



## **Government of Tamil Nadu**

**NOTICE INVITING  
EXPRESSION OF INTEREST (EOI)  
FOR  
EMPANELMENT OF  
Mine Surveying Agencies (MSA)  
FOR  
CARRYING OUT  
Drone Survey Work(S)**

**Department of Geology & Mining, Government of Tamil Nadu**

Thiru. Vi. Ka. Industrial Estate,

Alandur Road, Guindy,

Chennai – 600 032

Ph: 044-22501158, e-mail: geomine@nic.in

**(Ref. No. 9976 /MM4 /2017 dated 13.10.2022)**

**Last date for submission of the Bid: 30.11.2022 15.00 hrs.**

**Request for Expression of Interest**  
**Drone Based Volumetric and Extent Analysis of Mines and Quarries**  
**Department of Geology & Mining, Govt. of Tamil Nadu**  
**October 2022**

**1 GENERAL TERMS**

**1.1 Goals of Expression of Interest (EOI)**

The objective of this EOI is to solicit proposals from the interested bidders for participation in a bid process for shortlisting/empanelment of Vendors/Agencies for “Drone Based Volumetric and Extent Analysis” of mines and quarries under the Department of Geology & Mining, Govt. of Tamil Nadu

The information gathered through this EOI will be used to shortlisting/empanelment of Vendors/Agencies for “Drone Based Volumetric and Extent Analysis”

This EOI does not constitute a commitment to conduct procurement, or an offer of a contract or prospective contract. The Department of Geology & Mining shall not be liable for any costs incurred by any potential vendor in the preparation and submission of information in response to this EOI.

**1.2 EOI Issuing Authority**

This Request for Expression of Interest (EOI), is issued by the Department of Geology & Mining; to short-list potential bidders. Decision of the Commissioner of Geology and Mining with regard to the short-listing of bidders through this EOI shall be final. The Commissioner of Geology and Mining shall reserve the right to reject any or all the responses without assigning any reason. Based on the financial bids submitted by the bidders the rates for survey will be finalized.

<b>Item</b>	<b>Description</b>
<b>Project Title</b>	Drone Based Volumetric and Extent Analysis of mines and quarries

<b>Item</b>	<b>Description</b>
<b>Project Initiator Details</b>	Thiru J.Jayakanthan IAS, Commissioner of Geology & Mining
<b>Department</b>	Department of Geology & Mining, Government of Tamil Nadu
<b>Contact Details (For Pre-EOI Queries &amp; Bid Submission)</b>	Tmt. V.Aruna, Joint Director, Department of Geology & Mining, Government of Tamil Nadu, Guindy Industrial Estate, Chennai – 600 032. <b>Phone No. +91- 44-22501158</b> <b>Website: <a href="http://www.tnmines.tn.gov.in">http://www.tnmines.tn.gov.in</a></b> Mobile No. +91 9176610967 email: <a href="mailto:cgmchennai32@gmail.com">cgmchennai32@gmail.com</a> , <a href="mailto:geomine@nic.in">geomine@nic.in</a>
<b>Contact Persons (Alternate)</b>	Selvi K. Elayaselvi, Assistant Director Mobile No. +91 9499002230
<b>Website</b>	<a href="http://www.tnmines.tn.gov.in">http://www.tnmines.tn.gov.in</a>

### 1.3 Tentative Calendar of Events

The following table enlists important milestones and timelines for completion of bidding activities:

<b>S.No.</b>	<b>Timeline</b>	<b>Date and Time</b>
1.	Pre-Bid Meeting	07.11.2022, 12.10pm
2.	Due Date for submission of queries	15.11.2022, 3.00pm
3.	Response to the queries	17.11.2022, 11.00pm
4.	Last Date for submission of bids	30.11.2022, 3.00pm
5.	Opening of Bids	1.12.2022, 11.00am
6.	Completion of POC	15.12.2022, 3.00pm
7.	Opening of financial Bids	16.12.2022, 11.00am

### 1.4 Availability of the EOI

The EOI document is uploaded on **Department of Geology & Mining, Government of Tamil Nadu** website: <http://www.tnmines.tn.gov.in>, bidders.

## **1.5 EOI Purchase & Processing Fees**

EOI document may be downloaded by interested bidders and submit the filled in application addressed to “**The Commissioner, Department of Geology & Mining, Government of Tamil Nadu, Guindy Industrial Estate, Chennai – 600 032.**” by paying a non-refundable application fee of Rs. 10,000/- (Rupees Ten Thousand Only). The payment can be made in the form of **Demand Draft** drawn in favour of “**Commissioner of Geology and Mining, Chennai**”, payable at **Chennai, India**.

- a. In case of consortium, either the prime bidder or consortium partner can submit the bid document. The prime bidder can file the bid.
- b. Bids received without or with inadequate application fees will be rejected.

## **1.6 Documents Constituting the Bid**

The bid prepared by the Bidder shall comprise the following components. The bids not conforming to the requirements shall be summarily rejected.

### **a. Technical Bid**

Technical Bid will comprise Cover Letter, Bid Application Sheet, Performance Statement, Details of Similar Projects Done, Project Team Details, Implementation Schedule, Power of Attorney and Undertaking. Please note that no price schedule should be indicated in the Technical Bid and shall only be quoted in the Financial Bid.

### **b. Financial Bid**

Financial Bid will comprise Covering Letter and Price Schedule. Cover Letter, Price Schedule should be completed in accordance with formats in the EOI document.

## **1.7 Pre-EOI Meeting**

- a. Department of Geology & Mining, Government of Tamil Nadu will host a meeting on 07.11.2022, 12.10pm in the conference hall in the Commissionerate in the address given in Contact Detail Section 1.2.

The meeting is tentatively scheduled as per the schedule given in Section 1.3.

- b. The Bidders will have to ensure that their queries for Pre-EOI meeting should reach by email, as mentioned in Contact Details Section 1.2.
- c. The prospective bidders shall submit their queries well before 15.11.2022, 3.00pm.
- d. The purpose of the meeting is to provide respondents with any clarifications regarding the EOI. It will also provide each respondent with an opportunity to seek clarifications regarding any aspect of the bid and the project.
- e. The representatives of the interested organizations (restricted to two persons) may attend the meeting at their own cost.

### **1.8 Responses to Pre-EOI Queries and Issue of Corrigendum**

- a. Department of Geology & Mining will endeavour to provide timely response to all queries.
- b. Bidders are free to raise their queries during the meeting and responses will be conveyed to all the prospective bidders by way of hosting amendments/ clarifications on <http://www.tnmines.tn.gov.in> on completion of the pre-EOI meeting and all participants (purchased EOI document) would be communicated the pre-EOI minutes. Only those prospective bidders who have purchased the EOI document, shall be permitted to take part in the pre-EOI meeting.
- c. At any time prior to the last date for receipt of bids, Department of Geology & Mining may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective Bidder, modify the bid Document by a corrigendum.
- d. Department of Geology & Mining, reserves the right to request written clarification of any portion of the bidder's response in order to verify the intent of the bidder. The bidder is cautioned, however, that its response shall be subject to acceptance or rejection without further

clarification.

- e. The Corrigendum (if any) & clarifications to the queries from all bidders will be posted in the portal <http://www.tnmines.tn.gov.in>. Any such corrigendum shall be deemed to be incorporated into this EOI.

### **1.9 Venue and Deadline for submission of EOI**

- a. The response, in its complete form in all respects as specified in the EOI, must be submitted to Department of Geology & Mining at the address specified above in Section 1.2.
- b. Department of Geology & Mining may, in exceptional circumstances and at its discretion, extend the deadline for submission of bids, by issuing an addendum to be made available on the department website, in which case all rights and obligations of Department of Geology & Mining and the respondents previously subject to the original deadline will thereafter be subject to the deadline as extended.

### **1.10 Period of Validity of Bids**

#### **a. Validity Period**

Bids shall remain valid for 180 days after the date of bid opening prescribed by the Department of Geology & Mining. The Department of Geology & Mining holds the rights to reject a bid valid for a period shorter than 180 days as non-responsive, without any correspondence.

#### **b. Extension of Period of Validity**

In exceptional circumstances, the Department of Geology & Mining, Tamil Nadu may solicit the Bidder's consent to an extension of the period of validity.

## **2 SCOPE OF WORK FOR THE ENTIRE PROJECT**

### **2.1 Introduction: Department of Geology & Mining**

This Department was started as a separate unit named as Geology Branch in the department of Industries and Commerce in 1957. Later, on 28-4-1983, this geology branch was restructured as a separate department called the Department of Geology and Mining.

Limestone in the districts of Salem, Ariyalur, Tirunelveli and Karur, Bauxite in Salem district, Quartz and Feldspar in the districts of Salem, Namakkal and Karur are some of the notable minerals identified by the geologists of this Department.

The exploitation of mineral resources such as Limestone, Magnesite, Graphite, Vermiculite, Granite, Quartz and Feldspars, Lignite, Petroleum, Natural Gas, Atomic minerals has led to growth of mineral based industries such as cement industry, granite industry, creating employment opportunities and generation of revenue and bringing overall development of State economy.

### **2.2 Vision**

The vision of this Department is “To consolidate the leadership position of Tamil Nadu in the management of mineral wealth”.

### **2.3 Mission**

The mission is “To undertake/ facilitate scientific exploration, optimal exploitation, judicious conservation and revenue maximization in industry, eco and citizen friendly policy frame work”.

### **2.4 Functions and responsibilities**

This Department has 4 wings namely the Technical wing, Drilling wing, Chemical wing and Ministerial wing.

The Technical wing is entrusted with the tasks of mineral exploration and mineral administration such as approval of mining plan, granting mineral concessions, in accordance with Acts & Rules. Besides, offering geo-

technical opinion in the hilly areas for stabilization measures, seizures of vehicles transporting minerals clandestinely and arresting illegal mining of minerals.

The Drilling wing conducts drilling activities in pursuit of identification of minerals and samples taken during drilling are analysed by the Chemical wing that establishes the mineral resources and mineral reserves. The Ministerial wing is looking after the establishment matters.

The promotional, regulatory and collection of mineral revenue in the Tamil Nadu State is performed by

- i. Commissionerate at Chennai
- ii. (4) Regional Joint Directors at Villupuram, Salem, Tiruchirapalli and Madurai
- iii. (38) District Assistant Director/ Deputy Director, at each District Head Quarters

- ❖ Promotional work includes mineral investigation, exploration of mineral deposits in coordination with GSI, MECL, dissemination of geological and mineral information of the State, participation in mineral exhibition within and outside State, seminars, workshops etc.
- ❖ Disseminating geological and mineral information on the mineral resources in the State to promote mineral based industries and overall development of mineral sector in the State.
- ❖ Regulation work includes regulation of mineral activity viz., receipt, processing and grant of mineral concessions, extraction, transportation, selling, stocking, trading and curbing of unauthorized quarrying, mining and transportation of minerals in the State.
- ❖ As per the Mines and Minerals (Development and Regulation) Amendment Act 2015, the Department is collecting District Mineral Foundation Trust Fund (DMFT Fund) from the leaseholders for the



interest, benefit and sustainable development of areas affected by mining / mining related operations.

## **2.5 Background**

- a. Department of Geology & Mining, Government of Tamil Nadu is responsible for monitoring mining activities in Tamil Nadu. Mining Surveillance System (MSS) has been implemented by the ministry of mines, to monitor mining activities. MSS is a satellite-based monitoring system which aims to establish a regime of responsive mineral administration, through automatic remote sensing detection technology.
- b. Mining and quarry leases are being geo-referenced and superimposed on the latest satellite imagery. The system checks a region of 500 metres around the mining lease boundary for any discrepancy and flag-off trigger.
- c. MSS leverages image processing technology to generate automatic triggers of unauthorized mining activities. These triggers received from the Ministry of Mines are sent to the district level mining officials for field verification.
- d. MSS system facilitates monitoring mining excavation beyond the approved mine boundaries, but the frequency of updates on mining area is available only in 3-4 months; also, the MSS doesn't facilitate volumetric analysis. Department of Geology & Mining, has initiated DGPS survey to geo-reference mine boundaries in their jurisdiction.

## **2.6 Objectives**

Department of Geology & Mining proposes to perform volumetric & extent analysis of mines and quarries; using advanced & cost-effective technologies; with the objectives of effective monitoring of mining activities and to equip department with necessary information to collect right amount of seigniorage fees and royalty.

**Volumetric Calculation & Extent Analysis:** The proposed system should assess and verify the quantity of minerals extracted in the mines and quarries & extent of mine boundaries using drones, Global Navigation Satellite System (GNSS), advanced RGB camera or sensors etc.; to verify the extracted quantity & mine boundaries of the individual quarry and mines.

**High Accuracy of Survey Data:** Satellite based system don't provide high accuracy of data. Precise acquisition of measurements regarding the process taking place in mines/quarries is the key to an effective and stable maintenance. Proposed system shall facilitate high accuracy survey with real time data for mines. Mining legislations also suggest that the volumetric calculations should be near 100 % of the whole extracted quantity.

**Real-Time Data, On-Demand Survey:** Satellite based Mining Surveillance System (MSS), facilitates monitoring mining activity. MSS has dependency on availability of satellite imagery data, which is updated after every 3-4 months. The proposed system shall facilitate On-Demand Survey, where Department of Geology & Mining can schedule drone surveys to access Real-time & Up to high resolution data (less than 1 cm).

**Prompt Decision Making using Real-time Information:** Real-time information is a key challenge for the department causing delay in decision making. The proposed system shall assist the Department by providing real-time details and keeping them informed about periodic updates on mine sites. It will help in minimizing illegal mining activities and equip department officials with necessary information to collect right amount of duties and taxes.

**Increased Productivity:** To boost productivity in survey operations; as manual surveying that once took days or weeks using traditional surveying techniques, are expected to be completed in just a few hours. It is expected that proposed system will require fewer man hours required to produce large, provide accurate data with no externally sourced imagery, with less cost of implementation.

**Dashboard or web platform:** For providing access to survey details, volumetric analysis etc., now the Department of Geology & Mining is looking forward to explore various techno-functional components of the proposed Drones based Volumetric Analysis in mines and quarries thus inviting the expression of Interest for further procurement and implementation.

## **2.7 Scope of System Implementation**

Department of Geology & Mining, Govt. of Tamil Nadu is issuing this EOI for short listing/empanelment of agencies to conduct drone aerial surveys capturing high resolution data, using autonomous and pre-programmed flights. The detailed Scope of work includes the following:

- Drone Survey
- Data Processing and Analysis
- Dashboard or web platform
- Enterprise Data Sharing (web server based)
- Infrastructure Requirement, Data Storage and maintenance: Preservation of Raw and Processed Data as per rule 34A of MCDR 2017, Bidder shall submit processed output images obtained from drone survey to DGM. The Agency shall keep the raw data and processed data of each survey in safe custody with them for a minimum period of five years and if at any stage the raw and processed data are required by DGM for verification purpose then the same will be made available to the DGM.
- Delivery raw and analysis dataset
- Scientific reports
- Capacity building, Training, Documentation, etc.

### **2.7.1 Drone Survey**

- a. Department of Geology & Mining, needs an effective and reliable system for volumetric & extent measurements. Drone based volumetric & extent analysis of mines and quarries complies with the need of Department of Geology & Mining to calculate accurate volume

& extent of the minerals being excavated at mine sites, and other non leased areas, the drone survey need to be periodically done depending upon department requirements.

- b. Drone Agency Registration and Permission: Registration with DGM is required for taking up drone survey in mining area. Drone Agencies desirous to undertake mining survey shall adhere to all rules regulations, guidelines notified by DGCA from time to time. Drone survey must be conducted as per rules prescribed by the Ministry of civil Aviation. Prior to flying of Drone, the Agency shall check the airspace map published by DGCA in the given link <https://digitalsky.dgca.gov.in/airspace-map/> or published by DGCA from time-to-time and shall obtain necessary DGCA permission prior to flying in Red and Yellow zones.
- c. The scope includes conducting drone aerial surveys at regular intervals twice in a year during January and July for volumetric analysis, using autonomous and pre-programmed flights for Department of Geology & Mining.
- d. The Bidder shall perform drone survey at regular intervals; Bidder shall perform site preparation for survey, including establishing GCP (wherever required), establishing boundaries (wherever required), preparing flight plan etc. Necessary marking of ground control points, are required for precise geo-referencing of the images. It is required that each GCP (Ground Control Point) is clearly identifiable in the aerial image after processing.
- e. Drone shall have mounted payload as per the solution proposed by bidder (GPS, Camera Sensors etc.)
- f. Bidder should analyse the requirements at mining department and propose suitable technical components for Volumetric Analysis, as mentioned below:

- Drone Specifications: Drones used for the survey should be DGCA approved and should possess mandatory safety features as notified by DGCA from time to time.
  - Drone Payload
  - Drone Survey Methods: Photogrammetry or LIDAR
  - Specifications of Ground Control Station
  - Real Time Kinematics or Post Process Kinematics
- g. Bidder should propose a workable solution considering the factors, as mentioned:
- Expected Accuracy of Volumetric Analysis Output
  - Connectivity in remote mining areas
  - Ground Resolution Factors: Wind Speed, Altitude, Fog Vision etc.
  - Site Preparation including GCP; considering area of mines, accuracy of output.
  - Flexibility & Efficiency of Operations
- h. The drone flight shall be controlled through ground control station and mission parameter required for flight control shall be provided by ground control station to the flight controller.
- i. Drone should have sufficient battery support to carryout survey in large mines, also it should have sufficient weight to withstand the wind speed.
- j. On board mounted GPS transmitter/receiver should provide the accurate current location to the processor board for flight control as well as it should be communicated to ground control station to monitor flight trajectory on the display.
- k. The system shall be able to stream the data collected, for volumetric analysis, to the receiver connected to command/control device at ground.

1. Flight planning shall consider optimal overlap, where flight planning includes multiple flights depending on terrain and vertical object changes throughout the mine area.
- m. Bidder shall recommend appropriate camera sensors to ensure acceptable Ground Sample Distance (GSD).

### **2.7.2 Data Processing and Analysis**

- a. Pre-processing and Ortho rectification of imagery:
  - Pre-processing of acquired survey data
  - Ortho-rectification of Images
  - 3D Modelling, Digital Elevation Model/ Digital Surface Model /Digital Terrain Model Generation
- b. The Ground Control Points Established and the DSM/DEM created should be used for Ortho-rectification of imagery
  - Mosaicing and Creating Image Tiles
  - Mosaicing of Image strips for contiguity during the Ortho-rectification process
  - Colour balancing of the images to achieve homogeneity across stripe boundaries
  - Generation of Image Tiles
- c. Integration of 3D models, volumetric calculation, Analysis& change detection comparing old ortho-drone-images.

### **2.7.3 Dashboard or web-based platform**

- a. Data for multiple sites shall be accessible on a single dashboard, providing access to survey details & volumetric analysis etc., of each mining site.
- b. The Reports shall be prepared as per Department Requirements. The solution should support multiple data, image formats. Reports,

Documents and Video data shall be rendered on the Dashboard for each mining site.

**2.7.4 Enterprise Data Sharing based on web server**

- a. Non-Disclosure/Confidentiality Agreement will be signed between Department of Geology & Mining and the Bidder for the storage of data.
- b. Department of Geology & Mining would provide Data Sharing Guidelines. Bidder shall strictly follow the Data Sharing Guidelines, so as to ensure that Data is accessed by the authorized personnel only.
- c. Bidder shall provide secure API to facilitate data sharing within/other department as per Data Sharing Guidelines.

**2.7.5 Infrastructure Requirement, Data Storage**

- a. Bidder shall provide infrastructure requirement; considering survey data volume, frequency, network connectivity etc.
- b. Department of Geology & Mining will evaluate proposed infrastructure requirement, cost of owning the infrastructure, confidentiality & security of the data etc.; to finalize the hosting model: On-premise hosting or Government Authorized Public Cloud Services.
- c. For POC Bidder can use their own infrastructure.

**2.7.6 Data output and form**

**The following data output will be provided by Agency to the DGM**

<b>Sl.No.</b>	<b>Data Type</b>	<b>Format</b>
1.	Ortho mosaic image of lease area including 100m buffer zone	.tiff (geo tiff)
2.	Digital Elevation Model (3D) – DSM & DTM	.tiff (geo tiff)
3.	Point Cloud	.las
4.	Slope map	.tiff (geo tiff) & .shp file
5.	Contours (1m interval)	.shp/ .dwg (geo tagged)
6.	GCPs data	.shp and MS- Excel

7.	RMSE Report	.txt/.doc
8.	Map of Mining lease showing area of	.shp ( in WGS 84 Coordinate system)
	a) actual excavation ( mineral and waste) including slope of high wall side	
	b)Mineral storage	
	c) Subgrade dump	
	d) Waste dump	
	e) afforestation	
	f) Backfilled, reclaimed and rehabilitated area within lease during the preceding financial year	
9.	Lease boundary pillar co-ordinates( as authenticated by state Government should be submitted both in GCS and PCS in Datum WGS 84)	.shp and MS- Excel
10.	Drone survey log sheet	.doc

### **2.7.7 Capacity building, Training, Documentation**

Bidder shall understand capacity building requirements at department, on various components of the solution and provide training, handholding, training manuals, training videos etc.

### **2.8 Implementation Model**

- a. Drone based volumetric & extent analysis is proposed to be implemented at various Mines and quarries of Department of Geology & Mining, Tamil Nadu.
- b. Department is looking for, end to end solution providers, where a solution provider is expected to manage project planning, surveying, logistics, survey data processing, other technology components, capacity building, etc.
- c. It is proposed that the solution providers, qualified at EOI stage, will be shortlisted/empanelled to execute the project. The shortlisted/empanelled solution providers, under this implementation model, would be assigned individual group of mines and are expected to carry out all the activities for the assigned mines; as mentioned in the scope of the project, i.e., surveying, survey data processing etc.



- d. Drone based survey for volumetric & extent analysis, at each site, is proposed to be conducted on periodic basis (biannually), based on department requirements.
- e. Software Application, Dashboard would be common for the proposed implementation. Volumetric & Extent Analysis from various vendors would be ingested and presented to the department in a single software platform.
- f. Single vendor would be selected for Software Application, Dashboard implementation, from the vendors shortlisted at EOI stage. Technical and commercial bids for the same should be separately submitted in two separate covers respectively.

## **2.9 Requirement on the project office of the service provider:**

Vendor shall have a Project Office or commit to setup a Project Office in Chennai, Tamil Nadu during the project implementation and maintenance phase.

## **3 BIDDING TERMS AND EVALUATION PROCESS FOR THE EOI**

### **3.1 Conditions under which this EOI is Issued**

- a. This EOI is not an offer and is issued with no commitment. The Commissioner of Geology and Mining reserves the right to withdraw the EOI and change or vary any part thereof at any stage. The Commissioner of Geology and Mining also reserves the right to disqualify any bidder, should it be so necessary at any stage.
- b. The Commissioner of Geology and Mining reserves the right to withdraw this EOI, if determined that such action is in the best interest of the Government of Tamil Nadu.
- c. Short-listed bidders based on technical and commercial bids will be considered.

- d. Timing and sequence of events resulting from this EOI shall ultimately be determined by the Commissioner of Geology and Mining.
- e. No oral conversations or agreements with any official, agent, or employee of Department of Geology & Mining, shall affect or modify any terms of this EOI and any alleged oral agreement or arrangement made by a bidder with any department, agency, official or employee of Department of Geology & Mining shall be superseded by the definitive agreement that results from this EOI process. Oral communications by Department of Geology & Mining to bidders shall not be considered binding on Department of Geology & Mining, nor shall any written materials provided by any person other than Department of Geology & Mining.
- f. Neither the bidder nor any of the bidder's representatives shall have any claims whatsoever against Department of Geology & Mining, or any of their respective officials, agents, or employees arising out of, or relating to this bid or these procedures (other than those arising under a definitive service agreement with the bidder in accordance with the terms thereof).
- g. Applicants who are found to canvass, influence or attempt to influence in any manner the qualification or selection process, including without limitation, by offering bribes or other illegal gratification, shall be disqualified from the process at any stage.
- h. Each applicant shall submit details of all the Pre-qualification requirements for EOI.

### **3.2 Rights to the Content of the EOI**

For all the bids received before the last date and time of bid submission, the response and accompanying documentation of the response to the EOI will become the property of Department of Geology & Mining and will not be returned after opening of responses to the EOI. Department of Geology & Mining is not restricted in its rights to use or disclose any or all of the information contained in the EOI and can do so without compensation

to the bidders. Department of Geology & Mining shall not be bound by any language in the EOI document indicating the confidentiality of the EOI document or any other restriction on its use or disclosure.

### **3.3 Acknowledgement of Understanding of Terms**

By submitting an EOI, each bidder shall be deemed to acknowledge that bidder has carefully read all sections of this bid, including all forms, annexure hereto, and has fully informed himself/herself as to all existing conditions and limitations.

### **3.4 Evaluation of the Responses**

The bidder's response will be evaluated as per the requirements specified in the EOI and adopting the evaluation criteria spelt out in this bid. The respondents are required to submit all required documentation in support of the evaluation criteria specified (e.g. detailed project citations and completion certificates, client contact information for verification, profiles of project resources and all others) as required for evaluation.

### **3.5 Evaluation Process**

The tender evaluation process is a two stage process as mentioned:

- **Pre-Qualification Evaluation**
- **Proof of Concept Evaluation**
- Department of Geology & Mining, will constitute an Evaluation Committee and Commissioner of Geology and Mining to short-list the bidders according to the Qualification Criteria given in this document.
- Evaluation Committee and Commissioner of Geology and Mining will apply pass-fail test for Pre-Qualification Evaluation, as per the criteria mentioned in "**section: Pre-Qualification Evaluation**". Qualified Bidder at prequalification stage will only progress to Proof-of-Concept Evaluation stage.

- Considering the novelty of the project concept, Qualified Bidders at prequalification stage, would be asked to perform on-field Proof of Concept, showcasing the technical & functional feasibility of the solution. The Vendor will have to perform a drone survey, with required payload/components to perform volumetric & extent analysis, at the mining site as allocated by Department of Geology & Mining and showcase features of proposed solution as per the scope of the project.
- The Bidder proposed solution will be examined and evaluated for its operational and technical feasibility. The solutions which are feasible in operation will be treated as responsive technically and considered to be built into the specifications.
- Department of Geology & Mining, will empanel the bidders; qualifying in Pre-Qualification & Proof of Concept Evaluation; with terms of reference, required specifications and financial bids.

### **1. Pre-Qualification Evaluation Phase**

Considering the wide variety of technical capability, skills and resources required to implement the Project, consortium of maximum of four (4) partners is allowed including the prime bidder, where prime bidder can partner with maximum two (2) companies for Drone Survey, Logistics Services etc. and with one (1) company for Data processing, Software Application, Dashboard etc.

At EOI stage one of the members of the consortium should act as the Prime bidder and be responsible for discharging the responsibilities. It is the Prime bidder who should submit the bid completed in all aspects on behalf of all the members of the consortium.

The Evaluation Committee and Commissioner of Geology and Mining will evaluate the responses to the EOI and all supporting documents & documentary evidence. Each of the responses shall be evaluated to validate

compliance of the bidder according to the Pre-Qualification criteria, Forms and the supporting documents specified in this document. The Committee and Commissioner of Geology and Mining may seek additional documents as it deems necessary. Inability to submit requisite supporting documents or documentary evidence, may lead to rejection of the EOI.

<b>Pre-Qualification Criteria: (Mandatory)</b>			
<b>#</b>	<b>Pre-Qualification Criteria</b>	<b>Documentary Evidence</b>	<b>Form</b>
1.	<p><b>Legal Entity:</b></p> <p>The Bidders or Consortium Partner (Prime Bidder), should be a company registered under Indian Companies Act 1956. The company should be primarily providing ITES/ICT solution &amp; services in India for at least the last three financial years, ending 31st March 2022.</p>	Copy of Certificate of Incorporation issued by the Registrar of Companies, India.	PQ#1
2.	<p><b>Tax Registration:</b></p> <p>The Bidders (Prime Bidder) must have valid registration certificate of Commercial Tax (GST / VAT / CST, Service Tax, PAN Number, Excise as applicable.</p>	<p>a. Service Tax,</p> <p>b. VAT Registration/PAN Card,</p> <p>c. GST (If Available),</p>	PQ#1
3.	<p><b>Financial Turnover:</b></p> <p>The Bidders or Consortium Partner (Prime Bidder) should have minimum annual turnover of <b>Rs. 1 crore</b> in implementation ITES/ICT solution &amp; services; for each of the 3 financial years i.e. 2019-20, 2020-21 &amp; 2021-22.</p>	<p>a. Certificate from the Chartered Accountant of the Organization/ Audited Balance sheets for last three years.</p> <p>b. Income Tax return</p>	PQ#2
4.	<p><b>Financial Turnover (Drone Based Service):</b></p> <p>For Prime Bidder for Drone Survey annual turnover should be <b>30 lakhs</b> for executing drone-based services, for 3</p>	<p>a. Certificate from the Chartered Accountant of the Organization/ Audited Balance sheets for last</p>	PQ#3

<b>Pre-Qualification Criteria: (Mandatory)</b>			
#	<b>Pre-Qualification Criteria</b>	<b>Documentary Evidence</b>	<b>Form</b>
	<p>financial years i.e. 2019-20, 2020-21 &amp; 2021-22.</p> <p>The Bidder or <b>each</b> Consortium Partner(s) for Drone Services other than prime bidders should have minimum cumulative turnover of <b>Rs 25 Lakhs</b>, for executing drone-based services, for 3 financial years i.e. 2019-20, 2020-21 &amp; 2021-22.</p> <p>Startups should have cumulative turnover of <b>Rs. 20 lakhs</b>, for executing drone-based services, for 3 financial years i.e. 2019-20, 2020-21 &amp; 2021-22. *DIPP guidelines apply for startup category</p>	<p>three years.</p> <p>b. Income Tax return</p>	
5.	<p><b>Technology Experience in ITES/ICT:</b></p> <p>The Bidders or Consortium Partner (Any) should have executed atleast one (1) project on ITES/ICT having dashboard, data analysis &amp; MIS reports in following sectors</p> <ul style="list-style-type: none"> <li>• State Government or Central Government</li> <li>• Public/Reputed Private sector enterprises in India.</li> </ul>	<p>a. Copy of Work Order</p> <p>b. Client Certificate</p>	PQ#4
6.	<p><b>Technology Experience in Drone:</b></p> <p>The Bidders or Consortium Partner (Any) should have executed atleast one (1) project on drone-based survey to carryout volumetric analysis in the following sectors:</p> <ul style="list-style-type: none"> <li>• State Government or Central Government</li> <li>• Public/Reputed Private sector enterprises in India.</li> </ul>	<p>a. Copy of Work Order</p> <p>b. Client Certificate</p>	PQ#5

<b>Pre-Qualification Criteria: (Mandatory)</b>			
<b>#</b>	<b>Pre-Qualification Criteria</b>	<b>Documentary Evidence</b>	<b>Form</b>
7.	<p><b>Blacklisting:</b></p> <p>The Bidders or Consortium Partner (All) should not be under the declaration of being blacklisted by any Central / State Government / PSU's for corrupt or fraudulent practices as on date of bid submission</p>	<p>A Self Certified letter by an authorized signatory with signature and stamp (for all Bidders/Partners)</p>	PQ#6

## **2. Proof of Concept Evaluation**

Eligible Bidders shortlisted at the pre-qualification stage, will be further evaluated by the Evaluation Committee and Commissioner of Geology and Mining through Proof of Concept (POC); bidders will be called to carry out POC at the mining site identified by Department of Geology & Mining, Government of Tamil Nadu.

### **A. PoC Scope:**

Department of Geology & Mining will provide an active mining site to perform Proof of Concept. A Total Station Survey will be conducted by the department, to establish the volume & extent of the site before POC execution.

The bidder shall install all the components as mentioned in the scope and showcase a fully operational system at the mining site.

Bidders are expected to conduct 2 drone surveys over a period of one week to establish the solution components & achieve expected results i.e. calculate mineral volume at POC mining site, extent of the POC mining site, survey at POC site shall be conducted as explained below.

## **Benchmark Survey**

- Bidders will have to conduct 1st drone survey to establish the base/reference volume and extent.
- The volume & extent calculated during 1st drone flight/survey will be compared with volume calculated during total station survey.
- The volume and extent calculated at this stage will be reference for 2<sup>nd</sup> drone flight/survey.

## **Second Flight/Survey**

- Bidders will have to conduct 2nd drone survey after a gap of one week from 1st drone flight/survey, to calculate the differential mineral volume extracted from the POC mining site.
- Incremental volume of the mineral extracted from the mining site between 1<sup>st</sup> and 2<sup>nd</sup> flight would be compared against the physical extracted volume, reported by the department.
- Accuracy of the Bidder calculated Volumetric & Extent Analysis, will be measured against the details provided by the Department of Geology & Mining.
- Additional surveys/flights shall be planned, to better evaluate the solutions proposed by the Bidders.

## **Vendors shall follow the guidelines mentioned here while carrying out the POC:**

### 1. Survey:

- a. Department of Geology & Mining would provide DGPS Boundary and GCP details for the mining site allotted for PoC. Vendor shall incorporate these details to carry out the survey of the PoC mining site.



- b. Vendors would also be given the opportunity to visit and analyse the field parameters at PoC site before conducting the drone survey.
- c. Based on the above mentioned input data & other field parameters, the vendors may generate a flight path for the drone.
- d. Vendors may set-up their base station at the mining site, if required.
- e. Based on the flight path, vendors may conduct the flight to capture survey data.

## 2. Data Processing:

The service provider may process the captured data (via the drone) to arrive at the final output parameters listed below.

- a. Volumetric Analysis: Vendors are expected to calculate the volume of the mineral extracted from the mining, based on the survey and data processing.
- b. Extent of Mining: Based on the survey and processing, vendors are expected to deliver the extent of mining site for each of their flights.

### **A. Pre-Requisite Data and Permissions**

Department of Geology & Mining shall ensure, permissions and security clearance are obtained by Drone Agencies from the authorized Government Agencies, under DGCA guidelines like UIN, UAOP, VLOS before UAV survey as a pre-requisite of POC. Department will also share the following data with the service providers:

- 1. DGPS details of the mining site
- 2. GCP marker details established at the mining site.

However, for all other permissions, bidders are expected to obtain such permission on their own at no cost basis to Govt of Tamil Nadu.

## B. PoC Deliverables

The bidders would be expected to submit following deliverables at the completion of PoC.

#	Components	Deliverable	Evaluation metric
1.	Survey	Survey Process, Flight path, Technical Components, Drone Specifications etc.	Will not be evaluated for the PoC
2.	Drone Flight	Flight time (in minutes), mean altitude (in metres)	Will not be evaluated for the PoC
3.	Data Processing	3D Modelling, Digital Elevation Model/ Digital Terrain Model, Ortho-rectification of Images	Will not be evaluated for the PoC
4.	Volume Accuracy	Volume of mining site for each of the flights	Volume Accuracy will be calculated as mentioned below:
	1 <sup>st</sup> Drone Survey	Volume of mining site for 1 <sup>st</sup> drone flight/survey	Volume Accuracy of 1st drone flight/survey will be compared with volume calculated during Total station survey.
	2 <sup>nd</sup> Drone Survey	Volume of mining site for 2 <sup>nd</sup> drone flight/survey  Change in volume of the mineral excavated at the mining site between 1 <sup>st</sup> & 2 <sup>nd</sup> flights in metre cube.	Incremental volume of the mineral extracted from the mining site between 1 <sup>st</sup> and 2 <sup>nd</sup> flight would be compared against the physical extracted volume, reported by the department.
5.	Extent Accuracy	Extent/Area of mining site for each of the flights	Extent Accuracy will be calculated based on the boundary details calculated during Total station survey.

**\*\*Department will be sole authority to confirm the volume and extent of accuracy.**

### C. PoC Evaluation Criteria

The POC will be evaluated on the following points on accuracy of the output as mentioned in the table below:

<b>Proof of Concept Evaluation Criteria: (Marks/Ranking)</b>		
<b>Evaluation Criteria</b>		<b>Accuracy</b>
A.	Accuracy of Volumetric Analysis (1 <sup>st</sup> Drone Survey)	>=95 %
B.	Accuracy of Incremental Volumetric Analysis (2 <sup>nd</sup> Drone Survey)	>=95%
C.	Accuracy of Extent Analysis (1 <sup>st</sup> Survey)	>=98%

- **The bidder shall be required to execute “PoC” on No Cost No Commitment Basis. The cost incurred towards carrying out the “PoC” exercise shall be borne by the participating bidders themselves.**
- The Evaluation Committee and Commissioner of Geology and Mining reserves the right to reject any or all EoI. The decision of the Evaluation Committee and Commissioner of Geology and Mining in the evaluation of responses to the Expression of Interest shall be final. No correspondence will be entertained outside the evaluation process of the Committee.
- ***The bidders shall obtain a minimum accuracy for the evaluation parameters as mentioned in the table: Phase II (Proof of Concept Evaluation Criteria: Marks/Ranking) to qualify for the empanelment.***
- *\*Infrastructure and Network would be responsibility of the service provider during POC*
- After completion of EOI evaluation, a detailed empanelment orders will be issued to the shortlisted Bidders by the Department of Geology & Mining comprising the detailed terms & conditions, detailed technical specification criteria, financial bid details, payment terms & condition, detailed Service Level Agreement (SLA) etc.

## **4 EOI DOCUMENT PREPARATION, SUBMISSION & EVALUATION GUIDELINES**

### **4.1 EOI Proposal Preparation**

- a. The Response to the EOI shall be prepared in accordance with the requirements specified in this EOI and in the format prescribed in this document for each of the above mentioned qualifying criteria as proof of having the minimum requirements.
- b. The response must be direct, related, concise, and complete.
- c. The response shall be sealed and superscribed “Response to EOI – Drone based Volumetric & Extent Analysis Project” on the top right-hand corner and addressed to contact details given in section 1.2 at the address specified in this document.
- d. The response should be submitted with two printed copies, one marked ORIGINAL and the second one as DUPLICATE and a soft copy on non-rewriteable compact discs (CDs) with all the contents of the response. The words “Response to EOI – Drone based Volumetric & Extent Analysis of mines and quarries” shall be written in indelible ink on the CD. The Hard Copy shall be signed by the authorized signatory on all the pages before being put along with the CD in the envelope and sealed.
- e. In case of discrepancies between the information in the printed version and the contents of the CDs, the printed version of the response will prevail and will be considered as the response for the purpose of evaluation.
- f. The response should contain the copies of references and other documents as specified in the EOI.
- g. A board resolution authorizing the Respondent to sign/ execute the response to the EOI as a binding document and also to execute all relevant agreements forming part of EOI shall be included in this envelope.
- h. Department of Geology & Mining will not accept delivery of response in any manner other than that specified in this EOI. The response

delivered in any other manner shall be treated as defective, invalid and rejected.

#### 4.2 Submission of EOI Responses

The response should be submitted in the sealed envelope with the following details.

The bidders are requested to submit their responses for the EOI in Eight (8) parts, clearly labelled according to the following categories:

#	Categories	Relevant Forms
1.	Part I- Covering Letter, EoI Processing Fee, and Board Resolution	Refer: Section: 3.5,(1)P.Q evaluation process Formats for Submission Letter for Power of Attorney Consortium Agreement
2.	Part II- Details of the Organization	Section: 3.5,(1)P.Q evaluation process Form PQ#1- General Information
3.	Part III- Financial Turnover Details	Section: 3.5, Form PQ#2 - Financial Turnover Section: 3.5(, Form PQ#3 - Financial Turnover (Drone Services)
4.	Part IV- Relevant Project Experience	Section: 3.5, Form PQ#4 - Project Experience Section: 3.5, Form PQ#5 - Project Experience
5.	Part V- Declaration for Clean Track Record	Section: 3.5, Form PQ#6 - Declaration Regarding Clean Track Record
6.	Part VI- Technical Components, Approach and Methodology of the Proposed Solution	Section: 3.5, Form TQ#1: Technical Proposal Form not found in 3.5(1)
7.	Technical bid and Financial bid for providing single software platform – Software application, Dashboard implementation activity.	In 2 separate sealed covers mentioning Technical and Financial bid for software platform facility.
8.	The estimated financial bid/ cost for carrying out drone survey in mines and quarries with category of areas ( in Hectares)	In a separate sealed cover.

### **4.3 Bid forms**

- a. Wherever a specific form is prescribed in the bid document, the bidder shall use the form to provide relevant information. If the form does not provide space for any required information, space at the end of the form or additional sheets shall be used to convey the said information.
- b. For all other cases the bidder shall design a form to hold the required information.

### **4.4 Governing language**

The contract shall be written in English. All correspondence and documents pertaining to the contract which are exchanged by the parties shall be written in English / Translation (Certified).

### **4.5 Preliminary Examination of the Bid Documents:**

- a. The Evaluation Committee and Commissioner of Geology and Mining will evaluate the responses to the EOI and all supporting documents & documentary evidence. Each of the responses shall be evaluated to validate compliance of the bidder according to the Evaluation Criteria, Forms and the Supporting documents specified in this document. The Committee and Commissioner of Geology and Mining may seek additional documents as it deems necessary. Inability to submit requisite supporting documents or documentary evidence, may lead to rejection of the EOI.
- b. The evaluation shall be carried out on the basis of data available in the EOI proposal documents submitted by the vendor in the first instance. No account will be taken of any further documents or clarifications or any such additional information furnished subsequently by the vendor. However, Department of Geology & Mining reserves the right to call for such clarifications confined in scope to the contents of the bid document, should such a clarification

become necessary for proper judgment during evaluation.

- c. Prior to detailed evaluation formalities, Department of Geology & Mining will determine the substantial responsiveness of each EOI proposal to the Invitation documents. A substantially responsive EOI is one, which conforms to all the terms and conditions of the Invitation document without any material deviation.
- d. If a bid is not substantially responsive, it will be rejected by Department of Geology & Mining may not subsequently be made responsive by the bidder by correction of the non-conformity.
- e. Commissioner of Geology and Mining, Department of Geology & Mining reserves the right to waive minor deviations in the submitted EOI proposal documents if they do not materially affect the capability of the bidder to perform the assignment. A material deviation is one, which limits in any way responsibilities and liabilities of the vendor or any right of the Department of Geology & Mining as required in this EOI.

#### **4.6 Opening of EOI Proposals**

- a. EOI proposals will be opened in the presence of representative on the schedule date mentioned in Section 1.3. The bidder representatives who are present shall sign a register evidencing their attendance.
- b. The bidders names, EOI modifications or withdrawals, and such other details as the Department of Geology & Mining officer at his/her discretion, may consider appropriate, will be announced at the opening. Late bids will not be accepted by the department.

#### **4.7 Completeness of Response & Related Issues**

- a. The response to this EOI should be full and complete in all respects. Failure to furnish all information required by the EOI or submission of an EOI not substantially responsive to this document will be at the

Bidder's risk and may result in rejection of its EOI proposal.

- b. Bidders are advised to study all instructions, forms, requirements and other information in the EOI documents carefully. Submission of the bid shall be deemed to have been done after careful study and examination of the EOI – bid document with full understanding of its implications.
- c. Unless otherwise specifically stated in the EOI, all specifications and requirements constitute minimum requirements.
- d. All EOIs must meet or exceed the stated specifications and requirements.

#### **4.8 Right to Terminate the Process**

Commissioner of Geology and Mining, Department of Geology & Mining may terminate the EOI process at any time and without assigning any reason. Department of Geology & Mining makes no commitments, express or implied, that this process will result in a business transaction with anyone.

### **5 GENERAL INSTRUCTIONS TO BIDDERS**

#### **5.1 General Eligibility**

- a. This request for EOI is open to all bidders from India.
- b. Consortium/Joint Venture is allowed to participate in the EOI Process. Consortium of maximum of four (4) partners is allowed including the prime bidder, where prime bidder can partner with maximum two (2) companies for Drone Survey, Logistics Services etc. and with one (1) company for Survey Data Processing, Software Application, and Dashboard etc.
- c. Bidders must follow the consortium guidelines as mentioned above.
- d. Bidders marked to be ineligible by Department of Geology & Mining, Tamil Nadu; for non-satisfactory past performance, corrupt,



fraudulent or any other unethical business practices will not be eligible.

- e. Bidder debarred/ blacklisted by any Central or State Govt. / Quasi – Government Departments or organizations as on bid calling date for non-satisfactory past performance, corrupt, fraudulent or any other unethical business practices will not be eligible.
- f. Breach of general or specific instructions for bidding, general and special conditions of contract with Department of Geology & Mining, Tamil Nadu or any of its user organizations may make a firm ineligible to participate in bidding process.

## **5.2 Deadline for submission of bids**

- a. Bids must be submitted as mentioned in EOI not later than the bid submission date and time specified in the EOI call notice (30.11.2022, 3.00 pm).
- b. Department of Geology & Mining, Tamil Nadu may, at its discretion, extend this deadline for the submission of bids by amending the EOI call, in which case all rights and obligations of the Department of Geology & Mining, Tamil Nadu and bidders previously subject to the deadline will thereafter be subject to the deadline as extended.

## **5.3 Late EOI Submission**

Any bid not received by the Department of Geology & Mining, Tamil Nadu contact person by the deadline for submission of bids (30.11.2022, 3.00 pm) will be rejected and returned unopened to the bidder.

## **5.4 Disqualification of EOI**

Department of Geology & Mining, Tamil Nadu may at its sole discretion and at any time during the processing of tender, disqualify any bidder from the EOI process if the bidder has,

- a. Submitted the EOI after the prescribed date and time of submission of bids.
- b. Made misleading or false representations in the forms, statements and attachments submitted in proof of the eligibility requirements.
- c. If found to have a record of poor performance such as abandoning works, not properly completing the contract, inordinately delaying completion, being involved in litigation or financial failures, etc.
- d. Submitted EOI document, which is not accompanied by required documentation.
- e. Failed to provide clarifications related thereto, when sought.
- f. Applicants who are found to canvass, influence or attempt to influence in any manner the qualification or selection process, including without limitation, by offering bribes or other illegal gratification, shall be disqualified from the process at any stage.
- g. If found to submit more than one bid.

## **5.5 Confidentiality**

- a. Information relating to evaluation of EOIs shall not be disclosed to the bidders who submitted the EOIs or to other persons not officially concerned with the process, until the completion of the EOI evaluation process and official declaration of the empaneled bidders.
- b. The bidder must maintain absolute confidentiality of the documents/maps/tools collected in any form including electronic media and any other data/information provided to him for the execution of the work.
- c. The bidder should not use the Project data for any purpose other than the scope of the project, bidder must remove/destroy the entire data from his custody after completion of the EOI evaluation process.
- d. If at any stage it is found that the bidder is using the data collected

during the course of POC evaluation or information provided by department, after completion of the EOI Evaluation for any other purposes, stringent legal action will be initiated as per applicable law of land.

## **5.6 Assumptions and Exclusions**

- a. The bidder should state clearly the assumptions and exclusions based on which he/she is bidding for the contract.
- b. The bid is liable to be disqualified if not submitted in accordance with this document.
- c. Bid received after due date and time.
- d. Bid not accompanied by all requisite documents.
- e. The bidder qualifies the bid with his own conditions

## **5.7 Corrupt Fraudulent practices**

- a. Defines, for the purpose of this provision, the terms set forth below as follows:
- b. “Corrupt practice” means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the process of Contract execution and “fraudulent practice” means a misrepresentation of facts in order to influence EOI evaluation process.
- c. Department of Geology & Mining, Tamil Nadu will reject the EOI proposal if it determines that the Bidder has engaged in corrupt or fraudulent practices during the course of EOI/Bid evaluation.

## **5.8 Conflict of Interest**

- a. The bidder hereby covenants that at the time of the submission of the EOI, the bidder has no other contractual relationships which would create any actual or perceived conflict of interest. (The bidder or his relative not owning any mining lease where the drone survey is

being conducted.)

- b. Where there is any indication that a conflict of interest exists or may arise, it shall be the responsibility of the Bidder to inform Department of Geology & Mining, detailing the conflict in writing as an attachment to this EoI.
- c. Department of Geology & Mining will be the final arbiter in cases of potential conflicts of interest. Failure to notify the department of any potential conflict of interest will invalidate the EOI proposal.
- d. The bidder further agrees that during the EOI evaluation process, neither the bidder nor any of its employees shall acquire any other contractual relationships which create such a conflict.

## **5.9 Security Deposit**

The selected agencies/vendors will be required to deposit an amount of **Rs.5,00,000/ (Rupees five lakh only)** in the form of Bank Guarantee issued by any Nationalized bank in favour of the Commissioner, Department of Geology and Mining, Government of Tamil Nadu, Chennai – 32. This will be an interest free refundable deposit. In case of deviation of agreed terms & conditions, the security deposit will be forfeited. In case the firm/firms want(s) to withdraw themselves from the Empanelment list, the security deposit may be refunded to the firm/firms after deducting receivables of Department of Geology and Mining if any. Security deposit shall be refunded on expiry of validity period unless renewed by CGM, Tamil Nadu. In case work order is issued and the firm/Agency does not complete the work, the Security deposit shall be forfeited, provided situation on work site is proved to be beyond the control of the agency/firm and same is acceptable by the competent authority then this condition shall be waived. CGM, Tamil Nadu will evolve a rate contract through invitation of offers from empanelled vendors. Work shall be distributed to vendors/among vendors depending upon their capabilities and urgency

of the Department. The decision of CGM, Tamil Nadu in this regard shall be final. However, for execution of any complex project, CGM, Tamil Nadu will select and invite firms from the empanelment list based on their suitability and capability matching the scope of the same project to participate in the tender for the project. The techno-commercial bids of the selected empanelled firms will be evaluated by the technical as well purchase committee of CGM, Tamil Nadu. The L1 price offered by the firms through tender process shall be allotted the work to be executed. Department of Geology and Mining, Tamil Nadu, reserves the right to execute the work through any other firm/firms of its choice. All disputes shall be settled within the territorial Jurisdiction of the Hon'ble High Court of Madras, Chennai only.

#### **5.10 Cross Checking the works**

The Department of Geology and Mining shall verify at least 10% of the work completed by each empanelled agencies and shortcomings, if any found, the said empaneled agencies will be removed from empanelled list and the security deposit will be forfeited to the Government. The decision of Commissioner of Geology and Mining will be final.

## 6 FORMATS FOR SUBMISSION

### 6.1 Bid Letter Form

(Should be submitted on the company's letterhead duly seal and signed by the authorized signatory)

From: (Registered name and address of the bidder)

To,

**Commissioner of Geology and Mining**

Department of Geology & Mining,  
Government of Tamil Nadu,  
Thiru. Vi. Ka. Industrial Estate,  
Alandur Road, Guindy,  
Chennai – 600 032.

Sub: Expression of Interest for Drone Based Volumetric and  
Extent Analysis, Department of Geology & Mining, Govt. of Tamil  
Nadu

Sir,

Having examined the bidding documents and amendments there on, we the undersigned, offer to provide services/execute the works in conformity with the terms and conditions of the EOI document and amendments there on, for the following project in response to your tender call dated.....

Project title: Expression of Interest for Drone Based Volumetric and  
Extent Analysis, Department of Geology & Mining, Govt. of Tamil Nadu

If our bid is accepted, we undertake to;

1. Execute the work according to the scope specified in the EOI document,
2. Agree to abide by the bid term & conditions, as mentioned in the EOI Document

We understand that you are not bound to accept our or any bid you may receive, nor to give any reason for the rejection of any bid and that you will not defray any expenses incurred by us in bidding.

Place:

Date:

Bidder's signature  
and seal.

Name of the Bidder:

## 6.2 Check List

Compliance/ Agreed/ Enclosed/ Deviation Statement

The following are the particulars of compliance/deviations from the requirements of the tender specifications.

	<b>Bid document reference</b>	<b>Remarks</b>
1.	Application Fees Rs. 10,000/- (Demand Draft)	Along with Application
2.	Consortium MoU (For Consortium only)	Along with Application
3.	Form PQ#1	Along with Application
4.	Form PQ#2	Along with Application
5.	Form PQ#3	Along with Application
6.	Form PQ#4	Along with Application
7.	Form PQ#5	Along with Application
8.	Form PQ#6	Along with Application
9.	Form TQ#1	Along with Application
10.	Form TQ#2	<b>To be Submitted after PoC Execution</b>
11.	The details mentioned in Sl. No. 6.4 should be submitted in 3 separate sealed covers.	Along with Application

The specifications and conditions furnished in the bidding document shall prevail over those of any other document forming a part of our bid, except only to the extent of deviations furnished in this statement.

Place:

Date :

Bidder's signature  
and seal

Name of the Bidder:

**NOTE:** For every item appropriate remarks should be indicated like 'no deviation', 'enclosed' etc. as the case may be.

### 6.3 EOI submission forms

#### i. Form PQ #1 - General Information

*(To be submitted on Bidders Letterhead)*

The Bidder or Consortium Partner (Prime Bidder), should be a company registered under Indian Companies Act 1956. The company should be primarily providing IT / ICT solution & services in India for at least the last three financial years ending 31st March 2022. Consortium of more than two bidders is permitted.

#	Description	Supporting Documents with page nos.
1.	Name of the Company/ Firm	
2.	Date of Incorporation (Registration Number & Registering Authority) VAT No., CST No., PAN No GST No. (If available).	
3.	Legal Status of the Company in India & Nature of Business in India	Public Ltd Company/ Private/ Partnership firm
4.	Address of the Registered Office in India	
5.	Date of Commencement of Business	
6.	Nature of Business in India	
7.	Name & e-mail id, phone number, fax of the Contact Person	Phone: Fax: Email
8.	Web-Site	

Place:

Bidder's signature

Date :

and seal.

Name of the Bidder:



## ii. Form PQ#2 – Financial Turnover

The Bidder or Consortium Partner (Prime Bidder), should have a minimum overall turnover of **Rs 1 crore** with experience in *ITES/ICT solution & services* during each of the 3 financial years i.e. 2019-20, 2020-21 & 2021-22.

<b>Financial Turnover: (All values in Rs. crores)</b>				
#	<b>Financial Year</b>	<b>Turnover of the firm in ITES/ICT solution &amp; services</b>	<b>Total Profit after Tax</b>	<b>Net Worth of Company</b>
	<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>
1	<i>FY.2019-20</i>			
2	<i>FY.2020-21</i>			
3	<i>FY.2021-22</i>			

### Note:

- 1. Turnover in areas other than mentioned above shall not be considered for evaluation.*
- 2. Please attach audited Balance Sheets and IT return statements for confirming the figures mentioned in columns (2).*
- 3. Prime Bidder should submit any of the Audited balance sheet / Profit & Loss statement / certificates from CFO of the Company duly audited by the Chartered Accountant and certified by the Company Secretary for all the above stated three financial years.*

Place:

Bidder Signature

Date :

and seal.

Name of the Bidder:

### iii. Form PQ#3 – Financial Turnover (Drone Services)

For Prime Bidder for Drone Services, should have minimum cumulative turnover of **Rs 30 Lakhs** with experience in *Drone based services* during the 3 financial years i.e. 2019-20, 2020-21 & 2021-22

The Bidder or each Consortium Partner(s) for Drone Services, should have minimum cumulative turnover of **Rs 25 Lakhs** with experience in *Drone based services* during the 3 financial years i.e. 2019-20, 2020-21 & 2021-22

Startups should have cumulative turnover of Rs. 20 lakhs, for executing drone based services, for 3 financial years i.e. 2019-20, 2020-21 & 2021-22

<b>Financial Turnover (Drone Service): (All values in Rs. lakhs)</b>		
<b>Partner Name (Drone Services)</b>		
#	<i>Financial Year</i>	<i>Turnover of the firm in Drone Based Services</i>
	<i>(1)</i>	<i>(2)</i>
1	<i>FY.2019-20</i>	
2	<i>FY.2020-21</i>	
3	<i>FY.2021-22</i>	
<b>Total</b>		

#### **Note:**

1. Turnover for each of the consortium partner for drone based services shall be provided in separate table
2. \*DIPP guidelines will apply for startup category
3. Turnover in areas other than mentioned above shall not be considered for evaluation.
4. Please attach audited Balance Sheets and IT return statements to confirming the figures mentioned in columns (2).
5. Bidder should submit any of the Audited balance sheet / Profit & Loss statement / certificates from CFO of the Company duly audited by the Chartered Accountant and certified by the Company Secretary for all the above stated three financial years.

Place:

Bidder Signature

Date :

and seal.

**iv. Form PQ#4 - Project Experience**

The Bidders or Consortium Partner (Any) should have executed at least one (1) project on ITES/ICT having dashboard, data analysis & MIS reports in the following sectors

- Government State or Central
- Public/Reputed Private sector enterprises in India.

Copy of the work order and letter of successful completion from the client, for last 3 financial years i.e. 2019-20, 2020-21 & 2021-22 can be produced separately.

<b>Description of Item</b>	<b>Supporting Document</b>
Name of the Client / Department	
Contact address & details of the department	
Value of the Project	
Date of Start of Work	
Date of Completion of Work	
Description of Work	
Service provider should submit any of the following: i. PO / Work order ii. Work completion certificates / Performance Certificate from client dept. duly signed by the authorized signatory from the Client end. iii. Work satisfactory certificate from the client dept.	
<b>Enclosures submitted: Yes / No</b>	

**Note:**

1. Please submit supporting documents to support the claim and the certificates must be signed by Senior Executive/ Deputy GM of the organization clearly indicating his/her name, designation and contact details such as Telephone Number, Mobile Number, Fax Number, email-id etc.
2. Please attach certificate from the client for the successful completion & implementation of project.

Place:

Bidder Signature

Date :

and seal.

**v. Form PQ#5 - Project Experience**

The Bidders or Consortium Partner (Any) should have executed at least one (1) drone-based field survey or volumetric analysis or surveillance project in the following sectors:

- Government State or Central
- Public/Reputed Private sector enterprises in India.

Copy of the work order and letter of successful completion from the client, for last 3 financial years i.e. 2019-20, 2020-21 & 2021-22 can be produced separately.

Description of Item	Supporting Document
Name of the Client / Department	
Contact address & details of the department	
Value of the Project	
Date of Start of Work	
Date of Completion of Work	
Description of Work	
Service provider should submit any of the following: iv. PO / Work order v. Work completion certificates / Performance Certificate from client dept. duly signed by the authorized signatory from the Client end. vi. Work satisfactory certificate from the client dept.	
<b>Enclosures submitted: Yes / No</b>	

**Note:**

3. Please submit supporting documents to support the claim and the certificates must be signed by Senior Executive/ Deputy GM of the organization clearly indicating his/her name, designation and contact details such as Telephone Number, Mobile Number, Fax Number, email-id etc.
4. Please attach certificate from the client for the successful completion & implementation of project.

Place:

Bidder Signature

Date :

and seal.

**vi. Form PQ#6- Declaration Regarding Clean Track Record**

*(to be submitted by bidder & consortium partners on letter head)*

To,

**Commissioner of Geology and Mining,**  
Department of Geology & Mining,  
Government of Tamil Nadu,  
Thiru. Vi. Ka. Industrial Estate,  
Alandur Road, Guindy,  
Chennai – 600 032.

Sir,

I have carefully gone through the Terms & Conditions contained in the EOI Document [No.\_\_\_\_\_]. I hereby declare that my company has not been debarred/ black listed as on Bid calling date by any Central or State Government/ Quasi Government Departments or Organizations in India for non-satisfactory past performance, corrupt, fraudulent or any other unethical business practices. I further certify that I am competent officer in my company to make this declaration.

Yours faithfully,

(Signature of the Bidder)

Name

Designation

Seal

Date:

Business Address:

### **6.3.1 Form TQ#1: Technical Proposal Form**

The bidders are required to submit an Approach paper to cover the following details:

- i. **Understanding of Scope:** The Bidder shall provide details on understanding of the scope of project.
- ii. **Implementation Approach:** In this chapter the bidder shall explain their understanding of the objectives of the project, approach and methodology for carrying out the project activities and obtaining the expected output.
- iii. **Solution Component Details:**
  - Drone Survey
  - Data Processing and Analysis
  - Dashboard
  - Enterprise Data Sharing
  - Infrastructure Requirement, Data Storage
  - Capacity building, Training, Documentation

**vii. Form TQ#2: PoC Evaluation - To be submitted on PoC Completion**

#	Component	Parameter	Information
1.	Survey Flight	Flight path of the drone/ aerial vehicle	Flights path of 1 <sup>st</sup> and 2 <sup>nd</sup> flights, separately, shall be shared in thumb-drive
		Flight time (in minutes), mean altitude (in metres)	Refer <b>Table: List of “Survey” Data Points for the PoC</b> given below
2.	Data Processing	3D Modelling, Digital Elevation Model/ Digital Terrain Model, Ortho-rectification of Images	Files from the flights shall be shared in a thumb-drive
3.	Volume Output	Volume Calculation in metre cubes, separately, for two drone surveys, performed at the mining site. Change in Volume, at the mining site between two flights in cubic metre.	Refer <b>Table</b> below: <b>List of “Output” Data Points for the PoC</b> given
4.	Extent Output	Extent Calculation in square metres, separately for two drone surveys, performed at the mining site.	Refer <b>Table</b> below: <b>List of “Output” Data Points for the PoC</b> given below.

**Table: List of “Survey” Data Points for the PoC**

Flight #	Flight Date	Survey Begin Time (IST)	Survey End Time (IST)	Flight Time (in minutes)	Mean Altitude of the flight (in m)
1.					
2.					

**Table: List of “Output” Data Points for the PoC**

<b>Flight #</b>	<b>Flight Date</b>	<b>Volume in cubic metre</b>	<b>Extent of Area in square metre</b>
1.			
2.			

**Volume Change:** Change in Volume, at the mining site between two flights in cubic metre

**6.4 i) Submission of financial bid/ Cost for Drone Survey**

The estimated cost for carrying out drone survey in mines and quarries with category of areas in Hectares as detailed below is to be furnished in a sealed cover separately along with application.

<b>Sl. No.</b>	<b>Area of mine / quarry in Hectare</b>	<b>Cost of survey involved (in Rs.)</b>
1.	<1 Hectare	
2.	<5 Hectares	
3.	<10 Hectares	
4.	<25 Hectares	
5.	<50 Hectares	
<b>Total</b>		

**ii) Submission of Technical bid and Financial bid for providing Single software platform facility:**

Vendors can submit two sealed covers (i) Technical bid and (ii) Financial bid for providing single software platforms facility – Software application, Dashboard implementation activity and one vendor will be selected for this service.

The above details should be submitted in the sealed cover addressed to

**Commissioner of Geology and Mining**

Department of Geology & Mining,  
Government of Tamil Nadu,  
Thiru. Vi. Ka. Industrial Estate,  
Alandur Road, Guindy,  
Chennai – 600 032.  
Phone No. +91- 44-22501158  
Website: <http://www.tnmines.tn.gov.in>

**Commissioner of Geology and Mining**