National Highways & Infrastructure Development Corporation Ltd.

Subject: Carrying out Airborne Electromagnetic Survey (AEM) in the state of Jammu & Kashmir for the following proposed tunnels:
(i) Zojila Tunnel
(ii) Lachalung La Tunnel
(iii) Tanglang La Tunnel
(iv) Shinkun La Tunnel.

Amendment No. 2

<table>
<tr><th>Sl. no</th><th>Clause</th><th>Existing</th><th>Modified (To be read as)</th></tr>
<tr><td>1.</td><td>Reply to queries of bidders</td><td>-</td><td>As per Annexure-I</td></tr>
<tr><td>2.</td><td>Schedule of Quantities for Pilot Project</td><td>-</td><td>As per Annexure-II</td></tr>
<tr><td>3.</td><td>Clause 13 of NIT</td><td><table>
<tr><td>Date of start of submission of Tender/Bid (online)</td><td>04.03.2019
(10.00 Hrs)</td></tr>
<tr><td>Date of end of submission of Tender/Bid (online)</td><td>11.03.2019
(upto 1600 Hrs)</td></tr>
<tr><td>Date of opening of Bid</td><td>12.03.2019
(1630 Hrs)</td></tr>
</table></td><td><table>
<tr><td>Date of start of submission of Tender/Bid (online)</td><td>04.03.2019
(10.00 Hrs)</td></tr>
<tr><td>Date of end of submission of Tender/Bid (online)</td><td>18.03.2019
(upto 1100 Hrs)</td></tr>
<tr><td>Date of opening of Bid</td><td>19.03.2019
(1130 Hrs)</td></tr>
</table></td></tr>
</table>

REPLIES TO THE QUERIES OF BIDDERS

Clause	Description	Suggestions/Query	NHIDCL's reply
	As a foreign company, we prefer to receive payment in USD, where as in your document payment is in INR. As informed to you in our earlier communication dated 31.01.2019, for this project, we will be bidding in cooperation and partnership with our Indian Partner,. They would be the principle bidder for this work and if this work is awarded to them, we would be carrying out the AEM survey for our partner.		As per the provision of the bid, the payment will be released in INR by NHIDCL. We do not have any objection to your bidding in association with your Indian partner as principal bidder. However, a copy of the agreement between you and your Indian partner must be submitted along with the bid, clearly specifying that you will be responsible for carrying out AEM survey and its interpretations.
Appendix I, TOR, Clause 3.1	The purpose of electromagnetic (EM) methods is to delineate the subsurface resistivity distribution. It measures the distortion of the EM field which is caused by local changes of the electrical resistivity. The AEM Survey preferably be carried out using dual transmitter mode configuration with a low moment (LM) and a high moment (HM) with a stronger peak moment (or any other equivalent technology), capable of a good trade-off between near surface resolution starting at **5** to **10** m and sufficient depth of investigation down to **400** to **800** m.	To make this particular specification a neutral specification we request to modify this clause as below *The purpose of electromagnetic (EM) methods is to delineate the subsurface resistivity distribution. It measures the distortion of the EM field which is caused by local changes of the electrical resistivity. The AEM Survey preferably ~~be carried out using dual transmitter mode configuration with a low moment (LM) and a high moment (HM) with a stronger peak moment (or any other equivalent technology),~~ <u>should be</u> capable of a good trade-off between near surface resolution starting at **5** to **10** m and sufficient depth of investigation down to **400** to **800** m.*	Use of any other technology which is capable of good trade of between near surface resolution and also at sufficient depth of investigation down to 400 m to 800 m.
Appendix I, TOR, Clause 4	The Client will provide suitable helicopter along with trained pilots to carry out the AEM survey.	Please find attached Annexure 1 with our understanding	NHIDCL will provide the various items mentioned in Annexure-I except Import/Export formality documentation for equipment which has to be carried out by the successful bidder. However, NHIDCL shall provide necessary recommendation letters and certifications for submission to the custom authorities.

Appendix I, TOR, Clause 4	The Consultant shall provide training to the Engineers of NHIDCL in 02 Batches. Each batch shall consist of 4 Nos. Engineers. The Consultant shall make suitable arrangements for the training purpose which shall include travel arrangements, lodging, boarding and food arrangements, etc. for the Engineers. The expenses for the training, transportation, lodging, boarding and food, etc. of the Engineers shall be borne by the Consultant.	Can you please confirm the location of training and no of days? We can provide training in South Africa and Canada. Based on your input we would be able to work out financial cost for the same.	The choice of location of training rests with the successful bidder. Consultant to quote accordingly keeping in view the requirements mentioned in the RFP.
Form III, BOQ, Schedule A	Sr. No 4 - Lodging and Boarding	As indicated in the document, our crew would have between 3 to 5 foreign nationals depending upon site requirement and risk assessment and 5 to 8 Indian nationals. Overall team size on site would be more than 10. Please allow the same.	The bidder is required to quote per day rates for all the crew and other member irrespective of no. of Foreign Nationals or Indian Nationals. The item description under Sr. No. 1.04 in the uploaded BOQ may be read as: "Lodging, Boarding, Local Transportation charges and all other charges for entire manpower deployed"
Form III, BOQ, Schedule A	Sr. No 5 - Stand by charges	Definition of standby is not clear. Based on tender document and our standard terms and condition we proposed below mention as. -- Any delay associated with NHIDCL not fulfilling its responsibilities as set out in Annexure 1 - RESPONSIBILITIES. • Survey production is less than 25 km per day after the equipment is installed; • The helicopter is inoperable for any reason; • Unavailability of on-site fuel for the helicopter • Weather conditions prevent the crew from performing their duties; • Weather conditions prevent the crew to complete the installation; • Weather conditions prevent the crew from leaving the site after the survey is completed; • We awaiting your confirmation for demobilization; Standby charges will also apply for all days, or part	The standby charges may be defined as: Any delay associated with NHIDCL not fulfilling its following responsibilities: • Survey production is less than 25 km per day after the equipment is installed; • The helicopter is inoperable for any reason; • Unavailability of on-site fuel for the helicopter • Weather conditions prevent the crew from performing their duties; • Weather conditions prevent the crew to complete the installation; • Weather conditions prevent the crew from leaving the site after the survey is completed; • Crew awaiting for confirmation for demobilization; • Standby charges will also apply for all days, or part days that are lost due to delays in acquiring local permits and licenses, as well as the unavailability of on-site fuel for the helicopter.

<table>
<tr><td></td><td></td><td>days that are lost due to delays in acquiring local permits and licenses, as well as the unavailability of on-site fuel for the helicopter.</td><td></td></tr>
<tr><td></td><td></td><td>We require further clarification and assurances before we are comfortable undertaking a commercial survey under these challenging conditions.

Our associate has never flown with the proposed military helicopter type before. Potentially, this larger helicopter type could have a severely detrimental effect on the data quality due to additional sources of error (eddy currents flowing in the helicopter) and vibrational noise stemming from the turbulence created by the helicopter.
Part of the survey is carried out in heights between 4000-5100 metres above sea level where the oxygen partial pressure is significantly lower than at sea level. This means that the generator powering the system has lower performance and in the worst case, it may cause malfunction.
We understand that although Ladakh is a fairly quiet region, the Jammu and Kashmir region is considered a high risk area our Foreign Ministries. The safety of deploying our personnel is a major concern to us and needs to be assessed in detail, which is a time-consuming task.

Against this backdrop, we recommend that tests (“Pilot Project”) are conducted with the proposed military helicopter while towing the antenna system:

The pilot project can be used to establish (1) if adjustments to the standard configuration are required to obtain the desired data qualify and (2) whether the use of this helicopter is feasible.
The pilot project can be carried out in the low-land and not in the tall mountains.
Our associate has a long-standing working relationship with us and leased out a system to the said. This system may probably be used to carry out the pilot project in India.
</td><td>The tests (“Pilot Project”) project will be carried out after the award of work to the successful bidder to establish configuration/calibration in view of use of military helicopter. In case after carrying out the tests (“Pilot Project”), the consultant opined that it is not feasible to carry out the AEM survey work at desired location and altitude, the consultant will be compensated as per the following and services will be foreclosed without any future liability on either party:
<table>
<tr><th>Sl. No.</th><th>Item Description</th><th>Quantity</th></tr>
<tr><td>1.01</td><td>AEM survey per line km</td><td>25.000</td></tr>
<tr><td>1.02</td><td>Processing Fee per line km</td><td>25.000</td></tr>
<tr><td>1.03</td><td>Lodging, Boarding and Local Transportation for 10 days</td><td>10.000</td></tr>
<tr><td>1.04</td><td>Standby charge</td><td>2.000</td></tr>
<tr><td>1.05</td><td>Mobilization and Demobilization cost</td><td>1.000</td></tr>
</table></td></tr>
</table>

		By performing the pilot project along with some additional investigations, it will be possible to establish a sound basis for planning and executing the four tunnel surveys in the autumn after the monsoon.	

Schedule of Quantities for Pilot Project

Sl. No.	Item Description	Quantity
1	2	3
1.01	AEM survey per line km	25.000
1.02	Processing Fee per line km	25.000
1.03	Lodging, Boarding and Local Transportation for 10 days	10.000
1.04	Standby charge	2.000
1.05	Mobilization and Demobilization cost	1.000

Note: The quantities against various heads for the Pilot Project are fixed as per the format above. The prospective bidders shall quote their rates accordingly in the uploaded BoQ. The rates quoted & uploaded in BoQ shall be considered for the Pilot Project also against the quantities mentioned above.