

TENDER CONDITION AND SCHEDULE OF WORK

Name of Work: Bhavnagar Division: Supply installation, Testing, Commissioning of Signalling gears and alteration in Medha make Electronics Interlocking system in connection of Bhimnath-Provision of Additional Loop Line.

SN	Description	Qty	Unit	Rate	Amount
	SCHEDULE A (SUPPLY ITEMS)				
1	Supply of IOCOM CPU CARD of Medha make EI system.	4	Nos	84344.00	337376.00
2	IOCOM VOLTAGE AND HEALTH MONITORING CARD of Medha make EI system.	4	Nos	33004.00	132016.00
3	INPUT WFM CPU CARD of Medha make EI system.	6	Nos	43473.00	260838.00
4	OUTPUT WFM CPU CARD of Medha make EI system.	4	Nos	53501.00	214004.00
5	WFM RELAY DRIVER CARD of Medha make EI system.	4	Nos	36383.00	145532.00
6	OCM VITAL CUT-OFF CARD of Medha make EI system.	2	Nos	59001.00	118002.00
7	POWER SUPPLY CARD TYPE B of Medha make EI system.	4	Nos	25803.00	103212.00
8	POWER SUPPLY CARD TYPE C of Medha make EI system.	4	Nos	44663.00	178652.00
9	SINGLE MODE RS485-OFC BI-DIR. CONVERTER of Medha make EI system.	6	Nos	110191.00	661146.00
10	24V EMI FILTER of Medha make EI system.	10	Nos	11360.00	113600.00
11	OC Card files, Enclosure with mounting arrangement, Consisting of OC TOP & BOTTOM BACK PLANES (Two object controllers are accommodated in single enclosure) of Medha make EI system.	2	Nos	339870.00	679740.00
12	Supply of Relay Racks and Wiring accessories of Medha make EI system.	2	Nos	875000.00	1750000.00
13	Supply of DC-DC Converters of Medha make EI system.	6	Nos	35000.00	210000.00
14	Supply of Remote Craft Terminal as per specification Intel i5, 15.6-inch, preloaded windows10 OR higher, RAM 8 GB DDR4 expandable upto 32GB, SSD 512 GB, Wifi, Bluetooth, with 3 years Onsite OEM warranty of Dell, Lenovo, HP Make. Prior approval to be taken before supply for make and specification.	1	No	75762.36	75762.36
15	Rubber Mat for Power Equipment room. (5mm thick).	100	Kg	110.04	11004.00
16	Relay QNA1, AC immunized,08F/08B, 12F-4B, 24VDC along with plug board, retaining clip and connectors conforming to BRS: 931A, IRS: S60, IRS: S34 & IRS: S24.	10	Nos.	5778.94	57789.40
17	Flexible cable (Power wire), multi-strand copper conductors cross section 1x6 Sq. mm. (85	1	Kms.	44446.73	44446.73

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	conductor each diameter 0.30 +/- 0.01) as per IS 694/1990 with insulation thickness of 0.80 mm nominal conductor resistance 3.30 ohms/km and test parameters are as per IRS(S)76/89 or latest.				
18	Flexible cable (Power wire), multi-strand copper conductors cross section (1x16Sq.mm).101 Conductors each diameter 0.45 +/- 0.01 as per IS 694/2010 with insulation thickness of 1.2mm nominal conductor resistance 1.127 Ohms/Km and test parameters as per IRS(S) 76/89 or latest.	1	Kms.	123096.69	123096.69
19	Flexible cable (Power wire), multi-strand copper conductor's cross section 25 Sq. mm (0.4x196) as per specn. IS 694/2010 with latest amendment, and test parameters as per IRS(S) 76/89.	1	Kms.	119877.38	119877.38
20	Single core multi-strand wire 0.5 sq.mm. (16 conductor each dia. 0.2mm), as per IRS 76/89 (Amd3) or latest.	10	Kms.	6478.34	64783.40
21	Extinguisher CO2 type (capacity 4.5 kg. or above).	5	Nos.	8051.11	40255.55
22	Fuse auto changeover system for use in Railway Signaling System as per RDSO/SPN/209/2012 rev.1 with latest amendments. One Automatic changeover Unit comprises 32 nos. of external Non-Deteriorating Type or 'G' type fuses from 0.6 Amp to 4 Amp capacities which are in signaling circuits. The system shall have 8 cards with a monitoring arrangement of 4 fuses in one card.	2	Per Module	34332.00	68664.00
23	Fuse auto changeover system for use in Railway Signaling System as per RDSO/SPN/209/2012 rev.1 with latest amendments. One Automatic changeover Unit comprises 24 nos. of external Non-Deteriorating Type or 'G' type fuses from 4 Amp to 10 Amp capacities which are in signaling circuits. The system shall have 6 cards with a monitoring arrangement of 4 fuses in one card.	1	Per Module	58494.08	58494.08
24	Indicative type Fuse suitable to G type fuse base/holder of capacity 0.63 A - 3.0 A. (System, Rapid, Malnad or RBCO make or similar).	300	Nos.	25.87	7761.00
25	Indicative type Fuse base/ holder with cap, suitable to G type fuse of capacity 0.63A - 3.0A. (System, Rapid, Malnad or RBCO make or similar).	100	Nos.	72.17	7217.00
26	Indicative type Fuse Without holder 6A (System, Rapid or Malnad or RBCO make or similar) as per IRS: S-80/92.	50	Nos.	34.44	1722.00
27	Round head type non deteriorating type low voltage cartridge fuse as per Spec No IRS/S/78/92 with latest amendments 2A/4A/6A capacity.	50	Nos.	57.21	2860.50
28	Miniature, Plug in Type, M to C, DC Neutral, Track relay, ACI, Style QTA2, 9 Ohm, 2F-1B contact, Code - FGKX Spec: BRS :939-A & 966 (Appx-F2) & IRS: S-23, S-23, S-34 & 60.	8	Nos.	6174.93	49399.44

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SN	Description	Qty	Unit	Rate	Amount
29	Miniature, Plug in Type, DC Neutral, Line Relay QSPA1, 24V DC, Slow to Pick up AC Immunized, 12F-4B/8F-4B Contact, Code ABDEJ Spec: BRS:933A; IRS S 34; IRS S 23; IRS S 60-78.	8	Nos.	6747.30	53978.40
30	Track feed battery chargers, 110V AC input, 2 to 6/10 V DC Output; as per Specn. No. IRS.S 89/2013 with latest amendments. Charger shall be suitable for charging 80 AH battery.	8	Nos.	4014.74	32117.92
31	Adjustable Track Feed Resistance disc type 30 ohms as per RDSO Drg. No. SA 20166/M (Adv.) with latest amendments (with Phenolic molded base).	8	Nos.	1091.42	8731.36
32	Track Lead Junction Boxes as per C. Rly Drg. No. RST 11509 made from fibre glass/SMC/FRP along with terminal blocks.	30	Nos.	1244.21	37326.30
33	GI wire 8 SWG (4mm Dia) suitable for track circuit rail bonding.	2000	Kgs	83.92	167840.00
34	Channel Pins MS (Galvanized) single groove, 7 mm suitable for 4mm Dia bonding wire as per spec No IRS S 17 & RDSO Drg No. S-69/M.	500	Nos.	5.46	2730.00
35	Point insulation Complete set as per RDSO Specification IRS: S-40/84 for Switch bracket, Split-Stretcher bar & Gauge tie plates (52 Kg/60Kg as per site requirement).	15	Set	1747.25	26208.75
36	Key Lock Relay working on 24V DC, AC immunize with different ward combinations (Three ward plates to be supplied with each relay). Key ward shall be specified by engineer in charge as per requirement.	4	Nos.	10044.70	40178.80
37	Apparatus Case Single NE Rly Type as per Drg. No. W. Rly/SW/47/68 Alt-A, fitted with two no.s of E Type lock (ward No will be specified by Engineer-in Charge) as per RDSO Drg. No. SA 3376/3473 and Key to Drg. No. 3377 Note: This item includes the supply & fixing of 2 No.s E Type Lock fitted on both doors, along with two Keys.	10	Nos.	19889.74	198897.40
38	Apparatus Case half NE Rly Type as per Drg. No. W. Rly/SW/47/68 Alt-A fitted two no.s E Type lock of (ward No will be specified by Engineer-in Charge) as per RDSO Drg. No. SA 3376/3473 and Key to Drg. No. 3377. Note: This item includes the supply & fixing of 2 No.s E Type Lock fitted on both doors, along with two Keys.	5	Nos.	14770.37	73851.85
39	IS 13410: Glass Reinforced Polyester Sheet Moulding Compounds (SMC) Size of Sheet: 1000x1000x8.	15	Nos.	5320.50	79807.50
40	Supply of 4 connection points single potential through screw less terminal block for 6 Sq.mm - 35 Sq.mm, 4 connection points 284-621/624 or superior, suitable for power cable connection.	50	Nos.	245.03	12251.50

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41	Disconnect Terminal Block, Screw less type, 4-wire front entry (Two in-put & Two out-put) The color will be decided by Engineer - in - Charge. (Preferably In Blue, Red & Grey Colors in the ratio of 1:2:3). as per RDSO Spec. No. RDSO/SPN/189/2004. With latest amendments. Note: Make to be approved by Railway before supply.	1000	Nos.	52.95	52950.00
42	Supply of End plate 2.5mm/0.091 in thick as per site requirement.	20	Nos.	10.02	200.40
43	Supply of End Stopper 10mm/0.0394 in width as per site requirement.	20	Nos.	9.83	196.60
44	Supply of Carrier Rails for above 35mm x 7.5mm, 1mm/0.039 in thickness un-slotted type as per site requirement.	10	Nos.	103.03	1030.30
45	ARA Terminal blocks with links made of PBT Spec Nos/75/2006 (Rev - 2) with latest amendments and RDSO Drg.No.SA-23741A Alt.4.	3000	Nos.	91.35	274050.00
46	Magneto telephone with generator as per RDSO specification No. IRS:TC 36/97 amendment 1 weight per unit 2 kg.	25	Nos.	5182.56	129564.00
47	Supply Polyolefin cable channel of size width 240/340 mm, height 155/230 internal/external, length 1 meter produced of polyolefin with fire protection class K-1 in accordance with DIN 53438 Part-II for laying signaling/telecom cables, channel attachable to each other with male female swallow tail connectors and having a suitable detachable cover, as per RDSO STS/E/cable laying Precise Vol-IV and as per technical specifications.	2000	Nos.	1970.55	3941100.00
48	Supply and fixing of polyolefin cable channel (Injection Moulded Plastic cable Duct) of size width 100/200 mm, height 155/230 internal/external, length 1 meter produced of polyolefin with fire, protection class K-1 in accordance with DIN 53438 part all for laying signaling/telecom cables, channel attachable to each other with male female swallowtail connectors and having suitable detachable cover including supply of all fixing materials like Brackets, etc. , as per RDSO STS/E/cable laying Precise Vol-IV and as per technical specifications.	100	Nos.	1900.08	190008.00
49	Supply of Half Round RCC pipes & collars of 300 mm outer dia & 250 mm internal dia (1 meter long) along with collars with material strength as per IS No. 458/2003 of NP type.	500	Nos.	359.35	179675.00
50	Double Walled Corrugated (DWC) HDPE Pipe with associated collars etc. as per RDSO Specification No. RDSO/SPN/204/2011 or latest anti-rodent & anti-oxidant and non-flame propagating type in 6 meters straight length and of	25	Nos.	2192.97	54824.25

SN	Description	Qty	Unit	Rate	Amount
	size 120 mm outer dia, & 103.5 mm inner dia. One of the following coupling arrangements should also be supplied with each pipe as per the site requirement. 1) Suitable snap fit coupler with rubber 'O-Ring 2) Spacers 3) Tees 4) Bend, 5) End-cap (The total quantity of above items is equal to no. of pipes supplied.) DWC pipe shall be marked at every 1 mtr length in such a way that manufacturer's name, vender name and year of manufacture can be easily identified. Color -Bright Orange; Min Weight = 4kg. Test Check by Consignee & Sample check by JAG officer.				
51	Colour Light Signal Complete. This includes: - (1). Post Tubular 140 mm Dia, as per IRS: S-6/81 or Latest & RDSO Drg. No. SA- 24625 (Advance). (2). CI Base (As per IRS S-10 & RDSO Drg. No. 2011/M with latest assembly). (3). Pinnacle. (4).Ladder Assembly, as per RDSO Drg. No. SA-23156, with Base, Ladder Guards, Platform, Front Maintenance Platform, MS Supporting bracket to Support Ladder. (5). Signal Front Staging Complete Assembly for CLS Unit. (6). Signal back staging as per extent WR Practice. Note: Height of the Post shall be 5.5 Long.	7	Nos.	14604.78	102233.46
52	Non Metallic (FRP) color light signal housing multi-unit type for railway signaling suitable for RE area TWO Aspects. Complete without lenses, lamps and signal transformer as per RDSO DRG. No. SA 23001/A/M Adv. Alt- S and as per SPEC. No. RDSO/SPN/194/2006 (Vol. 1.0) or latest and FRP material as per RDSO SPEC. No. RDSO/SPN/151/1997 or latest.	5	Nos.	29915.16	149575.80
53	Non Metallic (FRP) colour light signal housing multi unit type for railway signaling suitable for RE area THREE Aspects. Complete without lenses, lamps and signal transformer as per RDSO DRG. No. SA 23002/A/M Adv. Alt- S and as per SPEC. No. RDSO/SPN/194/2006 (Vol.1.0) or latest and FRP material as per RDSO SPEC. No. RDSO/SPN/151/1997 or latest.	4	Nos.	31219.67	124878.68
54	Junction route indicator unit 2 way as per Drg. No. RDSO SA 23402 is suitable for LED Signal Lighting Units & as IRS: S-66/84 amndt-1 or latest.	2	Nos.	18990.34	37980.68
55	Position Light Shunt Signal Unit Complete with Post (made of GI Pipe of 80 mm Diameter Medium Class IS Spec. No. IS: 1239 Pt. 1/1990) Base, Hood, and Cover, etc. as per Drg. No. SA-23840, Signal Number Plate, suitable for LED Signal Lighting Unit. (Supply of LED Unit is not covered in this item).	1	Nos.	5265.72	5265.72

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56	Maintenance Free Earth Electrode of length 3m, including supply of 3 bags of Earth enhancement material for earthing (10KGs /bag) for each electrode & other accessories as per Drg. No. SDO / RDSO/ E&B/001 and RDSO Spec No. RDSO / SPN/197with latest Amd.	16	Nos.	11271.19	180339.04
57	Earth Electrode as per Drg. No. CSTE / 6091.	40	Nos.	2763.58	110543.20
58	Supply of copper strip for earthing (25mm x 3mm).	500	Mtr	613.28	306640.00
59	Supply of GI flat for earth (50 X 6 mm).	1000	Mtr	221.14	221140.00
	TOTAL SCHEDULE A				12433366.44
	SCHEDULE B (EXECUTION ITEMS)				
1	Modification of EI System of Medha at BHIMNATH Station of WR, as per RDSO spec no: RDSO/SPN/192/2019. Modification to the existing Application Logic circuits and Interface circuits. Alteration to the MT and VDU software. Up-gradation of Data-logger database at MEDHA end. FAT (Factory Acceptance Test), SAT and commissioning as per the Modified Application Logic. ASMADES	1	LS	5275000.00	5275000.00
2	Supply, Installation and Commissioning of EI VDU (Visual Display Unit, 4K with all suitable accessories Compatible to EI Interlocking in Safe Mode 24x7 at controlling station. The item must comply minimum following specification:- a) Screen Size (Diagonal):- As below b) Resolution :- 4K c) Viewing angle degree: - 178x178 degree d) Brightness :- 500 Nits e) contrast ratio 4000:1 f) Backlit :- Direct LED g) Jack Interface: - HDMI -3 no. 1.2 DP, DVI USB 2.0 -2 no. CI Slot RF In AV In Component In (RCA5 Type) Digital Audio Out RGB In (D-sub 15pin)-PC PC Audio Input RS232C (D-Sub 9pin) RJ45 Stereo mini jack. h) Optical Out :- Available Note: - Screen size will be decided as per instruction of engineer in charge. Approximate Screen size 55 inch.	2	Nos.	78380.49	156760.98
3	Supply and Installation of Modular power supply arrangement for VDU and industrial PC (Embedded PC) with input and output redundancy arrangement and Hot pluggable Modules as per RDSO specification. Make Gallant or similar. One set consists of 1. Input O- ring diode module with potential free -	2	Nos.	272862.00	545724.00

SN	Description	Qty	Unit	Rate	Amount
	1 No contacts (PFC) for two 110 V DC sources from IPS and single 110 VDC bus Qty 1 No. 2. Isolated Inverters (Master / slave) - Input-110 V DC Output: 120 V AC/220V A500VA - 02 Nos. 3. Isolated DC-DC convertors- Input: 110 v DC Output: 24 V DC/ 10A, Qty -10 Nos 4. 3 U SS rack with back panel mother board /front panel power connectors inverter auto change over switch and all required over switch and all required protection circuits (3U height for main rack 132.5mm +/-10% & 1U height for mounting 44.5mm +/- 10%) Qty - 1 No. Make Gallant or similar.				
4	Supply & installation of Industrial Grade Embedded PC as per RDSO TAN no. STS/E/TAN/3007 dated 2.11.12 or latest. Prior approval to be taken before supply.	2	Nos.	162266.99	324533.98
5	Additional Functional testing (SAT) of PI/RR/IBS /Auto signal etc. as per Selection table, control table etc. Contractor shall depute one Engineer, one Supervisor & wiremen technically qualified to carry out functional testing as per approved design. Technical knowledge of contractor's staff will be judged by Railways Engineer incharge before permitting them to do the testing. Contractor has to note down all the discrepancies found in testing noted during functional test in a separate design register and to be counter signed by Railways representative. Rectification of circuit discrepancies to be done after taking approval of changes in circuit diagrams by Railways. Mistakes found to be rectified free of cost by contractor. Omission in testing or wrong testing found after functional test will be penalized @ 5% pf rate per route.	24	Per route	347.21	8333.04
6	Earthing of EI equipment, relay racks and Power equipment etc. to be done along with the supply of all requisite materials. Earthing shall be in the form of Ring Earth conforming to RDSO specification No. RDSO/SPN/197/2008 (with a min. of 6 maintenance free earth electrodes) & RDSO Drawing issued under Railway Board letter No. 2010/Sig./SGF/EI (Ansaldo) Dated 22.06.11, made using copper rings with earth resistance less than 1 ohm. The earthing shall be maintenance free & earth enhancement compound should be used. The ring earth shall be connected to copper flat of size 25x3 mm in the relay room and IPS room. This copper flat shall be fixed on the wall to the entire breadth of the Relay room and IPS room as an earth bus bar and all earth connections shall be taken from it. A, B, C, & D class protection shall be	1	Job	120568.88	120568.88

SN	Description	Qty	Unit	Rate	Amount
	provided for all EI equipment. Note: - This will also cover the earthing& necessary protection of EI equipment as per details given in the scope of work of Special Condition of Contract and other requirement given in Chapter of tender document & Pre-commissioning check list of EI system.				
7	Design of Circuit Diagrams consisting Wiring/Logic diagram, contact analysis, fuse detail, Input/output bit chart, VDU diagram, Interface etc. submission of Three paper copies for approval. Upto 50 Routes.	1	Per station	148076.00	148076.00
8	Design of Miscellaneous diagram consist of Floor Plan of Relay Room, Battery Room, Power Equipment Room, Data logger room, Power Supply Diagrams along with power supply calculation, Earthing Diagram, Power panel diagram, IPS wiring diagram , Auto change over diagram, Block circuit wiring diagram, Digital Axle counter wiring diagram and all other relevant drawings (Three copy) for approval. Upto four line.	1	Per station	4911.62	4911.62
9	Design of Cable Route Plan submission of Three paper copies for approval.	1	Set	9748.11	9748.11
10	Supply of final Cable Route Plan as per laid cable duly measured at every 30m clearly indicating distance of laid cable from fixed point of reference & indicating all track crossings and tail cables in original tracing along with Auto CAD in Pen Drive and Six set copies after approval.	1	Per station	1560.01	1560.01
11	Design and supply of cable corage plan, location particulars, Cable termination rack particulars, cable meggering report, earth resistance particulars, Traction bonding diagram, 1/2 wire count sheet and any other drawing in AutoCAD in A3/A4 size. The contractor shall initially supply 3 sets of circuits complete for approval of Railways. Railways will return one set to the contractor duly approved with alterations/corrections, if any. The contractor shall incorporate Railway's alterations/corrections in the tracings without any deviation and submit all tracings complete in all respects to the Railways along with PENDRIVE & 4 sets of final approved drawings. This includes designing of cable coreage plan based upon I.P in consultation with engineer-in-charge For small/medium yards.	1	Per station	57627.58	57627.58
12	Design of ST/LT/TOC/Square sheet/RCC (Three copy) for approval. Upto four line station.	1	Per station	19743.00	19743.00
13	Supply of completions ST/LT/TOC in original tracing along with Auto CAD copies in Pen Drive and six set copies after approval. Up to four line station.	1	Nos.	845.30	845.30

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14	Supply of ferrules of different colour, printing termination details / Functions in different colours as per Railway specification and installation in Relay room, Location Box and Power board etc, at various stations and LC gates as per instruction of Engg. in charge. All materials required for the work shall be supplied by the contractor.	2500	Nos.	12.82	32050.00
15	Design and supply SWR Diagram on standard tracing paper of 95 grams for each station. Corrected version of SWR plans after checked & approved by Rly's 25 copies will be supply for each of the plans. For stations having up to 4 lines.	1	Nos.	26023.47	26023.47
16	Fabrication and supply of premium quality foam sheet 5mm thickness with vinyl printing of approximately size 2.5 feet x 4.5 feet with framing. This item also includes lettering/numbering of termination particulars, CTR contact details in relay room, relay hut, goomtys etc. This item also includes all material and resources required for fixing and transportation at stations & LC gates of Bhavnagar Division. Colour coding of CTR termination details will be as per WR/HQ policy letter, CTR termination details will be given by Railway. Work will be carried out as per western Railway practice. Sample of CTR to be provided before printing of all CTR of Division.	3	Nos.	2738.73	8216.19
17	Fabrication and supply of premium quality foam sheet 5mm thickness with eco vinyl printing of approximately size 12 inch x18inch. This item includes lettering / numbering of termination particulars of gears etc. This item also includes all material and resources required for fixing and transportation at station & LC gates of Bhavnagar Division. Colour coding of termination details will be as per WR/HQ policy letter. Termination details of location box will be given by Railway. Work will be carried out as per Western Railway practice One sample to be provided before printing.	10	Nos.	267.98	2679.80
18	Function Description of writing details of location boxes at station and LC gates to design in Auto Cad for full and half apparatus cases. Soft copy designed in Auto CAD to be provided in a storage device for future records purpose. Design and color coding should be done in Auto CAD as per latest policy of WR. Writing details will be provided by Railway. One sample to be provided before final printing.	10	Nos.	256.80	2568.00
19	Supply of Smart Cabinet/Rack for Housing of Various S&T equipments like KLCR, Reset Box, IPS Indication Panel, CA VA Unit for FACS, SPAU for Point Reversal, Crank Handle, Quad Cable Earth Sensing Unit along with Fixing of KLCR (KLCR will be provided by Railway) as per	1	Nos.	52500.44	52500.44

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SN	Description	Qty	Unit	Rate	Amount
	instruction of Site Engineer, Make RITTAL, SANTEL, VERO, PRESIDENT, APC Schneider or similar reputed make.				
20	Tripod Earthing of HADAC to be done along with the supply of all requisite materials. Earthing shall be in the form of Tripod Earth conforming to RDSO specification No. RDSO/SPN/197/2008 (with 3 no.s maintenance free earth electrodes), with earth resistance less than 1 ohm. The earthing shall be maintenance free & earth enhancement compound should be used. The earths shall be interconnected by copper strip of size 25x3 mm.	2	Job	37526.61	75053.22
21	Laying of S&T Cables of various cores/ pairs/ quads in trenches/ GI pipes/ RCC pipes/ DWC pipes/ Trucking. This also includes laying of cables in track crossings & road crossings. Item includes provision of labels of colored plastic adhesive tapes or any other identifiable material on each cable to give the cable number at each G.P. (Cables will be daggered before and after its laying by contractor under supervision of Railway Representative and he will submit the meggering report of each testing). Length of the cable laid includes the length of the cable coiled for termination purposes.	21000	RM	10.71	224910.00
22	Installation wiring testing and commissioning of Fuse changeover system (FACS). This includes the provision of a common Buzzer & indication at the ASM Room & ESM Duty Room and the painting of fuse details. This also includes the fabrication of a frame for the installation of FACS at the Station/ LC gate where the installation of relay racks is not feasible.	3	Per Module	1048.19	3144.57
23	Earth Leakage Detector as per RDSO/SPN/256/2002 or latest with latest amendments. The basic detector unit shall comprise of 8 channels, for use on signaling circuits of 110V AC/DC and/or 60V/24V/12V DC as ordered by purchaser. If the detector is required for less number of channels, dummy plates shall be provided. For additional requirement add on /expendable cabinet may be used. The voltage specified shall be provided with + 25% and - 10% tolerance. Installation as per instruction given by Railway.	1	Nos.	137129.80	137129.80
24	EARTH LEAKGE TRACKING UNIT (ELTU) - for 12 channel Earth Leakage Detector. Item includes supply, brief installation and site demonstration. Installation as per instruction given by Railway. Installation as per instruction given by Railway.	2	Nos.	39014.34	78028.68

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SN	Description	Qty	Unit	Rate	Amount
25	Installation of track device (double rail contact) including digging of trench, track crossing, laying of anti-rodent, anti-oxidant & non-flame propagating type Double Walled Corrugated (DWC) pipe as per IS- 14930 part- I or II or latest and all other accessories as per site requirement to be for laying of transmitter and receiver cable. The item also includes installation of EJB / Track side Electronics including foundation & earthing as per OEM's guidelines and Technical requirement & specification with their own material. NOTE: Installation / programming / configuration / commissioning of Axle counter equipment to be carried out in accordance with latest guidelines issued by Railways/RDSO preferably by Authorized representative of OEM.	10	Per DP	15648.00	156480.00
26	Installation of Central Evaluator of axle Counter, wiring from CT rack to Central Evaluator, installation and wiring of the reset box, LV box (if required) and associated power supply wiring. This includes supply of shielded cable of required conductor size for wiring between CT rack to evaluator rack, all other wires, power supply cable and wiring materials. The power supply cable from power room to Central Evaluator should not be less than 10 sq.mm PVC wire. Earthing as per OEM's guidelines & specification with their own material. This also includes painting and writing work on evaluator as per site requirement. NOTE: Installation /programming / configuration / commissioning of Axle counter equipment to be carried out in accordance with latest guidelines issued by Railways/ RDSO preferably by Authorised representative of OEM.	1	Nos.	11984.00	11984.00
27	Charging of Lead Acid Batteries (2V 80AH) with contractors' own battery grade sulphuric acid and distilled water with a minimum of two charge-discharge cycles, installation of charged batteries in groups & their connection & wiring. The work shall be done as per the extant practice of W.Rly & instruction of the Engineer-in-charge. Detailed measurements of initial charging shall be recorded jointly by the contractor & Rly's site-in-charge.	70	Nos.	389.34	27253.80
28	Provision of bonding with GI wire 4mm Dia (8 SWG) for track jumper & fish plate joints bonds. This will include drilling of 7.0/7.1/7.2 mm Dia holes in rails (4 Nos.) and provision of two jumpers for each bond, clipping of bonds etc. with contractors own tools as per instruction of Rly. Engineer at site.	50	Set	216.20	10810.00

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SN	Description	Qty	Unit	Rate	Amount
29	Fixing and wiring of DC track circuit equipments i.e. track feed charger, resistance, track relay, battery, PPTC fuses etc., in the Apparatus Case and battery box as per standard practice. Termination of tail cable on M 6 / Screw less terminals WAGO or FINOLEX or similar approved make terminals/ fuse blocks / HRC fuse. Item includes testing /commissioning of track circuit. Complete wiring material (including PPTC fuses) which are not covered in Schedule will be supplied by contractor. (Supply of Track feed battery charger, track feed battery, resistances & 'B' type choke & Track relays will be supplied by Railways / covered in Schedule separately).	12	Per Track Circuit	8005.27	96063.24
30	Installation of DC track circuits covering points zones also. The item includes provision of continuity bonds of seven strand PVC jacketed wire/ GI wire 8 SWG on rail joints after drilling bond-hole of 7.0/7.1/7.2mm Dia (double bond with sleeves and rail clips are to be provided at each rail joint), insertion of insulated block joint, fixing of Track lead Junction box on MS angle two numbers of size 40X40X5 mm 1200 mm length for track feed/ jumper / track relay ends of track CCTs (as per double TLJB arrangements) and also for fixing jumper cables as per insulation diagram WR Drg No. CSTE/6055 and standard practice, making rail connections through suitable insulated sleeves from Track lead Junction box at TF, jumper & TR end with seven strand PVC jacketed wire /GI wire 8 SWG, rail clips for fixing bond wire on the TLJB as per standard practice, termination of tail cables on bootleg terminals etc. TF/TR wiring shall be fixed on the suitable arrangement on PRC sleepers with the help of hooks. Hooks shall be provided on PRC sleepers with the help of suitable steel bracket. This item also includes fixing & supply of channel pins etc. The item also includes supply of MS angles/ trestles, GI wire 8 SWG / seven strand PVC jacketed wire, hooks, rail clips etc.	12	Set	8761.26	105135.12
31	Removal & reinstallation of Axle Counter/Tx-Rx coil (Detection Point).	4	Nos.	1511.99	6047.94

SN	Description	Qty	Unit	Rate	Amount
32	Fixing of Electrical Point Machine on the extended sleepers at points as per std. practice and as per RDSO Drg No. SA 91 51-52 or 9710 or 9161 as per section of rails used. Item includes fixing switch extension bracket, providing insulation for switch extension bracket, fixing ground connection, adjusting opening of the switches and adjusting the point machine with crank handle. The item also includes : (i) Complete material for installation like ground-connections, switch extension brackets, point insulation material, I pipes, wiring materials, various fixing nuts & bolts including castle nuts, spring washers (ii) All smithy & fitting works required at site for complete installation. (iii) Installation of gauge tie plate & providing insulation for gauge tie plate (Insulation in William Stretcher Bar will be Provide by Railways). (iv) Wiring inside the point machine, insertion and termination of tail cable in point machine and junction boxes / location box /cable hut as per extant practice on WR and the instruction of Railway Engineer at site. (v) Supply and fixing of suitable size GI pipes with flange for taking cable into point machine. Note ; The ground connections shall be suitable to the Point Machines as specified by Engineer-in-charge and shall be suitable to the point lay out i.e. 60 Kg. / 52 Kg / 90R as per yard layout. Electrical Point Machine and M-6 / Screw less terminals will be supplied by Railways / covered in Schedule separately.	6	Nos.	25941.39	155648.34
33	Refixing of electrical point machine, ground connection during phase working (No interlocked working) after removing the existing fitting if any, adjustment if necessary, cable termination, wiring, testing and commissioning of electrically operated point, fixing and connecting point indicator on derail switch if necessary. The work shall be done as per extant practice on WR & the instruction of Railway Engineer at site.	2	Turn-out	3120.46	6240.92
34	Dismantling of all points complete including Ground connection, fitting ME-34 boxes and point machines with transporting them to consignee's depot or DS-8 depot as per the instruction of Engineer In-charge by contactors own vehicle & labour.	2	Nos.	4028.19	8056.38
35	Supply and fixing of CH/KLCR boxes appropriate size in field / in location boxes / in SM office / at LC gate as per site condition. It should be made of Hylam /wooden (teak wood) of high quality as per requirement. Item includes supply of any minor bracket nuts, bolts and hole drilling MS angle, MS plate etc. It also includes fixing of KLCR relays in	4	Nos.	1685.71	6742.84

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SN	Description	Qty	Unit	Rate	Amount
	the boxes. Prior approval to be taken from Engg. In charge before supply of box.				
36	Excavation and Casting of Apparatus Case foundation with contractor's own materials including cement and anchor bolts of standard size. The required scaffolding Ferma etc. for Casting of foundation will have to be brought by the contractor at his own cost. Single Case as per Drg No SK 748 or CSTE/5074 or SS Location.	10	Nos.	8407.90	84079.00
37	Installation of Apparatus Cases with miniature 'E' type lock on CC foundation. This includes filling of location foundations with river bed sand and plastering on top of the sand. 'E' Type lock will be provided by Railway. Single Case.	10	Nos.	1259.78	12597.80
38	Excavation and Casting of Apparatus Case foundation with contractor's own materials including cement and anchor bolts of standard size. The required scaffolding Ferma etc. for Casting of foundation will have to be brought by the contractor at his own cost. Half Case as per Drg No SK 747 or CSTE/5074 or SS Location.	5	Nos.	6236.52	31182.60
39	Installation of Apparatus Cases with miniature 'E' type lock on CC foundation. This includes filling of location foundations with river bed sand and plastering on top of the sand. 'E' Type lock will be provided by Railway. Half Case	5	Nos.	748.30	3741.50
40	Fabrication and fixing of SMC sheet in location box by providing all fixtures as per Railway Drawing including fixing of PVC coated string rods at the back side for cable support with contractor's own materials. The work shall be done as per Drg and arrangement similar to SK 783-1/2. With latest alterations & as per instructions of Rly engineer at site. Note: SMC sheet will be taken in place of phenolic laminated sheet.	10	Nos.	3063.05	30630.50
41	Fabrication and fixing of SMC sheet in location box by providing all fixtures as per Railway Drawing including fixing of PVC coated string rods at the back side for cable support with contractor's own materials. The work shall be done as per Drg and arrangement similar to SK 783-1/2. With latest alterations & as per instructions of Rly engineer at site. Note: SMC sheet will be taken in place of phenolic laminated sheet.	5	Nos.	928.06	4640.30

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SN	Description	Qty	Unit	Rate	Amount
42	Shifting of existing full location boxes coming in the alignment of new line. The work includes losing & removal of soil around location boxes by excavating soil around foundation, making of pit for shifting of location box horizontally opposite to railway track up to 0.5 to 1.0 mtr. This includes loosening of existing cable coils without any damage. The excavated soil shall be back filled after shifting of Location Boxes. Location box shall be shifted by push method with the help of jacks or by crane by contractors own expenditure under instructions of engineer in-charge at site. The work may affect train working hence the work shall be done as per margin only or during traffic block only.	5	Nos.	4884.93	24424.65
43	Shifting of existing half location boxes coming in the alignment of new line. The work includes losing & removal of soil around location boxes by excavating soil around foundation, making of pit for shifting of location box horizontally opposite to railway This includes loosening of existing cable coils without any damage. The excavated soil shall be back filled after shifting of Location Boxes. Location box shall be shifted by push method with the help of jacks or by crane by contractors own expenditure under instructions of engineer in-charge at site. The work may affect train working hence the work shall be done as per margin only or during traffic block only.	5	Nos.	3778.02	18890.10
44	Wiring, installing of Magneto / DTMF telephone in ASM office, at locations, Relay Room, Point locations on both directions and siding Point Control locations as per instructions of Engineer In-Charge for traffic purpose.	25	Per Telephone	2245.88	56147.00
45	Termination of outdoor cables, main cables laid in location boxes, Cable termination rack etc. at both ends on ARA terminal or on 8 way terminals or on screw less connectors. Both ends of a cable core terminated shall be counted as one terminal. This includes all associated works of pulling out the cable from underground, peeling off insulation, dressing of cable core supported on sting rod with contractor's own material. The work shall be done as per instructions of Rly engineer at site.	3000	Per Terminal	25.36	76080.00

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SN	Description	Qty	Unit	Rate	Amount
46	Excavation of cable trench as per cable route plan, 1 Mtr. deep and of 0.3 Mtr. to 0.6 Mtrs wide advised by Engineer-in-charge alongside the track in normal (all type) soil/strata, conforming to distances as per cable route plan and refilling. This work includes clearing of route from bushes etc, covering of cable laid in trench by loose soil for a layer of 50mm thickness approximately before covering by bricks. The work shall be done as per the extant practice on Western Railway and instructions of Railway Engineer at site. In case 1m depth of trench is not achievable due to site conditions, specific approval of JA grade officer will be required for each site where trench depth of 1m is not possible. Without the approval of JA Grade officer, no payment for trenching will be made for trench depth less than 1m.	600	Cum	521.51	312906.00
47	Digging of trench 1.2 M deep from rail flange/ road level and, 0.3 Mtr to 0.6 Mtr wide and back filling after placing of DWC/ RCC/GI pipe. (Placing of DWC/RCC/GI pipe covered separately). The ballast disturbed be screened and dressed as required by Engineer-in-charge or his representatives and road tarred immediately. For track crossing, Drg. No. CSTE/3644 Pg.7 of 11 and for Road Crossing, Drg. No. CSTE/3644 Pg. 5 of 11 are to be followed.	18	Cum	410.58	7390.44
48	Digging of cable trench 0.3 Mtrs. Deep and 0.3 Mtrs. Wide on Asphalted Platform / Road / Hard rocky area. Refilling with earth levelling of trenches & restoring the original surface of trenches.	9	Cum	548.65	4937.85
49	Horizontal direction drilling/boring without damage of surface road using Auger Machine. The bore shall be 150 mm dia & shall be done at the depth of minimum 1200 mm from the ground level. The ground level shall be considered ignoring the bank height of the bank of the road. The length of the bore shall be minimum 4 Mtrs long. this include insertion of different dia DWC pipe/ GI pipes coupling etc. as per direction of Engineer In charge.	50	Mtr	1172.82	58641.00
50	Cutting of Hard rock in trenches /Preparation of cable way/Chase 150mm wide at the bottom and 300 mm deep in hard rock (Drg prepared by contactor & approved by Engineer In charge) for laying of S&T cables where minimum required depth not possible & which is verified and agreed by Engineer In charge of the work or his representative shall be made as per Drg. No RE/S&T/ALD/SK/301/85. Refilling of the same with concrete mixture of 1:3:6 from top of the cable way/ chase. Payment of concrete will be made	10	Cum	438.73	4387.30

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SN	Description	Qty	Unit	Rate	Amount
	separately through a separate item in the schedule of work.				
51	Digging of cable pit (min 2mx2mx1m) as per instruction of Site Engineer, supplying and filling of sand before and after coiling the cables, covering top of the cable pit with stones and providing brick masonry on all four sides of the cable pit and plastering thereafter.	1	Nos.	14555.90	14555.90
52	Cement concrete work for miscellaneous items in the ratio 1: 3: 6. Item includes excavation, ramming, curing and plastering with cement & sand mixture (aggregate not exceeding 3.8 cm.) (Aggregate cement & sand to be supplied by the contractor).	50	Cum	6551.92	327596.00
53	Providing brick masonry in ratio 1:6 cement and mortar including plastering with 1:4 cement and sand mixture both sides, 20 mm thick each with contractor's owned class II bricks, including excavation, curing, grouting, bolting etc. wherever required. Bricks sand and cement to be supplied by the contractor.	50	Cum	2157.83	107891.50
54	Earthwork in filling in embankment, guide bunds, around buried type abutments, bridge gaps, trolley refuges, rain bunds if provided, platforms etc. with earth excavated from outside railway boundary entirely arranged by the contractor at his own cost as per RDSO's latest guidelines and specifications and special condition of contract including all leads, royalty, lifts, ascents, descents, crossing of nallahs or any other obstructions. The rates shall include all dressing of bank to final profile, demarcation and setting out of profile, site clearance, removing of shrubs, roots of vegetation growth, heavy grass, benching of existing slope of old bank, all handling/re-handling. Taxes, Octroi and royalty etc. as a complete job. Cut trees shall be property of railways and to be deposited in the railway godown unless specified otherwise in the Special conditions of contract.	60	Cum	161.74	9704.40
55	Supply and installation of RCC cable route marker engraved and painted on both side along the route every 50mm and route diversion as per Drg. No 4014/00/CC4 or latest/ Stone marker.	70	Nos.	476.63	33364.10
56	Laying of half round RCC pipe after laying the cables in the trenches. (Cable laying is covered separately).	500	RM	28.85	14425.00
57	Medium Class G.I. Pipes to IS: 1239 (Pt.)-2004 or latest; 100mm dia. (int. Dia) 3.65 mm thick or above with coupling. G.I. pipes shall have ISI mark on it and contractor should submit manufacturer's test certificate of G.I. pipes.	48	Mtr	957.00	45936.00

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SN	Description	Qty	Unit	Rate	Amount
58	Placing of DWC/RCC pipes along with collars in trenches at places of track and road crossings, platform cuttings etc. also for straight cable laying. (Cable laying is covered separately.)	200	RM	36.63	7326.00
59	Excavation and Casting of foundation for main signal post as per CSTE/3122 (WR) with contractor's own materials including cement and anchor bolts of standard size. The required scaffolding Ferma etc. for Casting of foundation will have to be brought by the contractor at his own cost.	7	Nos.	10831.21	75818.47
60	Erection of CLS Post with base and signal unit on top or on OFF set Bracket, fixing of front and back staging, ladder and guards, signal name plates / boards if any with contractor's own brackets and fixing materials. This also includes erection of auxiliary signals like calling on, shunt signal if any. The work shall be done as per instructions of Rly engineer at site. It also includes provision & fixing of maintenance platform as per design given by Engineer -In-Charge at site. The Item includes cutting of Signal post if required by Site In charge. 2/3/4 aspect signal unit mounted directly on signal post.	7	Nos.	5492.36	38446.52
61	Supply & Fixing of Stop Board, Block section limit Board, goods warning board and all other boards with contractors own material. The work shall be done as per instruction of Rly. Engineer incharge as per IRSEM.	4	Nos.	5660.40	22641.60
62	Dismantling of all signals complete with signal unit, route indicator, signal foundation and other accessories complete with transporting them to consignee's depot or DS-8 depot as per the instruction of Engineer In-charge by contactors own vehicle & labour	5	Nos.	6296.58	31482.90
63	Excavation and Casting of foundation for Shunt Signal as per Drg. No. CSTE/6090 with Contractor's own materials including Cement and Anchor Bolts of Standard Size. The required scaffolding, Ferma etc for Casting of foundation will have to be brought by the Contractor at his own cost.	1	Nos.	6660.00	6660.00
64	Erection of Position Light Shunt signal with Base, Post, Signal unit and fixing of Number Plates. The work shall be done as per instructions of Rly engineer at site.	1	Nos.	3218.29	3218.29
65	Transportation of S&T material leading up to 1 Km including Loading from Starting point, unloading & Stacking at destination.	200	MT	575.49	115098.00
66	Extra for each additional 1 Km or part thereof.	2000	Km	5.21	10420.00

SN	Description	Qty	Unit	Rate	Amount
67	Dismantling / Releasing of existing Signaling Gears. One Signalling gear will be all parts of one signal (consisting of CLS unit, Signal post along with base) or lever frame (5 levers set), or one point (consisting of all parts of a mechanical point, point machine, ground connections etc.) or one track circuits (consisting of battery box & other parts of DC Track circuit / AFTC /DAC) or one Block instruments or One Lifting Barrier or One Location Box etc. .This includes the cost of transportation of release materials to store depot or as decided by consignee in charge. This work to be done by contactors with his own vehicle and labour. (Per unit means Per Gear).	20	Per Gear	1112.56	22251.20
68	Dismantling of Concrete foundation/ Demolishing RCC/CC/Stone work /Cutting Tar/ carpentering/ CC Flooring / Precast concrete slab/ Brick work including leading the debris inside Railway limit or outside Railway limit as directed by site in charge. This work to be done by contactors with his own vehicle and labour.	10	Cum	676.76	6767.60
69	Miscellaneous arrangements during Pre-NI/NI comprising of : 1. Temporary goomty tent of dimension at least 12' X 12' at two to four places, as per the need at site, in the station yard. Each goomtys to be furnished with two tables, Six chairs and emergency light. 2. Resting arrangement for at least 24 staff at night. 3. Vehicles for transportation arrangement for to and fro movement in the station as well as between the staff resting place during NI period. 4.Manning of station goomtys to be done by contractor. 5. Catering facility includes Breakfast, Lunch, Dinner and refreshment for staff involved during NI. Note: Quantity of each item, installation, capacity etc. decided by the Railway Engineer.	1	Per PI/ EI/ RRI	152392.86	152392.86
70	Installation of Maintenance Free Earth Electrode for Maintenance Free Earth spec of RDSO/SPN/197with Latest Amd. RDSO guide line / RDSO TAN should be ensured during execution.	16	Nos.	1669.81	26716.96
71	Installation of Earth Electrode including MS flat for clamp etc. and connection to signalling equipments, lever frames, apparatus cases, signal, relay rack, block instrument, etc. as per technical specification given. This item includes digging of pit in earth 3 M deep & fixing earth electrode pipe, casting of cement concrete enclosure & cover as per RDSO/SPN/ 197/2016.Soiltreatment to be done as per std. practice. This item includes provision of MS Flat, Earth lead wires and Soldering of lead	40	Nos.	5509.19	220367.60

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SN	Description	Qty	Unit	Rate	Amount
	wires. The other end of the wire is to be connected to block equipment, power equipment, cable sheath, and signals etc. as per site requirements. 7strand GI wire shall be used as earth lead wire. Supply of earth electrode is covered in other Item').				
72	Supply & installation of Fencing work around S&T apparatus case or building/office etc. As per instruction given by site in charge.	500	Kgs	238.22	119110.00
73	Erection of copper strip for earthing. (25 x 3mm)	500	Each	24.04	12020.00
74	Erection of MS flat for earth (50mm x 6mm) laid in ground/exposed.	1000	Mtr	66.90	66900.00
75	Painting of Main Signal Post with Signal Units, Surface base and complete fittings as per Western Railways standard practice.	12	Nos.	424.20	5090.40
76	Painting of Point Machine with ground connections complete (Point Machine with Black enamel only outside and ground connections with Red Oxide)	8	Nos.	122.91	983.28
77	Painting Apparatus Case Full Size. (Outside & inside)	20	Nos.	341.49	6829.80
78	Painting of Apparatus case Half Size. (Outside & inside)	15	Nos.	320.14	4802.10
79	Painting Shunt signal post with signal unit, surface base as per Western Railway's Standard Practice.	2	Nos.	247.73	495.46
80	Painting and writing work of earth pits as per standard practice of western railway.	50	Nos.	320.30	16015.00
81	Fabrication and fixing of 'A' Marker (Drg No. CSTE/6180), 'AG' Marker (Drg No. CSTE/6181), 'P' Marker (Drg No. CSTE/6182), Arrow Marker (Drg No. CSTE/6183), 'G' Marker (Drg No. CSTE/6184), 'C' Marker (Drg No. CSTE/6185). Marker disk on signals as per standard practice All material required for this work shall be supplied by Contractor.	14	Nos.	1448.00	20272.00
	TOTAL SCHEDULE B				10182474.23
	SCHEDULE C (MSDAC)				

SN	Description	Qty	Unit	Rate	Amount
1	Supply of Multi Section Digital Axle Counter (MSDAC) for mentioned detection Point by the purchased & track Section as per SIP, complete with all accessories, cable required with each track device & card viz. Axle detectors, Track Side Electronics/DAC field units, Central Evaluator (Central Evaluator unit should be housed in a pre-fabricated rack to be supplied along with the system), reset unit, Relay unit, Event Logger & Diagnostic terminals, etc. Required for different Detection Points & Track Sections as per RDSO Specifications No. RDSO/SPN/176/2013, Ver.3 or latest and OEM/ manufacturer's specification and as per Annexures. (Quantity 01 No. = 01 DP) Inspection Authority: RDSO. Note:- As per WR's Policy No 03/2024 Para No. 3.4.2.e.iv "VDU/Reset box can be used for resetting. At Stations having more than 10 Track sections, the Railway propose to use a separate VDU-based resetting system. Such a VDU-based system if using a PC, it must be industrial grade".	10	Per DP	314195.71	3141957.10
	TOTAL SCHEDULE C				3141957.10
	GRAND TOTAL SCHEDULE A+B+C				25757797.77

Note:

1. Tenderer's are requested to inspect the site before quoting the rates.
2. Although year of specification is given in the schedule, latest amendment issued before beginning of sale of tender document shall apply.
3. Includes supply of minor material & accessories, paints and the cost of which to be included in the labour charges of the concerned item of schedule.
4. Tenderer/s should sign the following certificate:
I/we offer and agree to execute the above work at %
(in figures) i.e. percent (in words) above/below of the
total estimated cost of schedule including all taxes.

SPECIAL CONDITIONS

NAME OF WORK: Bhavnagar Division: Supply installation, Testing, Commissioning of Signalling gears and alteration in Medha make Electronics Interlocking system in connection of Bhimnath- Provision of Additional Loop Line.

1. LOCATION OF SITE:

The work is to be carried out at **Bhimnath station in Sabarmati - Botad Section** of Bhavnagar Division and as per instruction of Engineer In-charge in Bhavnagar Division.

2. SCOPE OF WORK

- i. Alteration in Electronic Interlocking (EI) system as per RDSO Specifications No. RDSO/SPN/192/2019 Ver.2.0 with latest amendment.
- ii. Supply, Installation, Testing and Commissioning of Maintenance Free Earth Electrode as per RDSO Spec No. RDSO / SPN/197 with latest Amd. Supply, Installation, Testing and Commissioning of Earth Electrode. TAN on Earthing, Bonding, Surge & Lightning Protection System for S&T Installation.
- iii. Supply, installation, testing commissioning of Multi Section Digital Axle Counter (MSDAC) as per RDSO Specifications No. RDSO/SPN/176/2013, Ver.3. All guideline issued by Railway Board, RDSO & Western Railway shall be complied during execution of work. **Note: Prior approval to be taken from Railway before supply.**
- iv. Excavation of cable trench, Digging of trench, laying cable as per RDSO guide line.
- v. Supply of Main signal post, Shunt signal post, excavation, foundation & installation with signal units.
- vi. Work to be carried out as per Western Railway policy No 03/2024 as per schedule of work.

Contractor will supply the material and do the work as detailed in Schedules of work. The work will be carried out invariably in presence of railway representative.

3. SYSTEM OF QUOTING RATES:

The entire work is divided into the following Schedule.

Schedule A – Supply of materials as per schedule of work.

Schedule B - Execution, testing & commissioning of indoor & outdoor work as per schedule of work.

Schedule C - MSDAC

Against each item of schedules, the rates estimated by Railways are written and total is drawn for each schedule. The tenderer is required to quote **the percentage above/below the Railway's total estimated cost of the schedules A, B and C.**

LOCAL CONDITIONS: It will be imperative on each tenderer to fully acquaint himself with all the local conditions and factors which would have any effect on the performance of the contract and cost of the work. The railway administration shall not entertain any request for clarifications from the tenderer regarding such local conditions. No request for change of price or time schedule of completion shall be entertained after the offer is accepted by the railway administration on account of any local condition or factor.

4. COMPLETION PERIOD

The entire work shall be completed within **12 months** from the date of issue of Letter of Acceptance.

5. ELIGIBILITY CONDITIONS:

(a) Similar Nature of Work

Any RI or EI or CLS or ABS or IBS work involving indoor & outdoor work (cable laying & termination).

(b) Special Technical & Financial Criteria as per GCC

I. Technical Eligibility (GCC para 10.1):

The tenderer must have successfully completed or substantially completed any one of the following categories of work(s) during last 07 (seven) years, ending last day of month previous to the one in which tender is invited:

- (i) Three similar works each costing not less than the amount equal to 30% of advertised value of the tender, or
- (ii) Two similar works each costing not less than the amount equal to 40% of advertised value of the tender, or
- (iii) One similar work costing not less than the amount equal to 60% of advertised value of the tender.

II. Financial Eligibility Criteria (GCC Para No. 10.2):

The tenderer must have minimum average annual contractual turnover of V/N or 'V' whichever is less; where

V= Advertised value of the tender in crores of Rupees

N= Number of years prescribed for completion of work for which bids have been invited.

The average annual contractual turnover shall be calculated as an average of "total contractual payments" in the previous three financial years, as per the audited balance sheet. However, in case balance sheet of the previous year is yet to be prepared/ audited, the audited balance sheet of the fourth previous year shall be considered for calculating average annual contractual turnover.

The tenderers shall submit requisite information as per Annexure-VIB, along with copies of Audited Balance Sheets duly certified by the Chartered Accountant/ Certificate from Chartered Accountant duly supported by Audited Balance Sheet.

Annexure VIB is given in GCC.

III. Bid Capacity (GCC para 10.3) if Applicable.

(C) Technical Compliance:

While bidding, bidder should submit the MOU of RDSO approved source (OEM or his RDSO approved source) of existing MEDHA make EI at the time of bidding covering supply of the equipment of EI, installation, alteration, testing and commissioning of EI including after sales support required during the warranty period and beyond the warranty period, failing which tender/offer shall be summarily rejected.

5.1 Tenderer shall submit following documents along with offer dully self-attested / digitally signed.

- i. Tender form (First Sheet) - Annexure – I.
- ii. Format for certificate to be submitted / uploaded by tenderer along with the tender documents – Annexure – V / Annexure V (A).
- iii. Bid security – Annexure VIA, if EMD paid in Bank Guarantee Bond.
- iv. Sole Proprietorship Firm – Certificate by tenderer. If any
- v. Partnership Firm – Documents as per GCC clause 18. If any
- vi. Company registered under Companies Act 2013, if any – Documents as per GCC clause 14 (e). If any.
- vii. Limited Liability Partnership, if any - Documents as per GCC clause 14 (f). If any
- viii. Registered Society & Registered Trust, if any - Documents as per GCC clause 14 (g). If any
- ix. Notarized Power of Attorney, if any
- x. Bank details, GST detail.
- xi. PAN Card detail.

6. PAYMENT TERMS

As per HQ letter No. SG 32/1/1 dated 03.09.2014.

	Schedule - (Supply Part)			Schedule - (Execution Part)	
Work progress stage	Against supply	After Installation	After commissioning	On Measurement	After Commissioning
% Payment proposed	80%	10%	10%	90%	10%

For Supply & Installation Items:

- (i) 90% of the value of supply & Installation items shall be paid after installation on production of the following:
 - a) The materials as per Schedule of Materials supplied by contractor and accepted by the consignee.
 - b) Original Inspection certificate issued by inspecting Officer.
 - c) Challan/Invoice in duplicate.
 - d) Proof of purchase.
 - e) A certificate should be submitted by the contractor that the materials supplied are as per the contract and the amount claimed in the invoice is correct as per terms of the contract.
- (ii) 10 % after commissioning.

For Spares: 100% Payment on supply of spare items in the schedule.

All payments shall be made on the certificate of the Engineer within a reasonable time of the submission of the necessary bills by the contractor.

8. STORES & EXECUTION OF WORK

The consignee for the store work will be **Senior Section Engineer (Signal- Store) Dhola or his representative.**

The consignee for execution of work will be **Sectional Senior Section Engineer (Signal) Botad or his representative as per the jurisdiction of the section.**

Engineer In-charge for the work is ADSTE-Bhavnagar or DSTE - Bhavnagar

9. LOADING/UNLOADING OF MATERIAL

The material shall be delivered by the Contractor at the depot of Consignee/site of work. Material supplied by Railways for execution of the work if any and the material delivered by the Contractor will be transported from the Store of **Senior Section Engineer (Signal-Store) Dhola or his representative** to site by the Contractor with his own labour and transport.

10. STORES - RECEIPT & ACCOUNTAL

Exchange of proper requisition and receipt shall be done on a suitable proforma between the Contractor and the Railway's authorized representative.

The Contractor shall issue a receipt along with the demand slip for material he requires for the work and obtain receipt when any material is returned to stores. These transactions shall be done with the consignee.

All stores drawn by the tenderer shall be accounted for either as installed as per site measurements recorded or as per surplus stores returned to the Site Engineer in-charge.

11. SECURITY OF MATERIAL

Once the material is handed over to the contractor, the contractor shall be responsible for the security of material irrespective of the fact that the material is kept in Railway premises. The contractor shall make adequate arrangements at site as deemed necessary for guarding the same from the thefts by outsiders or his labour or damage of any sort.

The cost of stores lost shall be realized by the Railway out of any payments due to the contractor in this contract or from any other contract executed by Govt. of India.

12. RETURN OF SURPLUS STORES

The stores found to be surplus shall be returned to Consignee by the Contractor with his own staff. The contractor shall account for all material that was issued to him. A register shall be maintained at site, which shall be signed by the Contractor as a token of receipt of material. All the issued material shall either be used in the installation or returned to **Consignee's depot.**

13. RETURN OF RELEASED STORES

Released material shall be handed over to Consignee at consignee's depot in systematic manner. Proper care should be taken while releasing & transporting the stores.

14. INSPECTING AUTHORITY

The Inspecting authority for the work shall be RDSO/RITES/Railway's representative.
As per Railway board No. 2022/RS(G) /779/8 dated 26/09/2025, Safety Critical Signalling items to be inspected by RDSO.

15. INSPECTION OF MATERIAL

All materials to be used on this installation shall be subject to inspection by RDSO / RITES / Railway's representative at the manufacturer's premises. For this purpose, the Contractor shall give sufficient notice of time to RDSO / RITES / Railway's representative when the material is ready for testing/inspection. All facilities as may be necessary shall be provided for carrying out the tests by the contractor.

Whether a product has or has not been accepted at the point of manufacture, if, upon arrival at destination, it does not meet the requirements of the specification, it may be rejected and the Contractor shall undertake disposal of the rejected products and shall bear all charges.

The contractor shall make such tests as may be necessary to demonstrate to the satisfaction of the Railway that the apparatus and the system as installed are in accordance with the requirements of the specifications and contract. The Contractor shall provide such instruments and apparatus as may be necessary for making the tests.

16. INSPECTION CHARGES

The inspection charges for the inspection service rendered to the S&T contractors executing signalling works **shall be borne by the Railway**. Contractor must be present at site during measurement / inspection of Railway supervisor / officer.

17. MATERIALS AND WORKMANSHIP

All the items which are to be procured as per IRS / RDSO specifications shall be procured from RDSO approved firms. Any relaxation with respect to procurement / inspection shall be with the prior approval of the competent authority. The Railways' decision shall be final and binding on the contractor.

As per Railway board No. 2022/RS(G) /779/8 dated 26/09/2025, Safety Critical Signalling items to be inspected by RDSO.

Further items which do not have RDSO specification or which RDSO has not approved any suppliers, inspection shall be carried out by RITES / authorized Railway representatives.

Material shall be in accordance with specifications and drawings specified or approved by the Railway with latest amendments.

The Railway shall have full powers to reject any material that the Railway may consider to be defective or inferior in quality of material, workmanship, and design or otherwise, not in accordance with the specifications and drawings specified by the Railway.

The Contractor shall remove forthwith all rejected materials and replace such material at Contractor's expenses.

All material should be in properly packed condition and the consignee reserves the right to reject the material even though it was passed by RDSO.

All incidental / miscellaneous material required during the execution of the work as per the schedule, which is not covered elsewhere in the schedule of work, will be supplied by the contractor.

18. CONSIGNEE'S RIGHT OF REJECTION

Notwithstanding any approval which the Inspecting Officer may have given in respect of the stores or any materials or the work or workmanship involved in the performance of the contract (whether with or without any test carried out by the Contractor or the Inspecting Officer) and notwithstanding delivery of the stores where so provided to the interim consignee, it shall be lawful for the consignee, on behalf of the purchaser, to reject the stores or any part, portion of consignment thereof within a reasonable time after actual delivery thereof to him at the place or destination specified in the contract if such stores or part, portion of consignment thereof is not in all respects in conformity with the terms and conditions of the contract whether on account of any loss, deterioration or damage before dispatch or delivery or during transit or otherwise howsoever.

19. CONSEQUENCES OF REJECTION (Rejected stores)

When any stores delivery at the consignee's depots is rejected, this shall be removed by the contractor within 30 days from the date of rejection. Such rejected stores shall lie at the contractor's risk from the date of rejection. If the stores are not removed by the Contractor within this period, the purchaser or his nominee shall have the right to dispose of such stores, as though fit, at the contractor's risk and account.

The purchaser shall also be entitled to recover from the contractor, handling and ground rent/demurrage and any other charges for the period during the rejected stores are not removed after the period aforementioned.

20. SUPERVISION & LABOUR

The work shall be carried out as per Railway's extant practice. Digging of road for cable crossing should be done in night time if the road is very busy in daytime. Ramming and repairing of the road by asphaltting should be done immediately to restore the surface to originality. The laying of cable and track crossing should be done only in the presence of the authorized railway representative and safety of rail traffic should at no cost be endangered.

After lying of cable, contractor would have to conduct cable maggering and loop resistance test in presence of railway representative and the test report must be submitted along with measurement book duly signed by the consignee and contractor. Payment would be made on obtaining successful test results.

The field Supervisor shall receive instructions from the Engineer-in-charge of the work or his representative at site and comply with the instructions. The Contractor shall be responsible for the compliance of such instructions.

If the supervisor acting on behalf of the Contractor disobeys or does not regard the instructions of the Railway's supervisor/representative and does not execute the work to the satisfaction of this Railway supervisor, it shall be binding on the tenderer to replace his supervisor.

Contractor shall keep on the works sufficient and Competent/Qualified staff as per GCC. The work shall be carried out as per Railway's extant practice.

21. INSPECTION OF WORKS

The completed installation at all stages shall be subjected to checks and test as decided by Railways and the contractor shall be liable to remedy such defects as discovered during these checks and test and make good all deficiencies brought out. However, complete installation will be taken over finally on completion of the full system. It will be the responsibility of the contractor to rectify any discrepancy noticed within a period of one month from the date the complete system is taken over. For the purpose of taking over, joint inspection will be carried out by Sr. DSTE / DSTE / ADSTE and Engineer (Signal). The contractor should make himself or his representative available at the time of joint inspection. The decision of the Engineer shall be final in the matter.

The contractor will be called upon to pay all the expenses incurred by the Railway in respect of any work found to be defective or of inferior quality, adulterated or otherwise unacceptable.

During the execution of the contract, samples may be taken for the purpose of test and/or analysis under the conditions laid down in specification, such samples to be prepared for testing and forwarded free of all cost to the Railway.

A logbook will be kept at the work site by the contractor. The inspecting officer of the Railway may in addition to oral instruction to the representative of the contractor at the work site, enter such instruction as he deems fit in this logbook. The contractor will be responsible to note necessary action and remedy the defects and ensure that the instructions either oral or written are complied with. His non-noting the logbook entries shall not be considered sufficient grounds for non-compliance of the instructions.

If required by railway, the contractor will attend divisional / HQ office to hold discussion with railway officials.

The installations shall comply with the requirements as per the following manuals/books (With latest correction slip): -

- Signal Engineering manual
- Engineering code
- P way manual
- General and subsidiary rules
- Schedule of dimension.

These books are available with engineer in charge for this work, which can be given on loan for reference.

22. APPROVAL & MEASUREMENT OF WORK

The contractor should ensure that measurement has been made for such work, which is not possible to measure subsequently, and shall remain hidden.

Back filling of the trench shall be done only after the inspection and written confirmation from the Railway representative.

The contractor shall maintain record of cable laid as per proforma Drawing CSTE/3644.

23. WARRANTY:

All the items supplied by the contractor as well as installation shall carry **warranty as per specification of each item / 12 calendar months** from the date of completion of work.

If any equipment supplied by the contractor gets faulty during the warranty period, it shall be replaced immediately by the contractor free of cost. For this, contractor must have sufficient quantity of equipments as spare for replacement during the warranty period.

The contractor will submit a time schedule to show his planning to execute the work.

24. **DRAWING & DOCUMENTATION:**

- (i) As per RDSO/Manufacturer specification:- Contractor shall prepared required drawings /circuits as per RDSO / WR policy guideline.
 - (ii) Tentative drawing of ESP / SIP may be obtained from S&T divisional office of Bhavnagar.
25. Tender Condition will be as per latest GCC.
26. JPO for undertaking digging work in the vicinity of underground Signalling, Electrical & Telecommunication cables is attached.
27. OEM' Site Installation Certificate shall be filled in given format for system prior to commissioning.

OEM's Site Installation Certificate

To

PCSTE - CCG

This is to certify that verification of system installation (detail given below) has been completed by undersigned (OEM representative) and all necessary arrangement meets the required standards of engineering for trouble free working of installed system.

- 1. System being commissioned :-
- 2. Station/Section:-
- 3. Division:-
- 4. Date of commissioning:-

Name of RDSO approved Original Equipment manufacturer:

Name of OEM representative with Designation:

Signature of OEM representative with Date:

Sr. DSTE-BVP