

Responses to the Queries (04.06.2022)

Bid for Selection of Agency for Supply, installation, commissioning and maintenance of Broadband Seismographs (Broadband Seismometer), Digital Data Acquisition System (i.e. DAS) for BBS & Power Supply System on behalf of Institute of Seismological Research (ISR), Gandhinagar, Department of Science & Technology, Govt. of Gujarat. (Bid Number: GEM/2022/B/2159958)				
S. No.	Bidding Document Reference(s) (Clause & Page Number)	Content of RFP Requiring Clarification	Points of Clarification required	Responses to the Queries
1	Page no. 6 of 19 under important note in the heading of Scope of work and additional terms and conditions.	Bidder will have to merge the existing set-ups with the new set up on a single server for data acquisition and seismicity monitoring.	<p>A. Can ISR Provide us with a flow -diagram of the data processing architecture? What data formats they are using from computer-to-computer, flow diagram, where is data first received and what format etc.</p> <p>B. What is existing on line data retrieving software? And what format is it taking?</p>	<p>A. CRS , ISR data flow diagram is attached as Annexure-I.</p> <p>B. Online data is being received on three systems i.e. Scream (GCF), RT View (Reftek) and Apollo View/ Apollo server (NMX)</p>
2	Page no. 5 of 19 under Configuration and analysis software	Online data receiving Software should have the capability of receiving the continuous on line data, viewing data with different user selectable filter options along with data retrieval and data processing facility.	Please confirm if “remote Access” is attainable to Reftek to better understand the software architecture? Is any demonstration required before opening of price bids? If yes, Can the “demonstration “be conducted remotely.	Remote Access is not attainable to any bidder. Demonstration, if required can be conducted online remotely.
3	Clause No. 22, page 2 of 19 under the heading scope of work &	Rugged field carry case for seismometer should be provided.	Is it a Peli Case with or without castor wheels?	Carry case without castor wheels.

	additional terms & conditions			
4	Page 8 of 19 Clause 5.	Prices shall be inclusive of all duties. The prices shall strictly be submitted in the given format. Prices shall be inclusive of all the taxes including GST, custom duty which shall be applicable where ever written in the tender documents.	What is the GST rate applicable to ISR? Will ISR provide the concessional Customs Duty and GST Exemption Certificate to the Bidder?	The GST Rate to be considered @ 5 % as per exception certificate. Custom Duty to be considered @ 7% as per exemption certificate. These two must be uniform for all the bidders, based on which evaluation will be made. Exemption certificates or other documents required to claim exemption will be provided by ISR. However, if the exemption is denied by the authority, in that case actual GST & Custom duty will be paid by ISR.
5	Page 6 of 19 under the heading scope of work & additional terms & conditions	The bidder will have to supply, install, commission, & maintain and provide operational training for supplied BBSs, DAS & power supply system. Bidder will also demonstrate the workability with the existing setup of ISR, Gandhinagar for 2 days (continuous) after installation at remote sites.	Installation is to be done by the Bidder at the remote sites? If yes please provide the complete address of all the 40 sites for commercial calculations.	list is attached as Annexure-II
6	9 of 19 under additional terms & conditions	Installation period	Also installation within 60 days is not possible if it is to be done at 40 remote sites.	installation may be done within 120 days

7	9 of 19 under additional terms & conditions	Delivery period	Please extend the delivery within 180 days from 120 days	delivery date is extended to 150 working days
8	Clause no. 17, page 11 of 19 under additional terms& conditions	Payment Terms.	Please consider the payment terms 50% advance along with purchase order as it requires a huge investment on the part of bidder by making upfront payments of customs duty, local purchase of power systems for 40 sites, deposit of GST to the authorities within 30 days from the date of invoice and submission of 5% PBG of the contract value. PBG is to be submitted for the amount including the GST or excluding?	No Change. PBG is to be submitted on awarded contract value which includes all the taxes and duties.
9	Note 16.2, page 10 of 19 under additional terms & conditions	Successful bidder should submit the Performance Bank Guarantee @ 10% of the total order value for the duration of (for warranty period + extra 3 months) as per bid requirements	Is PBG 5% or 10 % ? Refer to the Bid Details	PBG is 5%
10	Page no.6 of 19	Bidder will have to merge the exiting set-ups with the new set up on a single server for data acquisition and seismicity monitoring	We need to have the remotely access to see what type of data format is recording and what Software ISR is using.	Remote access will be provided after deciding the 'L1'. Information regarding software etc. is attached in Annexure-I
11	Point no.2 of the Technical Specification of Broad Band Seismometer	Noise Response must be below USGS Noise Model (NLNM) in the frequency Range of 80 Sec to 10 Hz	As per Principal Experience the noise level 20 Sec to 10 Hz is more than sufficient. So, we request you to please change the interval to 20 Sec to 10 Hz.	No change

12	Page 5 of 19 under the heading scope of work	The bidder have to supply, install, commission & maintain..... remote sites	Please provide the address of the all the 40 sites.	Please see the Annexure-II
13	Page 9 of 19 additional terms and conditions	Regarding Delivery period	Please extend the delivery schedule period 180 days instead of 120 days.	Delivery is extended to 150 working days
14	Page no. 11 of 19	Payment Terms	We request you to please consider at least 50-60 % advance payment along with the purchase order as there are lots of items which are outsource and we have to pay in advance to the vendors.	No change
15	Page no. 8 of 19 clause no. 9		Can ISR will give the concessional CDEC and what is the GST for ISR?	Yes, ISR as scientific research institute do have exemption, which will be shared/provided to the successful bidder.
16	Item No. 1 – BBS – Point No.8 – Page 2 - Mass centering	i. Control unit for mass position monitoring and mass centering to be provided. ii. Temperature range without re-centering +/- 20°C to 60°C	Please change Temperature range without re-centering to =/- 20°C to 45°C	Temperature range without re-centering to +/- 20°C to 45°C will be accepted
17	Item No.2 - Data Acquisition System for BBS Technical Specifications Point 23 – Page No.5	Power Supply a) Supply voltage 9-24Volts DC	Request to please change this to 10-36 Volts DC	Power Supply a) Supply voltage 10-24Volts DC will be accepted

18	<p>Item No:4 Power system – Secondary with battery (75 Amp., 12 V, SMF) + Charger + Stabilizer, and all cables, connectors etc. – Page No.6</p>	<p>Spares: - GPS-10 nos., Charger- 40 nos., and power cable – 5 Nos + LAN cable- 5 Nos + sensor cable- 5 Nos. are to be supplied as spares.</p>	<p>Please explain you want 40+40 additional = 80 Chargers?</p>	<p>yes, 80 chargers are required</p>
19	<p>Item No: Important Note. – Page No. 6</p>	<p>Important Note - The data is to be streamed using 4 G/5 G SIM enabled modem. Modems should have external extended antenna facility in case there is low signal quality at remote seismic stations. The proposed tender work is regarding supply, installation, commissioning of seismic instruments, power systems and its accessories & maintaining these up to 2 years (warranty period) along with integration with the existing set up of ISR on turn to key basis.</p>	<p>Please confirm ISR will provide Sim Card with Data Plan and Static IP at control station.</p>	<p>SIM card will be provided. Static IP is to be arranged by the bidder, ISR will provide the necessary documents.</p>

20	Point 15- 15.1 – Page No. 10	15.1 Warranty: Comprehensive onsite warranty for two-year warranty period from the date of demonstration of 40 BBS at ISR acceptance of the goods.2 years from the date of installation of BBSs, DAS, solar power set, Battery & Battery charger set.	Please confirm Warranty Period 2 years from date of acceptance or 2 years from date of installation?	Warranty 2 years from the date of installation. Schedule of installation will be in 2 or 3 phases. Same will be informed after delivery.
21		Location of all 40 stations where BBS are to be installed.	Please confirm	please see the Annexure-II
22		ISR will provide all the Custom Duty Exemptions/ GST Exemption Certificates and Custom Clearance Documents	Please confirm	Yes
23		IGST applicable will be 18% or 5% here?	Please confirm	5% as per exemption notification.
24	Broadband Seismometer (with all cables, connectors) Point No.8 Mass Centering	Control unit for mass position monitoring and mass centering to be provided.	Why is a separate box required for monitoring the mass position? This can be monitored and centered through the digitizer. This can be possible through the any android mobile using provided Android App	Separate control unit for mass position monitoring and centering is not required. Same should be attainable through remote access at CRS and on field laptop.

25	Data Acquisition System for BBS (with all cables, connectors, GPS etc.) Point No.16 Status display	Status display built into the recorder for Power, data acquisition, SOH, GPS etc. should be provided. External status display will be accepted. In case of external display, the bidder has to provide individual external palmtop/any suitable other device with each recorder unit.	Please confirm this can be through: Through LED Indicator Display Or, Through LED Digital Display Or, Through LCD Display	Status display by LED indicator display, or LED/ LCD display will be accepted.
26	Data Acquisition System Point No.28 Modem	4G –SIM support, Operator independent, Remote login, FTP support with display, AC –DC operative with extended antenna for remote sites.	Modem can have LED indicator display. Please confirm	Yes.
27	Point No.4.1 Page No.8 of 19	if the bidder fails to deliver any or all of the Goods within 120 working days from the date of purchase order, or within any extension thereof granted by the Purchaser	Kindly extend to 180 days	Delivery: within 150 working days
28	Point No. 9 Page No.9 of 19	Delivery: within 120 working days	Kindly make this to 180 days (as the semiconductor supply completed disrupted due to Covid-19 pandemic issue)	
29	SOW & ATC: Technical Specification's: BBS	Output Voltage- $\pm 20V$ peak to peak differential	We hope ISR requested 40V peak to peak output. Please clarify. We request you to change the	It is $\pm 20V$ differential /40V peak to peak.

	Page #1/19 Point#4		specification as “±20V differential” or “40V peak to peak”.	
30	SOW & ATC: Technical Specification's: Item no 1 -BBS Page #2/19 Point#22	Rugged field carry case for seismometer should be provided	Shall we supply the rugged field carry case from India?	Field carry case from India will be accepted.
31	Scope of Work & ATC: Page #8/19, Point # 6.	Price shall be inclusive of all freight, forwarding, transit insurance and installation charges at remote seismic stations. Minor civil and electrical works necessary for installation will have to be carried out by the bidder/supplier at no extra cost to purchaser/ISR.	To calculate the price work for minor civil and electrical work, it is mandatory to know the conditions of the remote site. So please provide remote site details for 40 stations.	Please see the Annexure-III
32	Scope of Work & ATC: Page# 6/19	Spares: - GPS-10 nos., Charger- 40 nos., and power cable – 5 Nos + LAN cable- 5 Nos + sensor cable- 5 Nos. are to be supplied as spares.	We request you to add the line-item “spares” in this Financial Bid Format.	Price is to be included within the cost of Data Acquisition System.
33	SOW & ATC: Point # 09, Page# 9/19	Delivery & installation: 120 working days	Considering the Pandemic (COVID_19) and Quantity (40 no's) of the system, we request that the delivery period be extended to 150 working days.	Delivery: 150 working days & installation period: 120 working days
34	SOW & ATC: Point # 5, Page # 8/19	Prices shall be inclusive of all taxes including GST, custom duty.	Will GIL/ISR issue the concession certificate for the Custom duty and GST? Or	Yes, ISR will provide exemption certificates to the successful bidder. GST @ 5 % and Custom Duty @ 7 % will be considered.

			shall we calculate the full custom duty & GST?	
35	SOW & ATC: Point # 23, Page # 11/19	EMD: EMD as mentioned in the bid, shall be submitted in the form of Demand Draft OR RTGS OR in the form of an unconditional Bank Guarantee of any Nationalized Bank.	Can we submit a Fixed Deposit Receipt (FDR) in lieu of a bank guarantee? Please clarify.	No
36	Bid Document: Page 1/7, Point # 1	Bid End Date/Time: 02-06-2022 18:00:00	We request that you extend the Bid submission deadline by a further 4 weeks (i.e. 30-7-2022) which will enable us to quote the bid more accurately. Please clarify.	Last Date extended.
37	Scope of work & ATC: Technical Specification's: BBS Page #2/19 Point#18	Operating Temperature: 0° to 60° C.	We request you to consider the specification as "-20° C to 60° C.	No change
38	SOW & ATC: Technical Specification's: BBS Page #2/19 Point#25	Suitable enclosure with thermocol of suitable size should also be provided to in-house Broadband Seismometer, cables etc.	We request you to provide more details about this enclosure and purpose. We hope the thermal insulation cover which is mentioned in the point number 21 is sufficient to install at field. Please confirm.	Thermal insulation cover will be accepted. Additional enclosure is not required
39	SOW & ATC: Technical Specification's: DAS: Page #5/19 Point#24	Operating Temperature: 0° to 60° C.	We request you to consider the specification as "-20° C to 60° C.	No change

40	SOW & ATC: Technical Specification's: DAS: Page #4/19 Point#16	Status display built into the recorder for Power, data acquisition, SOH, GPS etc. should be provided. External status display will be accepted. In case of external display, the bidder has to provide individual external palmtop/any suitable other device with each recorder unit.	Our DAS (Centaur) has LED indicator to monitor the Power, data acquisition, SOH, GPS. We hope the indicators will solve the purpose and external display may not be required. We request ISR to accept the same. Please confirm.	LED indicator to monitor the Power, data acquisition, SOH, GPS will be accepted. External palmtop/any suitable other device with each recorder unit is not required.
41	SOW & ATC: Technical Specification's: DAS: Page #5/19 Point#28	Modem: 4G-SIM support, Operator independent, Remote login, FTP support with display, AC -DC operative with extended antenna for remote sites.	We hope SIM card with data plan will be provide by ISR. Please confirm whether static IP will be provided by ISR for Modem at field station?	SIM card with data plan will be provided by ISR. Static IP will have to be arranged by the bidder. ISR will provide the necessary documents.
42	Scope of Work & ATC: Page #8/19, Point # 6.	Price shall be inclusive of all freight, forwarding, transit insurance and installation charges at remote seismic stations. Minor civil and electrical works necessary for installation will have to be carried out by the bidder/supplier at no extra cost to purchaser/ISR.	Please provide more details about minor civil & electrical work need to be done at each site. Please provide diagram for seismic pier, if seismic pier needs to be constructed at any site.	Please see the Annexure-III
43	Item No. 1 Technical Minimum Specification (Broadband Seismometer) Point no. 8, Page 1	Mass centering i. Control unit for mass position monitoring and mass centering to be provided.	Controlling position, centering and locking/ unlocking of BBS can be done using Data Acquisition System. Please clarify if manual Hand held control unit for mass centering and locking/ unlocking is also required.	Manual hand held control unit is not required. Mass centering should be attainable through remote access at CRS and on field laptop

44	Item No. 2 Technical Specification of Digital Data Acquisition System for BBS Point no. 16, Page 4	Status display Status display built into the recorder for Power, data acquisition, SOH, GPS etc. should be provided. External status display will be accepted. In case of external display, the bidder has to provide individual external palmtop/any suitable other device with each recorder unit.	We propose to provide a laptop with each Data Acquisition System.	Ok
45	Item No. 2 Technical Specification of Digital Data Acquisition System for BBS Point no. 22, Page 4	VSAT connectivity d) Duplex communication between field and both hubs.	Please clarify the meaning of “both hubs”. Also, please clarify if VSAT’s are already available at all the BBS remote locations and ISR, Gandhinagar.	Communication between field and single HUB is required. However, DAS should be able to support streaming of data in multicast mode also. VSAT are available.
46	Item No. 2 Technical Specification of Digital Data Acquisition System for BBS Point no. 28, Page 5	Modem 4G –SIM support, Operator independent, Remote login, FTP support with display, AC –DC operative with extended antenna for remote sites.	Please clarify if the data of all the Broadband Seismometers need to be transmitted through VSAT or GSM modem.	Both options are required. Bidder will have to configure and demonstrate the data communication using the 4G SIM modem at all the 40 stations. DAS should also support the VSAT communication

47	Item No. 2 Technical Specification of Digital Data Acquisition System for BBS Point no. 29, Page 5	Primary power source: Solar Power Set Solar panel, charge controller, Tubular battery, Mounting Rod, and all cables, connectors etc. so that power back up of minimum 7 days for BBS + DAS + Modem +GPS is there.	Please let us have the list of locations where these BBS needs to be installed, to calculate the Solar system for 7 days autonomy.	Please see the Annexure II
48	Item No. 2 Technical Specification of Digital Data Acquisition System for BBS Point no. 30, Page 5	Secondary power source: Battery + Battery Charger + stabilizer a. Battery: Exide / Amaron, 75 Amp. 12 V SMF or similar	Extra Battery may not be required as it will be common for Primary as well as Secondary source. Please confirm.	Separate battery is required for secondary source.
49	Item No. 2 Technical Specification of Digital Data Acquisition System for BBS Point no. 32, Page 5	Configuration and Analysis software 1) Online data receiving Software should have the capability of receiving the continuous online data, viewing data with different user Selectable filter options along with data retrieval and data processing facility. The online continuous data should be integrated with the existing setup of ISR. The license should be provided free of cost for lifetime (minimum 10 years)	Please let us have the details of existing setup of ISR.	Please see the Annexure -I

50	Other		There is no mention towards Lightning Protection of equipment or Observatory in the Tender. Please confirm if the Lightning Protection covering the Observatory and proper Earthing pits are available at each station.	Lightening Protection covering the Observatory and proper Earthing pits are not available AND Lightning Protection and earthing work with pit etc., will have to be provided by the bidder at each seismic stations.
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Annexure -I

Existing set up and Data flow at CRS, ISR

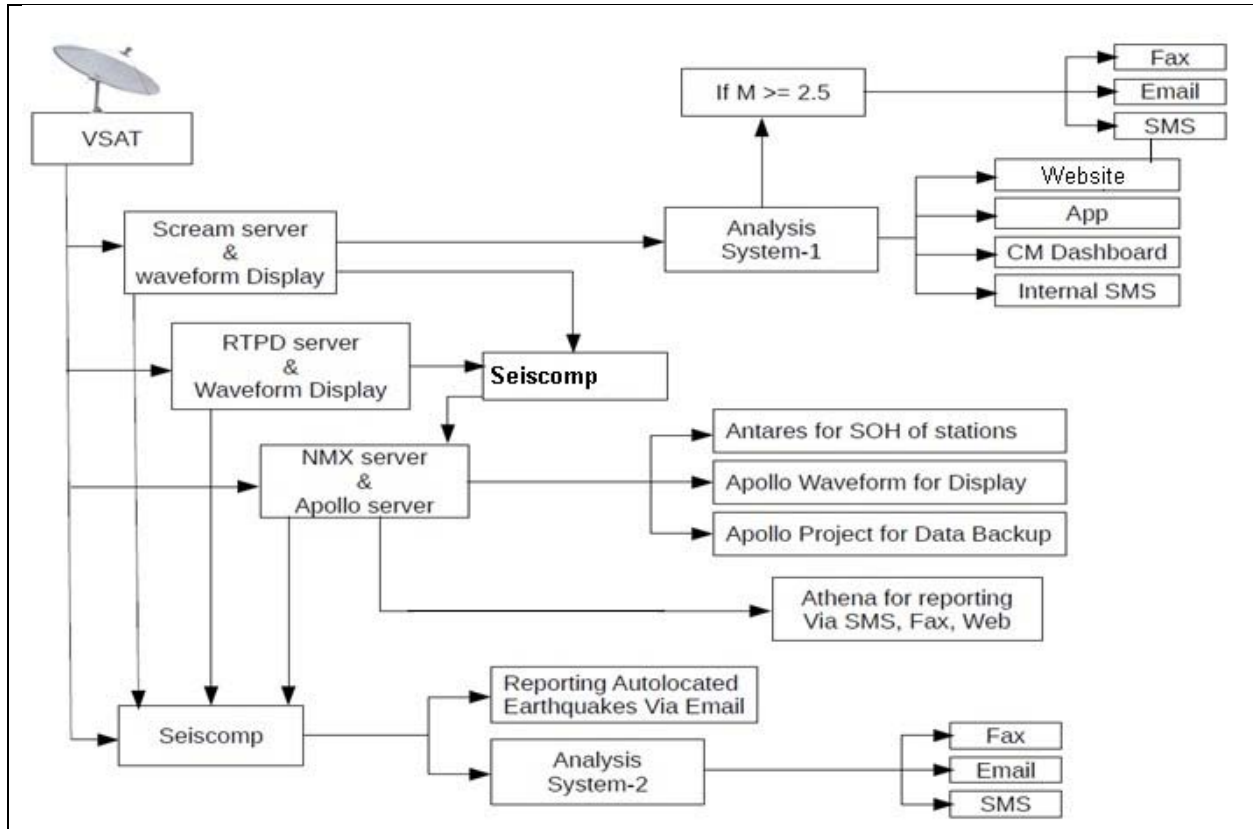


Figure showing the data flow at CRS, ISR

Specifications of computer systems installed in CRS-1

Sr. No.	Particulars	Configuration	Remarks
1	Online Data viewing and acquisition System-1	Model: - Dell Optiplex 9020 , Processor: - Intel core i7 – 4770 3.40 GHz ,Ram: - 8 GB , Storage: - 1 TB , OS:- Windows 8.1	SCREAM Software , GCF
2	Online Data viewing and acquisition System-2	Model:- Dell Precision T5500, Processor:- Intel® Xeon ® CPU E5630 2.53 GHz , RAM 6 GB, Storage 1 TB, OS:- Windows	Apollo viewer, connected with Apollo server , NMX
3	Online Data viewing acquisition, System - 3	Processor: - Intel core2 Duo , RAM:- 2 GB , Storage:- 120 GB , OS:- Windows	RT view software , RT format
4	Post Processing PC - 1	Processor: - Intel core2 Duo CPU E7300 2.66 GHz , Ram:- 3 GB, Storage:- 160 GB ,OS:- Windows , Model:- Dell Precision T7500, Processor:- Intel® Xeon ® CPU E5630 2.53 GHz	Connected with SCREAM server. Seisan software is used for event location.
5	Workstation	Model:- Dell Precision T7500, Processor:- Intel® Xeon ® CPU E5630 2.53 GHz , Processor:- Intel® Xeon ® CPU E5630 2.53 GHz , Ram:- 6 GB , Storage:- 1 TB , OS:- Linux	Seiscomp-1 , Receives all online data
6	SeisComP computer – 2	Processor:- Intel ® Pentium ® 4 CPU 2.80 GHz , Ram:- 2 GB , Storage:- 160 GB , OS:- Fedora (Linux)	Seiscomp-2, Receives online data.
7	Post Processing PC - 2	Model:- Lenovo Thinkcenter , Processor:- Intel® Core 2 Duo CPU E7300 @ 2.66 GHz *2 , Ram:- 3 GB , Storage:- 160 GB , OS:- Linux (Fedora 23)	Connected with SeisComP-server., Events are located using Seisan software.
8	Online Data acquisition System - 2 Workstation -	Model:- Dell Precision T7500 , Processor:- Intel® Xeon ® CPU E5630 2.53 GHz , Ram:- 6 GB , Storage:- 1 TB , OS:- Linux	Apollo server, Connected with SeisComP computer -1.

Note: Some seismic stations are being operated in offline mode and data is merged with the online data manually.

(Annexure - II)
List of 40 seismic stations

S/n	Address	Station Name	Region	State
1	Survey No.582, Dephai-Beet Tekin, Vill..Dharobana, Khavda, Ta.Bhuj, Dist. Kachchh	Khavda	Kachchh	Gujarat
2	P.H.C., Vill. Suvai Ta. Rapar, Dist. Kachchh	Suvai	Kachchh	Gujarat
3	MPGO Site, Vill. Badargadh, Ta. Rapar, Dist. Kachchh	Badargadh	Kachchh	Gujarat
4	MPGO Site, Vill. Desalpar, Ta.Rapar, Dist. Kachchh	Deshalpar	Kachchh	Gujarat
5	Rest House of R & B, Vill. Gadhada, Ta. Rapar, Dist. Kachchh	Gadhada	Kachchh	Gujarat
6	Panchayat Office, Vill. Bela, Ta. Rapar, Dist. Kachchh	Bela	Kachchh	Gujarat
7	Panchayat Office, Vill. Chobari, Ta. Bhachau, Dist. Kachchh	Chobari	Kachchh	Gujarat
8	Panchayat Office, Vill. Dhamadka, Ta. Anjar Dist. Kachchh	Dhamadka	Kachchh	Gujarat
9	Panchayat Office, Vill. Kakrava, Ta. Bhachau. Dist : Kachchh	Kakrava	Kachchh	Gujarat
10	Panchayat Office, Vill. Chadvada, Ta. Bhachau,Dist : Kachchh	Chadvada	Kachchh	Gujarat
11	Panchayat Office, Vill. Shivilakha, Ta. Bhachau,Dist : Kachchh	Shivilakha	Kachchh	Gujarat
12	Panchayat Office, Vill. Bhimasar, Ta. Anjar, Dist : Kachchh	Bhimasar	Kachchh	Gujarat
13	Panchayat Office, Vill. Bandhadi, Ta. Bhachau,Dist : Kachchh	Bandhadi	Kachchh	Gujarat
14	Panchayat office, Vill. Jangi, Ta. Bhachau, Dist. Kachchh	Jangi	Kachchh	Gujarat
15	Seismological observatory, Near Mitti Dam, Vill.Rampur, Ta.Abdasa, Dist. Kachchh	Naliya	Kachchh	Gujarat
16	P.H.C., Vill. Lakdiya, Ta. Bhachau, Dist. Kachchh	Lakdiya	Kachchh	Gujarat
17	Panchayat office, Vill. Dholavira, Ta. Bhachau, Dist. Kachchh	Dholavira	Kachchh	Gujarat
18	Panchayat office, Vill. Bharudia, Ta. Bhachau, Dist. Kachchh	Bharudiya	Kachchh	Gujarat
19	Chamber of the Dy. Executive Engineer, Salinity Centre Sub-Dn., Mandvi, Dist. Kachchh	Mandvi	Kachchh	Gujarat
20	ISR office Bhachau, Ta. Bhachau, Dist. Kachchh	Bhachau	Kachchh	
21	Record room , Mamlatdar office, Nakhtarana, Dist. Kachchh	Nakhtarana	Kachchh	Gujarat
22	Panchayat Office, Vill. Lodai, Dist. Kachchh	Lodai	Kachchh	

23	Rudramata dam, Near Bhuj, Dist. Kachchh	Rudramata	Kachchh	
24	Panchayat office, Vill. Dolatpur, Ta. Dayapar, Dist. Kachchh	Dayapar	Kachchh	Gujarat
25	Seismological observatory, Vill. Madhapar, Near Ishwariya Mahadev Temple, Ta. Rajkot, Dist. Rajkot	Rajkot	Saurashtra	Gujarat
26	Panchayat Office, Vill. Ishwariya, Ta. Babra, Dist : Amreli	Amreli	Saurashtra	Gujarat
27	Shetrunji dam, Near Palitana, Dist. Bhavnagar	Bhavnagar	Saurashtra	
28	Panchayat office, Vill. Hiranwel, Ta. Talala, Dist. Junagadh	Hiranwel	Saurashtra	Gujarat
29	Panchayat office, Vill. Bhanduri, Ta. Maliya, Dist. Junagadh	Bhanduri	Saurashtra	Gujarat
30	Office of Dy. Executive Engineer, GHED area Sub Division Porbandar city, Dist: Porbandar	Porbandar	Saurashtra	Gujarat
31	Panam dam, Ta. Shehra, Dist. Panchmahal	Panam	Mainland	Gujarat
32	Seismological observatory, Sipu Dam, Vill. Atal, Ta. Dantiwada, Sipu, Dist: Banaskantha	Sipu	North Gujarat	Gujarat
33	Seismological observatory, Dharoi Dam, Ta. Satlashana, Dist. Mehsana	Dharoi	North Gujarat	Gujarat
34	Mamlatdar Office Wav, Ta. Wav, Dist. Banaskantha	Wav	North Gujarat	Gujarat
35	Seismological observatory, Karajan Irrigation Colony Jagdiya Ta:Jagdiya, Dist. Bharuch	Jagdiya	South Gujarat	Gujarat
36	Panchayat Office, Vill. Moti Paradi, Ta. Magrol, Dist. Surat	Surat	South Gujarat	Gujarat
37	Panchayat office, Vill. Kavdej, Ta. Vasnda, Dist. Navsari	Kavdej	South Gujarat	Gujarat
38	Panchayat office, Vill. Umarwavidur, Dist. Tapi	Umarwavidur	South Gujarat	Gujarat
39	Panchayat office, Vill. Ghodvani, Ta. Chikhali, Dist. Navsari	Godvani	South Gujarat	Gujarat
40	GETCO Office, Vighukot, Ta. Bhuj, Dist. Kachchh	Vighukot	Kachchh	Gujarat

Note: There may be some changes in locations of the sites at the time of purchase order. The installation will be done in 3 phases.

Annexure III

Civil works and electrical works

Civil Works:

The civil works is to be done by the bidder during installation which involves mainly the construction of pier at seismic stations. The Bidder is to arrange for construction of seismic pier at around 20 sites, as per standard criteria indicated below, to house the seismic sensors at the selected unmanned field stations.

- i. The pier should have a platform of dimension 2'x2' with a height of 2.5' above ground and extending to a depth upto bed rock or hard soil level (or a maximum depth of 6' from the ground surface). The pier should have proper moat of 6" all around the pier right from base of the pier to the ground surface filled with dry loose sand. b) The material used for construction of pier should be homogeneous mixture of cement, sand and stone chips (of size 3/8"-1") in the ratio of 1:2:4
- ii. The seismic pier shall be constructed under the supervision of a designated officer of ISR.
- iii. The design construction diagram of the seismic-pier shall be provided. Alternatively, the vendor may propose suitable design for the installation of seismic sensor and other accessories
- iv. There should be scope to make slight changes in the location and number of field stations at the time of placing the order to finally selected bidder.

Electrical works:

The electrical works mainly involves

- i. Providing the lightning protection at 40 sites for GPS and Solar panels.
- ii. Providing suitable earthing at seismic sites such that the voltage difference between the earthing pit and neutral of the main supply is less than 2 volts.
- iii. Installation of solar module at roof top and laying of cables with conduit pipes from roof top to inside the room.
- iv. Proper laying and concealing of power and other cables inside seismic station.