLOGICAL MAP OF THE AREA





Schematic sections



DESCRIPTION OF THE ROCK TYPES

Massive metabasalt :- Dark grey colour massive metabasalt is one of the most dominant lithounit and it shows pillow structure which indicate that they might have formed in subaqueous environment. Thin quartz vein and carbonated vein traversed the rock. Within massive meta basalt, few smaller dimensions of schistose meta basalt is present. Small pillowed meta basalt is also exposed within massive metabasalt and occasionally in the schistose metabasalt. The radial cracks are well developed around pillow lavas. Thin quartz vein of 2-5 mm is also traversed the pillows (Fig. 5.2b) and carbonated veins traversed along as well as across the trend of the rock. It is

non-foliated and well characterized by the presence of different joint planes.

Schistose Metabasalt **-** The metabasalt which is part of Hungund-Kushtagi schist belt. The rock is greenish grey, fine to medium grained, hard and compact. It shows well developed schistosity. It consists of amphiboles, plagioclase, pyroxene and occasionally biotite and sulphides viz. pyrite and chalcopyrite.

Amphibolite **-** Dark gray colour, medium to coarse grained amphibolite occurs as smaller to larger bodies within schistose metabasalt. Schistosity plane is well developed at few places, whereas it is massive in other places in amphibolite exposed.

Banded Iron Formation (BIF) **-** A small linear body of banded iron formation is exposed in a nala section within massive metabasalt as an unmapable body. The contact relation between banded iron formation and massive metabasalt is not exposed. BIF is mainly comprised of quartz and magnetite. It shows brownish white colour with well developed banding nature.

Metagabbro - Dark greyish colour, coarse grained meta gabbro bodies occurs within massive metabasalt at several places. There are several smaller to larger bodies of meta gabbro bodies. The schistosity plane is not developed in metagabbro. They do not have any contact relationship with metabasalt, however it is mostly exposed in the margin of hornblende gabbro bodies. The foliation plane and joint planes are not developed in hornblende gabbro.

Hornblende gabbro **:** Greyish colour coarse grained, hornblende gabbro occurs in close association with meta gabbro. However, there is no contact relation between metagabbro and hornblende gabbro at field. It coccurs as small dimension body compared to metagabbro. The schistosity plane is not developed in hornblende gabbro. The gradational relation between metagabbro and hornblende gabbro observed at several places.

Anorthositic metagabbro **:** Dark grayish colour, very coarse grained (Fig. 5.9a) bodies of anorthositic metagabbro are exposed within massive metabasalt, schistose metabasalt and amphibolite (Plate-I & II). The metagabbro, hornblende gabbro and anorthositic metagabbro bodies occurs together at most of the minerals may be due to gradation. Anorthositic metagabbro bodies are having high length with low width ratio as elongated bodies exposed.

3.0 Mineral Potentiality based on Geology and Ground survey

The surrounding area was explored by Geological Survey of India (GSI) in field season 2018-19 & 2019-20 and reported the gold occurrences.

Old workings in the surrounding area reported by Madusudanan et al., (2009) during the Regional targeting for gold in the Granitoids, bordering Greenstone belts and high strain zones, Eastern Dharwar Craton, Karnataka.

Prospecting for Gold deposits resulted in identification of Gold deposits falling in toposheet no.48M/13 and 47P/16. in Hungund - Kushtagi Schist Belt. ((Final Report of GSI for priliminary Investigation of Gold in field season 2018-19 & 2019-20). reported the Old working Pit and gold values 978 ppb, 1090 ppb etc.

The Geological survey of India Carried out survey for Evaluation Of Geochemical Anomalies For Gold In Hungund-Kushtagi And Hagari Schist Belts, Bagalkot, Koppal Raichur And Bellary Districts, Karnataka(Code No. MIP/GSI/SR/KG/1999/008; Progress Report for the Field Season 1999-2000)

In the above GSI reports various gold bearing zones showing average 22 - 651 ppb Au values over 100 - 650m width various zones in Granitic terrain. In metabasalt & Quartz Cloritic Schist average gold values ranging from 47 - 138 ppb with average width ranging from 100 - 400m. In BIF formation average gold values ranging from 40 - 108 ppb with average width ranging from 100-300m.

Reconaissance survey had already established zones for upgradation for exploration level, hence it is worth to take up Exploration in this block.

4.0 Scope of proposed exploration

Priliminary survey (G-3) for Gold & Associated mineralisation in Bhagavati Block, Bagalkot District, Karnataka, the Geological mapping at 1: 4000 scale, DGPS survey of Block Boundary, Geophysical Survey, Trenching, Analysis and drilling is proposed.

4.1 Block description

The proposed G-3 block for Gold & Associated minerals falling in Survey of India Toposheet No. 47P/16 which covers an area of 2.00 sq. km in and around Bhagavati village. The block location is given in PLATE-I. The Co-ordinates of the corner points of the block area both geodetic and UTM are

given in below table

Coordinates of cardinal points of Bhagavati Block Area (2.00 Sq.Km)					
Sl. No.	Corner Points	DDMMSS(WGS84)		UTM47R	
		LONGITUDE	LATITUDE	Easting(X)	Northing(Y)
1	A	16°11'32.18"N	75°48'40.50"E	586716.00m E	1790375.00 m N
2	B	16°11'44.74"N	75°48'50.93"E	587024.00m E	1790762.00 m N
3	C	16°11'40.71"N	75°49'32.33"E	588254.00m E	1790643.00 m N
4	D	16°11'15.70"N	75°49'53.41"E	588883.00m E	1789877.00 m N
5	E	16°10'49.65"N	75°49'24.14"E	588017.00m E	1789073.00 m N

5.0 Planned Methodology

In accordance to the objective set for Priliminary survey (G-3) for Gold & Associated minerals in Bhagavati Block area, Bagalkot District, Karnataka, the Geological mapping at 1: 4000m, Geochemical Sampling, Geophysical Survey, Trenching and drilling is proposed. The Exploration shall be carried out as per Minerals (Evidence of Mineral Contents) Rule-2015. 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.

5.1 Topographical Survey

Measurement of Co-ordinates of the Block Boundary using DGPS will be done. For Geological mapping, Trench location demarcation, Geophysical Line alignment, measurement of Co-ordinates & RL of the proposed boreholes etc. Surface contouring will be done at 1m/2m interval.

5.2 Geological Mapping

The Geological Mapping shall be updated at 1:4000 scale. The entire area of 2.00 Sq. Km will be scanned through geological traverses with the help of DGPS and brunton compass. During traversing demarcation of Gold bearing horizons and other litho-units will be done. Further, validation of the available geological and existing litho structural data shall be done. Demarcation of contacts of different formations, identification of different rock formation, structural features etc will be recorded in detail.

5.3 Geophysical Survey

Based on the output Geological map of 1:4000m the potential Gold bearing mineralised zone will be taken up for geophysical survey. Geophysical techniques to be adopted are integrated Ground Magnetic, Resistivity, Self-Potential and Induced Polarization. Considering the existing geological map of the area 20 Line km survey at 50m interval and 50 magnetic stations with 20m spacing interval shall be done.

5.4 Trenching

Trenching will be done to expose the mineralised zone and to study the behavior of the ore body. It is proposed to take up trenching over the gold bearing zones at specific interval along the strike and dip with tentatively 10 trenches proposed. During course of prospecting the quantity and location may vary.

5.5 Drilling

Based on the outcome of geological mapping and Geophysical survey, trenching and analytical results the exploratory drilling of 1st level at 100m sectional interval are will be done. At this stage of G-3 level of exploration a tentative meterage of 1000m of drilling is proposed.

5.6 Sampling

During the course of mapping, Chip samples will be collected from the surface exposures and in trench wall/floor sections to examine the grade of ore. 25 Number of BRS samples will be collected from the surface exposures. Approx 100 number of samples will be collected from the 100 cubic meter trench area at 1m interval. The representative samples shall be prepared in field in triplicate. One part shall be forwarded to NABL accredited laboratory for analysis.

During Core drilling the borehole core would be systematically logged. Around 750 samples will be generated from the mineralised zone. The mineralised part of drill core will be sampled as primary sample. The individual sample will be split into two equal halves and one part will be preserved in the core box for future reference and will be stored in core library. The half splitted core will be crushed, coning quartering and pulverization one part will be sent to the NABL accredited laboratory for analysis. The length of each sample will be kept 1m within the ore zone depending upon the width of particular type of mineralisation and its physical character/associated minerals.

5.7 Analysis

All the generated samples will be analysed for Gold & Silver by Fire Assay method. Trace elements, Major oxides will be analysed. Around 10 samples will be used for Preparation of thin section and study of thin sections.

6.0 Nature Quantum and Target

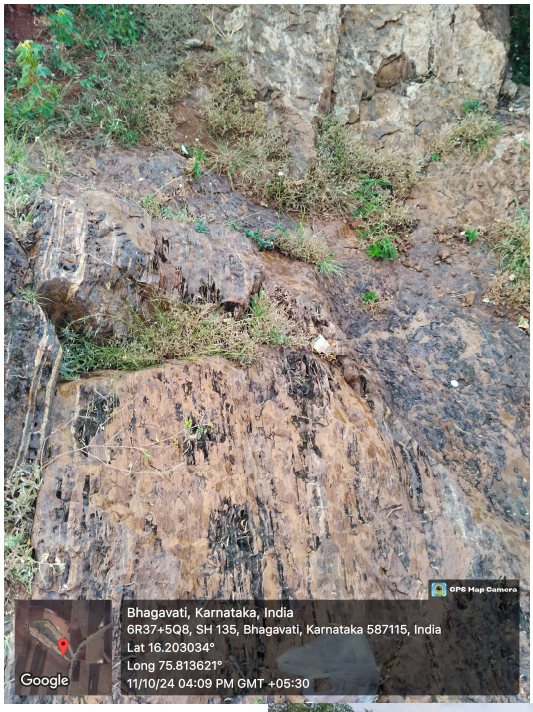
Details of the particular, Quantum and the targets are tabulated in Table below:-

Envisaged Quantum of proposed work in Bhagavati area, Bagalkote District of Karnataka G-3 Stage

Sl.No.	Item of Work	Unit per	Proposed Quantum of work
1	**Topographic survey** DGPS Survey for Boundary and borehole locations	Point	16
2	**Geological Survey:** Mapping at 1:4000	Sq Km	2
3	**Geophysical Survey:**		
	I.P cum-resistivity, S.P., magnetic (Complete Suite)	Line Km	10 lines and 50 Magnetic stations
4	**Pitting:** pits (1mx1mx2m)	Cu. M	0
	Trenching:	Cu. M	100
5	**Chemical Analysis**: BRS 25; Pit 0; Trench 100; Core 750; Petrographic 10 and Sp Gravity 5	Nos	890
6	**Drilling: Core Drilling**	meters	1000
7	**Report Preparation**	Nos	01

7.0 Break-up of Expenditure

viii) Tentative Cost has been estimated based on Schedule of Charges (SoC) of projects funded by National Mineral Exploration Trust (NMET)w.e.f. 01/04/2020. The total estimated cost is Rs. 522.48 Lakh. The Details of tentative cost estimates is given in below tables followed by Tentative Time schedule/action plan for proposed Exploration work (G-3)



Estimated cost for Exploration Work (G-3) for Gold & Associated ore in Bhagavati Block, Bagalkot District of Karnataka
[Block area-2.00 sq.km; Schedule timeline-12 months]

			Rates as per NMET SoC 2020-21		Estimated Cost of the		
S.No.	Item of Work	Unit	SoC-Item-Sl No.	Rates as per SoC	Proposal		Remarks
A					Qty.	Amount (Rs)	
1	**SURVEY WORK**						
	Bore Hole Fixation and determination of co-ordinates & Reduced Level of the boreholes and By DGPS	Nos	1.6.2	19,200	16	307,200	10 Boreholes and 1 base station and 5 corners of Block
	GEOLOGICALWORK						
	Charges for One Geologist for **Geoligcal Mapping** - Field	Per day	1.5.1a	11,000	60	660,000	Total duration of 2 months for 1 Geologist
	3 labours / party (Rs 526/day/labour) (As per rates of Central Labour Commissioner)	day	5.7	526	180	94,680	total 3 labours for 1 party for 60 days. Amount will be reimbursed as per the notified rates by the Central Labour Commissioner or respective State Govt whichever is higher
	Charges for one Geologist for Core **logging & sample demarcation** - Field	Per day	1.5.1a	11,000	120	1,320,000	Drilling of 1,000m in 4 months
	Charges for one Geologist per-HQ	Per day	1.5.1a	9,000	60	540,000	
	Charges for one Geologist for **Pitting & Trenching** - Field	Per day	1.5.1a	11,000	60	660,000	
	CoreSampling-**1Samplers**	Per day	1.5.2	5,100	150	765,000	
	4 labours/ party (Rs 526/day/labour) (As per rates of Central Labour Commissioner)	Per day	5.7	526	600	315,600	Total 4 labours for 150 days. Amount will be reimburse as per the notified rates by the Central Labour Commissioner or respective State Govt.whichever is higher
					SubTotal-A	**4,662,480.00**	
B	Pitting	Cu m	2.1.2	3800	0	0	Depth 1m

	Trenching	Cu m	2.1.1	3330	100	333,000	Depth 1m
	DRILLING						
i	Drilling upto 300m (hard Rock)(1rigs) HQ Size	m	2.2.1.3a & 2.2.4a	11,500	1000	11,500,000	
	PILLARING						
iii	Construction of concrete Pillar (12"x12"x30")	per borehole	2.2.7a	2,000	10	20,000	
	Borehole plugging by Cement	Meters	2.2.7b	200	1000	200,000	
iv	Transportation of Drill Rig & Truck associated per Drill	Km	2.2.8	36	1800	64,800	The distrance to & Fro is considered. Certification in this regard is required to be provided
v	Monthly Accommodation Charges for drilling Camp (upto 1Rigs)	month	2.2.9	50,000	5	250,000	
vi	Drilling Camp Setting Cost	Nos	2.2.9a	250,000	1	250,000	
vii	Drilling Camp Winding up Cost	Nos	2.2.9b	250,000	1	250,000	
	Approach Road Making (Flat Terrain)	Km	2.2.10b	32,200	3	96,600	
					SubTotal-B	**12,964,400.00**	
C	**Geophysical Survey**						
	I.P. cum-resistivity, S.P.,Magnetic	Per Line Km	3.3a	1,435,082	10	14,350,820	
					SubTotal-C	**14,350,820.00**	
D	**LABORATORYSTUDIES**						
	for Gold by fire assay	Per Sample	4.1.5a	2380	875	2,082,500	25 BRS; 100 Trench, 0 Pits & 750 from Core Drilling samples will be generated
	for 32 radicals by ICPMS method		4.1.7a & b	7731	250	1,932,750	
	Major oxides	Per Sample	4.1.15b	4200	875	3,675,000	
	Petrographic studies						
	Preparation of thin sections	Per Sample	4.3.1	2353	10	23,530	
	Study of thin sections	Per Sample	4.3.4	4232	10	42,320	

	Bulk Density/specific gravity Determination	Per Sample	4.8.1	1605	5	8,025	
					SubTotal-D	**7,764,125.00**	
E	**Miscelleneous Charges**						
	Preparation of Exploration Proposal (5 Hard copies with a soft copy)	**5 Hardcopies with a soft copy**	**5.1**	250000	1	250,000	EA has to submit the Hard Copies and the soft copy of the final proposal along with Maps and Plan a suggested by the TCC-NMET in its meeting while Clearing the proposal.
	Geological Report Preparation		**5.2.IV**	For the projects having cost exceeding Rs.50 lakhs and less than Rs.150 lakhs- A minimum of Rs.2.5 lakhs or 5% of the value of work Whichever is more		2,466,898	Reimbursement will be made after submission of the final Geological Report in Hard Copies (5 Nos) and the soft copy to NMET.
	Drill Core Preservation	Per m	5.3	1590	1000	1,590,000	
	Peer review Charges		**As per EC decision**	30000	1	30,000	
	Land/ Crop compensation	Per BH	5.6	20000	10	200,000	Amount will be reimbursed as per actuals or max.Rs.20000perBHwithcertificationfromlocalauthorities
					SubTotal-E	**2,070,000.00**	
K	**Total Estimated Cost without GST**					**44,278,723.00**	
J	**Provision for GST (18%ofI)**					**7,970,170.14**	GST will be reimburse as per actual and as per Notified prescribed rate
K	**Total Estimated Cost with GST**					**52,248,893.14**	
							Or Say Rs. In Lakhs 522.48
Note:							
1	If any part of the project is out sourced,the amount will be reimbursed as per the Paragraph3 of NMETSoCandItemno.6ofNMETSoC.In case of execusion of the project by NEA on its own,a Certifiate regarding non out sourcing of any component/project is required.						

S.No.	Description	Months/Days	1		2		3		4		Review	5		6	7	8	9		Review	10	11	12
1	Camp Setting	**days**																				
2	Geophysical Survey	**days**																				
	Processing of Geophysical data and report writing	**days**																				
3	Trenching and Preparation of Geological plan by correlation of Geophysical data	**days**																				
4	Preparatory work for review by NMET	**days**																				
	DGPS Survey	**days**																				
3	Drilling(1rig)	**Months**																				
4	Sampling	**Months**																				
5	Camp winding	**days**																				
6	Laboratory Studies	**Months**																				
7	Report Writing with Review	**Months**																				