

**CAO-C-NR-S AND T/NORTHERN RLY
TENDER DOCUMENT**

Tender No: 178-SIG-CW-32_82

Closing Date/Time: 11/06/2019 11:30

DY. CSTE/C/CW/NDLS acting for and on behalf of The President of India invites E-Tenders against Tender No **178-SIG-CW-32_82** Closing Date/Time 11/06/2019 11:30 Hrs. Bidders will be able to submit their original/revised bids upto closing date and time only. Manual offers are not allowed against this tender, and any such manual offer received shall be ignored.

Contractors are allowed to make payments against this tender towards tender document cost and earnest money only through only payment modes available on IREPS portal like net banking, debit card, credit card etc. Manual payments through Demand draft, Banker cheque, Deposit receipts, FDR etc. are not allowed.

1. NIT HEADER

Name of Work	Tender Schedule for the work of "S&T work (Indoor & Outdoor) for provision of Distributed Electronic Interlocking at Dobh Bahali, Mokhra Madina & Meham stations alongwith block working and associated telecom work in c/w New rail line between Rohtak - Meham - Hansi section of Delhi Division of Northern Railway".		
Bidding type	Normal Tender		
Tender Type	Open	Bidding System	Two Packet System
Tender Closing Date Time	11/06/2019 11:30	Date Time Of Uploading Tender	16/05/2019 17:44
Pre-Bid Required	No	Pre-Bid Query Date Time	Not Applicable
Advertised Value	103889894.22	Tendering Section	TENDER
Bidding Style	Single Rate for Tender	Bidding Unit	Above/Below/Par
Earnest Money (Rs.)	669500.00	Validity of Offer (Days)	60
Tender Doc. Cost (Rs.)	0.00	Period of Completion	10 Months
Contract Type	Works	Contract Category	Expenditure
Bidding Start Date	28/05/2019	Are Joint Venture (JV) firms allowed to bid	Yes
Ranking Order For Bids	Lowest to Highest		

2. SCHEDULE

S.No.	Item Code	Item Qty	Qty Unit	Unit Rate	Basic Value	Escl.(%)	Amount	Bidding Unit
Schedule A-Supply							79356746.71	
	Please see Item Breakup for details.				52686768.13	AT Par	52686768.13	
1	Item Description:- Design, manufacture, supply of Distributed EI system at Dobh Bahali, Mokhra Madina & Meham stations complete with hot standby architecture as per RDSO specification No. RDSO/SPN/192 of 2005 with latest amendments and special condition of contract (Inspection of Microprocessor equipments & Interface equipment of EI : RDSO). EI system also includes dual VDU for operating console and one VDU for maintenance console, relays, interconnecting cables, maintenance terminal, data logger, including fault analysis system, power supply equipment, Cabinet type dust free racks, fixtures, mounting arrangements, lightning & surge production devices and accessories necessary to make SSI system functional for above mentioned stations. It also includes furniture i.e table and chair for operating console, data logger and Maintenance terminal. Note 1:- Tenderer may quote any RDSO approved SSI system with complete details of all modules, cards and accessories along with necessary spares (refer special conditions of contract) as per RDSO Specification Please give full details of quantities (station wise) & unit based rates item wise, the total amount of which must be equal to the given LAR of these items i.e. Rs. 18628470.80 for Dobh Bahali as Annexure "D-I (Dobh Bahali), Rs. 16819146.13 for Mokhra Madina in Performa attached as Annexure "D-II (Mokhra Madina) and 17239151.20 for Meham Performa attached as Annexure-III (Meham). this schedule for commissioning of proposed RDSO approved SSI system at station and spares. System must be compatible with working in RE area. Note:-2 The rate quoted in Percentage above/at par/below shall be applicable for the rates quoted in Annexure-" D-I (Dobh Bahali), and Annexure D-II (Mokhra Madina) and Annexure D-III (Meham)".							
2	3	3.00	Station	69275.04	207825.12	AT Par	207825.12	
	Item Description:- Supply of Documents. Inspection : Consignee (i) Technician / Jr. Engineer (Installation and Maintenance Level) - Manual for Installation, Testing, Commissioning and Maintenance of the System. (6 Sets for each EI) (ii) Engineer Level - Technical & System Module for diagnostic & Trouble shooting for Repair centre. (6 Sets for each EI) (iii) Higher Management Level - Functioning and System Over View. (6 Sets for each EI) (iv) Completion Documents as per special condition of Contract. (6 Sets for each EI) (v) Supply of documents as per Technical specification Para - 10.1 of RDSO Specification no RDSO/SPN/192/2005. (6 Sets for each EI)							
3	3	3.00	Station	119941.91	359825.73	AT Par	359825.73	
	Item Description:- Supply of Instruments / Tool Kits:*(a) Tool kit & Measuring Instruments for technicians / Jr. Engineers for Testing, Maintenance and repair at site. (b) Instruments and Tool kits required for Trouble Shooting and Repair Note: Details of tool kit item is enclosed as Annexure -E of tender document.							
4	4	3.00	Job	323719.53	971158.59	AT Par	971158.59	

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	Item Description:- Installation, testing & commissioning of SSI equipments supplied as per item no.1 of respective station Schedule, including transportation from consignee depot to site at stations listed above.						
5	5	9.00	Job	353288.58	3179597.22	AT Par	3179597.22
	Item Description:- Earthing of SSI/EI equipment, Relay racks and Power Equipment etc. to be done along with supply of all requisite materials as per Signal Engineering practice. Inspection: RITES(for earthing material only)						
6	6	12.00	Job	653.19	7838.28	AT Par	7838.28
	Item Description:- Training for Rly. Tech./JE/SE/SSE by OEM in installation, testing & commissioning, maintenance & trouble shooting of SSI system complete including supply of hard/soft copies of course module for each trainee. Competency certificate to trainee to be issued by OEM. All arrangements including classroom, lab, equipment, measuring instruments etc. required for the training should be satisfactorily arranged by the contractor at their own cost. (Job = Training of one Tech./JE/SE/SSE for one day).						
7	7	6.00	Job	745.54	4473.24	AT Par	4473.24
	Item Description:- Training for Rly. Officers by OEM in installation, testing & commissioning of SSI system complete including supply of hard/soft copies of course module for each trainee. All arrangements including classroom, lab, equipment, measuring instruments etc. required for the training should be satisfactorily arranged by the contractor at their own cost. (Job = Training of one Officer for one day).						
8	Please see Item Breakup for details.			1117433.80		AT Par	1117433.80
	Item Description:- Supply of relays of sorts as per latest RDSO specifications of the following type :-						
9	Please see Item Breakup for details.			22008.12		AT Par	22008.12
	Item Description:- Supply of cable/wire indoor copper conductor single/multi core plain annealed high conductivity PVC insulated unarmoured as per Spec. no. IRS-S/76/89 (Amd 3) or latest amendment of the following sizes :- from DRSO approved source						
10	10	100.00	Numbers	210.36	21036.00	AT Par	21036.00
	Item Description:- Supply of electric fuse complete with fuse block(base) for Railway signalling non-deteriorating type low voltage fuse assembly 2Amp/4Amp/16Amp. to suit RDSO Specn. No.IRS: S-78/92 and fuse block made of PBT/Polycarbonate as per IRS: S-75/2006 (Rev-2) and drg no. 23748 (Alt.4) or latest. Fuse block shall be suitable for round head type fuses. Inspection: RDSO						
11	11	3.00	Set	40371.06	121113.18	AT Par	121113.18
	Item Description:- Supply of SM furniture of Godrej or similar make consisting of the following :- 1. Executive revolving bearing series low back floating chair with normal arms cushioned Chair : 1No. 2. Executive Table size 72x36x30" with 3 drawers one side, lockers cabinet on other side : 1No. 3. Visitor chair seat & back cushion with high density Foam with plastic PVC handle capsul type Flat pipe duly Painted black : 3Nos.						
12	12	4.00	Numbers	355758.08	1423032.32	AT Par	1423032.32
	Item Description:- Supply of single phase DG set 10 KVA with 16 BHP Diesel Engine and exciter panel & push button start assembly as per RDSO specn. IRS(S)69/86 or latest, Kirloskar make as per IS/BS specs along with sound proof enclosure for DG set as per latest guidelines of Central pollution control board of india, B/Charger & battery of 12 V/80 AH of Standard/Exide/UB-Mar/Amco make for self starting and Iron clad siemens or sony single phase (2 way ON-OFF-ON) changeover switch 63 Amps. Inspection : RITES						
13	13	2.00	Numbers	476188.70	952377.40	AT Par	952377.40
	Item Description:- Supply of single phase DG set 15 KVA with 20 BHP Diesel Engine and exciter panel & push button start assembly as per specn. IRS(S)69/86 or latest, Kirloskar make as per IS/BS specs along with sound proof enclosure for DG set as per latest guidelines of Central pollution control board of india, B/Charger & battery of 12 V/80 AH of Standard/Exide/UB-Mar/Amco make for self starting and Iron clad siemens or sony single phase (2 way ON-OFF-ON) changeover switch 63 Amps. Inspection : RITES						
14	Please see Item Breakup for details.			1166248.05		AT Par	1166248.05
	Item Description:- Supply of power wires IS2465/1984 & IS 694/1990 or latest from RDSO approved firm of the following sizes :-						
15	15	5.00	Numbers	5596.89	27984.45	AT Par	27984.45
	Item Description:- Supply of 3 phase changeover switch 63Amps/100Amps. Siemens/ Havells or similar Iron Clad switch.						
16	16	1.00	Numbers	14329.53	14329.53	AT Par	14329.53
	Item Description:- Supply of Transformer 3KVA, 230V/130/110V as per IRS spec no. S-72-88 with latest amendments. Inspection : RDSO						
17	17	3.00	Numbers	6617.83	19853.49	AT Par	19853.49
	Item Description:- Supply of Portable digital auto range multi-meter clamp type Philips, Motwani, Fluke or Rishabh make capable to measure from (0.1mv/0.01ma) AC/DC upto 50Amp(AC/DC), 600V(AC/DC) and 0.1 ohms- 40M ohms suitable for measurement of Freq., capacitance complete with Manual, leads, battery and holster etc.						
18	18	3.00	Numbers	48140.17	144420.51	AT Par	144420.51

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18	Item Description:- Supply of tool kit for JE/SE/SSE for Maintenance as per tech spec. given below: (1) Digital Multi Meter suitable for axle counter ranges 20 Amp AC/DC make protek 506 or similar- 1 no. (2) Digital clamp Multi Meter range up to 100 Amps for AC/DC current make SEW or similar - 1 no. (3) Leather Tool Bag for keeping tool kit -1 no. (4) Plier Sealing with sealing code bit -1 no. (5) Plier Wire Cutting 8" make Taparia or similar -1 no. (6) Nose Plier 4" make Taparia or similar -1 no. (7) Wire Stripper - 1 no. (8) Screw Driver set mutli port type -1 set (9) Track shunt resistance .5 ohm -1 no. (10) Soldering Iron 230V AC/65 watt -1 no. (11) Soldering Iron 230V AC/35 watt with different type replacement soldering head - 1 no. (12) Soldering Iron 110V AC/35 watt -1 no. (13) Mesuring Tape steel 30 meters - 1 no. (14) Mesuring Tape steel 3 meters - 1 no. (15) Rechargable Torch Superior quality -1 no. (16) File Flat 8" long - 2 nos. (17) File Round smooth 8" long - 2 nos. (18) File Flat Bsterred 8" long - 2 nos. (19) Electric Drill Machine Portable 6mm make wolf or similar -1 no.						
19	Please see Item Breakup for details.		494147.10	AT Par	494147.10		
19	Item Description:- Supply of Disconnect link wago or similar make (cat. No. 282-697) as per spec. no. RDSO/189/2004 Dt.31.05.2006, Revised Ver-2.0 or latest.						
20	20	10000.00	Numbers	63.96	639600.00	AT Par	639600.00
20	Item Description:- Supply of Terminal Block 25MM center M6 terminal made of PBT to RDSO Drg.no.SA23471 A (Alt-4) or latest as per RDSO specn. IRS-S-75/2006 (Rev 2) or latest., Inspection: RDSO						
21	21	100.00	Numbers	405.55	40555.00	AT Par	40555.00
21	Item Description:- Supply of Terminal block 8 way of PBT (Isolating type) to RDSO Drg.no.SA24811 (Alt 2.) or latest as per specn. IRS-S-79/92 or latest.						
22	22	3.00	Set	2988.14	8964.42	AT Par	8964.42
22	Item Description:- Supply of Megger 500VDC / Earth tester electronic push button type philips or similar made MICO.						
23	23	45.00	Numbers	19487.01	876915.45	AT Par	876915.45
23	Item Description:- Supply of single app.case steel RE with 'E' type lock and key ward no.42 and handle as per drg. No. RE/S&T/ALD/SK/219/82 with (Alt A) and 221/82 with Alt.B. , Inspection: RITES						
24	24	30.00	Numbers	15096.58	452897.40	AT Par	452897.40
24	Item Description:- Supply of apparatus case steel RE half with E type lock and key ward no.42 and handle as per drg.no. RE/S&T/ALD/SK/220/82 with Alt.B and 221/82 with Alt.B. , Inspection: RITES						
25	Please see Item Breakup for details.			713767.73	AT Par	713767.73	
25	Item Description:- Supply of colour light signal post with ladder & bases as per tech. spec. IRS-S-6-81 or latest of the following size :-						
26	Please see Item Breakup for details.			728871.01	AT Par	728871.01	
26	Item Description:- Supply of colour light signal unit complete with-out signal transformer as per RDSO Specification no. IRS:S-26/64 or latest. Tech.specn. of the following type :-						
27	27	24.00	Numbers	7673.96	184175.04	AT Par	184175.04
27	Item Description:- Supply of shunt signal position light with lock, unit offset bracket 3.5" dia. without holders bulbs etc. to drg.no.23840 adv.specs.no.IRS-S-23/88 Dependent post type.						
28	28	8.00	Numbers	4232.38	33859.04	AT Par	33859.04
28	Item Description:- Supply of calling-on colour light signal unit with offset bracket 3.5" dia. type drg.no.S-2748/M spec.no.IRS-S-23/88. or latest.						
29	Please see Item Breakup for details.			272905.34	AT Par	272905.34	
29	Item Description:- Supply of route indicator complete with hoods & offset bracket 5 1/2" as per RDSO specn.no.IRS-S-66/84 (Amd-1) or latest as per latest drawing.of the following type from RDSO approved source.						
30	30	12.00	Numbers	7560.21	90722.52	AT Par	90722.52
30	Item Description:- Supply of shunt signal position light complete with lock, unit post and surface base mounting socket 90mm dia without holders bulbs etc. to drg.no.23840 adv. Or latest specs.no.IRS-S-23/88 Independent post type from RDSO approved source.						
31	31	50.00	Numbers	57773.01	2888650.50	AT Par	2888650.50
31	Item Description:- Supply of electric point machine (IRS Type) (AC Immunity 160 VAC) Non Trailable to operate on 110V DC, 143 mm throw with interlocking complete with lock, detector, cable terminal box and slides for lock and detector as per specification no. IRS-5-24/2002 with Ammendment-1 or latest. Inspection : RDSO						
32	32	50.00	Set	8395.62	419781.00	AT Par	419781.00
32	Item Description:- Supply of complete set of point rodding for point machines of IRS type or its equivalent type as per RDSO drg. No. SA 8800-01 (Adv) or latest along with 'P' brackets and 'L' bracket required (coal Bengal for smthy work, all type of nuts & bolts and Lugs as reqd also to be supplied by contractor with each set).						
33	33	50.00	Set	345.34	17267.00	AT Par	17267.00
33	Item Description:- Supply of Insulation for 'L' type bracket for point fitting IRS type complete consisting of (To suit Drg no. SSTE/C/JU/13/99) Insulation plate - 01 No. Ferrule - 02 Nos. Washers - 04Nos. (Material Nylon 66).						

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34	34	100.00	Set	898.04	89804.00	AT Par	89804.00
	Item Description:- Supply of Insulation for 'P' bracket for point fitting IRS type complete consisting of (To suit Drg no. SSTE/C/JU/12/99) Insulation plate - 01 No. Ferrule - 02 Nos. Washers - 04Nos. (Material Nylon 66).						
35	35	105.00	Numbers	3402.89	357303.45	AT Par	357303.45
	Item Description:- Supply of track feed batt. charger 110VAC/2-4-6 VDC / 10 Amps as per RDSO spec. no. IRS: 89/93 (Amd 2) or latest from RDSO appd. Firm. , Inspection: RDSO						
36	36	12.00	Numbers	220.89	2650.68	AT Par	2650.68
	Item Description:- Supply of Hydrometer reputed make for measuring specific gravity of battery, graded acid with mounting stand in location boxes. Inspection : Consignee						
37	37	315.00	Numbers	2417.00	761355.00	AT Par	761355.00
	Item Description:- Supply of sec. cell low maintenance 2 V/ 80 AH. conforming to IRS S-88/2004 or latest with micro porous vent plugs cum floats with inter cell connectors, nuts,bolts,washers etc. , Inspection: RDSO						
38	38	12.00	Numbers	18009.39	216112.68	AT Par	216112.68
	Item Description:- Supply of filter unit as per RDSO spec. no. IRS S-68/69 or latest. , Inspection: RDSO						
39	39	4.00	Set	743420.63	2973682.52	AT Par	2973682.52
	Item Description:- Supply of High availability SSDAC (HASSDAC) system complete with dual sensor as per RDSO Spec No. RDSO/SPN/177/2012 with version 3.0 or latest consisting of : (i) track side high availability DAC unit. DACF-720P =2 No. (ii) High frequency Tx coil & Rx coil (AD-711) (Each set consist of web mounting type 2 No. Tx coil & two no Rx coil) = 2 sets. (iii) Vital relay box model VR-722 = 2 No duly wired with following relays. (a) Vital Relay QN1K 24V 6F/6B =2 No. (b) Reset Relay QN1K 24V 6F/6B =1 No. (c) PR Relay QNN1 24V 6F/2B (dual) =1 no. (iv) Clamp with deflector plates & hardware = 4 nos. (v) Reset Box model No. 259A=2 nos. (vi) Surge voltage protection device mounted on DIN rail =2Nos. Inspection : RDSO						
40	40	3.00	Numbers	41709.76	125129.28	AT Par	125129.28
	Item Description:- Supply of closed racks complete (545mm x 564mm x 2090mm) with all fittings for housing SDH equipments, primary Mux, FDF, DDF, MDF using krone module and other equipments like runway ladders etc. completely wired and equipped with integrated protection modules for all channels as per technical specifications and other stipulations of tender documents. It should be possible to lock all the equipments with only order wire telephone remaining outside the rack.						
41	41	3.00	Numbers	36615.02	109845.06	AT Par	109845.06
	Item Description:- Supply of 1xSTM-1 Optical Line Interface card.						
42	42	6.00	Numbers	30384.99	182309.94	AT Par	182309.94
	Item Description:- 4 port 10 Mbps Ethernet card.						
43	43	6.00	Numbers	20060.55	120363.30	AT Par	120363.30
	Item Description:- 21 EI Tributary Interface Module						
44	44	3.00	Numbers	107636.16	322908.48	AT Par	322908.48
	Item Description:- Supply of 2 MB programmable primary digital drop multiplexer with conference facility and with all common cards like processor card , power supply unit , remote control supervision etc.fitted in sub rack wired for 30 channels along with all other accessories and installation materials and all instruction manuals as per RDSO specn. no IRS TC-68/04 or latest inspection by RDSO. (i) 2W/4W E&M/VF Interface Card (min 4 Ckt per card) x 4 Nos(Total 16 Ckts) (ii) Exchange Loop Interface Card (min 4 Ckts per card) x 1Nos(Total 4 Ckts) (iii) Subscriber/Hotline Interface Card (min 4 Ckts per card) x 1 No(Total 4 Ckts) (iv) 64 Kbps G.703 Data Interface card (min 4 Ckts per card) x 1 No (Total 4 Ckts)						
45	45	10.00	Numbers	1806.68	18066.80	AT Par	18066.80
	Item Description:- Supply of U link panel with 32 nos of U link.						
46	46	28.00	Numbers	4338.96	121490.88	AT Par	121490.88
	Item Description:- Supply of magneto telephone with all accessories as per IRS-TC-36/97 (Amd 1) or latest.						
47	47	9.00	Set	7890.76	71016.84	AT Par	71016.84
	Item Description:- Supply of 4-Wire way station eqpt. consisting of the following : i) Supply of 4 wire way station equipment as per IRS-TC@45<47@2007 of latest complete with 4 wire control telephone as per IRS-TC@45&47@97 or latest suitable to work on PET quads- ii) Supply of Battery charger/power supply unit 230VAC/12VDC with battery back up of 12V/7AH as per IRS-TC-72/97 or latest-1 no.						
48	48	15.00	Numbers	492.18	7382.70	AT Par	7382.70
	Item Description:- Supply of OFC jumper (patch cards) (10 mtr. long) with FC/PC & SC or suitable connector at both end as per IRS:TC/81-2000 with latest amendments.						
49	49	15.00	Numbers	368.42	5526.30	AT Par	5526.30
	Item Description:- Supply of OFC jumper (pigtailed) (10 mtr. long) with FC/PC & SC or suitable connector at both end as per IRS:TC/81-2000 with latest amendments.						
	50	4.00	Numbers	87624.71	350498.84	AT Par	350498.84

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50	Item Description:- Supply of SMPS based Battery charger for telecom use of 230VAC/48 V, DC-25 Amp capacity. This shall consist of 3 modules of 12.5 amp each in 2+1 configuration with automatic switching between the modules as per RDSO specification no. RDSO/SPN/TL/23/99(Ver. 2.5) with latest amendment. This includes 10 sq mm copper wire in Red & Black colour for interconnecting charger to battery and equipment. Inspection : RDSO						
51	51	1.00	Numbers	473958.78	473958.78	AT Par	473958.78
	Item Description:- Optical Fiber Splicing Machine conforming to TEC Specs No. G/OSM-01/03, APRIL,2005						
52	52	3.00	Numbers	55639.39	166918.17	AT Par	166918.17
	Item Description:- M.F.VRLA battery 48V-120AH (Consisting of 24 cell or 2V-120AH) Each with MS rack inter cell connecting strip and nut bolts as per RDSO spec.no.IRS-S-93-96(A) or latest. Inspection : RDSO						
53	53	30.00	Numbers	304.41	9132.30	AT Par	9132.30
	Item Description:- Supply of 6 pin emergency socket as per IRS/TC/42/87 (Amd 1) or latest.						
54	54	30.00	Numbers	357.81	10734.30	AT Par	10734.30
	Item Description:- Supply of "Emergency socket Box of FRP material" as per RDSO specification no. RDSO / SPN / TC / 44/ 02 Ver.2.0, Amendment No.2 or latest.						
55	55	45.00	Numbers	1363.08	61338.60	AT Par	61338.60
	Item Description:- Supply of VF Tapping & Termination Transformers 2T/1120:470 Ohm as per IRS-TC-22/76 with Amd 1 with latest amendments from RDSO approved source.						
56	56	1.00	Numbers	152734.91	152734.91	AT Par	152734.91
	Item Description:- Optical Power meter with laser source (1550/1310) as per G/OPM-02/02 Nov.1998 with latest amendments.						
57	Please see Item Breakup for details.				1717675.80	AT Par	1717675.80
	Item Description:- HDPE duct as per TEC Gr No. G/CDS-08/02 Nov /2004 with latest amendment with end cap to be provided along with the drum at both ends. Inspection : RITES						
58	58	33.00	Kilometre	6061.85	200041.05	AT Par	200041.05
	Item Description:- Laying of HDPE duct in the trenches , including in HDD/Manual Boring and supply pulling of Nylon rope through is at different places as per direction of Engineer incharge/ site Engineer						
59	59	33.00	Kilometre	8595.02	283635.66	AT Par	283635.66
	Item Description:- Blowing/ Drawing of OFC cable in the HDPE duct by mechanical system.						
60	Please see Item Breakup for details.				15477.50	AT Par	15477.50
	Item Description:- Supply of PVC channels / Conduit pipes with fixing accessories of the following size :-						
61	Please see Item Breakup for details.				43358.00	AT Par	43358.00
	Item Description:- Supply of Indoor PVC Telecom cables from RDSO approved source.						
62	62	1.00	Numbers	75893.18	75893.18	AT Par	75893.18
	Item Description:- Supply of L.C. Gate Telephone System with inbuilt voice recorder in 1+6 configuration with central supply as per RDSO Specification No. RDSO/SPN/TC/51/2011 Rev.3.0 or latest.						

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Schedule B-Execution							24533147.51	
1	1	6.00	Numbers	15865.66	95193.96	AT Par	95193.96	
	Item Description:- Fabrication, supply and fixing of relay racks of size 2200mmx690mm (as per Drg. No. NR/S&T/CON/4.3/97A made of angle iron size 45mmx45mmx6mm alongwith outer frame made of angle iron size 65mmx65mmx8mm, fitted with M.S. squares bars duly ionized, descriptions strips to accommodate Plug-in-type relays/groups/Point contractor units/ECRs/HMUs. All fixing material like antilting device, hylam sheets if required, bolts & nuts, washers, insulators, shoe, angle irons, flats, L-bolts, Catenary wires and cement concrete etc. will be supplied by the contractor. This includes cleaning, priming by red oxide, painting & description etc. with ISI mark paints.							
2	2	16.00	Numbers	16288.84	260621.44	AT Par	260621.44	
	Item Description:- Fabrication, supply and fixing of cable termination board of size 2200mmx900mm as per Drg. No. NR/S&T/CON/4.1/97A made of angel iron size 45mmx45mmx6mm alongwith outer frame made of angle iron size 65mmx65mmx8mm duly fitted with Bakelite sheet (HYLAM MAKE or similar) of size 6mm thick. This also includes fixing of ARA terminals/strips/Wago connectors & fuse bases etc. Supply and fixing of hard wood of size 70cmx25cmx4cm in the back at bottom for jamming of armour of cables, each cable in the hole drilled separately for each cable through the salwood plank and all cable entry points on location boxes, location huts, JB's relay room/battery room to be closed with suitable masonry works covered with sand and plastering. All the fixing materials like bolts, nuts, washers, Insulators, shoe, angle irons, flats, L- bolts, Catenary wires & cement concretes etc. will be supplied by the contractor. This includes cleaning, priming by red oxide, painting & description etc. with ISI mark paint.							

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3	3	200.00	Metre	386.98	77396.00	AT Par	77396.00
	Item Description:- Fabrication, supply and fixing of scaffolding /cable carrier made of angle iron of Size 35mmX35mmX5mm and flat of size 25mmX3mm as per instructions of engineer at site. The space between two flats will be 25cm or less as per site requirements all the fixing materials i.e not, bolt washer, insulators, cement concrete etc will be supplied by the contractor. This includes insulating flat strips, cleaning priming by Red oxide, painting by ISI mark paint.						
4	Please see Item Breakup for details.			877.86		AT Par	877.86
	Item Description:- Fixing, wiring & soldering of tag blocks with PVC cover on cable termination rack/relay rack/block rack/HV rack as per Drg.No. NR/S&T/CON/4.3 /97A. All fixing material like flats, bolts, nuts, washers, plastic tag block cover for the tag block etc. will be supplied by the contractor.						
5	5	200.00	Numbers	382.15	76430.00	AT Par	76430.00
	Item Description:- Wiring of relays in relay room/relay huts as per appd wiring diagrams. All wiring material including resistances and condensers etc. except cables/wires to be supplied by contractor (Supply of cables & wires covered separately). It also includes dressing, bunching, lacing and fixing of relay bases. Inspection : Site Engineer						
6	6	3.00	Job	22146.62	66439.86	AT Par	66439.86
	Item Description:- Fabrication of aluminium channel (1"x1") champered sunmica sheet on teakwood frame of size 6"x3"x1" and supply thereof duly painted, yard diagram with stand on front and fixing the same in SM office diagram shall be painted as per SWR diagram by contractor. All materials to be supplied by contractor. Inspection : Site Engineer						
7	7	20.00	Sqm	1988.88	39777.60	AT Par	39777.60
	Item Description:- Supply, writing and fixing of description boards made of ply 6mm thick with white sunmica glued over its surface and 1"x1" wooden batton fitted all around on the rear as per instruction of Engineer at site. All the materials to be supplied by contractor. Inspection : Site Engineer						
8	8	400.00	Sqm	1039.43	415772.00	AT Par	415772.00
	Item Description:- Supply & laying of anti-static PVC flooring with adhesive (PVC flooring in 2.00mm thickness) for Relay room/equipment room/Data logger room/Axlecounter room etc. Inspection : Site Engineer						
9	9	12.00	Metre	4263.14	51157.68	AT Par	51157.68
	Item Description:- Fabrication & installation of wooden shelves (Teak wood) 24" wide and 1.25" thick supported on angles 2" x 2" x .25" on three sides. This includes painting of angles and varnishing of shelves. All materials to be supplied by the contractor. Inspection : Site Engineer						
10	10	4.00	Job	42769.92	171079.68	AT Par	171079.68
	Item Description:- Installation, wiring, testing & commissioning of the above 10 KVA DG set which also includes foundation (DG foundation as per drg. no. RE/S&T/Tender /SK/12/03 or as per the instructions of the site Engr), installation earthing of the above as per manufacturer guidelines and commissioning of the DG set in the DG room and push button start, stop and changeover switch in ASM's/DG room as per the instructions of the site Engr. and technical conditions of the tender document. All materials required for the foundation, installation, earthing, push button start, stop and changeover system & wiring of the above are to be supplied by the contractor except laying of U/G power cable in between DG room, ASM's room & IPS room which is covered separately. Installation to be done by OEM or its authorised dealer. A certificate to this effect to be submitted by contractor. Inspection : Site Engineer						
11	11	2.00	Job	46512.73	93025.46	AT Par	93025.46
	Item Description:- Installation, wiring, testing & commissioning of the above 15 KVA DG set which also includes foundation (DG foundation as per drg. no. RE/S&T/Tender /SK/12/03 or as per the instructions of the site Engr), installation earthing of the above as per manufacturer guidelines and commissioning of the DG set in the DG room and push button start, stop and change over switch in ASM's/DG room as per the instructions of the site Engr. and technical conditions of the tender document. All materials required for the foundation, installation, earthing, push button start, stop and changeover system & wiring of the above are to be supplied by the contractor except laying of U/G power cable in between DG room, ASM's room & IPS room which is covered separately. Installation to be done by OEM or its authorised dealer. A certificate to this effect to be submitted by contractor. Inspection : Site Engineer						
12	12	9.00	Job	13312.17	119809.53	AT Par	119809.53
	Item Description:- Fabrication, supply, installation and wiring of power supply board in IPS room/ relay hut/ relay room as per instructions of site engineer and extension of the power supplies from IPS to power supply board and from power supply board upto the MDF board. This includes fixing of ARA terminals, fuse bases, switches etc. and termination of power wire/ cables. This includes supply of all wiring & termination materials except terminals & fuses, power & U/G cable/wires. Wherever outdoor U/G cables are to be laid that is covered separately. Inspection : Site Engineer						
13	13	3.00	Numbers	31497.01	94491.03	AT Par	94491.03

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	Item Description:- Supply and Installation of Demineraliser plant of capacity 65 Litres per hour approx.(ISI mark). This includes all the pipe connections from water source to unit and also to collection unit. Inspection : Site Engineer						
14	14	3.00	Station	34646.50	103939.50	AT Par	103939.50
	Item Description:- Prep. of cable route plan, Cable core chart, Power supply arrangement plan for indoor and out door , Cable termination chart in relay room and location boxes, Location wiring plan, Cable insulation chart and register, Track circuit history card, Fuse analysis plan , Equipment disposition plan, Track circuit jumpering plan, Terminal and Contact analysis chart , Outdoor circuits,pull sheets,gomettie plans,diagrams. temp. plans required for execution of PNI/NI and other outdoor diagram and obtaining approval of the Engineer as per following :- (i) Supply of 6 copies of completion set of superior quality paper, laminated, properly bound in steel clip jaw file with cushioned cover. (ii) Software back up of complete set in the form of CDs. (iii) One complete set of tracings. (iv) Design through CAD (v) Drawings in A3 & plans in bigger size. (six sets). Inspection : Consignee (SSE/C/D&D)						
15	15	8000.00	Metre	66.42	531360.00	AT Par	531360.00
	Item Description:- Excavating and refilling of trench in Normal Soil to the level of ground with rammed earth as per drg. No.NR/S&T/CON/1. 1/97-A so as not to form a drain 0.3 Mtrs. Wide & 1 Mtr. Deep on both side of the station alongside the track. It shall conform to the safe distance as per signalling and cable plan. It also includes clearance of roots of trees & bushes. Lesser/Deeper depth of the trench is to be paid proportionately. Inspection : Site Engineer						
16	16	304000.00	Numbers	7.09	2155360.00	AT Par	2155360.00
	Item Description:- Supply and laying of 2nd class bricks in the trench and laying as per drg. No.NR/S&T/CON/1. 1/97A as per instructions of the site Engineer. Inspection : Site Engineer						
17	17	300.00	Metre	98.55	29565.00	AT Par	29565.00
	Item Description:- Excavating and refilling of trench in Rocky soil to the level of ground with rammed earth as per drg. No.NR/S&T/CON/1. 1/97-A1 so as not to form a drain 0.3 Mtrs. Wide & 0.5Mtr. Deep on both side of the station alongside the track .This includes 50mm thick concreting work throughout in 1:3:6 ratio. All concreting material to be supplied by the contractor. It shall conform to the safe distance as per signalling and cable plan It also includes clearance of routes of trees & bushes. Inspection : Site Engineer						
18	18	1350.00	Numbers	253.22	341847.00	AT Par	341847.00
	Item Description:- Fabrication, supply and fixing of cable marker of 1:3:6 concrete as per drg. No.NR/S&T/CON/1. 5/97A. The marker shall be fixed at various places of cable route as per instructions of Engr. at site. Inspection : Site Engineer						
19	19	300.00	Metre	85.62	25686.00	AT Par	25686.00
	Item Description:- Excavating and refilling of trench 0.3 Mtr. Wide & 1 Mtr. Deep from bottom of rail flange across the track or 0.5Mtr. from ground level which ever is more as per drawing no. NR/S&T/CON /1.2/97. Earth should be rammed so as not form a drain. This includes removal and refilling of ballast and restoration of surface under normal traffic conditions. Lesser/ deeper of the trench is to be paid proportionately. Inspection : Site Engineer						
20	20	300.00	Metre	102.83	30849.00	AT Par	30849.00
	Item Description:- Excavating and refilling of trench 0.3 Mtr. Wide and 0.8 Mtr. Deep on pitched/Stone/bricks paved surface, road crossing/platform etc. and restoring the surface to its original conditions. Lesser depth of the trench is to be paid proportionately. Inspection : Site Engineer						
21	21	1300.00	Metre	398.46	517998.00	AT Par	517998.00
	Item Description:- Supply & laying of RCC pipe including split pipe where required 150mm inner dia, 2 meter long with collers (to specification No.IS-460/1974 or latest) in the trench across the track/road & L-xing gates etc. (Length of half pipes will be counted as combined length of top & bottom). INSPECTION : RITES						
22	Please see Item Breakup for details.				538866.00	AT Par	538866.00
	Item Description:- Supply & installation of Double walled corrugated HDPE Pipes (6m st. lengths with one coupler for every 6m length) confirming BSEN-50086-1 & BSEN-50086-2-4 for latest IS specification 14930 Pt.II or latest. wherever reqd. as per the approved cable route plan. This includes brick work and other arrangements to secure the pipe at both ends. All the materials cement, sand etc. are to be supplied by the contractor. of the following size :-						
23	Please see Item Breakup for details.				223314.00	AT Par	223314.00
	Item Description:- Supply and fixing of G.I. pipe perforated at a distance of 20 CM or less of required length at culverts/ bridges/along the cuttings, suitably concreted at both ends as per drg. No. (NR/S&T/CON/1. 4/97) or at ASM office / other buildings suitably fixing it to the wall and at both ends. G.I. clamps of M.S. flats bolts and nut, to be supplied by the contractor.						
24	24	900.00	Metre	1736.21	1562589.00	AT Par	1562589.00
	Item Description:- All work of horizontal boring and trenchless cabling along with supply, transportation and insertion of doble wall corrugated pipe -(ISI marked) conforming to Spec no. IS-14930, part-II in the bore and the laying of cable in the boring under the track / road by using pipe of size 120 mm outer dia, 103.5 mm inner dia in which required number of cables to be crossed. The depth of horizontal boring should be minimum 1.0 m from rail flange/road level. (This item will be used for track crossing of running lines). Inspection : RITES for DWC pipe.						

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25	25	160000.00	Metre	7.57	1211200.00	AT Par	1211200.00
	Item Description:- Laying of signalling/Telecom/power cables of different sizes as per drg. No. NR/S&T/CON/1. 1/97A and as per cable route plan approved by Railways and meggering of cable before and after its laying of all type of outdoor cables. Inspection : Site Engineer						
26	26	30.00	Numbers	1649.29	49478.70	AT Par	49478.70
	Item Description:- Supply and provision of straight through M-seal joint kit for U/G signalling cables.						
27	27	11000.00	CORE	11.94	131340.00	AT Par	131340.00
	Item Description:- Testing & meggering of all types of outdoor cables after its laying and termination on both ends under supervision of Railway representative. This also includes preparation of test report for core to core and core to earth on prescribed proforma for each core of the cable seperately. This also include dressing and lacing of cable on both ends. Proforma for testing and material for lacing to be supplied by the contractor. Inspection : Site Engineer						
28	28	45.00	Numbers	5245.77	236059.65	AT Par	236059.65
	Item Description:- Casting, concreting and curing of foundation and erection of single app.cases of size (1160mmx760mm) at surface and 650mm deep as per Drg.No.NR/S&T/CON/2. 7/97. A layer of 3 mm of bitumen compound has to be provided between foundation and location box to prevent ingress of water in the base of location box . All material such as cement,coarse sand,aggregate and anchor bolt shall be supplied by contractor . App. Case single will be supplied by Railway. Contractor is required to execute all type of repair works of foundations if required during inserting the cable for termination. Inspection : Site Engineer						
29	Please see Item Breakup for details.				204608.61	AT Par	204608.61
	Item Description:- Preparation & fixing of bakelite hylum sheet 910x800x6mm and teak wooden shelf 900x450x25mm duly fixed by angle iron piece of different size inside all the app. Cases. Hylum board shall be fixed on an angle iron frame of 25mmx25mmx3mm. Angle iron frame will be fixed in location boxes secured by nuts and bolts.This includes fixing of fuses, ARA terminal shelf type Q series relays and other type relays on square bars fixing and jamming of cables with 2 inch thick salwood plank provided at the bottom. This will include opening, pasting and jamming armour of each cable in the hole drilled separately for each cable through the salwood plank and all cable entry points on location boxes, location huts, JBs relay room/battery room to be closed with suitable masonry works covered with sand and plastering.Wiring description for terminal drawing of circuits, inside app. Case. Painting from out side as well inside with red oxide and aluminum paint is covered separately. Size of lettering will be 100mm or as per instructions of Engineer at site. All materials including hard wood shelf, hylum board, salwood plank, angle iron square bar, wire and wiring material as per the IRS specn., non deteriorating type fuses with bases,catenary wires , nuts and bolts and other items shall be supplied by the contractor. Relays, ARA terminals only shall be supplied by the Railways.						
30	30	30.00	Numbers	4712.15	141364.50	AT Par	141364.50
	Item Description:- Casting, concreting and curing of foundation and erection of half app.cases of size (670mmx760mm) and 650mm deep as per Drg.No.NR/S&T/CON/2. 8/97. A layer of 3 mm of bitumen compound has to be provided between foundation and location box to prevent ingress of water in the base of location box . All material such as cement,coarse sand,aggregate and anchor bolt shall be supplied by contractor . App. Case half will be supplied by Railway. Contractor is required to execute all type of repair works of foundations if required during inserting the cable for termination. Inspection : Site Engineer						
31	Please see Item Breakup for details.				99213.05	AT Par	99213.05
	Item Description:- Preparation and fixing of bakelite hylum sheet 450x800x6mm and teak wooden shelf 450x450x25mm duly fixed by angle iron piece of different size inside all the app. Cases. Hylum board shall be fixed on an angle iron frame of 25mmx25mmx3mm. Angle iron frame will be fixed in location box secured by nuts and bolts. This includes fixing of fuse ARA terminal, shelf type Q series relays and other type of relays on square bars, fixing and jamming of cable with 2 inch thick salwood plank provided at the bottom. This will include opening, pasting and jamming armour of each cable in the hole drilled separately for each cable through the salwood plank and all cable entry points on location boxes, location huts, JBs relay room/battery room to be closed with suitable masonry works covered with sand and plastering.Wiring description for terminal drawing of circuits, inside app. Case. Painting from out side as well inside with red oxide and aluminum paint is covered separately. Size of lettering will be 100mm or as per instructions of Engineer at site. All materials including hard wood shelf, hylum board, salwood plank, angle iron square bar, wire and wiring material as per the IRS specn., non deteriorating type HRC fuses with bases,catenary wires , nuts and bolts and other items shall be supplied by the contractor. Relays,ARA terminals only shall be supplied by the Railways.						
32	32	43.00	Numbers	9820.28	422272.04	AT Par	422272.04
	Item Description:- Casting, concreting and curing of foundation for main signal of size (1041mmx1041mm)at bottom and (711mmx711mm) at top and 1750mm deep as per Drg. no. NR/S&T/CON/2. 1/97 all material such as anchor bolts, cement, coarse sand aggregate to be supplied by contractor. Inspection : Site Engineer						
	Please see Item Breakup for details.				125654.81	AT Par	125654.81

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33	<p>Item Description:- Fixing of CLS surface base, bolting on the foundation. Erection of CLS post with signal unit on the top or on an off set bracket and fitting ladder and guard to the post at the top. Concreting ladder base and embedded into the ground with supporting bracket in the middle, blanking of the ladder for a distance of 1 feet between the height 6' 9" and 7' 9" from the rail level by MS angle and MS sheet 6mm thick wherever required. This includes provn. Of wooden (Sal) cross arm 1 mtr x 1 mtr. for CLS unit prior to the commissioning, fixing of LED aspect, current regulator and hoods of CLS unit, terminating cables, wiring the CLS unit and focusing the signal. Elevation & distance of foundation from track shall be in accordance with schedule of dimension for Indian Railways published by Govt. of India and approved drawings. All items for the above work shall be supplied by the contractor (except the items which are covered separately elsewhere in the schedule) including but not limited to the following items. (i) "U" bolt for offset brackets. (ii) Wooden cross arm 1 mtr. x 1 mtr. (iii) MS angle and MS sheet for blanking of ladder. (iv) Wire mesh guard, lock for unit if required, nuts and bolts etc. for the following : Inspection : Site Engineer</p>						
34	34	29.00	Numbers	812.37	23558.73	AT Par	23558.73
	<p>Item Description:- Installation, erection and wiring of LED lit calling-on/shunt signal on the same post below main signal on offset bracket. Which also includes fixing of stencil and hoods, wiring and focussing of the signal. Offset brackets, calling on signal/shunt signal complete will be supplied by Railways (Supply of calling on signal is covered seperately, else where in the schedule). U-bolt for offset bracket and wire and wiring material will be supplied by contractor. Inspection : Site Engineer</p>						
35	35	11.00	Numbers	3192.09	35112.99	AT Par	35112.99
	<p>Item Description:- Casting, concreting and curing of foundations for shunt signal of size (855mmx855mm) at bottom and (711mmx711mm) at top and 750mm deep as per Drg. no. NR/S&T/CON/2.1/97A. All material such as cement, coarse sand, aggregate & foundation bolts will be supplied by contractor. Inspection : Site Engineer</p>						
36	36	11.00	Numbers	994.98	10944.78	AT Par	10944.78
	<p>Item Description:- Installation, erection and wiring of position light shunt signal.This includes fixing of shunt signal, surface base signal post,LED signal unit/ lenses, lamp hood and wiring of shunt unit and focussing the signal. All material such as wire,nut& bolt etc. will be supplied by the contractor. Inspection : Site Engineer</p>						
37	37	14.00	Numbers	667.46	9344.44	AT Par	9344.44
	<p>Item Description:- Supply and fixing of retroreflective P/G/C markers with complete fittings as per drg. No. NR/S&T/CON/6.2/97. All material required for the job such as MS sheet, MS angle. Nut and bolts, paint and painting materials will be supplied by the Contractor. Inspection : Site Engineer</p>						
38	38	18.00	Numbers	7836.19	141051.42	AT Par	141051.42
	<p>Item Description:- Casting, concreting, curing of foundations of size (400mmx300mm) at surface and 1000mm deep and erection of SLB/BSLB/SB/ calling on boards/stop dead boards as per drg. No. NR/S&T/CON/7.4/97 & provisions of SEM. This includes supply of SLB/BSLB/SB/calling on boards. as per RDSO drg. No. SA-No.2373 (with latest amendment) has to be done by the contractor. Inspection : Site Engineer</p>						
39	39	44.00	Job	7454.73	328008.12	AT Par	328008.12
	<p>Item Description:- Fixing, wiring, testing & adjustment of point machines as per standard practice. It also includes :- i) Fixing of switch extension 'P' bracket, providing insulation for switch extension bracket, fixing ground connections, adjusting the correct opening of switches and adjusting the point machine with crank handle. ii) Wiring inside the point machine, erection & wiring of JB with lock & key as per drawing, provided with terminal strips. iii) Supply & fixing of GI pipes with flange for taking cable in to point machine and jn. Box through gland/GI pipe. iv) Complete material for installation viz. point insulation material, Jn. box, GI pipe, gland pipe, wiring material, nut & bolts of various sizes, angle iron of size 75mmx75mmx10mm, channels for fixing the machine, lugs for point rodding and insulation materials for stretcher bar 90R/52kg/60kg as per RDSO drg.no.SA-23172 (adv.) Alt.1 will be supplied by the contractor. v) Smithy and fitting work required at site for complete installation of Gauge tie plate and insulation of GTP as per drg.no.NR/S&T/CON/7.6/97 and william stretcher bar (if reqd.) will be done by the contractor. Machine shall be overhauled by contractor if required. vi) This includes removal of existing gears and fixing the machine at raised level on channel as per standard practice to avoid flooding wherever required. vii) Supply of ground connections of electric point machine, non insulated GTP & CTP extension plate,Jn. box and stretcher bar shall be made available by the Rlys. in which the supply of ground connections, Jn box is covered separately. Inspection : Site Engineer</p>						
40	40	44.00	Job	193.12	8497.28	AT Par	8497.28
	<p>Item Description:- Supply and fixing of Spigot for point machines. Inspection : Site Engineer. (Job = Per Pt.M/c)</p>						
41	41	44.00	Numbers	5693.91	250532.04	AT Par	250532.04
	<p>Item Description:- Supply, installation of 40 lines JB with lock & key and with provision of Terminal Block 25MM center M6 terminal made of PBT & hylum board 6mm thick hylum sheet including fixing of JBs along with concrete foundation and plastering . All material for fixing including angle iron shall be supplied by the contractor.</p>						
	Please see Item Breakup for details.				1308963.76	AT Par	1308963.76

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42	<p>Item Description:- Installation of DC track circuits to suit RE area as per std. Practice. This will include following :- (a) Drilling of holes 7.2 mm dia or size as required provision of continuous G.I. wire bonding on switch portion and crossing of point with two bonds wires and two clips duly fastened with fish plates and bolts at each joints including transverse bonding with rope wire. 8 SWG G.I. soft bond wire, Channel bond pins and all other material required will be supplied by contractor. (This item is for point zone TC only). (b) Jumpering from rail to rail or to track lead junction box including polarity jumpers/cables as per track jumpering/ insulation diagram. (C) Fixing of insulated block joints complete with provision of skimmed fish plate. Fish plates shall be supplied by the Railways but skimming to be done by contractor. Supply of insulation materials for insulated block joints is not included. (e) Fixing of TL JBs as per drg. No.(NR/S&T/CON/3.2/97A) along with concrete foundation and plastering on both ends i.e. T.F. and TR end and for polarity changers as per the track jumpering/ insulation diagram. All material for fixing including angle iron shall be supplied by the contractor. This also includes supply and fixing of TL JBs will provision of M-6 terminals. TLJB to be written with track circuit number. (f) Prov. and wiring in the app. Cases/relay huts of T.F. battery charger, TF resistance 30 Ohms, track relays, choke 'B' type & batteries as per the standard practice using fuses PPTC and terminals. This all include suitable antilting arrangement for relay and with include supply of all material by contractor except supply of TF battery charger, batteries, relays which are covered separately.(g) Commissioning of track circuits as per prov.of para of IRS specn. S-36/81. This includes adjustment of track feed resistance, testing with train shunt resistance. This also includes preparation of track history cards. Track history card should be supplied by the contractor. for the following type of track circuits:-</p>						
43	43	280.00	Numbers	183.99	51517.20	AT Par	51517.20
	<p>Item Description:- Charging of lead acid secondary cells of 80 AH capacity as per standard charging procedure (with contractor charging equipments). All charging materials ie. Sulphuric acid conforming to latest IRS specs and distilled water as per IRS specs will be supplied by contractor. This also includes installation of secondary batteries, their interconnection and writing work. Inspection : Site Engineer</p>						
44	44	4.00	Set	1176334.49	4705337.96	AT Par	4705337.96
	<p>Item Description:- Supply installation & commissioning of block proving by axle counter (HASSDAC) using UFSBI for single line complete with all accessories as per RDSO spec No. RDSOSPN/188/2004 ver 1.0 or latest amendment. (1 Set). Each set consisting of following., Inspection: RDSO (i) UFSBI (RDSO /SPN No SPN/147/2005 or latest amendment = 2 No. Inspection: RDSO (ii) Relay rack with due locking & sealing arrangement including relay (QN1 22 Nos, QNA1 =6 Nos, QL1 =2 No, Timer 1 No) & wiring as per wiring diagram RDSO drawing No. RDSO/S/32020 or latest amendment =2 Nos. Inspection: RDSO (iii) Block Panel complete with accessories as per RDSO drawing no RDSO/S/32019 or latest amendment =2 nos. Inspection: RDSO (iv) Block telephone with accessories as per RDSO spec no RDSO/SPN/191/2006 =2Nos. Inspection: RDSO</p>						
45	45	4.00	Set	89060.34	356241.36	AT Par	356241.36
	<p>Item Description:- Supply & installation of DAC-E-1 : E-1 interface for Digital Axle counter (SSDAC & HASSDAC) as per instruction of site Engineer. Inspection : Site Engineer</p>						
46	46	3.00	Set	61437.27	184311.81	AT Par	184311.81
	<p>Item Description:- Installation , testing & commissioning of HASSDAC.</p>						
47	47	9.00	Set	130321.83	1172896.47	AT Par	1172896.47
	<p>Item Description:- Supply & installation of Earth leakage detector (12 Channel) for monitoring different AC and DC, supplies including all accessories as per RDSO specification no. RDSO/SPN/256/2002 or latest and stipulations of tender docment. Inspection : RDSO</p>						
48	48	22.00	Job	8841.80	194519.60	AT Par	194519.60
	<p>Item Description:- Fixing and wiring complete KLCR and its box in location boxes, supply, installation, wiring of heavy duty push button, LED indicator on MS sheet as per N.R. practice for crank handle locking. This work includes fixing & wiring of magneto telephones as per instructions of the site Engr. This includes all materials such as heavy duty push button, LED indicator (10mm), MS sheet of 4.5mm thick, nuts and bolts, fixing materials for the magneto telephone, and wiring materials to be supplied by contractor. Inspection : Site Engineer</p>						
49	49	20.00	Sqm	4640.40	92808.00	AT Par	92808.00
	<p>Item Description:- Supply & fixing of bakelite / hylem sheet 6mm thick of grade P-1001 (paper based) conforming to IS spec.no.IS-1998-1962 B22 in existing locations any other place as per instructions of site Engineer. The sheet shall be fixed on wall alongwith angle iron of size 25mmx25mmx3mm. As Per requirement. Inspection : Site Engineer</p>						
50	50	15.00	cum	115.87	1738.05	AT Par	1738.05
	<p>Item Description:- Earth work around location boxes, signals etc. where necessary including 50m lead and 1.5m lift by excavation. The lead be measured from the centre of gravity of excavation to the centre of filling and the lift, from means ground level. The earth shall be rammed including breaking of clods, levelling and dressing. The earth work around the location/junction boxes/signalls shall be up to the plaster level and for width sufficient for the maintainer to attend the box both from front & back side. Inspection : Site Engineer</p>						
51	51	15.00	cum	2901.73	43525.95	AT Par	43525.95

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			Item Description:- General concrete work in cement, coarse sand and aggregate ratio 1:3:6, work scattered at different places for items not covered in above schedule and fine plastering of top will be done with cement sand ratio of 1:4 . Volume of foundation also includes volume of C.I. base, anchor bolts etc. Coarse sand, aggregate 25mm and cement to be supplied by contractor. Inspection : Site Engineer				
52	15.00	cum	2963.51	44452.65	AT Par	44452.65	
52			Item Description:- Brick work with well burnt bricks in foundations and plinths with cement and sand (ordinary) mixture of 1:4 ratio. All material is to be supplied by the contractor. Inspection : Site Engineer				
53	24.00	Job	15917.15	382011.60	AT Par	382011.60	
53			Item Description:- Supply, Installtion & Commissioning of basic earthing kit as per RDSO Specification no. RDSO/SPN/197/2008 and Drg No. SDO/RDSO/E&B/001 dated:- 19.09.2008 and Drg No. SDO/RDSO/E&B/002 dated:- 19.09.2008. Earthing kit consisting of earthing electrode of 17mm dia as 3m long -01 no 2 MEEB (300mmx25mmx6mm) -o1 no. 3. SEEB (150mmx25mmx6mm) -01 no 4. Earth enhancing compound - 30 kg (minimum). This includes:- Provisiion of earth connection from MEEB to S&T equipment i.e. cable sheath, apparatus case, BPAC, Axle counter, IPS, Data Logger etc. with PVC earth wire of size 25/35 sq.mm through copper lugs of suitable size PVC earth wire shall be supplied by Railways. Note: At certain locations, it may not be possible to acheive earth resistance of less than 1.0 ohm with one earth electrode /pit due to soil resistivity. In such cases, provision of loop earth consisting of more than one earth pit shall be done, for interconnection of two earth pits copper tape of size 25x2 sq.mm shall be provided by the contractor. The number of pits required shall be decided based on the resistance achieved for the earth pits already installed. The procedure mentioned above for one earth pit shall be repeated for other earth pits. The other earth so installed for the purpose of loop earthing arrangement shall be counted as seperate earth. Inspection : Site Engineer				
54	90.00	Numbers	2887.24	259851.60	AT Par	259851.60	
54			Item Description:- Conventional earth :- Supply and installation of earth electrodes as per std. practice. The item includes digging of pit in earth, 3 Mtrs. deep and fixing earth electrode pipe. Casting of cement concrete enclosures as per drg. No. (NR/S&T/CON/6.4/97). The soil treatement shall be done as per std. pratice. The item includes provn. of mild steel flat of size 35mm x 6mm (as per IRSEM) and nut bolted connection of MS flat with earth electrode. The other end of mild steel flat to be connected to block instrument, cable sheath of power equipment, signal base, apparatus case, CT rack / relay racks, other equipments as per the instruction of Engr. at site & IRSEM. Earhting connection location to location shall be done through cable which shall be provided by Railway. Complete materials such as earth electrodes as per drg. No. (NR/S&T/CON/6. 3/97), cement, wiring material, nut bolt for connection & mild steel flat of size 35mm x 6mm or 210 sqm as per SEM etc. to be supplied by the contractor. Inspection : Site Engineer				
55	3.00	Job	20172.19	60516.57	AT Par	60516.57	
55			Item Description:- Cleaning , Scrapping , Painting and lettering of all newly installed and existing gears such as signals, point equipment, track circuit equipment with T.C. no on rail app. Cases JB. TL JB's point rodding cranks, compensators etc. including gate equipment if existing in station section as per the provision of IRSEM. All paints (ISI marked) shall be approved by Railway Engr. and painting material to be supplied by the contractor. This item also includes writing and painting requirement of all indoor and outdoor gears along with making of all circuit nos. near terminal and terminal boards/track in app. Cases, junction boxes, relay room, SMs room, writing of relay nomenclature fuse nos. and equipment nomenclature as the approved plans and as per provision of IRSEM. Inspection : Site Engineer				
56	33.00	Kilometre	1327.16	43796.28	AT Par	43796.28	
56			Item Description:- Final location survey of cable route, preparation of cable route plan,cable termination plan, jointing schedule and tapping chart etc. as detailed in tender documents with particular reference to RDSO's code of practice "For installation and commissioning of OFC and 6 quad cable system" Approved drawings and documents shall be supplied in 6 hard copies in original of A4/A3 size along with 2 CD in AutoCAD of latest version. Inspection : Site Engineer				
57	33000.00	Metre	63.20	2085600.00	AT Par	2085600.00	
57			Item Description:- Excavation of cable trench (Kacha) of 300mm wide and 1200mm deep for all type of soil, back filling after laying of telecom cable/ OFC in GI/HDPE pipes ramming of soil in trenches and consolidation of soil. This also includes clearing of roots of strees and bushes & temporary obstruction on the selected routes. Where digging of trench of 1200mm depth or 300mm width or both is not possible as per site condition & the same can be reduced if accepted by the site Engineer, the payment shall be decreased proportionately according to the volume. It shall conform to the safe distance as per signalling/telecom (NR/S&T/Con/1.1/97A) and cable route plan. Inspection : Site Engineer				
58	3.00	Numbers	181471.38	544414.14	AT Par	544414.14	
58			Item Description:- Supply ,Wiring and Installation of Managed Expandable rack type STM-1 long haul ADM S1.1 equipped with 21E-1 as per technical spec. no.TEC GR No.GR/SDH-04/02 March 02 with latest amendment 1,2,3 & 4 or latest with 2xSTM agreegate interface 21 Els & 4 Nos of 10/100 base T Ethernet port order wire, power supply unit, sub racks. Installation material & accessories, manual etc. The equipment should be fully wired for its ultimate capacity & provide redundancy for power-supply & synchronization and other details. Inspection : RDSO				
59	3.00	Numbers	11471.48	34414.44	AT Par	34414.44	

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59	Item Description:- Installation , wiring and commissioning of 2 MB programmable drop /insert MUX with conference facility fully wired for 30 channels along with power supply and equipped for various types of interface cards as per site requirements. This includes shifting and installation of existing MUX. All materials required for the work shall be supplied by contractor. Inspection : Site Engineer						
60	60	6.00	Numbers	10210.00	61260.00	AT Par	61260.00
	Item Description:- Supply & Testing of 2 wire/4wire E&M VF interface card (minimum 4 circuits per card) compatible with above mentioned MUX Inspection : Site Engineer						
61	61	6.00	Numbers	10144.29	60865.74	AT Par	60865.74
	Item Description:- Supply & Testing of Subscriber loop interface card (minimum 4 circuits per card) Inspection : Site Engineer						
62	62	6.00	Numbers	10702.43	64214.58	AT Par	64214.58
	Item Description:- Supply & Testing of Exchange loop interface cards (minimum 4 circuits per card) Inspection : Site Engineer						
63	63	6.00	Numbers	15212.44	91274.64	AT Par	91274.64
	Item Description:- Supply & Testing of 64 Kbps co-directional data interface cards (minimum 4 circuits per card) Inspection : Site Engineer						
64	64	3.00	Numbers	29063.03	87189.09	AT Par	87189.09
	Item Description:- Supply and installation of Fibre management system 19" with all installation material, splicing , termination and testing of 2*24 fibre of cable that is 48 fibre with all connectors material as per the instruction of site engineer. Inspection : Site Engineer						
65	65	2.00	Lumpsum	39998.63	79997.26	AT Par	79997.26
	Item Description:- Final Testing & commissioning (Hop wise as well as End to End) of entire Optical fiber link as per instruction contained in the technical Spec. this includes the supply of the complete set of documentation (Six set of hard copy and 2 set of CD) of test report & as built route plans size A-3 in Auto CAD format. Inspection : Site Engineer						
66	66	10.00	Numbers	179.04	1790.40	AT Par	1790.40
	Item Description:- Installation of U link panel with 32 nos of U link. Inspection : Site Engineer						
67	67	28.00	Numbers	521.40	14599.20	AT Par	14599.20
	Item Description:- Fixing & wiring of magneto telephones with all accessories including Standard battery box and 3 nos. Of RR cells in the ASM office with crank handle locations/ K-points and interlocked L-xing gates as per instructions of the site Engr. All fixing materials including Standard battery box and 3 nos. Of RR cells to be supplied by the contractor. Inspection : Site Engineer						
68	Please see Item Breakup for details.				71620.80	AT Par	71620.80
	Item Description:- Supply and installation of DP boxes & termination of cables as per specifications, drawing and stipulations of tender documents. This includes fixing of the same on 1" thick board of size as per directions of site Engineer with grouted nuts and bolts of suitable size and pipe fixed with clamps on pole/wall. All materials required for fixing & termination including salwood / hylum board and the hardware required for fixing will be supplied by contractor. Inspection : Site Engineer						
69	69	20.00	Numbers	5808.35	116167.00	AT Par	116167.00
	Item Description:- Supply & Installation of Thermo shrink jointing kit for 6-Quad cable for straight through joints as per IRS: TC-77/2010 (Rev.2) with latest amendments. Inspection : Site Engineer						
70	70	30.00	Numbers	3732.76	111982.80	AT Par	111982.80
	Item Description:- Supply and installation of Emergency socket joints with the help of Thermoshirnk jointing kit and 2T VF Transformer at locations decided by Engineer at site. This includes all material including Thermoshirnk jointing kit and VF Transformer as per specification , drawings and stipulations of tender documents and as per approved cable route plan. Inspection : Site Engineer						
71	71	30.00	Numbers	6952.92	208587.60	AT Par	208587.60
	Item Description:- Supply & Installation of Thermoshrink jointing kit for 6-Quad cable and PIJF cable for Derivation/ Termination joints at LC Gates/Pump House/different locations as decided by the site Engineer as per IRS: TC-77/2010 (Rev.2) with latest amendments. This includes all materials required for joints.Inspection : Site Engineer						
72	72	3.00	Job	5679.13	17037.39	AT Par	17037.39
	Item Description:- Installation of Master VHF set 25W on ASM's table and wiring of the same with power supply wiring with 120AH VRLA batt. The 230VAC from IPS to be extended to the Power supply unit of the VHF & provision of power socket. This includes foundation (500x500x1000mm) and erection of the 50mm GI pipe on roof top and fixing of Antenna with GI pipe (mini. 6 mtr)& wiring from Antenna to the VHF set with provision of guy wires for support of the GI pipe. All the materials cement, sand, GI pipe, guy wires, power wire with socket etc. (VHF set, Antenna & 120AH VRLA batt. to be supplied by the Railway) Inspection : Site Engineer						
73	73	3.00	Numbers	7634.73	22904.19	AT Par	22904.19

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	Item Description:- Supply & installation of annunciator 10 lines as per RDSO spec. Inspection : Site Engineer						
74	74	15.00	Numbers	14377.42	215661.30	AT Par	215661.30
	Item Description:- Supply and installation of optical fibre cable joint enclosure as per TEC spec no. GR/OJC-02/01/March 99 with latest amendment and splicing of optical fiber cables (24 fibers and testing) . This includes provision of joint pit (RCC/Prefabricated) as detailed in the technical specifications and as advised by Engineer at site.						
75	75	9.00	Job	3215.68	28941.12	AT Par	28941.12
	Item Description:- Installation wiring & commissioning of 4 - wire way station eqpt.Item required for installation such as wires, wiring materials, connectors, battery rack runway, hardware etc. to be supplied by contractor. (Job = Per way strn. eqpt.)						
76	Please see Item Breakup for details.			418597.14	AT Par	418597.14	
	Item Description:- Supply, installation of Public Address System						
77	77	32.00	Numbers	7544.77	241432.64	AT Par	241432.64
	Item Description:- Supply and fixing of ISI marked Carbon di Oxide type (BC) fire extinguisher of 4.5 Kg capacity confirming to IS: 2878 from seamless cylinder confirming to IS: 7285 with IS marked control valve conforming to IS: 3224 high pressure myr. Long discharge hose and horn complete with initial gas charged with carrying handle and wall mounting braket etc. as required by site Engineer Inspection : Site Engineer						
78	78	42.00	Numbers	10.01	420.42	AT Par	420.42
	Item Description:- Fixing of 1 1/2" PVC channel/conduit pipe 1" dia on proper clamps and screws and indoor cable laying.						

3. ITEM BREAKUP

Schedule	Schedule A-Supply					
Item- 1	Design, manufacture, supply of Distributed EI system at Dobh Bahali, Mokhra Madina & Meham stations complete with hot standby architecture as per RDSO specification No. RDSO/SPN/192 of 2005 with latest amendments and special condition of contract (Inspection of Microprocessor equipments & Interface equipment of EI : RDSO). EI system also includes dual VDU for operating console and one VDU for maintenance console, relays, interconnecting cables, maintenance terminal, data logger, including fault analysis system, power supply equipment, Cabinet type dust free racks, fixtures, mounting arrangements, lightning & surge production devices and accessories necessary to make SSI system functional for above mentioned stations. It also includes furniture i.e table and chair for operating console, data logger and Maintenance terminal. Note 1:- Tenderer may quote any RDSO approved SSI system with complete details of all modules, cards and accessories along with necessary spares (refer special conditions of contract) as per RDSO Specification Please give full details of quantities (station wise) & unit based rates item wise, the total amount of which must be equal to the given LAR of these items i.e. Rs. 18628470.80 for Dobh Bahali as Annexure "D-I (Dobh Bahali), Rs. 16819146.13 for Mokhra Madina in Performa attached as Annexure "D-II (Mokhra Madina) and 17239151.20 for Meham Performa attached as Annexure-III (Meham). this schedule for commissioning of proposed RDSO approved SSI system at station and spares. System must be compatible with working in RE area. Note:-2 The rate quoted in Percentage above/at par/below shall be applicable for the rates quoted in Annexure-" D-I (Dobh Bahali), and Annexure D-II (Mokhra Madina) and Annexure D-III (Meham)".					
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
1	1	Dobh Bahali station	Lot	1.00	18628470.80	18628470.80
2	2	Mokhra Madina Station	Lot	1.00	16819146.13	16819146.13
3	3	Meham station	Lot	1.00	17239151.20	17239151.20
					Total	52686768.13
Item- 8	Supply of relays of sorts as per latest RDSO specifications of the following type :-					
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
1	1	QTA-2 Relay, Inspection: RDSO	Numbers	105.00	4433.31	465497.55
2	2	KLCR, Inspection: RDSO	Numbers	25.00	6705.93	167648.25
3	3	Point contactor unit ABB/Bambordier Type with PVC cover for tag block. Inspection: RDSO	Numbers	25.00	19371.52	484288.00
					Total	1117433.80
Item- 9	Supply of cable/wire indoor copper conductor single/multi core plain annealed high conductivity PVC insulated unarmoured as per Spec. no. IRS-S/76/89 (Amd 3) or latest amendment of the following sizes :- from DRSO approved source					

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S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
1	1	Wire 16x0.2mm	Kilometre	3.00	7336.04	22008.12
					Total	22008.12
Item- 14	Supply of power wires IS2465/1984 & IS 694/1990 or latest from RDSO approved firm of the following sizes :-					
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
1	1	1x6sqmm. (Red & black)	Kilometre	3.00	47825.04	143475.12
2	2	1x16sqmm. (Red & black)	Kilometre	3.00	129765.88	389297.64
3	3	1x25sqmm. (Red & black)	Kilometre	3.00	211158.43	633475.29
					Total	1166248.05
Item- 19	Supply of Disconnect link wago or similar make (cat. No. 282-697) as per spec. no. RDSO/189/2004 Dt.31.05.2006, Revised Ver-2.0 or latest.					
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
1	1	2-Conductor disconnect terminal block; 0.2mm sq-6mm sq, 400v/30A, centre marking with testing facility. Disconnect link orange for DIN 35 Rail, front entry Grey.	Numbers	3500.00	137.32	480620.00
2	2	End and intermediate plate, 2mm/0.079 in thick grey OR Separator plate 2mm thick oversized, orange as per site Engineer.	Numbers	550.00	16.14	8877.00
3	3	Screw less End stop, 10mm/0.39 in wide, carrier rail Din 35, Grey.	Numbers	95.00	8.06	765.70
4	4	Steel carrier Rail, 35x7.5mm, 1 mm/0.039 in thick, unslotted (1 mtr length).	Numbers	45.00	86.32	3884.40
					Total	494147.10
Item- 25	Supply of colour light signal post with ladder & bases as per tech. spec. IRS-S-6-81 or latest of the following size :-					
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
1	1	Colour light signal post 3.6mtr and ladder 3.5Mtr Inspection: RITES	Numbers	16.00	14891.99	238271.84
2	2	Colour light signal post 4.6Mtr and ladder 4.5Mtr, Inspection: RITES	Numbers	29.00	16396.41	475495.89
					Total	713767.73
Item- 26	Supply of colour light signal unit complete with-out signal transformer as per RDSO Specification no. IRS:S-26/64 or latest. Tech.specn. of the following type :-					
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
1	1	2 Aspect colour light signal unit, Inspection: RITES	Numbers	31.00	14125.31	437884.61
2	2	3/4 Aspect colour light signal unit, Inspection: RITES	Numbers	16.00	18186.65	290986.40
					Total	728871.01
Item- 29	Supply of route indicator complete with hoods & offset bracket 5 1/2" as per RDSO specn.no.IRS-S-66/84 (Amd-1) or latest as per latest drawing.of the following type from RDSO approved source.					
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
1	1	1-way route indicator junction type as per drg. No. SA-23401 (adv.) or latest.	Numbers	2.00	19590.11	39180.22
2	2	2-way route indicator junction type as per drg. No. SA-23402 (adv.) or latest.	Numbers	4.00	22600.63	90402.52
3	3	3-way route indicator junction type as per drg. No. SA-23403 (adv.) or latest.	Numbers	5.00	28664.52	143322.60
					Total	272905.34
Item- 57	HDPE duct as per TEC Gr No. G/CDS-08/02 Nov /2004 with latest amendment with end cap to be provided along with the drum at both ends. Inspection : RITES					
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount

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1	1	Supply of HDPE duct outer dia 40mm & inner dia 33mm as per TEC Gr No. G/CDS-08/02 Nov /2004 with latest amendment with end cap to be provided along with the drum at both ends.	Kilometre	33.00	51938.90	1713983.70
2	2	End plug for above item.	Numbers	30.00	25.41	762.30
3	3	Cable sealing plug for above item.	Numbers	30.00	32.10	963.00
4	4	Plastic Coupler- Slip fit/ Push fit type for above item.	Numbers	30.00	65.56	1966.80
					Total	1717675.80
Item- 60	Supply of PVC channels / Conduit pipes with fixing accessories of the following size :-					
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
1	1	PVC channel 1".	Metre	150.00	16.86	2529.00
2	2	PVC channel 2".	Metre	150.00	62.49	9373.50
3	3	PVC conduit pipe 1" dia.	Metre	130.00	27.50	3575.00
					Total	15477.50
Item- 61	Supply of Indoor PVC Telecom cables from RDSO approved source.					
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
1	1	05 Pair/0.6 mm.	Metre	200.00	30.67	6134.00
2	2	10 Pair/0.6 mm.	Metre	300.00	58.92	17676.00
3	3	20 Pair/0.6 mm.	Metre	300.00	65.16	19548.00
					Total	43358.00
Schedule	Schedule B-Execution					
Item- 4	Fixing, wiring & soldering of tag blocks with PVC cover on cable termination rack/relay rack/block rack/HV rack as per Drg.No. NR/S&T/CON/4.3 /97A. All fixing material like flats, bolts, nuts, washers, plastic tag block cover for the tag block etc. will be supplied by the contractor.					
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
1	1	200way tag blocks	Numbers	6.00	146.31	877.86
					Total	877.86
Item- 22	Supply & installation of Double walled corrugated HDPE Pipes (6m st. lengths with one coupler for every 6m length) confirming BSEN-50086-1 & BSEN-50086-2-4 for latest IS specification 14930 Pt.II or latest. wherever reqd. as per the approved cable route plan. This includes brick work and other arrangements to secure the pipe at both ends. All the materials cement, sand etc. are to be supplied by the contractor. of the following size :-					
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
1	1	DWC HDPE Outer dia. 90mm. Inspection: RITES	Metre	750.00	282.00	211500.00
2	2	DWC HDPE Outer dia. 120mm. Inspection: RITES	Metre	900.00	363.74	327366.00
					Total	538866.00
Item- 23	Supply and fixing of G.I. pipe perforated at a distance of 20 CM or less of required length at culverts/ bridges/along the cuttings, suitably concreted at both ends as per drg. No. (NR/S&T/CON/1. 4/97) or at ASM office / other buildings suitably fixing it to the wall and at both ends. G.I. clamps of M.S. flats bolts and nut, to be supplied by the contractor.					
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
1	1	G.I. pipe 75/80 mm dia, 3mm thick.	Metre	300.00	744.38	223314.00
					Total	223314.00

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Item- 29	Preparation & fixing of bakelite hylum sheet 910x800x6mm and teak wooden shelf 900x450x25mm duly fixed by angle iron piece of different size inside all the app. Cases. Hylum board shall be fixed on an angle iron frame of 25mmx25mmx3mm. Angle iron frame will be fixed in location boxes secured by nuts and bolts. This includes fixing of fuses, ARA terminal shelf type Q series relays and other type relays on square bars fixing and jamming of cables with 2 inch thick salwood plank provided at the bottom. This will include opening, pasting and jamming armour of each cable in the hole drilled separately for each cable through the salwood plank and all cable entry points on location boxes, location huts, JB's relay room/battery room to be closed with suitable masonry works covered with sand and plastering. Wiring description for terminal drawing of circuits, inside app. Case. Painting from out side as well inside with red oxide and aluminum paint is covered separately. Size of lettering will be 100mm or as per instructions of Engineer at site. All materials including hard wood shelf, hylum board, salwood plank, angle iron square bar, wire and wiring material as per the IRS specn., non deteriorating type fuses with bases, catenary wires, nuts and bolts and other items shall be supplied by the contractor. Relays, ARA terminals only shall be supplied by the Railways.					
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
1	1	Preparation of App. Case single involving wiring of relays.	Numbers	21.00	5555.93	116674.53
2	2	Preparation of App. Case single not involving wiring of relays.	Numbers	12.00	4580.35	54964.20
3	3	Preparation of App. Case to be used as battery box. (not requiring shelf and hylum of size 910x150x6mm only is reqd.)	Numbers	12.00	2747.49	32969.88
					Total	204608.61
Item- 31	Preparation and fixing of bakelite hylum sheet 450x800x6mm and teak wooden shelf 450x450x25mm duly fixed by angle iron piece of different size inside all the app. Cases. Hylum board shall be fixed on an angle iron frame of 25mmx25mmx3mm. Angle iron frame will be fixed in location box secured by nuts and bolts. This includes fixing of fuse ARA terminal, shelf type Q series relays and other type of relays on square bars, fixing and jamming of cable with 2 inch thick salwood plank provided at the bottom. This will include opening, pasting and jamming armour of each cable in the hole drilled separately for each cable through the salwood plank and all cable entry points on location boxes, location huts, JB's relay room/battery room to be closed with suitable masonry works covered with sand and plastering. Wiring description for terminal drawing of circuits, inside app. Case. Painting from out side as well inside with red oxide and aluminum paint is covered separately. Size of lettering will be 100mm or as per instructions of Engineer at site. All materials including hard wood shelf, hylum board, salwood plank, angle iron square bar, wire and wiring material as per the IRS specn., non deteriorating type HRC fuses with bases, catenary wires, nuts and bolts and other items shall be supplied by the contractor. Relays, ARA terminals only shall be supplied by the Railways.					
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
1	1	Preparation of App. Case half involving wiring of relays.	Numbers	15.00	3731.18	55967.70
2	2	Preparation of App. Case half not involving wiring of relays.	Numbers	10.00	3163.48	31634.80
3	3	Preparation of Battery Box (not requiring shelf and hylum of size 450x150x6mm only is reqd.)	Numbers	5.00	2322.11	11610.55
					Total	99213.05
Item- 33	Fixing of CLS surface base, bolting on the foundation. Erection of CLS post with signal unit on the top or on an off set bracket and fitting ladder and guard to the post at the top. Concreting ladder base and embedded into the ground with supporting bracket in the middle, blanking of the ladder for a distance of 1 feet between the height 6' 9" and 7' 9" from the rail level by MS angle and MS sheet 6mm thick wherever required. This includes provn. Of wooden (Sal) cross arm 1 mtr x 1 mtr. for CLS unit prior to the commissioning, fixing of LED aspect, current regulator and hoods of CLS unit, terminating cables, wiring the CLS unit and focusing the signal. Elevation & distance of foundation from track shall be in accordance with schedule of dimension for Indian Railways published by Govt. of India and approved drawings. All items for the above work shall be supplied by the contractor (except the items which are covered separately elsewhere in the schedule) including but not limited to the following items. (i) "U" bolt for offset brackets. (ii) Wooden cross arm 1 mtr. x 1 mtr. (iii) MS angle and MS sheet for blanking of ladder. (iv) Wire mesh guard, lock for unit if required, nuts and bolts etc. for the following : Inspection : Site Engineer					
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
1	1	Installation, erection and wirng of 2 aspect color light signal. Inspection : Site Engineer	Numbers	29.00	2597.96	75340.84
2	2	Installation, erection and wirng of 3/4 aspect color light signal. Inspection : Site Engineer	Numbers	7.00	3609.10	25263.70

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3	3	Installation, erection and wiring of 2/3/4 aspect LED lit colour light signal including 1/2/3/4 way Jn. type/Stencil/Theatre type route indicator which also includes fixing of route indicator on the top of the signal post or on offset bracket including fixing of offset bracket, wiring the whole unit, focussing of signal & route indicators. All items for installation and erection (excluding unit junction type route indicator and offset bracket covered separately) to be supplied by the contractor. Wiring & other fixing material, 'U' bolts will also be supplied by the contractor. Inspection : Site Engineer	Numbers	7.00	3578.61	25050.27
					Total	125654.81
Item- 42	Installation of DC track circuits to suit RE area as per std. Practice. This will include following :- (a) Drilling of holes 7.2 mm dia or size as required provision of continuous G.I. wire bonding on switch portion and crossing of point with two bonds wires and two clips duly fastened with fish plates and bolts at each joints including transverse bonding with rope wire. 8 SWG G.I. soft bond wire, Channel bond pins and all other material required will be supplied by contractor. (This item is for point zone TC only). (b) Jumpering from rail to rail or to track lead junction box including polarity jumpers/cables as per track jumpering/ insulation diagram. (C) Fixing of insulated block joints complete with provision of skimmed fish plate. Fish plates shall be supplied by the Railways but skimming to be done by contractor. Supply of insulation materials for insulated block joints is not included. (e) Fixing of TL JBs as per drg. No.(NR/S&T/CON/3.2/97A) along with concrete foundation and plastering on both ends i.e. T.F. and TR end and for polarity changers as per the track jumpering/ insulation diagram. All material for fixing including angle iron shall be supplied by the contractor. This also includes supply and fixing of TL JBs will provision of M-6 terminals. TLJB to be written with track circuit number. (f) Prov. and wiring in the app. Cases/relay huts of T.F. battery charger, TF resistance 30 Ohms, track relays, choke 'B' type & batteries as per the standard practice using fuses PPTC and terminals. This all include suitable antilting arrangement for relay and with include supply of all material by contractor except supply of TF battery charger, batteries, relays which are covered separately.(g) Commissioning of track circuits as per prov.of para of IRS specn. S-36/81. This includes adjustment of track feed resistance, testing with train shunt resistance. This also includes preparation of track history cards. Track history card should be supplied by the contractor. for the following type of track circuits:-					
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
1	1	Berthing and staright track circuit	Numbers	54.00	12084.72	652574.88
2	2	Point track circuit having single point (excluding traps).	Numbers	36.00	17225.71	620125.56
3	3	Point track circuit having double point (excluding traps).	Numbers	2.00	18131.66	36263.32
					Total	1308963.76
Item- 68	Supply and installation of DP boxes & termination of cables as per specifications, drawing and stipulations of tender documents. This includes fixing of the same on 1" thick board of size as per directions of site Engineer with grouted nuts and bolts of suitable size and pipe fixed with clamps on pole/wall. All materials required for fixing & termination including salwood / hylum board and the hardware required for fixing will be supplied by contractor. Inspection : Site Engineer					
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
1	1	DP box 10 pair made cast Aluminium with in built locking system and water proof ,should have double outlet with leading in brass nozzle. The main tag block plate is mounted on the inner aluminium chamber with brass terminal studded in back lite sheet.	Numbers	15.00	906.21	13593.15
2	2	DP box 20 pair made cast Aluminium with in built locking system and water proof ,should have double outlet with leading in brass nozzle. The main tag block plate is mounted on the inner aluminium chamber with brass terminal studded in back lite sheet.	Numbers	15.00	1295.47	19432.05
3	3	DP box 50 pair made cast Aluminium with in built locking system and water proof ,should have double outlet with leading in brass nozzle. The main tag block plate is mounted on the inner aluminium chamber with brass terminal studded in back lite sheet.	Numbers	15.00	2573.04	38595.60
					Total	71620.80
Item- 76	Supply, installation of Public Address System					

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S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
1	1	Supply, installation, testing & commissioning of 240 watts Audio Amplifier working on 230V AC/24VDC as per technical specifications given below:The model should be Philips/Bosch LBD 1916 or similar. (a) Power Source-230V AC & 24Volts battery. (b) Power out put - 240Watts r.m.s. (c) Input - 4 balanced input/3 stereo line .(d) Frequency response - 50 Hz to 18 KHz(+1/-3db) (e) Distortion - <1%(at rated output power at 1 KHz) (f) Speaker of matching - 8 ohms & 70V/100V line. (g) Sensitivity - 1.0mV(mic input) (h) S/N - 75 db (i) Phantom power - Yes (on mic input 1). Inspection : Site Engineer	Numbers	3.00	21791.78	65375.34
2	2	Supply and installation of mettalic rack(front panel) lockable and removable) to house the above amplifier com cassette player and 2 sets of 12V/80AH lead acid maintenance free battery and battery charger as per specification.Inspection : Site Engineer	Numbers	3.00	10025.14	30075.42
3	3	Supply and installation of 24V/20A battery charger suitable to charge two sets of 12V/80AH lead acid maintenance free battery in series. Inspection : RDSO	Numbers	3.00	7151.60	21454.80
4	4	Supply and installation of unit horn combination speakers(25Watts) & 100V line with LMT taps of 25W,15W,10W and 5W. Inspection : Site Engineer	Numbers	24.00	1567.19	37612.56
5	5	Supply and installation of Dynamic microphone with flexible goose neck and ON/OFF swithc provided with 6 metres mic lead along with suitable connectors. Inspection : Site Engineer	Numbers	3.00	1921.65	5764.95
6	6	Supply and fixing of slotted angle iron with clamps and nut bolts of appropriate size on the poles/ masts in the open parking area and installation of speakers on it. Inspection : Site Engineer	Numbers	9.00	200.28	1802.52
7	7	Supply and installation of column speaker 15 watts with line mathing transformer(Ahuja make model no. SCM-15TE) or simillar. Inspection : Site Engineer	Numbers	9.00	1937.95	17441.55
8	8	Supply and laying screened wire twin core(24/76 copper conductors) PVC insulated cable for connecting loudspeakers with GI support wire for connecting loud speakers (PVC channels / PVC conduit pipews/GI wire required for carrying the screened PVC cable shall be supplied and fixed by the contractor, however GI pipe for road crossing shall be supplied bythe railway, if required any where.Inspection : Site Engineer	Metre	3000.00	79.69	239070.00
					Total	418597.14

4. ELIGIBILITY CONDITIONS

5. COMPLIANCE

Commercial-Compliance

S.No.	Description	Confirmation Required	Remarks Allowed	Documents Uploading
1	Please enter the percentage of local content in the material being offered. Please enter 0 for fully imported items, and 100 for fully indigenous items. The definition and calculation of local content shall be in accordance with the Make in India policy as incorporated in the tender conditions.	No	Yes	Allowed (Optional)

Special Conditions

S.No.	Description	Confirmation Required	Remarks Allowed	Documents Uploading
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**CAO-C-NR-S AND T/NORTHERN RLY
TENDER DOCUMENT**

Tender No: 178-SIG-CW-32_82

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1	Financial : As a proof of sufficient financial capacity and organizational resources, the tenderer(s) should have received the total payments against satisfactory execution of all completed/ongoing works of all types (not confined to only similar works) during the last three financial years and in the current financial year (up to the date of opening of the bid (D2) of a value not less than 150% of the advertised cost of work including the cost of cement & steel, under Government /Semi Government / PSU.	No	No	Not Allowed
1.1	BID CAPACITY: (Applicable for tenders costing more than Rs. 50.00 crore) Bidders who meet the minimum qualification criteria will be qualified only if their available bid capacity is more than the updated estimated value. The available Bid Capacity will be calculated as detailed in tender document.	No	No	Not Allowed

Technical-Compliances

S.No.	Description	Confirmation Required	Remarks Allowed	Documents Uploading
1	Technical: (a)The tenderer must have successfully completed any of the following during last 07 (seven) years, ending last day of month previous to the one in which tender is invited, under Government /Semi Government /PSU, from the date of publishing of tender. Three similar works costing not less than the amount equal to 40% of advertised value of the tender, or Two similar works costing not less than the amount equal to 50% of advertised value of the tender, or One similar work costing not less than the amount equal to 80% of advertised value of the tender.	Yes	Yes	Allowed (Mandatory)
1.1	(b) (i) In case of composite works (e.g. works involving more than one distinct component, such as Civil Engineering works, S&T works, Electrical works, OHE works etc. and in the case of major bridges - substructure, superstructure etc.), tenderer must have successfully completed any of the following during last 07 (seven) years, ending last day of month previous to the one in which tender is invited from the date of publishing of tender. Three similar works costing not less than the amount equal to 40% of advertised value of each component of tender, or Two similar works costing not less than the amount equal to 50% of advertised value of each component of tender, or One similar work costing not less than the amount equal to 80% of advertised value of each component of tender.\ Note: Separate completed works of minimum required values for each component can also be considered for fulfillment of technical eligibility criteria. (b) (ii) In such cases, what constitutes a component in a composite work shall be clearly pre-defined with estimated tender cost of it, as part of the tender documents without any ambiguity. Any work or set of works shall be considered to be a separate component, only when cost of the component is more than Rs 2 crore each.	Yes	Yes	Allowed (Mandatory)

6. Documents attached with tender

S.No.	Document Name	Document Description
1	TD32-82Final.pdf	Tender Document

This tender complies with Public Procurement Policy (Make in India) Order 2017, dated 15/06/2017, issued by Department of Industrial Promotion and Policy, Ministry of Commerce, circulated vide Railway Board letter no. 2015/RS(G)/779/5 dated 03/08/2017 and 27/12/2017.

Signed By: NAGENDER KUMAR

Designation : ESTEII