

# **BIRBAL SAHNI INSTITUTE OF PALAEOSCIENCES, LUCKNOW**

## **TENDER DOCUMENT FOR DRILLING VERTICAL, BOREHOLE FROM LAKES OF SEDIMENTS**

DATE OF ISSUE	10.6.2021
PRE BID CONFERENCE	30.6.2021 AT 11.00 HRS
LAST DATE OF SUBMISSION	16.7.2021 UPTO 02.30 PM
DATE OF OPENING OF TECHNICAL BIDS	16.7.2021 4.00 PM
PLACE OF SUBMISSION OF TENDER	Birbal Sahni Institute of Palaeosciences 53, University Road, Lucknow 226007, UP, INDIA

**BIRBAL SAHNI INSTITUTE OF PALAEOSCIENCES  
53, UNIVERSITY ROAD  
LUCKNOW – 226 007, UTTAR PRADESH, INDIA  
Tel: 91-522-2742903, Fax 91-522-2740098  
Website: [www.bsip.res.in](http://www.bsip.res.in)**

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## **INTRODUCTION**

1. The Birbal Sahni Institute of Palaeosciences, 53, University Road, Lucknow, Uttar Pradesh, INDIA is an Autonomous Research Institution under Department of Science & Technology, Government of India. The Institute is pursuing research in *PALAEOSCIENCES* and allied subjects including Geochemistry and dating.
  
2. The Birbal Sahni Institute of Palaeosciences, Lucknow invited “sealed bids” under Two Bid systems from the authorized agent of the particular requirement fulfilling the criteria laid down in the Technical Bid for the above purpose.

Tenders should be sealed, super scribed with:

“Tender No.BSIP/Tender/SA/2021-22/ and submitted only at the following office:

DIRECTOR  
BIRBAL SAHNI INSTITUTE OF PALAEOSCIENCES  
53, UNIVERSITY ROAD, LUCKNOW 226 007  
UTTAR PRADESH, INDIA

And should be submitted on or before the closing date i.e. 30.6.2021 at 02.30 pm, if delivered personally and if the quotes are sent by post/courier, the tender must reach BSIP, Lucknow at the address given above before closing time and closing date.

BSIP is not responsible for delays of any nature including postal and force measure. Tenders received after the due date will not be accepted under any circumstances.

The Schedule of opening of quotes is as following and at the following venue:

Technical part opening in the presence/ of intending Tenderers at BSIP, Lucknow	-	<u><b>Date</b></u> <b>16.7.2021</b>	<u><b>Time</b></u> <b>16.00 hrs</b>
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**BIRBAL SAHNI INSTITUTE OF PALAEOSCIENCES, LUCKNOW**  
**53, UNIVERSITY ROAD, LUCKNOW- 226 007, (UP), INDIA**  
**Tel: 91-522-274903, Fax:91-522-2740098**  
**Web-site:www.bsip.res.in**

Tender No.BSIP/TENDER/SA/2021-22

### **TENDER NOTICE**

Director, Birbal Sahni Institute of Palaeosciences, Lucknow 226 007 (UP) India invites tenders (Part-I Technical Bid, Part-II Commercial Bid) in separate sealed covers from authorized agents for extending the following services under two bid systems.

#### **FOR:**

**“FOR DRILLING VERTICAL, BOREHOLE FROM LAKES TO RETRIEVE SEDIMENTS FOR SCIENTITIFC INVESTIGATIONS IN THE CENTRAL AND GANGA PLAIN FROM DIFFERENT REGIONS OF INDIA. DRILLING SHOULD BE ACCOMPLIED ON INTEGRATED WELL COMPLETION (IWC) BASIS INCLUSIVE OF FLOATING PLATFORMS AND ASSOCIATED SERVICES AS DETAILED IN THE TENDER DOCUMENT”**

Tender documents can be downloaded from the Institute web-site <http://www.bsip.res.in> The bidder has to submit the tender document fee of Rs.5,000/- (Rupees five thousand only + GST) plus 18% GST in the form of DD drawn in favour of Director, BSIP, Lucknow payable at Lucknow, UP, India with Technical Bid part-I.

Date of Issue of Tender documents	:	10.6.2021
Pre-bid meeting	:	30.6.2021 at 11.00 am
Last date of receipt of Tender	:	16.7.2021 at 02.30 pm
Opening of Tender (Technical Bid only)	:	16.7.2021 at 04.00 pm

Venue of Pre-bid meeting – BIRBAL SAHNI INSTITUTE OF PALAEOSCIENCES, 53, UNIVERSITY ROAD, LUCKNOW 226 007

The Institute reserves the right to reject any or all tenders without assigning any reason thereof.

**REGISTRAR**

**BIRBAL SAHNI INSTITUTE OF PALAEOSCIENCES, LUCKNOW**  
**53, UNIVERSITY ROAD, LUCKNOW- 226 007, (UP), INDIA**  
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## **DETAILS OF TENDER AND TENDER NOTICE**

**Tender in sealed cover is invited by Director, Birbal Sahni Institute of Palaeosciences (BSIP) Lucknow, an autonomous Institute under the Department of Science Technology Government of India, New Delhi invites tender for drilling vertical borehole from lakes sediments for scientific investigations from different regions of India. Drilling should be accomplished on Integrated Well Completion (IWS) basis inclusive of floating platforms and associated services as detailed in the tender document.**

**The tender document and the prescribed Bid Form for submission of bids can be downloaded from BSIP's website [https://www.bsip.res.in/bsip\\_tender.php](https://www.bsip.res.in/bsip_tender.php).**

The tender document is available: From 10.6.2021 at 11.00 am to 16.7.2021 at 02.30 p.m.  
LAST DATE FOR SUBMISSION OF DULY FILLED UP SEALED TENDER AT BSIP,  
LUCKNOW ON OR BEFORE 16.7.2021 AT 4.00 p.m.

A pre-bid meeting would be held at BSIP at 11.00 hrs on 30.6.2021, Maximum of 03 authorized representative of each bidder will be allowed to attend the Pre-Bid meeting. The date of Opening the Technical Bid will be on 16.7.2021 at 4.00 pm. in BSIP, Lucknow. The Institute reserves the right to accept or reject any or all the bid either in full or any part at its discretion without assigning any reason thereof,

Address for Communication: BIRBAL SAHNI INSTITUTE OF PALAEOSCIENCES, 53  
UNIVERSITY ROAD, LUCKNOW-226007, TEL.: 91-0522-2742903  
FAX 91-522-2740098.

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## 1. INTRODUCTION

Birbal Sahni Institute of Palaeosciences (BSIP), 53 University Road Lucknow 226 007, intends to carry out Bathymetry Survey, Geophysical Survey and wetland sediment coring at lacustrine environment for making inferences about past climate and environment. In the initial phase 12 lakes, as listed in Table 1 below are selected in the western and central part of India.

Table 1: The lakes selected for the initial phase with its name, location and approximate area. The area of the lake is approximate and is subject to change with time as per catchment input.

Sr. No	Lake Name	Latitude(N)	Longitude (E)	Approx. Area (Sq KM)
1	Bhoj Tal	23°14'49.20"	77°22'36.20"	30
2	Belcha Lake	22°29'14.07"	75°42'34.30"	0.75
3	Sapna Lake (Reservoir)	21°50'46.40"	77°59'48.80"	1.82
4	Buka Lake	22°43'11.90"	82°33'54.10"	70
5	Bhakira Tal	26°54'04.57"	83°07'8.57"	30
6	Lahuradewa Lake	26°46'13.45"	82°56'37.17"	0.8
7	Ramgarh Tal	26°42'42.71"	83°24'36.53"	7.5
8	Kanwar Lake	25°37'48.35"	86°08'45.58"	60
9	Ramgargh Crater Lake	25°19'36.29"	76°37'15.06"	0.8
10	Sagar Lake	26°41'55.00"	77°15'43.00"	0.15
11	Bindwas Lake	28°51'35.00"	76°33'21.00"	3.73
12	Katkui Amroha	28°55'07.32"	78°28'29.082"	0.14

## 2. The scope of work

It is proposed to do a number of Vertical Bore well drilling to retrieve intact (undisturbed) sediment core from lakes up to a depth of 40 m, which may vary in length depending on the proposed location.

The scope of works includes:

- a. Carrying out Detailed Topographical Survey, Geotechnical and Geological Investigations and Review of existing survey Investigations reports Bathymetry Survey prior to the borehole drilling
- b. Drilling of Boreholes of depth ~40 m in lakes
- c. Collection of Undisturbed Core samples at a minimum of 5 m alternate interval following standard protocol (please refer IS: 2132).
- d. Preparation of Core logs and location plan of sediment cores.
- e. Preparing report of basic standard geo-technical description of rocks/sediments which covers discontinuity spacing, texture and structural condition, mineralogy of the grains, rock name/sediment nature and supplementary adjectives.
- f. Submission of draft report including Geological logs.
- g. To backfill the said bore holes with suitable filling, if possible
- h. Geophysical Survey prior to the borehole drilling

- i. If needed keeping Works Free from Water and Obstructions: The Contractor shall provide and maintain at his own cost, pumps and other equipment to keep the work areas free from water, other obstructions and continue to do so till the completion of the work.
- j. For meaningful interpretation of the orientation of the geological features, suitable core orientation procedures shall be employed during investigation. Only hydraulically operated drilling rigs shall be used with good quality compatible drill rods. Sufficient number of spare parts shall be readily available at the site for maintenance of drilling rig, drilling rods, pump sets etc.  
Casing pipe shall be used in the borehole to support its sides when a side fall is suspected to occur inside the borehole. When casing pipe is used, it shall be ensured that its bottom end is at all times less than 15 cm above the bottom of the borehole and not below the level at when the test has to be conducted or sampling has to be done. In case of cohesion less soils the advancement of the casing pipe shall be such that it does not disturb the soil to be tested or sampled. The casing shall be advanced by slowly turning the casing pipe and not by driving.

## **2.1 Regional surveys**

Pre-site surveys include the compilation of all existing geological and geophysical data in a region. Geological maps, sample investigations, geophysical research and all other kinds of geoscientific information will be utilized to form a decision base for further research in more detail. The regional data compilation is necessary for putting the entire drilling campaign in a broader geological context and helps to identify potential areas, where the proposed drilling targets may be reached and which ones need to be investigated further. This compilation helps to select the areas for targeted pre-site surveys and supports the drill-site selection;

## **2.2 Site survey**

Site surveys in lacustrine environments usually comprise seismic imaging and the collection of short cores. Other data may be collected as well, e.g. bathymetric data and surface samples. In lacustrine environments, site survey data can often only be collected utilizing the available type(s) of vessel or platform with very limited amount of space and accordingly challenging data collection.

### *i. Bathymetric imaging:*

Bathymetric data allow to characterize the morphology of entire lakes or selected areas (e.g. around proposed drill sites). Such data are useful for investigating modern sediment dynamics, which can be critical for site selection, e.g. to avoid areas prone to sediment transport causing incomplete sedimentary successions. Sound velocity profiles of the water column have to be taken into consideration during data acquisition and processing. Mobile systems also have to be calibrated at the beginning of each survey.

The bathymetry and geophysical survey will be carried out @ line spacing of 10m to 25m depending on the size of the lake.

### *ii. Seismic imaging:*

Seismic imaging is the most important technique for site selection as it allows acquiring structural images of the subsurface down to meter-resolution. Suitable methods and equipments may be employed for the seismic imaging at maximum resolution and

penetration to identify major boundaries such as between lacustrine sediments and bedrock.

Boreholes (Sediment Sampling) at the sites mentioned in the table. The boreholes will be drilled up to a maximum depth of 40.0m below the lake bed and undisturbed sediment samples will be collected.

- a. The boreholes / sediment collection shall be carried out at the center of the lake or at the site with maximum deposition as shown in the geophysical survey

*iii. Hazard Survey:*

Safety and health at a drill site and for the crew are of paramount importance in a drilling project. Accordingly, not only the scientific objectives and geological conditions will govern the selection of a drill site, but also safety must be a leading criterion. First of all, geological and geophysical site knowledge of potential hazards that may affect a drill site is critical. Central matters are:

- Borehole instabilities, stress, strain
- Clay or other rocks affecting drilling
- Variable hydraulic conditions
- Well site, slope instability

Before drilling can start or applications for permits can be submitted, unstable zones will be encountered or that the technical planning will include measures to handle such issues in a way that the environment is not endangered and/or drill-site safety is compromised.

*iv. Necessary permission from permitting authorities:*

Depending on the permitting authorities and local laws, the bids may include environmental impact studies, which must cover additional safety and health-related necessities and be obtained and/or conducted in advance to any drilling operation. The tender shall include a safety or drilling-hazard report for permitting procedures. Key elements for composing such reports are the site survey data.

**3. Equipments to be Deployed:**

The scope of work as detailed above requires work to be carried out over water. In order to accomplish the task, mobilisation of the equipment shall fall within the scope of the vendor.

3.1 Geotechnical Equipment

3.1.1 Floating Platform

The over water boreholes will be carried out using a Floating Platform (Pontoon). The vendor will have to provide the specification with deck size to mount/secure a suitable boring rig/drilling on top of the deck to accomplish the boring/drilling activities.

This floating platform should be suitable to work in all the water depths of the lake found during the bathymetry survey.



### 3.1.2 Drilling Rigs:

The vendor should specify the following

- a. type of rig and drilling system to be employed
- b. Type and capacity of water pump to be employed during drilling
- c. Type of Soil Sampler:
- d. Type of Survey Equipment for bathymetry and geophysical survey

#### **4. Observations:**

- a) As drilling is a very costly process, it is of utmost importance that complete observation should be made during a drilling operation. Accurate record of progress of drilling shall be kept by the drilling in-charge.
- b) The depths through which a uniform rate of penetration was maintained, the depth at which marked change in rate of penetration or sudden fall of drill rod occurs, the depth of which any blockage of drill bit causing core loss, if any shall be recorded.
- c) Any heavy vibration or torque noticed during drilling should be recorded together with the depth of Occurrence.
- d) Special conditions like the depth at which grouting was done during drilling, presence of artesian conditions, loss of drilling fluid observation of gas discharge with return water etc if any, shall also be observed and recorded.
- e) The sludge if any obtained during each run shall be collected separately, dried and packed in polythene bags with proper numbering.
- f) Causes of poor core recovery shall be carefully examined and correlated with speed of drilling, excessively mud laden return drill water, shear zones, clay seams etc.
- g) Data from the driller's daily records and geologist's field log shall be edited interactively for preparation of graphical log.
- h) Results of in-situ permeability tests etc. shall be furnished in log sheet for each individual hole in specified standard format of Bureau of Indian Standards.
- i) Other special conditions, which may be peculiar to individual cases during drilling operation, shall be recorded.

#### **5. Core Samples:**

- a) The field logging of sediment core samples obtained from the drill borehole will be done by competent professional engineering geologist along with the scientist deputed by the Institute.
- b) Sediment cores shall be extracted from the barrel along with the specific channel section. Care shall be taken to maintain the direction of extrusion of sample same as that while coring to avoid stress reversal.
- c) Immediately after withdrawal of the sediment core the cores shall be logged and suitably stored for subsequent scientific analysis the cores shall be numbered serially and arranged in a sequential order. The description of the core samples shall be recorded as per IS: 4464. Where no core is recovered, it should also be recorded as specified in the continuous record of core recovery.
- d) The basic information for the standard basic geo-technical description of sediments shall cover discontinuity spacing, colour, texture and supplementary adjectives, if any, special features shall also be indicated.

#### **6. Time period for completion:**

The entire work of lacustrine sediment coring is required to be completed within the period of 4 month from the date of awarding of contract.

Time is the essence of contract. The contractor shall make all efforts to complete the work within the validity of the contract. However, if because of some reason it is expected that the work will not be completed in time, the contractor shall apply for time-extension in writing one month before the expiry of the validity of the contract, which will be considered on the merit of the case.

**7. Price Bid:**

7.1 Price Rates/Bids shall also be furnished for individual sites mentioned in Table 1.

7.2 Price Rates/Bid is to be furnished in the prescribed Performa of the Tender Documents.

7.3 The rate must be written both in words and figures. There should be no erasures and or over writings. Corrections, if any, should be made clearly and initialed with date. In case if there is variation observed in the rates in between words & figures, the lowest rate shall be considered.

7.4 It may please be noted that the Institute may award the contract to the Tenderer whose rates are found lowest without negotiations or after negotiations, if required, but that too, only with the lowest tenderer. Therefore, tenderers are advised to be careful to quote the lowest/genuine rates only.

7.5 Rates entered in the tender shall unless specifically stated to the contrary shall cover the cost on delivered basis to the consignee on FOR destination basis and also include all fees, duties, taxes, royalties, rents or other expenses whatsoever which the Tenderer may have to incur in connection with the carrying out of the contract / delivering of material on FOR destination basis.

## TERMS AND CONDITIONS

1. Price Rates/Bids shall be furnished for individual sites mentioned in Table 1 and the Director of the Institute has the discretion to decide the total number of sites in the final award of the contract. When drilling sites are more, the price must be less than the one site cost multiplied with number of sites. Similarly, if the more than one core is required form on site then only the drilling and consumables cost will be added.
2. Holes of coring and upon-coring will only be drilled in sediments formations and this will not be drilled in boulder, sand with large Granules & rock.
3. Drilling work will take place in remote area and site locations moves constantly & weather conditions also play a major role in work execution. There is little possibility of work delay. So there can be no compensation if there is any natural calamite occurs.
4. Core recovery is based on formation of soil sediment clay.
5. Drilling depth calculated according to run length.
6. Our work of drilling is according to the formation.
7. Project Head must be available at any time.
8. There should be a responsible person 24 hours for help and query till final payment and project completion. This persons contact details should be given with work order in separate letter person must have administrative authority in finance section for payment related matters.
9. If drill is stopped by formation drilling charge must be paid whether drilling of coring or non-coring.
10. TDS will be deducted according to Section 194C at the rate of 1% (Labour Contractor).
11. During course of exploration any land crops or any other compensation with locals are required. The driller should make necessary arrangement to settle the matter at his own.
12. This is rate of drilling of **caleks** type.
13. Our sites can be visited at any time but not be delayed by anyone.
14. Government permission pertaining for vehicle and all good of our drilling at check post all responsibility is your including sell tax check post etc.
15. It is necessary that Point of drilling must be reach by our Vehicle and it should be easily covered by our Vehicle
16. Settle down drilling place for machine & temporary tent in advance.
17. Login, reading etc works are yours only
18. Office paper work for any state permission should be provided in advance
19. Rates applied for upcoming 60 days only
20. Project Completion/appreciation letter is necessary finishing work.
21. All page of tender document shall be signed by the person authorized to file the tender.
22. The full name of the person authorized to file the tender designation, current and main office address, Phone, Fax No. E-mail address shall be indicated in the tender
23. Tenders sent through E-mail, Fax and Telex will not be entertained
24. The tender should be filled in and submitted in English. All accompanying literature and correspondence shall also be in English.
25. No. claim for costs, charges, expenses incurred by the bidder in connection with preparation of tender submission for subsequent clarifications of their tender shall be accepted

26. BSIP will not be responsible any typographical errors/ambiguity/additions/omission committed by the bidder while filling up of the tender. Tender must be accompanied by Earnest Money deposit (EMD) as indicated in Annexure-I DD/BG in favour of Director, BSIP payable at Lucknow. EMD shall be paid in Indian currency from abroad, same shall be refunded in Indian currency only. BSIP will not be responsible for refunding the EMD in foreign currency.
27. The bids are to be submitted in two sealed envelopes. Technical Bid (Envelop I) shall contain Earnest Money deposited (EMD) prequalification documents tender conditions and contract form duly signed by authorized person or person as a token acceptance of terms and conditions of work as per Annexure (Financial Bid Envelope II) shall contain price schedule of rates.
28. The EMD deposit by the successful bidders shall be held back towards the security deposit and will be refunded after six month of successful completion of work.
29. The EMD of the unsuccessful bidder will be returned within one month from the date of opening of the technical bids. EMD submitted in the form of Fixed Deposit will not be accepted.
30. The bidder shall be deemed to have full knowledge of documents and no extra changes consequent on any misunderstanding or otherwise shall be allowed.
31. Any question regarding the tender document and discrepancies shall be directed to the Tender Issuing Authority in writing minimum 3 days prior to the due date of submission of tender. The Tender Issuing Authority will issue all clarifications, interpretations, meaning and specific direction, if any, in duplicate in writing to all the bidders. One copy of these shall be returned duly signed and seal affixed along with the bids.
32. The Bids submitted by authorized representative of the firm only shall be considered.

**Mode of payment:**

**The payment of the drilling shall be made on satisfactory completion of the work of each site subject to submission of the certified bill by the Bidder.**

**Validity of the Tender:**

Rates quoted by the bidder shall be valid upto 120 days after opening of the commercial bid.

The bidder shall not withdraw or revise or alter any conditions, rate(s) quoted within this period, unless he is called upon to do so on mutual agreement/negotiations.

**Opening of tender:**

The tender shall be opened by a Committee constituted by the Director, BSIP at LUCKNOW at the time, date and venue as given in the : “Tender Notice”

**Agreement:**

The successful bidder shall sign an undertaking on letter head as per format prescribed before releasing of the work order by BSIP. A copy of the work order once received should be returned as a token of acceptance of the terms and conditions of the work order.

Criterion for rejection:

BSIP reserves the right to accept or reject any tender or reject all tenders without assigning any reason whatsoever for their decision.

Tenders are liable to be rejected in which any of the prescribed particulars/information is either missing or incomplete in any respect and/or if the prescribed conditions are not fulfilled.

Tenders which are found to be technically non-responsive shall be rejected and their commercial details shall not be considered.

Canvassing in connection with tender is strictly prohibited and tender submitted by bidder who resorts to canvassing will be liable to rejection.

Tenders containing specific conditions of the bidder other than the terms and conditions given in the tender documents and not acceptable to BSIP are liable to be rejected.

If the validity of the tender is not upto i.e. 120 days, the tender will be rejected.

If the tender document duly signed by the authorized person on all pages is not submitted, the tender will be rejected.

In case of any discrepancy/dispute arises that will be in the court of jurisdiction in Lucknow only.

Before submission of the tender, the prospective bidders are expected to examine technical specifications of the specified work required, terms and conditions etc. given in this Tender document. Failure to furnish all information required in the tender document may result in the rejection of the bid.

BSIP reserves the right to cancel items, from the list of requirement of work without assigning any reason thereof.

**FORMAT FOR FILLING OF COST DETAILS**

**The details of the drilling work to be undertaken each given below:-**

<b>Sl. No.</b>	<b>Items Description &amp; Specifications</b>	<b>Rates in Indian Rupees)</b>
	<b>Lake sediments Cores (12 sites)</b>	<b>Estimated Cost Rs.2,25,00,000/-</b>
<b>1.</b>	<b>Drilling charges per meter</b>	
<b>2.</b>	<b>Mobilization charges of Machine</b>	
<b>3.</b>	<b>Point to Point Shifting charges upto 50 km per km will apply distance exceeds 50 km</b>	
<b>4.</b>	<b>Water charges per point</b>	
<b>5.</b>	<b>Charge of PVC Tubes and Capes per meter</b>	
<b>6.</b>	<b>GST 18% (9% CGST+9%SGST)</b>	
	<b>Total</b>	

DETAILS OF ANNEXURE-I

DETAIL OF THE WORK TO BE EXECUTED

<b>Item No.</b>	<b>Particulars of the work</b>	<b>EMD in DD/BG/BC</b>	<b>Performance Security</b>
1.	Lake sediments coring in 12 sites Estimated cost of the work Rs.2,25,00,000.00	2%	10%

Dated: 08.6.2021

The enclosed global tender notice for drilling of Lake Sediments Cores in Central and Ganga Plains of India may please be hosted in Institute website.

The approval alongwith the tender documents are enclosed herewith for necessary action pl.

(Sandeep Kumar Shivhare)  
Registrar

Convener  
Website Committee, BSIP, Lucknow