(CLIENT’S NAME)(FONT SIZE 18)

(PLACE)(FONT SIZE 18)

<NAME OF THE ASSIGNMENT> (FONT SIZE 16)

**TENDER SPECIFICATIONS** (FONT SIZE 18)  **FOR (FONT SIZE 14)
UNDERGROUND MAPPING (FONT SIZE 14)
(PACKAGE No. 1). (FONT** SIZE 14)


**STEEL AUTHORITY OF INDIA LIMITED** (FONT SIZE 14) **CENTRE FOR ENGINEERING & TECHNOLOGY** (FONT SIZE 12) **RANCHI – 834002** (FONT SIZE 12)
**JANUARY, 2017** (FONT SIZE 12) **CET/0\_/\_\_/\_\_\_\_/TS/CE/\_\_/R=0(TS NO.)** (FONT SIZE 12)

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|  |  |  |
| --- | --- | --- |
| **PACKAGE LEADER(PL)** | **TASK FORCE LEADER(TFL)** | **HOD (PL)** |
| <Name with designation> | <Name with designation> | <Name with designation > |

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Blue with yellow background: Instructions for the respective write-up.

**“Successful bidder”** shall not be used at any place in the TS and only “**bidder”** shall be used.

Red with grey background: To be modified or deleted as per specific requirement.

## INTRODUCTION

* 1. **GENERAL**
		1. (Only specific information related to project should be given like :
1. Brief about concerned plant
2. Brief about the unit to be modified/ upgraded/ new installation)
	1. **OVERVIEW OF THE PROJECT**
		1. As the data pertaining to underground facilities are not available, which are essentially required for planning the new facilities, it is required to carry out underground mapping of the area.
		2. The data generated from this package shall be used as basis for planning of various units / facilities under all other packages as required.
	2. **IMPLEMENTATION**
		1. The complete job of underground mapping is envisaged to be executed through a single package.
		2. This tender specification pertains to underground mapping works to be executed on **Item Rate basis** which will be used as basis of planning & design for the proposed facilities.
	3. **INTENT OF THE SPECIFICATION**
		1. The intent of this tender specification is to furnish required details for enabling the bidder to submit their best bids (technical & commercial) as per the scope of work mentioned at chapter 2.0, technical specifications at chapter 3.0 & Schedule of Quantities.
		2. This tender specification shall be read in conjunction with other documents enclosed with the NIT.
	4. **SITE VISIT AND OTHER REQUIREMENTS**
		1. The bidder shall visit the site, study drawings/ documents and discuss with the employer/ consultant, if required, regarding any technical clarification and get satisfied with respect to the nature and extent of work involved. The bidder shall also obtain first-hand information regarding location, work terrain, climate condition, railways, roads, airports and communication etc. before offering the bid for the job.
		2. Any local factors, if felt by the bidder, must be factored in before quoting for the work. No separate payment shall be made towards this. The quoted rates shall be considered as inclusive of cost towards these factors.
		3. All materials/ equipment/ machinery/ fabricated items used in the subject package shall be according to the specification given herein.
		4. Bidder has to accept all terms and conditions without any exclusions and deviations.
	5. **SCHEDULES TO BE DULY FILLED AND SUBMITTED WITH THE BID**

|  |  |
| --- | --- |
| 1.6-1 | Declaration of site visit |
| 1.6-2 | Details of contact persons for furnishing clarifications during tender evaluation |

1. **SCOPE OF WORK**
	1. **GENERAL**
		1. The bidder shall be responsible for execution of the jobs envisaged for UG mapping on Item Rate basis.
		2. The scope of works includes mobilization of equipment at site including hire charges, procurement / purchase cost, transportation charges, taxes/duties, setting up of the equipment, etc. The scope covers procurement and supply of all consumables, analysis of the data and presenting findings in a report.
		3. The scope of work shall cover all works and by-works as mentioned in the schedule of quantities (**Schedule 2.1.3-1** of this document) and supported and supplemented by the specifications mentioned in the document.
		4. All work shall be completed in all respects and final report submitted for approval within **2 months** from the date of issue of Award Letter / LOI. The observations/comments on the final report from the employer/consultant, if any, shall be incorporated and submitted within **15 days**.
		5. Quantities indicated in the schedule of quantities are to be considered for submission of the bids. Actual amount payable shall be based on actual site measurement approved by the employer or their authorised representative. The unit rate quoted by the bidder shall be firm for the total amount irrespective of the quantity variation.
		6. Utmost care shall be taken by the bidder to ensure that no damage is caused to existing underground service lines during excavation etc. The bidder shall make test trenches to ascertain their presence and take appropriate steps to safe guard them. In case any damage is caused to the services, the same will be made good by the bidder without any additional financial implication.
		7. Any existing underground cables, pipes encountered during course of execution shall be suitably taken care of by bidder in consultation with the employer/ consultant.
	2. **SCOPE OF WORK**
		1. **Underground Mapping**

The following shall broadly constitute the scope of work:

* + - * 1. Clearing bushes, shrubs and other vegetation over the area of surveying to enable carrying out survey work.
				2. Transferring the reference lines and level from the established benchmarks maintained in the vicinity of the proposed site.
				3. Establishing permanent benchmarks and grid points at suitable locations after transferring the coordinates from a suitable location.
				4. Carry out underground survey using Ground Penetrating Radar (GPR) technology over the area marked in the enclosed drawing no. **CET RN CE0 00 001 R=0.** Underground survey shall be carried out to locate and map underground utilities, metallic or non-metallic objects such as gas lines, communication lines, sewer lines, service lines, foundation, tunnels, cellar, storage tanks, pipes etc. in various soils including location and depth including submission of report and drawing. Excavation for confirmation of underground facilities, if required, shall also be under the scope of the bidder
				5. Construction of permanent benchmarks at suitable locations. Survey drawing(s) to be prepared by the bidder, shall indicate the location with coordinates (plant co-ordinate system shall be followed) and levels of existing structures & facilities within the marked area.
		1. **Drawings and technical documents:**

The following shall broadly constitute the scope of work:

* + - * 1. Submission of results of UG mapping in drawing format indicating the indicate the location, with coordinates (plant co-ordinate system shall be followed), levels and size/extent of existing underground structures, pipe lines, cables, tunnels, trenches & any other underground facilities within the marked area etc.

Extent of major overground permanent facilities such as boundary wall, building, road, railway track, bridge, culverts etc. shall also be indicated in the drawing.

* + - * 1. Editable format soft copies on CD/DVD of all drawings and documents shall be supplied by the bidder.
	1. **HANDING OVER SITE**
		1. On completion of work, all rubbish, debris, temporary supports, enabling structures etc. shall be removed from the site and the site (including the storage site) shall be handed over to employer in a tidy manner. All scrap, muck, etc. shall be dumped suitably at specified places within a lead distance of 2km, as directed by the employer. If the bidder fails to clean up the site within a reasonable period of completion of erection, the employer may do so at the expense of the bidder.
		2. Throughout the execution of the work, the bidder shall perform cleaning on a day-to-day basis.
		3. The bidder will identify any hazard / risks which may result in fatal accidents / severe damage to human health and safety, damage to equipment and material resulting in loss of time and having cost implication. The bidder will carry out the above assessment and formulate appropriate action plan to prevent such incidents. This action plan shall be submitted to the Employer before start of the work.
1. **TECHNICAL SPECIFICATIONS**
	1. **GENERAL**
		1. **General information on site:**

Bokaro Steel Plant (BSL) is situated at Bokaro Steel City in the Boakro district of Jharkhand State, India. It is well connected by both railways and road transport.

* + 1. **Climatic Condition**

Local climatic conditions are as follows:

|  |  |  |
| --- | --- | --- |
| 1. | Elevation above MSL | 222 m |
| 2. | Maximum temperature | 50oC |
| 3. | Minimum temperature | 8oC |
| 4. | Relative Humidity | 100% (max.) and 22% (min) |

However, maximum temperature and maximum relative humidity shall not occur at the same time.

* + 1. **Connectivity**

The nearest Railway station is Bokaro Steel City on the main Patna Ranchi line. The plant site is about 10 km from the Railway station. The nearest domestic airport is at Ranchi, which is around 125 km away from Bokaro.

* + 1. **Communication Facilities**

Postal, telegraph, telephone, fax & internet facilities are available at Bokaro.

* 1. **PROCESS AND TECHNOLOGY**
		1. **Benchmarks**
			1. Coordinate of the permanent benchmark shall be taken as origin for plant coordinate system if not already available.
			2. Permanent bench mark statue at suitable location within the plot shall be established & constructed for the proposed site. Determination of the bench mark elevations with reference to the existing bench mark and determination of plot north with respect to magnetic north shall be done and marked hereby on the permanent benchmarks. The detail drawing of bench mark is indicated in drawing no **CET RN CE0 00 003 R=0.**
			3. Barbed wire fencing (of height 2 m) shall be provided as protective enclosure for the permanent benchmark while ensuring easy accessibility for future reference, as directed by EIC.
	2. **UNDERGROUND MAPPING**
		1. The underground mapping/survey shall be carried out covering the area shown in the enclosed drawing**.** Additional information such as the layout (location/extent/size/level) of existing facilities such as drains, manhole locations, underground tunnel, cables, pipelines etc., shall also be indicated.
		2. The underground mapping/survey shall be carried out by Ground Penetration Radar (GPR) and data shall be downloaded from the same. Necessary survey maps/ drawings shall be prepared both in digitized and Auto CAD form.
		3. The level of all the underground lines (pipes and cables, if any) shall also be indicated. While measuring the exact level of the underground lines, if due to safety consideration the measurement is not possible / feasible; the tentative location with approximate location of the same shall be indicated in the Survey Drawing.
	3. **REPORT**

The final report shall contain underground mapping/drawings.

* + 1. **Underground Mapping**
			1. Underground survey drawings shall indicate the levels / depths, location/size/extent of existing underground facilities, etc.

**DECLARATION FOR SITE VISIT**

(To be filled up by the Bidder)

I, hereby, declare that I have visited the site to understand the site conditions, and acquainted myself with atmosphere prevalent therein. I have also understood the extent of total works involved for this package.

|  |  |
| --- | --- |
|  | Signature of the Bidder: |
| Seal of company | Name: |
|  | Designation: |

**DETAILS OF AUTHORISED PERSON DURING TENDER EVALUATION STAGE**

1. Name of Project :
2. Tender No. :
3. Name & Address of Bidder :
4. Name of authorised person (TECHNICAL) :
5. Email address :
6. Mobile No. :
7. Name of alternate authorised person (TECH) :
8. Email address :
9. Mobile No. :
10. Name of authorized person (COMMERCIAL) :
11. Email address :
12. Mobile No. :
13. Name of alternate authorised person (COMM) :
14. Email address :
15. Mobile No. :

Authorised Signatory

| **Item No.** | **Description** | **Unit** | **Qty.** | **Rate** | **Amount** |
| --- | --- | --- | --- | --- | --- |
| 1 | Clearing jungle including uprooting of rank vegetation, grass, bush and saplings and removal of rubbish up to a distance of 2 km outside the periphery of the area cleared. | sqm |  |  |  |
| 2 | Construction of **Permanent Bench Mark** (As per details in drawings) in RCC and **Local Bench Mark** in PCC in grid of 100 m x 100 m (as per Chapter 3 of this TS).(The item includes providing & placing all materials, excavation, PCC, RCC reinforcement, protective enclosure, inserts, shuttering, curing, tools, tackles, consumables, labour etc. complete. | Nos. |  |  |  |
| 3 | Manual Excavation in all types of soil including bailing / pumping out of water from the excavated pits and backfilling the excavated pits with soil from after inspection by Engineer-in-charge, all materials and labour complete. The item also includes dismantling of boulder soling; PCC and RCC encountered at the location of boreholes and same shall be restored back after completion of the task and debris etc. disposed off at designated place within a lead of 2 Km. | cum |  |  |  |
| 4 | Conducting **underground survey** by Ground Penetrating Radar (GPR) over the area shown in attached drawings and the areas assigned/indicated by Engineer in charge. Underground survey shall be carried out to locate and map underground utilities, metallic or non-metallic objects such as gas lines, communication lines, sewer lines, service lines, foundation, tunnels, cellar, storage tanks, pipes etc. in various soils including location, up to the depth of 6m from ground level. Locating the position and size/extent of existing underground structures, facilities in the drawing to be prepared by the bidder, including preparation and submission of drawings (10 copies of the drawings, 02 soft copy in AutoCAD drawing format in CD).The item also includes fixing & locating reference lines & existing physical facilities on the ground, using total station & other survey equipment along with representing these features in the drawings as mentioned above.  | sqm | 21000 |  |  |