Corrigendum - 1 for C4A Station Tender

NAME OF WORK **28.08.2024**

Package C4A:

"Construction of Nine (9 Nos.) Stations i.e. Elevated (1 No.) and At-Grade (8 Nos.) BSRP Stations of Corridor-4A at Heelalige, Singena Agrahara, Huskur, Ambedkar Nagar, Carmelaram, Bellandur, Marathahalli, Doddanakundi, Kaggadasapura including Civil, Structural, Entry / Exit Structure, Steel FOB, Roof Structures, PEB works Architectural finishes and E&M Works and Detailed Design & Engineering (DDC) with all associated works for Bengaluru Suburban Rail Project" (BSRP)".

TENDER NO. KRIDE/BSRP/C4A/STATIONS/2024

CPP Portal TENDER ID: 2024_KRIDE_202195

S.No	Clause/Item	Amendment
1.	Section- IX PCC Clause- 14.3 (c)	**Replace** Retention money equal to 10 percent of the amount due to the Contractor in IPC's/ Running bills from time to time will be retained, so as to maintain a reserve in the hands of the Employer equal to 5 percent of the Contract Price. **With** Security Deposit equal to 10 percent of the amount due to the Contractor in IPC's/ Running bills from time to time will be retained, so as to maintain a reserve in the hands of the Employer equal to 5 percent of the Contract Price. **If the Contractor submits the Bank Guarantee of 5% of Contract Price then the Security deposit shall not be deducted and the validity of the BG shall be till Defect liability period.**
2.	Section III Evaluation Eligibility and Qualification 4.2 (b) Construction	**Replace** For the above or any other contracts completed and under implementation as prime contractor, joint venture member, management contractor or subcontractor8 on or after the first day of the calendar year during the period stipulated in 4.2(a) above, a minimum construction experience in the following key activities successfully completed : (a) Construction works of minimum 5 (Five) Elevated / At-grade or Underground stations

S.No	Clause/Item	Amendment
	Experience in key activities	**With** For the above or any other contracts completed and under implementation as prime contractor, joint venture member, management contractor or subcontractor8 on or after the first day of the calendar year during the period stipulated in 4.2(a) above, a minimum construction experience in the following key activities successfully completed : (a) Construction works of minimum 5 (Five) Elevated stations/ At-grade stations/ Underground stations **/ airport Terminal Building (One work for airport terminal building, if the same work is qualified under Clause 4.2.a (a) above.**
3.	Section III Evaluation Eligibility and Qualification 4.2 (a) Specific Construction & Contract Management Experience	**Replace** Para Similar1 contracts, satisfactorily and substantially2 completed as a prime contractor, joint venture member3, management contractor or subcontractor3 between 2018-19 to 2022-23 (both inclusive). and application submission deadline **With** Para Similar1 contracts, satisfactorily and substantially2 completed as a prime contractor, joint venture member3, management contractor or subcontractor3 between **2018-19 to 2023-24** (both inclusive). and application submission deadline. **In case audited balance sheet of FY2023-24 is not available, provisional balance sheet of FY2023-24 duly certified by Statutory Auditor is acceptable.**
4.	Section-09 Cl No 14.5 of PCC Page No-29	**Replace** Provisional Payment Against Material at Site: Reinforcement & Cement **With** Provisional Payment Against Material at Site: Reinforcement, Cement **& Structural Steel**
5.	Section III	**Replace**

S.No	Clause/Item	Amendment
	Evaluation Eligibility and Qualification 3.3 Financial Capabilities: Financial Position	(iii) The audited balance sheets should indicate that the net worth of the bidder (to be obtained from the audited balance sheet) **shall be positive in any 3 of the last *5 financial* years.** The financial year as applicable in the country of origin of the bidders would be considered. The last financial year will be the latest financial year that ended on or before **31.03.2023.**Profit and loss account to be uploaded. The bidder must demonstrate the current soundness..... Indebtedness Ratio = (Total Liabilities*100) / (Total Assets) **With** (iii) The audited balance sheets should indicate that the net worth of the bidder (to be obtained from the audited balance sheet) **shall be positive in any 3 of the last *6 financial* years (FY 2018-19 to FY 2023-24)** The financial year as applicable in the country of origin of the bidders would be considered. The last financial year will be the latest financial year that ended on or before **31.03.2024.**Profit and loss account to be uploaded. The bidder must demonstrate the current soundness..... Indebtedness Ratio = (Total Liabilities*100) / (Total Assets).
6.	Section III Evaluation Eligibility and Qualification 3.4 Average Annual Construction Turnover	**Replace** for the last ***5* years** from 2018-19 to 2022-23(both inclusive) & 31.03.2023 **With** for the last **6 years** from **2018-19 to 2023-24**(both inclusive) **&** **31.03.2024**
7.	Section III Evaluation Eligibility and Qualification 4.1 General Construction	**Replace** Experience under construction contracts in the role of prime contractor, JV member, subcontractor, or management contractor for at least the last **5** years, from **2018-19 to 2022-23** (both inclusive). **With**

<table>
<tr><th>S.No</th><th>Clause/Item</th><th>Amendment</th></tr>
<tr><td></td><td>Experience</td><td>Experience under construction contracts in the role of prime contractor, JV member, subcontractor, or management contractor for at least the last 6 years, from 2018-19 to 31.03.2024.</td></tr>
<tr><td>8.</td><td>Qualification Responsiveness, Evaluation of Qualification, ITB - Clauses 26.7 to 26.9</td><td>Insert

Additional Clauses-26.7,26.8 and 26.9 in Bid Data Sheet of Section-II:

Evaluation shall be determined on PASS/FAIL basis only.</td></tr>
<tr><td>9.</td><td>Section VII-Vol 4
APPENDIX-VII-6
PROJECT INTERFACE MATRIX

E. BETWEEN CIVIL AND SIGNALING (S&TC) CONTRACTOR</td><td>Replace
<table>
<tr><th></th><th>Civil</th><th>S&T</th><th></th></tr>
<tr><td>1.</td><td>Layout of rooms at the station: Signalling Equipment Room (SER), UPS, Signalling Maintenance Room, and Station Control Room (SCR).</td><td>Design:
Prepare and furnish station drawings.
Incorporate room requirements and routing of Cable ducts/ cable trays.
Provision of space for Emergency Stop Plunger.

Construction:
Rooms complete with structures, false flooring, false ceiling if necessary, finishes, fire rated doors etc.

Seal all the gaps / openings / cut-outs with fire resistant materials or with detachable ACP sheet before CMRS inspection of that areas/Viaduct/Stations.</td><td>Design:
Mark cable trays on the station drawings in close coordination with the DDCs.
Review design with the DDCs.
Co-ordinate closely with Station Building Contractors to ensure the requirements at site are met.

Construction:
Provide equipment foundations / base frames.
Install all S&TC equipment, cables etc.

Seal the gaps up to 200 mm in size in TER after cable installation work with</td></tr>
</table></td></tr>
</table>

S.No	Clause/Item	Amendment				
						fire resistant material or detachable ACP Sheet.
		With				
				Civil	S&T	
			1.	Layout of rooms at the station: Signalling and PSD Equipment Room (SPER)**, Telecom Equipment Room(TER),** UPS Room, Signalling Maintenance Room(SMR), Telecom Maintenance Room(TMR) and Station Control Room (SCR).	**Design:** Prepare and furnish station drawings. Incorporate room requirements and routing of Cable ducts/ cable trays. Provision of space for Emergency Stop Plunger, **Duct/Trench in S&T UPS Room**. **Construction:** Rooms complete with structures, false flooring, false ceiling if necessary, finishes, fire **retardant** doors, **cable cut-out & shaft finishes, cable trenches for S&T UPS Room.** **General lighting shall be provided by Civil Contractor for Testing,** Seal all the gaps / openings / cut-outs with fire resistant materials or with detachable ACP sheet before CRS/CMRS inspection of that areas/Viaduct/Stations.	**Design:** Mark cable trays on the station drawings in close coordination with the DDCs. Review design with the DDCs. Co-ordinate closely with Station Building Contractors to ensure the requirements at site are met. **Suitable interface for marking cable Entry/Exit points in Technical Rooms and cable trenches in UPS Room on the station drawings in close co-ordination with the E&M/DDC/Construction/Finishing contractor** **Construction**: Provide equipment foundations / base frames/Pedestals. Furnish weight, dimension and mounting details of S&T Equipment. Install all S&TC equipment, cables etc. Seal the gaps up to 200 mm in size in all technical rooms after cable

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<tr><td></td><td></td><td></td><td>installation work with fire resistant material or detachable ACP Sheet.</td></tr>
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</td></tr>
<tr><td>10.</td><td>Section VII-Vol 4
APPENDIX-VII-6
PROJECT INTERFACE MATRIX

E. BETWEEN CIVIL AND SIGNALING (S&TC) CONTRACTOR</td><td>
Replace
<table>
<tr><th></th><th>Civil</th><th>S&T</th><th></th></tr>
<tr><td>2.</td><td>Station Control Room: Space for workstations / ESP and other Signalling equipments.</td><td>Design:
Incorporate design requirement of S&TC Contractor in the SCR room.

Construction:
Construct the SCR room as per approved design.</td><td>Design:
Furnish layout of Signalling equipment within Station Control Room for S&TC equipment in close coordination with the DDCs and/ or Station Building Contractor.

Construction:
Install Signalling equipment within Station Control Room.</td></tr>
</table>
With
<table>
<tr><th></th><th>Civil</th><th>S&T</th><th></th></tr>
<tr><td>2.</td><td>Station Control Room: Space for workstations / ESP and other Signalling equipments.</td><td>Design:
Incorporate design requirement of S&TC Contractor in the SCR room.

Construction:
Construct the SCR room as per approved design.

Maintain room distance of SCR and SPER shall be less than 30 m.

Connectivity from equipment rooms to SCR as per requirement of S&T contractor. Supply and Install Precast</td><td>Design:
Furnish layout of Signalling equipment within Station Control Room for S&TC equipment in close coordination with the DDCs and/ or Station Building Contractor.

Construction:
Install Signalling equipment within Station Control Room</td></tr>
</table>
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S.No	Clause/Item	Amendment					
					slab at suitable height with core cutting and power sockets provision to be provided for system workstations as per design of S&T contractor.		
11.	Section VII-Vol 4 APPENDIX-VII-6 PROJECT INTERFACE MATRIX E. BETWEEN CIVIL AND SIGNALING (S&TC) CONTRACTOR S.No.8	**New clauses to be included**					
				Civil	**S&T**		
			8	**Cabling infrastructure for S&T at stations**	**Design** **Incorporate routing of Cable ducts/ hangers/ trays for STC main cables throughout the station. Fibre optic cables throughout the station will have route diversity.** **Design details to be worked out in interface with STC design requirements.**	**Design:** **Shall mark & Review cable duct/ tray path / size / separation and provide the requirement of cable troughs/Supports on the GAD/ CSD for main cables in close coordination with the Civil / Architectural design and Civil construction cum E&M contractor to ensure that all requirements at site are met. Furnish and review requirements of EMC for cabling. Review and confirm design with the design contractor and closely co-ordinate with construction contractor to ensure that the requirements at site are met.**	
			9	**Interconnection between corridors in for cable laying.**	**Design:** **Develop routing of Cable ducts / conduits / hangers / trays between**	**Design:** **Furnish cabling requirements including destinations, sizes, quantities and cable loadings of**	

S.No	Clause/Item	Amendment					
					corridors at the intersection / junction Stations. Design details to be worked out in interface with STC design requirements; Construction: Cast in cable ducts on walls / floor penetrations, for routing of all types of cables seal the relevant gaps / Cut Outs after cable installation work.	Cable ducts / conduits / hangers / trays between corridors at intersection /Junction stations. Furnish requirements of cable Cut Outs / bores on walls / floor penetrations, complete with pipe, sleeves for routing of all types of cables. Furnish requirements of EMC/EMI and fire separation for cabling. Construction: Install STC cables,	
			10	Room Acceptance	DDC / Civil / Building Construction Contractor to interface with concerned contractors and ensure compliance To ensure that all requirements as per the Design are incorporated and agreed and signed by STC contractor	Coordinate with Civil/E& M team and clean Debris / Dust after Carrying out work STC Works on a daily/regular basis	
			11	Reference Points	Civil: DDC Civil / Building Construction Contractor to interface with concerned Contractors and ensure compliance Shall provide all reference points marking regarding level station,	STC Contractor shall coordinate with Building / Civil contractor to get all inputs regarding reference points, marking of levels, station/platform centre line etc.	

S.No	Clause/Item	Amendment					
					platform centre line to STC contractor at site and preserve these marking points for future verification and reference at site		
			12	Lighting/power arrangement	Civil: DDC Civil / Building / E & M Contractor to interface with concerned Contractors and ensure compliance E&M: Shall provide power to S&T contractor for S&T UPS system. General lighting and power sockets, meters, etc. for installation work to be provided by civil contractor on chargeable basis.	Shall coordinate with Civil / Building Construction/E&M Contractor for general lighting/power arrangements for installation works and pay for the consumption.	
			14	Inter Room cable way	Incorporate Cableway from the Signalling perspective. Furnish and coordinate requirements, if any.	Coordinate with Civil / Building Contractor for cable installation.	
			15	Interface documentation	Architectural / Civil / Building Contractor to interface with concerned contractors and ensure compliance Civil/ Building / E&M Contractor shall coordinate with STC contractor for interface document preparation and Prepare Detailed Interface document etc.	STC contractor shall, coordinate and cooperate with Building / Civil/E&M contractor for the interface documents	

S.No	Clause/Item	Amendment					
			17	Power for Installation Works	Temporary power supply shall be extended to the STC contractor on chargeable basis on mutually agreed terms and conditions	In absence of temporary Power availability from Civil / Building / E&M Contractor, then Signalling Contractor shall make its own/suitable arrangement for Power requirement for installation and testing. Energy meter and cable required for extension of temporary power from participating contractors shall be provided.	
			18	Common Interface Points	All technical rooms shall be design for waterproofing Furnish and coordinate with DDC/Design contractor. Water supply pipe, drain pipe, toilet wall, shall not share common wall with SER, SMR, UPS (S&T), SCR etc Path of rain water pipe, sewerage pipe, track drainage pipe etc. shall not fall on top of STC rooms (SER, UPS S&T, SMR, SCR) and expansion joint over the equipments rooms shall be preferably avoided.	S&T contractor shall coordinate with civil contractor for same.	

<table>
<tr><th>S.No</th><th>Clause/Item</th><th>Amendment</th></tr>
<tr><td>12.</td><td>BOQ, Electrical, J.04 MV SWITCHGEAR</td><td>REPLACE:
<table>
<tr><td>4.1.1</td><td>Main Distribution Board (MDB-1)</td></tr>
<tr><td>A</td><td>Transformer - I Incoming</td></tr>
<tr><td></td><td>1 No. of 800 A, 415V, 50kA, 4P draw out Electrically operated (Motorized) fully draw out (EODO) type ACB with built in Microprocessor based release unit for Over Current, Short circuit and earth fault protection with adjustable setting and time log facility for each of the fault for achieving discrimination along with distinct fault indication through LED's. ACB shall be provided with continuous rated shut trip release suitable for 230 VAC operation, suitable handles to operate ACB manually and spring charging device suitable for 1 phase, 240VAC operation. ACB shall have in built compatibility through open protocol like Modbus for SCADA/BMS connectivity (RS485) along with following accessories.</td></tr>
<tr><td>B</td><td>Transformer - II Incoming</td></tr>
<tr><td></td><td>1 No. of 800 A, 415V, 50kA, 4P draw out Electrically operated (Motorized) fully draw out (EODO) type ACB with built in Microprocessor based release unit for Over Current, Short circuit and earth fault protection with adjustable setting and time log facility for each of the fault for achieving discrimination along with distinct fault indication through LED's. ACB shall be provided with continuous rated shut trip release suitable for 230 VAC operation, suitable handles to operate ACB manually and spring charging device suitable for 1 phase, 240VAC operation. ACB shall have in built compatibility through open protocol like Modbus for SCADA/BMS connectivity (RS485) along with following accessories.</td></tr>
<tr><td>C</td><td>Bus Coupler</td></tr>
<tr><td></td><td>1 No. of 800 A, 415V, 50kA, 4P draw out Electrically operated (Motorized) fully draw out (EODO) type ACB with built in Microprocessor based release unit for Over Current, Short circuit and earth fault protection with adjustable setting and time log facility for each of the fault for achieving discrimination along with distinct fault indication through LED's. ACB shall be provided with continuous rated shut trip release suitable for 230 VAC operation, suitable handles to operate ACB manually and spring charging device suitable for 1 phase, 240VAC operation. ACB shall have in built</td></tr>
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S.No	Clause/Item	Amendment

	compatibility through open protocol like Modbus for SCADA/BMS connectivity (RS485) along with following accessories.
D	Busbar
	Electrolytic high conductivity tinned copper three phase and neutral busbars rated at **1000** A as per specification, suitable to withstand symmetrical fault level of 50 kA at 415 V with 100% rated neutral busbar.

WITH

4.1.1	Main Distribution Board (MDB-1)
A	Transformer - I Incoming
	1 No. of **1000 A**, 415V, 50kA, 4P draw out Electrically operated (Motorized) fully draw out (EODO) type ACB with built in Microprocessor based release unit for Over Current, Short circuit and earth fault protection with adjustable setting and time log facility for each of the fault for achieving discrimination along with distinct fault indication through LED's. ACB shall be provided with continuous rated shut trip release suitable for 230 VAC operation, suitable handles to operate ACB manually and spring charging device suitable for 1 phase, 240VAC operation. ACB shall have in built compatibility through open protocol like Modbus for SCADA/BMS connectivity (RS485) along with following accessories.
B	Transformer - II Incoming
	1 No. of **1000 A**, 415V, 50kA, 4P draw out Electrically operated (Motorized) fully draw out (EODO) type ACB with built in Microprocessor based release unit for Over Current, Short circuit and earth fault protection with adjustable setting and time log facility for each of the fault for achieving discrimination along with distinct fault indication through LED's. ACB shall be provided with continuous rated shut trip release suitable for 230 VAC operation, suitable handles to

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<tr><td></td><td>operate ACB manually and spring charging device suitable for 1 phase, 240VAC operation. ACB shall have in built compatibility through open protocol like Modbus for SCADA/BMS connectivity (RS485) along with following accessories.</td></tr>
<tr><td>C</td><td>Bus Coupler</td></tr>
<tr><td></td><td>1 No. of 1000 A, 415V, 50kA, 4P draw out Electrically operated (Motorized) fully draw out (EODO) type ACB with built in Microprocessor based release unit for Over Current, Short circuit and earth fault protection with adjustable setting and time log facility for each of the fault for achieving discrimination along with distinct fault indication through LED's. ACB shall be provided with continuous rated shut trip release suitable for 230 VAC operation, suitable handles to operate ACB manually and spring charging device suitable for 1 phase, 240VAC operation. ACB shall have in built compatibility through open protocol like Modbus for SCADA/BMS connectivity (RS485) along with following accessories.</td></tr>
<tr><td>D</td><td>Busbar</td></tr>
<tr><td></td><td>Electrolytic high conductivity tinned copper three phase and neutral busbars rated at 1200 A as per specification, suitable to withstand symmetrical fault level of 50 kA at 415 V with 100% rated neutral busbar.</td></tr>
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<tr><td>13.</td><td>BOQ, Electrical, J.01, Conduit Wiring</td><td>
REPLACE:
<table>
<tr><td>J.01</td><td>Conduit Wiring</td></tr>
<tr><td>1.4</td><td>Wiring for circuit mains</td></tr>
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S.No	Clause/Item	Amendment

	Supply and Installation with all materials, accessories and labour for Wiring circuit mains in the existing conduit for Lighting Circuits/ Single phase sockets from DB to first light/ switch/socket control box with 3 Runs of (P+N+E) PVC FRLSZH insulated Copper conductor, **450/750 V** grade wires to connect all lights, switches sockets etc. All wires shall be terminated with pin type lugs and provided with non-erasable ferules for identification.
1.5	Primary Points
	Switch controlled Primary Points
	Supply & laying of 1.6 mm thick GI conduit with all accessories, labour and wiring from switch box to first light / Ceiling Fan/ Exhaust Fan / wall mount fan point / 6A socket with 3 Runs (P+N+E) of 2.5 Sq.mm PVC insulated FRLSZH copper conductor, **450/750** Volt grade wires in surface run with GI saddles or concealed including cost of cutting & filling chases for recessed conduiting and complete with earthing of switch boxes. 6A, socket located within the control box (SB) is not accounted as a separate point. Cost of switches/sockets and switch boxes shall be paid separately.
1.6.1	Supply & laying of 1.6 mm thick GI conduit with all accessories, labour and wiring from first light / Ceiling Fan/ Exhaust Fan / wall mount fan point/ 6A socket to subsequent points with 3 Runs (P+N+E) of 2.5 Sq. mm PVC insulated FRLSZH, **450/750** Volt grade, copper conductor wires in surface run with GI saddles or concealed or in GI raceway including cost of cutting & filling chases for recessed conduiting and complete with earthing of switch boxes. Cost of switches/sockets and switch boxes shall be paid separately.
1.6.2	Supply & laying of 1.6 mm thick GI conduit with all accessories, labour and wiring from first light / Ceiling Fan / Exhaust Fan / wall mount fan point / 6/16A socket to subsequent points with 2 Runs of 4.0 Sq.mm and 1 Run of 2.5 Sq.mm, PVC insulated FRLSZH, **450/750** Volt grade, copper conductor wires in surface run with GI saddles or concealed or in GI raceway including cost of cutting & filling chases for recessed conduiting and complete with earthing of switch boxes. Cost of switches/sockets and switch boxes shall be paid separately.

WITH

S.No	Clause/Item	Amendment

J.01	Conduit Wiring
1.4	Wiring for circuit mains
	Supply and Installation with all materials, accessories and labour for Wiring circuit mains in the existing conduit for Lighting Circuits/ Single phase sockets from DB to first light/ switch/socket control box with 3 Runs of (P+N+E) PVC FRLSZH insulated Copper conductor, **600/1100 V** grade wires to connect all lights, switches sockets etc. All wires shall be terminated with pin type lugs and provided with non-erasable ferules for identification.
1.5	Primary Points
	Switch controlled Primary Points
	Supply & laying of 1.6 mm thick GI conduit with all accessories, labour and wiring from switch box to first light / Ceiling Fan/ Exhaust Fan / wall mount fan point / 6A socket with 3 Runs (P+N+E) of 2.5 Sq.mm PVC insulated FRLSZH copper conductor, **600/1100** Volt grade wires in surface run with GI saddles or concealed including cost of cutting & filling chases for recessed conduiting and complete with earthing of switch boxes. 6A, socket located within the control box (SB) is not accounted as a separate point. Cost of switches/sockets and switch boxes shall be paid separately.
1.6.1	Supply & laying of 1.6 mm thick GI conduit with all accessories, labour and wiring from first light / Ceiling Fan/ Exhaust Fan / wall mount fan point/ 6A socket to subsequent points with 3 Runs (P+N+E) of 2.5 Sq. mm PVC insulated FRLSZH, **600/1100** Volt grade, copper conductor wires in surface run with GI saddles or concealed or in GI raceway including cost of cutting & filling chases for recessed conduiting and complete with earthing of switch boxes. Cost of switches/sockets and switch boxes shall be paid separately.
1.6.2	Supply & laying of 1.6 mm thick GI conduit with all accessories, labour and wiring from first light / Ceiling Fan / Exhaust Fan / wall mount fan point / 6/16A socket to subsequent points with 2 Runs of 4.0 Sq.mm and 1 Run of 2.5 Sq.mm, PVC insulated FRLSZH, **600/1100** Volt grade, copper conductor wires in surface run with GI saddles or concealed or in GI raceway including cost of cutting & filling chases for recessed conduiting and complete with earthing of switch boxes. Cost of switches/sockets and switch boxes shall be paid separately.

S.No	Clause/Item	Amendment
14.	BOQ, Electrical, J.08, UNINTERRUPTED POWER SUPPLY SYSTEM,8.1	**REPLACE:** Supply, Installation, Testing and Commissioning of IGBT based with parallel redundant hot standby system UPS 2 x 20 kVA as required, online interactive UPS system suitable for providing power supply to emergency lighting system of approved MAKE. UPS should be suitable for incoming 415 volts, 3 phase +10% - 20% , 50Hz, supply and three phase output voltage, variation +-1%, including Transformers (input and output) , Rectifier/ Dual converter, static switch, inverter, filter, bypass & ATS (Auto Transfer Switch) of standard MAKE as approved by Engineer/ Employer, Automatic switch over without giving any break of power, maintenance bypass switch & ATS (Auto Transfer Switch) of Standard MAKE as approved by Engineer/Employer , Automatic switch over without giving any break of power , maintenance bypass switch, Microprocessor/ software controlled annunciation, protection (including against input phase reversal), and menu run diagnostic module, associated cabling and connections/ terminations, erection including foundation/masonry enclosure. (a) Supply, Installation, Testing and Commissioning along with lead acid sealed maintenance free (VRLA) suitable for 30 minutes to the UPS system. Battery shall comply with relevant standard & regulations and standards/code e.g. IEEE485. Battery Racks shall be made of acid resistant material. Battery bank shall be so organized that: (i) One set shall normally function to take up te entire load of UPS, (ii) The cells shall be grouped such that touch voltage does not exceed 72 V, (iil) A separate cell shall consists of six cell blocks each of the same voltage as in the Main battery bank, this set shall be maintained on charge from the charging unit such that one or more units from this set can replace faulty cell blocks of working battery bank. **WITH:**

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<tr><td>8.1</td><td>Supply, Installation, Testing and Commissioning of 2 x 20 kVA, online, UPS system with true parallel and redundant mode of operation, suitable for incoming supply of 415 volts, 3 phase, +10 % - 20%, 50 Hz, and output supply with 415V, 3 phase, variation ± 1%, including isolation transformer, rectifier/dual converter, static switch, inverter, filter, Bypass & static transfer switch for automatic switch over without interruption of power, maintenance bypass switch, Microprocessor/ software controlled annunciation, including phase protection, menu run diagnostic module and associated cabling/connections/ terminations, erection, mounting on base channels etc. complete as per specifications and as required. The price shall include provision of suitable terminal block including gland plate for termination of incoming, outgoing cables and supply of copper synchronizing bus. RS 485 port shall be provided for monitoring various parameters of UPS on BMS work station through MODBUS protocol as per technical specifications.</td></tr>
<tr><td></td><td>The unit shall be provided with isolator for incoming and outgoing. Unit shall be 100% load tested for performance and endurance as a part of commissioning test at site.</td></tr>
<tr><td></td><td>The unit shall satisfy the following specification:</td></tr>
<tr><td></td><td>DSP controlled advanced digital technology, IGBT based rectifier for reducing input THDi to <3%, active power factor correction > 0.99, inbuilt isolation transformer, very high operating efficiency ≥ 92.0 %, pure sine wave output, very high crest factor of 3:1, over load capability of 150% for 1 minute, very high reliability, manual bypass circuit with static switches and load side isolation facility for each parallel path, compact and modular design.</td></tr>
<tr><td>a)</td><td>Supply, Installation, Testing and Commissioning of lead acid sealed maintenance free batteries, suitable for 120-minute-battery backup for each UPS (Total 2Nos. of Battery Bank) including suitable interconnections & earthing. Battery shall comply with relevant regulations/standards & Battery racks shall be made of acid-resistant material (For 2x20 KVA UPS) as per technical specifications.</td></tr>
</table>
</td></tr>
<tr><td>15.</td><td>C4A-PART-1
Section IV BID forms, Clause 2.9.6-page no.19</td><td>REPLACE:
a) 60% payment on supply of materials, 30% of payment for installation and balance 10% of payment on completion of testing, commissioning, submission of all test results, other documentation including as-built drawings, manuals, etc. for:
b. 80% payment against supply and installation and balance 20% price so assigned for testing and commissioning of items of materials, plant and equipment when the plant, equipment is tested and commissioned successfully including integrated testing and</td></tr>
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<tr><th>S.No</th><th>Clause/Item</th><th>Amendment</th></tr>
<tr><td></td><td></td><td>commissioning and submission of all test results, other documentation including as-built drawings, manuals, etc. as described in the specifications, have been approved by the Engineer with the concurrence of Employer.

WITH:
<u>65% payment on supply and delivery of materials, 10% payment for installation, 15% payment on completion of testing & commissioning, and balance 10% payment on integrated testing & commissioning, handover and submission of all test results, other documentation including as-built drawings, manuals, etc. for the Schedule J, K and L.</u></td></tr>
<tr><td>16.</td><td>C4A-PART-1
Section IV BID forms, Clause 2.9.6-page no.24</td><td>REPLACE:
<table><tr><th>Sl.No</th><th>SCHEDULES</th><th>DESCRITPTION</th></tr><tr><td>14.</td><td>K</td><td>Public health Engineering (PHE)</td></tr></table>
WITH:
<table><tr><th>Sl.No</th><th>SCHEDULES</th><th>DESCRITPTION</th></tr><tr><td>14.</td><td>K</td><td>Fire Fighting Works</td></tr></table></td></tr>
</table>

<table>
<tr><th>S.No</th><th>Clause/Item</th><th>Amendment</th></tr>
<tr><td>17.</td><td>C4A-Part-2, Section VII-Vol-4, C4-A-Ann-VII-4-Appendices, Appendix-4, page no-25.</td><td>REPLACE:
<table>
<tr><th>Category

(1)</th><th>Specialisation Position

(2)</th><th>Minimum Numbers

(3)</th><th>Qualification

(4)</th><th>Minimum Experience post qualification in metro& Railway rail project with specified Field (refer Column 2) (Years)

(5)</th><th>Minimum total experience post qualification (Years)

(6)</th></tr>
<tr><td>C1.5</td><td>MEP Systems Manager, with experience in station, Fire detection/ Alarm and suppression system, and ventilation and air-conditioning systems including Plumbing works</td><td>1</td><td>B.E (Electrical or Mechanical)</td><td>5</td><td>≥12</td></tr>
<tr><td>C1.9**</td><td>Health and Safety Manager, experienced in management of Health & Safety Assurance systems on large transport infrastructure projects, including OHSAS 18001 compliance</td><td>1</td><td>B.E. (Civil)</td><td>5</td><td>≥15</td></tr>
<tr><td>C1.13</td><td>MEP Construction Engineer, experienced in major infrastructure design and build and experience of fit-out of Metro Stations including Plumbing works</td><td>2</td><td>B.E (Electrical one or Mechanical one)</td><td>5</td><td>≥10</td></tr>
</table></td></tr>
</table>

S.No	Clause/Item	Amendment

C1.14	MEP Testing and Commissioning Manager/Engineer, will co-ordinate all activities of the commissioning schedule, so that there is completion of testing, and commissioning of the system including Plumbing works	1	B.E (Electrical or Mechanical)	5	≥10

WITH:

Category **(1)**	**Specialisation Position** **(2)**	**Minimum Numbers** **(3)**	**Qualification** **(4)**	**Minimum Experience post qualification in metro& Railway rail project with specified Field (refer Column 2) (Years)** **(5)**	**Minimum total experience post qualification (Years)** **(6)**
C1.5	**Project Manager experience in the role of Project Manager in the execution of similar type of works at Metro & Suburban station E&M/MEP systems.**	**1**	**Bachelor's Degree in Electrical Engineering**	**10**	**≥15**
C1.9**	Health and Safety Manager, experienced in management of Health & Safety Assurance systems on large transport	**2**	**B.E. (Civil)**	**5**	**≥15**

S.No	Clause/Item	Amendment					
			infrastructure projects & **E&M/MEP** works, including OHSAS 18001 compliance				
		C1.13	**Senior Engineers with experience in the role of Senior Engineer in the execution of similar type of works at Metro & Suburban station E&M/MEP systems**	**1**	**Bachelor's Degree in Electrical Engineering**	**6**	**10**
		C1.14	**Site Engineers (3 Nos. Electrical, 3 Nos. Mechanical Engineer) with experience in the role of Site Engineer in the execution of similar type of works at Metro & Suburban station E&M/MEP systems**	**6**	**Bachelor's Degree in Mechanical / Electrical Engineering**	**3**	**6**
					Diploma in Mechanical / Electrical Engineering	**6**	**9**
		C1.24	**QA & QC Manager certificate in QA/ QC, in the role of QA & QC Manager in the execution of similar type of works at Metro & Suburban station E&M/MEP systems**	**1**	**Bachelor's Degree in Mechanical / Electrical Engineering**	**6**	**10**

Design Team Key Persons

The minimum requirements for the Designer and lead team members shall be. Category (1)	Specialisation Position (2)	Minimum Numbers (3)	Qualification (4)	Minimum Experience post qualification in metro & Railway rail project with specified field (refer Column 2) (Years) (5)	Minimum Total Experience post qualification (Years) (6)
D1.1	Design Project Manager with experience in major multi-disciplinary infrastructure design build projects, elevated at grade common elevated Metro/Sub urban Railway station E&M/MEP of similar type works etc.	1	Bachelor's Degree in Electrical Engineering	10	≥20 Years
D1.2	Lead Design Electrical Engineer, with experience in the design of Metro/Sub urban Railway Station Electrical Systems, Fire Life Safety installations, and ventilation and air-conditioning systems	1	B.E (Electrical)	5	≥10 Years

<table>
<tr><th>S.No</th><th>Clause/Item</th><th>Amendment</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><td>D1.3</td><td>Lead Design Mechanical Engineer, with experience in the design of Metro/Sub urban Railway Station Mechanical Systems, Firefighting system, etc.</td><td>1</td><td>B.E (Mechanical)</td><td>5</td><td>≥10 Years</td></tr>
<tr><td>D1.4</td><td>Lead Design Mechanical Engineer, with experience in the design of Metro/Sub urban Railway Station Mechanical Systems, ventilation, and air-conditioning systems (HVAC) works etc.</td><td>1</td><td>B.E (Mechanical)</td><td>5</td><td>≥10 Years</td></tr>
</table>
</td></tr>
<tr><td>18.</td><td>C4A-Part-3, Section IX, PCC, Clause 4.4 Subcontractor (page no.9)</td><td>Following para to be added:

Specialist Subcontracting
If an Applicant intends to subcontract any highly specialized elements of the Works to specialist subcontractors, such elements and the proposed subcontractors shall be clearly identified, and the experience and capacity of the subcontractors shall be described in the relevant Information Forms.

If the contractor proposes to change the sub-contractor for E&M works post award of the contract, then Sub-contractor credential shall be evaluated as per the E&M qualification Criteria and to be appointed only after approval of Employer.</td></tr>
</table>

S.No	Clause/Item	Amendment
19.	**Section IX: PCC,** Part B - Specific Provisions, **13.8 Adjustments for changes in cost**	**Insert para in Clause-13.8 Adjustments for changes in cost** R= Gross value of the work done by the Contractor for the period of work under consideration, after excluding the cost of any materials supplied free or at fixed rate to the Contractor.
20.	General, Tender Drawings	Uploaded PDF tender drawings and KMZ files. KMZ files may be downloaded from KRIDE Website.