

Mumbai Metro Line 3 (COLABA-BANDRA-SEEPZ)
Contract – MM3-CBS-REL-PYL
Clarification & Responses to Bid Document

16th May 2017

SI.	Section No.	Clause No. Page No.	Bid Condition	Bidder's Queries	MMRC's Response
1.	Section I - NIT	NIT, 1.1.3.1(iv), Pg. 3	A firm, who has purchased the bid document in their name, can submit the tender either as Individual firm or in joint venture/Consortium. However, the lead partner in case of JV shall be one who has experience of <i>similar work as defined below</i> .	A firm, who has purchased the bid document in their name, can submit the tender either as Individual firm or in joint venture/Consortium. However, <u>JV shall Jointly meet the technical criteria for the <i>similar work as defined below</i>.</u>	See Addendum No. 2
2	Section I: NIT			Please extend the tender due date by at-least 30 days for preparing the most competitive bid.	See Addendum No. 2
3	Section I: NIT	1.1.3.2	<p>(a) For Supply, Erection, Testing & Commissioning of EHV/HV Transmission Towers, Termination Yard Equipments & associated Civil Works:</p> <p>The Bidder should have achieved the following eligibility criteria of having successfully completed Similar works** during the last 7 years preceding 31st January 2017:</p> <p>Three Similar works** completed, costing not less than Rs. 8 Crores each.</p>	<p>(a) For Supply, Erection, Testing & Commissioning of EHV/HV Transmission Towers, Termination Yard Equipments & associated Civil Works:</p> <p>The Bidder should have achieved the following eligibility criteria of having successfully completed Similar works** during the last 7 years, as <u>on date of Bid Submission</u>.</p> <p>Three Similar works** completed, costing not less than Rs. 8 Crores each.</p> <p>OR</p> <p>Two Similar works** completed costing not less than Rs. 10 Crores each.</p>	See Addendum No. 2

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			<p>OR</p> <p>Two Similar works** completed costing not less than Rs. 10 Crores each.</p> <p>OR</p> <p>One Similar work** completed costing not less than Rs. 16 Crores.</p> <p>Similar Work(s)** is defined as <i>“Supply, Testing and Commissioning of EHV/HV Transmission Towers of 110 kV and above voltage level and/or Procurement, Supply, Erection, Testing and commissioning of various Switchyard Equipments like CTs, LAs, CR Panels, SCADA and associated Equipments like ACDB, DCDB, Battery, Battery Chargers etc. for major Transmission utilities, PSUs or Government/Leading Private organisations*.”</i></p>	<p>OR</p> <p>One Similar work** completed costing not less than Rs. 16 Crores.</p> <p>Similar Work(s)** is defined as <i>“Supply, Testing and Commissioning of EHV/HV Transmission Towers of 110 kV and above voltage level and/or Procurement, Supply, Erection, Testing and commissioning of various Switchyard Equipments like CTs, LAs, CR Panels and associated Equipments like ACDB, DCDB, Battery, Battery Chargers etc. for major Transmission utilities, PSUs or Government/Leading Private organisations*.”</i></p> <p>Reason - The network upto 33 kv level comes under distribution sector. The utility under distribution sector have not yet implemented SCADA in any of their existing network & hence there may not be bidders having SCADA experience in distribution sector. Based on this we request you to kindly consider the project with or without SCADA or with SCADA Compatibility</p>	

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4.	Section I - NIT	NIT, 1.1.3.2 (A), Pg. 3	<p>(a) For Supply, Erection, Testing & Commissioning of EHV/HV Transmission Towers, Termination Yard Equipments & associated Civil Works:</p> <p>The Bidder should have achieved the following eligibility criteria of having successfully completed Similar works** during the last 7 years preceding 31st January 2017:</p> <p>Three Similar works** completed, costing not less than Rs. 8 Crores each.</p> <p>or</p> <p>Two Similar works** completed costing not less than Rs. 10 Crores each.</p> <p>or</p> <p>One Similar work** completed costing not less than Rs. 16 Crores.</p>	<p>(a) For Supply, Erection, Testing & Commissioning of EHV/HV Transmission Towers, Termination Yard Equipments & associated Civil Works:</p> <p>The Bidder should have achieved the following eligibility criteria of having successfully completed Similar works** during the last 7 years <u>as on date of Bid Submission.</u></p> <p>Three Similar works** completed, costing not less than Rs. 8 Crores each.</p> <p>or</p> <p>Two Similar works** completed costing not less than Rs. 10 Crores each.</p> <p>or</p> <p>One Similar work** completed costing not less than Rs. 16 Crores.</p>	Please refer Sr. No. 29 of Addendum No. 2
5.	Section I - NIT	NIT, 1.1.3.2 (A), Pg. 4	<p>(b) For Procurement and Supply of EHV, HV & LV Cables along with Termination / Jointing Kits and other Associated Items.</p> <p>The Bidder should have achieved the following eligibility criteria of having successfully completed Similar works** during the last 7 years preceding 31st January 2017:</p> <p>Three Similar works** completed, costing not less than Rs. 9 Crores each.</p>	<p>(b) <u>EHV Project with Supply, Erection, Testing and Commissioning of EHV Cables along with Termination / Jointing Kits and other Associated Items.</u></p> <p>The Bidder should have achieved the following eligibility criteria of having successfully completed Similar works** during the last 7 years, <u>as on date of Bid Submission:</u></p> <p>Three Similar works** completed, costing not less than Rs. 9 Crores each.</p> <p>or</p> <p>Two Similar works** completed, costing not less than Rs. 11 Crores each.</p>	Please refer Sr. No. 29 of Addendum No. 2

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			<p>or Two Similar works** completed, costing not less than Rs. 11 Crores each. or One Similar work** completed, costing not less than Rs. 18 Crores.</p> <p>Similar Work(s)** defined as <i>Procurement/supply of EHV Cables of 110kV and above voltage level. for major Transmission utilities, PSUs or Government/Private Organisations.</i></p>	<p>or One Similar work** completed, costing not less than Rs. 18 Crores.</p> <p>Similar Work(s)** defined as <i>Supply/Procurement, Erection, Testing and Commissioning of EHV project including Cables of 110kV and above voltage level. for major Transmission utilities, PSUs or Government/Private Organisations.</i></p>	
6	Section I - NIT	NIT 1.1.3.2 (A), Pg. 4	<p>(c) For Laying, Testing and Commissioning EHV, HV & LV Cables along with Making Termination / Joints. The Bidder should have achieved the following eligibility criteria of having successfully completed Similar works** during the last 7 years preceding 31st January 2017:</p> <p>Three Similar works** completed of not less than 3 kM of cable length. or Two Similar works** completed of not less than 4 kM of cable length. or One Similar work** completed of not less than 6 kM of cable length.</p>	<p>(c) For Power Distribution/Transmission Projects including Supply, Erection, Testing and Commissioning of HV Cables along with Making Termination / Joints. The Bidder should have achieved the following eligibility criteria of having successfully completed Similar works** during the last 7 years <u>as on date of Bid Submission:</u></p> <p>Three Similar works** completed, <u>costing of not less than Rs. 8 Crores each & minimum 3 kM of cable length.</u> or Two Similar works** completed, <u>costing of not less than Rs. 10 Crores each & minimum 4 kM of cable length.</u> or One Similar work** completed, <u>costing of not less than Rs. 20 Crores each & minimum 6 kM of cable length.</u></p> <p>Similar Work(s)** is defined as <i>Laying, Testing and Commissioning of Power supply project including HV Cables of 33kV and Above voltage level and allied power distribution/transmission works.</i></p>	See Addendum No. 2

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			Similar Work(s)** is defined as <i>Laying, Testing and Commissioning of EHV Cables of 110kV and above voltage level.</i>		
7	Section I – NIT	NIT, 1.1.10 (ii), EMD	In case of joint venture/consortia, Bank Guarantee for Tender Security shall be in the name of joint venture/consortia and not in name of individual members.	In case of joint venture/consortia, Bank Guarantee for Tender Security shall be in the name of joint venture/consortia and not in name of individual members and can be submitted by any of the JV partner.	See Addendum No. 2
8	Section-VIII		Section-VIII: Technical Specification, Page-309	Cable Design features: Minimum thickness of insulation is specified as 23.0 mm whereas in Clause- (c), Page-312, Nominal thickness of insulation is mentioned as 23.0 mm. KEI Clarifications: Please confirm that the minimum shall be read as nominal as the same is mentioned in IEC:62067 and also as per your specification at page no. 312.	Please refer Sr. No. 23 of Addendum No. 2
9	Section-VIII		Section-VIII: Technical Specification, Page-310	The metallic sheath shall consist of Extruded Corrugated Aluminium Sheath. KEI Clarifications: Corrugated aluminum sheath is being used for the flexibility of the cables which shall be helpful for easy laying of the cables. IEEE: 635 - 2003 Standard allows the use of both seam welded corrugated aluminum sheath & extruded corrugated aluminum sheath. In welded corrugated Al sheath the sheath shall be applied by forming and continuously welding the Aluminum tapes of required width / thickness. The seam welded Aluminum corrugation manufacturing process does not require any plastic deformation of the metal under high pressure.	Tender conditions prevail

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				<p>The welding heat is quickly dissipated so there is no need for additional thermal isolation of core during manufacturing.</p> <p>Whereas in extrusion process the successive charges of billets, particularly those needed for extrusion of large-size sheaths with the discontinuous type of press, could introduce an element of risk of air or oxide inclusions at the billet joints which will be weak spot of the cable.</p> <p>Additional heat shield for core is needed which may be a potential source for insulation damage during high temperature and high pressure extrusion process.</p> <p>Again, there is no eccentricity issue in seam welded process since Al tape is input.</p> <p>For ensuring the welding quality in our process, the sheathing line has on- line eddy current testing apparatus with paint marker with alarm to ensure that no defect is passed on during manufacturing. Also, there is an alternate procedure for testing the integrity of seam welded process by conducting nitrogen drop test at high pressure performed on the cable. This test ensures defect free, leak proof welding.</p> <p>No IEC standard mentions the Aluminum sheathing by extrusion process alone and both the processes are equally acceptable to Indian and International clients.</p> <p>Both the PQ test (mandatory test to determine the long term service life and before commercial supply) as well as type test has been carried out in our case with seam welded corrugated aluminum sheath. Hence, our cables having passed the PQ test & Type test for a life expectancy of 35/40 yrs.</p>	

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				<p>We have also executed one large order with seam welded corrugated aluminum sheath, i.e. DMRC 1x1000 sq mm 220kV – 39.0 Km with seam welded corrugated Al sheath and the commissioning certificate is attached.</p> <p>We, therefore, request that you may mention both the processes i.e.</p> <ol style="list-style-type: none"> 1) Extruded Aluminium sheath 2) Seam welded Aluminium sheath <p>The thickness shall be selected accordingly to meet the required earth fault current of 40 KA for 1 second.</p>	
10	Section-VIII		Section-VIII: Technical Specification, Page-305	<p>The Cable and Cable Accessories Manufacturer shall have a minimum of 5 years' experiences in design, manufacturing and type testing of 220 kV or higher voltage class cable and its accessories as on the date of Bid submission.</p> <p>(b) The Manufacturer shall have supplied 220 kV of higher class cable of same Type of Cable Construction as mentioned in the Technical specifications for at least 15 KM and Accessories, which must be operating satisfactorily for the past 5 years from the date of Tender Bid Submission</p> <p>Whether manufacturer has technical collaboration with other firm, if so details regarding the same.</p> <p>KEI Clarifications:</p> <p>We have a technical collaboration with BRUGG Kabel AG, Switzerland for manufacture of cables up to 220 KV Cables, who is an approved vendor for both cables and cable accessories as per your</p>	Tender conditions prevail

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				<p>vendor list in the enquiry. We are a BRUGG Licensee in India under the technical collaboration agreement for cables up to 220 KV Cables.</p> <p>We have already carried out prequalification test and type test for 220 KV Cables with BRUGG Accessories.</p> <p>In view of above, kindly include our name i.e. KEI Industries Ltd. as an approved vendor for 220 KV Cables and allow us to submit the credentials for 220 KV cables of M/s BRUGG for establishing the above required experience.</p> <p>Since as per IEC: 62067, the cable constructions are shall be defined only up to the core of cables. No need of electrical tests are required if there will be any change in the sheaths because over the core, all the sheaths required as per the customer to be considered as only the protective layers, In view of above, please consider the five years performance of the cables for 220 KV or above voltage grade with any metallic sheath (Lead sheath / Poly-al tape / Corrugated aluminum sheath).</p> <p>.</p>	
11	Section-VIII		Section-VIII: Technical Specification, Sr. No. 5, Inspection & Testing Page-317	<p>The cable & Accessories must be of "type tested" quality.</p> <p>Type test report shall be submitted for the type, size and rating of the cable & accessories offered, along with the bid. Type test report for One Year Duration Accelerated ageing test on complete cable system (with the offered design of cable & accessories) as per clause - 13 of IEC 62067- 2001, to be submitted as a Qualifying requirement.</p> <p>All type tests shall be carried out in accordance with relevant IEC standards and in accordance with the sequence prescribed therein.</p>	Tender conditions prevail

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				<p>KEI Clarifications:</p> <p>We have a technical collaboration with BRUGG Kabel AG, Switzerland for manufacturing up to 220 KV Cables. We have already done the prequalification test and type test for single core x 1200 sq mm x 220 KV Cable system.</p> <p>In India, all the power utilities are using 1000/ 1200 Sq mm cable size for 220 KV Cable system.</p> <p>Since as per the enquiry the offered cable size is 1600 Sq mm so please allow us to submit the type test / PQ test report of 220 KV or high voltage grade with 1600 Sq mm or higher cross sectional area of BRUGG Cables. We confirm that we shall submit the required test report 220 KV or high voltage grade with 1600 Sq mm or higher cross sectional area before the completion of supply.</p>	
12	Section-VIII		Section-VIII: Technical Specification, Sr. No 15 Cable accessories Page-311	<p>As per IEC standards with latest amendments. Silicon or EPDM rubber based stress cones are acceptable.</p> <p>c) The GIS termination shall be dry type but dimensions of oil filled type</p> <p>d) 220 KV termination at transformer side shall meet the DIN EN 50299 requirements (Standard for Oil Immersed Cable connection assemblies) e) Overall dimension of the GIS / transformer side termination shall be achieved as per IEC standard preferably without using any extension adaptor.</p> <p>KEI Clarifications: As per IEC: there is a difference in height between the dry type & oil filled terminations. To match the height of oil filled terminations as per IEC, we have to use the adaptors in dry type terminations. Please confirm that adaptor shall be provided in dry type GIS terminations to match the oil filled dimensions.</p>	Please refer Sr. No. 24 of Addendum No. 2

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13	Section-VIII		Section-VIII: Technical Specification, Page-321	Nominal cross-sectional area of conductor & type of conductor mentioned is 1200 Sqmm Milliken type. As per the BOQ, conductor area shall be 1600 Sqmm Copper Conductor & type shall be Milliken Segmental type. Please confirm the conductor cross sectional area.	Please refer Sr. No. 25 of Addendum No. 2
14	Section-VIII		Section-VIII: Technical Specification, Sr. No. 10, Page-310	The outer sheath (with termite repellent, anti - rodent, U/V resistant & Free from chlorinated paraffin, resistant to sulphide found in the ground & flame retardant) shall consist of extruded black colored HDPE. The minimum thickness at any point shall be in line with IEC standards. Extruded Semi conductive layer on outer sheath shall be considered. KEI Clarifications: Generally, HDPE sheath shall be inflammable. Since these materials have very low oxygen index and temperature index. So, flame retardant properties are not applicable for HDPE Sheath. Please amend the clause accordingly.	Please refer Sr. No. 26 of Addendum No. 2
15			(a) For Supply, Erection, Testing & Commissioning of EHV/HV Transmission Towers, Termination Yard Equipments & associated Civil Works: The Bidder should have achieved the following eligibility criteria of having successfully completed Similar works** during the last 7 years preceding 31st January 2017: Three Similar works** completed, costing not less than Rs. 8 Crores each. or Two Similar works** completed costing not less than Rs. 10 Crores each.	(a) For Supply, Erection, Testing & Commissioning of EHV/HV Transmission Towers, Termination Yard Equipment & associated Civil Works: The Bidder should have achieved the following eligibility criteria of having successfully completed Similar works** during the last 7 years, as on date of Bid Submission. Three Similar works** completed, costing not less than Rs. 8 Crores each or Two Similar works** completed costing not less than Rs. 10 Crores	See Addendum No. 2

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16			<p>(b) For Procurement and Supply of EHV, HV & LV Cables along with Termination / Jointing Kits and other Associated Items.</p> <p>The Bidder should have achieved the following eligibility criteria of having successfully completed Similar works** during the last 7 years preceding 31st January 2017:</p> <p>Three Similar works** completed, costing not less than Rs. 9 Crores each.</p> <p>or</p> <p>Two Similar works** completed, costing not less than Rs. 11 Crores each.</p>	<p>(b) <u>EHV Project with Supply, Erection, Testing and Commissioning of EHV Cables</u> along with Termination / Jointing Kits and Other Allied EHV Works.</p> <p>The Bidder should have achieved the following eligibility criteria of having successfully completed Similar works** during the last 7 years, <u>as on date of Bid Submission.</u></p> <p>Three Similar works* completed, costing not less than Rs. 9 Crores each.</p> <p>or</p> <p>Two Similar works* completed, costing not less than Rs. 11 Crores each</p>	See Addendum No. 2

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17			<p>(c) For Laying, Testing and Commissioning EHV, HV & LV Cables along with Making Termination / Joints.</p> <p>The Bidder should have achieved the following eligibility criteria of having successfully completed Similar works** during the last 7 years preceding 31st January 2017:</p> <p>Three Similar works** completed of not less than 3 km of cable length.</p> <p>or</p> <p>Two Similar works** completed of not less than 4 km of cable length.</p> <p>or</p> <p>One Similar work** completed of not less than 6 km of cable length.</p> <p>Similar Work(s)** is defined as <i>Laying, Testing and Commissioning of EHV Cables of 110kV and above voltage level.</i></p>	<p>c) For Laying, testing and commissioning EHV, HV & LV cables along with making termination/Joints. The Bidder should have achieved the following eligibility criteria of having successfully completed Similar works** during the last 7 years as on date of BID Submission</p> <p>Three Similar works* completed of not less than 3km of cable length</p> <p>or</p> <p>Two Similar works* completed of not less than 4km of cable length</p> <p>or</p> <p>One Similar work* completed of not less than 6km of cable length</p> <p>Similar Work(s)** is defined as laying, testing & commissioning of <u>EHV /HV</u> cables of 33kv and above voltage level</p>	See Addendum No. 2